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FINAL CORECTIVE ACTION PLAN FOR FLEET TRAINING CENTER FIREFIGHTER SCHOOL

NS NORFOLK VA

6/19/1990

ENVIRONMENTAL SCIENCE & ENGINEERING, INC

ESE No. 4901019
Contract No. N62470-87-C-9016

FINAL

CORRECTIVE ACTION PLAN
FOR
FLEET TRAINING CENTER
FIREFIGHTING SCHOOL
Norfolk, Virginia

Prepared for:

ATLANTIC DIVISION
NAVAL FACILITIES ENGINEERING COMMAND
Norfolk, Virginia

Prepared by:

ENVIRONMENTAL SCIENCE & ENGINEERING, INC. (ESE)
Fairfax, Virginia

June 19, 1990

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1.0 SITE ASSESSMENT

The objective of the Site Assessment was to determine the existence and extent of contamination in surface soils, subsurface soils, and concrete and brick structures at the Fleet Training Center Firefighting School (FFS) in Norfolk, Virginia. The final purpose of these investigations is to ascertain actions necessary to remediate soil, water and/or structural contamination to allow for the proposed demolition and construction of new facilities in compliance with Federal, State of Virginia, and local environmental laws. See Figure 1-1 for facility location.

To accomplish the objectives, two (2) investigations were performed:

1) A hazardous waste soil and structure investigation relating to the burning, use, and storage of fuels at the FFS; and
2) A two-phased underground storage tank (UST) investigation to determine waste oil type and possible soil and groundwater contamination resulting from leakage from selected underground tanks, storage vaults, and pits.

Since no hazardous waste, soil, or structural contamination was found, this document serves as a Corrective Action Plan (CAP) for site contamination by petroleum hydrocarbon from USTs at the FFS. Discussion on field activities and results related to hazardous wastes have been deleted from the document to reduce its volume.

1.1 SITE BACKGROUND AND DESCRIPTION

A new firefighting facility will be constructed on the western half of the naval property which is approximately 360 feet (east to west) by 490 feet (north to south), or approximately 4.0 acres in size. The onsite fire fighting structures to be removed, which were erected in the early 1940s, consist of 3 large concrete structures (i.e., the engine room (46' x 50' x 18' high), the boiler room (44' x 50' x 18' high), and the focsle (40' x 24' x 22' high)), which are lined with fire brick and contain metal railings, platforms, bulkheads, and fuel and water pipes. Other aboveground buildings to be removed include a concrete hangar deck (45' x 30' x 9.5' high) and several brick control room buildings. The site contains three concrete burn pits to be removed, two 15-foot diameter circular pits, and one 29-square foot pit. The site also contains many metal sheds and numerous below ground pits, tanks, and conduits. See Figure 1-6 in Section 1.2.1 for schematic diagram of structure locations. Photographs of structures and site conditions are included in Appendix A.

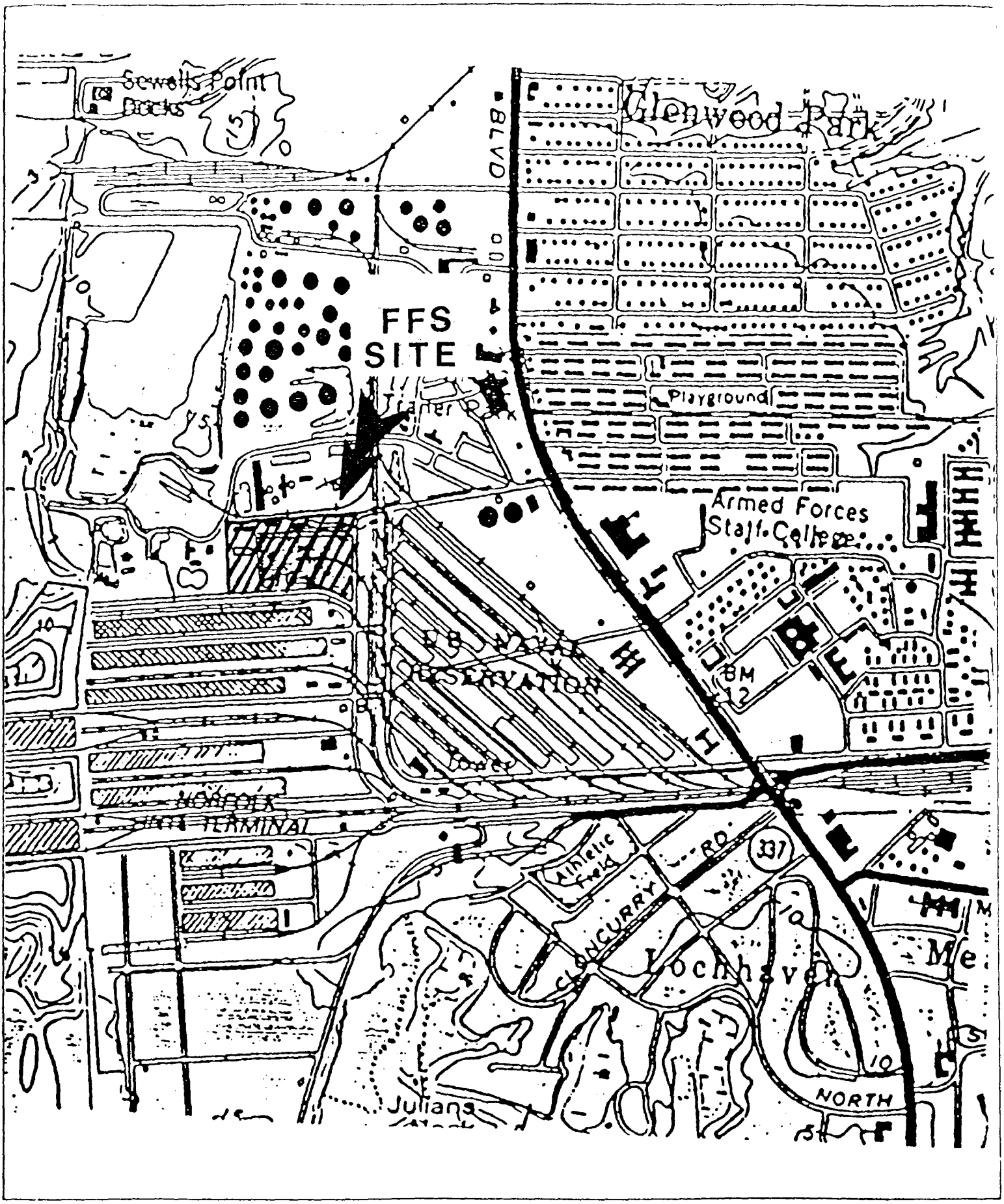

FIGURE 1-1
SITE LOCATION PLAN

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1.1.1 SITE GEOLOGY

The Norfolk area lies within the Atlantic Coastal Plain Physiographic Province. The generalized physiography of the area is typical of the Atlantic Coastal Plain, which is known for its "stair-step" appearance, consisting of wide, gently eastward sloping plains separated by linear, steeper, eastward facing scarps. The plains slope eastward at less than two feet per mile, whereas the scarps have slopes of as much as 50 to 450 feet per mile.

The coastal plain, within the localized area, is characterized by low elevations with little relief. Dunes at Cape Henry are as high as 85 feet above mean sea level (MSL), but normally only a few places are above 25 feet MSL. Relief of as much as 20 feet occurs locally along the Elizabeth and James Rivers. There are several flat areas up to five miles across, with less than five feet of relief and poorly drained areas are formed between major streams.

Sedimentary depositional topography predominates at the studied site. Fluvial erosion has destroyed large portions of the original depositional surfaces of the inner coastal plain. Overall, the topography has a north-south trend that is closely related to the depositional morphology of ancient barrier and lagoonal environments.

1.1.2 SITE SOILS

Shulkcum (1945) grouped the soils in the Norfolk area into five categories on the basis of drainage as follows:

1. Well-drained soils;
2. Imperfectly-drained soils;
3. Light-colored, poorly-drained soils;
4. Dark-colored, poorly-drained soils; and
5. Miscellaneous land types.

The well-drained soils, the most highly valued soils, are found throughout the area. The imperfectly-drained soils are also found in all parts of the study area, in most places in small, individual areas separating the well-drained and the poorly-drained soils. The light-colored poorly-drained soils are the most extensive soils group in the area. Under natural conditions these soils are permanently wet. The dark-colored, poorly-drained soils are located on flat relief in most places at elevations of less than 15 feet.

A geologist field classified all of the soil borings and monitoring wells at the FFS. The field logs may be found in Appendix I and Appendix J. The lithology at the site, cross-sections A through D, have been drawn on Figure 1-2 through 1-5. Figure 1-9 illustrates the transits of which each cross-section was drawn. An arbitrary elevation of 100 was chosen for the transit cross hair for simplicity. From these

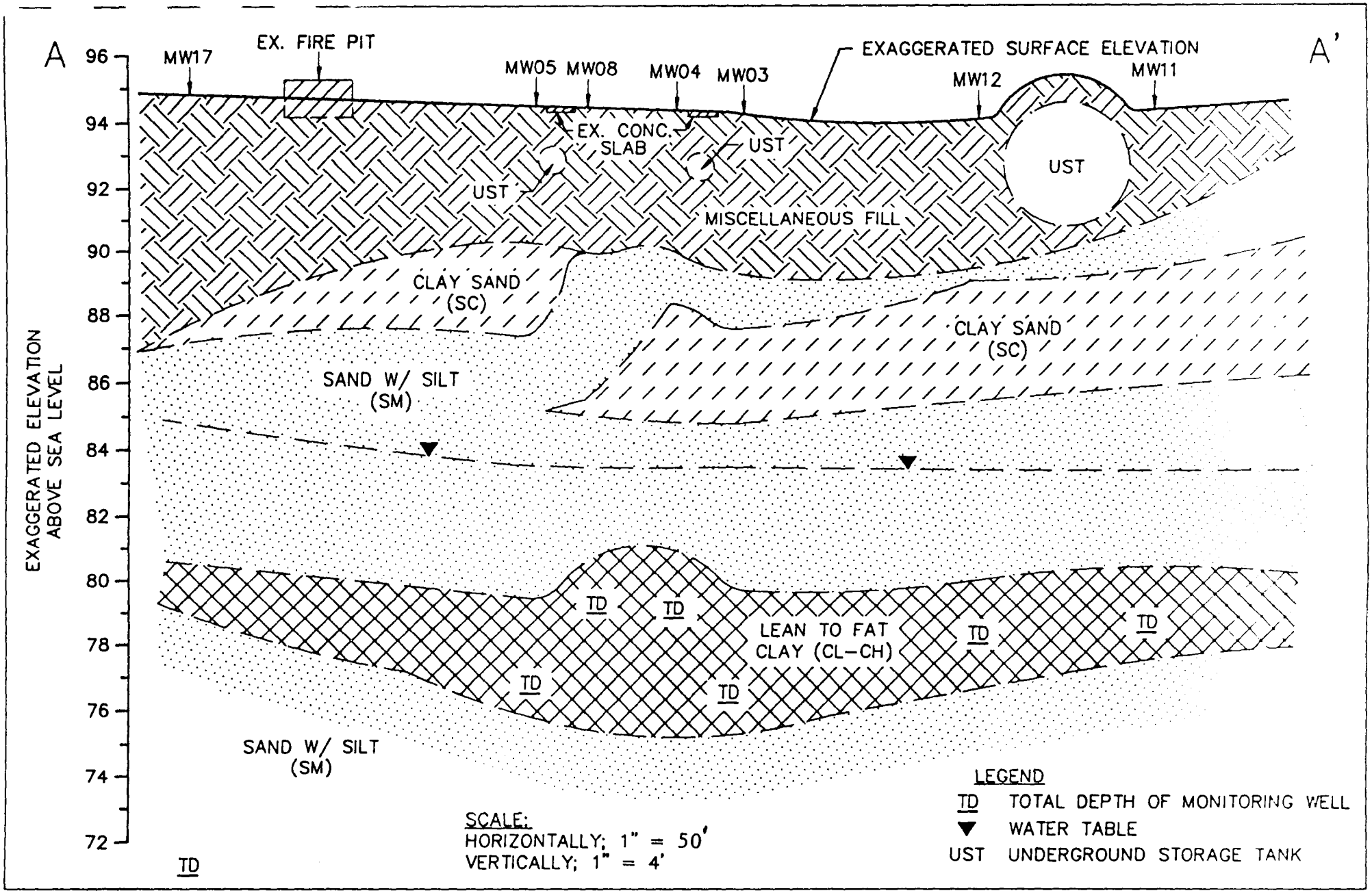

FIGURE 1-2
CROSS SECTION A-A'

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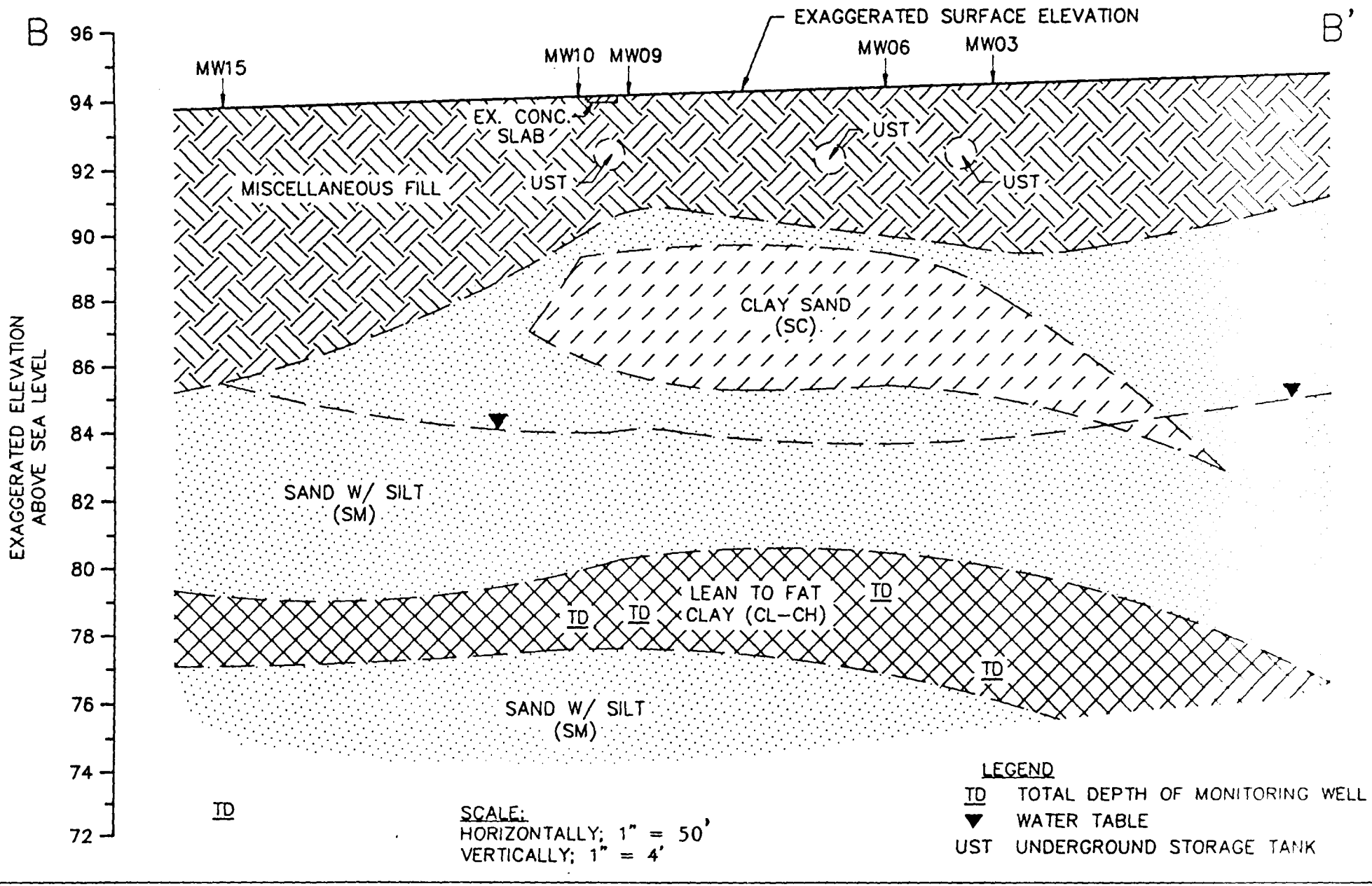

FIGURE 1-3
CROSS SECTION B - B'

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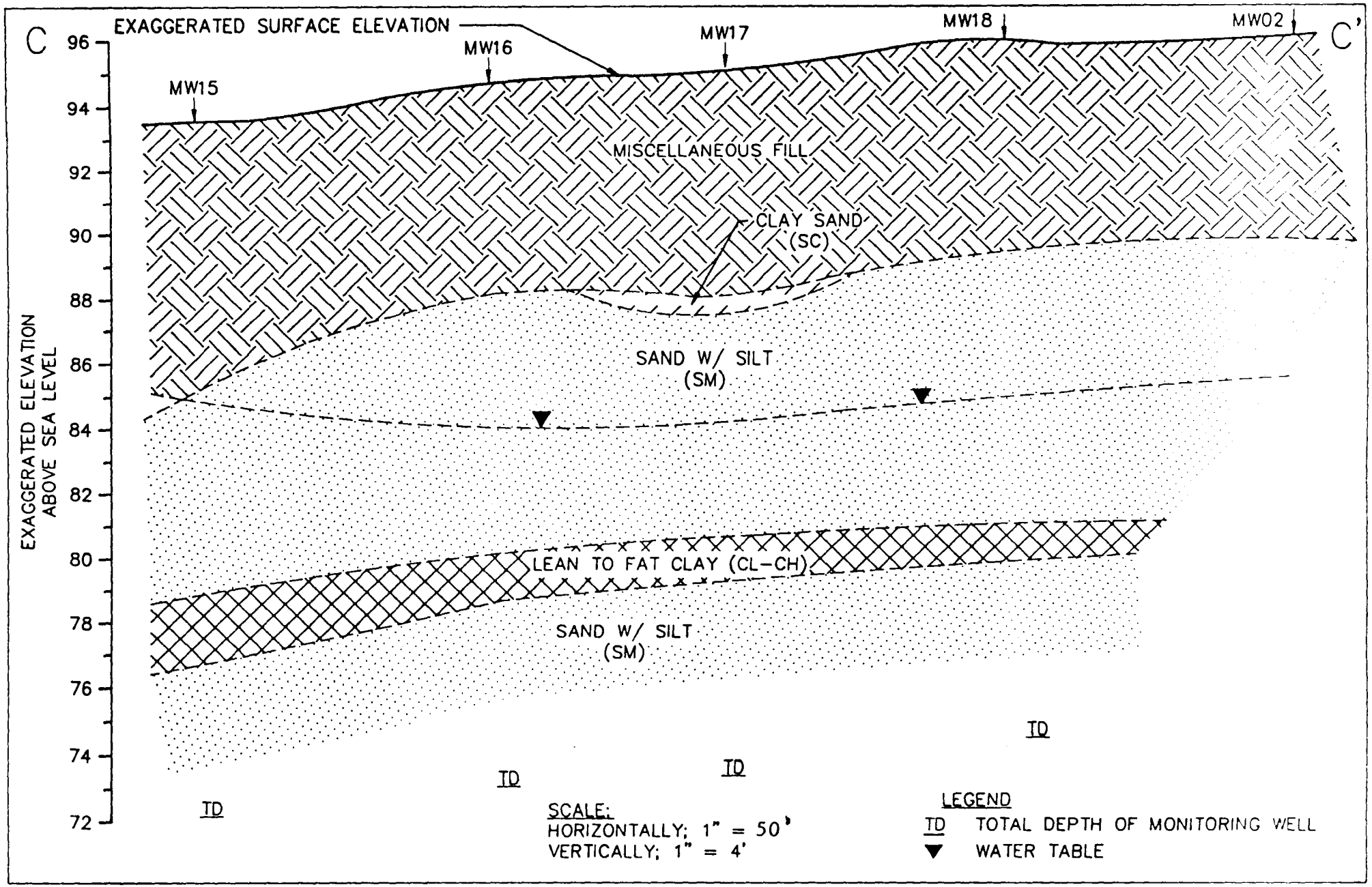

FIGURE 1-4
CROSS SECTION C - C'

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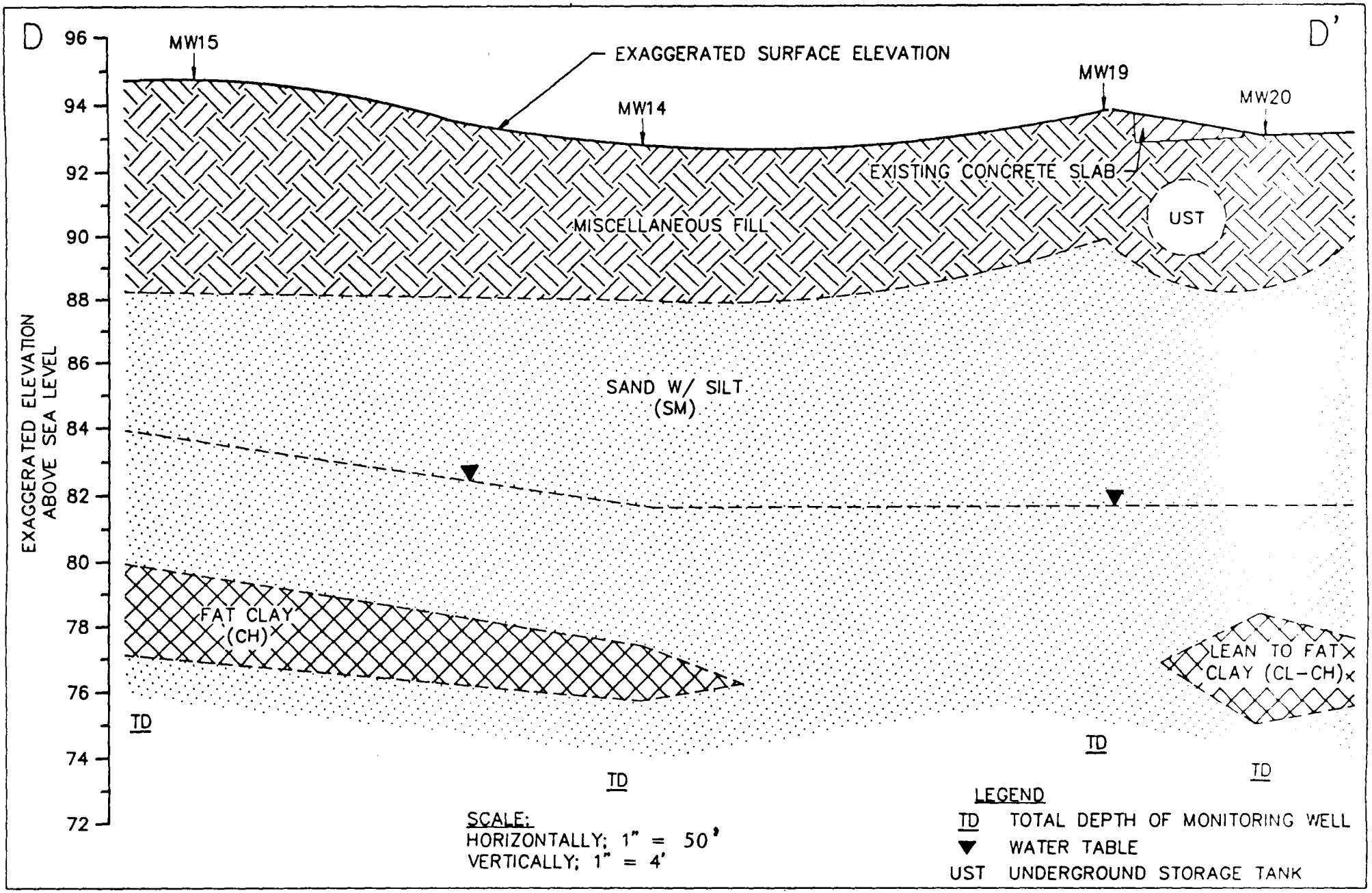

FIGURE 1-5
CROSS SECTION D-D'

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data, the cross-sections and water gradient contours were drawn. Generally, the stratigraphy between the boreholes is relatively the same. However, MW-14, MW-19, and MW-21 indicate the absence of the lean to fat clay (CL-CH) strata. Figure 1-5 illustrates that the clay lense is not continuous across the site, thus eliminating the possibility of its being a confining layer.

The following soil types were generally found in most of the borings: miscellaneous fill; sandy lean CLAY (SC); poorly sorted SANDS with silt (SM); lean to fat CLAYS (CL-CH); and poorly sorted SANDS (SM).

Average Depth	SSCS Symbol	Soil Classification
0 - 0.7 feet	N/A	Surface layer (i.e., asphalt, concrete, gravel)
0.7 - 1.7 feet	(SM)	Grey, poorly sorted SAND with silt
1.7 - 6.4 feet	(SC)	Grey, low plastic CLAY with sand
6.4 - 9.7 feet	(SC)	Brown to grey poorly to medium-well sorted SAND with clay
9.7 - 14.0 feet	(SM)	Grey to brown poorly sorted SAND
14.0 - 18.0 feet	(CL-CH)	Tan to grey low to high plastic fat CLAY
18.0 - 25.0 feet	(SM)	Yellow brown to dark grey poorly sorted SAND

1.1.3 SITE GEOHYDROLOGY

The surficial features at the studied site include numerous buildings with asphalt pavement and several concrete slabs. The highest topographic elevation exists at the northern periphery at 15 feet above MSL, gently sloping approximately 2.0 feet downward to the southwest corner of the site at 13 feet above MSL. Surface water runoff discharges in a southwesterly direction towards the oil/water separator. Storm drains also flow in this direction.

The water table at the site is approximately 11.5 feet below the ground surface in the northeast corner and approximately 10.0 feet in the southwest corner. The altitude and configuration of the water table is more or less reflected by the topography, that is, the altitude is highest beneath topographic highs and lowest at the shorelines and stream beds.

The site is approximately 400 feet east of the Elizabeth River. Figure 1-6 is a groundwater gradient map which illustrates that the groundwater below the FFS property is being recharged from the west and is flowing in an easterly direction. This directional flow may be seasonal, whereas it might change and act as a discharging flow during the drier months of the year, i.e., June, July, August.

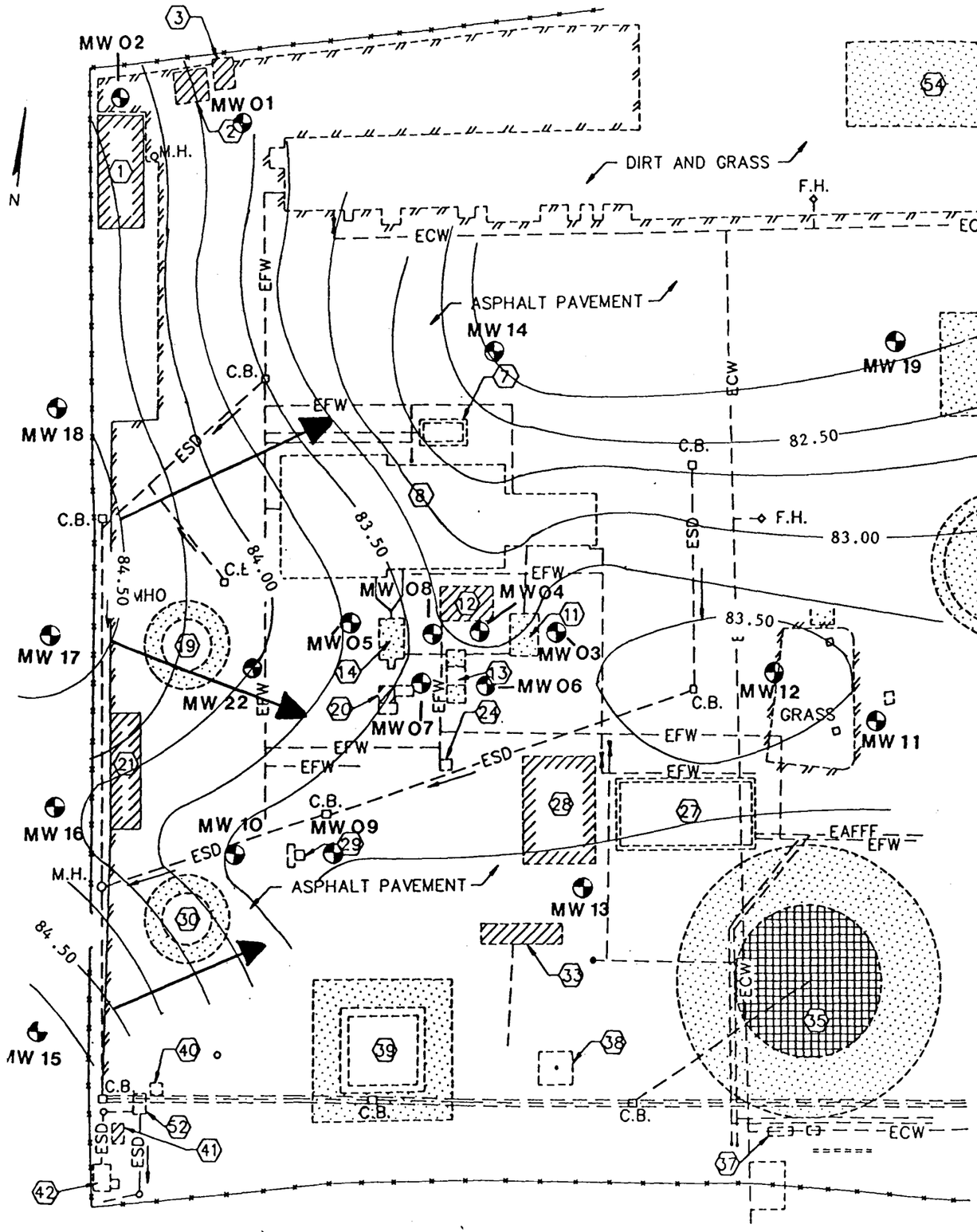
The Columbia aquifer was encountered during drilling operations. This aquifer is defined by predominantly sandy surficial deposits, which were deposited above the confining Yorktown unit. These sediments are Pleistocene and Holocene in age, but may also include sandy Pliocene sediments that are above the clayey deposits of the Yorktown unit. The Columbia aquifer is generally unconfined; however, clayey sediments within may produce local confined or semi-confined conditions. The aquifer is variable in thickness, but generally thickens in the easterly direction.

The lithology and mode of deposition is generally characterized by a fining-upwards sequence, that is to say, gravels are deposited near the bottom of the formation which grades up into sands and finally into silts and clays. The Columbia aquifer is used primarily for domestic water supply.

1.2 SITE INVESTIGATION ACTIVITIES

The following activities were performed before the actual onsite work was initiated on September 26, 1989:

1. The Project Manager, Safety Officer, and Drilling Subcontractor conducted a site visit to appraise and identify all proposed sampling/drilling locations (performed on July 17, 1989).
2. Development of site maps/diagrams to delineate existing aboveground and underground structures as well as sampling locations for field use and the final report.
3. Performed cursory air exposure measurements around site and inside confined spaces for oxygen deficiency, explosion potential, and organic vapors (performed on July 17, 1989).
4. Developed Plan of Action and Milestone, and a Site Safety Plan for Navy approval prior to site sampling.



1. STORAGE SHED 28.6' x 20' x 12'H
2. STORAGE SHED 14.4' x 14.4' x 15'H
3. STORAGE SHED 13.3' x 9.5' x 8'H
7. OPEN PIT 21.1' x 12' x 9.3' DEEP
8. FIRE FIGHTING TRAINING MOCK-UP
11. OIL-WATER SEPERATOR 18' x 12' x 9' DEEP
12. BRICK BUILDING SDA 219
13. OIL-WATER SEPERATOR 24' x 8' x 7' DEEP
14. WASTE OIL STORAGE TANK 18' x 12' x 9' DEEP
18. FIRE FIGHTING PIT 15' DIA. x 2.3' DEEP
20. CONTROL ROOM 7' x 8.3' x 7'H CMU
21. STORAGE SHED 47' x 12' x 10.2'H
24. CONCRETE PIT 4.5' x 4.5' x 4.4' DEEP
26. UNDERGROUND GASOLINE STORAGE TANK
27. CONCRETE SLAB 60' x 30' x 0.6'
28. FIRE FIGHTING STRUCTURE
29. VALVE PIT 4.5' x 4.5' x 5.1' DEEP
30. FIRE FIGHTING PIT 15' DIA. x 2.3' DEEP
33. FLIGHT DECK TRAINING MOCK-UP 56'
37. BACKFLOW PREVENTER PIT 9' x 4' x 4.2' DEEP
38. WILD HOSE 15' x 15' x 1/4" STEEL PLATE
39. HELO RESCUE PIT 29' x 29' x 0.6' DEEP
40. ELECTRIC MANHOLE 4.4' x 4.4' x 4.6' DEEP
41. STORAGE SHED 10.5' x 5' x 8.4'H CMU
42. OIL-WATER SEPERATOR 13' x 7' x 6' DEEP
44. OPEN PIT TRAINING MOCK-UP 50' DIA.
45. UNDERGROUND STORAGE TANKS
46. CONCRETE PAD 2' x 2' x 0.7'H
52. STORM DRAIN JUNCTION BOX
54. CONCRETE SLAB
55. MESS HALL

KEY

→ DIRECTION OF FLOW

Monitoring Well Locations (MW)

SCALE: 1" = 50'

0 50' 100'

FIGURE 1-6 GROUNDWATER GRADIENT MAP

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1.2.1 PART I - HAZARDOUS WASTE INVESTIGATION
[DELETED]

1.2.2 PART II - UST INVESTIGATION

The scope of work for the investigation of underground oil storage containers (i.e., tank, vaults, and pits) included:

- Logging subsurface soil borings, installation of wells, and collecting soil and groundwater samples at 14 locations around seven "UST" areas;
- Installation and monitoring of seven (7) additional monitoring wells (one upgradient and six downgradient) to define contaminant plumes;
- Installation of a six-inch extraction well for sample collection and pump testing;
- Collection of "tank" samples for laboratory analysis and "fingerprinting" by GC/FID.

The overall objective was to investigate the geology and the hydrogeology in the vicinity of certain underground storage "tanks" at the FFS and to determine the extent of the contamination, both onsite and offsite, along with the best practical methods of remediation.

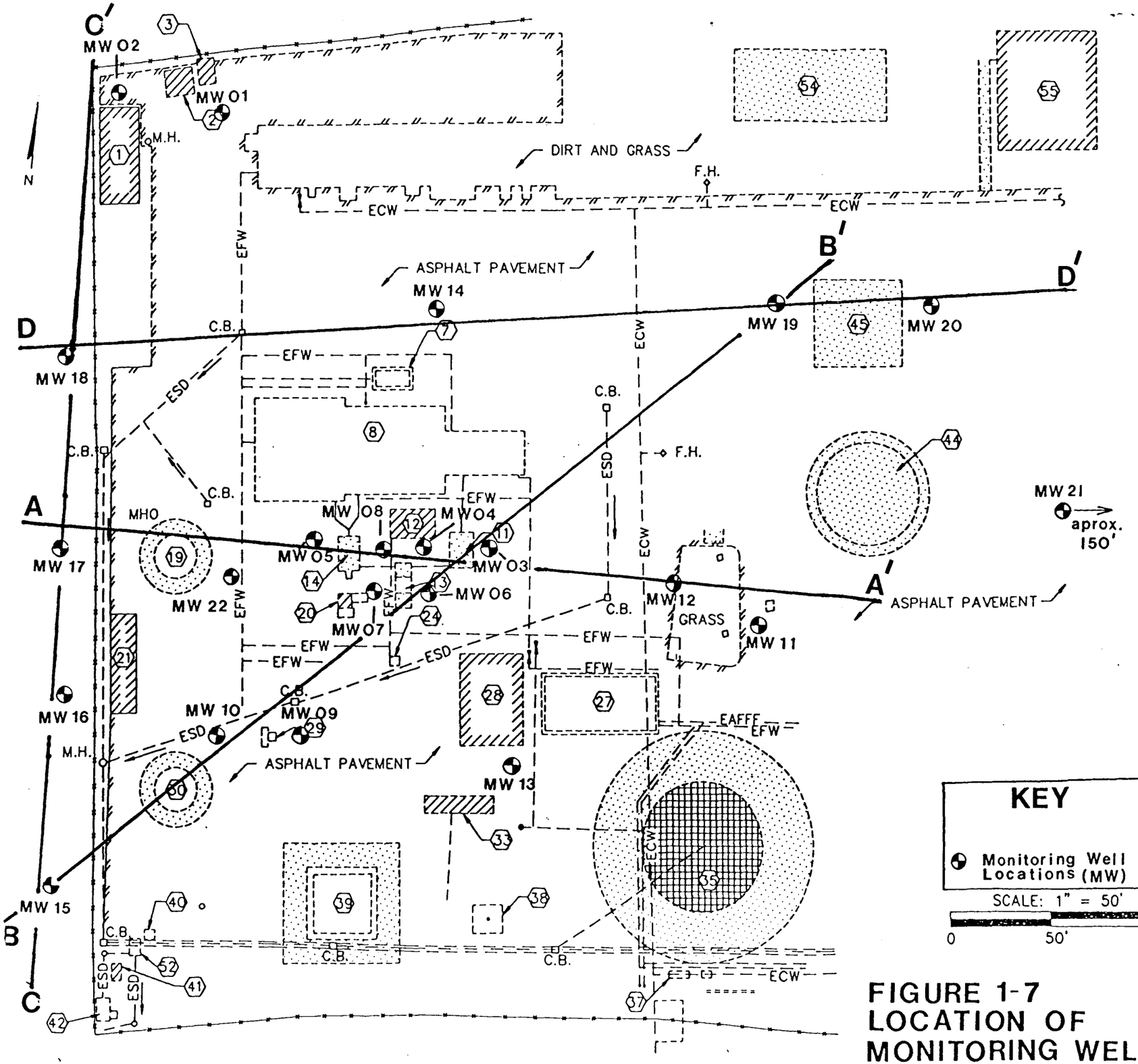
The UST investigation activities were performed in two separate episodes of field activities. Subsurface soil sampling and monitoring well installation was performed for MW-01 through MW-12 in September 1989. Subsurface soil sampling and monitoring well installation for MW-13 through MW-22, groundwater sampling in all monitoring wells, and the pumping test were performed in March 1990.

1.2.2.1 Subsurface Soil Investigation

Sampling Locations and Rationale

Figure 1-7 shows the locations of the 22 borehole/monitoring wells (designated as MW-01, MW-02, etc.) around the seven (7) selected "tank" areas. The "tanks" are identified as follows by the Navy:

Number	Description
No. 2	Empty - Size unknown
No. 11	18.0' x 12.0' x 9.0'D Concrete Waste Oil Storage Tank w/Concrete Slab Cover
No. 13	24.0' x 8.0' x 7.0'D Oil/Water Separator
No. 14	18.0' x 12.0' x 9.0'D Concrete Waste Oil Storage Tank w/Concrete Slab Cover
No. 26	Diesel UST - 27,000 Gallons
No. 29	4.5' x 4.5' x 5.1'D "Pit Full of Water"
No. 45	Tank Cluster - 4 Tanks



1. STORAGE SHED 28.6' x 20' x 12'H
2. STORAGE SHED 14.4' x 14.4' x 15'H
3. STORAGE SHED 13.3' x 9.5' x 8'H
7. OPEN PIT 21.1' x 12' x 9.3' DEEP
8. FIRE FIGHTING TRAINING MOCK-UP
11. OIL-WATER SEPERATOR 16' x 12' x 9' DEEP
12. BRICK BUILDING SDA 219
13. OIL-WATER SEPERATOR 24' x 8' x 7' DEEP
14. WASTE OIL STORAGE TANK 18' x 12' x 9' DEEP
18. FIRE FIGHTING PIT 15' DIA. x 2.3' DEEP
20. CONTROL ROOM 7' x 6.3' x 7'H CMU
21. STORAGE SHED 47' x 12' x 10.2'H
22. CONCRETE PIT 4.5' x 4.5' x 4.4' DEEP
26. UNDERGROUND GASOLINE STORAGE TANK
27. CONCRETE SLAB 60' x 30' x 0.6'
28. FIRE FIGHTING STRUCTURE
29. VALVE PIT 4.5' x 4.5' x 5.1' DEEP
30. FIRE FIGHTING PIT 15' DIA. x 2.3' DEEP
33. FLIGHT DECK TRAINING MOCK-UP 58'
35. BACKFLOW PREVENTER PIT 8' x 4' x 4.2' DEEP
37. WILD HOSE 15' x 15' x 1/4" STEEL PLATE
38. HELO RESCUE PIT 29' x 29' x 0.6' DEEP
39. ELECTRIC MANHOLE 4.4' x 4.4' x 4.8' DEEP
40. STORAGE SHED 10.5' x 5' x 8.4'H CMU
41. OIL-WATER SEPERATOR 13' x 7' x 6' DEEP
42. OPEN PIT TRAINING MOCK-UP 50' DIA.
44. UNDERGROUND STORAGE TANKS
45. CONCRETE PAD 2' x 2' x 0.7'H
52. STORM DRAIN JUNCTION BOX
54. CONCRETE SLAB
55. MESS HALL

KEY

Monitoring Well Locations (MW)

SCALE: 1" = 50'

0 50' 100'

FIGURE 1-7
LOCATION OF MONITORING WELLS

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Large Diesel	- 20,000 Gallons
Gasoline	- 15,000 Gallons
Small Diesel	- 1000 Gallons
AFFF	- 4000 Gallons

Seven (7) monitoring wells were placed to provide an upgradient and a downgradient monitoring point for each "tank". This provided information to determine the groundwater direction and to help locate the eight (8) additional monitoring wells.

Monitoring wells MW-01 through MW-12, MW-19 and MW-20 were installed around the seven UST locations; MW-13 through MW-18 and MW-21 were installed to define the contaminant plume; and MW-22 was installed to perform the pumping test and as a possible extraction well.

Type, Number, and Volume of Samples
Table 1-1 presents the summary of soil samples collected and analyzed during the UST Investigation. Approximately one (1) liter samples are required to perform all requested analyses.

Sampling Procedures
During the well drilling program, boreholes were advanced using conventional hollow stem auger drilling methods, and soil composite samples of the subsurface materials were collected in accordance with ASTM method D-1586 for split-spoon sampling. Soil samples were screened in the field using an organic vapor meter (OVM) to identify the presence of petroleum product within the soils. This field screening provided a preliminary indication of the vertical and horizontal existence/extent of petroleum contamination in order to select the optimum locations of other monitoring wells during the drilling program, and to select priority samples for 15-day laboratory analysis.

Sample Handling, Containers, Preservations, and Holding Times
Table 1-1 presents the standard handling procedures, required containers, preservation methods, and holding times for all parameters analyzed.

1.2.2.2 Monitoring Well Installation

Well Construction and Specifications
All 22 monitoring wells were installed in accordance with Navy LUST Monitoring Well Specifications. Most wells are constructed of 2-inch I.D. flush joint threaded PVC well screen (10 to 20 feet in length) and casing (5 to 10 feet in length). Screen slot size is 0.01 inch and screen interval is 3/16 inch. MW-22 was constructed of 6-inch I.D. flush joint threaded PVC well screen, riser, and casing with a screen slot size of 0.02 inch. A sand pack was placed around the well screen,

extending to two feet above the top of the screen. A one- to two-foot bentonite seal (hydrated bentonite pellets) was placed on top of the and pack in each well. Well heads were constructed approximately two inches above the ground surface as required by the Navy specifications for traffic areas.

Well Development
All wells were developed following their installation to counter the effects due to any drilling activities and well construction. This was accomplished by continuous low yield pumping. Equipment used for well installation, that may have come in contact with potentially contaminated material, was decontaminated with a high pressure steam clean wash followed by a potable supply water rinse.

1.2.2.3 Tank Sampling
Sludge/liquid from each of the eight "tanks", as shown in Figure 1-2, was sampled by a stainless-steel or Teflon® bailer since direct access was available. Tank No. 2 was empty; therefore, a sample of the oil/water mixture found in circular burn pit #30 (southwest on the site) was collected to determine contaminants found in the debris in the pit.

1.2.2.4 Free Product Sampling
Free product was present in monitoring wells MW-04 and MW-05 only. Free product from those wells was sampled and analyzed for the parameters listed in Table 1-1. Sampling was performed using a Teflon® bailer.

1.2.2.5 Monitoring Well Sampling

Type, Number and Volume of Samples
Table 1-2 presents the summary of groundwater samples collected and analyzed during the UST Investigation.

Sampling Procedures
Following well installation and development, wells were purged of free product (when present), as well as a minimum of three well volumes to remove any stagnant water. Groundwater samples were then collected for laboratory analysis using a stainless steel bailer.

Sample Handling, Containers, Preservation, and Holding Times
Table 1-1 presents the standard handling procedures, required containers, preservation methods, and holding times for all parameters analyzed.

1.2.2.6 Pump Test

Well MW-22 was chosen to perform an 8-hour continuous drawdown test of the unconfined Columbia aquifer. The 6-inch I.D. well was advanced to 25 feet with 20 feet of .02 slot screen and approximately four feet of

TABLE 1-1

UST INVESTIGATION (PART II)
SAMPLE AND ANALYSIS PARAMETERS

Parameter (Method)	No. of Samples	No. of QA/QC Samples	Volume/ Container	Preservation	Holding Time
Soil (MW-01 thru MW-12)					
BTEX (EPA 8020)	24	2	60 ml/glass	4°C	14 days
EP Toxicity (EPA 1310) (Metals only)	24	2	500 ml/glass	4°C	28 days
TOX (EPA 9020)	24	2	500 ml/glass	4°C	28 days
Flashpoint (EPA 1010)	24	2	500 ml/glass	4°C	28 days
TPH (EPA 8015 Mod.) (Petroleum Fingerprint)	24	2	500 ml/glass	4°C	14 days
Soil (MW-03, MW-05, MW-07, MW-08)					
VOA (EPA 8240)	12	1	60 ml/glass	4°C	14 days
PCBs (EPA 8080)	12	1	500 ml/glass	4°C	14/40 days
EP Toxicity - Metals Only (EPA 1310)	12	1	500 ml/glass	4°C	28 days
Corrosivity (EPA 1110)	12	1	500 ml/glass	4°C	28 days
Ignitability (EPA 1010)	12	1	500 ml/glass	4°C	28 days
Soil (MW-13 thru MW-22)					
VOA (EPA 8240	11	1	60 ml/glass	4°C	14 days
TPH (EPA 8015 Mod.) (Petroleum Fingerprint)	11	1	500 ml/glass	4°C	14 days
Grain Size Distribution	2	0	1 pt/glass	-	-
Organic Content	2	0	1 pt/glass	4°C	28 days
Waste Oil					
BTEX (EPA 8020)	9	2	1 liter/glass	4°C	14 days
RCRA Metals (EPA 3030/3040, 7060, 7131, 7191, 7421)	9	2	1 liter/glass	4°C	28 days
TOX (EPA 9020)	9	2	1 liter/glass	4°C	28 days
Flashpoint (EPA 1010)	9	2	1 liter/glass	4°C	28 days
TPH (EPA 8015 Mod.) (Petroleum Fingerprint)	9	2	1 liter/glass	4°C	28 days

TABLE 1-1

UST INVESTIGATION (PART II)
SAMPLE AND ANALYSIS PARAMETERS
(Continued, 2 of 2)

Parameter (Method)	No. of Samples	No. of QA/QC Samples	Volume/ Container	Preservation	Holding Time
Free Product					
VOA (EPA 8240)	2	1	60 ml/glass	4°C	14 days
TPH (EPA 8015 Mod.) (Petroleum Fingerprint)	2	1	60 ml/glass	4°C	14 days
Water (MW-01 thru MW-22)					
VOA (EPA 8240)	22	4	3 x 60 ml/glass	4°C, HCL	14 days
TPH (EPA 8015 Mod.) (Petroleum Fingerprint)	22	4	2 x 60 ml/glass	4°C	7 days
TOX (EPA 9020)	22	4	2 x 50 ml/glass	4°C, H_2SO	7 days
TSS (EPA 160.2)	2	0	1 liter/polyethylene	4°C	7 days
TDS (EPA 160.1)	2	0	1 liter/polyethylene	4°C	7 days
TKN (EPA 351.2) TP (EPA 365.1) NO_2 + NO_3 (EPA 353.2)	2	0	1 liter/polyethylene	4°C, H_2SO_4	28 days
NO_2 (EPA 353.2)	2	0	1 liter/polyethylene	4°C	48 hours
NO_3 (EPA 353.2)	2	0	1 liter/polyethylene	--	Calc. Only
Fe, Mn, Ca, Mg (EPA 6010)	2	0	1 liter/polyethylene	4°C, HNO_3	6 Mos.
Chloride (EPA 9252)	2	0	1 liter/polyethylene	4°C	28 days
Sulfate (EPA 9038)	2	0	1 liter/polyethylene	4°C	28 days
Hardness (EPA 130.2)	2	0	1 liter/polyethylene	4°C, HNO_3	6 Mos.

casing. A Teel submersible pump, Model 3P689 was lowered 23 feet into the well. A discharge line, connected to the pump, withdrew the effluent during the test and emptied into a storm catch basin, approximately 75 feet to the south. The discharge line was equipped with a valve gate and an accumulator meter to help determine the flow rate and the amount of effluent discharged. A 5 psi pressure transducer was lowered 21 feet into the well to record the drawdown and recharge rate.

Four additional, 2-inch ID wells (MW-03, MW-07, MW-15, and MW-16) were also observed during testing. One 5 psi pressure transducer was installed in each of the wells. The wire cords connected to the probes were securely fastened to the well to prevent recording any bias data due to movement. All of the probes were connected to a data logger, Model DL-120, to log and record the drawdown, if any, of each well.

Due to the high storativity, transmissivity and hydraulic conductivity of the aquifer, an additional 2.5 hours of pumping was performed in order to induce a greater area of influence. After 10.5 hours of discharging the effluent from the aquifer and 1.5 hours of recharging, a minimal area was influenced around MW-22.

TABLE 1-1

UST INVESTIGATION (PART II)
SAMPLE AND ANALYSIS PARAMETERS

Parameter (Method)	No. of Samples	No. of QA/QC Samples	Volume/ Container	Preservation	Holding Time
Soil (MW-01 thru MW-12)					
BTEX (EPA 8020)	24	2	60 ml/glass	4°C	14 days
EP Toxicity (EPA 1310) (Metals only)	24	2	500 ml/glass	4°C	28 days
TOX (EPA 9020)	24	2	500 ml/glass	4°C	28 days
Flashpoint (EPA 1010)	24	2	500 ml/glass	4°C	28 days
TPH (EPA 8015 Mod.) (Petroleum Fingerprint)	24	2	500 ml/glass	4°C	14 days
Soil (MW-03, MW-05, MW-07, MW-08)					
VOA (EPA 8240)	12	1	60 ml/glass	4°C	14 days
PCBs (EPA 8080)	12	1	500 ml/glass	4°C	14/40 days
EP Toxicity - Metals Only (EPA 1310)	12	1	500 ml/glass	4°C	28 days
Corrosivity (EPA 1110)	12	1	500 ml/glass	4°C	28 days
Ignitability (EPA 1010)	12	1	500 ml/glass	4°C	28 days
Soil (MW-13 thru MW-22)					
VOA (EPA 8240	11	1	60 ml/glass	4°C	14 days
TPH (EPA 8015 Mod.) (Petroleum Fingerprint)	11	1	500 ml/glass	4°C	14 days
Grain Size Distribution	2	0	1 pt/glass	-	-
Organic Content	2	0	1 pt/glass	4°C	28 days
Waste Oil					
BTEX (EPA 8020)	9	2	1 liter/glass	4°C	14 days
RCRA Metals (EPA 3030/3040, 7060, 7131, 7191, 7421)	9	2	1 liter/glass	4°C	28 days
TOX (EPA 9020)	9	2	1 liter/glass	4°C	28 days
Flashpoint (EPA 1010)	9	2	1 liter/glass	4°C	28 days
TPH (EPA 8015 Mod.) (Petroleum Fingerprint)	9	2	1 liter/glass	4°C	28 days

TABLE 1-1

UST INVESTIGATION (PART II)
SAMPLE AND ANALYSIS PARAMETERS
(Continued, 2 of 2)

Parameter (Method)	No. of Samples	No. of QA/QC Samples	Volume/ Container	Preservation	Holding Time
Free Product					
VOA (EPA 8240)	2	1	60 ml/glass	4°C	14 days
TPH (EPA 8015 Mod.) (Petroleum Fingerprint)	2	1	60 ml/glass	4°C	14 days
Water (MW-01 thru MW-22)					
VOA (EPA 8240)	22	4	3 x 60 ml/glass	4°C, HCL	14 days
TPH (EPA 8015 Mod.) (Petroleum Fingerprint)	22	4	2 x 60 ml/glass	4°C	7 days
TOX (EPA 9020)	22	4	2 x 50 ml/glass	4°C, H_2SO	7 days
TSS (EPA 160.2)	2	0	1 liter/polyethylene	4°C	7 days
TDS (EPA 160.1)	2	0	1 liter/polyethylene	4°C	7 days
TKN (EPA 351.2) TP (EPA 365.1) NO_2 + NO_3 (EPA 353.2)	2	0	1 liter/polyethylene	4°C, H_2SO_4	28 days
NO_2 (EPA 353.2)	2	0	1 liter/polyethylene	4°C	48 hours
NO_3 (EPA 353.2)	2	0	1 liter/polyethylene	--	Calc. Only
Fe, Mn, Ca, Mg (EPA 6010)	2	0	1 liter/polyethylene	4°C, HNO_3	6 Mos.
Chloride (EPA 9252)	2	0	1 liter/polyethylene	4°C	28 days
Sulfate (EPA 9038)	2	0	1 liter/polyethylene	4°C	28 days
Hardness (EPA 130.2)	2	0	1 liter/polyethylene	4°C, HNO_3	6 Mos.

2.0 SITE INVESTIGATION FINDINGS

This section summarizes the field findings and measurements, laboratory analytical results, and site conditions during the site investigation.

2.1 ONSITE MEASUREMENTS

2.1.1 HEALTH AND SAFETY MEASUREMENTS

MSA Combustible Gas and Oxygen Meter Serial #12746 and HNu Photoionization Meter with a 10.2 volt probe, Total Organic Vapor Detector Serial #90-01SS were used to detect explosive and hazardous environments. The MSA combustible gas meter was used exclusively in the three structures: the engine room, boiler room, and the focsle. All readings on the combustible gas meter ranged from 0 - 1% of the lower explosive level (LEL) during background, wall chiselling, jackhammering, and coring operations. The explosive gas meter was zeroed each day outside the structures when no firefighting activities were underway.

Total organic vapors were measured periodically within the three structures and during drilling operations. Results ranged from 0.1 to 0.2 ppm, which is indicative of negligible exposure. No outside measurements were taken during firefighting activities, which would have given elevated readings from the flammables being burned during these exercises. Firefighting activities were limited to the second week of the Part I field investigation. The chiselling and jackhammering operations within the structures created a dusty environment. All employees used 3M 9920 disposal respirators, Tyvek® suits, hard hats, face shields, hearing protection for jackhammering, and safety shoes.

The onsite Safety Officer made a determination not to conduct jackhammering within the focsle because the building appeared to be structurally unsafe, and the vibration from the jackhammer could create a building collapse.

2.1.2 ORGANIC VAPOR SCREENING

Table 2-1 presents the organic vapor measurements for each soil sample collected during the site investigation. An HNu Photoionization Meter was used with a 10.2 volt probe (Model No. PI101). Readings were taken from sample containers sealed with aluminum foil and allowed to stand for approximately 10 minutes. Readings were used to select priority samples for 15-day turnaround laboratory analysis and for preliminary determination of extent of subsurface soil contamination.

TABLE 2-1

ORGANIC VAPOR RESULTS
FOR ONSITE SCREENING OF SOIL SAMPLES

Sample No.	Sample Depth (Ft.)	Result (ppm)
Soil Borings		
SB01 U	0 - 2.0	2.6
SB01 M	4.0 - 5.5	ND
SB01 L	8.0 - 11.5	1.2 (Priority Sample)
SB02 U	0.8 - 2.3	8.0 (Priority Sample)
SB02 M	4.0 - 5.5	2.5
SB02 L	8.0 - 11.5	0.2
SB03 U	0.7 - 2.2	0.3
SB03 M	4.0 - 5.5	ND
SB03 L	9.0 - 11.0	ND
SB04 U	0 - 3.0	3.9 (Priority Sample)
SB04 M	4.5 - 7.5	4.1
SB04 L	8.0 - 11.0	0.5
SB05 U	0 - 3.0	1.0
SB05 M	3.0 - 6.0	2.5
SB05 L	6.0 - 9.0	9.0 (Priority Sample)
SB06 U	0.5 - 2.0	5.5
SB06 M	3.5 - 4.5	2.0
SB06 L	9.0 - 11.0	0.5
SB07 U	0.5 - 2.0	1.1
SB07 M	4.0 - 5.5	1.6
SB07 L	9.0 - 11.0	5.2
SB08 U	0.8 - 2.3	2.1
SB08 M	4.0 - 5.5	2.0
SB09 L	8.0 - 11.5	2.8
SB09 U	0.7 - 2.7	12.0
SB09 M	4.0 - 5.5	11.5
SB09 L	9.0 - 11.0	3.0 (Priority Sample)

TABLE 2-1

ORGANIC VAPOR RESULTS
FOR ONSITE SCREENING OF SOIL SAMPLES
(Continued, 2 of 4)

Sample No.	Sample Depth (Ft.)	Result (ppm)
Soil Borings		
SB10 U	0.5 - 3.0	0.5
SB10 M	3.0 - 6.0	4.0 (Priority Sample)
SB10 L	6.0 - 8.0	2.0
SB11 U	0.7 - 2.2	6.7 (Priority Sample)
SB11 M	4.0 - 5.5	1.2
SB11 L	8.0 - 11.5	1.0
SB12 U	0.8 - 2.3	7.0 (Priority Sample)
SB12 M	4.0 - 5.5	2.2
SB12 L	9.0 - 11.0	1.6
SB13 U	0.8 - 2.8	12.1
SB13 M	4.0 - 5.5	16.0 (Priority Sample)
SB13 L	9.0 - 11.0	3.2
SB14 U	0.6 - 2.1	9.0 (Priority Sample)
SB14 M	4.0 - 5.5	5.0 (Priority Sample)
SB14 L	9.0 - 11.0	ND
SB15 U	0.8 - 2.8	6.1 (Priority Sample)
SB15 M	4.0 - 5.5	2.2
SB15 L	9.0 - 11.0	0.5
SB16 U	0 - 3.0	5.7
SB16 M	4.0 - 7.0	19.8
SB16 L	7.0 - 9.0	6.5
SB17 U (Background	0 - 1.5	ND
SB17 M Sample)	4.0 - 5.5	0.8
SB17 L	8.0 - 11.5	1.3 (Priority Sample)

TABLE 2-1

ORGANIC VAPOR RESULTS
FOR ONSITE SCREENING OF SOIL SAMPLES
(Continued, 3 of 4)

Sample No.	Sample Depth (Ft.)	Result (ppm)
Monitoring Wells		
MW01 U	0.5 - 4.0	2.5
MW01 L	8.0 - 11.5	0.5
MW02 U	0 - 3.0	5.7
MW02 L	8.0 - 11.0	4.5
MW03 U	1.0 - 2.5	6.1
MW03 M	4.0 - 5.5	3.8
MW03 L	9.0 - 11.0	10.9 (Priority Sample)
MW04 U	1.0 - 4.5	8.4
MW04 L	8.0 - 11.5	19.0 (Priority Sample)
MW05 U	0.5 - 2.0	40.0 (Priority Sample)
MW05 M	4.0 - 5.5	18.0
MW05 L	9.0 - 11.0	11.0
MW06 U	1.0 - 4.5	2.2
MW06 L	8.0 - 11.5	12.1
MW07 U	0.8 - 2.3	5.9
MW07 M	4.0 - 5.5	3.1
MW07 L	9.0 - 11.0	11.0
MW08 U	1.0 - 2.5	20.0 (Priority Sample)
MW08 M	4.0 - 5.5	2.1
MW08 L	9.0 - 11.0	10.9
MW09 U	0.5 - 4.0	7.6
MW09 L	8.0 - 11.5	ND
MW10 U	0.5 - 4.0	9.0
MW10 L	8.0 - 11.5	4.9 (Priority Sample)
MW11 U	0.5 - 4.0	32.0
MW11 L	8.0 - 11.5	35.0 (Priority Sample)
MW12 U	0.5 - 4.0	ND
MW12 L	8.0 - 11.5	ND

Notes: ND = Not Detected
Priority Samples selected for 15-day laboratory analysis turnaround

TABLE 2-1

ORGANIC VAPOR RESULTS
FOR ONSITE SCREENING OF SOIL SAMPLES
(Continued, 4 of 4)

Sample No.	Sample Depth (Ft.)	Result (ppm)
Monitoring Wells		
MW13	0.3 - 5.0	ND
MW14	0.3 - 5.0	2.4
MW15	0.0 - 5.0	ND
MW16	0.0 - 5.0	0.8
MW17	0.0 - 5.0	2.4
MW18	0.0 - 5.0	ND
MW19	0.3 - 5.0	4.5
MW20	1.0 - 5.0	1.6
MW21	1.0 - 5.0	5.6

Notes: ND = Not Detected
Composite Samples were taken
at MW13 thru MW22

2.2 SOIL ANALYTICAL RESULTS

The analytical results for all of the soil samples collected are located in Appendix B. The field logs and the approximate sampling locations are located in Appendix G and Figure 1-7.

2.2.1 ORGANIC CONTAMINATION

Appendix B presents the analytical results from the soil samples collected in the 22 groundwater monitoring wells (see Figure 1-7 for the approximate locations). BTEX volatile organics were detected in some of the monitoring wells. Table 2-2 lists the compounds and detection levels in parts per million.

2.2.2 PETROLEUM PRODUCT CONTAMINATION

Table 2-3 presents the detected concentration of fuel oil No. 2 as total petroleum hydrocarbons (TPH) in the 38 soil samples collected from the 22 monitoring well boreholes. Six (6) samples were greater than 1000 ppm with a maximum of 12,700 ppm in MW04.

The State of Virginia presently has not established specific action limits for petroleum hydrocarbons in the soil; however, a guideline of 100 ppm TPH is presently being used.

2.2.3 INORGANIC CONTAMINATION

Appendix B present the inorganic analytical results detected in the soil samples taken in the monitoring wells. Concentrations of arsenic, barium, cadmium, chromium, lead, mercury, selenium, and silver were detected at concentrations which are below the standards for EP toxicity (metals).

2.2.4 PESTICIDES/PCB CONTAMINATION

[DELETED]

2.3 CORE SAMPLE RESULTS

[DELETED]

2.4 TANK SAMPLE RESULTS

The analytical results for the nine tanks of concern are located in Appendix C. All of the samples were detected to have TPH above the maximum allowable concentration for TPH (i.e., 100 ppm), with the exception of the AFFF tank in tank cluster No. 45. Tank waste sample TW04 had the highest level of BTEX. The range in the aforementioned sample was 16 ppm of benzene to 396 ppm of xylene. The tank samples were fingerprinted as No. 2 fuel oil with the exception of the AFFF tank. Also, the ignitability of six tank samples (TW-01 through TW-06) have a flashpoint less than 60°C, therefore shall be treated as waste fuel.

2.5 GROUNDWATER CONTAMINATION

The analytical results for all of the water samples collected are located in Appendices D, E, and F.

TABLE 2-2

MONITORING WELL SUMMARY
OF THE ANALYTICAL RESULTS FOR BTEX IN SOIL
(highest concentration in ppm)

Sample Location	Benzene	Toluene	Ethylbenzene	Xylene	Total BTEX
MW01	<.25	<.34	<.41	<.34	BDL
MW02	.46	<.36	<.28	<.36	.46
MW03	<.26	<.36	.60	<.36	.60
MW04	<.28	<.38	4.7	<.38	4.7
MW05	<.22	<.37	<.45	1.60	1.60
MW06	<.31	<.36	1.50	1.10	2.60
MW07	<.26	<.36	1.20	.52	1.72
MW08	<.26	<.35	<.45	<.35	BDL
MW09	.26	<.37	<.44	<.37	.26
MW10	<.27	<.36	1.60	2.60	4.20
MW11	<.26	.18	.52	1.81	2.51
MW12	<.44	<.36	<.43	<.36	BDL

TABLE 2-2

MONITORING WELL SUMMARY
OF THE ANALYTICAL RESULTS FOR BTEX IN SOIL
(highest concentration in ppm)
(Continued, 2 of 2)

Sample Location	Benzene	Toluene	Ethylbenzene	Xylene	Total BTEX
MW13	<.26	<.35	<.42	<.35	BDL
MW14	<.25	<.34	<.41	<.34	BDL
MW15	<.24	<.33	<.40	<.33	BDL
MW16	<.27	<.37	<.44	<.37	BDL
MW17	<.25	<.35	<.41	<.35	BDL
MW18	<.25	<.35	<.42	<.35	BDL
MW19	<.26	<.35	<.42	<.35	BDL
MW20	<.25	<.34	<.40	<.34	BDL
MW21	<.25	<.34	<.40	<.34	BDL
MW22	<.30	<.41	<.49	<.41	BDL

Note: Each sample location consists of 2 discrete samples, except MW03, MW05, MW07, and MW08 which consists of 3 samples each. Sample locations MW13 through MW22 consist of one composite sample.

BDL = Below detection limits

TABLE 2-3

FUEL OIL NO. 2 (TPH) SOIL CONCENTRATIONS IN MONITORING WELL BOREHOLES
(in ug/g - equivalent to ppm)

Monitor Well No.	Depth (Ft.)	Concentration
MW01 U	0.5 - 4.0	<10.6
MW01 L	8.0 - 11.5	<10.9
MW02 U	0 - 3.0	<10.3
MW02 L	8.0 - 11.0	<11.7
MW03 U	1.0 - 2.5	446.0
MW03 M	4.0 - 5.5	<11.8
MW03 L	9.0 - 11.0	8,970.0
MW04 U	1.0 - 4.5	436.0
MW04 L	8.0 - 11.5	12,700.0
MW05 U	0.5 - 2.0	3,060.0
MW05 M	4.0 - 5.5	191.0
MW05 L	9.0 - 11.0	696.0
MW06 U	1.0 - 4.5	59.5
MW06 L	8.0 - 11.5	4,560.0
MW07 U	0.8 - 2.3	2,808.0
MW07 M	4.0 - 5.5	191.0
MW07 L	9.0 - 11.0	628.0
MW08 U	1.0 - 2.5	108.0
MW08 M	4.0 - 5.5	<11.3
MW08 L	9.0 - 11.0	2,720.0
MW09 U	0.5 - 4.0	<11.1
MW09 L	8.0 - 11.5	<11.9
MW10 U	0.5 - 4.0	39.7
MW10 L	8.0 - 11.5	81.2
MW11 U	0.5 - 4.0	140.0
MW11 L	8.0 - 11.5	<10.4
MW12 U	0.5 - 4.0	63.4
MW12 L	8.0 - 11.5	<11.6

TABLE 2-3

FUEL OIL NO. 2 (TPH) SOIL CONCENTRATIONS IN
MONITORING WELL BOREHOLES
(in ug/g - equivalent to ppm)
(Continued, 2 of 2)

Monitor Well No.	Depth (Ft.)	Concentration
MW13	0.3 - 5.0	<5.69
MW14	0.3 - 5.0	<5.52
MW15	0.2 -5.0	<5.39
MW16	0.4 - 5.0	<5.93
MW17	0.0 - 5.0	<5.59
MW18	0.5 - 5.0	<5.59
MW19	0.3 - 5.0	<5.71
MW20	1.0 - 5.0	<5.43
MW21	1.5 - 5.0	<5.42
MW22	0.3 - 5.0	<6.00

2.5.1 ORGANIC CONTAMINATION

Groundwater from the 22 monitoring wells across the site was sampled for volatile organic analysis; specifically, benzene, toluene, ethylbenzene, and xylenes (BTEX). The total dissolved concentrations of BTEX in parts per billion are summarized in Table 2-5. BTEX were detected in only eight of the monitoring wells. In wells where BTEX were detected, concentrations of BTEX ranged from 1.2 ppb in MW-06 to 12,880 ppb in MW-11. Appendix D presents the analytical results for BTEX concentrations in the 22 monitoring wells.

2.5.2 PETROLEUM PRODUCT CONTAMINATION

Table 2-5 also presents the detected concentration of AVGas, gasoline, and diesel in the groundwater samples from the 22 monitoring wells as TPH in parts per billion. None of the samples had greater than 1000 ppb of TPH, and only five wells showed concentrations of TPH (gasoline and diesel) above the detection limit. Of those five wells, the gasoline concentration ranged from 2.3 ppb in MW-10 to 10.9 ppb in MW-11; the diesel concentration ranged from 1.12 ppb in MW-07 to 323 ppb in MW-04.

The State of Virginia presently has not established action limits for petroleum hydrocarbons in non-drinking water aquifers; however, a guideline of 1000 ppb is currently in use. Appendix E presents the analytical results for TPH concentrations in the 22 monitoring wells.

2.5.3 WATER QUALITY PARAMETERS

Table 2-6 presents groundwater quality parameters from the onsite wells. Parameters such as iron, chloride, and dissolved solids may require treatment and/or removal prior to air stripping or carbon absorption to prevent media and filter clogging and buildup of deposits. Also, nutrient (i.e., nitrogen and phosphorous) levels are low, indicating that nutrient addition would be required for biological groundwater remediation.

2.6 FREE PRODUCT ANALYSIS

The analytical results for the phase-separated hydrocarbon analysis are located in Appendix D. Of the 22 wells sampled, only monitoring wells MW-04 and MW-05 had phase-separated hydrocarbons on the sampling date (Table 2-7). Monitoring well MW-04 had the highest levels of BTEX, with 111.0 ppm of ethylbenzene and 8.47 ppm of xylenes. Both samples had TPH concentrations above the maximum allowable of 100 ppm and were fingerprinted as No. 2 fuel oil. Since ethylbenzene and xylenes are higher than benzene and toluene, free product has been degraded and weathered since release.

2.7 GRAIN SIZE ANALYSIS

Two samples were collected in MW-22 to determine the physical properties (grain size) of the subsurface soils at the FFS site. One composite sample was taken from 6.0 feet to 14.0 feet and the other was taken from 19.5 feet to 24.0 feet. The analysis was performed according to ASTM D422. Both samples were classified by ASTM D2487 standards. More than

12% of the fine particles passed the No. 200 sieve and more than 50% of the soil was retained (see Appendix H). The soil classification which meets this criteria is Silty SAND. Figures 2-8 and 2-9 graphically illustrate the grain size distribution curve.

TABLE 2-5

DISSOLVED CONCENTRATIONS OF BTEX (TOTAL)
AND TPH IN WATER (ppb)

		TPH		
Monitor Well No.	BTEX	AVGas	GAS	DIESEL
MW01	BDL	<1.59	<0.58	<0.61
MW02	BDL	<1.59	<0.58	<0.61
MW03	BDL	<1.59	<0.58	<0.61
MW04	300	<1.59	<0.58	323
MW05	BDL	<1.59	<0.58	258
MW06	1.2	<1.59	<0.58	<.93
MW07	17.8	<1.59	<0.58	1.12
MW08	5.6	<1.59	<0.58	<0.61
MW09	BDL	<1.59	<0.58	<0.61
MW10	208	<1.59	2.3	<0.61
MW11	12,880	<1.59	10.9	<0.61
MW12	19	<1.59	<0.58	<0.61
MW13	BDL	<1.59	<0.58	<0.61
MW14	BDL	<1.59	<0.58	<0.61
MW15	BDL	<1.59	<0.58	<0.61
MW16	BDL	<1.59	<0.58	<0.61
MW17	BDL	<1.59	<0.58	<0.61
MW18	BDL	<1.59	<0.58	<0.61
MW19	BDL	<1.59	<0.58	<0.61
MW20	BDL	<1.59	<0.58	<0.61
MW21	BDL	<1.59	<0.58	<0.61
MW22	137	<1.59	<0.58	<0.6

Note: BDL denotes below detection limit

TABLE 2-6

WATER QUALITY PARAMETERS
(ppm)

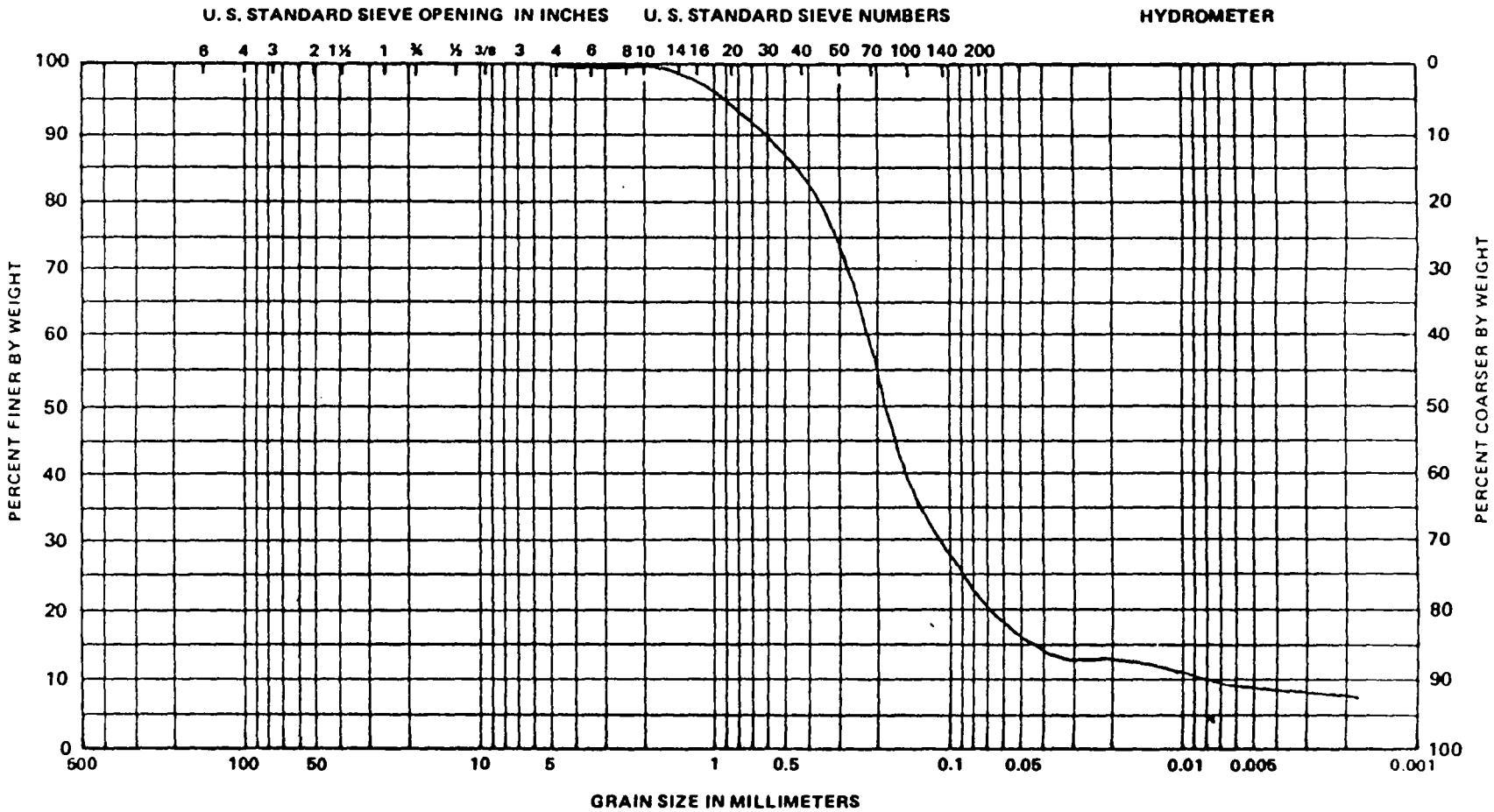
Parameters	Monitoring Well No. 21	Monitoring Well No. 22	Monitoring Well No. 14	Monitoring Well No. 14 (filtered)
Hardess	212.00	148.00	124.00	116.00
Chloride	46.40	94.80	49.30	49.50
Sulfate	56.80	80.80	59.30	55.10
Nitrogen, NO_2 + NO_3	1.12	0.104	<0.01	0.052
Nitrogen, NO_2	0.03	0.043	0.014	----
Nitrogen, NO_3	----	0.061	----	----
Phosphorous	0.682	0.047	0.22	0.046
Nitrogen, TKN	0.76	0.26	1.47	0.88
Calcium, Total	20.20	28.70	23.80	22.00
Iron, Total	13,200.00	6330.00	44,400.00	3800.00
Magnesium, Total	5.44	15.70	15.10	10.90
Manganese, Total	206.00	225.00	963.00	761.00
Residue, Susp.	4,140.00	101.00	155.00	4.00
Residue, Diss.	262.00	268.00	396.00	306.00

TABLE 2-7

ANALYSIS OF PHASE-SEPARATED HYDROCARBONS
(ppm)

	BTEX				TPH		
Monitoring Well No.	Benzene	Toluene	Ethylbenzene	Xylene	AVGas	Gas	Diesel
MW04	<2.0	<2.0	111.0	8.47	<1.91	<0.69	1,030.0
MW05	<0.8	<2.0	<0.8	4.00	<1.94	<0.70	873.0

Note: Monitoring Wells MW01, MW02, MW03, and Monitoring Wells MW06 through MW22 had no phase-separated hydrocarbons on 3/28/90.



SOURCE: ENVIRONMENTAL SCIENCE AND ENGINEERING, INC.,

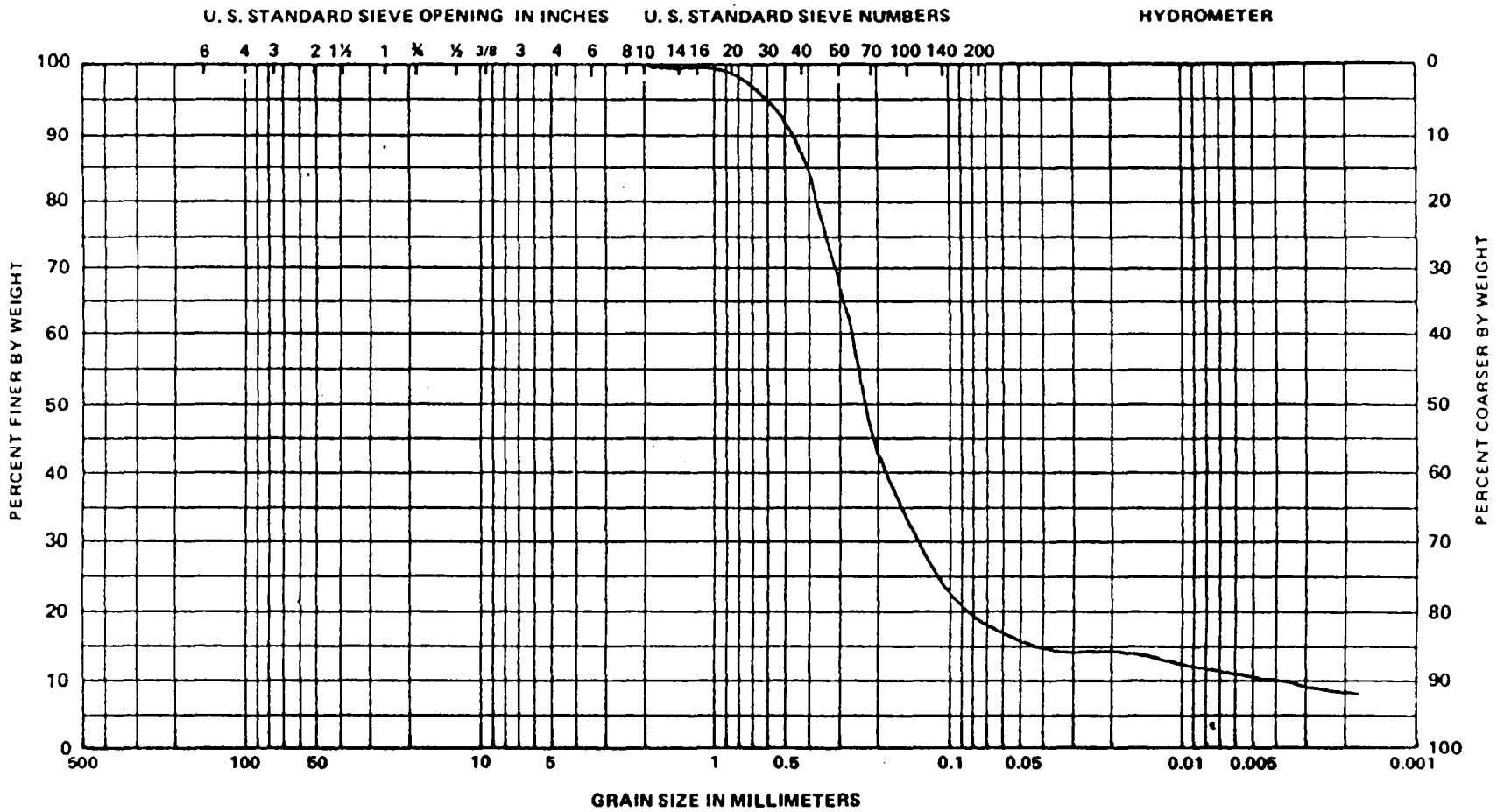
GRAIN SIZE DISRIBUTION CURVE

SAMPLE NO: NANFTS5*16

NORFOLK FTC

FIGURE 2-16

Soils Lab No. 3902054V-0120-3130



SOURCE: ENVIRONMENTAL SCIENCE AND ENGINEERING, INC.,

GRAIN SIZE DISTRIBUTION CURVE

SAMPLE NO: NANFTS5*17

NORFOLK FTC

FIGURE 2-17

Soils Lab No. 3902054V-0120-3130

3.0 SITE CONTAMINATION ASSESSMENT

This section interprets the laboratory results of the exploratory field research and describes the nature and extent of contaminants in the subsurface soils, the surficial structures, and the groundwater. The laboratory results are located in Appendices B through F.

3.1 SUBSURFACE SOIL CONTAMINATION

The total concentration of total petroleum hydrocarbons (TPH) for soils sampled in the monitoring well borings is delineated in Figures 3-1 and 3-2. Figure 3-1 outlines the contaminated soils from the upper zone in the borings (0 to 5 feet), while Figure 3-2 outlines the contaminated soils from the lower zone in the borings (8 to 11.5 feet).

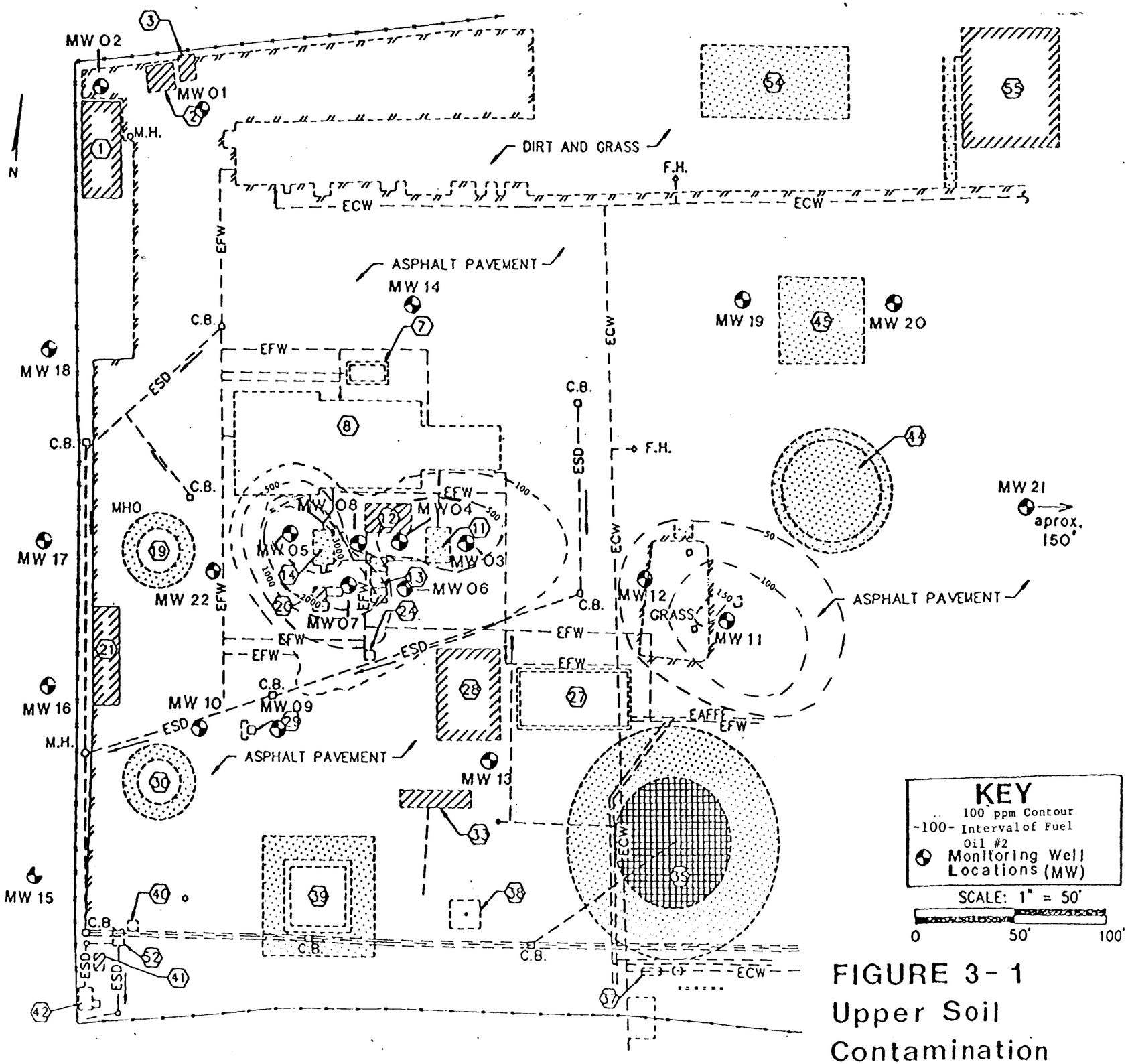
The highest concentrations of TPH in the upper zone appear to be associated with Tank No. 26, fire-fighting pit No. 30, Tank No. 11, and the area encompassing Tanks No. 14 and No. 20. The area around fire-fighting pit No. 30 is actually below the Virginia State guideline of 100 ppm of TPH in the soils; however, the remainder of the areas are considered in the volume estimates for contaminated soil remediation.

The highest concentrations of TPH in the lower zone appear to be associated with the area encompassing Tanks No. 11, No. 12, No. 13, No. 14, and No. 20. All of this area is above the Virginia State guideline of 100 ppm of TPH in the soils and is considered in the volume estimates for contaminated soil remediation.

It is important to note that soils from monitoring wells MW-13 through MW-22 were not sampled in the lower zone, nor were any of the other wells sampled below 11.5 feet. As a result, it is possible that contamination extends laterally beyond the area outlined in Figure 3-2 and could also extend vertically below the 11.5-foot depth since contamination was still present in high levels at that depth.

Figure 3-3 presents a dot plot of total BTEX in the soils. All BTEX concentrations are relatively low; all levels are below 5 ppm for total BTEX. BTEX contamination of soils is not considered to be of concern in the soil remediation program.

Figure 3-4 outlines the areas considered for the volume calculation of soils contaminated above 100 ppm of TPH as calculated below:



1. STORAGE SHED 28.6' x 20' x 12'H
2. STORAGE SHED 14.4' x 14.4' x 15'H
3. STORAGE SHED 13.3' x 9.5' x 8'H
7. OPEN PIT 21.1' x 12' x 9.5' DEEP
8. FIRE FIGHTING TRAINING MOCK-UP
11. OIL-WATER SEPERATOR 18' x 12' x 9' DEEP
12. BRICK BUILDING 50A 219
13. OIL-WATER SEPERATOR 24' x 8' x 7' DEEP
14. WASTE OIL STORAGE TANK 18' x 12' x 9' DEEP
19. FIRE FIGHTING PIT 15' DIA. x 2.5' DEEP
20. CONTROL ROOM 7' x 8.5' x 7'H CMU
21. STORAGE SHED 47' x 12' x 10.2'H
23. CONCRETE PIT 4.5' x 4.5' x 4.4' DEEP
24. UNDERGROUND GASOLINE STORAGE TANK
27. CONCRETE SLAB 60' x 30' x 0.8'
28. FIRE FIGHTING STRUCTURE
29. VALVE PIT 4.5' x 4.5' x 5.1' DEEP
30. FIRE FIGHTING PIT 15' DIA. x 2.5' DEEP
33. FLIGHT DECK TRAINING MOCK-UP 50'
35. BACKFLOW PREVENTER PIT 5' x 4' x 4.3' DEEP
38. WELD HOSE 15' x 15' x 1/4" STEEL PLATE
39. HELO RESCUE PIT 20' x 20' x 9.6' DEEP
40. ELECTRIC MANHOLE 4.4' x 4.4' x 4.8' DEEP
41. STORAGE SHED 10.5' x 5' x 8.4'H CMU
42. OIL-WATER SEPERATOR 13' x 7' x 6' DEEP
44. OPEN PIT TRAINING MOCK-UP 50' DIA.
45. UNDERGROUND STORAGE TANKS
52. CONCRETE PAD 2' x 2' x 0.7'H
53. STORM DRAIN JUNCTION BOX
54. CONCRETE SLAB
55. MESS HALL

KEY

100 ppm Contour
-100- Interval of Fuel Oil #2
Monitoring Well Locations (MW)

SCALE: 1" = 50'

0 50' 100'

FIGURE 3-1
Upper Soil Contamination

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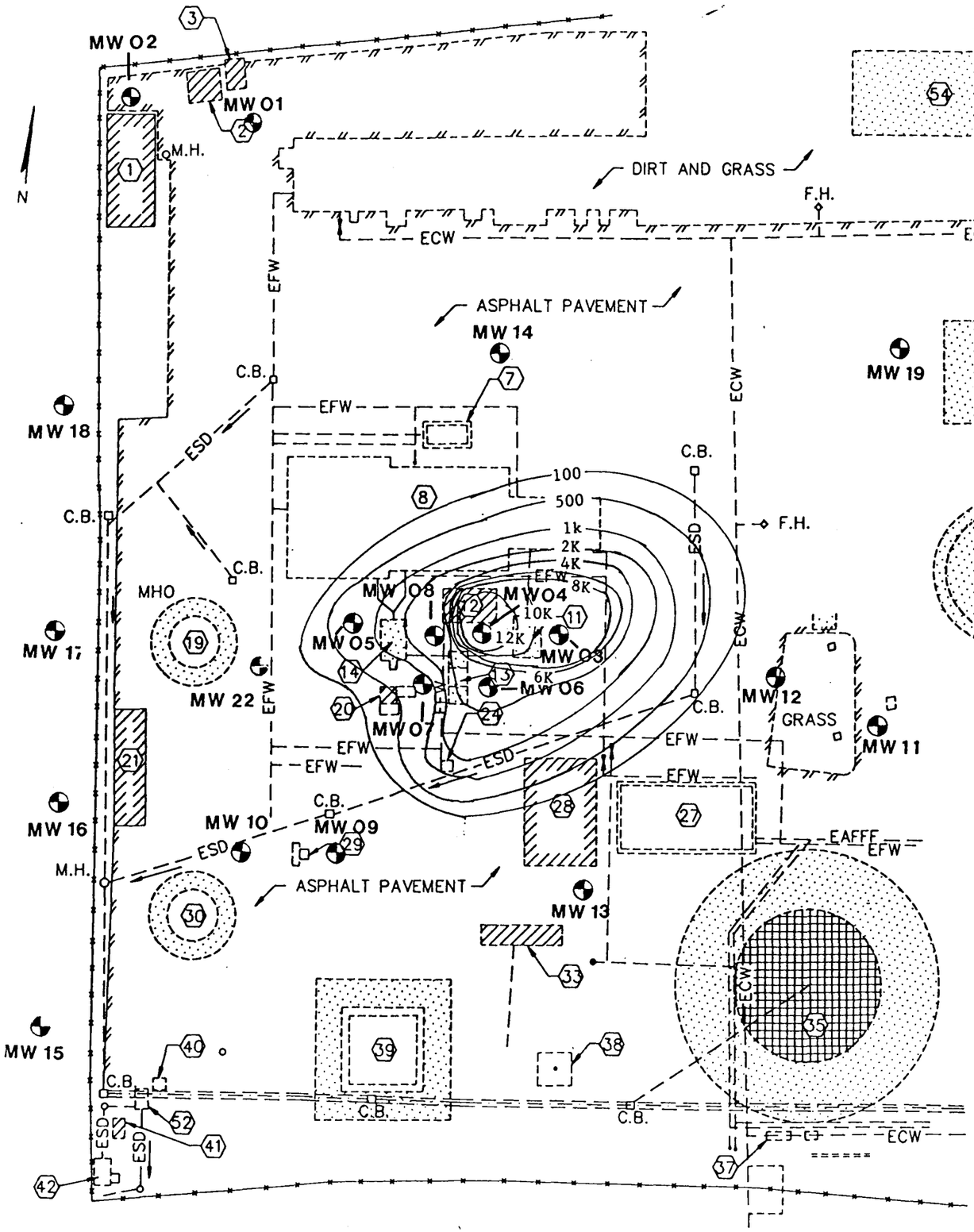

1. STORAGE SHED 28.6' x 20' x 12'H
2. STORAGE SHED 14.4' x 14.4' x 15'H
3. STORAGE SHED 13.3' x 9.5' x 8'H
7. OPEN PIT 21.1' x 12' x 9.3' DEEP
8. FIRE FIGHTING TRAINING MOCK-UP
11. OIL-WATER SEPERATOR 18' x 12' x 9' DEEP
12. BRICK BUILDING SDA 219
13. OIL-WATER SEPERATOR 24' x 8' x 7' DEEP
14. WASTE OIL STORAGE TANK 18' x 12' x 9' DEEP
18. FIRE FIGHTING PIT 15' DIA. x 2.3' DEEP
20. CONTROL ROOM 7' x 6.3' x 7'H CMU
21. STORAGE SHED 47' x 12' x 10.2'H
24. CONCRETE PIT 4.5' x 4.5' x 4.4' DEEP
26. UNDERGROUND GASOLINE STORAGE TANK
27. CONCRETE SLAB 60' x 30' x 0.6'
28. FIRE FIGHTING STRUCTURE
29. VALVE PIT 4.5' x 4.5' x 5.1' DEEP
30. FIRE FIGHTING PIT 15' DIA. x 2.3' DEEP
34. FLIGHT DECK TRAINING MOCK-UP 58'
37. BACKFLOW PREVENTER PIT 9' x 4' x 4.2' DEEP
38. WILD HOSE 15' x 15' x 1/4" STEEL PLATE
39. HELO RESCUE PIT 29' x 29' x 0.6' DEEP
40. ELECTRIC MANHOLE 4.4' x 4.4' x 4.6' DEEP
41. STORAGE SHED 10.5' x 5' x 8.4'H CMU
42. OIL-WATER SEPERATOR 13' x 7' x 6' DEEP
44. OPEN PIT TRAINING MOCK-UP 50' DIA.
45. UNDERGROUND STORAGE TANKS
49. CONCRETE PAD 2' x 2' x 0.7'H
52. STORM DRAIN JUNCTION BOX
53. CONCRETE SLAB
53. MESS HALL

FIGURE 3-2
Lower Soil Contamination

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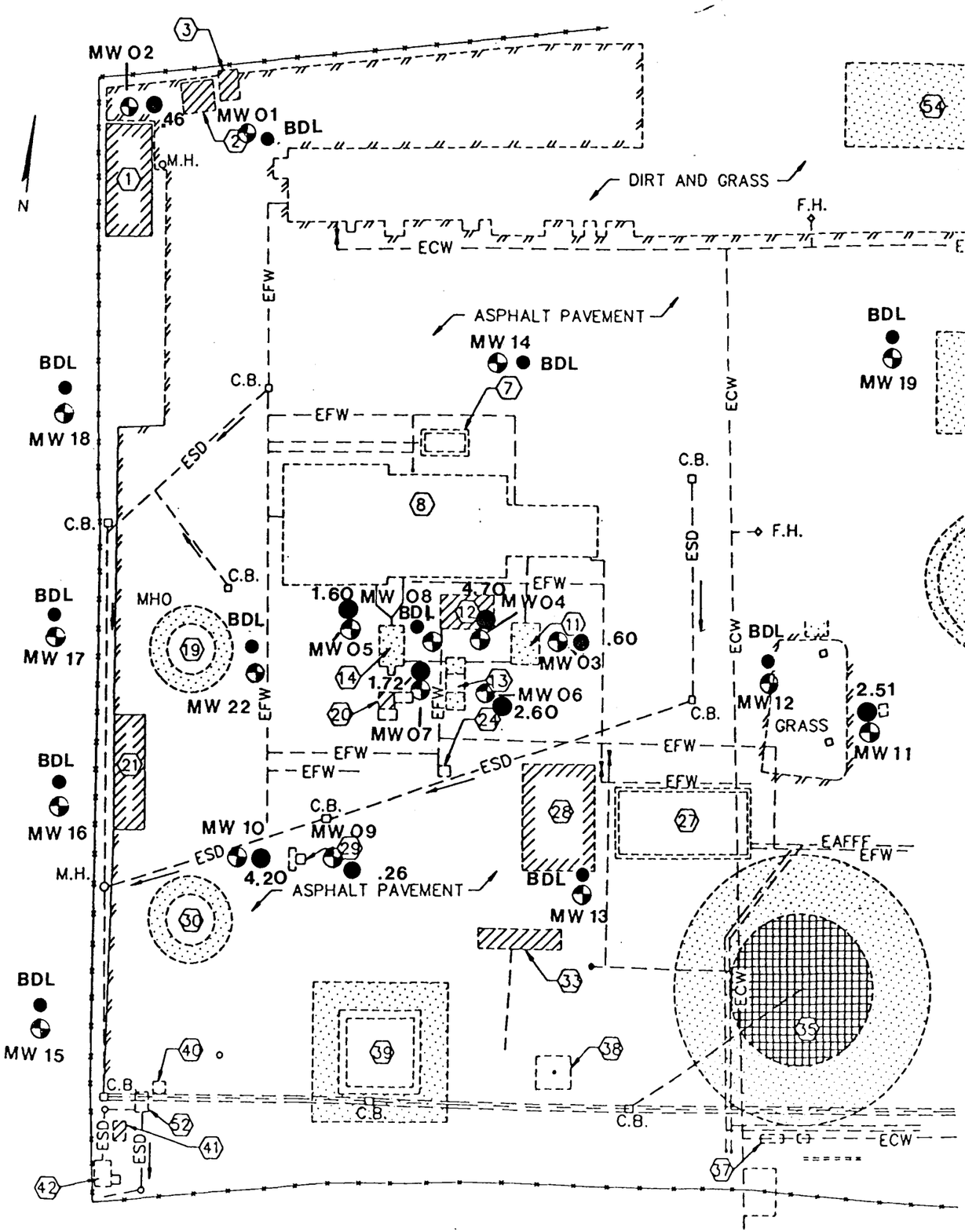

1. STORAGE SHED 28.6' x 20' x 12'H
2. STORAGE SHED 14.4' x 14.4' x 15'H
3. STORAGE SHED 13.3' x 9.5' x 8'H
7. OPEN PIT 21.1' x 12' x 9.3' DEEP
8. FIRE FIGHTING TRAINING MOCK-UP
11. OIL-WATER SEPERATOR 18' x 12' x 9' DEEP
12. BRICK BUILDING SDA 219
13. OIL-WATER SEPERATOR 24' x 8' x 7' DEEP
14. WASTE OIL STORAGE TANK 18' x 12' x 9' DEEP
18. FIRE FIGHTING PIT 15' DIA. x 2.3' DEEP
20. CONTROL ROOM 7' x 6.3' x 7'H CMU
21. STORAGE SHED 47' x 12' x 10.2'H
24. CONCRETE PIT 4.5' x 4.5' x 4.4' DEEP
26. UNDERGROUND GASOLINE STORAGE TANK
27. CONCRETE SLAB 60' x 30' x 0.6'
28. FIRE FIGHTING STRUCTURE
29. VALVE PIT 4.5' x 4.5' x 5.1' DEEP
30. FIRE FIGHTING PIT 15' DIA. x 2.3' DEEP
33. FLIGHT DECK TRAINING MOCK-UP 56'
37. BACKFLOW PREVENTER PIT 8' x 4' x 4.2' DEEP
38. WILD HOSE 15' x 15' x 1/4" STEEL PLATE
39. HELO RESCUE PIT 29' x 29' x 0.6' DEEP
40. ELECTRIC MANHOLE 4.4' x 4.4' x 4.8' DEEP
41. STORAGE SHED 10.5' x 5' x 8.4'H CMU
42. OIL-WATER SEPERATOR 13' x 7' x 6' DEEP
44. OPEN PIT TRAINING MOCK-UP 50' DIA.
45. UNDERGROUND STORAGE TANKS
52. CONCRETE PAD 2' x 2' x 0.7'H
54. STORM DRAIN JUNCTION BOX
55. CONCRETE SLAB
57. MESS HALL

EXPLANATION

Total Concentration of BTEX in Soil (ppm)

- Below Detection Limit (BDL)
- BDL to 1 ppm
- 1 to 10 ppm
- Monitoring Well

SCALE: 1" = 50'

0 50' 100'

FIGURE 3-3
Dot Plot Of Total BTEX In Soil.

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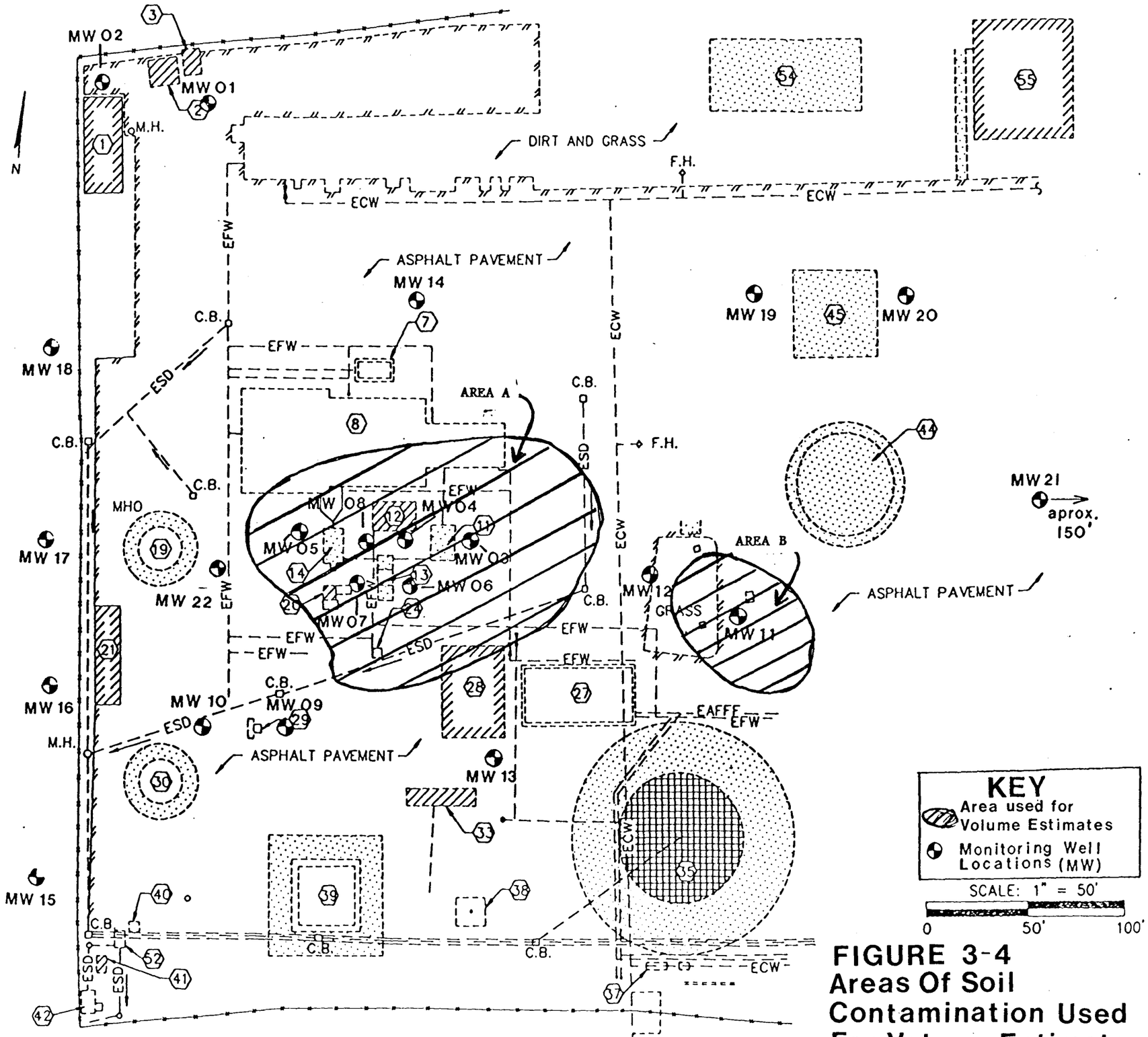

1. STORAGE SHED 28.8' x 20' x 12'H
2. STORAGE SHED 14.4' x 14.4' x 15'H
3. STORAGE SHED 13.3' x 9.5' x 8'H
7. OPEN PIT 21.1' x 12' x 9.3' DEEP
8. FIRE FIGHTING TRAINING MOCK-UP
11. OIL-WATER SEPERATOR 18' x 12' x 9' DEEP
12. BRICK BUILDING SOA 219
13. OIL-WATER SEPERATOR 24' x 8' x 7' DEEP
14. WASTE OIL STORAGE TANK 18' x 12' x 9' DEEP
18. FIRE FIGHTING PIT 15' DIA. x 2.3' DEEP
20. CONTROL ROOM 7' x 6.3' x 7'H CMU
21. STORAGE SHED 47' x 12' x 10.2'H
24. CONCRETE PIT 4.5' x 4.5' x 4.4' DEEP
26. UNDERGROUND GASOLINE STORAGE TANK
27. CONCRETE SLAB 60' x 30' x 0.6'
28. FIRE FIGHTING STRUCTURE
29. VALVE PIT 4.5' x 4.5' x 5.1' DEEP
30. FIRE FIGHTING PIT 15' DIA. x 2.3' DEEP
33. FLIGHT DECK TRAINING MOCK-UP 58'
35. BACKFLOW PREVENTER PIT 8' x 4' x 4.2' DEEP
36. WILD HOSE 15' x 15' x 1/4" STEEL PLATE
37. HELO RESCUE PIT 29' x 29' x 0.6' DEEP
38. ELECTRIC MANHOLE 4.4' x 4.4' x 4.8' DEEP
39. STORAGE SHED 10.5' x 5' x 8.4'H CMU
40. OIL-WATER SEPERATOR 13' x 7' x 6' DEEP
41. OPEN PIT TRAINING MOCK-UP 50' DIA.
42. UNDERGROUND STORAGE TANKS
44. CONCRETE PAD 2' x 2' x 0.7'H
45. STORM DRAIN JUNCTION BOX
52. CONCRETE SLAB
53. MESS HALL

KEY
- Area used for Volume Estimates
- Monitoring Well Locations (MW)

SCALE: 1" = 50'
0 50' 100'

FIGURE 3-4
Areas Of Soil Contamination Used For Volume Estimates

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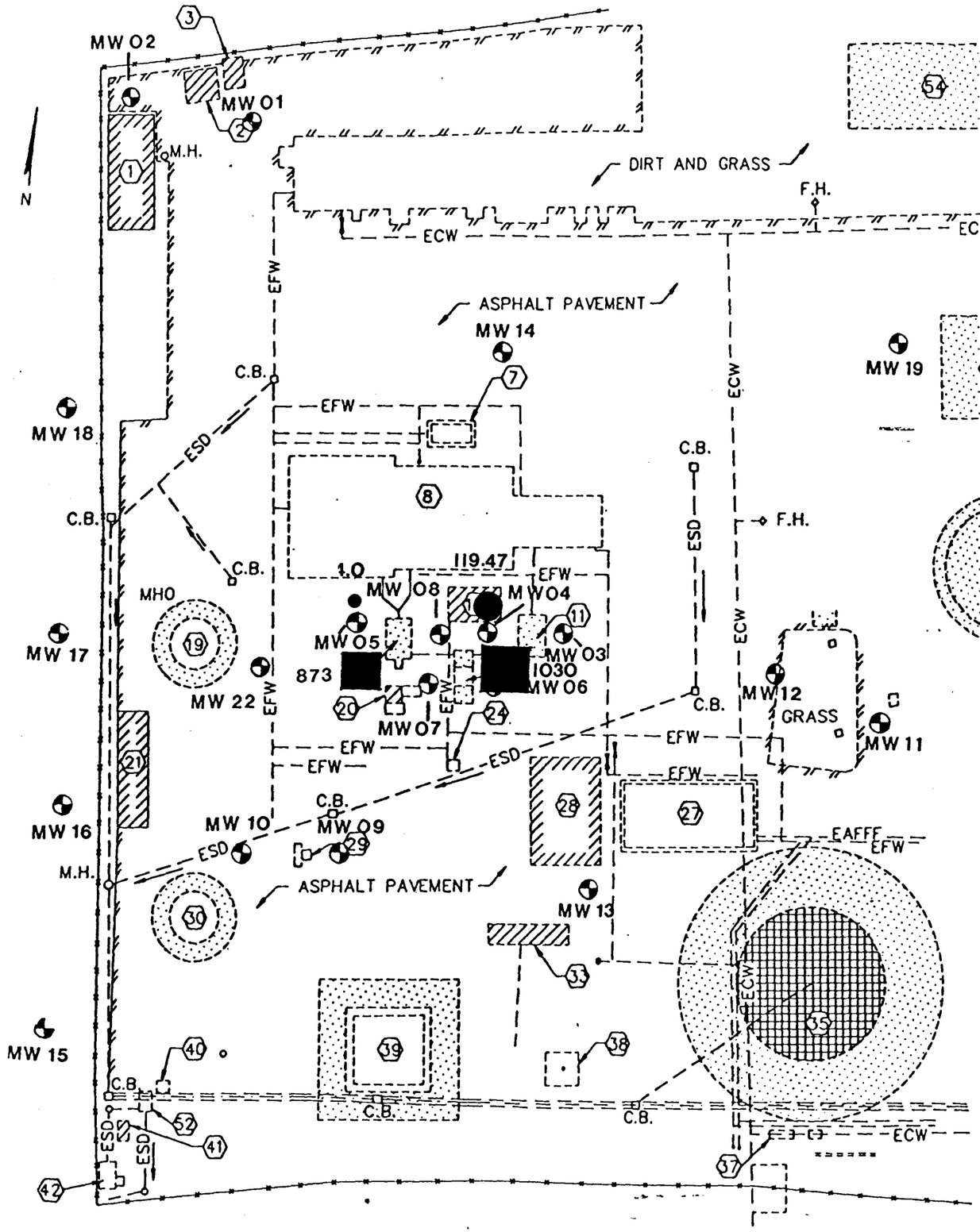

① STORAGE SHED 28.6' x 20' x 12'H
② STORAGE SHED 14.4' x 14.4' x 15'H
③ STORAGE SHED 13.3' x 9.5' x 8'H
⑦ OPEN PIT 21.1' x 12' x 9.3' DEEP
⑧ FIRE FIGHTING TRAINING MOCK-UP
⑪ OIL-WATER SEPERATOR 18' x 12' x 9' DEEP
⑫ BRICK BUILDING SDA 219
⑬ OIL-WATER SEPERATOR 24' x 8' x 7' DEEP
⑭ WASTE OIL STORAGE TANK 18' x 12' x 9' DEEP
⑲ FIRE FIGHTING PIT 15' DIA. x 2.3' DEEP
⑳ CONTROL ROOM 7' x 6.3' x 7'H CMU
㉑ STORAGE SHED 47' x 12' x 10.2'H
㉔ CONCRETE PIT 4.5' x 4.5' x 4.4' DEEP
㉘ UNDERGROUND GASOLINE STORAGE TANK
㉗ CONCRETE SLAB 60' x 30' x 0.6'
㉘ FIRE FIGHTING STRUCTURE
㉙ VALVE PIT 4.5' x 4.5' x 5.1' DEEP
㉚ FIRE FIGHTING PIT 15' DIA. x 2.3' DEEP
㉝ FLIGHT DECK TRAINING MOCK-UP 56'
㉟ BACKFLOW PREVENTER PIT 9' x 4' x 4.2' DEEP
㊱ WILD HOSE 15' x 15' x 1/4" STEEL PLATE
㊲ HELO RESCUE PIT. 29' x 29' x 0.6' DEEP
㊵ ELECTRIC MANHOLE 4.4' x 4.4' x 4.6' DEEP
㊶ STORAGE SHED 10.5' x 5' x 8.4'H CMU
㊷ OIL-WATER SEPERATOR 13' x 7' x 6' DEEP
㊹ OPEN PIT TRAINING MOCK-UP 50' DIA.
㊺ UNDERGROUND STORAGE TANKS
㊻ CONCRETE PAD 2' x 2' x 0.7'H
㊼ STORM DRAIN JUNCTION BOX
㊽ CONCRETE SLAB
㊾ MESS HALL

EXPLANATION

4.0 ● Concentration of BTEX in Phase-Separated Hydrocarbons (ppm)

- ● 1 to 10 ppm
- ● 10 to 100 ppm
- ● 100 to 1000 ppm

5.0 ■ Concentration of Diesel (TPH) in Phase-Separated Hydrocarbons (ppm)

- ■ 1 to 10 ppm
- ■ 10 to 100 ppm
- ■ 100 to 1000 ppm
- ■ 1000 to 10,000 ppm

◐ Monitoring Well

SCALE: 1" = 50'

0 50' 100'

FIGURE 3-5
Dot Plot of Phase-Separated Hydrocarbons In Monitoring Wells.

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Soil Volume Calculations

Area A

$V = \pi \times r^2 \times h$

$V = \pi \times (69\ ft)^2 \times 12\ ft$

$V = 179{,}485\ ft^3$

$V = 6648\ yd^3$

Area B

$V = \pi \times (31\ ft)^2 \times 5\ ft$

$V = 15{,}095\ ft^3$

$V = 559\ yd^3$

Total Soil Volume = 7207 yd^3

Tank Volume Calculations

Tank No. 2
No tank dimension available.

Tank No. 11
V = (18.0 ft) (12.0ft) (9.0 ft) = 1944 cubic feet = 72 cubic yards

Tank No. 13
V = (24.0 ft) (8.0 ft) (7.0 ft) = 1344 cubic feet = 50 cubic yards

Tank No. 14
V = (18.0 ft) (12.0 ft) (9.0 ft) 1944 cubic feet = 72 cubic yards

Tank No. 26
27,000 gallon diesel tank (volume of product unknown)

Total Tank Volume = 194 cubic yards

Total volume of contaminated soil with No. 2 fuel oil to be remediated:

V_T = total soil volume - total tank volume

$V_T = 7207\ yd^3 - 194\ yd^3$

$V_T = 7013\ yd^3$

Note: This amount will be less due to the lack of tank dimensions for Tank No. 2 and Tank No. 26.

3.2 STRUCTURAL CONTAMINATION

No contamination was detected in any of the fifteen (15) core samples collected inside the onsite concrete structures and asphalt areas. Also, no contamination was detected in concrete core sample CC03 collected in the large square fire pit. Analyses for all core samples included PCBs and EP Toxicity (metals and organics). No asbestos fibers were detected in any of the three (3) brick core samples collected from the inside walls (BC04, BC05, BC06).

For demolition purposes, the following volumes of concrete and brick have been calculated:

Engine Room - 46' x 50' x 18'(H)		
Walls - 1.67' Thick	Volume =	214 Cubic Yards
Floor - 3.5' Thick	Volume =	298 Cubic Yards
	Total Volume =	512 Cubic Yards
Boiler Room - 44' x 50' x 18'(H)		
Walls - 1.67' Thick	Volume =	209 Cubic Yards
Floor - 5.0' Thick	Volume =	407 Cubic Yards
	Total Volume =	617 Cubic Yards
Focsle Room - 40' x 24' x 22'(H)		
Walls - 1.67' Thick	Volume =	174 Cubic Yards
Floor - 3.5' Thick	Volume =	142 Cubic Yards
	Total Volume =	316 Cubic Yards
	Total Structure Volume =	1,445 Cubic Yards

3.3 WASTE TANK ASSESSMENT

Of the nine (9) tanks selected for tank waste sampling, only eight (8) contained liquids. Tank No. 2 was empty. The following conditions were noted during tank sampling and analytical results have been evaluated to determine waste characteristics and volumes.

TANK No.	DESCRIPTION OF CONTENTS	VOLUME (GAL)	PHASE SAMPLED
No. 2	Empty	NA	None
No. 11	5 feet of liquid; 6 inches of floating sludge/oil; No bottom sludge	≈800	Top
No. 13	3 feet of liquid; <1 inch floating oil; no bottom sludge	<120	Top
No. 14	5 feet of liquid; 6 inches of floating sludge/oil; no bottom sludge	≈808	Top

TANK No.	DESCRIPTION OF CONTENTS	VOLUME (GAL)	PHASE SAMPLED
No. 26	Diesel oil product (now empty, 2 inches sludge)	NA	Middle
No. 29	4 feet of liquid; no floating oil; bottom sludge (<3 inches)	≈31	Bottom
No. 30	3 to 4 feet of oily debris; 6 inches of liquid in bottom with oil sheen	NA	Water/oil
No. 45	Tank cluster (4 tanks)		
	Large diesel oil product	Full*	Top
	Small diesel, <3 inches bottom sludge	NA*	Bottom
	Gasoline product	7200*	None
	AFFF, 54" of liquid	NA*	Top

*These tanks will not be excavated and removed.

The following are the calculations to determine the oil and/or sludge in the waste tanks (excludes Tank Nos. 2, 26, 30 and 45):

Equation to determine volume of sludge/oil is:

V gal = % liquid x volume of tank

where 1 cubic foot = 7.48 gallons

Tank No. 11

V gal = 55% liquid x volume of tank

$= .55 \times 1944\ ft^3 = 1069.2\ ft^3$

$= 1069.2\ ft^3 \times 7.48\ gal/ft^3$

= 7997 total gallons

Total sludge = 800 gallons

Tank No. 13

V gal = 43% x 1355 ft^3

= 576 ft^3

= 576 ft^3 x 7.48 gal/ft^3

= 4308 total gallons

Total oil = <120 gallons

Tank No. 14

V gal = 55% x 1944 ft^3

= 1080 ft^3

= 1080 ft^3 x 7.48 gal/ft^3

= 8078 total gallons

Total sludge = 808 gallons

Tank No. 29

V gal = 80% x 103 ft^3

= 82.4 ft^3

= 82.4 ft^3 x 7.48 gal/ft^3

= 616 total gallons

Total sludge = 31 gallons

Total sludge in tanks = 1639 gallons

Total oil in tanks = <120 gallons

Total sludge/oil/water mixture in tanks = 20,999 gallons

3.4 FREE PRODUCT CONTAMINATION

Phase-separated hydrocarbons (free product) were only found in monitoring wells MW-04 and MW-05. The total concentration of BTEX was 119.47 ppm in MW-04 and 4.00 ppm in MW-05. Both samples were also fingerprinted through TPH for AVGas, gasoline, and diesel concentration and were determined to contain primarily diesel components. Figure 3-5 is a dot plot of the free product concentrations in each of the wells. It is demonstrated by Figure 3-5 that monitoring well MW-08, the well between MW-04 and MW-05, had no evidence of free product at the time of sampling. At the time of sampling, MW-04 had 1.71 feet of free product and MW-05 had 0.22 feet of free product. It appears that free product contamination is limited to the vicinity of the two wells in which free product was observed and may not extend beyond the wellbores. The only

Fig 3-5

remediation that may be required for free product contamination, in that case, is to remove the free product from MW-04 and MW-05 and surrounding areas by pumping.

3.5 GROUNDWATER CONTAMINATION

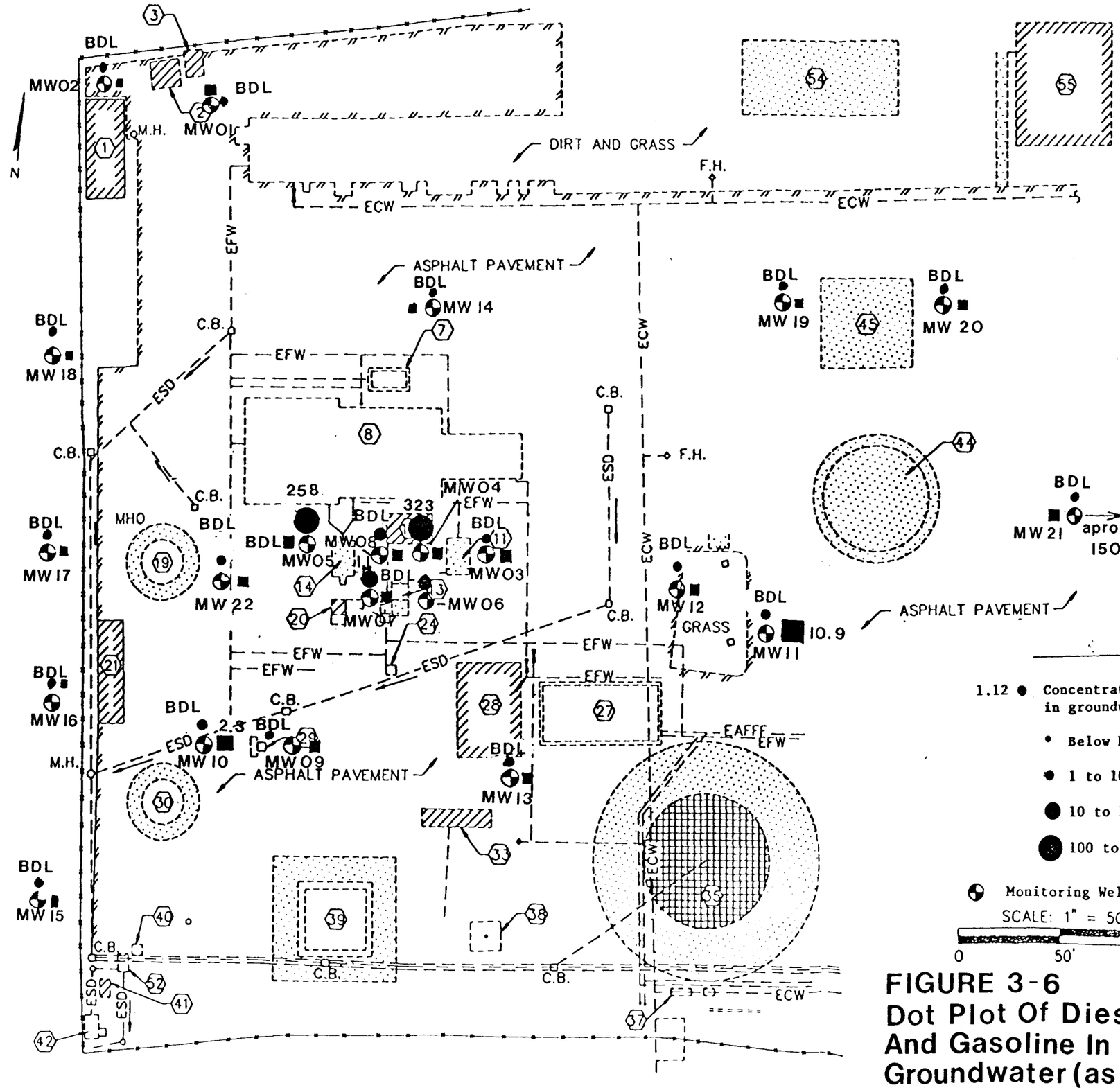
A dot plot of the total concentration of TPH for groundwater is presented in Figure 3-6. Groundwater samples with diesel contamination were found in three wells, MW-04, MW-05, and MW-07. The concentration of diesel was below the detection limit in the samples from the remainder of the wells. The diesel concentration ranged from 1.12 ppb to 323 ppb. Each of the contaminated wells is surrounded by other wells in which diesel was below the detection limit (Figure 3-6). The probably source of diesel contamination in those three wells may be Tanks Nos. 11, 12, 13, 14, and 20. However, due to the sporadic distribution of wells with diesel contamination, it is difficult to pinpoint the specific tanks that may be contributing to the contamination. The levels of TPH in all three wells are below the Virginia State guideline of 1000 ppb TPH in groundwater and should not be cause for any groundwater remediation.

3.5.1 TYPE AND NATURE OF CONTAMINATION

Groundwater samples with gasoline contamination were found in two wells at low concentrations (Figure 3-6). Monitoring well MW-10 had a concentration of 2.3 ppb and MW-11 had a concentration of 10.9 ppb of gasoline in the groundwater samples. The source of gasoline in MW-10 may be the fire-fighting pit located hydrogeologically upgradient from the well (Figure 1-6). The source of gasoline in MW-11 may be the 500 gallon underground gasoline storage tank which is located hydrogeologically upgradient from the well. In both cases, the levels of TPH are well below the Virginia State guideline of 1000 ppb TPH in groundwater and should not be cause for any groundwater remediation. However, the 500 gallon gasoline tank should be tested for tightness.

3.5.2 EXTENT AND MIGRATION OF CONTAMINATION

Figure 3-7 presents a dot plot of total BTEX in the groundwater samples. Total concentration of BTEX ranged from below the detection limit to 12,880 ppb in the wells. Monitoring well MW-11 is anomalous with a concentration of 12,880 ppb of BTEX in the groundwater. The probably explanation for this high concentration is the 500 gallon gasoline tank hydrogeologically upgradient of the well (BTEX are generally found in higher concentrations in gasoline, as opposed to diesel). The concentration of TPH in this well was also determined to be associated with gasoline, rather than diesel. With the exception of MW-11, all of the levels of BTEX in the groundwater are below 1000 ppb in the groundwater. The State of Virginia does not have any guidelines for concentration of BTEX in groundwater for non-drinking water aquifers.



1. STORAGE SHED 28.6' x 20' x 12'H
2. STORAGE SHED 14.4' x 14.4' x 15'H
3. STORAGE SHED 13.3' x 9.5' x 8'H
7. OPEN PIT 21.1' x 12' x 9.3' DEEP
8. FIRE FIGHTING TRAINING MOCK-UP
11. OIL-WATER SEPERATOR 18' x 12' x 8' DEEP
12. BRICK BUILDING SOA 219
13. OIL-WATER SEPERATOR 24' x 8' x 7' DEEP
14. WASTE OIL STORAGE TANK 18' x 12' x 8' DEEP
18. FIRE FIGHTING PIT 15' DIA. x 2.3' DEEP
20. CONTROL ROOM 7' x 6.3' x 7'H CMU
21. STORAGE SHED 47' x 12' x 10.2'H
24. CONCRETE PIT 4.5' x 4.5' x 4.4' DEEP
26. UNDERGROUND GASOLINE STORAGE TANK
27. CONCRETE SLAB 60' x 30' x 0.6'
28. FIRE FIGHTING STRUCTURE
29. VALVE PIT 4.5' x 4.5' x 5.1' DEEP
30. FIRE FIGHTING PIT 15' DIA. x 2.3' DEEP
33. FLIGHT DECK TRAINING MOCK-UP 50'
37. BACKFLOW PREVENTER PIT 8' x 6' x 4.2' DEEP
38. WILD HOSE 15' x 15' x 1/4" STEEL PLATE
39. HELO RESCUE PIT 29' x 29' x 0.6' DEEP
40. ELECTRIC MANHOLE 4.4' x 4.4' x 4.8' DEEP
41. STORAGE SHED 10.5' x 5' x 8.4'H CMU
42. OIL-WATER SEPERATOR 13' x 7' x 8' DEEP
44. OPEN PIT TRAINING MOCK-UP 50' DIA.
45. UNDERGROUND STORAGE TANKS
52. CONCRETE PAD 2' x 2' x 0.7'H
53. STORM DRAIN JUNCTION BOX
54. CONCRETE SLAB
55. MESS HALL

EXPLANATION

1.12 ● Concentration of TPH (diesel) in groundwater (ppb)	2.3 ■ Concentration of TPH (gas) in groundwater (ppb)
• Below Detection (BDL)	■ Below Detection (BDL)
● 1 to 10 ppb	■ 1 to 10 ppb
● 10 to 100 ppb	■ 10 to 100 ppb
● 100 to 1000 ppb	

Monitoring Well

SCALE: 1" = 50'

0 50' 100'

FIGURE 3-6
Dot Plot Of Diesel And Gasoline In Groundwater (as TPH)

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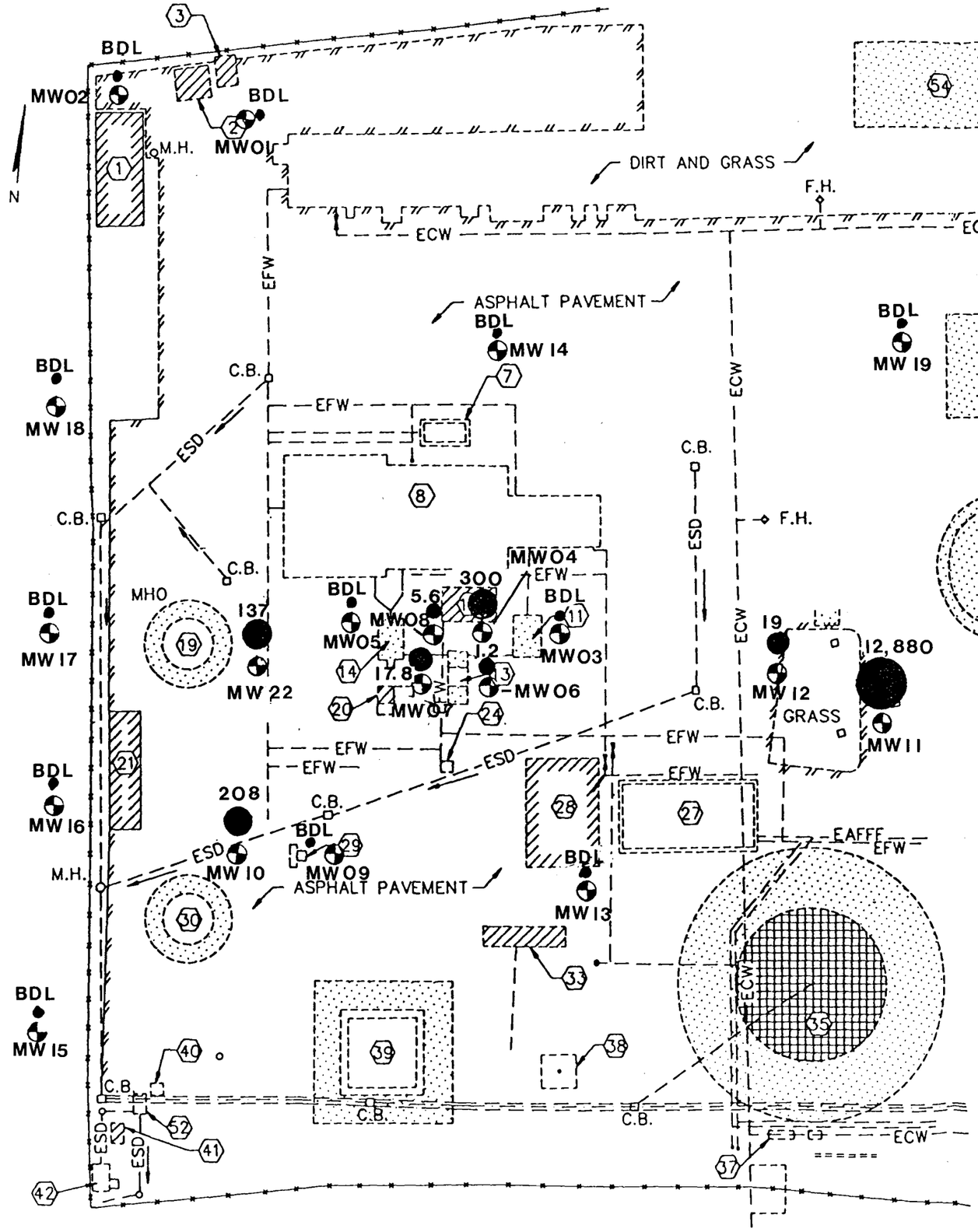

① STORAGE SHED 28.6' x 20' x 12'H
② STORAGE SHED 14.4' x 14.4' x 15'H
③ STORAGE SHED 13.3' x 9.5' x 8'H
⑦ OPEN PIT 21.1' x 12' x 9.3' DEEP
⑧ FIRE FIGHTING TRAINING MOCK-UP
⑪ OIL-WATER SEPERATOR 18' x 12' x 9' DEEP
⑫ BRICK BUILDING SDA 219
⑬ OIL-WATER SEPERATOR 24' x 8' x 7' DEEP
⑭ WASTE OIL STORAGE TANK 18' x 12' x 9' DEEP
⑮ FIRE FIGHTING PIT 15' DIA. x 2.3' DEEP
⑳ CONTROL ROOM 7' x 6.3' x 7'H CMU
㉑ STORAGE SHED 47' x 12' x 10.2'H
㉔ CONCRETE PIT 4.5' x 4.5' x 4.4' DEEP
㉖ UNDERGROUND GASOLINE STORAGE TANK
㉗ CONCRETE SLAB 60' x 30' x 0.6'
㉘ FIRE FIGHTING STRUCTURE
㉙ VALVE PIT 4.5' x 4.5' x 5.1' DEEP
㊿ FIRE FIGHTING PIT 15' DIA. x 2.3' DEEP
㊿ FLIGHT DECK TRAINING MOCK-UP 58'
㊿ BACKFLOW PREVENTER PIT 9' x 4' x 4.2' DEEP
㊿ WILD HOSE 15' x 15' x 1/4" STEEL PLATE
㊿ HELO RESCUE PIT 29' x 29' x 0.6' DEEP
㊿ ELECTRIC MANHOLE 4.4' x 4.4' x 4.6' DEEP
㊿ STORAGE SHED 10.5' x 5' x 8.4'H CMU
㊿ OIL-WATER SEPERATOR 13' x 7' x 6' DEEP
㊿ OPEN PIT TRAINING MOCK-UP 50' DIA.
㊿ UNDERGROUND STORAGE TANKS
㊿ CONCRETE PAD 2' x 2' x 0.7'H
㊿ STORM DRAIN JUNCTION BOX
㊿ CONCRETE SLAB
㊿ MESS HALL

EXPLANATION

137 ● Total Concentration of BTEX in groundwater (ppb)

- • Below Detection Limit (BDL)
- ● 1 to 10 ppb
- ● 10 to 100 ppb
- ● 100 to 1000 ppb
- ● 1000 to 10,000 ppb
- ● 10,000 to 100,000 ppb

Monitoring Well

SCALE: 1" = 50'

0 50' 100'

FIGURE 3-7
Dot Plot Of Total BTEX In Groundwater

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3.6 PUMP TEST DRAWDOWN RESULTS

A drawdown study was initiated March 28, 1990, in monitoring well No. 22, at 1125. The test continued for 12 hours; 10.5 hours discharge time and 1.5 hours of recharge. Figure 3-8 illustrates the area of influence which effected monitoring wells MW-03, MW-07, MW-15, and MW-22. The test began with a continuous drawdown rate of 4 gallons per minute (gpm) (Figure 3-9). After 1.5 hours, the flow rate was increased to create a larger drawdown; therefore, at 1435 the flow rate was 5.5 gpm. At 1618 the water level in MW-22 stabilized at the elevation of 86.5 feet. At 2126 the discharging unit was turned off and recharging commenced. However, at 1410 the pump was accidentally shut off for 40 seconds. Up to this time the data logger was recording the drawdown in the above mentioned wells. From 2226 to 2319 the recharge rate was being recorded. In approximately 16 minutes MW-22 was fully recharged. Monitoring Wells MW-03 and MW-07 displayed minimal effects during the twelve hour test. Due to the continuous rainfall during testing, a recharge was recorded during the test period of monitoring well MW-15.

After reviewing the pump test drawdown data, it appears that a good cone of depression was not achieved. Possible causes was due to the high transmissivity, hydraulic conductivity and high storativity within the studied area.

Site-specific aquifer characteristics were determined by conducting a drawdown test on monitoring well, MW-22. The field data was plotted on a drawdown vs. time graph (Figure 3-9). This information was used to evaluate the hydraulic conductivity by utilizing Hvorslev's equation for an unconfined aquifer:

$$K = \frac{r^2 \ln (L/R)}{2 L T_o}$$

Where:

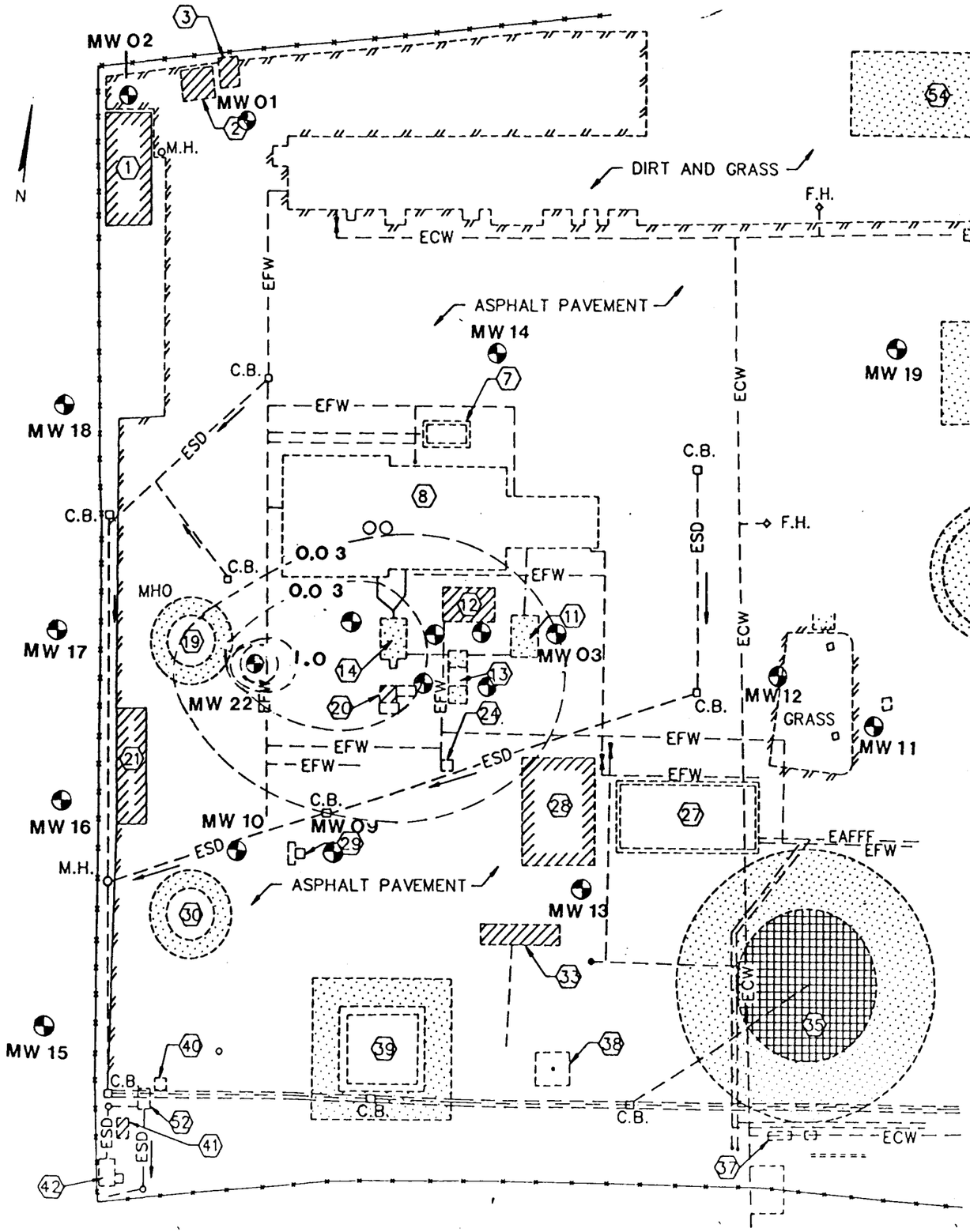
K = Hydraulic Conductivity

r = Radius of well casing
Radius of PVC well equals 3 inches or .25 feet

L = Length of screen below static water table
(15.0 feet)

T_0 = Time @ 37% recovery (minutes)

R = Radius of borehole
Radius of 12 inch borehole = 0.5 feet



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45. UNDERGROUND STORAGE TANKS
52. CONCRETE PAD 2' x 2' x 0.7'H
53. STORM DRAIN JUNCTION BOX
54. CONCRETE SLAB
55. MESS HALL

KEY

—— 1.0 —— Depth of Influence Contour

SCALE: 1" = 50'

0 50' 100'

FIGURE 3-8
Area Of Influence Due To 10.5 Hours Of Pumping

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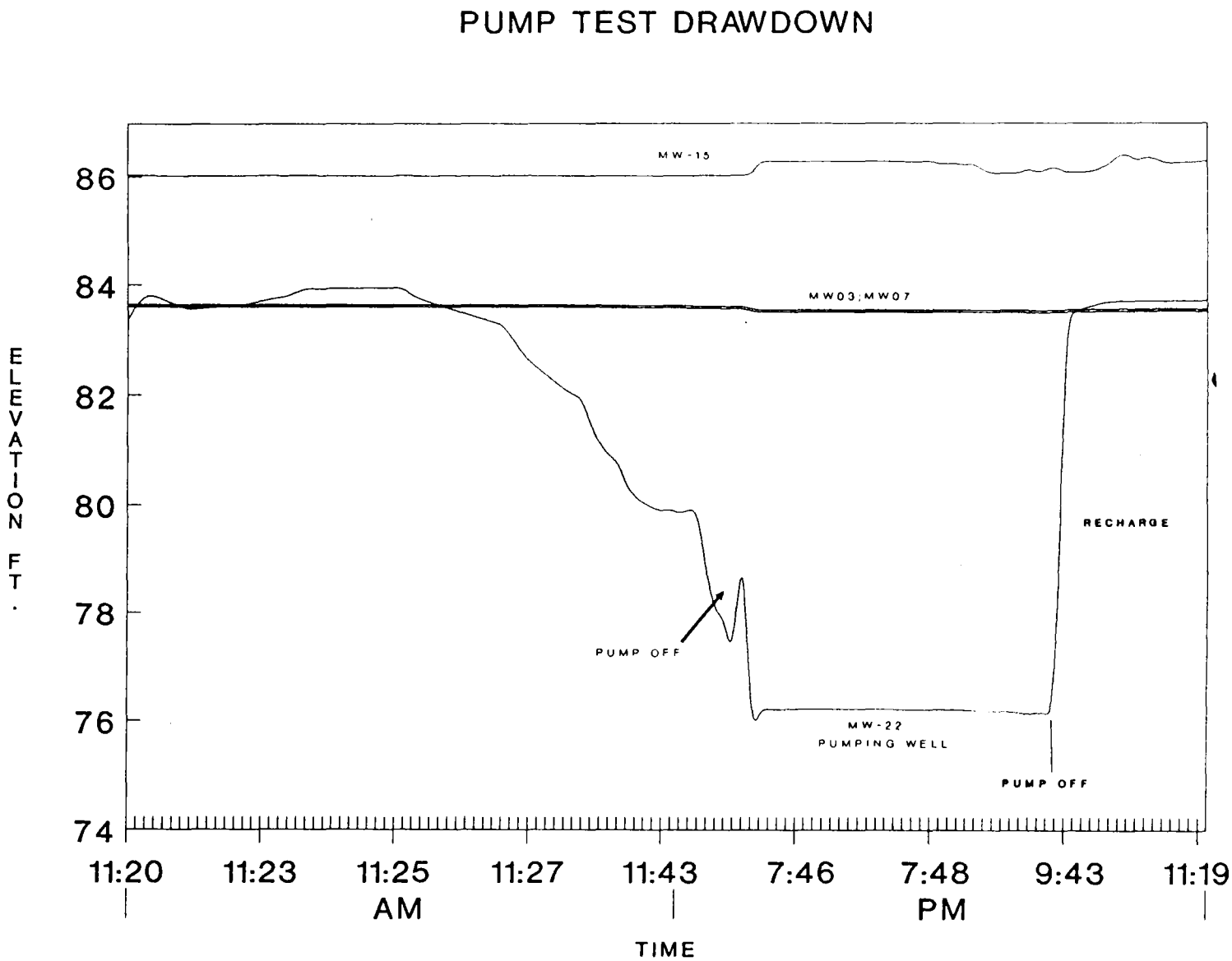


Figure 3-9: Drawdown versus Time

Hydraulic conductivity, defined as the rate of flow of water in gallons per day through a cross-sectional area of one square foot of the aquifer, was determined to be 2.58 gpd/ft^2. This value is typical of Silty Sands (Freeze and Cherry, 1979).

The velocity of groundwater movement at the site was determined by the following equation:

$$V = \frac{GK}{R}$$

Where:

V = Rate of groundwater flow (ft/sec)
G = Water table gradient (ft/ft)
K = Hydraulic conductivity (ft/sec)
P = Assumed porosity factor (.35)

The groundwater gradient of 1.25×10^{-2} was determined at the site by the distance between MW-27 and MW-7 (80 feet over the difference of the water table elevation between the two wells on March 29, 1990 (.10 ft). The range of value for porosity in sand is 25% to 50% (Freeze and Cherry, 1979). A porosity value of 35% was chosen to determine the velocity of groundwater beneath the studied site. The calculated rate was determined to be 1.4×10^{-7} ft/sec (4.5 ft/yr).

4.0 RISK ASSESSMENT

This section discusses the risks to human health and the environment caused by the presence of onsite fuel oil contamination in subsurface soils and groundwater at the FFS. The estimation of risks is based on the selection of indicator chemicals (Section 4.1), the identification of potential receptors (Section 4.2), the estimation of exposure concentrations of the indicator chemicals at the identified receptor points (Section 4.3), the assessment of risks to human health from drinking and nonpotable water uses, as well as worker exposure during demolition and construction activities (Section 4.4), the evaluation of ecological and other environmental risks (Section 4.5), and the development of media-specific action levels to reduce or eliminate risks (Section 4.6). The identification, screening, and selection of remedial alternatives, as presented in Section 5.0, is based on the media-specific action levels developed from the risk assessment. This section discusses the assessment of risks from human and ecological exposure to free product, contaminated soil, and contaminated groundwater.

4.1 SELECTION OF INDICATOR CHEMICALS

Indicator chemicals by media have been selected to 1) show the presence or absence of No. 2 fuel oil and/or volatile organics at different locations, 2) quantify the degree of contamination, and 3) to simplify both the risk assessment and selection of action levels for site remediation alternatives analysis. Indicator chemicals selection for the FFS site is based on analyzed contaminant concentrations, frequency of detection, toxicity, and mobility in the environment. Table 4-1 shows the chemicals detected in samples collected from monitoring wells at the FFS site during field activities.

4.1.1 FREE PRODUCT INDICATOR CONTAMINANTS

Total petroleum hydrocarbons (TPH) as No. 2 fuel oil and gasoline have been selected as indicator contaminants for free product. No. 2 fuel oil has been identified as free product in two wells (MW-04 and MW-05), and gasoline was detected in groundwater in two wells (MW-10 and MW-11).

4.1.2 SOIL INDICATOR CONTAMINANTS

Ethylbenzene and xylene have been selected as indicator contaminants for subsurface soil because of their frequency of detection and relative resistance to biological and chemical degradation in the subsurface environment. Also, TPH has been selected because the Virginia Water Control Board (VWCB) requires remediation of soil TPH concentrations above 100 ppm. Concentrations of TPH above 100 ppm were detected in 37% of the subsurface soil samples collected from monitoring well boreholes.

TABLE 4-1

CONTAMINANTS DETECTED IN SAMPLES COLLECTED IN WELLS AT THE FFS SITE
(all sample concentrations are in ppb, unless noted)

CONTAMINANT	RANGE	MAXIMUM	ABOVE DETECTION FREQUENCY
FREE PRODUCT (2 samples)			
Benzene	<800-<2,000	--	0/2 (0%)
Toluene	<800-<2,000	--	0/2 (0%)
Ethylbenzene	<2,000-111,000	111,000	1/2 (50%)
Xylene	<4,000-8,470	8,470	1/2 (50%)
TPH (as #2 Fuel Oil)	873,000-1,030,000	1,030,000	2/2 (100%)
SUBSURFACE SOILS (38 samples)			
Benzene	<220-460	460	3/38 (8%)
Toluene	180-<380	180	1/38 (3%)
Ethylbenzene	<280-4700	4,700	6/38 (16%)
Xylene	<340-2600	2,600	5/38 (13%)
TPH (in ppm)	<10.3-12,700	12,700	18/38 (47%)
GROUNDWATER (22 samples)			
Total BTEX	1.2-12,880	12,880	8/22 (36%)
TPH (as #2 Fuel Oil)	<0.6 - 323	323	3/22 (14%)
TPH (as Gasoline)	<0.58 - 10.9	10.9	2/22 (9%)

4.1.3 GROUNDWATER INDICATOR CONTAMINANTS

Since total BTEX and TPH as No. 2 fuel oil and gasoline were detected in 8 onsite monitoring wells, they have been selected as indicator contaminants for the purpose of defining contaminant plumes. TPH is selected because the VWCB regulates contamination from tanks above 1000 ppb in groundwater. No groundwater concentration above 1000 ppb of TPH were detected in any of the 22 monitoring wells.

4.2 IDENTIFICATION OF POTENTIAL RECEPTORS

In order for the selected indicator chemicals to adversely impact human health or the environment, sensitive receptors must be identified. A sensitive receptor can be a drinking water supply, a nonpotable water supply (e.g., bathing and washing), a surface water recreational area (i.e., the Elizabeth River), an ecological significant area such as tidal wetlands, an endangered or threatened plant or animal species, or workers who may be exposed during future demolition and construction at the FFS site

4.2.1 GROUNDWATER USES AND HUMAN RECEPTORS

No use of the water table shallow aquifer for drinking purposes of the FFS site has been identified. The area between the FFS site and the Elizabeth River consists of the HRSD Treatment Facility and docks and terminal buildings. No wells used for drinking water have been located.

There may be some nonpotable groundwater use in this area, but exact sources and uses are unknown at this time. It is also assumed that the Elizabeth River, at this location, is not used extensively for recreational boating, water skiing, or fishing due to its industrial nature.

4.2.2 ECOLOGICAL AND ENVIRONMENTAL RECEPTORS

No significant ecological areas or species are located at or adjacent to the FFS site, based on visual field observations. Ecological resources which may be present on a seasonal basis have not been determined. The groundwater contamination has not migrated offsite at the present time.

4.2.3 WORKER EXPOSURE AT FFS SITE

No existing exposure to current workers at the site is occurring. Workers who will be involved in demolition of the old FFS and construction of the new FFS may come into direct contact with contaminated soils, if no remediation is performed prior to such activities. The greatest health risks are the inhalation of vapors (e.g., benzene) and direct dermal contact with highly contaminated soils. However, such exposure routes can easily be eliminated by use of organic vapor cartridge respirators and dermal protection clothing (i.e., gloves and coveralls).

4.3 EXPOSURE CONCENTRATIONS AT RECEPTORS POINTS

4.3.1 ONSITE SOIL CONCENTRATIONS

The highest concentrations of total BTEX of soils onsite at the FFS site are less than 8 ppm. The highest concentrations of TPH as No. 2 fuel oil is 12,700 ppm at MW-04 at 8 to 11.5 feet deep. The highest TPH in surface soils (i.e., 0.5 to 4.0 feet deep) is 3,060 ppm at MW-05. These locations and concentrations are considered to be the worst case receptor points for worker exposure to vapors. The average or representative value for TPH samples above 100 ppm is 2,690 ppm.

4.3.2 ONSITE GROUNDWATER CONCENTRATIONS

Table 4-2 presents the exposure concentrations of BTEX in 8 of the 18 onsite monitoring wells. The maximum values detected in MW-11 are much greater than the other 7 wells. The average or representative concentration for total BTEX, excluding MW-11 results, is 18.6 ppb of benzene, 16.0 ppb of toluene, 107.7 ppb of ethylbenzene, and 75.0 ppb of xylene. The average or representative concentration of TPH as No. 2 fuel oil is 290.5 ppb from wells MW-04 and MW-05.

4.3.3 OFFSITE GROUNDWATER CONCENTRATIONS

The only contaminant detected in the 4 offsite wells was benzene in well MW-18 at 2.4 ppb. No TPH was detected in offsite monitoring wells.

TABLE 4-2

DETECTED CONCENTRATIONS OF BTEX IN GROUNDWATER
IN ONSITE MONITOR WELLS
(All Concentrations in ppb)

Monitoring Well No.	Benzene	Toluene	Ethylbenzene	Xylene
MW-04	BDL	BDL	320	BDL
MW-06	1.2	BDL	BDL	BDL
MW-07	11.0	BDL	6.8	BDL
MW-08	5.6	BDL	BDL	BDL
MW-10	37.0	BDL	80.0	91.0
MW-11	11,000	1,100	780	BDL
MW-12	19.0	BDL	BDL	BDL
MW-22	38.0	16.0	24.0	59.0

BDL = Below Detection Limit for Sample

4.4 ASSESSMENT OF HUMAN HEALTH RISKS

4.4.1 RISK FROM DRINKING WATER USE

The concentrations from 4 offsite wells of the selected indicator contaminants and other chemicals found at the FFS site are less than the Virginia Department of Health (VDOH) health-based criteria established for drinking water supplies. However, representative concentrations of 3 contaminants from onsite wells are above VDOH criteria, as shown below:

CONTAMINANT	VDOH CRITERIA	REPRESENTATIVE CONCENTRATIONS	
		OFFSITE	ONSITE
Benzene	2 ppb	2.4 ppb	18.6 ppb
Toluene	2000 ppb	<6.0 ppb	16.0 ppb
Ethylbenzene	70 ppb	<6.2 ppb	107.2 ppb
Xylene	10000 ppb	<12.0 ppb	75.0 ppb
TPH	5 ppb	BDL	290.5 ppb

The human health risk from use of groundwater offsite for a potable water supply is acceptable. Therefore, offsite groundwater does not require treatment for petroleum hydrocarbon removal prior to use as drinking water. However, use of groundwater onsite for drinking is unacceptable due to levels of benzene, ethylbenzene, and TPH greater than the VDOH criteria

4.4.2 RISK FROM NONPOTABLE GROUNDWATER USE

The human health risks for nonpotable use of groundwater for washing, bathing, laundry, or other purposes is considered to be acceptable since contaminant concentrations are well below any direct contact or dermal exposure health-based criteria established by the U.S. Environmental Protection Agency (USEPA).

4.4.3 RISK FROM INHALATION AND DERMAL EXPOSURE TO CONTAMINATED SOIL

The contaminant vapor inhalation levels from the highest soil concentrations are compared below to the Time Weighted Averages (TWA) in air as established by the National Institute for Occupational Safety and Health (NIOSH) for long-term exposure (i.e., 8- to 10-hour work days).

CONTAMINANT	TWA	HIGHEST SOIL CONCENTRATIONS
Benzene	0.1 ppm (8-hr)	0.46 ppm
Toluene	100 ppm (10-hr)	0.18 ppm
Ethylbenzene	none	4.7 ppm
Xylene	100 ppm (10-hr)	2.6 ppm

The health risk to workers from direct inhalation of contaminant vapors is only a possible concern for benzene. Inhalation protection (i.e., particulate and organic vapor respirator) should be used during FFS soil excavation and site demolition activities until air monitoring is performed to calculate actual air exposures of benzene.

Dermal exposure from direct contact with contaminated soil is not considered to present health risks since protective gloves and overalls are normally used during such excavation, demolition and construction activities.

4.5 ASSESSMENT OF ECOLOGICAL RISKS

No risks to ecological resources, threatened or endangered species, or surface waters have been identified since 1) all contamination is below ground preventing completed exposure pathways, 2) no sensitive or significant ecological resources have been found at the FFS site, and 3) no connection between contaminated groundwater from the FFS site and the Elizabeth River and associated tidal wetlands has been established, at this time.

Detailed inventory of all local and migratory species which may be sensitive to petroleum hydrocarbons has not been performed at the FFS site.

4.6 ACTION LEVELS REQUIRED TO MINIMIZE RISKS

Action levels for the selected indicator contaminants have been developed to 1) define extent or area of contamination that requires remediation, 2) meet all regulatory requirements, 3) provide a measurement of remediation effectiveness, and 4) ascertain when remediation can be terminated. Action levels can be federal or state standards, or established site-specific criteria based on risk assessment conclusions, if regulatory standards are not available. Action levels have been established for both soil and groundwater at the FFS site, as discussed below.

4.6.1 SOIL ACTION LEVELS

The VWCB presently has not promulgated specific regulatory standards for petroleum hydrocarbon in soil from leaking underground storage tanks (USTs). However, a guideline has been issued that states that soil contaminated by USTs above 100 ppm (dry weight) of total petroleum hydrocarbons (TPH) should be removed or otherwise remediated to levels below 100 ppm. Similar guidelines or regulations for BTEX have not been established by either the VWCB or USEPA.

Therefore, the soil action level for remediation at the FFS site will be 100 ppm of TPH.

4.6.2 GROUNDWATER ACTION LEVELS

The VWCB presently has not promulgated specific regulatory standards for petroleum hydrocarbon in groundwater from leaking underground storage tanks (USTs). However, a guideline has been issued that states that groundwater contaminated by USTs above 1000 ppb of total petroleum hydrocarbons (TPH) should be treated or otherwise remediated to levels below 1000 ppb. Similar guidelines or regulations for BTEX have not been established by either the VDOH or USEPA, except for potable water supplies. Since the shallow water table aquifer is not used as a supply of drinking water, neither the VDOH criteria or USEPA Maximum Concentration Limits (MCLs) apply to groundwater at the FFS site.

Therefore, the groundwater action level for treatment at the FFS site will be 1000 ppb of TPH.

5.0 REMEDIATION ASSESSMENT

The potential and feasibility for FFS site remediation is good, due to the relatively small area and volume of phase-separated hydrocarbons (free product) and absorbed-phase hydrocarbons (soil contamination). Dissolved-phase hydrocarbon in groundwater at the site are not a problem which currently requires remediation. The vapor phase of hydrocarbons is not a problem due to the weathered nature of the diesel fuel and the tightness of the subsurface environment (i.e., high clay and silt content).

A comprehensive remediation approach will use the appropriate technologies that will meet the remediation objectives as stated below.

5.1 REMEDIATION OBJECTIVES

The objectives of remediation at the FFS site are 1) to meet established action levels in both subsurface soil and groundwater, 2) to prevent future contamination of groundwater and soil from existing structures, 3) to allow for existing structure demolition and construction of new FFS structures in a timely manner, and 4) be in compliance with the recently established (April 1990) Virginia Department of Waste Management (VDWM) guidelines for disposal of petroleum contaminated soil.

To achieve the stated objectives, two separate remedial actions need to be performed: 1) recovery of free petroleum product (phase-separated) at the water table, and 2) removal and treatment of contaminated subsurface soil (absorbed-phase). Treatment of groundwater for dissolved-phase hydrocarbons to action levels to prevent future offsite contaminant migration needs to occur only after the two remedial actions above are completed, and further monitoring indicates groundwater contamination is above action levels.

5.2 EVALUATION OF ALTERNATIVES

In this section, each remedial alternative that is selected below is evaluated. The detailed evaluation of each alternative includes the following:

- A description identifying all the components necessary for evaluation; and
- A analysis considering the nine (9) evaluation criteria outlined in the USEPA Remedial Investigation/Feasibility Study (RI/FS) Guidance (October 1988).

5.2.1 EVALUATION CRITERIA

Nine (9) evaluation criteria serve as the basis for conducting the detailed analysis. The five (5) criteria listed below represent the

primary criteria which the analysis takes into account technical, cost, institutional, and risk concerns.

- Short-term Effectiveness
- Long-term Effectiveness
- Reduction of Toxicity, Mobility, or Volume
- Implementability
- Cost (Capital, and Operating and Maintenance)

The following two (2) criteria relate directly to statutory requirements that must ultimately be satisfied in the Corrective Action Plan (CAP). These are categorized as threshold criteria in that each alternative must meet them.

- Compliance with Action Levels
- Overall Protection of Human Health and the Environment

The last two (2) criteria are evaluated following review and comment on the CAP and will be addressed when a complete application for a CAP permit is submitted to the VWCB in accordance with Section 6.7 of VR-680-13-02.

- State Acceptance
- Community Acceptance

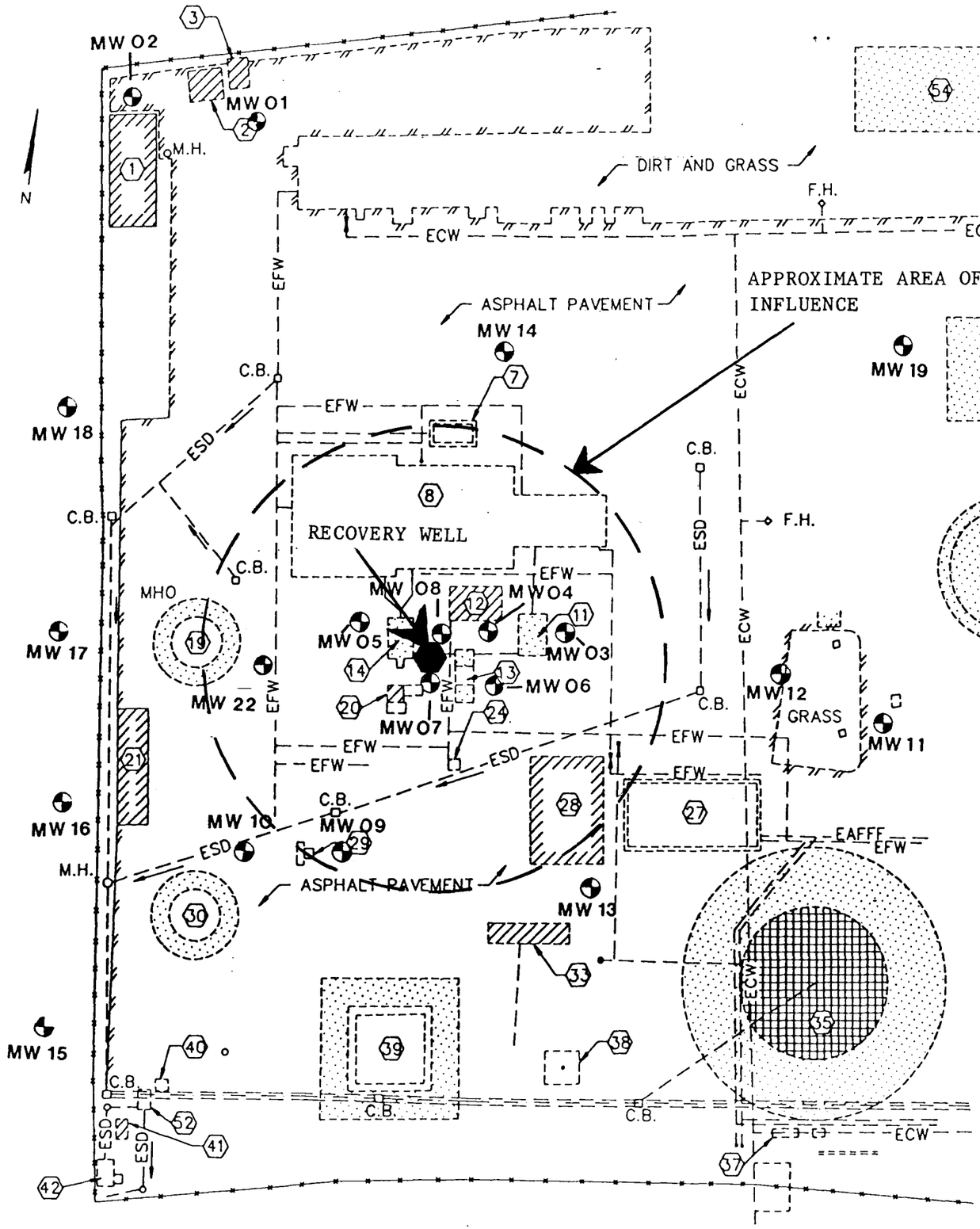
These nine evaluation criteria encompass statutory requirements and technical, cost, and institutional considerations determined appropriate for a thorough evaluation. These criteria and corresponding factors are discussed in the following sections.

5.3 FREE PRODUCT RECOVERY ALTERNATIVE

5.3.1 DESCRIPTION OF AVAILABLE ALTERNATIVE

To maintain compliance with Section 6.5 of VR-680-13-02, free product recovery will be implemented in two stages. The initial stage will consist of installation of a new recovery well (a 6-inch ID well approximately 40 feet deep) to be located adjacent to well MW-04 (see Figure 5-1). The objectives of the initial stage of free product recovery are 1) to minimize and prevent potential migration of contamination into previously uncontaminated soils or aquifers, 2) to handle any flammable product in a safe and contained manner to prevent further releases or spills, and 3) to ensure surface water discharge of uncontaminated groundwater (i.e., less than 1000 ppb TPH) without dissolved-phase product.

Based on pump test results on well MW-22, subsurface characteristics and location of free product (wells MW-04 and MW-05), it is estimated that well MW-22 can only be pumped at a rate of 6 gpm which would create a cone of depression approximately 70 feet in diameter. Therefore, the use of well MW-22 for free product recovery is limited by 1) depth (i.e., 25 feet), 2) yield, and 3) diameter of cone of depression (i.e.,



1. STORAGE SHED 28.8' x 20' x 12'H
2. STORAGE SHED 14.4' x 14.4' x 15'H
3. STORAGE SHED 13.3' x 9.5' x 8'H
7. OPEN PIT 21.1' x 12' x 9.3' DEEP
8. FIRE FIGHTING TRAINING MOCK-UP
11. OIL-WATER SEPERATOR 18' x 12' x 9' DEEP
12. BRICK BUILDING SOA 219
13. OIL-WATER SEPERATOR 24' x 8' x 7' DEEP
14. WASTE OIL STORAGE TANK 18' x 12' x 9' DEEP
19. FIRE FIGHTING PIT 15' DIA. x 2.3' DEEP
20. CONTROL ROOM 7' x 8.3' x 7'H CMU
21. STORAGE SHED 47' x 12' x 10.2'H
24. CONCRETE PIT 4.5' x 4.5' x 4.4' DEEP
26. UNDERGROUND GASOLINE STORAGE TANK
27. CONCRETE SLAB 60' x 30' x 0.6'
28. FIRE FIGHTING STRUCTURE
29. VALVE PIT 4.5' x 4.5' x 5.1' DEEP
30. FIRE FIGHTING PIT 15' DIA. x 2.3' DEEP
33. FLIGHT DECK TRAINING MOCK-UP 58'
37. BACKFLOW PREVENTER PIT 9' x 4' x 4.2' DEEP
38. WILD HOSE 15' x 15' x 1/4" STEEL PLATE
39. HELO RESCUE PIT 29' x 29' x 0.6' DEEP
40. ELECTRIC MANHOLE 4.4' x 4.4' x 4.8' DEEP
41. STORAGE SHED 10.5' x 5' x 8.4'H CMU
42. OIL-WATER SEPERATOR 13' x 7' x 6' DEEP
44. OPEN PIT TRAINING MOCK-UP 50' DIA.
45. UNDERGROUND STORAGE TANKS
52. CONCRETE PAD 2' x 2' x 0.7'H
53. STORM DRAIN JUNCTION BOX
54. CONCRETE SLAB
55. MESS HALL

KEY

Monitoring Well Locations (MW)

SCALE: 1" = 50'

0 50' 100'

FIGURE 5-1
LOCATION OF FREE PRODUCT RECOVERY WELL

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free product in well MW-04 is approximately 100 feet from well MW-22). It is estimated that a new deeper recovery well closer to areas of free product that can be pumped at 15-20 gpm will provide for adequate cone of depression if pumped for 60 to 90 days to eliminate further migration of free product and recover up to 95 percent of total free product at the water table at the FFS site. All free product recovered will be recycled by the Navy.

A dual pump recovery system consists of one pump which creates a constant cone of depression causing free product to flow to the well by gradient reduction (see Figure 5-2). A second pump in the well detects the presence of free product by optical probes or conductivity sensors and pumps free product directly to a recovery tank or drum. Typically, two-pump systems are automatically controlled by density floats, level measurement probes, and electronic controls.

This initial stage of free product recovery will require treatment of pumped groundwater to ensure that BTEX or TPH above 1000 ppb is not discharged to surface waters. An air stripper (2 foot diameter, approximately 15 feet tall) will be placed in line for continuous stripping of groundwater prior to discharge to the existing oil/water separator. The capacity and flow rate of the air stripper will match the continuous groundwater pumping rate (i.e., 15-20 gpm). Air emissions from the air stripper are estimated to be low since existing groundwater data shows very low levels of BTEX and TPH.

The final stage of free product recovery will occur after contaminated soil has been excavated, as discussed in Section 5.4. Any phase-separated floating free product found after excavation and soil dewatering in the pit will be skimmed and contained for recycling by the Navy.

This alternative would also include the pumping out and removal of all existing tanks and vaults which currently contain waste fuel oil, such as Tank Nos. 11, 13, 14, and 26.

5.4 SOIL REMEDIATION ALTERNATIVES

5.4.1 IDENTIFICATION OF AVAILABLE ALTERNATIVES

Remediation of soil contaminated with fuel oil and associated volatile organic compounds from degradation estimated to be approximately 7,000 cubic yards can be performed by the following alternatives:

A. Soil Removal and Offsite Landfill Disposal
B. Soil Removal and Offsite Incineration
C. Soil Excavation and Onsite Treatment (Thermal and/or Biological)
D. Soil Excavation and Onsite Incineration

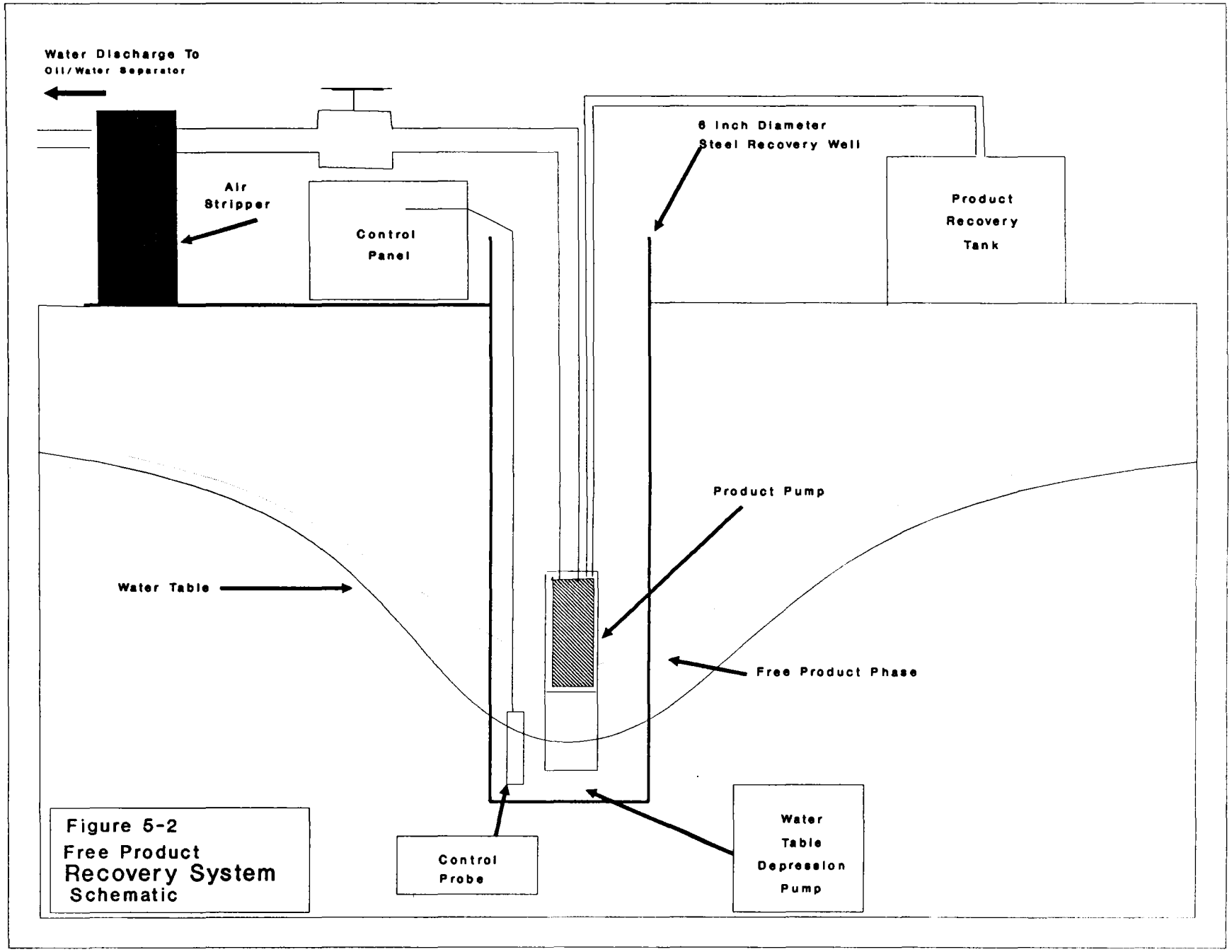

Figure 5-2
Free Product
Recovery System
Schematic

Alternatives A and B would require placement of clean soil in place of removed soil, whereas Alternatives C and D would allow for backfilling of treated soil.

New guidelines (April 6, 1990) from the VDWM on the disposal of petroleum contaminated soil greatly influence the selection and feasibility of soil disposal/treatment alternatives. New criteria applicable to the soil contamination at the FFS site include:

1. If the TPH concentration is greater than 500 ppm, the soil cannot be disposed of in <u>any</u> permitted sanitary or industrial landfill in Virginia (underline added for emphasis).

2. If the TPH concentrations are between 100 and 500 ppm, the soil shall only be disposed of in permitted or industrial landfills <u>equipped with liners and leachate collection systems</u> (underline added for emphasis).

3. If the TPH is less than 100 ppm, the soil can be left in place (under VWCB guidance) but would have to be disposed of in any permitted landfill if removed from the ground.

4. If the TPH of removed or treated soil is less than 50 ppm, the soil can be used as clean fill, with certain placement restrictions not applicable to the FFS site.

These guidelines also have soil testing requirements related to frequency (i.e., one composite sample for every 100 cubic yards of soil to be disposed), test methods, and parameters.

When these soil disposal guidelines are applied to the selection of soil remediation technologies for the FFS site, the following limitations are placed on the corrective action plan:

1. A majority (i.e., approximately 70% of the contaminated soil is believed to be above 500 ppm of TPH. All this soil will require onsite treatment prior to offsite landfill disposal.

2. The remaining contaminated soil (i.e., approximately 30%) is believed to be between 100 and 500 ppm of TPH. This soil could be disposed of in a landfill equipped with liners and leachate collection systems.

3. Approximately 70 TPH composite soil samples would be required to determine which 100 cubic yards can be landfill (i.e., <500 ppm) or requires onsite treatment (i.e., >500 ppm). This number of samples, which would require rapid analytical

turnaround during excavation, is based on the estimated 7,000 cubic yards of soil contaminated above 100 ppm of TPH.

The main decision to be made is, therefore, 1) to separate the excavated soil based on testing for landfill disposal versus onsite treatment, or 2) apply onsite treatment to all contaminated soil which would require substantially less soil testing, soil compositing and staging areas, and less clean fill to replace landfilled soil. Problems with obtaining representative composite samples of 100 cubic yards of soil arise since 100 cubic yards will require a storage area of 30 ft x 30 ft x 3 ft deep. More frequent composite samples could be collected (e.g., 1 sample per 10 cubic yard truckload) for a total of 700 samples. Soil composite samples from soil which contains "hot" spots of higher contamination and areas of low or even no contamination can result in either 1) dilution of high concentrations, or 2) contamination of clean soils. Neither result is desirable nor allowable under RCRA regulations.

5.4.2 FEASIBILITY SCREENING OF SOIL REMEDIATION ALTERNATIVES

Alternatives B and D - Offsite and Onsite Incineration to remediate contaminated soil at the FFS site are the most desireable to achieve both short- and long-term effectiveness, and reduction of toxicity, mobility, and volume since incineration in furnaces will obtain greater than 99.99% reduction of volatile and semivolatile contaminants. Also, both alternatives will achieve compliance with action levels and provide the greatest degree of protection to human health and the environment. Both can be implemented from startup in a relatively short time frame (i.e., offsite incineration in approximately 12 weeks and onsite incineration in approximately 16 weeks) since technologies are available. Air emission permits would be required for incinerator or furnace emission.

Alternative A - Offsite Landfill Disposal will provide similar levels of effectiveness as incineration but not comparable reduction of toxicity, mobility, and volume since no destruction or treatment of contaminated soil is achieved, only relocation. Landfill disposal can also be performed in a relatively short time frame (i.e., 12 weeks) if an appropriate landfills with liners and leachate collection systems are identified. Compliance with action levels will be achieved since all soil contaminated above 100 ppm of TPH will be removed from the site. This should provide adequate protection of human health and the environment at the FFS site.

Alternative C - Onsite Treatment, either thermal and/or biological enhancement of excavated soil, is probably the least effective alternative since the rate and levels of volatile and semivolatile contaminants that can be treated is unknown. A treatability study would have to be conducted to determine thermal and/or biological conditions

and controls and time necessary to treat contaminated soil to below 100 ppm of TPH. Also, onsite treatment would require a large land area and possibly control of air emissions during implementation. Such treatment would reduce the toxicity and volume of contaminants, but not the mobility. It is uncertain if action levels can be met and the overall protection of human health and the environment is unknown until treatability studies are conducted.

All four soil remediation alternatives require the excavation of contaminated soil (approximately 7,000 cubic yards). The areal extent of two (2) excavation sites will be approximately a 140 foot diameter circle around the underground vaults (see Area A in Figure 3-4) and a 60 foot diameter circle around the gasoline tank and Tank No. 26 (see Area B in Figure 3-4). Both excavations will be approximately 12 feet in depth. Given the sandy nature of the soil (non-cohesion), moisture level, and depth to groundwater of approximately 10 feet, soil dewatering will need to be performed and installation of pilings around the areas' circumference to prevent wall collapse is necessary. Soil dewatering, or lowering of the water table within the enclosed areas after piling installation will be performed by continuous groundwater pumping from well MW-22 and a newly installed 6-inch ID well in the east side of the excavation Area A. A similar well may or may not be necessary in Area B.

5.5 GROUNDWATER REMEDIATION ALTERNATIVES

5.5.1 IDENTIFICATION OF AVAILABLE ALTERNATIVES

Remediation of groundwater contaminated with volatile organics from degradation of petroleum hydrocarbons such as benzene and xylene can be performed the following alternatives. Groundwater remediation is required only if after free product recovery and soil remediation, additional groundwater monitoring indicates TPH levels above 1000 ppb.

A. Groundwater Extraction and Air Stripping with Reinjection
B. Groundwater Extraction and Carbon Adsorption with Reinjection
C. Groundwater Extraction and Offsite Disposal
D. Biological Groundwater Remediation

5.5.2 FEASIBILITY SCREENING OF GROUNDWATER REMEDIATION ALTERNATIVES

Remediation or treatment of contaminated groundwater at the FFS site, if required, to remove dissolved and residual volatile and semivolatile organics can be performed either by direct treatment, offsite disposal, or biological degradation. Alternatives A and B require extraction of contaminated groundwater above 1000 ppb of TPH and onsite aboveground treatment by either air stripping or carbon adsorption prior to reinjection to the shallow aquifer. The only difference between the two alternatives is the method and degree of aboveground treatment. Alternative C also requires groundwater extraction but provides for discharge to offsite sanitary or other wastewater system without

provides for aboveground treatment with biological agents, nutrients, and air to degrade petroleum byproducts.

Alternative A - Air Stripping with Reinjection requires the following major elements:

- Location and installation of extraction well(s);
- Location and installation of reinjection well(s);
- Location and installation of pressurized conveyance piping; and
- Construction and operation of air stripping tower and associated treatment units.

Extraction wells will capture the plumes of contaminated groundwater emanating from the FFS site. Using the average hydraulic conductivity obtained from the pump test performed during the site investigation, a maximum pumping rate of 50 gallons per minute (gpm) is estimated to capture the contaminant plumes. Some uncertainty exist in the calculated pumping rate because of the limits of the available data. The extraction wells will be located in a line west to east on the FFS site. The location was selected based on the plot of the contaminant areas generated from field data.

The extracted groundwater will be conveyed under pressure via an aboveground pipe. The pressurized main will deliver the groundwater to the treatment system. A computer model will be used to size an air stripping treatment system. Influent concentrations of volatile contaminants delivered to the treatment system are estimated to be greater than 1000 ppb. It is estimated that dual air stripping towers handling 25 gpm each with packing depth of 15 feet should reduce the influent concentrations of volatiles to less than the selected action level of 1000 ppb of TPH. The water to the air stripping system will be filtered using multimedia deep bed filters to remove iron as well as other suspended solids. Iron and total solids will be removed to prevent clogging of the air stripping media.

Alternative A, if properly designed and operated, can be highly effective in removing the low levels of volatile organics from the groundwater. It is estimated that volatilization rates below the newly established Virginia Air Control Board (VACB) rate of $\underline{4}$ pounds per hour can be obtained. Air stripping will reduce the volume and, therefore, the toxicity and mobility of the contaminants. It is relatively easy to implement and the equipment is readily available from local vendors.

Alternative B - Carbon Adsorption with Reinjection requires the same groundwater extraction and reinjection system as Alternative A, but absorption with activated carbon is used to remove organics instead of air stripping. Activated carbon is highly effective in removing high molecular weight organics at relatively high concentrations. Air emissions are not a problem since spent carbon would be removed from the

site and reactivated or disposed of at a regulated facility. Carbon adsorption will reduce the volume and mobility of the contaminants, and therefore the toxicity will be reduced. However, given the low concentrations of organics detected in the groundwater and the high cost of carbon, this technology is not as cost-effective as air stripping.

Alternative C - Offsite Disposal also requires the same groundwater extraction system as the two previous alternatives, but contaminated water would be transported offsite by truck for discharge to the nearest POTW ((i.e., Hampton Roads Sanitary District (HRSD)) pump station. This alternative will remove the contaminants from the FFS site and provide for appropriate treatment. Groundwater recharge would occur naturally which may affect surrounding wells withdrawal. This alternative will require the Navy to apply for and obtain all pretreatment discharge permits from HRSD and meet all applicable requirements prior to and during discharge. These requirements may be difficult and time consuming to implement.

Alternative D - Biological Remediation requires the same groundwater extraction and reinjection system as Alternatives A and B. A typical bioremediation system for petroleum hydrocarbons, such as PetroClean, requires an aboveground bioreactor from which nutrient- and oxygen-rich groundwater is injected into the subsurface soil/groundwater matrix to stimulate biological activity in the subsurface environment. This recycling action drives contaminants from the soil into the aqueous phase which is then recovered by the well system for further biodegradation in the bioreactor. Addition of metabolizing bacteria may or may not be required based on treatability study results. This alternative has been proven to be effective on low molecular weight organics and can reduce the toxicity and volume of contaminants. The recycling action reduces the mobility of contaminants. The action levels, given sufficient time, can possibly be met, but implementability and effectiveness can only be assessed from performance of a biofeasibility study using indigenous soils, groundwater, and bacterial cultures.

6.0 CORRECTIVE ACTION PLAN

The recovery of free product from the water table will be performed prior to excavation and treatment or disposal of contaminated soil. These remedial actions, along with pumping out of all tank wastes, will eliminate continuing sources of petroleum product contamination at the FFS site.

Remediation of groundwater is not required at this time. However, additional groundwater monitoring is recommended after free product recovery and soil remediation in order to ascertain if groundwater is still uncontaminated (i.e., below 1000 ppb of TPH). If groundwater monitoring detects contamination, then contaminated groundwater would require remediation.

6.1. FREE PRODUCT RECOVERY

6.1.1 CONCEPTUAL DESIGN AND OPERATIONAL REQUIREMENTS

As discussed in Section 5.3.1, a dual pump free product recovery system with direct product recovery for recycling and groundwater treatment prior to discharge is the preferred technology for the FFS site. All residual free product remaining after pumping will be collected during the soil excavation necessary for contaminated soil remediation.

6.1.2 PROJECTED REMEDIATION ENDPOINTS

Free product recovery by extraction from wells will be considered complete when no measurable quantities of free product are observed in any well for a period of 30 days. This endpoint assumes all current potential sources of free product, such as the tanks to be removed, have been pumped dry, and no future surface spills have occurred at the FFS site.

6.1.3 IMPLEMENTATION AND COMPLETION SCHEDULE

It is estimated that the design and construction of the free product recovery system will require approximately 120 days. As previously estimated, active pumping up to 90 days to ensure product recovery and an additional 30 days to obtain endpoint of remediation will be required. Therefore, a total of 240 days is required to implement free product recovery at the FFS site. The project can be started within 30 days of CAP submittal.

6.1.4 OPERATIONAL AND POST-OPERATION MONITORING SCHEDULE

Monitoring during recovery system operations will be performed at the following points at the given frequency:

1) Free product levels at observation wells MW-04 and MW-05 -- daily measurements.

2) Measurement of product recovery volume -- daily measurements.

3) Measurement of water level at observation wells MW-22, MW-12, MW-13, and MW-14 (see Figure 5-1) to calculate cone of depression -- daily calculations.

4) Air stripper effluent samples for BTEX and TPH analysis -- weekly samples.

5) Groundwater sample collection at 4 points for BTEX and TPH to determine if dissolved phase petroleum hydrocarbon are increasing due to pumping activity -- monthly samples.

Post-operational monitoring (i.e., after 30 days of no measurable product recovery) will consist of monthly level measurements from up to 6 observation wells. Sample collection of analysis for BTEX and TPH will be performed during soil excavation to groundwater during soil remediation phase.

6.1.5 WASTE DISPOSITION AND DISCHARGES

All recovered free product will be recycled at Carney Island for use by the Navy.

Applications to the VWCB and VACB will be submitted by the Navy upon approval of the CAP and issuance of CAP permit in accordance with Section 6.7 of VR 680-13-02. Application for permits will be required for surface water discharge of groundwater after product removal and air stripping, and air emissions of volatile organics from the air stripper.

6.2 SOIL REMEDIAL ALTERNATIVE

The preferred alternative to remediate the estimated 7,000 cubic yards of subsurface contaminated soil at the FFS site is Alternative D - Soil Excavation and Onsite Incineration. This alternative was selected for the following reasons:

1. Soil excavation and onsite incineration can be performed within 150 days.

2. Landfill disposal would require extensive sampling and soil segration. Onsite treatment would still be required to treat soil above 500 ppm TPH.
3. Onsite incineration will require storing and treatment areas onsite; however, adequate area is available at the site. This will allow demolition and removal of existing structures to be performed concurrently with soil excavation.
4. Onsite incineration is only about 20% more expensive than landfill disposal. It is believed that cost savings for soil testing, storing, segration, and transportation required for landfilling will be comparable to this difference.
5. Incinerated or clean soil can be placed back into the excavation reducing the need for extra backfill.

6.2.1 CONCEPTUAL DESIGN AND OPERATIONAL REQUIREMENTS

Soil excavation of soil above 100 ppm of TPH and onsite incineration will require the following stages for implementation.

1. System design and specification
2. Soil excavation plan (as outlined in Section 5.4.1).
3. Contaminated soil (above 100 ppm of TPH) and clean (i.e., <50 ppm TPH) soil staging/storing areas.
4. Mobilization and placement of rotary kiln thermal destruction unit onsite. The unit will, at a minimum meet the following specifications:
   - Processing rate = 30-50 tons per hour
   - Allowable Moisture Percentage = 15-20%
   - Contamination Level = up to 20,000 ppm of TPH
   - Destruction Efficiencies = >95% at stack
   - Particulate Emissions = <0.08 grams/cubic foot of soil; 12% CO_2.
   - VOC Emissions = <4.0 lbs/hour (VACB standard)

Air emissions can be controlled by wet scrubbers, after burners, high efficiency bag houses and cyclones to meet VACB standards. Usually a full complement of environmental monitoring controls to ensure complete thermal destruction of soil contaminants and exhaust gas monitoring are integral parts of such mobile units.

6.2.2 PROJECTED REMEDIATION ENDPOINTS

In accordance with VDWM guidelines, soil will be considered clean when it contains less than 50 ppm of TPH and less than 10 ppm of BTEX. Such soil can be placed back into the ground at the FFS site since 1) there is no regularly flowing river within 100 feet of the site, 2) there are no drinking water wells within 500 feet of the site, and 3) there are no residence, school, hospital, nursing home, or recreational areas within

200 feet of the site. The treated soil should be well below this endpoint.

6.2.3 IMPLEMENTATION AND COMPLETION SCHEDULE

It is estimated that the design and preparation for thermal treatment will require approximately 150 days. Upon start-up it is anticipated the complete soil treatment itself will require between 25 and 40 days depending on unit processing rate (i.e., 30 to 50 tons per hour). A total of approximately 9,100 tons of soil (based on 1.3 tons per cubic yard for 7,000 total cubic yards processing for 8 hours per day) will require treatment. Allowing for 15 days for mobilization, 5 days for unit setup and testing, and 5 days for demobilization, the total treatment time will range from 50 to 65 days.

Contaminated soil excavation, after asphalt and above-ground structures are removed, and clean soil placement will be performed continuously during soil treatment. Soil piling and dewatering systems will be installed during incinerator mobilization and startup time (i.e., approximately 20 days).

6.2.4 OPERATIONAL AND POST-OPERATIONAL MONITORING SCHEDULE

Periodic random sample collection will occur on excavation contaminated soil to ensure that design contamination levels (i.e., 20,000 ppm TPH) are not exceeded. Since the maximum soil TPH concentration detected at the FFS site was 12,700 ppm, daily random soil samples will be representative of soil fed to the incinerator.

Every 100 cubic yards of treated soil will be composited and sampled for TPH and BTEX to ensure TPH values are less than 50 ppm and BTEX values are less than 10 ppm. This monitoring schedule will satisfy the VDWM guidelines for backfill of clean soil.

In addition, air emissions from the incinerator will be measured continuously or frequently enough to determine VOCs and particulate emission rates (i.e., pounds per hour). Soil processing will stop if emission rates exceed permitted limits.

Post-operational monitoring to be performed for free product recovery remediation (see Section 6.1.4) will be adequate for post-operational monitoring for soil remediation.

6.2.5 WASTE DISPOSITION AND DISCHARGES

No wastes will be generated by soil remediation activities which will require disposal. Air emission discharges will be permitted by VACB before actual soil processing begins.

6.3 GROUNDWATER REMEDIAL ALTERNATIVE

The preferred alternative to remediate groundwater contamination, if required, at the FFS site is Alternative A - Groundwater Extraction and Air Stripping with Reinjection. This alternative was selected for the following reasons:

1. The low concentrations of BTEX in groundwater will readily be removed by air stripping technology. Carbon adsorption is more effective for removal of higher concentrations of higher molecular weight organics.
2. Air stripping removal does not require extensive feasibility studies that biological remediation does and can be performed in a shorter time frame.
3. Air stripping, other than compliance with air emissions, does not require extensive permitting and monitoring that is required for offsite groundwater disposal.
4. Air stripping is the most cost-effective technology for removal of groundwater contaminants.

A complete CAP for groundwater remediation will be prepared to obtain a CAP permit, if groundwater remediation is required after free product recovery and soil treatment.

6.4 TOTAL REMEDIATION COSTS

At the present time, the total cost to design, construct, and operate the two remedial actions is $961,000. This cost estimate consists of the following components:

- Free Product Recovery = $228,000; and
- Soil Remediation (Alternative D) = $733,000.

APPENDIX A

Site Photolog

Wide angle view of the new fire fighting school.
Photo 17.

View from soil boring 10 looking at the southwest fire pits.
Photo 25.

View from the northest corner of the helicopter pad at the southwest fire pit. Photo 16.

Eastward view of the studied concrete building.
Photo 23.

APPENDIX A
Photolog at FFS, Norfolk, Virginia

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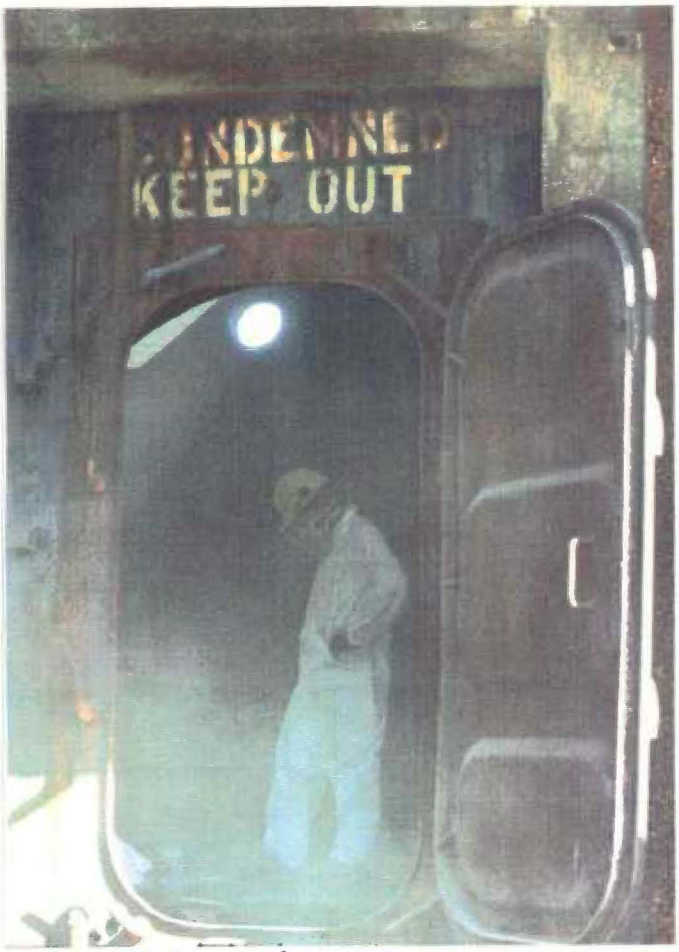
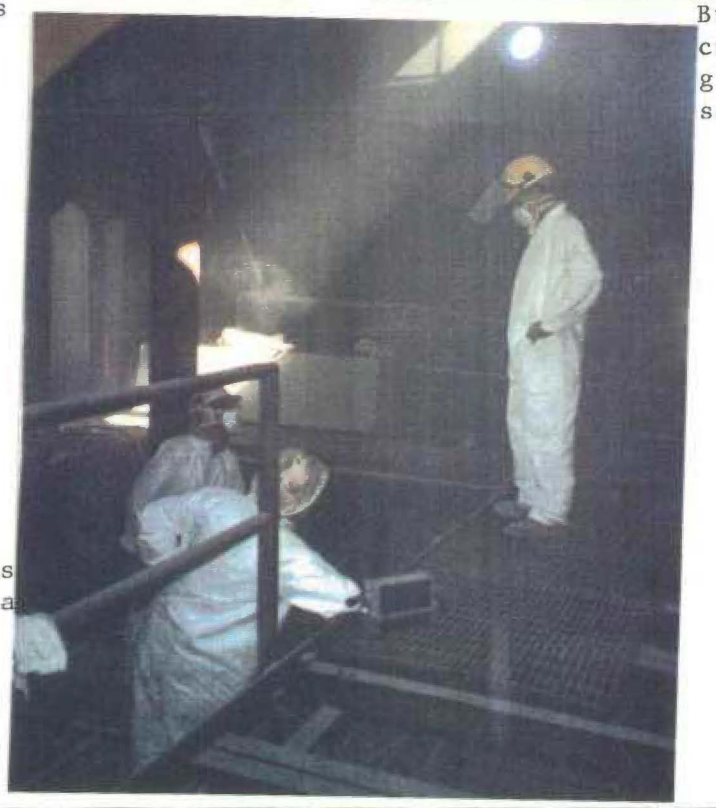


Hunter employee observes a concrete core being removed. Photo 10.

Breaking up the concrete slab in the engine room to take soil samples. Photo 11.



Two Hunter employees extracting concrete cores from the engine room while one monitors the gas and oxygen pressure with a MSA Combustible Gas and Oxygene Meter. Photo 9.

APPENDIX A
Photolog at FFS, Norfolk, Virginia

ESE
A CILCORP Company

Close up of the West side of the engine room.
Photo 8.

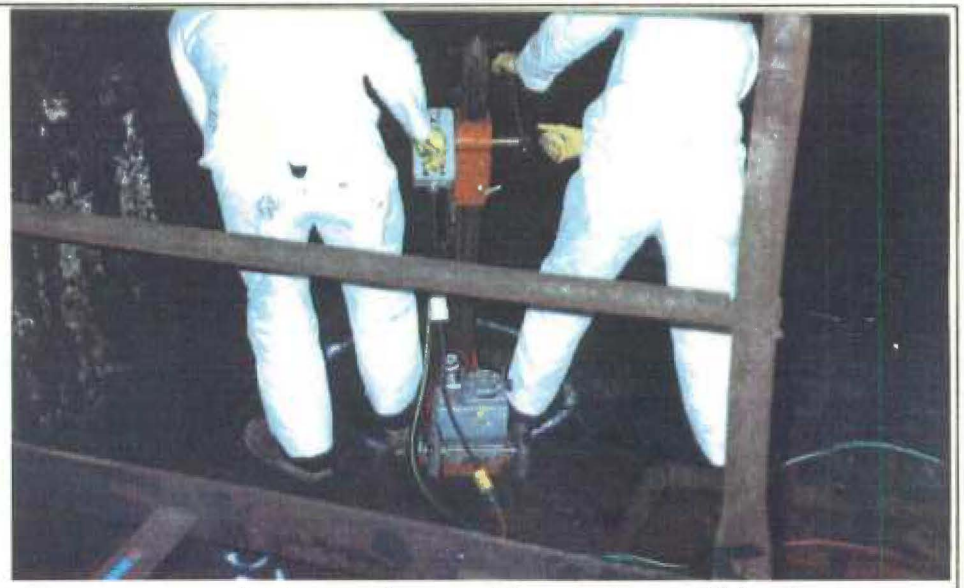


Illustration of the coring machine being utilized.
Photo 20.

Photograph of a sample being removed after the coring procedure. Photo 21

Photograph of setting up the core machine to extract a concrete core. Photo 19.

APPENDIX A
Photolog at FFS, Norfolk, Virginia

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ESE Environmental Science & Engineering, Inc.

A CH2CORP Company

Viewing the 27,000 gal. Underground Storage Tank located north of the Southeast fire pit. Photo 15.

Viewing the newly constructed fire fighting school. Photo 28.

Viewing the Air Raid Shelter from the Southeast fire pit. Photo 14.

Location of MW01 & MW02 near Northwest periphery of the site. Photo 22.

APPENDIX A
Photolog at FFS, Norfolk, Virginia

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Photograph of the southside of the three concrete fire structures. Photo 18.

Hunter employee inspecting the northern face wall of the boiler room. Photo 1.

Southside view of the concrete building near two large UST's. Photo 24.

Photograph of the decontamination line. Photo 30.

APPENDIX A
Photolog at FFS, Norfolk, Virginia

Environmental Science & Engineering, Inc.

Belpar employees steam cleaning sampling equipment for QA/QC. Photo 27.

Retreiving a soil sampling near the helicopter pad. Photo 7.

Close up view of a sample rod used to retreive a soil sample. Photo 5.

Illustration of an encased groundwater monitoring well. Photo 4.

APPENDIX A
Photolog at FFS, Norfolk, Virginia

ESE Environmental Science & Engineering, Inc.

Close up view of the Southern face of the boiler room.
Photo 26.

Hunter employee pointing to the Northern face of the boiler room. Photo 29.

APPENDIX B

Monitoring Well Boring Analytical Results

PROJECT NUMBER 94025 0204 PROJECT NAME NAVY - FIRE TRAINING
FIELD GROUP NANFTS1 LAB COORDINATOR JEFF SHAMIS
(PARTIAL REPORT: PREVIOUSLY UNREPORTED RESULTS)

RESULTS OF ANALYSIS

TARGET CODE:					98724	99263
METHOD CODE:					1	1
PARAMETER:					CORROSIVITY	TOX AS CL
UNITS:					MM/YR	UG/KG-DRY
FLD.GRP.	#	SAMPLE ID	DATE	TIME		
NANFTS4	1	MW01-U	10/02/89	17:20	NRQ	<6
NANFTS4	2	MW01-L	10/02/89	17:45	<6.35	<6
NANFTS4	3	MW02-U	10/03/89	18:15	NRQ	<6
NANFTS4	4	MW02-L	10/03/89	18:40	<6.35	<7
NANFTS4	5	MW03-U	09/28/89	17:00	NRQ	<280
NANFTS4	6	MW03-L	09/28/89	17:40	<6.35	<290
NANFTS4	7	MW04-U	09/30/89	09:55	NRQ	<2300
NANFTS4	8	MW04-L	09/30/89	10:15	<6.35	<2500
NANFTS4	9	MW05-U	09/28/89	13:35	NRQ	<260
NANFTS4	10	MW05-L	09/28/89	14:10	<6.35	<310
NANFTS4	11	MW06-U	09/30/89	11:15	NRQ	<2300
NANFTS4	12	MW06-L	09/30/89	11:30	<6.35	<2400
NANFTS4	13	MW07-U	09/30/89	13:00	NRQ	<2300
NANFTS4	14	MW07-L	09/30/89	13:30	<6.35	<2400
NANFTS4	15	MW08-U	09/30/89	08:40	NRQ	<6
NANFTS4	16	MW08-L	09/30/89	09:00	<6.35	<6
NANFTS4	17	MW09-U	10/02/89	14:00	NRQ	<6
NANFTS4	18	MW09-L	10/02/89	14:20	<6.35	<7
NANFTS4	19	MW10-U	10/02/89	16:15	NRQ	<6
NANFTS4	20	MW10-L	10/02/89	16:30	<6.35	<7
NANFTS4	21	MW11-U	10/02/89	11:50	NRQ	<30
NANFTS4	22	MW11-L	10/02/89	12:20	<6.35	<31
NANFTS4	23	MW12-U	10/02/89	08:30	NRQ	<33
NANFTS4	24	MW12-L	10/02/89	09:00	<6.35	<33
NANFTS4	25	MW03-M	09/28/89	17:30	NRQ	<300
NANFTS4	26	MW08-M	09/30/89	08:50	<6.35	<2300
NANFTS4	27	MW05-M	09/28/89	13:50	NRQ	<290
NANFTS4	28	MW07-M	09/30/89	13:15	NRQ	<2300

Hunter/ESE, Inc.
PROJECT NUMBER 94025 0204
FIELD GROUP NANFTS4

DATE 12/19/89 STATUS :FINAL
PROJECT NAME NAVY - FIRE TRAINING
LAB COORDINATOR JEFF SHAMIS

PARAMETERS	STORET	MW01-U	MW01-L	MW02-U	MW02-L	MW03-U	MW03-L	MW04-U	MW04-L	MW05-U	MW05-L	MW06-U	MW06-L	MW07-U	MW07-L	MW08-U
		SAMPLE ID/#														
		NANFTS4	NANFTS4	NANFTS4	NANFTS4	NANFTS4	NANFTS4	NANFTS4	NANFTS4	NANFTS4	NANFTS4	NANFTS4	NANFTS4	NANFTS4	NANFTS4	NANFTS4
UNITS	METHOD	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15
DATE		10/02/89	10/02/89	10/03/89	10/03/89	09/28/89	09/28/89	09/30/89	09/30/89	09/28/89	09/28/89	09/30/89	09/30/89	09/30/89	09/30/89	09/30/89
TIME		17:20	17:45	18:15	18:40	17:00	17:40	09:55	10:15	13:35	14:10	11:15	11:30	13:00	[illegible]	[illegible]
MOISTURE	70320	8.7	11.3	6.8	17.2	12.4	16.4	13.3	21.2	4.8	19.4	13.6	16.1	12.2	16.3	8.1
%WET WT	I															
FLASH POINT	74030	>60	>60	>60	>60	>60	>60	>60	>60	>60	>60	>60	>60	>60	>60	<60
DEG-C	I															
TOX,SED	99263	<6	<6	<6	<7	<280	<290	<2300	<2500	<260	<310	<2300	<2400	<2300	<2400	<6
UG/KG-DRY	I															
FUEL OIL #2	97152	<10.6	<10.9	<10.3	<11.7	446	8970	436	12700	3250	696	59.5	4560	2080	5230	108
UG/G	FI															
BENZENE	34237	<104	NRQ	462	NRQ	<108	NRQ	<106	NRQ	220	NRQ	314	NRQ	<105	NRQ	<99.9
UG/KG-DRY	PI															
ETHYLBENZENE	34374	<104	NRQ	287	NRQ	<108	NRQ	<106	NRQ	<94.6	NRQ	357	NRQ	<105	NRQ	<99.9
UG/KG-DRY	PI															
TOLUENE	34483	<104	NRQ	<96.9	NRQ	<108	NRQ	<106	NRQ	<94.6	NRQ	<107	NRQ	<105	NRQ	<99.9
UG/KG-DRY	PI															
XYLENES,TOTAL	45510	<104	NRQ	<96.9	NRQ	<108	NRQ	<106	NRQ	1600	NRQ	<107	NRQ	157	NRQ	<99.9
UG/KG-DRY	PI															
P-TOX,DATE OF EXTRACTION	97078	10-13-89	10-13-89	10-17-89	10-17-89	10/12/89	10/3/89	10-17-89	10/6/89	10/3/89	10/12/89	10-17-89	10-17-89	10-17-89	10-17-89	10-6-89
	M															
ARSENIC,DISS	1000	<5.0	<5.0	<5.0	<5.0	<5.0	7.5	<5.0	4.9	3.1	5.0	<5.0	<5.0	<5.0	5.1	5.3
UG/L	GFAA															
BARIUM,DISS	1005	137	100	360	157	358	86.4	225	69.2	354	113	264	124	253	81.3	244
UG/L	ICAP															
CADMIUM,DISS	1025	<4.0	<4.0	<4.0	<4.0	<4.0	<4.0	<4.0	<4.0	<4.0	<4.0	<4.0	<4.0	<4.0	<4.0	<4.0
UG/L	ICAP															
CHROMIUM,DISS	1030	<7.1	<7.1	<7.1	8.4	<7.1	<7.1	<7.1	<7.1	<7.1	<7.1	<7.1	<7.1	<7.1	<7.1	<7.1
UG/L	ICAP															
LEAD,DISS	1049	<44.7	<44.7	<44.7	<44.7	<44.7	<44.7	<44.7	<44.7	<44.7	<44.7	<44.7	<44.7	<44.7	<44.7	<44.7
UG/L	ICAP															
MERCURY,DISS.	71890	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2
UG/L	CVAA															
SELENIUM,DISS	1145	<1.8	<1.8	<1.8	<1.8	<1.8	<1.8	<1.8	<1.8	<1.8	<1.8	<1.8	<1.8	<1.8	<1.8	<1.8
UG/L	GFAA															
SILVER,DISS	1075	<6.8	<6.8	<6.8	<6.8	<6.8	<6.8	<6.8	<6.8	<6.8	<6.8	<6.8	<6.8	<6.8	<6.8	<6.8
UG/L	ICAP															
CORROSIVITY,SW846	98724	NRQ	<6.35	NRQ	<6.35	NRQ	<6.35	NRQ	<6.35	NRQ	<6.35	NRQ	<6.35	NRQ	<6.35	NRQ
MM/YR	I															
PCB 1016	39514	NRQ	<112	NRQ	<121	NRQ	<119	NRQ	<126	NRQ	<124	NRQ	<118	NRQ	<119	NRQ
UG/KG-DRY	EC															
PCB-1221	39491	NRQ	<110	NRQ	<120	NRQ	<120	NRQ	<130	NRQ	<120	NRQ	<120	NRQ	<120	NRQ
UG/KG-DRY	EC															
PCB-1232	39495	NRQ	<110	NRQ	<120	NRQ	<120	NRQ	<130	NRQ	<120	NRQ	<120	NRQ	<120	NRQ
UG/KG-DRY	EC															
PCB-1242	39499	NRQ	<110	NRQ	<120	NRQ	<120	NRQ	<130	NRQ	<120	NRQ	<120	NRQ	<120	NRQ
UG/KG-DRY	EC															
PCB-1248	39503	NRQ	<110	NRQ	<120	NRQ	<120	NRQ	<130	NRQ	<120	NRQ	<120	NRQ	<120	NRQ
UG/KG-DRY	EC															
PCB-1254	39507	NRQ	<110	NRQ	<120	NRQ	<120	NRQ	<130	NRQ	<120	NRQ	<120	NRQ	<120	NRQ
UG/KG-DRY	EC															

Hunter/ESE, Inc.
PROJECT NUMBER 94025 0204
FIELD GROUP NANFTS4

DATE 12/19/89 STATUS :FINAL
PROJECT NAME NAVY - FIRE TRAINING
LAB COORDINATOR JEFF SHAMIS

PARAMETERS	UNITS	STORET METHOD	MW01-U NANFTS4 1	MW01-L NANFTS4 2	MW02-U NANFTS4 3	MW02-L NANFTS4 4	MW03-U NANFTS4 5	MW03-L NANFTS4 6	MW04-U NANFTS4 7	MW04-L NANFTS4 8	MW05-U NANFTS4 9	MW05-L NANFTS4 10	MW06-U NANFTS4 11	MW06-L NANFTS4 12	MW07-U NANFTS4 13	MW07-L NANFTS4 14	MW08-U NANFTS4 15
			SAMPLE ID/#														
DATE			10/02/89	10/02/89	10/03/89	10/03/89	09/28/89	09/28/89	09/30/89	09/30/89	09/28/89	09/28/89	09/30/89	09/30/89	09/30/89	09/30/89	09/30/89
TIME			17:20	17:45	18:15	18:40	17:00	17:40	09:55	10:15	13:35	14:10	11:15	11:30	13:00	13:30	08:40
PCB-1260	UG/KG-DRY	39511 EC	NRQ	<110	NRQ	<120	NRQ	<120	NRQ	<130	NRQ	<120	NRQ	<120	NRQ	<120	NRQ
ACETONE	UG/KG-DRY	75059 GMS	NRQ	<6200	NRQ	<6600	NRQ	<6600	NRQ	<7000	NRQ	<6800	NRQ	<6600	NRQ	<6600	NRQ
BENZENE	UG/KG-DRY	34237 GMS	NRQ	<250	NRQ	<270	NRQ	<260	NRQ	<280	NRQ	<270	NRQ	<260	NRQ	<260	NRQ
BROMODICHLOROMETHANE	UG/KG-DRY	34330 GMS	NRQ	<120	NRQ	<130	NRQ	<130	NRQ	<140	NRQ	<140	NRQ	<130	NRQ	<130	NRQ
BROMOFORM	UG/KG-DRY	34290 GMS	NRQ	<260	NRQ	<280	NRQ	<280	NRQ	<300	NRQ	<290	NRQ	<280	NRQ	<280	NRQ
BROMOMETHANE	UG/KG-DRY	34416 GMS	NRQ	<320	NRQ	<340	NRQ	<330	NRQ	<360	NRQ	<350	NRQ	<330	NRQ	<330	NRQ
CARBON DISULFIDE	UG/KG-DRY	78544 GMS	NRQ	<250	NRQ	<270	NRQ	<260	NRQ	<280	NRQ	<270	NRQ	<260	NRQ	<260	NRQ
CARBON TETRACHLORIDE	UG/KG-DRY	34299 GMS	NRQ	<160	NRQ	<170	NRQ	<170	NRQ	<180	NRQ	<170	NRQ	<170	NRQ	<170	NRQ
CHLOROBENZENE	UG/KG-DRY	34304 GMS	NRQ	<340	NRQ	<360	NRQ	<360	NRQ	<380	NRQ	<370	NRQ	<360	NRQ	<360	NRQ
CHLOROETHANE	UG/KG-DRY	34314 GMS	NRQ	<460	NRQ	<500	NRQ	<490	NRQ	<520	NRQ	<510	NRQ	<490	NRQ	<490	NRQ
2-CHLOROETHYLVINYL ETHER	UG/KG-DRY	34579 GMS	NRQ	<560	NRQ	<600	NRQ	<600	NRQ	<630	NRQ	<620	NRQ	<600	NRQ	<600	NRQ
CHLOROFORM	UG/KG-DRY	34318 GMS	NRQ	<90	NRQ	<97	NRQ	<96	NRQ	<100	NRQ	<99	NRQ	<95	NRQ	<96	NRQ
CHLOROMETHANE	UG/KG-DRY	34421 GMS	NRQ	<240	NRQ	<260	NRQ	<260	NRQ	<270	NRQ	<270	NRQ	<260	NRQ	<260	NRQ
DIBROMOCHLOROMETHANE	UG/KG-DRY	34309 GMS	NRQ	<170	NRQ	<190	NRQ	<190	NRQ	<200	NRQ	<190	NRQ	<180	NRQ	<190	NRQ
1,1-DICHLOROETHANE	UG/KG-DRY	34499 GMS	NRQ	<260	NRQ	<280	NRQ	<280	NRQ	<300	NRQ	<290	NRQ	<280	NRQ	<280	NRQ
1,2-DICHLOROETHANE	UG/KG-DRY	34534 GMS	NRQ	<160	NRQ	<170	NRQ	<170	NRQ	<180	NRQ	<170	NRQ	<170	NRQ	<170	NRQ
1,1-DICHLOROETHYLENE	UG/KG-DRY	34504 GMS	NRQ	<160	NRQ	<170	NRQ	<170	NRQ	<180	NRQ	<170	NRQ	<170	NRQ	<170	NRQ
TRANS-1,2-DICHLORO ETHENE	UG/KG-DRY	34549 GMS	NRQ	<90	NRQ	<97	NRQ	<96	NRQ	<100	NRQ	<99	NRQ	<95	NRQ	<96	NRQ
1,2-DICHLOROPROPANE	UG/KG-DRY	34544 GMS	NRQ	<340	NRQ	<360	NRQ	<360	NRQ	<380	NRQ	<370	NRQ	<360	NRQ	<360	NRQ
CIS-1,3-DICHLORO PROPENE	UG/KG-DRY	34702 GMS	NRQ	<280	NRQ	<300	NRQ	<300	NRQ	<320	NRQ	<310	NRQ	<300	NRQ	<300	NRQ
TRANS-1,3-DICHLORO PROPENE	UG/KG-DRY	34697 GMS	NRQ	<360	NRQ	<390	NRQ	<380	NRQ	<410	NRQ	<400	NRQ	<380	NRQ	<380	NRQ
ETHYLBENZENE	UG/KG-DRY	34374 GMS	NRQ	<410	NRQ	<430	NRQ	600	NRQ	4700	NRQ	<450	NRQ	1500	NRQ	1200	NRQ
2-HEXANONE	UG/KG-DRY	75166 GMS	NRQ	<1200	NRQ	<1300	NRQ	<1300	NRQ	<1300	NRQ	<1300	NRQ	<1300	NRQ	<1300	NRQ
METHYLENE CHLORIDE	UG/KG-DRY	34426 GMS	NRQ	<1100	NRQ	<1200	NRQ	<1200	NRQ	<1300	NRQ	<1200	NRQ	<1200	NRQ	<1200	NRQ

Hunter/ESE, Inc.
PROJECT NUMBER 94025 0204
FIELD GROUP NANFTS4

DATE 12/19/89 STATUS :FINAL
PROJECT NAME NAVY - FIRE TRAINING
LAB COORDINATOR JEFF SHAMIS

		SAMPLE ID/#														
RAMETERS	STORET	MW01-U	MW01-L	MW02-U	MW02-L	MW03-U	MW03-L	MW04-U	MW04-L	MW05-U	MW05-L	MW06-U	MW06-L	MW07-U	MW07-L	MW08-U
		NANFTS4	NANFTS4	NANFTS4	NANFTS4	NANFTS4	NANFTS4	NANFTS4	NANFTS4	NANFTS4	NANFTS4	NANFTS4	NANFTS4	NANFTS4	NANFTS4	NANFTS4
UNITS	METHOD	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15
TE		10/02/89	10/02/89	10/03/89	10/03/89	09/28/89	09/28/89	09/30/89	09/30/89	09/28/89	09/28/89	09/30/89	09/30/89	09/30/89	09/30/89	09/30/89
ME		17:20	17:45	18:15	18:40	17:00	17:40	09:55	10:15	13:35	14:10	11:15	11:30	13:00	[illegible]	[illegible]
THYL ETHYL KETONE	75078	NRQ	<2700	NRQ	<2900	NRQ	<2900	NRQ	<3000	NRQ	<3000	NRQ	<2900	NRQ	[illegible]	NRQ
UG/KG-DRY	GMS															
THYL ISOBUT'KETONE	75169	NRQ	<680	NRQ	<720	NRQ	<720	NRQ	<760	NRQ	<740	NRQ	<720	NRQ	[illegible]	NRQ
UG/KG-DRY	GMS															
YRENE	75192	NRQ	<400	NRQ	<430	NRQ	<420	NRQ	<450	NRQ	<440	NRQ	<420	NRQ	[illegible]	NRQ
UG/KG-DRY	GMS															
1,2,2-TETRACHLORO	34519	NRQ	<230	NRQ	<250	NRQ	<250	NRQ	<260	NRQ	<250	NRQ	<240	NRQ	[illegible]	NRQ
HANE UG/KG-DRY	GMS															
TRACHLOROETHENE	34478	NRQ	<230	NRQ	<250	NRQ	<250	NRQ	<260	NRQ	<250	NRQ	<240	NRQ	[illegible]	NRQ
UG/KG-DRY	GMS															
OLUENE	34483	NRQ	<340	NRQ	<360	NRQ	<360	NRQ	<380	NRQ	<370	NRQ	<360	NRQ	[illegible]	NRQ
UG/KG-DRY	GMS															
1,1-TRICHL'ETHANE	34509	NRQ	<210	NRQ	<230	NRQ	<230	NRQ	<240	NRQ	<240	NRQ	<230	NRQ	[illegible]	NRQ
UG/KG-DRY	GMS															
1,2-TRICHL'ETHANE	34514	NRQ	<280	NRQ	<300	NRQ	<300	NRQ	<320	NRQ	<310	NRQ	<300	NRQ	[illegible]	NRQ
UG/KG-DRY	GMS															
RICHLOROETHENE	34487	NRQ	<110	NRQ	<110	NRQ	<110	NRQ	<120	NRQ	<120	NRQ	<110	NRQ	[illegible]	NRQ
UG/KG-DRY	GMS															
INYL CHLORIDE	34495	NRQ	<280	NRQ	<300	NRQ	<290	NRQ	<310	NRQ	<300	NRQ	<290	NRQ	[illegible]	NRQ
UG/KG-DRY	GMS															
INYL ACETATE	98583	NRQ	<1200	NRQ	<1300	NRQ	<1300	NRQ	<1300	NRQ	<1300	NRQ	<1300	NRQ	[illegible]	NRQ
UG/KG-DRY	GMS															
YLENE,SED	45510	NRQ	<340	NRQ	<360	NRQ	<360	NRQ	<380	NRQ	670	NRQ	1100	NRQ	[illegible]	NRQ
UG/KG-DRY	GMS															

Hunter/ESE, Inc. DATE 12/19/89 STATUS :FINAL
PROJECT NUMBER 94025 0204 PROJECT NAME NAVY - FIRE TRAINING
FIELD GROUP NANFTS4 LAB COORDINATOR JEFF SHAMIS

PARAMETERS	STORET	MW08-L	MW09-U	MW09-L	MW10-U	MW10-L	MW11-U	MW11-L	MW12-U	MW12-L	MW03-M	MW08-M	MW05-M	MW07-M
		SAMPLE ID/#												
		NANFTS4	NANFTS4	NANFTS4	NANFTS4	NANFTS4	NANFTS4	NANFTS4	NANFTS4	NANFTS4	NANFTS4	NANFTS4	NANFTS4	NANFTS4
UNITS	METHOD	16	17	18	19	20	21	22	23	24	25	26	27	28
DATE		09/30/89	10/02/89	10/02/89	10/02/89	10/02/89	10/02/89	10/02/89	10/02/89	10/02/89	09/28/89	09/30/89	09/28/89	09/30/89
TIME		09:00	14:00	14:20	16:15	16:30	11:50	12:20	08:30	09:00	17:30	08:50	13:50	13:15
MOISTURE	70320	15.3	12.2	18.9	11.5	16.8	9.6	11.9	17.3	16.3	17.7	14.6	15.6	11.6
%WET WT	I													
FLASH POINT	74030	>60	>60	>60	>60	>60	>60	>60	>60	>60	>60	>60	>60	>60
DEG-C	I													
TOX,SED	99263	<6	<6	<7	<6	<7	<30	<31	<33	<33	<300	<2300	<290	<2300
UG/KG-DRY	I													
FUEL OIL #2	97152	2720	<11.1	<11.9	39.7	81.2	140	<10.4	63.4	<11.6	<11.8	<11.3	191	191
UG/G	FI													
BENZENE	34237	NRQ	<101	NRQ	<99.7	NRQ	<103	NRQ	448	NRQ	<111	NRQ	<107	<101
UG/KG-DRY	PI													
ETHYLBENZENE	34374	NRQ	<101	NRQ	174	NRQ	520	NRQ	<113	NRQ	<111	NRQ	<107	<101
UG/KG-DRY	PI													
TOLUENE	34483	NRQ	<101	NRQ	<99.7	NRQ	182	NRQ	<113	NRQ	<111	NRQ	<107	<101
UG/KG-DRY	PI													
XYLENES,TOTAL	45510	NRQ	<101	NRQ	301	NRQ	1810	NRQ	<113	NRQ	<111	NRQ	159	<101
UG/KG-DRY	PI													
EP-TOX,DATE OF EXTRACTION	97078	10-17-89	10-17-89	10-17-89	10-17-89	10/6/89	10-17-89	10/6/89	10-17-89	10-17-89	10/12/89	10-17-89	10/12/89	10-17-89
	M													
ARSENIC,DISS	1000	<5.0	<5.0	<5.0	<5.0	5.9	<5.0	<2.3	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0
UG/L	GFAA													
BARIUM,DISS	1005	148	141	84.6	120	96.9	204	141	208	82.6	74.9	153	120	177
UG/L	ICAP													
CADMIUM,DISS	1025	<4.0	<4.0	<4.0	<4.0	<4.0	<4.0	<4.0	<4.0	<4.0	<4.0	<4.0	<4.0	<4.0
UG/L	ICAP													
CHROMIUM,DISS	1030	<7.1	<7.1	<7.1	<7.1	<7.1	<7.1	<7.1	<7.1	<7.1	<7.1	<7.1	<7.1	<7.1
UG/L	ICAP													
LEAD,DISS	1049	<44.7	<44.7	<44.7	<44.7	<44.7	<44.7	<44.7	<44.7	<44.7	<44.7	<44.7	<44.7	<44.7
UG/L	ICAP													
MERCURY,DISS.	71890	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2
UG/L	CVAA													
SELENIUM,DISS	1145	<1.8	<1.8	<1.8	<1.8	<1.8	<1.8	<1.8	<1.8	<1.8	<1.8	<1.8	<1.8	<1.8
UG/L	GFAA													
SILVER,DISS	1075	<6.8	<6.8	<6.8	<6.8	<6.8	<6.8	<6.8	<6.8	<6.8	<6.8	<6.8	<6.8	<6.8
UG/L	ICAP													
CORROSIVITY,SW846	98724	<6.35	NRQ	<6.35	NRQ	<6.35	NRQ	<6.35	NRQ	<6.35	NRQ	<6.35	NRQ	NRQ
MM/YR	I													
PCB 1016	39514	<118	NRQ	<123	NRQ	<120	NRQ	<113	NRQ	<119	NRQ	<117	NRQ	NRQ
UG/KG-DRY	EC													
PCB-1221	39491	<120	NRQ	<120	NRQ	<120	NRQ	<110	NRQ	<120	NRQ	<120	NRQ	NRQ
UG/KG-DRY	EC													
PCB-1232	39495	<120	NRQ	<120	NRQ	<120	NRQ	<110	NRQ	<120	NRQ	<120	NRQ	NRQ
UG/KG-DRY	EC													
PCB-1242	39499	<120	NRQ	<120	NRQ	<120	NRQ	<110	NRQ	<120	NRQ	<120	NRQ	NRQ
UG/KG-DRY	EC													
PCB-1248	39503	<120	NRQ	<120	NRQ	<120	NRQ	<110	NRQ	<120	NRQ	<120	NRQ	NRQ
UG/KG-DRY	EC													
PCB-1254	39507	<120	NRQ	<120	NRQ	<120	NRQ	<110	NRQ	<120	NRQ	<120	NRQ	NRQ
UG/KG-DRY	EC													

Environmental Science and Engineering DATE 04/24/90 STATUS: FINAL PAGE 1
PROJECT NUMBER 94025 0205 PROJECT NAME NAVY - FTC - SOIL
FIELD GROUP NANFTS5 LAB COORDINATOR JEFF SHAMIS

SAMPLE ID'S		FD#	MW-19	MW-17	MW-21	MW-13	MW-14	MW-18	MW-16	MW-22	MW-22	MW-15	MW-20	MW-22T	MW-22B
PARAMETERS	STORET	NANFTS5	NANFTS5	NANFTS5	NANFTS5	NANFTS5	NANFTS5	NANFTS5	NANFTS5	NANFTS5	NANFTS5	NANFTS5	NANFTS5	NANFTS5	NANFTS5
UNITS	METHOD	1	2	3	4	5	6	7	9	10	11	13	15	16	17
DATE		03/01/90	02/26/90	02/28/90	02/28/90	03/01/90	03/01/90	03/01/90	03/01/90	03/13/90	03/13/90	03/01/90	02/28/90	03/13/90	03/13/90
TIME			12:40	16:21	12:05	20:40	16:26	08:30	20:24	08:35	09:05	11:15	08:45		
MOISTURE	70320	10.0	15.1	13.2	10.5	14.7	12.1	13.3	18.2	19.2	26.0	10.0	10.7	19.7	23.0
%WET WT	I														
RESIDUE,VOLATILE	70322	NRQ	NRQ	NRQ	NRQ	NRQ	NRQ	NRQ	NRQ	NRQ	NRQ	NRQ	NRQ	<1	5
%-DRY	I														
TPH, AS AVGAS	96019	<14.1	<15.0	<14.6	<14.2	<14.9	<14.4	<14.6	<15.5	<15.7	<17.2	<14.1	<14.2	NRQ	NRQ
UG/G-DRY	FI														
TPH, AS GAS	96020	<5.11	<5.42	<5.30	<5.14	<5.39	<5.23	<5.31	<5.62	<5.69	<6.22	<5.11	<5.15	NRQ	NRQ
UG/G-DRY	FI														
TPH, AS DIESEL	96021	<5.39	<5.71	<5.59	<5.42	<5.69	<5.52	<5.59	<5.93	<6.00	<6.55	<5.39	<5.43	NRQ	NRQ
UG/G-DRY	FI														
ACETONE	75059	<6100	<6500	<6300	<6100	<6400	<6300	<6300	<6700	<6800	<7400	<6100	<6200	NRQ	NRQ
UG/KG-DRY	GMS														
BENZENE	34237	<240	<260	<250	<250	<260	<250	<250	<270	<270	<300	<240	<250	NRQ	NRQ
UG/KG-DRY	GMS														
BROMODICHLOROMETHANE	34330	<120	<130	<130	<120	<130	<130	<130	<130	<140	<150	<120	<120	NRQ	NRQ
UG/KG-DRY	GMS														
BROMOFORM	34290	<260	<280	<270	<260	<280	<270	<270	<290	<290	<320	<260	<260	NRQ	NRQ
UG/KG-DRY	GMS														
BROMOMETHANE	34416	<310	<330	<320	<310	<330	<320	<320	<340	<350	<380	<310	<310	NRQ	NRQ
UG/KG-DRY	GMS														
CARBON DISULFIDE	78544	<240	<260	<250	<250	<260	<250	<250	<270	<270	<300	<240	<250	NRQ	NRQ
UG/KG-DRY	GMS														
CARBON TETRACHLORIDE	34299	<160	<160	<160	<160	<160	<160	<160	<170	<170	<190	<160	<160	NRQ	NRQ
UG/KG-DRY	GMS														
CHLOROBENZENE	34304	<330	<350	<350	<340	<350	<340	<350	<370	<370	<410	<330	<340	NRQ	NRQ
UG/KG-DRY	GMS														
CHLOROETHANE	34314	<460	<480	<470	<460	<480	<470	<470	<500	<510	<550	<460	<460	NRQ	NRQ
UG/KG-DRY	GMS														
2-CHLOROETHYLVINYL	34579	<560	<590	<580	<560	<590	<570	<580	<610	<620	<680	<560	<560	NRQ	NRQ
ETHER UG/KG-DRY	GMS														
CHLOROFORM	34318	<89	<94	<92	<89	<94	<91	<92	<98	<99	<110	<89	<90	NRQ	NRQ
UG/KG-DRY	GMS														
CHLOROMETHANE	34421	<240	<250	<250	<240	<250	<240	<250	<260	<270	<290	<240	<240	NRQ	NRQ
UG/KG-DRY	GMS														
DIBROMOCHLOROMETHANE	34309	<170	<180	<180	<170	<180	<180	<180	<190	<190	<210	<170	<170	NRQ	NRQ
UG/KG-DRY	GMS														
,1-DICHLOROETHANE	34499	<260	<280	<270	<260	<280	<270	<270	<290	<290	<320	<260	<260	NRQ	NRQ
UG/KG-DRY	GMS														
,2-DICHLOROETHANE	34534	<160	<160	<160	<160	<160	<160	<160	<170	<170	<190	<160	<160	NRQ	NRQ
UG/KG-DRY	GMS														
,1-DICHLOROETHYLENE	34504	<160	<160	<160	<160	<160	<160	<160	<170	<170	<190	<160	<160	NRQ	NRQ
UG/KG-DRY	GMS														
RANS-1,2-DICHLORO	34549	<89	<94	<92	<89	<94	<91	<92	<98	<99	<110	<89	<90	NRQ	NRQ
THENE UG/KG-DRY	GMS														
,2-DICHLOROPROPANE	34544	<330	<350	<350	<340	<350	<340	<350	<370	<370	<410	<330	<340	NRQ	NRQ
UG/KG-DRY	GMS														
IS-1,3-DICHLORO	34702	<280	<290	<290	<280	<290	<280	<290	<310	<310	<340	<280	<280	NRQ	NRQ
ROPENE UG/KG-DRY	GMS														

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PROJECT NUMBER 94025 0205 PROJECT NAME NAVY - FTC - SOIL
FIELD GROUP NANFTS5 LAB COORDINATOR JEFF SHAMIS

SAMPLE ID'S		FD#	MW-19	MW-17	MW-21	MW-13	MW-14	MW-18	MW-16	MW-22	MW-22	MW-15	MW-20	MW-22T	MW-22B
PARAMETERS	STORET	NANFTS5	NANFTS5	NANFTS5	NANFTS5	NANFTS5	NANFTS5	NANFTS5	NANFTS5	NANFTS5	NANFTS5	NANFTS5	NANFTS5	NANFTS5	NANFTS5
UNITS	METHOD	1	2	3	4	5	6	7	9	10	11	13	15	16	17
DATE		03/01/90	02/26/90	02/28/90	02/28/90	03/01/90	03/01/90	03/01/90	03/01/90	03/13/90	03/13/90	03/01/90	02/28/90	03/13/90	03/13/90
TIME			12:40	16:21	12:05	20:40	16:26	08:30	20:24	08:35	09:05	11:15	08:45		
TRANS-1,3-DICHLORO PROPENE UG/KG-DRY	34697 GMS	<360	<380	<370	<360	<380	<360	<370	<390	<400	<430	<360	<360	NRQ	NRQ
ETHYLBENZENE UG/KG-DRY	34374 GMS	<400	<420	<410	<400	<420	<410	<420	<440	<450	<490	<400	<400	NRQ	NRQ
2-HEXANONE UG/KG-DRY	75166 GMS	<1200	<1200	<1200	<1200	<1200	<1200	<1200	<1300	<1300	<1400	<1200	<1200	NRQ	NRQ
METHYLENE CHLORIDE UG/KG-DRY	34426 GMS	<1100	<1200	<1200	<1100	<1200	<1100	<1200	<1200	<1200	<1400	<1100	<1100	NRQ	NRQ
METHYL ETHYL KETONE UG/KG-DRY	75078 GMS	<2700	<2800	<2800	<2700	<2800	<2700	<2800	<2900	<3000	<3200	<2700	<2700	NRQ	NRQ
METHYL ISOBUT'KETONE UG/KG-DRY	75169 GMS	<670	<710	<690	<670	<700	<680	<690	<730	<740	<810	<670	<670	NRQ	NRQ
STYRENE UG/KG-DRY	75192 GMS	<390	<420	<410	<400	<420	<400	<410	<430	<440	<480	<390	<400	NRQ	NRQ
1,1,2,2-TETRACHLORO THANE UG/KG-DRY	34519 GMS	<230	<240	<240	<230	<240	<230	<240	<250	<250	<280	<230	<230	NRQ	NRQ
ETRACHLOROETHENE UG/KG-DRY	34478 GMS	<230	<240	<240	<230	<240	<230	<240	<250	<250	<280	<230	<230	NRQ	NRQ
OLUENE UG/KG-DRY	34483 GMS	<330	<350	<350	<340	<350	<340	<350	<370	<370	<410	<330	<340	NRQ	NRQ
1,1,1-TRICHL'ETHANE UG/KG-DRY	34509 GMS	<210	<220	<220	<210	<220	<220	<220	<230	<240	<260	<210	<210	NRQ	NRQ
1,1,2-TRICHL'ETHANE UG/KG-DRY	34514 GMS	<280	<290	<290	<280	<290	<280	<290	<310	<310	<340	<280	<280	NRQ	NRQ
RICHLOROETHENE UG/KG-DRY	34487 GMS	<110	<110	<110	<110	<110	<110	<110	<120	<120	<130	<110	<110	NRQ	NRQ
INYL CHLORIDE UG/KG-DRY	34495 GMS	<270	<290	<280	<270	<290	<280	<280	<300	<300	<330	<270	<270	NRQ	NRQ
INYL ACETATE UG/KG-DRY	98583 GMS	<1200	<1200	<1200	<1200	<1200	<1200	<1200	<1300	<1300	<1400	<1200	<1200	NRQ	NRQ
YLENE,SED UG/KG-DRY	45510 GMS	<330	<350	<350	<340	<350	<340	<350	<370	<370	<410	<330	<340	NRQ	NRQ

Hunter/ESE, Inc.
PROJECT NUMBER 94025 0204
FIELD GROUP NANFTS4

DATE 12/19/89 STATUS :FINAL
PROJECT NAME NAVY - FIRE TRAINING
LAB COORDINATOR JEFF SHAMIS

		SAMPLE ID/#														
		MW01-U	MW01-L	MW02-U	MW02-L	MW03-U	MW03-L	MW04-U	MW04-L	MW05-U	MW05-L	MW06-U	MW06-L	MW07-U	MW[illegible]-L	MW[illegible]-U
PARAMETERS	STORET	NANFTS4	NANFTS4	NANFTS4	NANFTS4	NANFTS4	NANFTS4	NANFTS4	NANFTS4	NANFTS4	NANFTS4	NANFTS4	NANFTS4	NANFTS4	NANFTS4	NANFTS4
UNITS	METHOD	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15
DATE		10/02/89	10/02/89	10/03/89	10/03/89	09/28/89	09/28/89	09/30/89	09/30/89	09/28/89	09/28/89	09/30/89	09/30/89	09/30/89	09/30/89	09/30/89
TIME		17:20	17:45	18:15	18:40	17:00	17:40	09:55	10:15	13:35	14:10	11:15	11:30	13:00	13:30	09:40
MOISTURE	70320	8.7	11.3	6.8	17.2	12.4	16.4	13.3	21.2	4.8	19.4	13.6	16.1	12.2	[illegible]	[illegible]
%WET WT	1	G9375	G9375	G9375	G9375	G9375	G9333	G9375	G9333	G9333	G9375	G9333	G9333	G9333	G9333	G9333
FLASH POINT	74030	>60	>60	>60	>60	>60	>60	>60	>60	>60	>60	>60	>60	>60	<60	<60
DEG-C	1	G9586	G9586	G9586	G9586	G9586	G9586	G9586	G9586	G9586	G9586	G9586	G9586	G9586	G9586	G9586
TOX,SED	99263	<6	<6	<6	<7	<280	<290	<2300	<2500	<260	<310	<2300	<2400	<2300	<2400	<6
UG/KG-DRY	1	G9569	G9569	G9569	G9569	G9581	G9581	G10079	G10079	G9581	G9581	G10079	G10079	G10079	G10079	G9569
FUEL OIL #2	97152	<10.6	<10.9	<10.3	<11.7	446	8970	436	12700	3250	696	59.5	4560	2080	5230	108
UG/G	F1	G9354	G9354	G9354	G9354	G9354	G9354	G9354	G9354	G9354	G9354	G9354	G9354	G9354	G9354	G9354
BENZENE	34237	<104	NRQ	462	NRQ	<108	NRQ	<106	NRQ	220	NRQ	314	NRQ	<105	NRQ	<99.9
UG/KG-DRY	P1	G9428		G9428		G9428		G9428		G9428		G9428		G9428		G9428
ETHYLBENZENE	34374	<104	NRQ	287	NRQ	<108	NRQ	<106	NRQ	<94.6	NRQ	357	NRQ	<105	NRQ	<99.9
UG/KG-DRY	P1	G9428		G9428		G9428		G9428		G9428		G9428		G9428		G9428
TOLUENE	34483	<104	NRQ	<96.9	NRQ	<108	NRQ	<106	NRQ	<94.6	NRQ	<107	NRQ	<105	NRQ	<99.9
UG/KG-DRY	P1	G9428		G9428		G9428		G9428		G9428		G9428		G9428		G9428
XYLENES,TOTAL	45510	<104	NRQ	<96.9	NRQ	<108	NRQ	<106	NRQ	1600	NRQ	<107	NRQ	157	NRQ	<99.9
UG/KG-DRY	P1	G9428		G9428		G9428		G9428		G9428		G9428		G9428		G9428
EP-TOX,DATE OF EXTRA	97078	10-13-89	10-13-89	10-17-89	10-17-89	10/12/89	10/3/89	10-17-89	10/6/89	10/3/89	10/12/89	10-17-89	10-17-89	10-17-89	10-17-89	10-17-89
TION	M	G9353	G9353	G9469	G9469	G9396	G9189	G9469	G9291	G9189	G9396	G9469	G9469	G9469	G9469	G9291
ARSENIC,DISS	1000	<5.0	<5.0	<5.0	<5.0	<5.0	7.5	<5.0	4.9	3.1	5.0	<5.0	<5.0	<5.0	[illegible]	[illegible]
UG/L	GFAA	G9601	G9601	G9601	G9601	G9601	G9253	G9601	G9253	G9253	G9601	G9601	G9601	G9601	G9601	G9253
BARIUM,DISS	1005	137	100	360	157	358	86.4	225	69.2	354	113	264	124	253	81.3	244
UG/L	ICAP	G9598	G9598	G9598	G9598	G9598	G9321	G9598	G9321	G9321	G9598	G9598	G9598	G9598	G9598	G9321
CADMIUM,DISS	1025	<4.0	<4.0	<4.0	<4.0	<4.0	<4.0	<4.0	<4.0	<4.0	<4.0	<4.0	<4.0	<4.0	<4.0	<4.0
UG/L	ICAP	G9598	G9598	G9598	G9598	G9598	G9321	G9598	G9321	G9321	G9598	G9598	G9598	G9598	G9598	G9321
CHROMIUM,DISS	1030	<7.1	<7.1	<7.1	8.4	<7.1	<7.1	<7.1	<7.1	<7.1	<7.1	<7.1	<7.1	<7.1	<7.1	<7.1
UG/L	ICAP	G9598	G9598	G9598	G9598	G9598	G9321	G9598	G9321	G9321	G9598	G9598	G9598	G9598	G9598	G9321
LEAD,DISS	1049	<44.7	<44.7	<44.7	<44.7	<44.7	<44.7	<44.7	<44.7	<44.7	<44.7	<44.7	<44.7	<44.7	<44.7	<44.7
UG/L	ICAP	G9598	G9598	G9598	G9598	G9598	G9321	G9598	G9321	G9321	G9598	G9598	G9598	G9598	G9598	G9321
MERCURY,DISS.	71890	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2
UG/L	CVAA	G9545	G9545	G9545	G9545	G9545	G9328	G9545	G9328	G9328	G9545	G9545	G9545	G9545	G9545	G9328
SELENIUM,DISS	1145	<1.8	<1.8	<1.8	<1.8	<1.8	<1.8	<1.8	<1.8	<1.8	<1.8	<1.8	<1.8	<1.8	<1.8	<1.8
UG/L	GFAA	G9631	G9631	G9631	G9631	G9631	G9262	G9631	G9262	G9262	G9631	G9631	G9631	G9631	G9631	G9262
SILVER,DISS	1075	<6.8	<6.8	<6.8	<6.8	<6.8	<6.8	<6.8	<6.8	<6.8	<6.8	<6.8	<6.8	<6.8	<6.8	<6.8
UG/L	ICAP	G9598	G9598	G9598	G9598	G9598	G9321	G9598	G9321	G9321	G9598	G9598	G9598	G9598	G9598	G9321
CORROSIVITY,SW846	98724	NRQ	<6.35	NRQ	<6.35	NRQ	<6.35	NRQ	<6.35	NRQ	<6.35	NRQ	<6.35	NRQ	<6.35	NRQ
MM/YR	1		G10290		G10290		G9463		G9463		G10290		G10290		G10290	
PCB 1016	39514	NRQ	<112	NRQ	<121	NRQ	<119	NRQ	<126	NRQ	<124	NRQ	<118	NRQ	<119	NRQ
UG/KG-DRY	EC		G9618		G9618		G9464		G9464		G9464		G9464		G9464	
PCB-1221	39491	NRQ	<110	NRQ	<120	NRQ	<120	NRQ	<130	NRQ	<120	NRQ	<120	NRQ	<120	NRQ
UG/KG-DRY	EC		G9618		G9618		G9464		G9464		G9464		G9464		G9464	
PCB-1232	39495	NRQ	<110	NRQ	<120	NRQ	<120	NRQ	<130	NRQ	<120	NRQ	<120	NRQ	<120	NRQ
UG/KG-DRY	EC		G9618		G9618		G9464		G9464		G9464		G9464		G9464	
PCB-1242	39499	NRQ	<110	NRQ	<120	NRQ	<120	NRQ	<130	NRQ	<120	NRQ	<120	NRQ	<120	NRQ
UG/KG-DRY	EC		G9618		G9618		G9464		G9464		G9464		G9464		G9464	
PCB-1248	39503	NRQ	<110	NRQ	<120	NRQ	<120	NRQ	<130	NRQ	<120	NRQ	<120	NRQ	<120	NRQ
UG/KG-DRY	EC		G9618		G9618		G9464		G9464		G9464		G9464		G9464	
PCB-1254	39507	NRQ	<110	NRQ	<120	NRQ	<120	NRQ	<130	NRQ	<120	NRQ	<120	NRQ	<120	NRQ
UG/KG-DRY	EC		G9618		G9618		G9464		G9464		G9464		G9464		G9464	

Hunter/ESE, Inc.
PROJECT NUMBER 94025 0204
FIELD GROUP NANFTS4

DATE 12/19/89 STATUS :FINAL
PROJECT NAME NAVY - FIRE TRAINING
LAB COORDINATOR JEFF SHAMIS

SAMPLE ID/#

ARAMETERS	STORET	MW01-U NANFTS4	MW01-L NANFTS4	MW02-U NANFTS4	MW02-L NANFTS4	MW03-U NANFTS4	MW03-L NANFTS4	MW04-U NANFTS4	MW04-L NANFTS4	MW05-U NANFTS4	MW05-L NANFTS4	MW06-U NANFTS4	MW06-L NANFTS4	MW07-U NANFTS4	MW07-L NANFTS4	MW08-U NANFTS4
UNITS	METHOD	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15
ATE		10/02/89	10/02/89	10/03/89	10/03/89	09/28/89	09/28/89	09/30/89	09/30/89	09/28/89	09/28/89	09/30/89	09/30/89	09/30/89	09/30/89	09/30/89
IME		17:20	17:45	18:15	18:40	17:00	17:40	09:55	10:15	13:35	14:10	11:15	11:30	13:00	13:30	08:40
CB-1260	39511	NRQ	<110	NRQ	<120	NRQ	<120	NRQ	<130	NRQ	<120	NRQ	<120	NRQ	<120	NRQ
UG/KG-DRY	EC		G9618		G9618		G9464		G9464		G9464		G9464		G9464	
CETONE	75059	NRQ	<6200	NRQ	<6600	NRQ	<6600	NRQ	<7000	NRQ	<6800	NRQ	<6600	NRQ	<6600	NRQ
UG/KG-DRY	GMS		G9367		G9533		G9344		G9533		G9344		G9533		G9533	
ENZENE	34237	NRQ	<250	NRQ	<270	NRQ	<260	NRQ	<280	NRQ	<270	NRQ	<260	NRQ	<260	NRQ
UG/KG-DRY	GMS		G9367		G9533		G9344		G9533		G9344		G9533		G9533	
ROMODICHLOROMETHANE	34330	NRQ	<120	NRQ	<130	NRQ	<130	NRQ	<140	NRQ	<140	NRQ	<130	NRQ	<130	NRQ
UG/KG-DRY	GMS		G9367		G9533		G9344		G9533		G9344		G9533		G9533	
ROMOFORM	34290	NRQ	<260	NRQ	<280	NRQ	<280	NRQ	<300	NRQ	<290	NRQ	<280	NRQ	<280	NRQ
UG/KG-DRY	GMS		G9367		G9533		G9344		G9533		G9344		G9533		G9533	
ROMOMETHANE	34416	NRQ	<320	NRQ	<340	NRQ	<330	NRQ	<360	NRQ	<350	NRQ	<330	NRQ	<330	NRQ
UG/KG-DRY	GMS		G9367		G9533		G9344		G9533		G9344		G9533		G9533	
ARBON DISULFIDE	78544	NRQ	<250	NRQ	<270	NRQ	<260	NRQ	<280	NRQ	<270	NRQ	<260	NRQ	<260	NRQ
UG/KG-DRY	GMS		G9367		G9533		G9344		G9533		G9344		G9533		G9533	
ARBON TETRACHLORIDE	34299	NRQ	<160	NRQ	<170	NRQ	<170	NRQ	<180	NRQ	<170	NRQ	<170	NRQ	<170	NRQ
UG/KG-DRY	GMS		G9367		G9533		G9344		G9533		G9344		G9533		G9533	
HLOROBENZENE	34304	NRQ	<340	NRQ	<360	NRQ	<360	NRQ	<380	NRQ	<370	NRQ	<360	NRQ	<360	NRQ
UG/KG-DRY	GMS		G9367		G9533		G9344		G9533		G9344		G9533		G9533	
HLOROETHANE	34314	NRQ	<460	NRQ	<500	NRQ	<490	NRQ	<520	NRQ	<510	NRQ	<490	NRQ	<490	NRQ
UG/KG-DRY	GMS		G9367		G9533		G9344		G9533		G9344		G9533		G9533	
-CHLOROETHYLVINYL	34579	NRQ	<560	NRQ	<600	NRQ	<600	NRQ	<630	NRQ	<620	NRQ	<600	NRQ	<600	NRQ
THER UG/KG-DRY	GMS		G9367		G9533		G9344		G9533		G9344		G9533		G9533	
HLOROFORM	34318	NRQ	<90	NRQ	<97	NRQ	<96	NRQ	<100	NRQ	<99	NRQ	<95	NRQ	<96	NRQ
UG/KG-DRY	GMS		G9367		G9533		G9344		G9533		G9344		G9533		G9533	
HLOROMETHANE	34421	NRQ	<240	NRQ	<260	NRQ	<260	NRQ	<270	NRQ	<270	NRQ	<260	NRQ	<260	NRQ
UG/KG-DRY	GMS		G9367		G9533		G9344		G9533		G9344		G9533		G9533	
IBROMOCHLOROMETHANE	34309	NRQ	<170	NRQ	<190	NRQ	<190	NRQ	<200	NRQ	<190	NRQ	<180	NRQ	<180	NRQ
UG/KG-DRY	GMS		G9367		G9533		G9344		G9533		G9344		G9533		G9533	
,1-DICHLOROETHANE	34499	NRQ	<260	NRQ	<280	NRQ	<280	NRQ	<300	NRQ	<290	NRQ	<280	NRQ	<280	NRQ
UG/KG-DRY	GMS		G9367		G9533		G9344		G9533		G9344		G9533		G9533	
,2-DICHLOROETHANE	34534	NRQ	<160	NRQ	<170	NRQ	<170	NRQ	<180	NRQ	<170	NRQ	<170	NRQ	<170	NRQ
UG/KG-DRY	GMS		G9367		G9533		G9344		G9533		G9344		G9533		G9533	
,1-DICHLOROETHYLENE	34504	NRQ	<160	NRQ	<170	NRQ	<170	NRQ	<180	NRQ	<170	NRQ	<170	NRQ	<170	NRQ
UG/KG-DRY	GMS		G9367		G9533		G9344		G9533		G9344		G9533		G9533	
RANS-1,2-DICHLORO	34549	NRQ	<90	NRQ	<97	NRQ	<96	NRQ	<100	NRQ	<99	NRQ	<95	NRQ	<96	NRQ
THENE UG/KG-DRY	GMS		G9367		G9533		G9344		G9533		G9344		G9533		G9533	
,2-DICHLOROPROPANE	34544	NRQ	<340	NRQ	<360	NRQ	<360	NRQ	<380	NRQ	<370	NRQ	<360	NRQ	<360	NRQ
UG/KG-DRY	GMS		G9367		G9533		G9344		G9533		G9344		G9533		G9533	
IS-1,3-DICHLORO	34702	NRQ	<280	NRQ	<300	NRQ	<300	NRQ	<320	NRQ	<310	NRQ	<300	NRQ	<300	NRQ
ROPENE UG/KG-DRY	GMS		G9367		G9533		G9344		G9533		G9344		G9533		G9533	
RANS-1,3-DICHLORO	34697	NRQ	<360	NRQ	<390	NRQ	<380	NRQ	<410	NRQ	<400	NRQ	<380	NRQ	<380	NRQ
ROPENE UG/KG-DRY	GMS		G9367		G9533		G9344		G9533		G9344		G9533		G9533	
THYLBENZENE	34374	NRQ	<410	NRQ	<430	NRQ	600	NRQ	4700	NRQ	<450	NRQ	1500	NRQ	1200	NRQ
UG/KG-DRY	GMS		G9367		G9533		G9344		G9533		G9344		G9533		G9533	
-HEXANONE	75166	NRQ	<1200	NRQ	<1300	NRQ	<1300	NRQ	<1300	NRQ	<1300	NRQ	<1300	NRQ	<1300	NRQ
UG/KG-DRY	GMS		G9367		G9533		G9344		G9533		G9344		G9533		G9533	
ETHYLENE CHLORIDE	34426	NRQ	<1100	NRQ	<1200	NRQ	<1200	NRQ	<1300	NRQ	<1200	NRQ	<1200	NRQ	<1200	NRQ
UG/KG-DRY	GMS		G9367		G9533		G9344		G9533		G9344		G9533		G9533	

SAMPLE ID/#

ARAMETERS	STORET	MW01-U NANFTS4	MW01-L NANFTS4	MW02-U NANFTS4	MW02-L NANFTS4	MW03-U NANFTS4	MW03-L NANFTS4	MW04-U NANFTS4	MW04-L NANFTS4	MW05-U NANFTS4	MW05-L NANFTS4	MW06-U NANFTS4	MW06-L NANFTS4	MW07-U NANFTS4	MW07-L NANFTS4	MW08-U NANFTS4
UNITS	METHOD	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15
ATE		10/02/89	10/02/89	10/03/89	10/03/89	09/28/89	09/28/89	09/30/89	09/30/89	09/28/89	09/28/89	09/30/89	09/30/89	09/30/89	09/30/89	09/30/89
IME		17:20	17:45	18:15	18:40	17:00	17:40	09:55	10:15	13:35	14:10	11:15	11:30	13:00	[illegible]	[illegible]
ETHYL ETHYL KETONE	75078	NRQ	<2700	NRQ	<2900	NRQ	<2900	NRQ	<3000	NRQ	<3000	NRQ	<2900	NRQ	<2900	NRQ
UG/KG-DRY	GMS		G9367		G9533		G9344		G9533		G9344		G9533		G9533	
ETHYL ISOBUT'KETONE	75169	NRQ	<680	NRQ	<720	NRQ	<720	NRQ	<760	NRQ	<740	NRQ	<720	NRQ	<720	NRQ
UG/KG-DRY	GMS		G9367		G9533		G9344		G9533		G9344		G9533		G9533	
TYRENE	75192	NRQ	<400	NRQ	<430	NRQ	<420	NRQ	<450	NRQ	<440	NRQ	<420	NRQ	<420	NRQ
UG/KG-DRY	GMS		G9367		G9533		G9344		G9533		G9344		G9533		G9533	
,1,2,2-TETRACHLORO	34519	NRQ	<230	NRQ	<250	NRQ	<250	NRQ	<260	NRQ	<250	NRQ	<240	NRQ	<240	NRQ
THANE UG/KG-DRY	GMS		G9367		G9533		G9344		G9533		G9344		G9533		G9533	
ETRACHLOROETHENE	34478	NRQ	<230	NRQ	<250	NRQ	<250	NRQ	<260	NRQ	<250	NRQ	<240	NRQ	<240	NRQ
UG/KG-DRY	GMS		G9367		G9533		G9344		G9533		G9344		G9533		G9533	
OLUENE	34483	NRQ	<340	NRQ	<360	NRQ	<360	NRQ	<380	NRQ	<370	NRQ	<360	NRQ	<360	NRQ
UG/KG-DRY	GMS		G9367		G9533		G9344		G9533		G9344		G9533		G9533	
,1,1-TRICHL'ETHANE	34509	NRQ	<210	NRQ	<230	NRQ	<230	NRQ	<240	NRQ	<240	NRQ	<230	NRQ	<230	NRQ
UG/KG-DRY	GMS		G9367		G9533		G9344		G9533		G9344		G9533		G9533	
,1,2-TRICHL'ETHANE	34514	NRQ	<280	NRQ	<300	NRQ	<300	NRQ	<320	NRQ	<310	NRQ	<300	NRQ	<300	NRQ
UG/KG-DRY	GMS		G9367		G9533		G9344		G9533		G9344		G9533		G9533	
RICHLOROETHENE	34487	NRQ	<110	NRQ	<110	NRQ	<110	NRQ	<120	NRQ	<120	NRQ	<110	NRQ	<110	NRQ
UG/KG-DRY	GMS		G9367		G9533		G9344		G9533		G9344		G9533		G9533	
INYL CHLORIDE	34495	NRQ	<280	NRQ	<300	NRQ	<290	NRQ	<310	NRQ	<300	NRQ	<290	NRQ	<290	NRQ
UG/KG-DRY	GMS		G9367		G9533		G9344		G9533		G9344		G9533		G9533	
INYL ACETATE	98583	NRQ	<1200	NRQ	<1300	NRQ	<1300	NRQ	<1300	NRQ	<1300	NRQ	<1300	NRQ	<1300	NRQ
UG/KG-DRY	GMS		G9367		G9533		G9344		G9533		G9344		G9533		G9533	
YLENE,SED	45510	NRQ	<340	NRQ	<360	NRQ	<360	NRQ	<380	NRQ	670	NRQ	1100	NRQ	520	NRQ
UG/KG-DRY	GMS		G9367		G9533		G9344		G9533		G9344		G9533		G9533	

SAMPLE ID/#

ARAMETERS	STORET	MW08-L NANFTS4	MW09-U NANFTS4	MW09-L NANFTS4	MW10-U NANFTS4	MW10-L NANFTS4	MW11-U NANFTS4	MW11-L NANFTS4	MW12-U NANFTS4	MW12-L NANFTS4	MW03-M NANFTS4	MW08-M NANFTS4	MW05-M NANFTS4	MW07-M NANFTS4
UNITS	METHOD	16	17	18	19	20	21	22	23	24	25	26	27	28
ATE		09/30/89	10/02/89	10/02/89	10/02/89	10/02/89	10/02/89	10/02/89	10/02/89	10/02/89	09/28/89	09/30/89	09/28/89	09/30/89
IME		09:00	14:00	14:20	16:15	16:30	11:50	12:20	08:30	09:00	17:30	08:50	13:50	13:15
OISTURE	70320	15.3	12.2	18.9	11.5	16.8	9.6	11.9	17.3	16.3	17.7	14.6	15.6	11.6
%WET WT	I	G9333	G9375	G9375	G9375	G9333	G9375	G9436	G9375	G9375	G9375	G9375	G9375	G9375
LASH POINT	74030	>60	>60	>60	>60	>60	>60	>60	>60	>60	>60	>60	>60	>60
DEG-C	I	G9586	G9586	G9586	G9586	G9586	G9586	G9586	G9586	G9586	G9586	G9586	G9586	G9586
OX,SED	99263	<6	<6	<7	<6	<7	<30	<31	<33	<33	<300	<2300	<290	<2300
UG/KG-DRY	I	G9569	G9569	G9569	G9569	G9569	G9564	G9564	G9564	G9564	G9581	G10079	G9581	G10079
UEL OIL #2	97152	2720	<11.1	<11.9	39.7	81.2	140	<10.4	63.4	<11.6	<11.8	<11.3	191	191
UG/G	FI	G9354	G9354	G9354	G9426	G9426	G9426	G9426	G9426	G9354	G9426	G9426	G9426	G9426
ENZENE	34237	NRQ	<101	NRQ	<99.7	NRQ	<103	NRQ	448	NRQ	<111	NRQ	<107	<101
UG/KG-DRY	PI		G9428		G9428		G9428		G9428		G9428		G9428	G9428
THYLBENZENE	34374	NRQ	<101	NRQ	174	NRQ	520	NRQ	<113	NRQ	<111	NRQ	<107	<101
UG/KG-DRY	PI		G9428		G9428		G9428		G9428		G9428		G9428	G9428
OLUENE	34483	NRQ	<101	NRQ	<99.7	NRQ	182	NRQ	<113	NRQ	<111	NRQ	<107	<101
UG/KG-DRY	PI		G9428		G9428		G9428		G9428		G9428		G9428	G9428
YLENES,TOTAL	45510	NRQ	<101	NRQ	301	NRQ	1810	NRQ	<113	NRQ	<111	NRQ	159	<101
UG/KG-DRY	PI		G9428		G9428		G9428		G9428		G9428		G9428	G9428
P-TOX,DATE OF EXTRA	97078	10-17-89	10-17-89	10-17-89	10-17-89	10/6/89	10-17-89	10/6/89	!10-17-89	10-17-89	10/12/89	10-17-89	10/12/89	10-17-89
TION	M	G9469	G9469	G9469	G9469	G9291	G9469	G9291	G9469	G9469	G9396	G9469	G9396	G9469
RSENIC,DISS	1000	<5.0	<5.0	<5.0	<5.0	5.9	<5.0	<2.3	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0
UG/L	GFAA	G9601	G9601	G9601	G9601	G9253	G9601	G9253	G9601	G9601	G9601	G9601	G9601	G9601
ARIUM,DISS	1005	148	141	84.6	120	96.9	204	141	208	82.6	74.9	153	120	177
UG/L	ICAP	G9598	G9598	G9598	G9598	G9321	G9598	G9321	G9598	G9598	G9598	G9598	G9598	G9598
ADMIUM,DISS	1025	<4.0	<4.0	<4.0	<4.0	<4.0	<4.0	<4.0	<4.0	<4.0	<4.0	<4.0	<4.0	<4.0
UG/L	ICAP	G9598	G9598	G9598	G9598	G9321	G9598	G9321	G9598	G9598	G9598	G9598	G9598	G9598
HROMIUM,DISS	1030	<7.1	<7.1	<7.1	<7.1	<7.1	<7.1	<7.1	<7.1	<7.1	<7.1	<7.1	<7.1	<7.1
UG/L	ICAP	G9598	G9598	G9598	G9598	G9321	G9598	G9321	G9598	G9598	G9598	G9598	G9598	G9598
EAD,DISS	1049	<44.7	<44.7	<44.7	<44.7	<44.7	<44.7	<44.7	<44.7	<44.7	<44.7	<44.7	<44.7	<44.7
UG/L	ICAP	G9598	G9598	G9598	G9598	G9321	G9598	G9321	G9598	G9598	G9598	G9598	G9598	G9598
ERCURY,DISS.	71890	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2
UG/L	CVAA	G9545	G9545	G9545	G9545	G9328	G9545	G9328	G9545	G9545	G9545	G9545	G9545	G9545
ELENIUM,DISS	1145	<1.8	<1.8	<1.8	<1.8	<1.8	<1.8	<1.8	<1.8	<1.8	<1.8	<1.8	<1.8	<1.8
UG/L	GFAA	G9631	G9631	G9631	G9631	G9262	G9631	G9262	G9631	G9631	G9631	G9631	G9631	G9631
ILVER,DISS	1075	<6.8	<6.8	<6.8	<6.8	<6.8	<6.8	<6.8	<6.8	<6.8	<6.8	<6.8	<6.8	<6.8
UG/L	ICAP	G9598	G9598	G9598	G9598	G9321	G9598	G9321	G9598	G9598	G9598	G9598	G9598	G9598
ORROSIVITY,SW846	98724	<6.35	NRQ	<6.35	NRQ	<6.35	NRQ	<6.35	NRQ	<6.35	NRQ	<6.35	NRQ	NRQ
MM/YR	I	G10290		G10290		G10026		G10026		G10290		G10290		
CB 1016	39514	<118	NRQ	<123	NRQ	<120	NRQ	<113	NRQ	<119	NRQ	<117	NRQ	NRQ
UG/KG-DRY	EC	G9464		G9618		G9618		G9618		G9618		G9618		
CB-1221	39491	<120	NRQ	<120	NRQ	<120	NRQ	<110	NRQ	<120	NRQ	<120	NRQ	NRQ
UG/KG-DRY	EC	G9464		G9618		G9618		G9618		G9618		G9618		
CB-1232	39495	<120	NRQ	<120	NRQ	<120	NRQ	<110	NRQ	<120	NRQ	<120	NRQ	NRQ
UG/KG-DRY	EC	G9464		G9618		G9618		G9618		G9618		G9618		
CB-1242	39499	<120	NRQ	<120	NRQ	<120	NRQ	<110	NRQ	<120	NRQ	<120	NRQ	NRQ
UG/KG-DRY	EC	G9464		G9618		G9618		G9618		G9618		G9618		
CB-1248	39503	<120	NRQ	<120	NRQ	<120	NRQ	<110	NRQ	<120	NRQ	<120	NRQ	NRQ
UG/KG-DRY	EC	G9464		G9618		G9618		G9618		G9618		G9618		
CB-1254	39507	<120	NRQ	<120	NRQ	<120	NRQ	<110	NRQ	<120	NRQ	<120	NRQ	NRQ
UG/KG-DRY	EC	G9464		G9618		G9618		G9618		G9618		G9618		

Hunter/ESE, Inc.
PROJECT NUMBER 94025 0204
FIELD GROUP NANFTS4

DATE 12/19/89 STATUS :FINAL
PROJECT NAME NAVY - FIRE TRAINING
LAB COORDINATOR JEFF SHAMIS

PARAMETERS	UNITS	STORET METHOD	MW08-L NANFTS4 16	MW09-U NANFTS4 17	MW09-L NANFTS4 18	MW10-U NANFTS4 19	MW10-L NANFTS4 20	MW11-U NANFTS4 21	MW11-L NANFTS4 22	MW12-U NANFTS4 23	MW12-L NANFTS4 24	MW03-M NANFTS4 25	MW08-M NANFTS4 26	MW05-M NANFTS4 27	MW07-M NANFTS4 28
			SAMPLE ID/#												
DATE			09/30/89	10/02/89	10/02/89	10/02/89	10/02/89	10/02/89	10/02/89	10/02/89	10/02/89	09/28/89	09/30/89	09/28/89	09/30/89
TIME			09:00	14:00	14:20	16:15	16:30	11:50	12:20	08:30	09:00	17:30	08:50	13:50	13:15
PCB-1260		39511	<120	NRQ	<120	NRQ	<120	NRQ	<110	NRQ	<120	NRQ	<120	NRQ	NRQ
	UG/KG-DRY	EC	G9464		G9618		G9618		G9618		G9618		G9618		
ACETONE		75059	<6500	NRQ	<6800	NRQ	<6600	NRQ	<6200	NRQ	<6600	NRQ	<6400	NRQ	NRQ
	UG/KG-DRY	GMS	G9367		G9533		G9367		G9367		G9533		G9533		
BENZENE		34237	<260	NRQ	<270	NRQ	<260	NRQ	<250	NRQ	<260	NRQ	<260	NRQ	NRQ
	UG/KG-DRY	GMS	G9367		G9533		G9367		G9367		G9533		G9533		
BROMODICHLOROMETHANE		34330	<130	NRQ	<140	NRQ	<130	NRQ	<120	NRQ	<130	NRQ	<130	NRQ	NRQ
	UG/KG-DRY	GMS	G9367		G9533		G9367		G9367		G9533		G9533		
BROMOFORM		34290	<280	NRQ	<290	NRQ	<280	NRQ	<270	NRQ	<280	NRQ	<280	NRQ	NRQ
	UG/KG-DRY	GMS	G9367		G9533		G9367		G9367		G9533		G9533		
BROMOMETHANE		34416	<330	NRQ	<350	NRQ	<340	NRQ	<320	NRQ	<330	NRQ	<330	NRQ	NRQ
	UG/KG-DRY	GMS	G9367		G9533		G9367		G9367		G9533		G9533		
CARBON DISULFIDE		78544	<260	NRQ	<270	NRQ	<260	NRQ	<250	NRQ	<260	NRQ	<260	NRQ	NRQ
	UG/KG-DRY	GMS	G9367		G9533		G9367		G9367		G9533		G9533		
CARBON TETRACHLORIDE		34299	<170	NRQ	<170	NRQ	<170	NRQ	<160	NRQ	<170	NRQ	<160	NRQ	NRQ
	UG/KG-DRY	GMS	G9367		G9533		G9367		G9367		G9533		G9533		
CHLOROBENZENE		34304	<350	NRQ	<370	NRQ	<360	NRQ	<340	NRQ	<360	NRQ	<350	NRQ	NRQ
	UG/KG-DRY	GMS	G9367		G9533		G9367		G9367		G9533		G9533		
CHLOROETHANE		34314	<480	NRQ	<510	NRQ	<490	NRQ	<470	NRQ	<490	NRQ	<480	NRQ	NRQ
	UG/KG-DRY	GMS	G9367		G9533		G9367		G9367		G9533		G9533		
2-CHLOROETHYLVINYL		34579	<590	NRQ	<620	NRQ	<600	NRQ	<570	NRQ	<600	NRQ	<590	NRQ	NRQ
ETHER	UG/KG-DRY	GMS	G9367		G9533		G9367		G9367		G9533		G9533		
CHLOROFORM		34318	<94	NRQ	<99	NRQ	<96	NRQ	<91	NRQ	<96	NRQ	<94	NRQ	NRQ
	UG/KG-DRY	GMS	G9367		G9533		G9367		G9367		G9533		G9533		
CHLOROMETHANE		34421	<250	NRQ	<270	NRQ	<260	NRQ	<240	NRQ	<260	NRQ	<250	NRQ	NRQ
	UG/KG-DRY	GMS	G9367		G9533		G9367		G9367		G9533		G9533		
DIBROMOCHLOROMETHANE		34309	<180	NRQ	<190	NRQ	<190	NRQ	<180	NRQ	<190	NRQ	<180	NRQ	NRQ
	UG/KG-DRY	GMS	G9367		G9533		G9367		G9367		G9533		G9533		
1,1-DICHLOROETHANE		34499	<280	NRQ	<290	NRQ	<280	NRQ	<270	NRQ	<280	NRQ	<280	NRQ	NRQ
	UG/KG-DRY	GMS	G9367		G9533		G9367		G9367		G9533		G9533		
1,2-DICHLOROETHANE		34534	<170	NRQ	<170	NRQ	<170	NRQ	<160	NRQ	<170	NRQ	<160	NRQ	NRQ
	UG/KG-DRY	GMS	G9367		G9533		G9367		G9367		G9533		G9533		
1,1-DICHLOROETHYLENE		34504	<170	NRQ	<170	NRQ	<170	NRQ	<160	NRQ	<170	NRQ	<160	NRQ	NRQ
	UG/KG-DRY	GMS	G9367		G9533		G9367		G9367		G9533		G9533		
TRANS-1,2-DICHLORO		34549	<94	NRQ	<99	NRQ	<96	NRQ	<91	NRQ	<96	NRQ	<94	NRQ	NRQ
ETHENE	UG/KG-DRY	GMS	G9367		G9533		G9367		G9367		G9533		G9533		
1,2-DICHLOROPROPANE		34544	<350	NRQ	<370	NRQ	<360	NRQ	<340	NRQ	<360	NRQ	<350	NRQ	NRQ
	UG/KG-DRY	GMS	G9367		G9533		G9367		G9367		G9533		G9533		
CIS-1,3-DICHLORO		34702	<300	NRQ	<310	NRQ	<300	NRQ	<280	NRQ	<300	NRQ	<290	NRQ	NRQ
PROPENE	UG/KG-DRY	GMS	G9367		G9533		G9367		G9367		G9533		G9533		
TRANS-1,3-DICHLORO		34697	<380	NRQ	<390	NRQ	<380	NRQ	<360	NRQ	<380	NRQ	<370	NRQ	NRQ
PROPENE	UG/KG-DRY	GMS	G9367		G9533		G9367		G9367		G9533		G9533		
ETHYLBENZENE		34374	450	NRQ	<440	NRQ	1600	NRQ	<410	NRQ	<430	NRQ	<420	NRQ	NRQ
	UG/KG-DRY	GMS	G9367		G9533		G9367		G9367		G9533		G9533		
2-HEXANONE		75166	<1200	NRQ	<1300	NRQ	<1300	NRQ	<1200	NRQ	<1300	NRQ	<1200	NRQ	NRQ
	UG/KG-DRY	GMS	G9367		G9533		G9367		G9367		G9533		G9533		
METHYLENE CHLORIDE		34426	<1200	NRQ	<1200	NRQ	<1200	NRQ	<1100	NRQ	<1200	NRQ	<1200	NRQ	NRQ
	UG/KG-DRY	GMS	G9367		G9533		G9367		G9367		G9533		G9533		

Hunter/ESE, Inc.
PROJECT NUMBER 94025 0204
FIELD GROUP NANFTS4

DATE 12/19/89 STATUS :FINAL
PROJECT NAME NAVY - FIRE TRAINING
LAB COORDINATOR JEFF SHAMIS

SAMPLE ID/#

PARAMETERS	STORET	MW08-L	MW09-U	MW09-L	MW10-U	MW10-L	MW11-U	MW11-L	MW12-U	MW12-L	MW03-M	MW08-M	MW05-M	MW07-M
		NANFTS4	NANFTS4	NANFTS4	NANFTS4	NANFTS4	NANFTS4	NANFTS4	NANFTS4	NANFTS4	NANFTS4	NANFTS4	NANFTS4	NANFTS4
UNITS	METHOD	16	17	18	19	20	21	22	23	24	25	26	27	28
DATE		09/30/89	10/02/89	10/02/89	10/02/89	10/02/89	10/02/89	10/02/89	10/02/89	10/02/89	09/28/89	09/30/89	09/28/89	09/30/89
TIME		09:00	14:00	14:20	16:15	16:30	11:50	12:20	08:30	09:00	17:30	08:50	13:50	13:15
METHYL ETHYL KETONE	75078	<2800	NRQ	<3000	NRQ	<2900	NRQ	<2700	NRQ	<2900	NRQ	<2800	NRQ	NRQ
UG/KG-DRY	GMS	G9367		G9533		G9367		G9367		G9533		G9533		
METHYL ISOBUT'KETONE	75169	<710	NRQ	<740	NRQ	<720	NRQ	<680	NRQ	<720	NRQ	<700	NRQ	NRQ
UG/KG-DRY	GMS	G9367		G9533		G9367		G9367		G9533		G9533		
STYRENE	75192	<420	NRQ	<440	NRQ	<430	NRQ	<400	NRQ	<420	NRQ	<420	NRQ	NRQ
UG/KG-DRY	GMS	G9367		G9533		G9367		G9367		G9533		G9533		
1,1,2,2-TETRACHLORO	34519	<240	NRQ	<250	NRQ	<250	NRQ	<230	NRQ	<240	NRQ	<240	NRQ	NRQ
ETHANE UG/KG-DRY	GMS	G9367		G9533		G9367		G9367		G9533		G9533		
TETRACHLOROETHENE	34478	<240	NRQ	<250	NRQ	<250	NRQ	<230	NRQ	<240	NRQ	<240	NRQ	NRQ
UG/KG-DRY	GMS	G9367		G9533		G9367		G9367		G9533		G9533		
TOLUENE	34483	<350	NRQ	<370	NRQ	<360	NRQ	<340	NRQ	<360	NRQ	<350	NRQ	NRQ
UG/KG-DRY	GMS	G9367		G9533		G9367		G9367		G9533		G9533		
1,1,1-TRICHL'ETHANE	34509	<220	NRQ	<230	NRQ	<230	NRQ	<220	NRQ	<230	NRQ	<220	NRQ	NRQ
UG/KG-DRY	GMS	G9367		G9533		G9367		G9367		G9533		G9533		
1,1,2-TRICHL'ETHANE	34514	<300	NRQ	<310	NRQ	<300	NRQ	<280	NRQ	<300	NRQ	<290	NRQ	NRQ
UG/KG-DRY	GMS	G9367		G9533		G9367		G9367		G9533		G9533		
TRICHLOROETHENE	34487	<110	NRQ	<120	NRQ	<110	NRQ	<110	NRQ	<110	NRQ	<110	NRQ	NRQ
UG/KG-DRY	GMS	G9367		G9533		G9367		G9367		G9533		G9533		
VINYL CHLORIDE	34495	<290	NRQ	<300	NRQ	<290	NRQ	<280	NRQ	<290	NRQ	<290	NRQ	NRQ
UG/KG-DRY	GMS	G9367		G9533		G9367		G9367		G9533		G9533		
VINYL ACETATE	98583	<1200	NRQ	<1300	NRQ	<1300	NRQ	<1200	NRQ	<1300	NRQ	<1200	NRQ	NRQ
UG/KG-DRY	GMS	G9367		G9533		G9367		G9367		G9533		G9533		
XYLENE,SED	45510	<350	NRQ	<370	NRQ	2600	NRQ	<340	NRQ	<360	NRQ	<350	NRQ	NRQ
UG/KG-DRY	GMS	G9367		G9533		G9367		G9367		G9533		G9533		

Environmental Science and Engineering DATE 04/24/90 STATUS: FINAL PAGE 1
PROJECT NUMBER 94025 0205 PROJECT NAME NAVY - FTC - SOIL
FIELD GROUP NANFTS5 LAB COORDINATOR JEFF SHAMIS
(WITH BATCHES)

SAMPLE ID'S		FD#	MW-19	MW-17	MW-21	MW-13	MW-14	MW-18	MW-16	MW-22	MW-22	MW-15	MW-20	MW-22T	MW-22B
PARAMETERS	STORET	NANFTS5	NANFTS5	NANFTS5	NANFTS5	NANFTS5	NANFTS5	NANFTS5	NANFTS5	NANFTS5	NANFTS5	NANFTS5	NANFTS5	NANFTS5	NANFTS5
UNITS	METHOD	1	2	3	4	5	6	7	9	10	11	13	15	16	17
DATE		03/01/90	02/26/90	02/28/90	02/28/90	03/01/90	03/01/90	03/01/90	03/01/90	03/13/90	03/13/90	03/01/90	02/28/90	03/13/90	03/13/90
TIME			12:40	16:21	12:05	20:40	16:26	08:30	20:24	08:35	09:05	11:15	08:45		
MOISTURE	70320	10.0	15.1	13.2	10.5	14.7	12.1	13.3	18.2	19.2	26.0	10.0	10.7	19.7	23.0
%WET WT	I	G11952	G11912	G11931	G11931	G11952	G11952	G11952	G11952	G12173	G12173	G11952	G11931	G12173	G12173
RESIDUE,VOLATILE	70322	NRQ	NRQ	NRQ	NRQ	NRQ	NRQ	NRQ	NRQ	NRQ	NRQ	NRQ	NRQ	<1	5
%-DRY	I													G12207	G12207
TPH, AS AVGAS	96019	<14.1	<15.0	<14.6	<14.2	<14.9	<14.4	<14.6	<15.5	<15.7	<17.2	<14.1	<14.2	NRQ	NRQ
UG/G-DRY	FI	G12058	G12058	G12058	G12058	G12058	G12058	G12058	G12058	G12261	G12261	G12058	G12058		
TPH, AS GAS	96020	<5.11	<5.42	<5.30	<5.14	<5.39	<5.23	<5.31	<5.62	<5.69	<6.22	<5.11	<5.15	NRQ	NRQ
UG/G-DRY	FI	G12058	G12058	G12058	G12058	G12058	G12058	G12058	G12058	G12261	G12261	G12058	G12058		
TPH, AS DIESEL	96021	<5.39	<5.71	<5.59	<5.42	<5.69	<5.52	<5.59	<5.93	<6.00	<6.55	<5.39	<5.43	NRQ	NRQ
UG/G-DRY	FI	G12058	G12058	G12058	G12058	G12058	G12058	G12058	G12058	G12261	G12261	G12058	G12058		
ACETONE	75059	<6100	<6500	<6300	<6100	<6400	<6300	<6300	<6700	<6800	<7400	<6100	<6200	NRQ	NRQ
UG/KG-DRY	GMS	G12045	G12045	G12045	G12045	G12045	G12045	G12045	G12045	G12240	G12240	G12045	G12045		
BENZENE	34237	<240	<260	<250	<250	<260	<250	<250	<270	<270	<300	<240	<250	NRQ	NRQ
UG/KG-DRY	GMS	G12045	G12045	G12045	G12045	G12045	G12045	G12045	G12045	G12240	G12240	G12045	G12045		
BROMODICHLOROMETHANE	34330	<120	<130	<130	<120	<130	<130	<130	<130	<140	<150	<120	<120	NRQ	NRQ
UG/KG-DRY	GMS	G12045	G12045	G12045	G12045	G12045	G12045	G12045	G12045	G12240	G12240	G12045	G12045		
BROMOFORM	34290	<260	<280	<270	<260	<280	<270	<270	<290	<290	<320	<260	<260	NRQ	NRQ
UG/KG-DRY	GMS	G12045	G12045	G12045	G12045	G12045	G12045	G12045	G12045	G12240	G12240	G12045	G12045		
BROMOMETHANE	34416	<310	<330	<320	<310	<330	<320	<320	<340	<350	<380	<310	<310	NRQ	NRQ
UG/KG-DRY	GMS	G12045	G12045	G12045	G12045	G12045	G12045	G12045	G12045	G12240	G12240	G12045	G12045		
CARBON DISULFIDE	78544	<240	<260	<250	<250	<260	<250	<250	<270	<270	<300	<240	<250	NRQ	NRQ
UG/KG-DRY	GMS	G12045	G12045	G12045	G12045	G12045	G12045	G12045	G12045	G12240	G12240	G12045	G12045		
CARBON TETRACHLORIDE	34299	<160	<160	<160	<160	<160	<160	<160	<170	<170	<190	<160	<160	NRQ	NRQ
UG/KG-DRY	GMS	G12045	G12045	G12045	G12045	G12045	G12045	G12045	G12045	G12240	G12240	G12045	G12045		
CHLOROBENZENE	34304	<330	<350	<350	<340	<350	<340	<350	<370	<370	<410	<330	<340	NRQ	NRQ
UG/KG-DRY	GMS	G12045	G12045	G12045	G12045	G12045	G12045	G12045	G12045	G12240	G12240	G12045	G12045		
CHLOROETHANE	34314	<460	<480	<470	<460	<480	<470	<470	<500	<510	<550	<460	<460	NRQ	NRQ
UG/KG-DRY	GMS	G12045	G12045	G12045	G12045	G12045	G12045	G12045	G12045	G12240	G12240	G12045	G12045		
-CHLOROETHYLVINYL	34579	<560	<590	<580	<560	<590	<570	<580	<610	<620	<680	<560	<560	NRQ	NRQ
THER UG/KG-DRY	GMS	G12045	G12045	G12045	G12045	G12045	G12045	G12045	G12045	G12240	G12240	G12045	G12045		
CHLOROFORM	34318	<89	<94	<92	<89	<94	<91	<92	<98	<99	<110	<89	<90	NRQ	NRQ
UG/KG-DRY	GMS	G12045	G12045	G12045	G12045	G12045	G12045	G12045	G12045	G12240	G12240	G12045	G12045		
CHLOROMETHANE	34421	<240	<250	<250	<240	<250	<240	<250	<260	<270	<290	<240	<240	NRQ	NRQ
UG/KG-DRY	GMS	G12045	G12045	G12045	G12045	G12045	G12045	G12045	G12045	G12240	G12240	G12045	G12045		
DIBROMOCHLOROMETHANE	34309	<170	<180	<180	<170	<180	<180	<180	<190	<190	<210	<170	<170	NRQ	NRQ
UG/KG-DRY	GMS	G12045	G12045	G12045	G12045	G12045	G12045	G12045	G12045	G12240	G12240	G12045	G12045		
1-DICHLOROETHANE	34499	<260	<280	<270	<260	<280	<270	<270	<290	<290	<320	<260	<260	NRQ	NRQ
UG/KG-DRY	GMS	G12045	G12045	G12045	G12045	G12045	G12045	G12045	G12045	G12240	G12240	G12045	G12045		
2-DICHLOROETHANE	34534	<160	<160	<160	<160	<160	<160	<160	<170	<170	<190	<160	<160	NRQ	NRQ
UG/KG-DRY	GMS	G12045	G12045	G12045	G12045	G12045	G12045	G12045	G12045	G12240	G12240	G12045	G12045		
1-DICHLOROETHYLENE	34504	<160	<160	<160	<160	<160	<160	<160	<170	<170	<190	<160	<160	NRQ	NRQ
UG/KG-DRY	GMS	G12045	G12045	G12045	G12045	G12045	G12045	G12045	G12045	G12240	G12240	G12045	G12045		
ANS-1,2-DICHLORO	34549	<89	<94	<92	<89	<94	<91	<92	<98	<99	<110	<89	<90	NRQ	NRQ
HENE UG/KG-DRY	GMS	G12045	G12045	G12045	G12045	G12045	G12045	G12045	G12045	G12240	G12240	G12045	G12045		
2-DICHLOROPROPANE	34544	<330	<350	<350	<340	<350	<340	<350	<370	<370	<410	<330	<340	NRQ	NRQ
UG/KG-DRY	GMS	G12045	G12045	G12045	G12045	G12045	G12045	G12045	G12045	G12240	G12240	G12045	G12045		
S-1,3-DICHLORO	34702	<280	<290	<290	<280	<290	<280	<290	<310	<310	<340	<280	<280	NRQ	NRQ
OPENE UG/KG-DRY	GMS	G12045	G12045	G12045	G12045	G12045	G12045	G12045	G12045	G12240	G12240	G12045	G12045		

Environmental Science and Engineering DATE 04/24/90 STATUS: FINAL PAGE 2
PROJECT NUMBER 94025 0205 PROJECT NAME NAVY - FTC - SOIL
FIELD GROUP NANFTS5 LAB COORDINATOR JEFF SHAMIS
(WITH BATCHES)

AMPLE ID'S		FD#	MW-19	MW-17	MW-21	MW-13	MW-14	MW-18	MW-16	MW-22	MW-22	MW-15	MW-20	MW-22T	MW-22B
ARAMETERS	STORET	NANFTS5	NANFTS5	NANFTS5	NANFTS5	NANFTS5	NANFTS5	NANFTS5	NANFTS5	NANFTS5	NANFTS5	NANFTS5	NANFTS5	NANFTS5	NANFTS5
UNITS	METHOD	1	2	3	4	5	6	7	9	10	11	13	15	16	17
ATE		03/01/90	02/26/90	02/28/90	02/28/90	03/01/90	03/01/90	03/01/90	03/01/90	03/13/90	03/13/90	03/01/90	02/28/90	03/13/90	03/13/90
IME			12:40	16:21	12:05	20:40	16:26	08:30	20:24	08:35	09:05	11:15	08:45		
RANS-1,3-DICHLORO	34697	<360	<380	<370	<360	<380	<360	<370	<390	<400	<430	<360	<360	NRQ	NRQ
ROPENE UG/KG-DRY	GMS	G12045	G12045	G12045	G12045	G12045	G12045	G12045	G12045	G12240	G12240	G12045	G12045		
THYLBENZENE	34374	<400	<420	<410	<400	<420	<410	<420	<440	<450	<490	<400	<400	NRQ	NRQ
UG/KG-DRY	GMS	G12045	G12045	G12045	G12045	G12045	G12045	G12045	G12045	G12240	G12240	G12045	G12045		
-HEXANONE	75166	<1200	<1200	<1200	<1200	<1200	<1200	<1200	<1300	<1300	<1400	<1200	<1200	NRQ	NRQ
UG/KG-DRY	GMS	G12045	G12045	G12045	G12045	G12045	G12045	G12045	G12045	G12240	G12240	G12045	G12045		
ETHYLENE CHLORIDE	34426	<1100	<1200	<1200	<1100	<1200	<1100	<1200	<1200	<1200	<1400	<1100	<1100	NRQ	NRQ
UG/KG-DRY	GMS	G12045	G12045	G12045	G12045	G12045	G12045	G12045	G12045	G12240	G12240	G12045	G12045		
ETHYL ETHYL KETONE	75078	<2700	<2800	<2800	<2700	<2800	<2700	<2800	<2900	<3000	<3200	<2700	<2700	NRQ	NRQ
UG/KG-DRY	GMS	G12045	G12045	G12045	G12045	G12045	G12045	G12045	G12045	G12240	G12240	G12045	G12045		
ETHYL ISOBUT'KETONE	75169	<670	<710	<690	<670	<700	<680	<690	<730	<740	<810	<670	<670	NRQ	NRQ
UG/KG-DRY	GMS	G12045	G12045	G12045	G12045	G12045	G12045	G12045	G12045	G12240	G12240	G12045	G12045		
TYRENE	75192	<390	<420	<410	<400	<420	<400	<410	<430	<440	<480	<390	<400	NRQ	NRQ
UG/KG-DRY	GMS	G12045	G12045	G12045	G12045	G12045	G12045	G12045	G12045	G12240	G12240	G12045	G12045		
,1,2,2-TETRACHLORO	34519	<230	<240	<240	<230	<240	<230	<240	<250	<250	<280	<230	<230	NRQ	NRQ
THANE UG/KG-DRY	GMS	G12045	G12045	G12045	G12045	G12045	G12045	G12045	G12045	G12240	G12240	G12045	G12045		
ETRACHLOROETHENE	34478	<230	<240	<240	<230	<240	<230	<240	<250	<250	<280	<230	<230	NRQ	NRQ
UG/KG-DRY	GMS	G12045	G12045	G12045	G12045	G12045	G12045	G12045	G12045	G12240	G12240	G12045	G12045		
OLUENE	34483	<330	<350	<350	<340	<350	<340	<350	<370	<370	<410	<330	<340	NRQ	NRQ
UG/KG-DRY	GMS	G12045	G12045	G12045	G12045	G12045	G12045	G12045	G12045	G12240	G12240	G12045	G12045		
,1,1-TRICHL'ETHANE	34509	<210	<220	<220	<210	<220	<220	<220	<230	<240	<260	<210	<210	NRQ	NRQ
UG/KG-DRY	GMS	G12045	G12045	G12045	G12045	G12045	G12045	G12045	G12045	G12240	G12240	G12045	G12045		
,1,2-TRICHL'ETHANE	34514	<280	<290	<290	<280	<290	<280	<290	<310	<310	<340	<280	<280	NRQ	NRQ
UG/KG-DRY	GMS	G12045	G12045	G12045	G12045	G12045	G12045	G12045	G12045	G12240	G12240	G12045	G12045		
RICHLOROETHENE	34487	<110	<110	<110	<110	<110	<110	<110	<120	<120	<130	<110	<110	NRQ	NRQ
UG/KG-DRY	GMS	G12045	G12045	G12045	G12045	G12045	G12045	G12045	G12045	G12240	G12240	G12045	G12045		
INYL CHLORIDE	34495	<270	<290	<280	<270	<290	<280	<280	<300	<300	<330	<270	<270	NRQ	NRQ
UG/KG-DRY	GMS	G12045	G12045	G12045	G12045	G12045	G12045	G12045	G12045	G12240	G12240	G12045	G12045		
INYL ACETATE	98583	<1200	<1200	<1200	<1200	<1200	<1200	<1200	<1300	<1300	<1400	<1200	<1200	NRQ	NRQ
UG/KG-DRY	GMS	G12045	G12045	G12045	G12045	G12045	G12045	G12045	G12045	G12240	G12240	G12045	G12045		
YLENE,SED	45510	<330	<350	<350	<340	<350	<340	<350	<370	<370	<410	<330	<340	NRQ	NRQ
UG/KG-DRY	GMS	G12045	G12045	G12045	G12045	G12045	G12045	G12045	G12045	G12240	G12240	G12045	G12045		

APPENDIX C
ANALYTICAL RESULTS OF
TANK SLUDGE/LIQUID SAMPLES

Hunter/ESE, Inc.
PROJECT NUMBER 94025 0204
FIELD GROUP NANFTS3

DATE 12/19/89 STATUS :FINAL
PROJECT NAME NAVY - FIRE TRAINING
LAB COORDINATOR JEFF SHAMIS

SAMPLE ID/#

ARAMETERS	STORET	TW01 NANFTS3 1	TW02 NANFTS3 2	TW03 NANFTS3 3	TW04 NANFTS3 4	TW05 NANFTS3 5	TW06 NANFTS3 6
UNITS	METHOD						
ATE		09/29/89	09/29/89	09/29/89	09/29/89	10/03/89	10/03/89
IME		09:30	10:30	16:00	17:00	08:25	12:45
LASH POINT	74030	<60	<60	<60	<60	<60	<60
DEG-C	I						
OX	97438	<250	<250	<250	650	<28	<28
UG/G-WET	I						
ENZENE,SED	99178	<93.5	174	<90.0	16000	<89.4	<91.4
UG/KG- WET	PI						
THYLBENZENE,SED	99169	<93.5	<94.7	<90.0	101000	<89.4	<91.4
UG/KG-WET	PI						
OLUENE	98455	<93.5	<94.7	<90.0	111000	<89.4	<91.4
UG/KG- WET	PI						
YLENE	99024	<93.5	382	<90.0	396000	<89.4	<91.4
UG/KG-WET	PI						
UEL OIL #2	97152	24000	6310	1050	896000	<485	<441
UG/G	FI						
RSENIC,TOTAL	1002	<5.0	<5.0	<5.0	<5.0	<1.0	<1.0
MG./KG	SCLPO						
ADMIUM,TOTAL	1027	<2.0	<2.0	<2.0	<2.0	<0.4	<0.4
MG/KG	SCLPO						
HROMIUM,TOTAL	1034	<10.0	<10.0	<10.0	<10.0	<2.0	<2.0
MG/KG	SCLPO						
EAD,TOTAL	1051	<100	<100	<100	<100	<20.0	<20.0
MG/KG	SCLPO						

Hunter/ESE, Inc.
PROJECT NUMBER 94025 0204
FIELD GROUP NANFTS3

DATE 12/19/89 STATUS :FINAL
PROJECT NAME NAVY - FIRE TRAINING
LAB COORDINATOR JEFF SHAMIS

SAMPLE ID/#

ARAMETERS	UNITS	STORET METHOD	TW01 NANFTS3 1	TW02 NANFTS3 2	TW03 NANFTS3 3	TW04 NANFTS3 4	TW05 NANFTS3 5	TW06 NANFTS3 6
ATE			09/29/89	09/29/89	09/29/89	09/29/89	10/03/89	10/03/89
IME			09:30	10:30	16:00	17:00	08:25	12:45
LASH POINT		74030	<60	<60	<60	<60	<60	<60
	DEG-C	I	G9586	G9586	G9586	G9586	G9586	G9586
OX		97438	<250	<250	<250	650	<28	<28
	UG/G-WET	I	G9585	G9585	G9585	G9585	G9564	G9564
ENZENE,SED		99178	<93.5	174	<90.0	16000	<89.4	<91.4
	UG/KG- WET	PI	G9422	G9422	G9422	G9422	G9422	G9422
THYLBENZENE,SED		99169	<93.5	<94.7	<90.0	101000	<89.4	<91.4
	UG/KG-WET	PI	G9422	G9422	G9422	G9422	G9422	G9422
OLUENE		98455	<93.5	<94.7	<90.0	111000	<89.4	<91.4
	UG/KG- WET	PI	G9422	G9422	G9422	G9422	G9422	G9422
YLENE		99024	<93.5	382	<90.0	396000	<89.4	<91.4
	UG/KG-WET	PI	G9422	G9422	G9422	G9422	G9422	G9422
UEL OIL #2		97152	24000	6310	1050	896000	<485	<441
	UG/G	FI	G9721	G9721	G9721	G9721	G9721	G9721
RSENIC,TOTAL		1002	<5.0	<5.0	<5.0	<5.0	<1.0	<1.0
	MG./KG	SCLPO	S2135	S2135	S2135	S2135	S2135	S2135
ADMIUM,TOTAL		1027	<2.0	<2.0	<2.0	<2.0	<0.4	<0.4
	MG/KG	SCLPO	S2135	S2135	S2135	S2135	S2135	S2135
IROMIUM,TOTAL		1034	<10.0	<10.0	<10.0	<10.0	<2.0	<2.0
	MG/KG	SCLPO	S2135	S2135	S2135	S2135	S2135	S2135
AD,TOTAL		1051	<100	<100	<100	<100	<20.0	<20.0
	MG/KG	SCLPO	S2135	S2135	S2135	S2135	S2135	S2135

APPENDIX D

Free Product Analytical Results

Environmental Science and Engineering DATE 04/24/90 STATUS: FINAL PAGE 1
PROJECT NUMBER 94025 0205 PROJECT NAME NAVY - FTC - OIL
FIELD GROUP NANFTS6 LAB COORDINATOR JEFF SHAMIS

SAMPLE ID'S			FD#1	LG.DIESEL	MW-4	MW-5	AFFF	SM.#2
PARAMETERS		STORET	NANFTS6	NANFTS6	NANFTS6	NANFTS6	NANFTS6	NANFTS6
	UNITS	METHOD	1	3	4	5	6	9
DATE			02/28/90	02/28/90	02/28/90	02/27/90	02/28/90	02/28/90
TIME			16:20	17:58	16:04	13:30	18:25	18:42
BENZENE,SED		99178	<2000	17100	<2000	<800	<2000	<800
	UG/KG-WET	PI						
ETHYLBENZENE,SED		99169	117000	137000	111000	<2000	<5000	27200
	UG/KG-WET	PI						
TOLUENE		98455	<2000	96900	<2000	<800	<2000	17700
	UG/KG-WET	PI						
XYLENE		99024	8550	391000	8470	<4000	<10000	269000
	UG/KG-WET	PI						
TPH, AS AVGAS		96019	<1870	<1980	<1910	<1940	<1540	<1970
	UG/G-WET	FI						
TPH, AS GAS		96020	<676	<717	<692	<703	<559	<713
	UG/G-WET	FI						
TPH, AS DIESEL		96021	1030000	868000	1030000	873000	<589	1110000
	UG/G-WET	FI						

Environmental Science and Engineering DATE 04/24/90 STATUS: FINAL PAGE 1
PROJECT NUMBER 94025 0205 PROJECT NAME NAVY - FTC - OIL
FIELD GROUP NANFTS6 LAB COORDINATOR JEFF SHAMIS
(WITH BATCHES)

SAMPLE ID'S			FD#1	LG.DIESEL	MW-4	MW-5	AFFF	SM.#2
PARAMETERS		STORET	NANFTS6	NANFTS6	NANFTS6	NANFTS6	NANFTS6	NANFTS6
	UNITS	METHOD	1	3	4	5	6	9
DATE			02/28/90	02/28/90	02/28/90	02/27/90	02/28/90	02/28/90
TIME			16:20	17:58	16:04	13:30	18:25	18:42
BENZENE,SED		99178	<2000	17100	<2000	<800	<2000	<800
	UG/KG-WET	PI	G12189	G12189	G12189	G12189	G12189	G12189
ETHYLBENZENE,SED		99169	117000	137000	111000	<2000	<5000	27200
	UG/KG-WET	PI	G12189	G12189	G12189	G12189	G12189	G12189
TOLUENE		98455	<2000	96900	<2000	<800	<2000	17700
	UG/KG-WET	PI	G12189	G12189	G12189	G12189	G12189	G12189
XYLENE		99024	8550	391000	8470	<4000	<10000	269000
	UG/KG-WET	PI	G12189	G12189	G12189	G12189	G12189	G12189
TPH, AS AVGAS		96019	<1870	<1980	<1910	<1940	<1540	<1970
	UG/G-WET	FI	G12078	G12078	G12078	G12078	G12078	G12078
TPH, AS GAS		96020	<676	<717	<692	<703	<559	<713
	UG/G-WET	FI	G12078	G12078	G12078	G12078	G12078	G12078
TPH, AS DIESEL		96021	1030000	868000	1030000	873000	<589	1110000
	UG/G-WET	FI	G12078	G12078	G12078	G12078	G12078	G12078

APPENDIX E

Groundwater Analytical Results

Environmental Science and Engineering DATE 04/24/90 STATUS: FINAL PAGE 1
PROJECT NUMBER 94025 0205 PROJECT NAME NAVY - FTC
FIELD GROUP NANFTW2 LAB COORDINATOR JEFF SHAMIS

AMPLE ID'S		TRPBLK	SEQPBLK	WEQPBLK	FD#	MW-7	MW-8	MW-9	MW-10	MW-11	MW-12	MW13	MW14	MW15	MW16	MW17
ARAMETERS	STORET	NANFTW2	NANFTW2	NANFTW2	NANFTW2	NANFTW2	NANFTW2	NANFTW2	NANFTW2	NANFTW2	NANFTW2	NANFTW2	NANFTW2	NANFTW2	NANFTW2	NANFTW2
UNITS	METHOD	1	2	3	6	7	8	9	10	11	12	13	14	15	16	17
ATE		03/02/90	03/02/90	03/02/90	03/01/90	02/27/90	03/01/90	02/27/90	02/27/90	02/28/90	02/28/90	03/06/90	03/06/90	03/06/90	03/06/90	03/06/90
IME			08:46	09:12	15:22	16:50	12:11	13:15	12:25	12:05	14:47	15:30	09:15	12:00	11:40	10:40
CETONE	81552	<50	<50	<50	<2500	<50	<50	<50	<250	<2500	<250	79	<50	400	<50	<50
UG/L	GMS															
ENZENE	34030	<1.0	<1.0	<1.0	<50	11	5.6	<1.0	37	11000	19	<1.0	<1.0	<1.0	<1.0	<1.0
UG/L	GMS															
ROMODICHLOROMETHANE	32101	<2.2	<2.2	<2.2	<110	<2.2	<2.2	<2.2	<11	<110	<11	<2.2	<2.2	<2.2	<2.2	<2.2
UG/L	GMS															
ROMOFORM	32104	<4.7	<4.7	<4.7	<240	<4.7	<4.7	<4.7	<24	<240	<24	<4.7	<4.7	<4.7	<4.7	<4.7
UG/L	GMS															
ROMOMETHANE	34413	<5.8	<5.8	<5.8	<290	<5.8	<5.8	<5.8	<29	<290	<29	<5.8	<5.8	<5.8	<5.8	<5.8
UG/L	GMS															
ARBON DISULFIDE	77041	<4.4	<4.4	<4.4	<220	<4.4	<4.4	<4.4	<22	<220	<22	<4.4	<4.4	<4.4	<4.4	<4.4
UG/L	GMS															
ARBON TETRACHLORIDE	32102	<2.8	<2.8	<2.8	<140	<2.8	<2.8	<2.8	<14	<140	<14	<2.8	<2.8	<2.8	<2.8	<2.8
UG/L	GMS															
HLOROBENZENE	34301	<6.0	<6.0	<6.0	<300	<6.0	<6.0	<6.0	<30	<300	<30	<6.0	<6.0	<6.0	<6.0	<6.0
UG/L	GMS															
HLOROETHANE	34311	<8.2	<8.2	<8.2	<410	<8.2	<8.2	<8.2	<41	<410	<41	<8.2	<8.2	<8.2	<8.2	<8.2
UG/L	GMS															
-CHLOROETHYLVINYL	34576	<15	<15	<15	<750	<15	<15	<15	<75	<750	<75	<15	<15	<15	<15	<15
THER UG/L	GMS															
HLOROFORM	32106	<1.6	<1.6	<1.6	<80	<1.6	<1.6	<1.6	<8.0	<80	<8.0	<1.6	<1.6	<1.6	<1.6	<1.6
UG/L	GMS															
HLOROMETHANE	34418	<4.3	<4.3	<4.3	<220	<4.3	<4.3	<4.3	<22	<220	<22	<4.3	<4.3	<4.3	<4.3	<4.3
UG/L	GMS															
BROMOCHLOROMETHANE	32105	<3.1	<3.1	<3.1	<160	<3.1	<3.1	<3.1	<16	<160	<16	<3.1	<3.1	<3.1	<3.1	<3.1
UG/L	GMS															
1-DICHLOROETHANE	34496	<4.7	<4.7	<4.7	<240	<4.7	<4.7	<4.7	<24	<240	<24	<4.7	<4.7	<4.7	<4.7	<4.7
UG/L	GMS															
2-DICHLOROETHANE	34531	<2.8	<2.8	<2.8	<140	<2.8	<2.8	<2.8	<14	<140	<14	<2.8	<2.8	<2.8	<2.8	<2.8
UG/L	GMS															
1-DICHLOROETHYLENE	34501	<2.8	<2.8	<2.8	<140	<2.8	<2.8	<2.8	<14	<140	<14	<2.8	<2.8	<2.8	<2.8	<2.8
UG/L	GMS															
ANS-1,2-DICHLORO	34546	<1.6	<1.6	<1.6	<80	<1.6	<1.6	<1.6	<8.0	<80	<8.0	<1.6	<1.6	<1.6	<1.6	<1.6
HENE UG/L	GMS															
2-DICHLOROPROPANE	34541	<6.0	<6.0	<6.0	<300	<6.0	<6.0	<6.0	<30	<300	<30	<6.0	<6.0	<6.0	<6.0	<6.0
UG/L	GMS															
-1,3-DICHLORO	34704	<5.0	<5.0	<5.0	<250	<5.0	<5.0	<5.0	<25	<250	<25	<5.0	<5.0	<5.0	<5.0	<5.0
PENE UG/L	GMS															
NS-1,3-DICHLORO	34699	<6.4	<6.4	<6.4	<320	<6.4	<6.4	<6.4	<32	<320	<32	<6.4	<6.4	<6.4	<6.4	<6.4
PENE UG/L	GMS															
YLBENZENE	34371	<6.2	<6.2	<6.2	<310	6.8	<6.2	<6.2	80	780	<31	<6.2	<6.2	<6.2	<6.2	<6.2
UG/L	GMS															
EXANONE	77103	<21	<21	<21	<1100	<21	<21	<21	<110	<1100	<110	<21	<21	<21	<21	<21
UG/L	GMS															
HYLENE CHLORIDE	34423	<5.0	<5.0	<5.0	<250	<5.0	<5.0	<5.0	<25	<250	<25	<5.0	<5.0	<5.0	<5.0	<5.0
UG/L	GMS															
HYL ETHYL KETONE	81595	<28	<28	<28	<1400	<28	<28	<28	<140	<1400	<140	<28	<28	<28	<28	<28
UG/L	GMS															

Environmental Science and Engineering DATE 04/24/90 STATUS: FINAL PAGE 2
PROJECT NUMBER 94025 0205 PROJECT NAME NAVY - FTC
FIELD GROUP NANFTW2 LAB COORDINATOR JEFF SHAMIS

SAMPLE ID'S		TRPBLK	SEQPBLK	WEQPBLK	FD#	MW-7	MW-8	MW-9	MW-10	MW-11	MW-12	MW13	MW14	MW15	MW16	MW17
PARAMETERS	STORET	NANFTW2	NANFTW2	NANFTW2	NANFTW2	NANFTW2	NANFTW2	NANFTW2	NANFTW2	NANFTW2	NANFTW2	NANFTW2	NANFTW2	NANFTW2	NANFTW2	NANFTW2
UNITS	METHOD	1	2	3	6	7	8	9	10	11	12	13	14	15	16	17
DATE		03/02/90	03/02/90	03/02/90	03/01/90	02/27/90	03/01/90	02/27/90	02/27/90	02/28/90	02/28/90	03/06/90	03/06/90	03/06/90	03/06/90	03/06/90
TIME			08:46	09:12	15:22	16:50	12:11	13:15	12:25	12:05	14:47	15:30	09:15	12:00	11:40	10:40
METHYL ISOBUT'KETONE	81596	<12	<12	<12	<600	<12	<12	<12	<60	<600	<60	<12	<12	<12	<12	<12
UG/L	GMS															
STYRENE	77128	<5.0	<5.0	<5.0	<250	<5.0	<5.0	<5.0	<25	<250	<25	<5.0	<5.0	<5.0	<5.0	<5.0
UG/L	GMS															
1,1,2,2-TETRACHLORO	34516	<4.1	<4.1	<4.1	<210	<4.1	<4.1	<4.1	<21	<210	<21	<4.1	<4.1	<4.1	<4.1	<4.1
ETHANE UG/L	GMS															
TETRACHLOROETHENE	34475	<3.0	<3.0	<3.0	<150	<3.0	<3.0	<3.0	<15	<150	<15	<3.0	<3.0	<3.0	<3.0	<3.0
UG/L	GMS															
TOLUENE	34010	<6.0	<6.0	<6.0	<300	<6.0	<6.0	<6.0	<30	1100	<30	<6.0	<6.0	<6.0	<6.0	<6.0
UG/L	GMS															
1,1,1-TRICHL'ETHANE	34506	<3.8	<3.8	<3.8	<190	<3.8	<3.8	<3.8	<19	<190	<19	<3.8	<3.8	<3.8	<3.8	<3.8
UG/L	GMS															
1,1,2-TRICHL'ETHANE	34511	<5.0	<5.0	<5.0	<250	<5.0	<5.0	<5.0	<25	<250	<25	<5.0	<5.0	<5.0	<5.0	<5.0
UG/L	GMS															
TRICHLOROETHENE	39180	<1.0	<1.0	<1.0	<50	<1.0	<1.0	<1.0	<5.0	<50	<5.0	<1.0	<1.0	<1.0	<1.0	<1.0
UG/L	GMS															
VINYL CHLORIDE	39175	<1.0	<1.0	<1.0	<50	<1.0	<1.0	<1.0	<5.0	<50	<5.0	<1.0	<1.0	<1.0	<1.0	<1.0
UG/L	GMS															
VINYL ACETATE	77057	<10	<10	<10	<500	<10	<10	<10	<50	<500	<50	<10	<10	<10	<10	<10
UG/L	GMS															
XYLENES,TOTAL	81551	<12	<12	<12	<600	<12	<12	<12	91	<600	<60	<12	<12	<12	<12	<12
UG/L	GMS															
TPH, AS AVGAS	96016	NRQ	<1.59	<1.59	<1.59	<1.59	<1.59	<1.59	<1.59	<1.59	<1.59	<1.59	<1.59	<1.59	<1.59	<1.59
MG/L	FI															
TPH, AS GAS	96017	NRQ	<0.58	<0.58	<0.58	<0.58	<0.58	<0.58	2.30	10.9	<0.58	<0.58	<0.58	<0.58	<0.58	<0.58
MG/L	FI															
TPH, AS DIESEL	96018	NRQ	<0.61	<0.61	143	1.12	<0.61	<0.61	<0.61	<0.61	<0.61	<0.61	<0.61	<0.61	<0.61	<0.61
MG/L	FI															
TOX	70353	NRQ	NRQ	9	28	69	38	19	32	380	37	24	91	61	50	1100
UG/L-CL	I															

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PROJECT NUMBER 94025 0205 PROJECT NAME NAVY - FTC
FIELD GROUP NANFTW2 LAB COORDINATOR JEFF SHAMIS

AMPLE ID'S		MW18	MW-19	MW-20	MW-21	MW22	MW-5	MW-1	MW02	MW-3	MW-4	MW-6	WEQPBLK
ARAMETERS	STORET	NANFTW2	NANFTW2	NANFTW2	NANFTW2	NANFTW2	NANFTW2	NANFTW2	NANFTW2	NANFTW2	NANFTW2	NANFTW2	NANFTW2
UNITS	METHOD	18	19	20	21	22	23	24	25	26	27	28	29
ATE		03/06/90	03/02/90	03/02/90	03/02/90	03/14/90	03/01/90	03/01/90	03/06/90	02/28/90	02/28/90	02/27/90	03/13/90
IME		10:20	09:56	12:13	14:40	09:05	15:05	12:40	16:40	16:52	19:18	17:47	13:00
CETONE	81552	<50	<50	<50	<50	<50	<2500	<50	<50	<250	<2500	98	<50
UG/L	GMS												
ENZENE	34030	2.4	<1.0	<1.0	<1.0	38	<50	<1.0	<1.0	<5.0	<50	1.2	<1.0
UG/L	GMS												
ROMODICHLOROMETHANE	32101	<2.2	<2.2	<2.2	<2.2	<2.2	<110	<2.2	<2.2	<11	<110	<2.2	7.9
UG/L	GMS												
ROMOFORM	32104	<4.7	<4.7	<4.7	<4.7	<4.7	<240	<4.7	<4.7	<24	<240	<4.7	<4.7
UG/L	GMS												
OMOMETHANE	34413	<5.8	<5.8	<5.8	<5.8	<5.8	<290	<5.8	<5.8	<29	<290	<5.8	<5.8
UG/L	GMS												
ARBON DISULFIDE	77041	<4.4	<4.4	<4.4	<4.4	<4.4	<220	<4.4	<4.4	<22	<220	<4.4	<4.4
UG/L	GMS												
ARBON TETRACHLORIDE	32102	<2.8	<2.8	<2.8	<2.8	<2.8	<140	<2.8	<2.8	<14	<140	<2.8	<2.8
UG/L	GMS												
HLOROBENZENE	34301	<6.0	<6.0	<6.0	<6.0	<6.0	<300	<6.0	<6.0	<30	<300	<6.0	<6.0
UG/L	GMS												
HLOROETHANE	34311	<8.2	<8.2	<8.2	<8.2	<8.2	<410	<8.2	<8.2	<41	<410	<8.2	<8.2
UG/L	GMS												
CHLOROETHYLVINYL	34576	<15	<15	<15	<15	<15	<750	<15	<15	<75	<750	<15	<15
HER UG/L	GMS												
LOROFORM	32106	<1.6	<1.6	<1.6	<1.6	<1.6	<80	<1.6	<1.6	<8.0	<80	<1.6	35
UG/L	GMS												
LOROMETHANE	34418	<4.3	<4.3	<4.3	<4.3	<4.3	<220	<4.3	<4.3	<22	<220	4.5	<4.3
UG/L	GMS												
BROMOCHLOROMETHANE	32105	<3.1	<3.1	<3.1	<3.1	<3.1	<160	<3.1	<3.1	<16	<160	<3.1	<3.1
UG/L	GMS												
1-DICHLOROETHANE	34496	<4.7	<4.7	<4.7	<4.7	<4.7	<240	<4.7	<4.7	<24	<240	<4.7	<4.7
UG/L	GMS												
2-DICHLOROETHANE	34531	<2.8	<2.8	<2.8	<2.8	<2.8	<140	<2.8	<2.8	<14	<140	<2.8	<2.8
UG/L	GMS												
1-DICHLOROETHYLENE	34501	<2.8	<2.8	<2.8	<2.8	<2.8	<140	<2.8	<2.8	<14	<140	<2.8	<2.8
UG/L	GMS												
NS-1,2-DICHLORO	34546	<1.6	<1.6	<1.6	<1.6	<1.6	<80	<1.6	<1.6	<8.0	<80	<1.6	<1.6
HENE UG/L	GMS												
2-DICHLOROPROPANE	34541	<6.0	<6.0	<6.0	<6.0	<6.0	<300	<6.0	<6.0	<30	<300	<6.0	<6.0
UG/L	GMS												
-1,3-DICHLORO	34704	<5.0	<5.0	<5.0	<5.0	<5.0	<250	<5.0	<5.0	<25	<250	<5.0	<5.0
PENE UG/L	GMS												
NS-1,3-DICHLORO	34699	<6.4	<6.4	<6.4	<6.4	<6.4	<320	<6.4	<6.4	<32	<320	<6.4	<6.4
PENE UG/L	GMS												
YLBENZENE	34371	<6.2	<6.2	<6.2	<6.2	24	<310	<6.2	<6.2	<31	320	<6.2	<6.2
UG/L	GMS												
EXANONE	77103	<21	<21	<21	<21	<21	<1100	<21	<21	<110	<1100	<21	<21
UG/L	GMS												
HYLENE CHLORIDE	34423	<5.0	<5.0	<5.0	<5.0	<5.0	<250	<5.0	<5.0	<25	<250	<5.0	<5.0
UG/L	GMS												
HYL ETHYL KETONE	81595	<28	<28	<28	<28	<28	<1400	<28	<28	<140	<1400	<28	<28
UG/L	GMS												

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FIELD GROUP NANFTW2 LAB COORDINATOR JEFF SHAMIS

AMPLE ID'S		MW18	MW-19	MW-20	MW-21	MW22	MW-5	MW-1	MW02	MW-3	MW-4	MW-6	WEQPBLK
ARAMETERS	STORET	NANFTW2	NANFTW2	NANFTW2	NANFTW2	NANFTW2	NANFTW2	NANFTW2	NANFTW2	NANFTW2	NANFTW2	NANFTW2	NANFTW2
UNITS	METHOD	18	19	20	21	22	23	24	25	26	27	28	29
ATE		03/06/90	03/02/90	03/02/90	03/02/90	03/14/90	03/01/90	03/01/90	03/06/90	02/28/90	02/28/90	02/27/90	03/13/90
IME		10:20	09:56	12:13	14:40	09:05	15:05	12:40	16:40	16:52	19:18	17:47	13:00
ETHYL ISOBUT'KETONE	81596	<12	<12	<12	<12	<12	<600	<12	<12	<60	<600	<12	<12
UG/L	GMS												
TYRENE	77128	<5.0	<5.0	<5.0	<5.0	<5.0	<250	<5.0	<5.0	<25	<250	<5.0	<5.0
UG/L	GMS												
,1,2,2-TETRACHLORO	34516	<4.1	<4.1	<4.1	<4.1	<4.1	<210	<4.1	<4.1	<21	<210	<4.1	<4.1
THANE UG/L	GMS												
ETRACHLOROETHENE	34475	<3.0	<3.0	<3.0	<3.0	<3.0	<150	<3.0	<3.0	<15	<150	<3.0	<3.0
UG/L	GMS												
OLUENE	34010	<6.0	<6.0	<6.0	<6.0	16	<300	<6.0	<6.0	<30	<300	<6.0	<6.0
UG/L	GMS												
,1,1-TRICHL'ETHANE	34506	<3.8	<3.8	<3.8	<3.8	<3.8	<190	<3.8	<3.8	<19	<190	<3.8	<3.8
UG/L	GMS												
,1,2-TRICHL'ETHANE	34511	<5.0	<5.0	<5.0	<5.0	<5.0	<250	<5.0	<5.0	<25	<250	<5.0	<5.0
UG/L	GMS												
RICHLOROETHENE	39180	<1.0	<1.0	<1.0	<1.0	<1.0	<50	<1.0	<1.0	<5.0	<50	<1.0	<1.0
UG/L	GMS												
INYL CHLORIDE	39175	4.5	<1.0	<1.0	<1.0	<1.0	<50	<1.0	<1.0	<5.0	<50	<1.0	<1.0
UG/L	GMS												
INYL ACETATE	77057	<10	<10	<10	<10	<10	<500	<10	<10	<50	<500	<10	<10
UG/L	GMS												
YLENES,TOTAL	81551	<12	<12	<12	<12	59	<600	<12	<12	<60	<600	<12	<12
UG/L	GMS												
'H, AS AVGAS	96016	<1.59	<1.59	<1.59	<1.59	<1.59	<1.59	<1.59	<1.59	<1.59	<1.59	<1.59	<1.59
MG/L	FI												
'H, AS GAS	96017	<0.58	<0.58	<0.58	<0.58	<0.58	<0.58	<0.58	<0.58	<0.58	<0.58	<0.58	<0.58
MG/L	FI												
'H, AS DIESEL	96018	<0.61	<0.61	<0.61	<0.61	<0.61	258	<0.61	<0.61	<0.61	323	0.93	<0.61
MG/L	FI												
X	70353	80	50	5	<5	180	36	23	55	53	90	39	16
UG/L-CL	I												

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FIELD GROUP NANFTW2 LAB COORDINATOR JEFF SHAMIS

SAMPLE ID'S		MW-21	MW22	MW14	MW14F
PARAMETERS	STORET	NANFTW2	NANFTW2	NANFTW2	NANFTW2
UNITS	METHOD	4	5	30	31
DATE		03/02/90	03/14/90	03/30/90	03/30/90
TIME		15:15	09:15	10:35	
RESIDUE,SUSP.	530	4140	101	155	4
MG/L	I				
RESIDUE,DISS	70300	262	268	396	306
MG/L	I				
HARDNESS	900	212	148	124	116
MG/L-CACO3	I				
CHLORIDE	940	46.4	94.8	IL	IL
MG/L	TITR				
SULFATE	945	56.8	80.8	IL	IL
MG/L	TURB				
NITROG,NO2+NO3	630	1.12	0.104	<0.010	
MG/L-AS N	TECH				
NITROGEN,NO2	615	0.030	0.043	0.014	
MG/L- AS N	TECH				
NITROG,NO3	620	1.09	0.061		
MG/L-AS N	CALC				
PHOSPHORUS, T	665	0.682	0.047	0.220	0.046
MG/L-AS P	TECH				
NITROGEN,TKN	625	0.76	0.26		
MG/L- AS N	TECH				
CALCIUM,TOTAL	916	20.2	28.7	23.8	22.0
MG/L	ICAP				
IRON,TOTAL	1045	13200	6330	44400	3800
UG/L	ICAP				
MAGNESIUM,TOTAL	927	5.44	15.7	15.1	10.9
MG/L	ICAP				
MANGANESE,TOTAL	1055	206	225	963	761
UG/L	ICAP				

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PROJECT NUMBER 94025 0205 PROJECT NAME NAVY - FTC
FIELD GROUP NANFTW2 LAB COORDINATOR JEFF SHAMIS
(WITH BATCHES)

MPLE ID'S		TRPBLK	SEQPBLK	WEQPBLK	FD#	MW-7	MW-8	MW-9	MW-10	MW-11	MW-12	MW13	MW14	MW15	MW16	MW17
RAMETERS	STORET	NANFTW2	NANFTW2	NANFTW2	NANFTW2	NANFTW2	NANFTW2	NANFTW2	NANFTW2	NANFTW2	NANFTW2	NANFTW2	NANFTW2	NANFTW2	NANFTW2	NANFTW2
UNITS	METHOD	1	2	3	6	7	8	9	10	11	12	13	14	15	16	17
TE		03/02/90	03/02/90	03/02/90	03/01/90	02/27/90	03/01/90	02/27/90	02/27/90	02/28/90	02/28/90	03/06/90	03/06/90	03/06/90	03/06/90	03/06/90
ME			08:46	09:12	15:22	16:50	12:11	13:15	12:25	12:05	14:47	15:30	09:15	12:00	11:40	10:40
ETONE	81552	<50	<50	<50	<2500	<50	<50	<50	<250	<2500	<250	79	<50	400	<50	<50
UG/L	GMS	G12352	G12352	G12352	G12352	G12352	G12352	G12352	G12352	G12352	G12352	G12128	G12128	G12128	G12128	G12128
NZENE	34030	<1.0	<1.0	<1.0	<50	11	5.6	<1.0	37	11000	19	<1.0	<1.0	<1.0	<1.0	<1.0
UG/L	GMS	G12352	G12352	G12352	G12352	G12352	G12352	G12352	G12352	G12352	G12352	G12128	G12128	G12128	G12128	G12128
ROMODICHLOROMETHANE	32101	<2.2	<2.2	<2.2	<110	<2.2	<2.2	<2.2	<11	<110	<11	<2.2	<2.2	<2.2	<2.2	<2.2
UG/L	GMS	G12352	G12352	G12352	G12352	G12352	G12352	G12352	G12352	G12352	G12352	G12128	G12128	G12128	G12128	G12128
ROMOFORM	32104	<4.7	<4.7	<4.7	<240	<4.7	<4.7	<4.7	<24	<240	<24	<4.7	<4.7	<4.7	<4.7	<4.7
UG/L	GMS	G12352	G12352	G12352	G12352	G12352	G12352	G12352	G12352	G12352	G12352	G12128	G12128	G12128	G12128	G12128
ROMOMETHANE	34413	<5.8	<5.8	<5.8	<290	<5.8	<5.8	<5.8	<29	<290	<29	<5.8	<5.8	<5.8	<5.8	<5.8
UG/L	GMS	G12352	G12352	G12352	G12352	G12352	G12352	G12352	G12352	G12352	G12352	G12128	G12128	G12128	G12128	G12128
RBON DISULFIDE	77041	<4.4	<4.4	<4.4	<220	<4.4	<4.4	<4.4	<22	<220	<22	<4.4	<4.4	<4.4	<4.4	<4.4
UG/L	GMS	G12352	G12352	G12352	G12352	G12352	G12352	G12352	G12352	G12352	G12352	G12128	G12128	G12128	G12128	G12128
RBON TETRACHLORIDE	32102	<2.8	<2.8	<2.8	<140	<2.8	<2.8	<2.8	<14	<140	<14	<2.8	<2.8	<2.8	<2.8	<2.8
UG/L	GMS	G12352	G12352	G12352	G12352	G12352	G12352	G12352	G12352	G12352	G12352	G12128	G12128	G12128	G12128	G12128
LOROBENZENE	34301	<6.0	<6.0	<6.0	<300	<6.0	<6.0	<6.0	<30	<300	<30	<6.0	<6.0	<6.0	<6.0	<6.0
UG/L	GMS	G12352	G12352	G12352	G12352	G12352	G12352	G12352	G12352	G12352	G12352	G12128	G12128	G12128	G12128	G12128
LOROETHANE	34311	<8.2	<8.2	<8.2	<410	<8.2	<8.2	<8.2	<41	<410	<41	<8.2	<8.2	<8.2	<8.2	<8.2
UG/L	GMS	G12352	G12352	G12352	G12352	G12352	G12352	G12352	G12352	G12352	G12352	G12128	G12128	G12128	G12128	G12128
CHLOROETHYLVINYL	34576	<15	<15	<15	<750	<15	<15	<15	<75	<750	<75	<15	<15	<15	<15	<15
HER UG/L	GMS	G12352	G12352	G12352	G12352	G12352	G12352	G12352	G12352	G12352	G12352	G12128	G12128	G12128	G12128	G12128
LOROFORM	32106	<1.6	<1.6	<1.6	<80	<1.6	<1.6	<1.6	<8.0	<80	<8.0	<1.6	<1.6	<1.6	<1.6	<1.6
UG/L	GMS	G12352	G12352	G12352	G12352	G12352	G12352	G12352	G12352	G12352	G12352	G12128	G12128	G12128	G12128	G12128
LOROMETHANE	34418	<4.3	<4.3	<4.3	<220	<4.3	<4.3	<4.3	<22	<220	<22	<4.3	<4.3	<4.3	<4.3	<4.3
UG/L	GMS	G12352	G12352	G12352	G12352	G12352	G12352	G12352	G12352	G12352	G12352	G12128	G12128	G12128	G12128	G12128
BROMOCHLOROMETHANE	32105	<3.1	<3.1	<3.1	<160	<3.1	<3.1	<3.1	<16	<160	<16	<3.1	<3.1	<3.1	<3.1	<3.1
UG/L	GMS	G12352	G12352	G12352	G12352	G12352	G12352	G12352	G12352	G12352	G12352	G12128	G12128	G12128	G12128	G12128
1-DICHLOROETHANE	34496	<4.7	<4.7	<4.7	<240	<4.7	<4.7	<4.7	<24	<240	<24	<4.7	<4.7	<4.7	<4.7	<4.7
UG/L	GMS	G12352	G12352	G12352	G12352	G12352	G12352	G12352	G12352	G12352	G12352	G12128	G12128	G12128	G12128	G12128
2-DICHLOROETHANE	34531	<2.8	<2.8	<2.8	<140	<2.8	<2.8	<2.8	<14	<140	<14	<2.8	<2.8	<2.8	<2.8	<2.8
UG/L	GMS	G12352	G12352	G12352	G12352	G12352	G12352	G12352	G12352	G12352	G12352	G12128	G12128	G12128	G12128	G12128
1-DICHLOROETHYLENE	34501	<2.8	<2.8	<2.8	<140	<2.8	<2.8	<2.8	<14	<140	<14	<2.8	<2.8	<2.8	<2.8	<2.8
UG/L	GMS	G12352	G12352	G12352	G12352	G12352	G12352	G12352	G12352	G12352	G12352	G12128	G12128	G12128	G12128	G12128
NS-1,2-DICHLORO	34546	<1.6	<1.6	<1.6	<80	<1.6	<1.6	<1.6	<8.0	<80	<8.0	<1.6	<1.6	<1.6	<1.6	<1.6
ENE UG/L	GMS	G12352	G12352	G12352	G12352	G12352	G12352	G12352	G12352	G12352	G12352	G12128	G12128	G12128	G12128	G12128
-DICHLOROPROPANE	34541	<6.0	<6.0	<6.0	<300	<6.0	<6.0	<6.0	<30	<300	<30	<6.0	<6.0	<6.0	<6.0	<6.0
UG/L	GMS	G12352	G12352	G12352	G12352	G12352	G12352	G12352	G12352	G12352	G12352	G12128	G12128	G12128	G12128	G12128
-1,3-DICHLORO	34704	<5.0	<5.0	<5.0	<250	<5.0	<5.0	<5.0	<25	<250	<25	<5.0	<5.0	<5.0	<5.0	<5.0
PENE UG/L	GMS	G12352	G12352	G12352	G12352	G12352	G12352	G12352	G12352	G12352	G12352	G12128	G12128	G12128	G12128	G12128
NS-1,3-DICHLORO	34699	<6.4	<6.4	<6.4	<320	<6.4	<6.4	<6.4	<32	<320	<32	<6.4	<6.4	<6.4	<6.4	<6.4
PENE UG/L	GMS	G12352	G12352	G12352	G12352	G12352	G12352	G12352	G12352	G12352	G12352	G12128	G12128	G12128	G12128	G12128
YLBENZENE	34371	<6.2	<6.2	<6.2	<310	6.8	<6.2	<6.2	80	780	<31	<6.2	<6.2	<6.2	<6.2	<6.2
UG/L	GMS	G12352	G12352	G12352	G12352	G12352	G12352	G12352	G12352	G12352	G12352	G12128	G12128	G12128	G12128	G12128
EXANONE	77103	<21	<21	<21	<1100	<21	<21	<21	<110	<1100	<110	<21	<21	<21	<21	<21
UG/L	GMS	G12352	G12352	G12352	G12352	G12352	G12352	G12352	G12352	G12352	G12352	G12128	G12128	G12128	G12128	G12128
HYLENE CHLORIDE	34423	<5.0	<5.0	<5.0	<250	<5.0	<5.0	<5.0	<25	<250	<25	<5.0	<5.0	<5.0	<5.0	<5.0
UG/L	GMS	G12352	G12352	G12352	G12352	G12352	G12352	G12352	G12352	G12352	G12352	G12128	G12128	G12128	G12128	G12128
HYL ETHYL KETONE	81595	<28	<28	<28	<1400	<28	<28	<28	<140	<1400	<140	<28	<28	<28	<28	<28
UG/L	GMS	G12352	G12352	G12352	G12352	G12352	G12352	G12352	G12352	G12352	G12352	G12128	G12128	G12128	G12128	G12128

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PROJECT NUMBER 94025 0205 PROJECT NAME NAVY - FTC
FIELD GROUP NANFTW2 LAB COORDINATOR JEFF SHAMIS
(WITH BATCHES)

AMPLE ID'S		TRPBLK	SEQPBLK	WEQPBLK	FD#	MW-7	MW-8	MW-9	MW-10	MW-11	MW-12	MW13	MW14	MW15	MW16	MW17
ARAMETERS	STORET	NANFTW2	NANFTW2	NANFTW2	NANFTW2	NANFTW2	NANFTW2	NANFTW2	NANFTW2	NANFTW2	NANFTW2	NANFTW2	NANFTW2	NANFTW2	NANFTW2	NANFTW2
UNITS	METHOD	1	2	3	6	7	8	9	10	11	12	13	14	15	16	17
ATE		03/02/90	03/02/90	03/02/90	03/01/90	02/27/90	03/01/90	02/27/90	02/27/90	02/28/90	02/28/90	03/06/90	03/06/90	03/06/90	03/06/90	03/06/90
IME			08:46	09:12	15:22	16:50	12:11	13:15	12:25	12:05	14:47	15:30	09:15	12:00	11:40	10:40
ETHYL ISOBUT'KETONE	81596	<12	<12	<12	<600	<12	<12	<12	<60	<600	<60	<12	<12	<12	<12	<12
UG/L	GMS	G12352	G12352	G12352	G12352	G12352	G12352	G12352	G12352	G12352	G12352	G12128	G12128	G12128	G12128	G12128
TYRENE	77128	<5.0	<5.0	<5.0	<250	<5.0	<5.0	<5.0	<25	<250	<25	<5.0	<5.0	<5.0	<5.0	<5.0
UG/L	GMS	G12352	G12352	G12352	G12352	G12352	G12352	G12352	G12352	G12352	G12352	G12128	G12128	G12128	G12128	G12128
,1,2,2-TETRACHLORO	34516	<4.1	<4.1	<4.1	<210	<4.1	<4.1	<4.1	<21	<210	<21	<4.1	<4.1	<4.1	<4.1	<4.1
THANE UG/L	GMS	G12352	G12352	G12352	G12352	G12352	G12352	G12352	G12352	G12352	G12352	G12128	G12128	G12128	G12128	G12128
ETRACHLOROETHENE	34475	<3.0	<3.0	<3.0	<150	<3.0	<3.0	<3.0	<15	<150	<15	<3.0	<3.0	<3.0	<3.0	<3.0
UG/L	GMS	G12352	G12352	G12352	G12352	G12352	G12352	G12352	G12352	G12352	G12352	G12128	G12128	G12128	G12128	G12128
OLUENE	34010	<6.0	<6.0	<6.0	<300	<6.0	<6.0	<6.0	<30	1100	<30	<6.0	<6.0	<6.0	<6.0	<6.0
UG/L	GMS	G12352	G12352	G12352	G12352	G12352	G12352	G12352	G12352	G12352	G12352	G12128	G12128	G12128	G12128	G12128
,1,1-TRICHL'ETHANE	34506	<3.8	<3.8	<3.8	<190	<3.8	<3.8	<3.8	<19	<190	<19	<3.8	<3.8	<3.8	<3.8	<3.8
UG/L	GMS	G12352	G12352	G12352	G12352	G12352	G12352	G12352	G12352	G12352	G12352	G12128	G12128	G12128	G12128	G12128
,1,2-TRICHL'ETHANE	34511	<5.0	<5.0	<5.0	<250	<5.0	<5.0	<5.0	<25	<250	<25	<5.0	<5.0	<5.0	<5.0	<5.0
UG/L	GMS	G12352	G12352	G12352	G12352	G12352	G12352	G12352	G12352	G12352	G12352	G12128	G12128	G12128	G12128	G12128
RICHLOROETHENE	39180	<1.0	<1.0	<1.0	<50	<1.0	<1.0	<1.0	<5.0	<50	<5.0	<1.0	<1.0	<1.0	<1.0	<1.0
UG/L	GMS	G12352	G12352	G12352	G12352	G12352	G12352	G12352	G12352	G12352	G12352	G12128	G12128	G12128	G12128	G12128
INYL CHLORIDE	39175	<1.0	<1.0	<1.0	<50	<1.0	<1.0	<1.0	<5.0	<50	<5.0	<1.0	<1.0	<1.0	<1.0	<1.0
UG/L	GMS	G12352	G12352	G12352	G12352	G12352	G12352	G12352	G12352	G12352	G12352	G12128	G12128	G12128	G12128	G12128
INYL ACETATE	77057	<10	<10	<10	<500	<10	<10	<10	<50	<500	<50	<10	<10	<10	<10	<10
UG/L	GMS	G12352	G12352	G12352	G12352	G12352	G12352	G12352	G12352	G12352	G12352	G12128	G12128	G12128	G12128	G12128
YLENES,TOTAL	81551	<12	<12	<12	<600	<12	<12	<12	91	<600	<60	<12	<12	<12	<12	<12
UG/L	GMS	G12352	G12352	G12352	G12352	G12352	G12352	G12352	G12352	G12352	G12352	G12128	G12128	G12128	G12128	G12128
'H, AS AVGAS	96016	NRQ	<1.59	<1.59	<1.59	<1.59	<1.59	<1.59	<1.59	<1.59	<1.59	<1.59	<1.59	<1.59	<1.59	<1.59
MG/L	FI		G12056	G12056	G12056	G12056	G12056	G12056	G12056	G12056	G12056	G12106	G12106	G12106	G12106	G12106
'H, AS GAS	96017	NRQ	<0.58	<0.58	<0.58	<0.58	<0.58	<0.58	2.30	10.9	<0.58	<0.58	<0.58	<0.58	<0.58	<0.58
MG/L	FI		G12056	G12056	G12056	G12056	G12056	G12056	G12056	G12056	G12056	G12106	G12106	G12106	G12106	G12106
H, AS DIESEL	96018	NRQ	<0.61	<0.61	143	1.12	<0.61	<0.61	<0.61	<0.61	<0.61	<0.61	<0.61	<0.61	<0.61	<0.61
MG/L	FI		G12056	G12056	G12056	G12056	G12056	G12056	G12056	G12056	G12056	G12106	G12106	G12106	G12106	G12106
Y	70353	NRQ	NRQ	9	28	69	38	19	32	380	37	24	91	61	50	1100
UG/L-CL	I			G12047	G12047	G12047	G12047	G12047	G12047	G12047	G12047	G12047	G12047	G12047	G12047	G12047

Environmental Science and Engineering DATE 04/24/90 STATUS: FINAL PAGE 3
PROJECT NUMBER 94025 0205 PROJECT NAME NAVY - FTC
FIELD GROUP NANFTW2 LAB COORDINATOR JEFF SHAMIS
(WITH BATCHES)

SAMPLE ID'S		MW18	MW-19	MW-20	MW-21	MW22	MW-5	MW-1	MW02	MW-3	MW-4	MW-6	WEQPBLK
PARAMETERS	STORET	NANFTW2	NANFTW2	NANFTW2	NANFTW2	NANFTW2	NANFTW2	NANFTW2	NANFTW2	NANFTW2	NANFTW2	NANFTW2	NANFTW2
UNITS	METHOD	18	19	20	21	22	23	24	25	26	27	28	29
DATE		03/06/90	03/02/90	03/02/90	03/02/90	03/14/90	03/01/90	03/01/90	03/06/90	02/28/90	02/28/90	02/27/90	03/13/90
TIME		10:20	09:56	12:13	14:40	09:05	15:05	12:40	16:40	16:52	19:18	17:47	13:00
CETONE	81552	<50	<50	<50	<50	<50	<2500	<50	<50	<250	<2500	98	<50
UG/L	GMS	G12128	G12352	G12352	G12352	G12217	G12352	G12352	G12128	G12352	G12352	G12352	G12217
ENZENE	34030	2.4	<1.0	<1.0	<1.0	38	<50	<1.0	<1.0	<5.0	<50	1.2	<1.0
UG/L	GMS	G12128	G12352	G12352	G12352	G12217	G12352	G12352	G12128	G12352	G12352	G12352	G12217
ROMODICHLOROMETHANE	32101	<2.2	<2.2	<2.2	<2.2	<2.2	<110	<2.2	<2.2	<11	<110	<2.2	7.9
UG/L	GMS	G12128	G12352	G12352	G12352	G12217	G12352	G12352	G12128	G12352	G12352	G12352	G12217
ROMOFORM	32104	<4.7	<4.7	<4.7	<4.7	<4.7	<240	<4.7	<4.7	<24	<240	<4.7	<4.7
UG/L	GMS	G12128	G12352	G12352	G12352	G12217	G12352	G12352	G12128	G12352	G12352	G12352	G12217
ROMOMETHANE	34413	<5.8	<5.8	<5.8	<5.8	<5.8	<290	<5.8	<5.8	<29	<290	<5.8	<5.8
UG/L	GMS	G12128	G12352	G12352	G12352	G12217	G12352	G12352	G12128	G12352	G12352	G12352	G12217
ARBON DISULFIDE	77041	<4.4	<4.4	<4.4	<4.4	<4.4	<220	<4.4	<4.4	<22	<220	<4.4	<4.4
UG/L	GMS	G12128	G12352	G12352	G12352	G12217	G12352	G12352	G12128	G12352	G12352	G12352	G12217
ARBON TETRACHLORIDE	32102	<2.8	<2.8	<2.8	<2.8	<2.8	<140	<2.8	<2.8	<14	<140	<2.8	<2.8
UG/L	GMS	G12128	G12352	G12352	G12352	G12217	G12352	G12352	G12128	G12352	G12352	G12352	G12217
HLOROBENZENE	34301	<6.0	<6.0	<6.0	<6.0	<6.0	<300	<6.0	<6.0	<30	<300	<6.0	<6.0
UG/L	GMS	G12128	G12352	G12352	G12352	G12217	G12352	G12352	G12128	G12352	G12352	G12352	G12217
HLOROETHANE	34311	<8.2	<8.2	<8.2	<8.2	<8.2	<410	<8.2	<8.2	<41	<410	<8.2	<8.2
UG/L	GMS	G12128	G12352	G12352	G12352	G12217	G12352	G12352	G12128	G12352	G12352	G12352	G12217
-CHLOROETHYLVINYL	34576	<15	<15	<15	<15	<15	<750	<15	<15	<75	<750	<15	<15
THER UG/L	GMS	G12128	G12352	G12352	G12352	G12217	G12352	G12352	G12128	G12352	G12352	G12352	G12217
HLOROFORM	32106	<1.6	<1.6	<1.6	<1.6	<1.6	<80	<1.6	<1.6	<8.0	<80	<1.6	35
UG/L	GMS	G12128	G12352	G12352	G12352	G12217	G12352	G12352	G12128	G12352	G12352	G12352	G12217
HLOROMETHANE	34418	<4.3	<4.3	<4.3	<4.3	<4.3	<220	<4.3	<4.3	<22	<220	4.5	<4.3
UG/L	GMS	G12128	G12352	G12352	G12352	G12217	G12352	G12352	G12128	G12352	G12352	G12352	G12217
IBROMOCHLOROMETHANE	32105	<3.1	<3.1	<3.1	<3.1	<3.1	<160	<3.1	<3.1	<16	<160	<3.1	<3.1
UG/L	GMS	G12128	G12352	G12352	G12352	G12217	G12352	G12352	G12128	G12352	G12352	G12352	G12217
1-DICHLOROETHANE	34496	<4.7	<4.7	<4.7	<4.7	<4.7	<240	<4.7	<4.7	<24	<240	<4.7	<4.7
UG/L	GMS	G12128	G12352	G12352	G12352	G12217	G12352	G12352	G12128	G12352	G12352	G12352	G12217
2-DICHLOROETHANE	34531	<2.8	<2.8	<2.8	<2.8	<2.8	<140	<2.8	<2.8	<14	<140	<2.8	<2.8
UG/L	GMS	G12128	G12352	G12352	G12352	G12217	G12352	G12352	G12128	G12352	G12352	G12352	G12217
1-DICHLOROETHYLENE	34501	<2.8	<2.8	<2.8	<2.8	<2.8	<140	<2.8	<2.8	<14	<140	<2.8	<2.8
UG/L	GMS	G12128	G12352	G12352	G12352	G12217	G12352	G12352	G12128	G12352	G12352	G12352	G12217
ANS-1,2-DICHLORO	34546	<1.6	<1.6	<1.6	<1.6	<1.6	<80	<1.6	<1.6	<8.0	<80	<1.6	<1.6
HENE UG/L	GMS	G12128	G12352	G12352	G12352	G12217	G12352	G12352	G12128	G12352	G12352	G12352	G12217
2-DICHLOROPROPANE	34541	<6.0	<6.0	<6.0	<6.0	<6.0	<300	<6.0	<6.0	<30	<300	<6.0	<6.0
UG/L	GMS	G12128	G12352	G12352	G12352	G12217	G12352	G12352	G12128	G12352	G12352	G12352	G12217
S-1,3-DICHLORO	34704	<5.0	<5.0	<5.0	<5.0	<5.0	<250	<5.0	<5.0	<25	<250	<5.0	<5.0
OPENE UG/L	GMS	G12128	G12352	G12352	G12352	G12217	G12352	G12352	G12128	G12352	G12352	G12352	G12217
ANS-1,3-DICHLORO	34699	<6.4	<6.4	<6.4	<6.4	<6.4	<320	<6.4	<6.4	<32	<320	<6.4	<6.4
OPENE UG/L	GMS	G12128	G12352	G12352	G12352	G12217	G12352	G12352	G12128	G12352	G12352	G12352	G12217
HYLBENZENE	34371	<6.2	<6.2	<6.2	<6.2	24	<310	<6.2	<6.2	<31	320	<6.2	<6.2
UG/L	GMS	G12128	G12352	G12352	G12352	G12217	G12352	G12352	G12128	G12352	G12352	G12352	G12217
EXANONE	77103	<21	<21	<21	<21	<21	<1100	<21	<21	<110	<1100	<21	<21
UG/L	GMS	G12128	G12352	G12352	G12352	G12217	G12352	G12352	G12128	G12352	G12352	G12352	G12217
HYLENE CHLORIDE	34423	<5.0	<5.0	<5.0	<5.0	<5.0	<250	<5.0	<5.0	<25	<250	<5.0	<5.0
UG/L	GMS	G12128	G12352	G12352	G12352	G12217	G12352	G12352	G12128	G12352	G12352	G12352	G12217
HYL ETHYL KETONE	81595	<28	<28	<28	<28	<28	<1400	<28	<28	<140	<1400	<28	<28
UG/L	GMS	G12128	G12352	G12352	G12352	G12217	G12352	G12352	G12128	G12352	G12352	G12352	G12217

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PROJECT NUMBER 94025 0205 PROJECT NAME NAVY - FTC
FIELD GROUP NANFTW2 LAB COORDINATOR JEFF SHAMIS
(WITH BATCHES)

AMPLE ID'S		MW18	MW-19	MW-20	MW-21	MW22	MW-5	MW-1	MW02	MW-3	MW-4	MW-6	WEQPBLK
ARAMETERS	STORET	NANFTW2	NANFTW2	NANFTW2	NANFTW2	NANFTW2	NANFTW2	NANFTW2	NANFTW2	NANFTW2	NANFTW2	NANFTW2	NANFTW2
UNITS	METHOD	18	19	20	21	22	23	24	25	26	27	28	29
ATE		03/06/90	03/02/90	03/02/90	03/02/90	03/14/90	03/01/90	03/01/90	03/06/90	02/28/90	02/28/90	02/27/90	03/13/90
IME		10:20	09:56	12:13	14:40	09:05	15:05	12:40	16:40	16:52	19:18	17:47	13:00
ETHYL ISOBUT'KETONE	81596	<12	<12	<12	<12	<12	<600	<12	<12	<60	<600	<12	<12
UG/L	GMS	G12128	G12352	G12352	G12352	G12217	G12352	G12352	G12128	G12352	G12352	G12352	G12217
TYRENE	77128	<5.0	<5.0	<5.0	<5.0	<5.0	<250	<5.0	<5.0	<25	<250	<5.0	<5.0
UG/L	GMS	G12128	G12352	G12352	G12352	G12217	G12352	G12352	G12128	G12352	G12352	G12352	G12217
,1,2,2-TETRACHLORO	34516	<4.1	<4.1	<4.1	<4.1	<4.1	<210	<4.1	<4.1	<21	<210	<4.1	<4.1
THANE UG/L	GMS	G12128	G12352	G12352	G12352	G12217	G12352	G12352	G12128	G12352	G12352	G12352	G12217
ETRACHLOROETHENE	34475	<3.0	<3.0	<3.0	<3.0	<3.0	<150	<3.0	<3.0	<15	<150	<3.0	<3.0
UG/L	GMS	G12128	G12352	G12352	G12352	G12217	G12352	G12352	G12128	G12352	G12352	G12352	G12217
OLUENE	34010	<6.0	<6.0	<6.0	<6.0	16	<300	<6.0	<6.0	<30	<300	<6.0	<6.0
UG/L	GMS	G12128	G12352	G12352	G12352	G12217	G12352	G12352	G12128	G12352	G12352	G12352	G12217
,1,1-TRICHL'ETHANE	34506	<3.8	<3.8	<3.8	<3.8	<3.8	<190	<3.8	<3.8	<19	<190	<3.8	<3.8
UG/L	GMS	G12128	G12352	G12352	G12352	G12217	G12352	G12352	G12128	G12352	G12352	G12352	G12217
,1,2-TRICHL'ETHANE	34511	<5.0	<5.0	<5.0	<5.0	<5.0	<250	<5.0	<5.0	<25	<250	<5.0	<5.0
UG/L	GMS	G12128	G12352	G12352	G12352	G12217	G12352	G12352	G12128	G12352	G12352	G12352	G12217
RICHLOROETHENE	39180	<1.0	<1.0	<1.0	<1.0	<1.0	<50	<1.0	<1.0	<5.0	<50	<1.0	<1.0
UG/L	GMS	G12128	G12352	G12352	G12352	G12217	G12352	G12352	G12128	G12352	G12352	G12352	G12217
INYL CHLORIDE	39175	4.5	<1.0	<1.0	<1.0	<1.0	<50	<1.0	<1.0	<5.0	<50	<1.0	<1.0
UG/L	GMS	G12128	G12352	G12352	G12352	G12217	G12352	G12352	G12128	G12352	G12352	G12352	G12217
INYL ACETATE	77057	<10	<10	<10	<10	<10	<500	<10	<10	<50	<500	<10	<10
UG/L	GMS	G12128	G12352	G12352	G12352	G12217	G12352	G12352	G12128	G12352	G12352	G12352	G12217
YLENES,TOTAL	81551	<12	<12	<12	<12	59	<600	<12	<12	<60	<600	<12	<12
UG/L	GMS	G12128	G12352	G12352	G12352	G12217	G12352	G12352	G12128	G12352	G12352	G12352	G12217
PH, AS AVGAS	96016	<1.59	<1.59	<1.59	<1.59	<1.59	<1.59	<1.59	<1.59	<1.59	<1.59	<1.59	<1.59
MG/L	FI	G12106	G12056	G12056	G12056	G12258	G12056	G12056	G12106	G12056	G12056	G12056	G12258
PH, AS GAS	96017	<0.58	<0.58	<0.58	<0.58	<0.58	<0.58	<0.58	<0.58	<0.58	<0.58	<0.58	<0.58
MG/L	FI	G12106	G12056	G12056	G12056	G12258	G12056	G12056	G12106	G12056	G12056	G12056	G12258
PH, AS DIESEL	96018	<0.61	<0.61	<0.61	<0.61	<0.61	258	<0.61	<0.61	<0.61	323	0.93	<0.61
MG/L	FI	G12106	G12056	G12056	G12056	G12258	G12056	G12056	G12106	G12056	G12056	G12056	G12258
OX	70353	80	50	5	<5	180	36	23	55	53	90	39	16
UG/L-CL	I	G12047	G12047	G12047	G12047	G12451	G12047	G12047	G12047	G12047	G12047	G12047	G12451

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PROJECT NUMBER 94025 0205 PROJECT NAME NAVY - FTC
FIELD GROUP NANFTW2 LAB COORDINATOR JEFF SHAMIS
(WITH BATCHES)

AMPLE ID'S		MW-21	MW22	MW14	MW14F
ARAMETERS	STORET	NANFTW2	NANFTW2	NANFTW2	NANFTW2
UNITS	METHOD	4	5	30	31
ATE		03/02/90	03/14/90	03/30/90	03/30/90
IME		15:15	09:15	10:35	
ESIDUE,SUSP.	530	4140	101	155	4
MG/L	1	G11970	G12209	G10128	G10128
ESIDUE,DISS	70300	262	268	396	306
MG/L	1	G11953	G12209	G10128	G10128
ARDNESS	900	212	148	124	116
MG/L-CACO3	1	G11954	G12251	G12600	G12600
HLORIDE	940	46.4	94.8	IL	IL
MG/L	TITR	G12151	G12285	G12805	G12805
ULFATE	945	56.8	80.8	IL	IL
MG/L	TURB	G12123	G12396	G12835	G12835
ITROG,NO2+NO3	630	1.12	0.104	<0.010	
MG/L-AS N	TECH	G12018	G12281	G12604	
ITROGEN,NO2	615	0.030	0.043	0.014	
MG/L- AS N	TECH	G11945	G12281	G12604	
ITROG,NO3	620	1.09	0.061		
MG/L-AS N	CALC	CALC	CALC		
HOSPHORUS, T	665	0.682	0.047	0.220	0.046
MG/L-AS P	TECH	G12234	G12234	G12635	G12635
ITROGEN,TKN	625	0.76	0.26		
MG/L- AS N	TECH	G12199	G12199		
ALCIUM,TOTAL	916	20.2	28.7	23.8	22.0
MG/L	ICAP	G11994	G12304	G12667	G12667
RON,TOTAL	1045	13200	6330	44400	3800
UG/L	ICAP	G11994	G12304	G12667	G12667
AGNESIUM,TOTAL	927	5.44	15.7	15.1	10.9
MG/L	ICAP	G11994	G12304	G12667	G12667
ANGANESE,TOTAL	1055	206	225	963	761
UG/L	ICAP	G11994	G12304	G12667	G12667

APPENDIX F

Liquid Level Well Measurements

LIQUID LEVEL WELL MEASUREMENTS

Monitoring Well No.	Water Level Elevations
MW 1	83.58
MW 2	Not Available
MW 3	83.43
MW 4	81.76 *
MW 5	83.39 *
MW 6	83.31
MW 7	83.48
MW 8	83.41
MW 9	83.25
MW10	83.49
MW11	83.36
MW12	83.75
MW13	83.16
MW14	82.23
MW15	84.88
MW16	84.01
MW17	84.76
MW18	84.62
MW19	82.17
MW20	82.40
MW21	Not Available
MW22	Not Available

* Phase seperated hydrocarbons present

NOTE: Water levels were taken on the first week of March, 1990.

APPENDIX G

Monitoring Well Field Logs

10/2/87 METHOD: hollow stem auger

BIT SIZE: 7 1/4" SAND TYPE: Eau Sand

Norfolk, Va. SAND VOL. 400 lbs SEAL TYPE: Bentonite

LOG BY: Duane Castel DEVELOP VOL.: TIME: 5:05

DRILLING CO: Geophar Env. DRILLER: G. Wilkinson SAMPLE TYPE: Split Spoon

M.W. # 1

WELL CONSTRUCTION DETAIL DEPTHS (ft)	DEPTHS (ft)	SAMPLE NUMBER	BLOW COUNT	FROM (ft)	TO (ft)	SOIL CLASSIFICATION (Color, Texture, Structure)
Upper Sample	0.0			0.0		- Asphalt & Subgrade material
	0.5		6	0.5	1.0	- D. Gray, v. silty sand + gravel
0.5-4.0'	1.0		6	1.0	1.5	- Interbedded, brown sandy clay and gray, poorly sorted, subround, sl. clayey fine to coarse sand
			3	1.5	2.0	
			3	2.0	2.5	
			3	2.5	3.0	
			2	3.0	3.5	
Lower Sample			2	3.5	4.0	
8.0-11.5'	9.0					Organics - - Brown, poorly sorted, subrounded, fine to coarse sand
			6	8.0	8.5	
	11.0		7	8.5	9.0	- L. Gray, well rounded well sorted, sl. Clayey fine sand
			5	9.0	9.5	
			4	9.5	10.0	
	15.0		4	10.0	10.5	- Brownish-Gray, dark sandy clay
			3	10.5	11.0	
			4	11.0	11.5	Total depth - 16'

Project #

SITE Norfolk Navy FFS

MWC 2

DATE DRILLED 10/3 METHOD: Mini-r

BIT SIZE SAND TYPE:

SAND VOL SEAL TYPE:

LOG BY Consalvo DEVELOP VOL.: TIME:

DRILLING CO: Belpar DRILLER: Tony SAMPLE TYPE:

WELL MATERIAL:
CASING MATERIAL:

WELL CONSTRUCTION DETAIL DEPTHS (ft.)	DEPTHS (ft.)	SAMPLE NUMBER	BLOW COUNT	FROM (ft.)	TO (ft.)	SOIL CLASSIFICATION (Color, Texture, Structure)
				0	3	Dark brown to Blk very sandy clay / NO ODOR
						Brown sandy clay NO ODOR
				8	10	

Project # _____

SITE: Navy
Norfolk, Va.

DATE DRILLED: 9/29/89 METHOD: Hollow St.

BIT SIZE 7¼" SAND TYPE: Lw. Sand

SAND VOL 400 lbs SEAL TYPE: Bentonite

LOG BY D Castel

DEVELOP VOL.: TIME: 5:00 p.

DRILLING CO: Belair Eng DRILLER: G. Wilkinson SAMPLE TYPE: split spoon

WELL MATERIAL:
CASING MATERIAL:

WELL # 3

WELL CONSTRUCTION DETAIL DEPTHS (ft)	DEPTHS (ft)	SAMPLE NUMBER	BLOW COUNT	FROM (ft)	TO (ft)	SOIL CLASSIFICATION (Color, Texture, Structure)
Upper Sample 1.0'-2.5'	0.0 1.0			0.0	1.0	– Asphalt + Subgrade material
	1.5		15	1.0	1.5	– D. gray, v. silty sand & gravel
	2.0		12	1.5	2.0	– Brownish-gray, semi plastic sandy clay
			8	2.0	2.5	
Middle sample 4.0-5.5'			3	4.0	4.5	
	5.0		5	4.5	5.0	– L. gray, well sorted, well rounded, v fine sand
			7	5.0	5.5	
	6.5					– Brown, poorly sorted, subrounded, clayey fine & coarse sand
lower sample 9.0-11.0'			2	9.0	9.5	
	9.5		1	9.5	10.0	– L. gray, relatively well sorted, well rounded, fine sand
			1	10.0	10.5	
	14.5					L. grayish-brown, semi plastic slightly sandy clay
						Total Depth – 18'

Project #

SITE: Navy
Norfolk, Va.

DATE DRILLED: 9/30/89 METHOD: Hollow Stem

BIT SIZE 7 1/4" SAND TYPE Env Sand

SAND VOL 400 lbs SEAL TYPE Bentonite

LOG BY Dwaine Crestel

DEVELOP VOL.: TIME: 9:30

DRILLING CO: Belpar Env. DRILLER: G Wilkinson SAMPLE TYPE: Split spoon

WELL MATERIAL: 2" PVC
CASING MATERIAL: 2" PVC

Well # 4

WELL CONSTRUCTION DETAIL DEPTHS (ft)	DEPTHS (ft)	SAMPLE NUMBER	BLOW COUNT	FROM (ft)	TO (ft)	SOIL CLASSIFICATION (Color, Texture, Structure)
	0.0			0.0	1.0	- Asphalt + subgrade material
upper sample						
1.0 - 4.5	1.0		8	1.0	1.5	- D. gray, v. silty sand w/ gravel
	2.0		5	1.5	2.0	- D. gray to gray semi plastic sandy clay
		1	8	2.0	2.5	
			5	2.5	3.0	
	3.5		6	3.0	3.5	- Brownish-Gray, sandy clay
Lower sample	4.5		6	3.5	4.0	- L. gray, well rounded, well sorted, v. fine sand
			5	4.0	4.5	
8.0 - 11.5	6.0					- Brown, poorly sorted, subrounded, clayey, fine to medium sand
			4	8.0	8.5	
			2	8.5	9.0	
	9.5		3	9.0	9.5	- L. gray, mod. sorting, subrounded, fine to coarse sand (petro. stain @ 10')
			2	9.5	10.0	
	14'		3	10.0	10.5	- Brownish-Gray, sandy to sl. sandy semi plastic clay
			2	10.5	11.0	
			3	11.0	11.5	Total depth - 15.5'

SITE: Navy
Norfolk, Va.

DATE DRILLED: 9/29/89 METHOD: Hollow Stem

BIT SIZE: 7 1/4" SAND TYPE:

SAND VOL. SEAL TYPE:

LOG BY: D Castel

DEVELOP VOL.: TIME: 1:20

DRILLING CO: Belpar Env DRILLER: G. Wilkison SAMPLE TYPE: Split Spoon

WELL MATERIAL:
CASING MATERIAL:

M.W. 5

WELL CONSTRUCTION DETAIL DEPTHS (ft)	DEPTHS (ft)		SAMPLE NUMBER	BLOW COUNT	FROM (ft)	TO (ft)	SOIL CLASSIFICATION (Color, Texture, Structure)
				0.0			Asphalt & Subgrade material
Upper Sample				0.5			- D. Gray, silty sand & gravel
0.5'-2.0'			20	1.0			
			17	1.5			
			12	2.0	4.0		- D. Brownish-Gray to Gray, semiplastic sandy clay
				4.0			
middle Sample			5	4.5			- Brown, semiplastic sandy clay
			6	5.0			
4.0'-5.5'			8	5.5			
				7.0	9.0		- Gray, well sorted, well rounded, sl. clayey fine sand
lower Sample			3	9.0	9.5		← Brown, poorly sorted, subangular, sl. clayey v. fine to coarse sand
			2	9.5	10.0		
9.0-11.0'			2	10.0	10.5		← L. Gray, well rounded, mod. well sorted, fine sand
				12'	15'		← L. Gray, poorly sorted, well rounded, sl. clayey fine to coarse sand w/minor shell frags
				15'	18'		← L. Brownish-Brown, slightly sandy semi-[illegible]

NAVY

Norfolk, Va.

LOGGER: R. Crosbed

DATE DRILLED: 4/20/89 METHOD: Hollow S

BIT SIZE: 7 1/4" SAND TYPE: Eur. S

SAND VOL: 400 lb. SEAL TYPE:

DEVELOP VOL: TIME: 11:00

DRILLING CO: Belpar Env. DRILLER: G. Wilkinson SAMPLE TYPE: Split Spoon

M.W. #

WELL CONSTRUCTION DETAIL DEPTHS (ft)	DEPTHS (ft)	SAMPLE NUMBER	BLOW COUNT	FROM (ft)	TO (ft)	SOIL CLASSIFICATION (Color, Texture, Structure)
Upper Sample 10-4.5	0.0			0.0	1.0	- Asphalt & Subgrade material
			6	1.0	1.5	
	0.5		5	1.5	2.0	- D. Gray, v. silty, sand w/ abund. gra
	1.5		5	2.0	2.5	Gray to Brownish-Gray, semi plastic, sandy clay
			7	2.5	3.0	
	4.5		8	3.0	3.5	- L. Gray, well rounded, well sorted v. fine sand
			9	3.5	4.0	
	5.0		12	4.0	4.5	- Brown, poorly sorted, sub rounded, clayey, fine sand.
Lower Sample 8.0-11.5			2	8.0	8.5	
	9.0		3	8.5	9.0	- L. gray, mod. sorted, sub rounded, fine to coarse sand (petro odor)
			4	9.0	9.5	
	14'		3	9.5	10.0	- Brownish-Gray, sl. sandy sil. plastic clay
			3	10.0	10.5	
			3	10.5	11.0	
			2	11.0	11.5	

Total depth ~ 15.5'

[illegible]

Norfolk, Va.

DATE DRILLED: 9/22/89 METHOD: Hollow Stem

BIT SIZE 7 1/4" SAND TYPE Fine S.

SAND VOL 400 lb SEAL TYPE Bentonite

LOGGER C. Cristal DEVELOP VOL: TIME 13:30

DRILLING CO: Fisher Eng. DRILLER: G. Wilkinson SAMPLE TYPE: Split spoon

M.W 7

WELL CONSTRUCTION DETAIL DEPTHS (ft)	DEPTHS (ft)	SAMPLE NUMBER	BLOW COUNT	FROM (ft)	TO (ft)	SOIL CLASSIFICATION (Color, Texture, Structure)
Upper Sample 0.8-2.3'	0.0			0.0	0.8	- Asphalt and subgrade material
			12	0.8	2.3	
	0.7		8	0.8	1.3	- D. Gray, silty sand w/ fine gravel
	1.5		5	1.3	1.8	- Gray, sandy clay
				1.8	2.3	
middle sample 4.0-5.5	3.0					- Brown; v. sandy clay
	4.5		5	4.0	4.5	- L. gray, well rounded, well sorted, v. fine sand
			9	4.5	5.0	
	6.0		13	5.0	5.5	- Brown, poorly sorted, subrounded, clayey fine sand
lower sample 9.0-11.0'						
	9.0		2	9.0	9.5	- L. Gray, mod. to poor sorting, subrounded v. sl. clayey fine to coarse sand
			2	9.5	10.0	
			1	10.0	10.5	
	14.		1	10.5	11.0	- Brownish-Gray, semi-plastic sl. sandy clay
						Total Depth - 15.5'

NIPY

Norfolk

LOGGER: D Custeel

DRILLING CO: Belper Env. DRILLER: G Wilkinson

DATE DRILLED: 9/20/89 METHOD: Hollow Stem

BIT SIZE: 7 1/4" SAND TYPE: -

SAND VOL: - SEAL TYPE: -

DEVELOP VOL: - TIME: 8:00

SAMPLE TYPE: Split spoon

Well # 8

WELL CONSTRUCTION DETAIL DEPTHS (ft)	DEPTHS (ft)	SAMPLE NUMBER	BLOW COUNT	FROM (ft)	TO (ft)	SOIL CLASSIFICATION (Color, Texture, Structure)
	0.0			0.0	1.0	Asphalt + Subgrade material
upper sample 1.0-2.5						
	1.0		8	1.0	1.5	- D. gray, v. silty sand & gravel
	2.5		11	1.5	2.0	- D. Gray to Gray, v. plastic sandy clay
			10	2.0	2.5	
	3.5					- Gray Brown, sandy clay
middle sample 4.0-5.5'			3	4.0	4.5	
	4.5		5	4.5	5.0	- L. Gray, well rounded, well sorted, v. fine to fine sand
			6	5.0	5.5	
lower sample 9.0-11.0'	6.5		4	9.0	9.5	- Brown, poorly sorted, subrounded clayey to v. clayey fine sand
			3	9.5	10.0	
	9.5		3	10.0	10.5	- L. gray, mod. sorting, subrounded fine to medium sand
	14.0					- Brownish-Gray, sandy clay
						Total depth - 15.5'

DATE DRILLED 10/2/89 METHOD Hollow Stem

BIT SIZE 7 1/4" SAND TYPE Env Sc

Norfolk, Va. SAND VOL 400 lbs SEAL TYPE Bentonite

LOGGER Duane Castel DEVELOP VOL: TIME 1:40

DRILLING CO. Belpar DRILLER G. Wilkinson SAMPLE TYPE Split Spoon

M.W. #

WELL CONSTRUCTION DETAIL DEPTHS (ft)	DEPTHS (ft)	SAMPLE NUMBER	BLOW COUNT	FROM (ft)	TO (ft)	SOIL CLASSIFICATION (Color, Texture, Structure)
	0.0			0.0	0.5	– Asphalt and Subgrade material
Upper Sample 0.5-4.0'			6	0.5	1.0	
	0.5		7	1.0	1.5	– D. Gray, v. silty sand + gravel
			8	1.5	2.0	
	2.0		8	2.0	2.5	– Brownish-gray, sandy ductile clay
	3.5		10	2.5	3.0	– L. gray well sorted + sorted, v. fine sand
			16	3.0	3.5	
	4.5		17	3.5	4.0	– L. Brown, v. sandy clay
Lower Sample 8.0-11.5'						
	8.5		3	8.0	8.5	– L. Gray, poorly sorted, subrounded, phosphatic fine to medium sand
			3	8.5	9.0	
			4	9.0	9.5	
	10.5		4	9.5	10.0	– Brown, poorly sorted, subrounded sl. clayey, fine medium sand
			3	10.0	10.5	
	11.0		4	10.5	11.0	– Brownish-Gray, ductile sandy clay
			3	11.0	11.5	
						Total Depth - 16'

SITE: Navy

DATE DRILLED: 10/2/89 METHOD: Hollow St

BIT SIZE: 7 1/4" SAND TYPE: Eco Sand

Norfolk, Va.

SAND VOL: 400 lb. SEAL TYPE: Bentonite

LOG BY: Duane Crosteel

DEVELOP VOL.: TIME: 3:35

DRILLING CO.: Belper Env. DRILLER: G. Wilkison SAMPLE TYPE: Split Spoon

WELL MATERIAL: PVC 2"

CASING MATERIAL: PVC 2"

Well # 10

WELL CONSTRUCTION DETAIL DEPTHS (ft)	DEPTHS (ft)	SAMPLE NUMBER	BLOW COUNT	FROM (ft)	TO (ft)	SOIL CLASSIFICATION (Color, Texture, Structure)
Upper Sample 0.5-4.0'	0.0			0.0		- Asphalt and Subgrade Material
			13	0.5	1.0	
	0.5		12	1.0	1.5	- D. gray, v. silty sand and gravel
			6	1.5	2.0	
	2.5		6	2.0	2.5	- D. Gray to Brownish-Gray, sandy semi-plastic clay
			7	2.5	3.0	
			10	3.0	3.5	
	4.0		11	3.5	4.0	- L. gray, w. rounded, w. sorted, v. fine sand
lower sample 8.0 - 11.5'	4.8					- Brown, v. sandy clay
	8.0		3	8.0	8.5	- L. gray, poorly sorted, subrounded, fine to coarse sand
			3	8.5	9.0	
	10.0		4	9.0	9.5	- Brown, poorly sorted, subangular, sl. clayey fine to med. sand
			3	9.5	10.0	
			3	10.0	10.5	
	14.5		4	10.5	11.0	- Brownish-Gray, sandy lucite clay
			5	11.0	11.5	
						Total Depth

DATE DRILLED: 10/2/89 METHOD: Hollow Stem

BIT SIZE: 7 1/4" SAND TYPE: Gav. S

Norfolk, Va.

SAND VOL: 400 lbs SEAL TYPE: Benton

LOGGER: D. Castel

DEVELOP VOL: TIME: 11:40

DRILLING CO: Geofar DRILLER: G. Wilkinson SAMPLE TYPE: Split Spoon

MW # 11

WELL CONSTRUCTION DETAIL DEPTHS (ft)	DEPTHS (ft)		SAMPLE NUMBER	BLOW COUNT	FROM (ft)	TO (ft)	SOIL CLASSIFICATION (Color, Texture, Structure)
Upper Sample 0.5 - 4.0	0.0				0.0	0.5	- Asphalt and Subgrade Material
			8		0.5	1.0	- Brown, v. silty sand & gravel
	0.5		11		1.0	1.5	
	1.5		9		1.5	2.0	- "Reddish-brown", silty fine sand
	2.5		5		2.0	2.5	- L. Brown, v. sandy clay w/ petroleum odor
	3.5		5		2.5	3.0	- L. gray, well rounded, well sorted, v. fine sand
			7		3.0	3.5	
	5.0		9		3.5	4.0	- Brownish-Orange, poorly sorted to coarse subangular, clayey fine sand
Lower Sample 8.0 - 11.5							
	8.5		6		8.0	8.5	- L. gray, well rounded, mod. to poor sorted, fine to med. sand
			5		8.5	9.0	
			4		9.0	9.5	
	9.5		4		9.5	10.0	- L. Brownish-Gray, sandy clay ductile
			5		10.0	10.5	
			4		10.5	11.0	
			4		11.0	11.5	Total depth - 16'

DATE DRILLED: 10/2/89 METHOD: Hollow S

BIT SIZE: 7 1/4" SAND TYPE: Cnu Sa

Norfolk, Va SAND VOL: 400 lbs SEAL TYPE: bentonite

LOGGER: Dwaine Crosland DEVELOP VOL: TIME: 7.30

DRILLING CO: Belpar DRILLER: G. Wilkinson SAMPLE TYPE: Split Spoon

M.W.# 1

WELL CONSTRUCTION DETAIL DEPTHS (ft)	DEPTHS (ft)	SAMPLE NUMBER	BLOW COUNT	FROM (ft)	TO (ft)	SOIL CLASSIFICATION (Color, Texture, Structure)
Upper sample 0.5-4.0'	0.0			0.0	0.5	Asphalt and Subgrade material
			20	0.5	1.0	
	1.5		10	1.0	1.5	- O. Gray, v. silty sand & gravel
	1.2		12	1.5	2.0	- Brownish-Gray, semiplastic sandy clay
			9	2.0	2.5	
	4.5		8	2.5	3.0	- L. Gray, well rounded, well sorted, v fine sand
			12	3.0	3.5	
			14	3.5	4.0	
Lower sample 8.0-11.5	5.0					- Brown, poorly sorted, subangular, sl. clayey, fine to coarse sand
	8.5		4	8.0	8.5	- L. Gray, well rounded, mod. well sorted, plastic fine sand
			4	8.5	9.0	
			4	9.0	9.5	
	10.0		4	9.5	10.0	- Brownish-Gray, sandy clay
			3	10.0	10.5	
			5	10.5	11.0	
			5	11.0	11.5	

Total Depth - 16'

WELL DATA SHEET

WELL • All wells except 3 + 5

SITE: Naval Fire fighting Training Ctr.
SITE LOCATION: Norfolk, Va.
COUNTY:
S;T,R.:
LAT-LONG.:
WELL LOCATION:
S;T,R.:
LAT-LONG.:
WELL DESCRIPTION:
Drillers name: George Wilkinson
Date drilled: various (9-30 → 10-2-89)
Drilling method: Hollow stem Auger
Sampling method: split spoon
WMD permit No.:
Well location:
TOC Elevation ft.MSL:
Land surface elevation ft. MSL: ≈ 10' above sea level
Bit size: 7 1/4"
Total depth of hole: 16'

WELL DETAILS:
Total well depth: 15'
Casing:
Type: PVC
Size: 2"
Length: 5'
Depth: - 5' to 0' below grade
Annular space seal:
Method: Pour
Materials: Bentonite granules
Volume: 25 lb.s
PVC data (Glue type if used?):
Screen or open hole description:
Type: PVC
Diameter: 2"
Slot size: 0.010"
Length: 10'
TOC to 1st slot: 5.5'
TOC to last slot: 14.5'
Screen interval (FT. AMSL): 3/16"
Lithology: —
Sand pack info.:
Type: Env. Sand
Volume: 400 lbs
Depth interval: -15' to -3' below grade
Well development:
Method:
Time:
Volume:

3 and 5 are
I dw
in depth
& constr.

WELL DATA SHEET

WELL # _____

SITE: Naval Fire training Ctr.
SITE LOCATION: Norfolk, Virginia
COUNTY:
S;T,R.:
LAT-LONG.:
WELL LOCATION:
S;T,R.:
LAT-LONG.:
WELL DESCRIPTION:
Drillers name: George Wilkinson
Date drilled: 9/27/89
Drilling method: Hollow Stem Auger
Sampling method: Split spoon
WMD permit No.:
Well location:
TOC Elevation ft.MSL:
Land surface elevation ft. MSL:
Bit size: 7 1/4"
Total depth of hole: 19'

WELL DETAILS:
Total well depth: 18'
Casing:
Type: PVC
Size: 2"
Length: 8'
Depth:
Annular space seal:
Method: Poured
Materials: 25 lbs bentonite pellets (small)
Volume: " " " "
PVC data (Glue type if used?): —
Screen or open hole description: -
Type: PVC
Diameter: 2"
Slot size: 0.010
Length: - 10'
TOC to 1st slot: 8.5'
TOC to last slot: 17.5'
Screen interval (FT. AMSL): 3/16"
Lithology:
Sand pack info.:
Type: Env. washed sand
Volume: 400 lbs
Depth interval: - 18' to - 8'
Well development:
Method:
Time:
Volume:

SOIL SAMPLING REPORT FORM	ESE ENVIRONMENTAL SCIENCE AND ENGINEERING, INC.

BORING NO.: [illegible]
BORING LOCATION: [illegible]
SAMPLER(S): [illegible]
SAMPLING METHOD: Split Spoon

PAGE ____ OF ____
DATE: 3-1-90
CONTRACTOR: [illegible]
DRILLER: [illegible]
DRILL TYPE: HSA

SAMPLE NO.	DEPTH (FEET)	LITHOLOGIC DESCRIPTION	O.V.A. (ppm)	STANDARD PENETRATION BLOW COUNT	NOTES
	0.3	Asphalt	3-3-3 5-6-8- 10-8-12 12		NO SAMPLING after 15.0 feet
	1.2	Dark gray moist poorly graded GRAVEL w/ sand and silt (GP)(fill)			
	1.7	Gray moist silty fine SAND trace clay (SM)(pavement fill)			
	4.8	Gray to Y.B. moist lean clay w/ sand (CL)			H_2O @ 9.5'
		Yellow brown very moist fine to m. sand w/ silt trace clay (SM)			Clay seam between 10'-15'
					Gray sand @ 8.5'
					Y.B. sand below Clay seam
	25.0	Limit of boring @ 25.0 feet		*	Placed well w/ 4' cap 5-15' screen 15-25' cap

00530.3

* SEE BACK OF LOG

SOIL SAMPLING REPORT FORM	ESE ENVIRONMENTAL SCIENCE AND ENGINEERING, INC.

BORING NO.: [illegible]
BORING LOCATION: [illegible]
SAMPLER(S): MS S
SAMPLING METHOD: Split Spoon

PAGE ____ OF ____
DATE: [illegible]
CONTRACTOR: [illegible]
DRILLER: [illegible]
DRILL TYPE: HSA

SAMPLE NO.	DEPTH (FEET)	LITHOLOGIC DESCRIPTION	O.V.A. (ppm)	STANDARD PENETRATION BLOW COUNT	NOTES
		Asphalt			
	0.3	Dark gray moist poorly sorted gravel w/ silt and sand (GP) (fill)	Composite up to 5.0 feet 2.4 ppm	8-17-7-6 7-9-11-2-12	1'3" 3.0' 1.3 1.0 Bad
	1.2	Yellow brown moist silty sand trace clay (SM) (fill)			
	2.0	Yellow brown moist lean clay with sand (CL) (fill)		9.5-11.0 2-1-2	
	4.8	Yellow brown moist to wet f. to c. sand ~~with silt~~ (SM)		14.5-16.0 1-2-3	H_2O @ 13.5 feet
				19.5-21.0 1-2-3	Running sand up to 12.5 feet
	15.2	Gray very moist fat clay (CH)			Pulled augers to lower sand, set well at 15' 4' case 5-15' screen
	17.0	Yellow brown wet f. to c. sand, trace silt (SM)			Top of sand at 3.5'
	25.0	Limit of boring @ 25.0 feet			Top of water level 2.0 feet

00330.3

SOIL SAMPLING REPORT FORM	ESE ENVIRONMENTAL SCIENCE AND ENGINEERING, INC.

BORING NO.: [illegible]
BORING LOCATION: [illegible]
SAMPLER(S): [illegible]
SAMPLING METHOD: Split Spoon

PAGE ____ OF ____
DATE: [illegible]
CONTRACTOR: [illegible]
DRILLER: [illegible]
DRILL TYPE: [illegible]

SAMPLE NO.	DEPTH (FEET)	LITHOLOGIC DESCRIPTION	O.V.A. (ppm)	STANDARD PENETRATION BLOW COUNT	NOTES
		Topsoil / Backfill	8-8-9-		
	0.2	Dark gray to brown moist silty SAND trace organic trace clay (SM)(fill)	7-7.5-5-2-1-6 0'-5'		
	8.5	Yellow brown to brown wet f-c Sand with silt (SM)	9.5'-11.0' 2-3-4		H_2O @ 9.5 feet case 5.0' screen 5.0-20.0' solid 20.0-25.0' top of sand pack 2.0'
	14.9	Yellow brown and gray wet Sandy SILT, trace clay (ML-CL)	14.5-16.0' 2-2-3		Lean clay lenses from 14.9' to 17.0' (Note the same clay found in 16-17)
	17.0	Dark gray wet Silty f-c SAND trace clay (SM)	19.5'-21.0' 1-1-1		
	20.0	Yellow brown Silty SAND trace clay (SM)			Y.B. sand becoming w/ clay D. gray sand @ 24'
	25.0	Limit of boring @ 25.0 ft			

SOIL SAMPLING REPORT FORM	ESE ENVIRONMENTAL SCIENCE AND ENGINEERING, INC.

BORING NO.: [illegible]
BORING LOCATION: [illegible]
SAMPLER(S): [illegible]
SAMPLING METHOD: Split Spoon

PAGE ____ OF ____
DATE: 2-28-90
CONTRACTOR: [illegible]
DRILLER: Jerry
DRILL TYPE: HSA

SAMPLE NO.	DEPTH (FEET)	LITHOLOGIC DESCRIPTION	Q.V.A. (ppm)	STANDARD PENETRATION BLOW COUNT	NOTES
		Topsoil/Fill	6-8-8		
	0.4	Dark gray moist fine to medium SAND with silt, trace organics (SM) (fill)	10-9-7		5' core
	1.9	Brown moist silty fine to SAND with clay (SM-SC)(fill)	7-6-9 0-5' 0.8 ppm		5'-20' screen 20'-25 closed
	5.0	Brown moist lean clay with sand (CL) (poss. fill)			Top of sand [illegible]
	6.5	Yellow brown moist to wet silty fine SAND, trace clay (SM)	9.0'-10.5 1-1-2		grades into medium to coarse sand at 8.5 ft gray sand @ 10.5' h.t water @ 9.0'
			14.5-15.5 2-2-2		
	14.5	Gray wet fat CLAY (CH)	23.5-25.0 1-1-1		Driller could not tell the bottom of the fat clay, it may be thicker
	16.0	Yellow brown wet f. to c. SAND (SM)			Dark gray sand at 24.7 feet
	25.0	Limit of boring @ 25 feet			

66536.3

SOIL SAMPLING REPORT FORM	ESE ENVIRONMENTAL SCIENCE AND ENGINEERING, INC.

BORING NO.: 17 — PAGE ____ OF ____

BORING LOCATION: [illegible] — DATE: [illegible]

CONTRACTOR: [illegible]

SAMPLER(S): [illegible] — DRILLER: [illegible]

SAMPLING METHOD: Split spoon — DRILL TYPE: HSA

SAMPLE NO.	DEPTH (FEET)	LITHOLOGIC DESCRIPTION	O.V.A. (ppm)	STANDARD PENETRATION BLOW COUNT	NOTES
		Dark gray to black moist sandy CLAY with topsoil fragment (SC) (fill)	5-15-19-16-14-17-15-7-5-4	0.0'-5.0'	Sand lenses present from 3.0 feet to
	3.0	Dark gray to black moist clayey SAND (SC) (fill)	0'-5'	2.4 ppm	
	7.0	Brown moist clayey SAND (SC)			at 6.7 feet, wood and organics are present
	7.5	Brown wet fine to coarse SAND (SM)		field scan 8.5-10.0 2-1-1 0.0 ppm	hit H_2O @ 8.0 feet possibly auger around a concrete pipe
	14.4	Medium olive green moist FAT CLAY (CH)		14.0-15.5 2-2-3	
	16.0	Brown wet fine to coarse SAND (SM)		19.5-20.5 WOH-1-1	Driller does not know the extent of the fat clay, I approximated it to be 16.0 feet.
	25.0	Limited drilling at 25.0 feet			

Pipe 4.0'
Screen 4.0'-19.0
closed 19.0-24.0
Top of sand -2.0'

60536.3

SOIL SAMPLING REPORT FORM	ESE ENVIRONMENTAL SCIENCE AND ENGINEERING, INC.

BORING NO.: [illegible] 8 — PAGE ____ OF ____

BORING LOCATION: [illegible] — DATE: [illegible] - 90

CONTRACTOR: [illegible]

SAMPLER(S): [illegible] — DRILLER: [illegible]

SAMPLING METHOD: Split Spoon — DRILL TYPE: HSA

SAMPLE NO.	DEPTH (FEET)	LITHOLOGIC DESCRIPTION	O.V.A. (ppm)	STANDARD PENETRATION BLOW COUNT	NOTES
	0.2	Topsoil/Rootmat			
		Dark brown moist Silty SAND, trace gravel, clay, organics (SM)/(fill)	9-19-27 25-20- 21-9- 9-10 0-45'		
	3.3	Brown wet silty f. to c. SAND, trace gravel (SM)(fill)			Case 5.0' Screen 5.0'-20.0' Closed 20.0-25.0' Top of SAND pack 3.0'
	4.9	Yellow brown very moist lean clay w/ sand (CL)(poss fill)	9.5-11.0' 1-2-3		
	6.5	Yellow brown very moist to wet SAND with silt (SM)	14.5-16.0 1-1-2		Pit water @ 13 ft
	14.8	Gray very moist fat CLAY (CH)	19.5-21.0 2-2-3		Do not know the extent of clay
	?	Yellow brown wet silty SAND, trace clay (SM)			
	25.0	Limit of boring @ 25.0 feet			

SOIL SAMPLING REPORT FORM	ESE ENVIRONMENTAL SCIENCE AND ENGINEERING, INC.

BORING NO.: 19
BORING LOCATION: Norfolk FFS.
SAMPLER(S): Split spoon
SAMPLING METHOD:

PAGE ____ OF ____
DATE:
CONTRACTOR: Belpar
DRILLER: [illegible]
DRILL TYPE:

SAMPLE NO.	DEPTH (FEET)	LITHOLOGIC DESCRIPTION	O.V.A. (ppm)	STANDARD PENETRATION BLOW COUNT	NOTES
	0.3	Asphalt			
	0.6	Light brown moist silty SAND (SM) (poss. fill)	7-6-4-4		
		Yellow brown moist lean to fat clay with gravel (possible fill) (CL-CH)	4-8-7-8-8 12.5 in 4.5 ppm		2" PVC case 0-10' screen 10-25'
	4.0	Yellow brown moist silty SAND, ~~with gravel~~ (SM)	0'-5.0'		
				8-9.5' 4-3-3	
					water @ 18.0 feet
					13-20.5 3-3-3
	25.0				
		Limit of boring @ 25 feet			

66536.3

SOIL SAMPLING REPORT FORM	ESE ENVIRONMENTAL SCIENCE AND ENGINEERING, INC.

BORING NO.: [illegible] 20 — PAGE ____ OF ____

BORING LOCATION: [illegible] Norfolk VA — DATE: 2-28-90

CONTRACTOR: Belpar

SAMPLER(S): MES — DRILLER:

SAMPLING METHOD: Split Spoon — DRILL TYPE: HSA

SAMPLE NO.	DEPTH (FEET)	LITHOLOGIC DESCRIPTION	O.V.A. (ppm)	STANDARD PENETRATION BLOW COUNT	NOTES
		Asphalt			
	0.3	Gray poorly sorted ~~gravel~~ gravel w/ sand and silt (GP)(fill)	1'-5' 1.6 ppm	9-11-12-14-15-16-17-13	Blowcount from 1.0'-5.0' ~~9-11-12-14-15-16-17-13~~
	1.3	Brown moist silty SAND with clay, trace gravel (SM-SC)(fill)			
	5.8	Yellow brown moist fine to med. SAND with silt (SM)		8.5'-10' 4-3-3	Wet water at 10.0 ft
				13.5'-15.0' 1-3-3	
	14.6	Light gray very moist lean to fat clay (CL-CH)		19.5'-20' 5-6-9	
	18.0	Brown wet f. to c. SAND trace gravel			20 ft of screen 3.5' rise
	25.0	Limit of boring @ 25 feet			

66530.3

SOIL SAMPLING REPORT FORM	ESE ENVIRONMENTAL SCIENCE AND ENGINEERING, INC.

BORING NO.: MW 21
BORING LOCATION: FFS Norfolk
SAMPLER(S): MGS
SAMPLING METHOD: Split spoon

PAGE ____ OF ____
DATE: 2-28
CONTRACTOR: Beiport
DRILLER: Jerry
DRILL TYPE: HSA

SAMPLE NO.	DEPTH (FEET)	LITHOLOGIC DESCRIPTION	O.V.A. (ppm)	STANDARD PENETRATION BLOW COUNT	NOTES
		Asphalt			
	0.3	Gray poorly sorted GRAVEL w/ sand and silt (GP)(fill)	0'-5' 5.6 ppm		
	1.4	Yellow brown moist lean Clay, trace sand (CL)(fill)	5-3-4-6-9-11-14		sample blows from 1.5'-5.0'
					case 6' screen 6-16' solid 16-21'
	4.7	Brown moist lean clay with sand (SC)(fill)			TD 21.0'
					top of sand -2.0' top of bent -1.0'
	6.5	Yellow brown moist fine SAND, trace silt (SM)	8.5-10.0 3-3-2		water @ 10.0 ft
			14.5-16.0 1-2-2		fat clay lenses present @ 15.5'
			19.5'-21.0 3-5-12		
	21.0				19.5 fine silty sand with trace gravel 20.0 brown sand 20.5 coarse sand
		Limit of boring @ 21.0 feet			running sand @ 21 ft

06530.3

Auger to 28 feet
No help at all

SOIL SAMPLING REPORT FORM	ESE ENVIRONMENTAL SCIENCE AND ENGINEERING, INC.

BORING NO.: MW 22
BORING LOCATION: FFS Norfolk VA
SAMPLER(S): MES
SAMPLING METHOD: Split Spoon

PAGE ____ OF ____
DATE: 3/13/90
CONTRACTOR: Belfor / Hydrotube
DRILLER: Don
DRILL TYPE: HSA mobile B-61

SAMPLE NO.	DEPTH (FEET)	LITHOLOGIC DESCRIPTION	Q.V.A. (ppm)	STANDARD PENETRATION BLOW COUNT	NOTES
	0.3	Asphalt		11-13-11-4	
	0.6	Brown moist poorly sorted SAND (SM) (fill)		2-3-5-7	4' casing 4'-25' screen excellent well 20 slot well no. 2 morie sand
	2.8	Dark gray moist fine to coarse SAND w/ gravel (SM) (fill)		3-6-10-9	(Belfor size 2Q-Rok) used 18 50 lb bags
	5.1	Yellow brown very moist to wet lean clay with sand (CL) (poss. fill)		4-4-6-5	* top composite sieve sample taken from 6.0 feet to 14 feet
	14.5	Yellow brown very moist wet f to m. SAND with silt. SM		2-3-3-3	
	16.0	Yellow brown wet f. to c. SAND		1-1-2-1	strong Gray to brown SAND @ 9.0 feet H_2O @ 10.0'
	19.5	Gray to Y.B. wet fat clay ~~with~~ trace sand (CH)		2-3-5-5	
	25.0	Yellow brown wet f. to c. SAND		3-2-2-2	* clay sample taken from 16.0 feet to 18.0 feet
				1-2-3-1	
				1-2-1-2	* bottom sieve sample taken from 19.5' to 24'
				2-2-2-2	
				2-1-2-2	

Limit of boring @ 25.0 feet

88538.3

RAC

APPENDIX H

Particle Size Analysis

PARTICLE SIZE ANALYSIS OF SOIL

Project Name: Navy Sample No: NANFTS5 *17

Project No: 94025-0205-3200 Date: 3/29/90

Sample Description: 95016Y-0580-3130

Total weight in grams of dry sample, Ws = 101.50

Sieve Openings		U.S. Standard Sieve Size or Number	Weight Retained in Grams	Percent Retained		Percent Finer by Weight
Inches	Millimeters			Partial	Total	
3.0	76.2	3 in				
1.50	38.1	1-1/2 in				
0.750	19.1	3/4 in				
0.375	9.52	3/8 in				
0.187	4.76	No. 4				
0.079	2.00	No. 10	0	0	0	100
0.047	1.19	No. 16	0.13	0.13	0.13	99.9
0.033	0.84	No. 20	0.25	0.25	0.38	99.6
0.0165	0.42	No. 40	8.76	8.63	9.01	91.0
0.0098	0.250	No. 60	28.68	28.26	37.27	62.7
0.0071	0.180	No. 80	22.85	22.51	59.78	40.2
0.0049	0.125	No. 120	15.90	15.67	75.45	24.6
0.0029	0.074	No. 200	5.10	5.02	80.47	19.5
Pan			0.11			*********
Total Weight in Grams			81.78	**********		

REPLICATE MOISTURE CONTENT

Mass wet sample + tare (g)	162.80	Mass moisture (g)	12.48
Mass tare (g)	103.58	Mass dry sample (g)	46.74
Mass dry sample + tare (g)	150.32	Water content (%)	26.70

PERCENT FINES DETERMINATION

Mass wet sample + tare (g)	366.92	Mass retained on #200 + tare (g)	320.14
Mass tare (g)	238.32	Mass tare (g)	238.32
Total mass dry sample (g)	101.50	Percent passing No. 200	19.4

REMARKS: No hydrocarbon odor

Performed by: [illegible] Checked by: [illegible]

PARTICLE SIZE ANALYSIS OF SOIL

Project Name: Navy Sample No: NANFTS 5 #16

Project No: 94025-0205-3200 Date: 3/29/90

Sample Description: 95016V-0580-3130

Total weight in grams of dry sample, Ws = 129.28

Sieve Openings Inches	Sieve Openings Millimeters	U.S. Standard Sieve Size or Number	Weight Retained in Grams	Percent Retained Partial	Percent Retained Total	Percent Finer by Weight
3.0	76.2	3 in				
1.50	38.1	1-1/2 in				
0.750	19.1	3/4 in				
0.375	9.52	3/8 in				
0.187	4.76	No. 4	0	0	0	100
0.079	2.00	No. 10	0.55	0.43	0.43	99.6
0.047	1.19	No. 16	0.88	0.68	1.11	98.9
0.033	0.84	No. 20	1.84	1.42	2.53	97.5
0.0165	0.42	No. 40	15.09	11.67	14.20	85.8
0.0098	0.250	No. 60	17.95	13.88	28.08	71.9
0.0071	0.180	No. 80	23.32	18.04	46.12	53.9
0.0049	0.125	No. 120	24.57	19.01	65.13	34.9
0.0029	0.074	No. 200	14.66	11.34	76.47	23.5
Pan			0.55			
Total Weight in Grams			99.41			

REPLICATE MOISTURE CONTENT

Mass wet sample + tare (g)	173.20	Mass moisture (g)	11.10
Mass tare (g)	110.05	Mass dry sample (g)	52.05
Mass dry sample + tare (g)	162.10	Water content (%)	21.33

PERCENT FINES DETERMINATION

Mass wet sample + tare (g)	371.10	Mass retained on #200 + tare (g)	313.88
Mass tare (g)	214.25	Mass tare (g)	214.25
Total mass dry sample (g)	129.28	Percent passing No. 200	22.9

REMARKS: Very strong hydrocarbon odor

Performed by: [illegible] Checked by: [illegible]

APPENDIX I

Quality Control Summary

Hunter/ESE, INC.
QC OUTLIER SUMMARY

NAME	UNITS	STOR*METH	BATCH	SAMPLE	DATE	TARGET	FOUND	%RECV	RECV CRIT	R.P.D.	R.P.D. CRIT.
STANDARD MATRIX SPIKES											
PCB 1016	UG/KG-DRY	39514*EC	G9464	SP1*NONE*1	10/18/89	990	1290	130	50-114		50
PCB 1016	UG/KG-DRY	39514*EC	G9618	SP1*NONE*1	10/23/89	1000	1180	118	50-114		50
PCB 1016	UG/KG-DRY	39514*EC	G9623	SP2*NONE*1	10/23/89	983	1220	124	50-114		50
ENDRIN,DISS	UG/L	39391*EC	G9350	SP1*NANFTS2*1	10/12/89	1.00	1.24	124	80-120		20
ENDRIN,DISS	UG/L	39391*EC	G9350	SP2*NANFTS2*1	10/12/89	1.00	0.796	79.6	80-120	43.6	20
2,4-D,DISS	UG/L	39732*EC	G9339	SP1*NANFTS2*1	10/12/89	4.34	1.96	45.2	58-92		30
2,4-D,DISS	UG/L	39732*EC	G9339	SP2*NANFTS2*1	10/12/89	4.34	2.09	48.2	58-92	6.42	30
2,4-D,DISS	UG/L	39732*EC	G9628	SP1*NONE*1	10/26/89	4.34	1.71	39.4	58-92		30
2,4-D,DISS	UG/L	39732*EC	G9628	SP2*NONE*1	10/26/89	4.34	1.83	42.2	58-92	6.86	30
SAMPLE MATRIX SPIKES											
ARSENIC,DISS	UG/L	1000*GFAA	G9499	SPM1*NANFTS1*57	10/21/89	20.0	14.9	74.5	75-125		25
ARSENIC,DISS	UG/L	1000*GFAA	G9601	SPM2*NANFTS1*55	10/24/89	20.0	14.7	73.5	75-125	19.6	25
SELENIUM,DISS	UG/L	1145*GFAA	G9262	SPM1*NANFTS1*52	10/09/89	20.0	12.1	60.5	75-125		25
SELENIUM,DISS	UG/L	1145*GFAA	G9262	SPM2*NANFTS1*52	10/09/89	20.0	12.6	63.0	75-125	4.0	25
SELENIUM,DISS	UG/L	1145*GFAA	G9262	SPM1*NANFTS2*14	10/09/89	20.0	6.0	30.0	75-125		25
SELENIUM,DISS	UG/L	1145*GFAA	G9262	SPM2*NANFTS2*14	10/09/89	20.0	6.1	30.5	75-125	1.7	25
SILVER,DISS	UG/L	1075*ICAP	G9557	SPM1*NANFTS1*54	10/24/89	50.0	37.2	74.3	75-125		25
SILVER,DISS	UG/L	1075*ICAP	G9557	SPM2*NANFTS1*54	10/24/89	50.0	36.3	72.6	75-125	2.4	25
SILVER,DISS	UG/L	1075*ICAP	G9598	SPM2*NANFTS4*26	10/25/89	50.0	30.6	61.2	75-125	30.0	25
PCB 1016	UG/KG-DRY	39514*EC	G9464	SPM2*NANFTS1*53	10/18/89	1130	1330	118	50-114	4.33	50
PCB 1016	UG/KG-DRY	39514*EC	G9618	SPM1*NANFTS1*50	10/23/89	1130	2000	177	50-114		50
PCB 1016	UG/KG-DRY	39514*EC	G9618	SPM1*NANFTS1*55	10/23/89	1180	1740	148	50-114		50
PCB 1016	UG/KG-DRY	39514*EC	G9618	SPM2*NANFTS1*55	10/23/89	1180	1840	156	50-114	94	50
PCB 1016	UG/KG-DRY	39514*EC	G9623	SPM2*NANFTS1*53	10/23/89	1130	1340	119	50-114	77	50
PCB-1260	UG/KG-DRY		G9618	SPM1*NANFTS1*50	10/23/89	1100	1800	160	8-127		50
LEAD,TOTAL	MG/KG	1051*SCLPO	S2135	SPM*NANFTS3*4	11/01/89	100	126	126	75-125		20

Hunter/ESE, INC.
QC OUTLIER SUMMARY

NAME	UNITS	STOR*METH	BATCH	SAMPLE	DATE	TARGET	FOUND	%RECV	RECV CRIT
SURROGATE SPIKES									
(NOTE: DBC IS NOT A CONTROLLING ANALYTE AT THIS TIME)									
DIBUTYLCHLORENDATE (DBC)	MG/KG	97739*SUR	G9285	DA*NANFTS1*40	10/05/89	0.367	0.049	13.4	20-150
DIBUTYLCHLORENDATE	MG/KG	97739*SUR	G9285	DA*NANFTS1*43	10/05/89	0.362	0.036	9.94	20-150
DIBUTYLCHLORENDATE	MG/KG	97739*SUR	G9285	DA*NANFTS1*51	10/05/89	0.366	0.057	15.6	20-150
DIBUTYLCHLORENDATE	MG/KG	97739*SUR	G9285	DA*NANFTS2*4	10/05/89	0.362	<0.028	0.0	20-150
DIBUTYLCHLORENDATE	MG/KG	97739*SUR	G9285	DA*NANFTS2*5	10/05/89	0.367	<0.028	0.0	20-150
DIBUTYLCHLORENDATE	MG/KG	97739*SUR	G9285	DA*NANFTS2*6	10/05/89	0.361	<0.028	0.0	20-150
DIBUTYLCHLORENDATE	MG/KG	97739*SUR	G9285	DA*NANFTS2*12	10/05/89	0.365	0.067	18.4	20-150
DIBUTYLCHLORENDATE	MG/KG	97739*SUR	G9618	SPM1*NANFTS1*50	10/23/89	0.364	0.991	272	20-150
DIBUTYLCHLORENDATE	MG/KG	97739*SUR	G9618	SPM2*NANFTS1*55	10/23/89	0.365	0.576	158	20-150
DIBUTYLCHLORENDATE	UG/L	97502*SUR	G9350	MB*NANFTS2*1	10/12/89	0.920	1.69	184	24-154
DIBUTYLCHLORENDATE	UG/L	97502*SUR	G9350	SP1*NANFTS2*1	10/12/89	0.920	1.83	199	24-154
DIBUTYLCHLORENDATE	UG/L	97502*SUR	G9350	DA*NANFTS2*5	10/12/89	0.920	0.173	18.8	24-154
DIBUTYLCHLORENDATE	UG/L	97502*SUR	G9350	DA*NANFTS2*12	10/12/89	0.920	2.49	271	24-154
DIBUTYLCHLORENDATE	UG/L	97502*SUR	G9350	DA*NANFTS2*13	10/12/89	0.920	5.86	637	24-154
BROMOFLUOROBENZENE	UG/KG-DRY	97027*SUR	G9363	DA*NANFTS1*1	10/12/89	2500	1800	72	74-121
BROMOFLUOROBENZENE	UG/KG-DRY	97027*SUR	G9533	DA*NANFTS1*15	10/12/89	2500	1600	64	74-121
TOLUENE-D(8)	UG/KG-DRY	97026*SUR	G9344	DA*NANFTS4*6	10/12/89	2500	1800	72	81-117
TOLUENE-D(8)	UG/KG-DRY	97026*SUR	G9344	DA*NANFTS1*50	10/12/89	2500	2000	80	81-117
TOLUENE-D(8)	UG/KG-DRY	97026*SUR	G9344	DA*NANFTS1*53	10/12/89	2500	2000	80	81-117
TOLUENE-D(8)	UG/KG-DRY	97026*SUR	G9344	DA*NANFTS1*57	10/12/89	2500	1900	76	81-117
TOLUENE-D(8)	UG/KG-DRY	97026*SUR	G9363	MB*NONE*1011		2500	1900	76	81-117
TOLUENE-D(8)	UG/KG-DRY	97026*SUR	G9363	SP1*NONE*1	10/12/89	2500	1800	72	81-117
TOLUENE-D(8)	UG/KG-DRY	97026*SUR	G9363	DA*NANFTS1*1	10/12/89	2500	1800	72	81-117
TOLUENE-D(8)	UG/KG-DRY	97026*SUR	G9363	DA*NANFTS1*40	10/12/89	2500	1900	76	81-117
TOLUENE-D(8)	UG/KG-DRY	97026*SUR	G9363	DA*NANFTS1*41	10/12/89	2500	1900	76	81-117
TOLUENE-D(8)	UG/KG-DRY	97026*SUR	G9363	DA*NANFTS1*42	10/12/89	2500	1800	72	81-117
TOLUENE-D(8)	UG/KG-DRY	97026*SUR	G9363	DA*NANFTS1*49	10/12/89	2500	1800	72	81-117
TOLUENE-D(8)	UG/KG-DRY	97026*SUR	G9366	DA*NANFTS1*18	10/14/89	2500	1900	76	81-117
TOLUENE-D(8)	UG/KG-DRY	97026*SUR	G9366	DA*NANFTS1*19	10/14/89	2500	2000	80	81-117
TOLUENE-D(8)	UG/KG-DRY	97026*SUR	G9366	DA*NANFTS1*20	10/14/89	2500	2000	80	81-117
TOLUENE-D(8)	UG/KG-DRY	97026*SUR	G9366	DA*NANFTS1*21	10/14/89	2500	2000	80	81-117
TOLUENE-D(8)	UG/KG-DRY	97026*SUR	G9367	DA*NANFTS1*11	10/13/89	2500	2000	80	81-117
TOLUENE-D(8)	UG/KG-DRY	97026*SUR	G9367	DA*NANFTS4*20	10/13/89	2500	1900	76	81-117
TOLUENE-D(8)	UG/KG-DRY	97026*SUR	G9416	SP1*NONE*1	10/16/89	2500	2000	80	81-117
TOLUENE-D(8)	UG/KG-DRY	97026*SUR	G9416	DA*NANFTS1*46	10/16/89	2500	1900	76	81-117
TOLUENE-D(8)	UG/KG-DRY	97026*SUR	G9416	DA*NANFTS1*48	10/16/89	2500	1900	76	81-117
TOLUENE-D(8)	UG/KG-DRY	97026*SUR	G9533	DA*NANFTS1*39	10/10/89	2500	1900	76	81-117
TOLUENE-D(8)	UG/KG-DRY	97026*SUR	G9533	DA*NANFTS1*45	10/10/89	2500	2000	80	81-117
TOLUENE-D(8)	UG/KG-DRY	97026*SUR	G9533	DA*NANFTS1*33	10/10/89	2500	2000	80	81-117
TOLUENE-D(8)	UG/KG-DRY	97026*SUR	G9533	DA*NANFTS1*35	10/10/89	2500	2000	80	81-117
TOLUENE-D(8)	UG/KG-DRY	97026*SUR	G9533	DA*NANFTS1*36	10/10/89	2500	1900	76	81-117
TOLUENE-D(8)	UG/KG-DRY	97026*SUR	G9533	DA*NANFTS1*24	10/11/89	2500	2000	80	81-117
TOLUENE-D(8)	UG/KG-DRY	97026*SUR	G9533	DA*NANFTS1*6	10/11/89	2500	2000	80	81-117
TOLUENE-D(8)	UG/KG-DRY	97026*SUR	G9533	DA*NANFTS1*8	10/11/89	2500	1900	76	81-117
TOLUENE-D(8)	UG/KG-DRY	97026*SUR	G9533	DA*NANFTS1*7	10/11/89	2500	2000	80	81-117
TOLUENE-D(8)	UG/KG-DRY	97026*SUR	G9533	DA*NANFTS1*22	10/12/89	2500	2000	80	81-117
TOLUENE-D(8)	UG/KG-DRY	97026*SUR	G9533	DA*NANFTS4*8	10/12/89	2500	1900	76	81-117
TOLUENE-D(8)	UG/KG-DRY	97026*SUR	G9533	DA*NANFTS4*26	10/12/89	2500	2000	80	81-117
TOLUENE-D(8)	UG/KG-DRY	97026*SUR	G9533	DA*NANFTS4*14	10/12/89	2500	1800	72	81-117
TOLUENE-D(8)	UG/KG-DRY	97026*SUR	G9533	DA*NANFTS1*15	10/12/89	2500	1900	76	81-117
TOLUENE-D(8)	UG/KG-DRY	97026*SUR	G9533	DA*NANFTS1*14	10/12/89	2500	2000	80	81-117
TOLUENE-D(8)	UG/KG-DRY	97026*SUR	G9533	DA*NANFTS4*24	10/12/89	2500	2000	80	81-117
TOLUENE-D(8)	UG/L	98810*SUR	G9593	SP1*1009*01	10/09/89	50	74	150	88-110
TOLUENE-D(8)	UG/L	98810*SUR	G9593	MB*1010*01	10/10/89	50	42	84	88-110

QC SUMMARY

Replicate Analysis Sample Summary

NAME	UNITS	STOR*METH	BATCH	SAMPLE	DATE	FOUND #1	FOUND #2	R.P.D.	MAX % REPL DIFF	FOOTNOTE
CORROSIVITY,SW846	MM/YR			RP*NANFTS1*22		<6.35	<6.35	0.0	N/A	
CORROSIVITY,SW846	MM/YR			RP*NANFTS1*23		<6.35	<6.35	0.0	N/A	
CORROSIVITY,SW846	MM/YR			RP*NANFTS1*24		<6.35	<6.35	0.0	N/A	
FLASH POINT	DEG-C	74030*1	G9281	RP*NANFTS1*1	10/06/89	>60	>60	0.0	0	
FLASH POINT	DEG-C			RP*NANFTS1*2		>60	>60	0.0	0	
FLASH POINT	DEG-C			RP*NANFTS1*10		>60	>60	0.0	0	
FLASH POINT	DEG-C			RP*NANFTS1*37		>60	>60	0.0	0	
FLASH POINT	DEG-C			RP*NANFTS1*44		>60	>60	0.0	0	
FLASH POINT	DEG-C			RP*NANFTS1*52		>60	>60	0.0	0	
FLASH POINT	DEG-C		G9586	RP*NANFTS3*6	10/24/89	<60	<60	0.0	0	
FLASH POINT	DEG-C			RP*NANFTS4*28		>60	>60	0.0	0	
FLASH POINT	DEG-C			RP*NANFTS4*1		>60	>60	0.0	0	
FLASH POINT	DEG-C			RP*NANFTS4*2		>60	>60	0.0	0	
FLASH POINT	DEG-C			RP*NANFTS4*10		>60	>60	0.0	0	
FLASH POINT	DEG-C			RP*NANFTS4*15		>60	>60	0.0	0	
FLASH POINT	DEG-C			RP*NANFTS4*20		>60	>60	0.0	0	
MOISTURE	%WET WT	70320*1	G9333	RP*NANFTS1*57	10/11/89	16.7	17.3	3.5	N/A	
MOISTURE	%WET WT			RP*NANFTS4*12		16.1	18.6	14.4	N/A	
MOISTURE	%WET WT			RP*NANFTS2*16		10.2	9.5	7.1	N/A	
MOISTURE	%WET WT			RP*NANFTS1*55		16.0	16.2	1.2	N/A	
MOISTURE	%WET WT			RP*NANFTS2*7		0.0	0.0	0.0	N/A	
MOISTURE	%WET WT			RP*NANFTS1*30		5.1	6.5	24.1	N/A	
MOISTURE	%WET WT		G9343	RP*NANFTS1*51		10.6	11.1	4.6	N/A	
MOISTURE	%WET WT		G9375	RP*NANFTS1*10	10/14/89	14.6	14.0	4.2	N/A	
MOISTURE	%WET WT			RP*NANFTS2*11		8.8	7.2	20.0	N/A	
MOISTURE	%WET WT			RP*NANFTS4*28		11.6	14.0	18.8	N/A	
MOISTURE	%WET WT			RP*NANFTS4*1		8.7	8.8	1.1	N/A	
MOISTURE	%WET WT			RP*NANFTS4*27		15.6	30.7	65.2	N/A	
MOISTURE	%WET WT		G9436	RP*NANFTS4*22	10/18/89	11.9	12.2	2.5	N/A	
PCB 1016	UG/KG-DRY	39514*EC	G9618	RP*NANFTS1*50	10/23/89	<113	<113	0.0	50	
PCB-1260	UG/KG-DRY	39511*EC		RP*NANFTS1*50		<113	<110	0.0	50	
ARSENIC,TOTAL	MG./KG	1002*SCLPO	S2135	RP*NANFTS3*4	11/01/89	<5	<5.0	0.0	20	
CADMIUM,TOTAL	MG/KG	1027*SCLPO		RP*NANFTS3*4		<2	<2.0	0.0	20	
CHROMIUM,TOTAL	MG/KG	1034*SCLPO		RP*NANFTS3*4		<10	<10.0	0.0	20	
LEAD,TOTAL	MG/KG	1051*SCLPO		RP*NANFTS3*4		<100	<100	0.0	20	

QC SUMMARY

Standard Matrix Spike Recovery and Replicate Summary

NAME	UNITS	STOR*METH	BATCH	SAMPLE	DATE	TARGET	FOUND	%RECV	RECV CRIT	R.P.D.	R.P.D. CRIT.	FOOTNOTE
TOX	UG/L-CL	70353*1	G9563	SP1*NONE*1	10/02/89	200	220	110	70-130		20	
TOX	UG/L-CL			SP2*NONE*1		200	200	100	70-130	10	20	
PCB-1016	UG/L	34671*EC	G9959	SP1*NONE*1	11/08/89	2.35	2.52	107	8-127		30	
PCB-1260	UG/L	39508*EC		SP1*NONE*1		2.35	2.59	110	8-127		30	
ARSENIC,TOTAL	UG/L	1002*GFAA	G9499	SP1*NONE*1	10/21/89	20.0	17.9	95.0	75-125		25	
ARSENIC,TOTAL	UG/L			SP2*NONE*1		20.0	18.0	95.5	75-125	0.5	25	
BARIUM,TOTAL	UG/L	1007*ICAP	G9557	SP1*NONE*1	10/24/89	2000	2020	101	75-125		25	
BARIUM,TOTAL	UG/L			SP2*NONE*1		2000	2010	101	75-125	0.0	25	
CADMIUM,TOTAL	UG/L	1027*ICAP		SP1*NONE*1		50.0	47.3	94.6	75-125		25	
CADMIUM,TOTAL	UG/L			SP2*NONE*1		50.0	48.1	96.2	75-125	1.7	25	
CHROMIUM,TOTAL	UG/L	1034*ICAP		SP1*NONE*1		200	192	96.0	75-125		25	
CHROMIUM,TOTAL	UG/L			SP2*NONE*1		200	191	95.5	75-125	0.5	25	
LEAD,TOTAL	UG/L	1051*ICAP		SP1*NONE*1		500	504	101	75-125		25	
LEAD,TOTAL	UG/L			SP2*NONE*1		500	524	105	75-125	3.9	25	
MERCURY,TOTAL	UG/L	71900*CVAA	G9545	SP1*NONE*1		5.0	5.3	106	75-125		25	
MERCURY,TOTAL	UG/L			SP2*NONE*1		5.0	5.2	104	75-125	1.9	25	
MERCURY,TOTAL	UG/L			SP3*NONE*1		5.0	4.9	98.0	75-125	7.8	25	
MERCURY,TOTAL	UG/L			SP4*NONE*1		5.0	5.3	106	75-125	0.0	25	
SELENIUM,TOTAL	UG/L	1147*GFAA	G9631	SP1*10/11*1	10/25/89	20.0	18.7	93.5	75-125		25	
SELENIUM,TOTAL	UG/L			SP2*10/11*1		20.0	18.5	92.5	75-125	1.1	25	
SILVER,TOTAL	UG/L	1077*ICAP	G9557	SP1*NONE*1	10/24/89	50.0	40.6	81.2	75-125		25	
SILVER,TOTAL	UG/L			SP2*NONE*1		50.0	42.3	84.6	75-125	4.1	25	
BENZENE	UG/L	34030*GMS	G9593	SP1*1009*01	10/09/89	50	46	92	76-127		11	
BENZENE	UG/L			SP1*1010*01		50	49	98	76-127		11	
CHLOROBENZENE	UG/L	34301*GMS		SP1*1009*01		50	46	92	75-130		13	
CHLOROBENZENE	UG/L			SP1*1010*01		50	60	120	75-130		13	
TOLUENE	UG/L	34010*GMS		SP1*1009*01		50	57	110	76-125		13	
TOLUENE	UG/L			SP1*1010*01		50	45	90	76-125		13	
ARSENIC,DISS.	UG/L	1000*GFAA	G9253	SP1*NONE*1		20.0	18.6	93.0	75-125		25	
ARSENIC,DISS	UG/L			SP2*NONE*1		20.0	18.5	92.5	75-125	0.5	25	
ARSENIC,DISS	UG/L		G9499	SP1*NONE*1	10/21/89	20.0	17.9	95.0	75-125		25	
ARSENIC,DISS	UG/L			SP2*NONE*1		20.0	18.0	95.5	75-125	0.5	25	
ARSENIC,DISS	UG/L		G9601	SP1*NONE*1	10/24/89	20.0	16.8	84.0	75-125		25	
ARSENIC,DISS	UG/L			SP2*NONE*1		20.0	16.6	83.0	75-125	1.2	25	
ARSENIC,DISS	UG/L			SP3*NONE*1		20.0	16.2	81.0	75-125	3.6	25	
BARIUM,DISS	UG/L	1005*ICAP	G9321	SP1*NONE*1	10/12/89	2000	2010	100	75-125		25	
BARIUM,DISS	UG/L			SP2*NONE*1		2000	2000	100.0	75-125	0.0	25	
BARIUM,DISS	UG/L		G9557	SP1*NONE*1	10/24/89	2000	2020	101	75-125		25	
BARIUM,DISS	UG/L			SP2*NONE*1		2000	2010	101	75-125	0.0	25	
BARIUM,DISS	UG/L		G9598	SP1*NONE*1	10/25/89	2000	1770	88.4	75-125		25	
BARIUM,DISS	UG/L			SP2*NONE*2		2000	1800	89.9	75-125		25	
BARIUM,DISS	UG/L			SP3*NONE*3		2000	1800	89.9	75-125		25	
CADMIUM,DISS	UG/L	1025*ICAP	G9321	SP1*NONE*1	10/12/89	50.0	48.8	97.6	75-125		25	
CADMIUM,DISS	UG/L			SP2*NONE*1		50.0	48.5	97.0	75-125	0.6	25	
CADMIUM,DISS	UG/L		G9557	SP1*NONE*1	10/24/89	50.0	47.3	94.6	75-125		25	
CADMIUM,DISS	UG/L			SP2*NONE*1		50.0	48.1	96.2	75-125	1.7	25	
CADMIUM,DISS	UG/L		G9598	SP1*NONE*1	10/25/89	50.0	44.5	89.0	75-125		25	
CADMIUM,DISS	UG/L			SP2*NONE*2		50.0	43.0	86.0	75-125		25	
CADMIUM,DISS	UG/L			SP3*NONE*3		50.0	43.8	87.6	75-125		25	

QC SUMMARY

Standard Matrix Spike Recovery and Replicate Summary

NAME	UNITS	STOR*METH	BATCH	SAMPLE	DATE	TARGET	FOUND	%RECV	RECV CRIT	R.P.D.	R.P.D. CRIT.	FOOTNOTE
CHROMIUM,DISS	UG/L	1030*ICAP	G9321	SP1*NONE*1	10/12/89	200	202	101	75-125		25	
CHROMIUM,DISS	UG/L			SP2*NONE*1		200	195	97.7	75-125	3.3	25	
CHROMIUM,DISS	UG/L		G9557	SP1*NONE*1	10/24/89	200	192	96.0	75-125		25	
CHROMIUM,DISS	UG/L			SP2*NONE*1		200	191	95.5	75-125	0.5	25	
CHROMIUM,DISS	UG/L		G9598	SP1*NONE*1	10/25/89	200	183	91.5	75-125		25	
CHROMIUM,DISS	UG/L			SP2*NONE*2		200	187	93.5	75-125		25	
CHROMIUM,DISS	UG/L			SP3*NONE*3		200	186	93.0	75-125		25	
LEAD,DISS	UG/L	1049*ICAP	G9321	SP1*NONE*1	10/12/89	500	498	99.6	75-125		25	
LEAD,DISS	UG/L			SP2*NONE*1		500	455	91.0	75-125	9.0	25	
LEAD,DISS	UG/L		G9557	SP1*NONE*1	10/24/89	500	504	101	75-125		25	
LEAD,DISS	UG/L			SP2*NONE*1		500	524	105	75-125	3.9	25	
LEAD,DISS	UG/L		G9598	SP1*NONE*1	10/25/89	500	399	79.8	75-125		25	
LEAD,DISS	UG/L			SP2*NONE*2		500	388	77.6	75-125		25	
LEAD,DISS	UG/L			SP3*NONE*3		500	390	78.0	75-125		25	
MERCURY,DISS.	UG/L	71890*CVAA	G9328	SP1*NONE*1	10/11/89	5.0	5.2	104	75-125		25	
MERCURY,DISS.	UG/L			SP2*NONE*1		5.0	5.3	106	75-125	1.9	25	
MERCURY,DISS.	UG/L		G9545	SP1*NONE*1	10/24/89	5.0	5.3	106	75-125		25	
MERCURY,DISS.	UG/L			SP2*NONE*1		5.0	5.2	104	75-125	1.9	25	
MERCURY,DISS.	UG/L			SP3*NONE*1		5.0	4.9	98.0	75-125	7.8	25	
MERCURY,DISS.	UG/L			SP4*NONE*1		5.0	5.3	106	75-125	0.0	25	
SELENIUM,DISS	UG/L	1145*GFAA	G9262	SP1*NONE*1	10/09/89	20.0	18.8	94.0	75-125		25	
SELENIUM,DISS	UG/L			SP2*NONE*1		20.0	19.5	97.5	75-125	3.7	25	
SELENIUM,DISS	UG/L		G9631	SP1*10/11*1	10/25/89	20.0	18.7	93.5	75-125		25	
SELENIUM,DISS	UG/L			SP2*10/11*1		20.0	18.5	92.5	75-125	1.1	25	
SELENIUM,DISS	UG/L			SP1*10/23*1		20.0	16.8	84.0	75-125		25	
SELENIUM,DISS	UG/L			SP2*10/23*1		20.0	16.5	82.5	75-125	1.8	25	
SELENIUM,DISS	UG/L			SP3*10/23*1		20.0	17.2	86.0	75-125	2.4	25	
SILVER,DISS	UG/L	1075*ICAP	G9321	SP1*NONE*1	10/12/89	50.0	45.0	90.0	75-125		25	
SILVER,DISS	UG/L			SP2*NONE*1		50.0	45.5	91.0	75-125	1.1	25	
SILVER,DISS	UG/L		G9557	SP1*NONE*1	10/24/89	50.0	40.6	81.2	75-125		25	
SILVER,DISS	UG/L			SP2*NONE*1		50.0	42.3	84.6	75-125	4.1	25	
SILVER,DISS	UG/L		G9598	SP1*NONE*1	10/25/89	50.0	46.2	92.4	75-125		25	
SILVER,DISS	UG/L			SP2*NONE*2		50.0	48.2	96.4	75-125		25	
SILVER,DISS	UG/L			SP3*NONE*3		50.0	50.0	100	75-125		25	
PCB 1016	UG/KG-DRY	39514*EC	G9285	SP*NANFTS1*1	10/05/89	1010	736	72.9	50-114		50	
PCB 1016	UG/KG-DRY		G9464	SP1*NONE*1	10/18/89	990	1290	130	50-114		50	*
PCB 1016	UG/KG-DRY			SP2*NONE*1		992	858	86.5	50-114		50	
PCB 1016	UG/KG-DRY		G9618	SP1*NONE*1	10/23/89	1000	1180	118	50-114		50	*
PCB 1016	UG/KG-DRY		G9623	SP1*NONE*1		995	919	92.4	50-114		50	
PCB 1016	UG/KG-DRY			SP2*NONE*1		983	1220	124	50-114		50	*
PCB-1260	UG/KG-DRY	39511*EC	G9285	SP*NANFTS1*1	10/05/89	1000	750	75	8-127		50	
PCB-1260	UG/KG-DRY		G9464	SP1*NONE*1	10/18/89	990	1000	100	8-127		50	
PCB-1260	UG/KG-DRY			SP2*NONE*1		990	730	74	8-127	30	50	
PCB-1260	UG/KG-DRY		G9618	SP1*NONE*1	10/23/89	1000	1100	110	8-127		50	
PCB-1260	UG/KG-DRY		G9623	SP1*NONE*1		1000	560	56	8-127		50	
PCB-1260	UG/KG-DRY			SP2*NONE*1		980	870	89	8-127		50	

QC SUMMARY

Standard Matrix Spike Recovery and Replicate Summary

NAME	UNITS	STOR*METH	BATCH	SAMPLE	DATE	TARGET	FOUND	%RECV	RECV CRIT	R.P.D.	R.P.D. CRIT.	FOOTNOTE
BENZENE	UG/KG-DRY	34237*GMS	G9344	SP1*NONE*1	10/12/89	2500	1900	76	66-142		21	
BENZENE	UG/KG-DRY		G9363	SP1*NONE*1		2500	1700	68	66-142		21	
BENZENE	UG/KG-DRY		G9366	SP1*NONE*1	10/14/89	2500	1800	72	66-142		21	
BENZENE	UG/KG-DRY		G9367	SP1*NONE*1	10/13/89	2500	2000	80	66-142		21	
BENZENE	UG/KG-DRY		G9416	SP1*NONE*1	10/16/89	2500	2000	80	66-142		21	
BENZENE	UG/KG-DRY		G9533	SP1*NONE*1	10/09/89	2500	2300	92	66-142		21	
BENZENE	UG/KG-DRY			SP2*NONE*1		2500	2200	88	66-142	4.4	21	
CHLOROBENZENE	UG/KG-DRY	34304*GMS	G9344	SP1*NONE*1	10/12/89	2500	2400	96	60-133		21	
CHLOROBENZENE	UG/KG-DRY		G9363	SP1*NONE*1		2500	2000	80	60-133		21	
CHLOROBENZENE	UG/KG-DRY		G9366	SP1*NONE*1	10/14/89	2500	2200	88	60-133		21	
CHLOROBENZENE	UG/KG-DRY		G9367	SP1*NONE*1	10/13/89	2500	2500	100	60-133		21	
CHLOROBENZENE	UG/KG-DRY		G9416	SP1*NONE*1	10/16/89	2500	2400	96	60-133		21	
CHLOROBENZENE	UG/KG-DRY		G9533	SP1*NONE*1	10/09/89	2500	2700	110	60-133		21	
CHLOROBENZENE	UG/KG-DRY			SP2*NONE*1		2500	2700	110	60-133	0.0	21	
1,1-DICHLOROETHYLENE	UG/KG-DRY	34504*GMS	G9344	SP1*NONE*1	10/12/89	2500	1700	68	59-172		22	
1,1-DICHLOROETHYLENE	UG/KG-DRY		G9363	SP1*NONE*1		2500	1600	64	59-172		22	
1,1-DICHLOROETHYLENE	UG/KG-DRY		G9366	SP1*NONE*1	10/14/89	2500	1800	72	59-172		22	
1,1-DICHLOROETHYLENE	UG/KG-DRY	34504*GMS	G9367	SP1*NONE*1	10/13/89	2500	1700	68	59-172		22	
1,1-DICHLOROETHYLENE	UG/KG-DRY		G9416	SP1*NONE*1	10/16/89	2500	1900	76	59-172		22	
1,1-DICHLOROETHYLENE	UG/KG-DRY		G9533	SP1*NONE*1	10/09/89	2500	2300	92	59-172		22	
1,1-DICHLOROETHYLENE	UG/KG-DRY			SP2*NONE*1		2500	2200	88	59-172	4.4	22	
TOLUENE	UG/KG-DRY	34483*GMS	G9344	SP1*NONE*1	10/12/89	2500	1900	76	59-139		21	
TOLUENE	UG/KG-DRY		G9363	SP1*NONE*1		2500	1600	64	59-139		21	
TOLUENE	UG/KG-DRY		G9366	SP1*NONE*1	10/14/89	2500	1700	68	59-139		21	
TOLUENE	UG/KG-DRY		G9367	SP1*NONE*1	10/13/89	2500	2000	80	59-139		21	
TOLUENE	UG/KG-DRY		G9416	SP1*NONE*1	10/16/89	2500	2000	80	59-139		21	
TOLUENE	UG/KG-DRY		G9533	SP1*NONE*1	10/09/89	2500	2200	88	59-139		21	
TOLUENE	UG/KG-DRY			SP2*NONE*1		2500	2100	84	59-139	4.7	21	
BHC,G(LINDANE),DISS	UG/L	39341*EC	G9350	SP1*NANFTS2*1	10/12/89	0.400	0.363	90.8	56-123		15	
BHC,G(LINDANE),DISS	UG/L			SP2*NANFTS2*1		0.400	0.337	84.3	56-123	7.42	15	
BHC,G(LINDANE),DISS	UG/L		G9521	SP1*NANFTS2*1	10/19/89	0.400	0.330	82.5	56-123		15	
BHC,G(LINDANE),DISS	UG/L			SP2*NANFTS2*1		0.400	0.332	83.0	56-123	0.604	15	
ENDRIN,DISS	UG/L	39391*EC	G9350	SP1*NANFTS2*1	10/12/89	1.00	1.24	124	80-120		20	*
ENDRIN,DISS	UG/L			SP2*NANFTS2*1		1.00	0.796	79.6	80-120	43.6	20	*
ENDRIN,DISS	UG/L		G9521	SP1*NANFTS2*1	10/19/89	1.00	1.06	106	80-120		20	
ENDRIN,DISS	UG/L			SP2*NANFTS2*1		1.00	1.07	107	80-120	0.939	20	
2,4-D,DISS	UG/L	39732*EC	G9339	SP1*NANFTS2*1	10/12/89	4.34	1.96	45.2	58-92		30	*
2,4-D,DISS	UG/L			SP2*NANFTS2*1		4.34	2.09	48.2	58-92	6.42	30	*
2,4-D,DISS	UG/L		G9628	SP1*NONE*1	10/26/89	4.34	1.71	39.4	58-92		30	*
2,4-D,DISS	UG/L			SP2*NONE*1		4.34	1.83	42.2	58-92	6.86	30	*
2,4,5-TP-SILVEX,DISS	UG/L	39762*EC	G9339	SP1*NANFTS2*1	10/12/89	4.02	3.64	90.5	73-103		30	
2,4,5-TP-SILVEX,DISS	UG/L			SP2*NANFTS2*1		4.02	3.26	81.1	73-103	11.0	30	
2,4,5-TP-SILVEX,DISS	UG/L		G9628	SP1*NONE*1	10/26/89	4.02	3.37	83.8	73-103		30	
2,4,5-TP-SILVEX,DISS	UG/L			SP2*NONE*1		4.02	3.66	91.0	73-103	8.24	30	
TOX	UG/G-WET	97438*I	G9564	SP1*NONE*1	10/09/89	2	2	100	64-136		30	
TOX	UG/G-WET			SP2*NONE*1		2	2	100	64-136	0.0	30	
TOX	UG/G-WET		G9585	SP1*NONE*1	10/05/89	400	390	98	64-136		30	
TOX	UG/G-WET			SP2*NONE*1		400	350	88	64-136	11	30	
BENZENE,SED	UG/KG- WET	99178*PI	G9422	SP1*NONE*1	10/11/89	1900	1970	104	39-150		30	
BENZENE,SED	UG/KG- WET			SP2*NONE*1		1900	1990	105	39-150	0.957	30	
TOLUENE	UG/KG- WET	98455*PI		SP1*NONE*1		2000	1980	99.1	80-120		20	
TOLUENE	UG/KG- WET			SP2*NONE*1		2000	1970	98.6	80-120	0.506	20	
FUEL OIL #2	UG/G	97152*FI	G9354	SP*NONE*1		1000	950	95.0	50-130		33	

QC SUMMARY

Sample Matrix Spike Recovery Summary

NAME	UNITS	STOR*METH	BATCH	SAMPLE	DATE	TARGET	FOUND	%RECV	RECV CRIT	UNSPIKED	R.P.D.	R.P.D. CRIT.	FOOTNOTE
TOX,SED	UG/KG-DRY	99263*1	G9564	SP1*NONE*1	10/09/89	2	2	100	64-136		30		
TOX,SED	UG/KG-DRY			SP2*NONE*1		2	2	100	64-136	0.0	30		
TOX,SED	UG/KG-DRY		G9569	SP1*NONE*1	10/08/89	1	0.9	100	64-136		30		
TOX,SED	UG/KG-DRY			SP2*NONE*1		1	0.9	100	64-136	0.0	30		
TOX,SED	UG/KG-DRY		G9581	SP1*NONE*1	10/05/89	400	390	98	64-136		30		
TOX,SED	UG/KG-DRY			SP2*NONE*1		400	350	88	64-136	11	30		
TOX,SED	UG/KG-DRY		G10079	SP1*NONE*1	10/07/89	300	250	84	64-136		30		
TOX,SED	UG/KG-DRY			SP2*NONE*1		300	290	97	64-136	14	30		
BENZENE	UG/KG-DRY	34237*PI	G9428	SP1*NONE*1	10/11/89	1900	1970	104	39-150		30		
BENZENE	UG/KG-DRY			SP2*NONE*1		1900	1950	103	39-150	0.966	30		
ETHYLBENZENE	UG/KG-DRY	34374*PI		SP1*NONE*1		2000	1970	98.6	48-144		35		
ETHYLBENZENE	UG/KG-DRY			SP2*NONE*1		2000	1990	99.6	48-144	1.01	35		
TOLUENE	UG/KG-DRY	34483*PI		SP1*NONE*1		2000	2000	100	46-148		30		
TOLUENE	UG/KG-DRY			SP2*NONE*1		2000	1970	98.5	46-148	1.51	30		
XYLENES,TOTAL	UG/KG-DRY	45510*PI		SP1*NONE*1		5980	5980	100.0	56-134		30		
XYLENES,TOTAL	UG/KG-DRY			SP2*NONE*1		5980	6060	101	56-134	0.995	30		
ARSENIC,TOTAL	UG/L	1002*GFAA	G9499	SPM2*NANFTS1*53		20.0	16.8	84.0	75-125	0.0	6.9	25	
MERCURY,TOTAL	UG/L	71900*CVAA	G9545	SPM1*NANFTS1*53		5.0	5.1	102	75-125	0.0		25	
MERCURY,TOTAL	UG/L			SPM2*NANFTS1*53		5.0	5.2	104	75-125	0.0	1.9	25	
MERCURY,TOTAL	UG/L			SPM1*NANFTS1*54		5.0	4.8	95.6	75-125	0.4		25	
MERCURY,TOTAL	UG/L			SPM2*NANFTS1*54		5.0	4.9	97.4	75-125	0.4	1.4	25	
MERCURY,TOTAL	UG/L			SPM1*NANFTS1*55		5.0	5.1	102	75-125	0.0		25	
MERCURY,TOTAL	UG/L	71900*CVAA	G9545	SPM2*NANFTS1*55	10/24/89	5.0	5.1	102	75-125	0.0	0.0	25	
MERCURY,TOTAL	UG/L			SPM1*NANFTS1*56		5.0	5.1	102	75-125	0.0		25	
MERCURY,TOTAL	UG/L			SPM2*NANFTS1*56		5.0	5.2	104	75-125	0.0	1.9	25	
MERCURY,TOTAL	UG/L			SPM1*NANFTS1*57		5.0	5.0	101	75-125	0.07		25	
MERCURY,TOTAL	UG/L			SPM2*NANFTS1*57		5.0	5.2	105	75-125	0.07	3.9	25	
MERCURY,TOTAL	UG/L			SPM1*NANFTS4*25		5.0	5.0	101	75-125	0.07		25	
MERCURY,TOTAL	UG/L			SPM2*NANFTS4*25		5.0	5.2	105	75-125	0.07	3.9	25	
MERCURY,TOTAL	UG/L			SPM1*NANFTS4*26		5.0	5.1	102	75-125	0.0		25	
MERCURY,TOTAL	UG/L			SPM2*NANFTS4*26		5.0	5.3	106	75-125	0.0	3.8	25	
SELENIUM,TOTAL	UG/L	1147*GFAA	G9631	SPM1*NANFTS1*53	10/25/89	20.0	16.5	82.5	75-125	0.8		25	
SELENIUM,TOTAL	UG/L			SPM2*NANFTS1*53		20.0	17.0	85.0	75-125	0.8	3.0	25	
ARSENIC,DISS	UG/L	1000*GFAA	G9253	SPM1*NANFTS1*51		20.0	19.8	99.0	75-125	0.0		25	
ARSENIC,DISS	UG/L			SPM2*NANFTS1*51		20.0	19.7	98.5	75-125	0.0	0.5	25	
ARSENIC,DISS	UG/L			SPM1*NANFTS1*52		20.0	16.4	82.0	75-125	2.2		25	
ARSENIC,DISS	UG/L			SPM2*NANFTS1*52		20.0	16.8	84.0	75-125	2.2	2.4	25	
ARSENIC,DISS	UG/L			SPM1*NANFTS2*7		20.0	18.8	94.0	75-125	3.4		25	
ARSENIC,DISS	UG/L			SPM2*NANFTS2*7		20.0	19.9	99.5	75-125	3.4	5.7	25	
ARSENIC,DISS	UG/L			SPM1*NANFTS2*14		20.0	17.5	87.5	75-125	0.0		25	
ARSENIC,DISS	UG/L			SPM2*NANFTS2*14		20.0	18.1	90.5	75-125	0.0	3.4	25	
ARSENIC,DISS	UG/L		G9499	SPM1*NANFTS1*53	10/21/89	20.0	18.0	90.0	75-125	0.0		25	
ARSENIC,DISS	UG/L			SPM2*NANFTS1*53		20.0	16.8	84.0	75-125	0.0	6.9	25	
ARSENIC,DISS	UG/L			SPM1*NANFTS1*54		20.0	17.0	85.0	75-125	0.9		25	
ARSENIC,DISS	UG/L			SPM2*NANFTS1*54		20.0	18.6	93.0	75-125	0.9	9.0	25	
ARSENIC,DISS	UG/L			SPM1*NANFTS1*56		20.0	16.2	81.0	75-125	0.0		25	
ARSENIC,DISS	UG/L			SPM2*NANFTS1*56		20.0	16.7	83.5	75-125	0.0	3.0	25	
ARSENIC,DISS	UG/L			SPM1*NANFTS1*57		20.0	14.9	74.5	75-125	2.3		25	*
ARSENIC,DISS	UG/L			SPM2*NANFTS1*57		20.0	16.6	83.0	75-125	2.3	10.8	25	
ARSENIC,DISS	UG/L		G9601	SPM1*NANFTS1*55	10/24/89	20.0	17.9	89.5	75-125	2.9		25	
ARSENIC,DISS	UG/L			SPM2*NANFTS1*55		20.0	14.7	73.5	75-125	2.9	19.6	25	*
ARSENIC,DISS	UG/L	1000*GFAA	G9601	SPM1*NANFTS4*25	10/24/89	20.0	18.8	94.0	75-125	0.0		25	
ARSENIC,DISS	UG/L			SPM2*NANFTS4*25		20.0	17.6	88.0	75-125	0.0	6.6	25	
ARSENIC,DISS	UG/L			SPM1*NANFTS4*26		20.0	17.2	86.0	75-125	0.4		25	
ARSENIC,DISS	UG/L			SPM2*NANFTS4*26		20.0	17.3	86.5	75-125	0.4	0.6	25	

QC SUMMARY

Sample Matrix Spike Recovery Summary

NAME	UNITS	STOR*METH	BATCH	SAMPLE	DATE	TARGET	FOUND	%RECV	RECV CRIT	UNSPIKED	R.P.D.	R.P.D. CRIT.	FOOTNOTE
BARIUM,DISS	UG/L	1005*ICAP	G9321	SPM1*NANFTS1*51	10/12/89	2000	2010	100	75-125	90.2		25	
BARIUM,DISS	UG/L			SPM2*NANFTS1*51		2000	1990	99.4	75-125	90.2	0.6	25	
BARIUM,DISS	UG/L			SPM1*NANFTS1*52		2000	1990	99.5	75-125	226		25	
BARIUM,DISS	UG/L			SPM2*NANFTS1*52		2000	1980	99.1	75-125	226	0.6	25	
BARIUM,DISS	UG/L			SPM1*NANFTS2*7		2000	1970	98.6	75-125	69.0		25	
BARIUM,DISS	UG/L			SPM2*NANFTS2*7		2000	2030	102	75-125	69.0	3.4	25	
BARIUM,DISS	UG/L			SPM1*NANFTS2*14		2000	1980	98.7	75-125	153		25	
BARIUM,DISS	UG/L			SPM2*NANFTS2*14		2000	1930	96.5	75-125	153	2.5	25	
BARIUM,DISS	UG/L		G9557	SPM1*NANFTS1*53		2000	1740	87.0	75-125	87.0		25	
BARIUM,DISS	UG/L			SPM2*NANFTS1*53		2000	1750	87.6	75-125	87.0	0.5	25	
BARIUM,DISS	UG/L			SPM1*NANFTS1*54		2000	1860	93.1	75-125	96.6		25	
BARIUM,DISS	UG/L			SPM2*NANFTS1*54		2000	1900	95.0	75-125	96.6	1.9	25	
BARIUM,DISS	UG/L			SPM1*NANFTS1*55		2000	1890	94.6	75-125	108		25	
BARIUM,DISS	UG/L			SPM2*NANFTS1*55		2000	1910	95.7	75-125	108	1.2	25	
BARIUM,DISS	UG/L			SPM1*NANFTS1*56		2000	1860	93.2	75-125	107		25	
BARIUM,DISS	UG/L			SPM2*NANFTS1*56		2000	1880	94.2	75-125	107	1.1	25	
BARIUM,DISS	UG/L			SPM1*NANFTS1*57		2000	1870	93.7	75-125	85.8		25	
BARIUM,DISS	UG/L			SPM2*NANFTS1*57		2000	1890	94.5	75-125	85.8	0.9	25	
BARIUM,DISS	UG/L		G9598	SPM1*NANFTS4*25	10/25/89	2000	1940	96.5	75-125	74.9		25	
BARIUM,DISS	UG/L			SPM2*NANFTS4*25		2000	1920	95.8	75-125	74.9	1.0	25	
BARIUM,DISS	UG/L			SPM1*NANFTS4*26		2000	1840	92.0	75-125	153		25	
BARIUM,DISS	UG/L			SPM2*NANFTS4*26		2000	1740	86.6	75-125	153	5.9	25	
CADMIUM,DISS	UG/L	1025*ICAP	G9321	SPM1*NANFTS1*51	10/12/89	50.0	47.7	95.4	75-125	0.0		25	
CADMIUM,DISS	UG/L			SPM2*NANFTS1*51		50.0	48.6	97.3	75-125	0.0	2.0	25	
CADMIUM,DISS	UG/L			SPM1*NANFTS1*52		50.0	48.8	97.6	75-125	3.9		25	
CADMIUM,DISS	UG/L			SPM2*NANFTS1*52		50.0	47.5	95.1	75-125	3.9	2.6	25	
CADMIUM,DISS	UG/L			SPM1*NANFTS2*7		50.0	48.2	96.4	75-125	0.5		25	
CADMIUM,DISS	UG/L			SPM2*NANFTS2*7		50.0	53.0	106	75-125	0.5	9.5	25	
CADMIUM,DISS	UG/L			SPM1*NANFTS2*14		50.0	50.4	101	75-125	0.4		25	
CADMIUM,DISS	UG/L			SPM2*NANFTS2*14		50.0	47.6	95.1	75-125	0.4	6.0	25	
CADMIUM,DISS	UG/L		G9557	SPM1*NANFTS1*53		50.0	44.4	88.8	75-125	0.0		25	
CADMIUM,DISS	UG/L			SPM2*NANFTS1*53		50.0	43.4	86.8	75-125	0.0	2.3	25	
CADMIUM,DISS	UG/L			SPM1*NANFTS1*54		50.0	44.5	89.1	75-125	0.0		25	
CADMIUM,DISS	UG/L			SPM2*NANFTS1*54		50.0	44.5	89.1	75-125	0.0	0.1	25	
CADMIUM,DISS	UG/L			SPM1*NANFTS1*55		50.0	45.9	91.8	75-125	0.0		25	
CADMIUM,DISS	UG/L			SPM2*NANFTS1*55		50.0	47.1	94.2	75-125	0.0	2.6	25	
CADMIUM,DISS	UG/L			SPM1*NANFTS1*56		50.0	45.0	90.1	75-125	0.0		25	
CADMIUM,DISS	UG/L			SPM2*NANFTS1*56		50.0	44.5	89.1	75-125	0.0	1.0	25	
CADMIUM,DISS	UG/L			SPM1*NANFTS1*57		50.0	46.1	92.3	75-125	0.0		25	
CADMIUM,DISS	UG/L			SPM2*NANFTS1*57		50.0	46.7	93.5	75-125	0.0	1.4	25	
CADMIUM,DISS	UG/L		G9598	SPM1*NANFTS4*25	10/25/89	50.0	47.0	94.0	75-125	0.0		25	
CADMIUM,DISS	UG/L			SPM2*NANFTS4*25		50.0	47.4	94.8	75-125	0.0	0.8	25	
CADMIUM,DISS	UG/L			SPM1*NANFTS4*26		50.0	45.4	90.7	75-125	0.3		25	
CADMIUM,DISS	UG/L			SPM2*NANFTS4*26		50.0	41.5	82.9	75-125	0.3	9.1	25	
CHROMIUM,DISS	UG/L	1030*ICAP	G9321	SPM1*NANFTS1*51	10/12/89	200	204	102	75-125	2.6		25	
CHROMIUM,DISS	UG/L			SPM2*NANFTS1*51		200	203	102	75-125	2.6	0.0	25	
CHROMIUM,DISS	UG/L			SPM1*NANFTS1*52		200	194	97.0	75-125	2.1		25	
CHROMIUM,DISS	UG/L			SPM2*NANFTS1*52		200	191	95.6	75-125	2.1	1.5	25	
CHROMIUM,DISS	UG/L			SPM1*NANFTS2*7		200	201	100	75-125	0.0		25	
CHROMIUM,DISS	UG/L			SPM2*NANFTS2*7		200	206	103	75-125	0.0	2.0	25	
CHROMIUM,DISS	UG/L			SPM1*NANFTS2*14		200	194	96.8	75-125	0.0		25	
CHROMIUM,DISS	UG/L			SPM2*NANFTS2*14		200	187	93.4	75-125	0.0	3.8	25	

QC SUMMARY

Sample Matrix Spike Recovery Summary

NAME	UNITS	STOR*METH	BATCH	SAMPLE	DATE	TARGET	FOUND	%RECV	RECV CRIT	UNSPIKED	R.P.D.	R.P.D. CRIT.	FOOTNOTE
CHROMIUM,DISS	UG/L		G9557	SPM1*NANFTS1*53		200	172	86.1	75-125	0.2		25	
CHROMIUM,DISS	UG/L			SPM2*NANFTS1*53		200	173	86.3	75-125	0.2	0.5	25	
CHROMIUM,DISS	UG/L			SPM1*NANFTS1*54		200	183	91.2	75-125	2.3		25	
CHROMIUM,DISS	UG/L			SPM2*NANFTS1*54		200	187	93.4	75-125	2.3	2.2	25	
CHROMIUM,DISS	UG/L			SPM1*NANFTS1*55		200	177	88.3	75-125	10.3		25	
CHROMIUM,DISS	UG/L			SPM2*NANFTS1*55		200	178	88.8	75-125	10.3	0.5	25	
CHROMIUM,DISS	UG/L			SPM1*NANFTS1*56		200	185	92.2	75-125	0.2		25	
CHROMIUM,DISS	UG/L			SPM2*NANFTS1*56		200	187	93.4	75-125	0.2	1.1	25	
CHROMIUM,DISS	UG/L			SPM1*NANFTS1*57		200	180	89.7	75-125	4.1		25	
CHROMIUM,DISS	UG/L			SPM2*NANFTS1*57		200	184	91.8	75-125	4.1	2.0	25	
CHROMIUM,DISS	UG/L		G9598	SPM1*NANFTS4*25	10/25/89	200	190	94.8	75-125	0.2		25	
CHROMIUM,DISS	UG/L			SPM2*NANFTS4*25		200	196	98.0	75-125	0.2	3.2	25	
CHROMIUM,DISS	UG/L			SPM1*NANFTS4*26		200	182	91.0	75-125	5.2		25	
CHROMIUM,DISS	UG/L			SPM2*NANFTS4*26		200	167	83.6	75-125	5.2	8.4	25	
LEAD,DISS	UG/L	1049*ICAP	G9321	SPM1*NANFTS1*51	10/12/89	500	507	101	75-125	4.0		25	
LEAD,DISS	UG/L			SPM2*NANFTS1*51		500	467	93.5	75-125	4.0	7.7	25	
LEAD,DISS	UG/L			SPM1*NANFTS1*52		500	483	96.7	75-125	0.0		25	
LEAD,DISS	UG/L			SPM2*NANFTS1*52		500	489	97.9	75-125	0.0	1.3	25	
LEAD,DISS	UG/L			SPM1*NANFTS2*7		500	477	95.4	75-125	0.0		25	
LEAD,DISS	UG/L			SPM2*NANFTS2*7		500	526	105	75-125	0.0	9.6	25	
LEAD,DISS	UG/L			SPM1*NANFTS2*14		500	465	93.0	75-125	0.0		25	
LEAD,DISS	UG/L			SPM2*NANFTS2*14		500	447	89.3	75-125	0.0	4.1	25	
LEAD,DISS	UG/L		G9557	SPM1*NANFTS1*53		500	413	82.5	75-125	26.1		25	
LEAD,DISS	UG/L			SPM2*NANFTS1*53		500	433	86.6	75-125	26.1	4.7	25	
LEAD,DISS	UG/L			SPM1*NANFTS1*54		500	462	92.4	75-125	16.7		25	
LEAD,DISS	UG/L			SPM2*NANFTS1*54		500	433	86.6	75-125	16.7	6.6	25	
LEAD,DISS	UG/L			SPM1*NANFTS1*55		500	441	88.1	75-125	19.9		25	
LEAD,DISS	UG/L			SPM2*NANFTS1*55		500	479	95.8	75-125	19.9	8.3	25	
LEAD,DISS	UG/L			SPM1*NANFTS1*56		500	449	89.8	75-125	17.1		25	
LEAD,DISS	UG/L			SPM2*NANFTS1*56		500	450	90.0	75-125	17.1	0.2	25	
LEAD,DISS	UG/L			SPM1*NANFTS1*57		500	431	86.2	75-125	31.7		25	
LEAD,DISS	UG/L			SPM2*NANFTS1*57		500	454	90.8	75-125	31.7	5.1	25	
LEAD,DISS	UG/L		G9598	SPM1*NANFTS4*25	10/25/89	500	451	90.2	75-125	0.0		25	
LEAD,DISS	UG/L			SPM2*NANFTS4*25		500	473	94.5	75-125	0.0	4.7	25	
LEAD,DISS	UG/L			SPM1*NANFTS4*26		500	430	86.0	75-125	3.1		25	
LEAD,DISS	UG/L			SPM2*NANFTS4*26		500	392	78.4	75-125	3.1	9.2	25	
MERCURY,DISS.	UG/L	71890*CVAA	G9328	SPM1*NANFTS1*51	10/11/89	5.0	5.3	105	75-125	0.03		25	
MERCURY,DISS.	UG/L			SPM2*NANFTS1*51		5.0	5.4	107	75-125	0.03	1.9	25	
MERCURY,DISS.	UG/L			SPM1*NANFTS1*52		5.0	5.5	110	75-125	0.0		25	
MERCURY,DISS.	UG/L			SPM2*NANFTS1*52		5.0	5.5	110	75-125	0.0	0.0	25	
MERCURY,DISS.	UG/L	71890*CVAA	G9328	SPM1*NANFTS2*7	10/11/89	5.0	5.3	106	75-125	0.0		25	
MERCURY,DISS.	UG/L			SPM2*NANFTS2*7		5.0	5.3	106	75-125	0.0	0.0	25	
MERCURY,DISS.	UG/L			SPM1*NANFTS2*14		5.0	5.2	104	75-125	0.0		25	
MERCURY,DISS.	UG/L			SPM2*NANFTS2*14		5.0	4.7	94.6	75-125	0.0	9.5	25	
MERCURY,DISS.	UG/L		G9545	SPM1*NANFTS1*53	10/24/89	5.0	5.1	102	75-125	0.0		25	
MERCURY,DISS.	UG/L			SPM2*NANFTS1*53		5.0	5.2	104	75-125	0.0	1.9	25	
MERCURY,DISS.	UG/L			SPM1*NANFTS1*54		5.0	4.8	95.6	75-125	0.4		25	
MERCURY,DISS.	UG/L			SPM2*NANFTS1*54		5.0	4.9	97.4	75-125	0.4	1.4	25	
MERCURY,DISS.	UG/L			SPM1*NANFTS1*55		5.0	5.1	102	75-125	0.0		25	
MERCURY,DISS.	UG/L			SPM2*NANFTS1*55		5.0	5.1	102	75-125	0.0	0.0	25	
MERCURY,DISS.	UG/L			SPM1*NANFTS1*56		5.0	5.1	102	75-125	0.0		25	
MERCURY,DISS.	UG/L			SPM2*NANFTS1*56		5.0	5.2	104	75-125	0.0	1.9	25	
MERCURY,DISS.	UG/L			SPM1*NANFTS1*57		5.0	5.0	101	75-125	0.07		25	
MERCURY,DISS.	UG/L			SPM2*NANFTS1*57		5.0	5.2	105	75-125	0.07	3.9	25	
MERCURY,DISS.	UG/L			SPM1*NANFTS4*25		5.0	5.0	101	75-125	0.07		25	
MERCURY,DISS.	UG/L			SPM2*NANFTS4*25		5.0	5.2	105	75-125	0.07	3.9	25	
MERCURY,DISS.	UG/L			SPM1*NANFTS4*26		5.0	5.1	102	75-125	0.0		25	
MERCURY,DISS.	UG/L			SPM2*NANFTS4*26		5.0	5.3	106	75-125	0.0	3.8	25	

QC SUMMARY

Sample Matrix Spike Recovery Summary

NAME	UNITS	STOR*METH	BATCH	SAMPLE	DATE	TARGET	FOUND	%RECV	RECV CRIT	UNSPIKED	R.P.D.	R.P.D. CRIT.	FOOTNOTE
SELENIUM,DISS	UG/L	1145*GFAA	G9262	SPM1*NANFTS1*51	10/09/89	20.0	18.5	92.5	75-125	0.2		25	
SELENIUM,DISS	UG/L			SPM2*NANFTS1*51		20.0	18.5	92.5	75-125	0.2	0.0	25	
SELENIUM,DISS	UG/L			SPM1*NANFTS1*52		20.0	12.1	60.5	75-125	0.2		25	*
SELENIUM,DISS	UG/L			SPM2*NANFTS1*52		20.0	12.6	63.0	75-125	0.2	4.0	25	*
SELENIUM,DISS	UG/L			SPM1*NANFTS2*7		20.0	20.1	101	75-125	0.0		25	
SELENIUM,DISS	UG/L			SPM2*NANFTS2*7		20.0	19.3	96.5	75-125	0.0	4.6	25	
SELENIUM,DISS	UG/L			SPM1*NANFTS2*14		20.0	6.0	30.0	75-125	0.0		25	*
SELENIUM,DISS	UG/L			SPM2*NANFTS2*14		20.0	6.1	30.5	75-125	0.0	1.7	25	*
SELENIUM,DISS	UG/L		G9631	SPM1*NANFTS1*53	10/25/89	20.0	16.5	82.5	75-125	0.8		25	
SELENIUM,DISS	UG/L			SPM2*NANFTS1*53		20.0	17.0	85.0	75-125	0.8	3.0	25	
SELENIUM,DISS	UG/L			SPM1*NANFTS1*54		20.0	18.0	90.0	75-125	0.2		25	
SELENIUM,DISS	UG/L			SPM2*NANFTS1*54		20.0	16.4	82.0	75-125	0.2	9.3	25	
SELENIUM,DISS	UG/L			SPM1*NANFTS1*56		20.0	16.6	83.0	75-125	0.0		25	
SELENIUM,DISS	UG/L			SPM2*NANFTS1*56		20.0	16.8	84.0	75-125	0.0	1.2	25	
SELENIUM,DISS	UG/L			SPM1*NANFTS1*57		20.0	17.5	87.5	75-125	0.0		25	
SELENIUM,DISS	UG/L			SPM2*NANFTS1*57		20.0	17.3	86.5	75-125	0.0	1.1	25	
SELENIUM,DISS	UG/L			SPM1*NANFTS1*55		20.0	15.5	77.5	75-125	0.4		25	
SELENIUM,DISS	UG/L			SPM2*NANFTS1*55		20.0	15.5	77.5	75-125	0.4	0.0	25	
SELENIUM,DISS	UG/L			SPM1*NANFTS4*25		20.0	17.9	89.5	75-125	0.2		25	
SELENIUM,DISS	UG/L			SPM2*NANFTS4*25		20.0	17.6	88.0	75-125	0.2	1.7	25	
SELENIUM,DISS	UG/L			SPM1*NANFTS4*26		20.0	16.7	83.5	75-125	0.6		25	
SELENIUM,DISS	UG/L			SPM2*NANFTS4*26		20.0	15.9	79.5	75-125	0.6	4.9	25	
SILVER,DISS	UG/L	1075*ICAP	G9321	SPM1*NANFTS1*51	10/12/89	50.0	45.0	90.0	75-125	0.0		25	
SILVER,DISS	UG/L			SPM2*NANFTS1*51		50.0	45.0	90.0	75-125	0.0	0.0	25	
SILVER,DISS	UG/L			SPM1*NANFTS1*52		50.0	49.6	99.2	75-125	0.0		25	
SILVER,DISS	UG/L			SPM2*NANFTS1*52		50.0	45.9	91.8	75-125	0.0	7.7	25	
SILVER,DISS	UG/L			SPM1*NANFTS2*7		50.0	43.6	87.3	75-125	0.0		25	
SILVER,DISS	UG/L			SPM2*NANFTS2*7		50.0	47.3	94.6	75-125	0.0	8.1	25	
SILVER,DISS	UG/L			SPM1*NANFTS2*14		50.0	47.1	94.3	75-125	2.0		25	
SILVER,DISS	UG/L			SPM2*NANFTS2*14		50.0	45.8	91.5	75-125	2.0	2.9	25	
SILVER,DISS	UG/L		G9557	SPM1*NANFTS1*53		50.0	44.5	89.0	75-125	6.5		25	
SILVER,DISS	UG/L			SPM2*NANFTS1*53		50.0	45.6	91.3	75-125	6.5	2.6	25	
SILVER,DISS	UG/L			SPM1*NANFTS1*54		50.0	37.2	74.3	75-125	5.9		25	*
SILVER,DISS	UG/L			SPM2*NANFTS1*54		50.0	36.3	72.6	75-125	5.9	2.4	25	*
SILVER,DISS	UG/L			SPM1*NANFTS1*55		50.0	44.5	88.9	75-125	0.0		25	
SILVER,DISS	UG/L			SPM2*NANFTS1*55		50.0	43.9	87.8	75-125	0.0	1.4	25	
SILVER,DISS	UG/L	1075*ICAP	G9557	SPM1*NANFTS1*56	10/24/89	50.0	40.4	80.7	75-125	0.0		25	
SILVER,DISS	UG/L			SPM2*NANFTS1*56		50.0	39.9	79.8	75-125	0.0	1.2	25	
SILVER,DISS	UG/L			SPM1*NANFTS1*57		50.0	39.6	79.3	75-125	0.0		25	
SILVER,DISS	UG/L			SPM2*NANFTS1*57		50.0	40.8	81.5	75-125	0.0	2.9	25	
SILVER,DISS	UG/L		G9598	SPM1*NANFTS4*25	10/25/89	50.0	40.8	81.6	75-125	0.0		25	
SILVER,DISS	UG/L			SPM2*NANFTS4*25		50.0	43.2	86.5	75-125	0.0	5.8	25	
SILVER,DISS	UG/L			SPM1*NANFTS4*26		50.0	41.4	82.7	75-125	0.0		25	
SILVER,DISS	UG/L			SPM2*NANFTS4*26		50.0	30.6	61.2	75-125	0.0	30.0	25	*

QC SUMMARY

Sample Matrix Spike Recovery Summary

NAME	UNITS	STOR*METH	BATCH	SAMPLE	DATE	TARGET	FOUND	%RECV	RECV CRIT	UNSPIKED	R.P.D.	R.P.D. CRIT.	FOOTNOTE
PCB 1016	UG/KG-DRY	39514*EC	G9285	SPM1*NANFTS1*27	10/05/89	1200	785	65.2	50-114	0.0		50	
PCB 1016	UG/KG-DRY			SPM2*NANFTS1*27		1190	939	78.8	50-114	0.0	18.6	50	
PCB 1016	UG/KG-DRY		G9464	SPM1*NANFTS1*53	10/18/89	1120	1270	113	50-114	12.1		50	
PCB 1016	UG/KG-DRY			SPM2*NANFTS1*53		1130	1330	118	50-114	12.1	4.33	50	*
PCB 1016	UG/KG-DRY			SPM1*NANFTS1*54		1150	1270	111	50-114	12.3		50	
PCB 1016	UG/KG-DRY			SPM2*NANFTS1*54		1140	1030	89.7	50-114	12.3	20.3	50	
PCB 1016	UG/KG-DRY		G9618	SPM1*NANFTS1*50	10/23/89	1130	2000	177	50-114	2.40		50	*
PCB 1016	UG/KG-DRY			SPM2*NANFTS1*50		1130	844	74.6	50-114	2.40	81.4	50	
PCB 1016	UG/KG-DRY			SPM1*NANFTS1*55		1180	1740	148	50-114	0.506		50	*
PCB 1016	UG/KG-DRY			SPM2*NANFTS1*55		1180	1840	156	50-114	0.506	5.94	50	*
PCB 1016	UG/KG-DRY			SPM1*NANFTS1*56		1130	1270	113	50-114	0.484		50	
PCB 1016	UG/KG-DRY			SPM2*NANFTS1*56		1130	1290	114	50-114	0.484	1.77	50	
PCB 1016	UG/KG-DRY		G9623	SPM1*NANFTS1*53		1130	1230	109	50-114	18.0		50	
PCB 1016	UG/KG-DRY			SPM2*NANFTS1*53		1130	1340	119	50-114	18.0	8.77	50	*
PCB 1016	UG/KG-DRY			SPM1*NANFTS1*54		1150	1240	108	50-114	18.3		50	
PCB 1016	UG/KG-DRY			SPM2*NANFTS1*54		1150	1200	105	50-114	18.3	2.82	50	
PCB-1260	UG/KG-DRY	39511*EC	G9285	SPM1*NANFTS1*27	10/05/89	1200	770	64	8-127	0.0		50	
PCB-1260	UG/KG-DRY			SPM2*NANFTS1*27		1200	640	54	8-127	0.0	17	50	
PCB-1260	UG/KG-DRY		G9464	SPM1*NANFTS1*53	10/18/89	1100	930	83	8-127	0.0		50	
PCB-1260	UG/KG-DRY			SPM2*NANFTS1*53		1100	970	86	8-127	0.0	1	50	
PCB-1260	UG/KG-DRY			SPM1*NANFTS1*54		1100	1300	110	8-127	0.0		50	
PCB-1260	UG/KG-DRY			SPM2*NANFTS1*54		1100	870	76	8-127	0.0	45	50	
PCB-1260	UG/KG-DRY		G9618	SPM1*NANFTS1*50	10/23/89	1100	1800	160	8-127	0.0		50	*
PCB-1260	UG/KG-DRY			SPM2*NANFTS1*50		1100	640	57	8-127	0.0	95	50	
PCB-1260	UG/KG-DRY			SPM1*NANFTS1*55		1200	1100	96	8-127	0.0		50	
PCB-1260	UG/KG-DRY			SPM2*NANFTS1*55		1200	1200	110	8-127	0.0	18	50	
PCB-1260	UG/KG-DRY			SPM1*NANFTS1*56		1100	1100	100	8-127	0.0		50	
PCB-1260	UG/KG-DRY			SPM2*NANFTS1*56		1100	1100	97	8-127	0.0	3	50	
PCB-1260	UG/KG-DRY		G9623	SPM1*NANFTS1*53		1100	880	78	8-127	0.0		50	
PCB-1260	UG/KG-DRY			SPM2*NANFTS1*53		1100	850	76	8-127	0.0	5	50	
PCB-1260	UG/KG-DRY			SPM1*NANFTS1*54		1100	870	76	8-127	0.0		50	
PCB-1260	UG/KG-DRY			SPM2*NANFTS1*54		1100	920	80	8-127	0.0	1	50	
BENZENE	UG/KG-DRY	34237*GMS	G9344	SPM1*NANFTS1*56	10/12/89	2800	2300	80	66-142	0.0		21	
BENZENE	UG/KG-DRY			SPM2*NANFTS1*56		2800	2300	82	66-142	0.0	0.0	21	
BENZENE	UG/KG-DRY		G9363	SPM1*NANFTS1*49		2800	1900	68	66-142	0.0		21	
BENZENE	UG/KG-DRY			SPM2*NANFTS1*49		2800	1900	66	66-142	0.0	3.0	21	
BENZENE	UG/KG-DRY		G9367	SPM1*NANFTS4*22	10/13/89	2800	2300	81	66-142	0.0		21	
BENZENE	UG/KG-DRY			SPM2*NANFTS4*22		2800	2200	78	66-142	0.0	5.0	21	
BENZENE	UG/KG-DRY		G9533	SPM1*NANFTS1*24	10/09/89	3000	2400	79	66-142	0.0		21	
BENZENE	UG/KG-DRY			SPM2*NANFTS1*24		3000	2400	80	66-142	0.0	0.0	21	
CHLOROBENZENE	UG/KG-DRY	34304*GMS	G9344	SPM1*NANFTS1*56	10/12/89	2800	2900	100	60-133	0.0		21	
CHLOROBENZENE	UG/KG-DRY			SPM2*NANFTS1*56		2800	2900	100	60-133	0.0	0.0	21	
CHLOROBENZENE	UG/KG-DRY		G9363	SPM1*NANFTS1*49		2800	2200	78	60-133	0.0		21	
CHLOROBENZENE	UG/KG-DRY			SPM2*NANFTS1*49		2800	2200	79	60-133	0.0	0.0	21	
CHLOROBENZENE	UG/KG-DRY	34304*GMS	G9367	SPM1*NANFTS4*22	10/13/89	2800	2700	95	60-133	0.0		21	
CHLOROBENZENE	UG/KG-DRY			SPM2*NANFTS4*22		2800	2700	93	60-133	0.0	3.2	21	
CHLOROBENZENE	UG/KG-DRY		G9533	SPM1*NANFTS1*24	10/09/89	3000	2800	93	60-133	0.0		21	
CHLOROBENZENE	UG/KG-DRY			SPM2*NANFTS1*24		3000	2900	96	60-133	0.0	3.2	21	

QC SUMMARY

Sample Matrix Spike Recovery Summary

NAME	UNITS	STOR*METH	BATCH	SAMPLE	DATE	TARGET	FOUND	%RECV	RECV CRIT	UNSPIKED	R.P.D.	R.P.D. CRIT.	FOOTNOTE
1,1-DICHLOROETHYLENE	UG/KG-DRY	34504*GMS	G9344	SPM1*NANFTS1*56	10/12/89	2800	2100	74	59-172	0.0		22	
1,1-DICHLOROETHYLENE	UG/KG-DRY			SPM2*NANFTS1*56		2800	2100	75	59-172	0.0	0.0	22	
1,1-DICHLOROETHYLENE	UG/KG-DRY		G9363	SPM1*NANFTS1*49		2800	1700	61	59-172	0.0		22	
1,1-DICHLOROETHYLENE	UG/KG-DRY			SPM2*NANFTS1*49		2800	1700	62	59-172	0.0	1.6	22	
1,1-DICHLOROETHYLENE	UG/KG-DRY		G9367	SPM1*NANFTS4*22	10/13/89	2800	2300	80	59-172	0.0		22	
1,1-DICHLOROETHYLENE	UG/KG-DRY			SPM2*NANFTS4*22		2800	2000	71	59-172	0.0	14	22	
1,1-DICHLOROETHYLENE	UG/KG-DRY		G9533	SPM1*NANFTS1*24	10/09/89	3000	2400	80	59-172	0.0		22	
1,1-DICHLOROETHYLENE	UG/KG-DRY			SPM2*NANFTS1*24		3000	2400	79	59-172	0.0	1.3	22	
TOLUENE	UG/KG-DRY	34483*GMS	G9344	SPM1*NANFTS1*56	10/12/89	2800	2300	79	59-139	0.0		21	
TOLUENE	UG/KG-DRY			SPM2*NANFTS1*56		2800	2300	79	59-139	0.0	3.7	21	
TOLUENE	UG/KG-DRY		G9363	SPM1*NANFTS1*49		2800	1800	63	59-139	0.0		21	
TOLUENE	UG/KG-DRY			SPM2*NANFTS1*49		2800	1800	64	59-139	0.0	0.0	21	
TOLUENE	UG/KG-DRY		G9367	SPM1*NANFTS4*22	10/13/89	2800	2200	79	59-139	0.0		21	
TOLUENE	UG/KG-DRY			SPM2*NANFTS4*22		2800	2200	77	59-139	0.0	2.6	21	
TOLUENE	UG/KG-DRY		G9533	SPM1*NANFTS1*24	10/09/89	3000	2300	77	59-139	0.0		21	
TOLUENE	UG/KG-DRY			SPM2*NANFTS1*24		3000	2400	79	59-139	0.0	2.6	21	
TOX	UG/G-WET	97438*I	G9564	SPM*NANFTS4*24		0.6	1	95	64-136	1		30	
TOX	UG/G-WET			SPM2*NANFTS4*24		0.6	1	110	64-136	1		30	
BENZENE,SED	UG/KG- WET	99178*PI	G9422	SPM1*NANFTS3*5	10/11/89	908	794	87.5	39-150	4.58		30	
BENZENE,SED	UG/KG- WET			SPM2*NANFTS3*5		899	812	90.4	39-150	4.58	3.26	30	
TOLUENE	UG/KG- WET	98455*PI		SPM1*NANFTS3*5		956	852	89.2	80-120	7.76		20	
TOLUENE	UG/KG- WET			SPM2*NANFTS3*5		946	815	86.2	80-120	7.76	3.31	20	
FUEL OIL #2	UG/G	97152*FI	G9354	SPM1*NANFTS4*24		1210	1130	93.2	50-130	0.0		33	
FUEL OIL #2	UG/G			SPM2*NANFTS4*24		1200	1100	91.2	50-130	0.0	2.38	33	
FUEL OIL #2	UG/G		G9721	SPM1*NANFTS3*6	10/17/89	19800	20300	102	50-130	0.0		33	
FUEL OIL #2	UG/G			SPM2*NANFTS3*6		19400	18900	97.4	50-130	0.0	5.59	33	
ARSENIC,TOTAL	MG./KG	1002*SCLPO	S2135	SPM*NANFTS3*4	11/01/89	5.0	6.0	119	75-125	1.0		20	
CADMIUM,TOTAL	MG/KG	1027*SCLPO		SPM*NANFTS3*4		2.0	2.1	107	75-125	0.0		20	
CHROMIUM,TOTAL	MG/KG	1034*SCLPO		SPM*NANFTS3*4		10.0	11.9	119	75-125	0.01		20	
LEAD,TOTAL	MG/KG	1051*SCLPO		SPM*NANFTS3*4		100	126	126	75-125	0.05		20	
TOX,SED	UG/KG-DRY	99263*I	G9564	SPM*NANFTS4*24	10/09/89	0.6	1	95	64-136	1		30	
TOX,SED	UG/KG-DRY			SPM2*NANFTS4*24		0.6	1	110	64-136	1		30	
TOX,SED	UG/KG-DRY		G9569	SPM*NANFTS4*19	10/08/89	3	3	100	64-136	0.4		30	
TOX,SED	UG/KG-DRY			SPM*NANFTS4*20		1	0.9	78	64-136	0.0		30	
TOX,SED	UG/KG-DRY		G10079	SPM1*NANFTS4*7	10/07/89	120	140	120	64-136	66		30	
TOX,SED	UG/KG-DRY			SPM2*NANFTS4*7		120	120	100	64-136	66	18	30	
BENZENE	UG/KG-DRY	34237*PI	G9428	SPM1*NANFTS4*25	10/11/89	2110	1970	93.5	39-150	5.71		30	
BENZENE	UG/KG-DRY			SPM2*NANFTS4*25		2120	1950	92.3	39-150	5.71	1.40	30	
ETHYLBENZENE	UG/KG-DRY	34374*PI		SPM1*NANFTS4*25		2220	1900	85.6	48-144	9.67		35	
ETHYLBENZENE	UG/KG-DRY			SPM2*NANFTS4*25		2230	1890	84.8	48-144	9.67	0.939	35	
TOLUENE	UG/KG-DRY	34483*PI		SPM1*NANFTS4*25		2220	1950	87.5	46-148	0.0		30	
TOLUENE	UG/KG-DRY			SPM2*NANFTS4*25		2230	1920	86.2	46-148	0.0	1.84	30	
XYLENES,TOTAL	UG/KG-DRY	45510*PI		SPM1*NANFTS4*25		6650	5830	87.7	56-134	1.62		30	
XYLENES,TOTAL	UG/KG-DRY			SPM2*NANFTS4*25		6660	5730	86.0	56-134	1.62	1.84	30	

QC SUMMARY

Surrogate Spike Recovery Summary

NAME	UNITS	STOR*METH	BATCH	SAMPLE	DATE	TARGET	FOUND	%RECV	RECV CRIT	FOOTNOTE
DIBUTYLCHLORENDATE	MG/KG	97739*SUR	G9285	MB*NANFTS1*1	10/05/89	0.361	0.189	52.4	20-150	
DIBUTYLCHLORENDATE	MG/KG			SP*NANFTS1*1		0.365	0.228	62.5	20-150	
DIBUTYLCHLORENDATE	MG/KG			SPM1*NANFTS1*27		0.364	0.215	59.1	20-150	
DIBUTYLCHLORENDATE	MG/KG			SPM2*NANFTS1*27		0.360	0.269	74.7	20-150	
DIBUTYLCHLORENDATE	MG/KG			DA*NANFTS1*3		0.361	0.149	41.3	20-150	
DIBUTYLCHLORENDATE	MG/KG			DA*NANFTS1*4		0.365	0.180	49.3	20-150	
DIBUTYLCHLORENDATE	MG/KG			DA*NANFTS1*27		0.362	0.224	61.9	20-150	
DIBUTYLCHLORENDATE	MG/KG			DA*NANFTS1*29		0.361	0.226	62.6	20-150	
DIBUTYLCHLORENDATE	MG/KG			DA*NANFTS1*31		0.361	0.192	53.2	20-150	
DIBUTYLCHLORENDATE	MG/KG			DA*NANFTS1*34		0.367	0.081	22.1	20-150	
DIBUTYLCHLORENDATE	MG/KG			DA*NANFTS1*38		0.366	0.105	28.7	20-150	
DIBUTYLCHLORENDATE	MG/KG			DA*NANFTS1*40		0.367	0.049	13.4	20-150	*
DIBUTYLCHLORENDATE	MG/KG			DA*NANFTS1*41		0.367	0.083	22.6	20-150	
DIBUTYLCHLORENDATE	MG/KG			DA*NANFTS1*43		0.362	0.036	9.94	20-150	*
DIBUTYLCHLORENDATE	MG/KG			DA*NANFTS1*51		0.366	0.057	15.6	20-150	*
DIBUTYLCHLORENDATE	MG/KG			DA*NANFTS2*4		0.362	<0.028	0.0	20-150	*
DIBUTYLCHLORENDATE	MG/KG			DA*NANFTS2*5		0.367	<0.028	0.0	20-150	*
DIBUTYLCHLORENDATE	MG/KG			DA*NANFTS2*6		0.361	<0.028	0.0	20-150	*
DIBUTYLCHLORENDATE	MG/KG			DA*NANFTS2*12		0.365	0.067	18.4	20-150	*
DIBUTYLCHLORENDATE	MG/KG		G9464	MB*NONE*1	10/18/89	0.364	0.221	60.7	20-150	
DIBUTYLCHLORENDATE	MG/KG			MB*NONE*2		0.364	0.143	39.3	20-150	
DIBUTYLCHLORENDATE	MG/KG			SP1*NONE*1		0.364	0.380	104	20-150	
DIBUTYLCHLORENDATE	MG/KG			SP2*NONE*1		0.365	0.219	60.0	20-150	
DIBUTYLCHLORENDATE	MG/KG			SPM1*NANFTS1*53		0.365	0.377	103	20-150	
DIBUTYLCHLORENDATE	MG/KG			SPM2*NANFTS1*53		0.367	0.364	99.2	20-150	
DIBUTYLCHLORENDATE	MG/KG			SPM1*NANFTS1*54		0.366	0.496	136	20-150	
DIBUTYLCHLORENDATE	MG/KG			SPM2*NANFTS1*54		0.367	0.320	87.2	20-150	
DIBUTYLCHLORENDATE	MG/KG			DA*NANFTS1*7		0.368	0.187	50.8	20-150	
DIBUTYLCHLORENDATE	MG/KG			DA*NANFTS1*42		0.368	0.179	48.6	20-150	
DIBUTYLCHLORENDATE	MG/KG			DA*NANFTS1*49		0.365	0.120	32.9	20-150	
DIBUTYLCHLORENDATE	MG/KG			DA*NANFTS1*52		0.367	0.173	47.1	20-150	
DIBUTYLCHLORENDATE	MG/KG			DA*NANFTS1*53		0.367	0.282	76.8	20-150	
DIBUTYLCHLORENDATE	MG/KG			DA*NANFTS1*54		0.367	0.237	64.6	20-150	
DIBUTYLCHLORENDATE	MG/KG			DA*NANFTS1*55		0.365	0.176	48.2	20-150	
DIBUTYLCHLORENDATE	MG/KG			DA*NANFTS1*56		0.367	0.216	58.9	20-150	
DIBUTYLCHLORENDATE	MG/KG			DA*NANFTS1*57		0.366	0.278	76.0	20-150	
DIBUTYLCHLORENDATE	MG/KG			DA*NANFTS2*1		0.363	0.239	65.8	20-150	
DIBUTYLCHLORENDATE	MG/KG			DA*NANFTS2*2		0.362	0.242	66.9	20-150	
DIBUTYLCHLORENDATE	MG/KG			DA*NANFTS2*3		0.364	0.200	54.9	20-150	
DIBUTYLCHLORENDATE	MG/KG			DA*NANFTS2*7		0.367	0.168	45.8	20-150	
DIBUTYLCHLORENDATE	MG/KG			DA*NANFTS2*8		0.363	0.191	52.6	20-150	
DIBUTYLCHLORENDATE	MG/KG			DA*NANFTS2*9		0.363	0.223	61.4	20-150	
DIBUTYLCHLORENDATE	MG/KG			DA*NANFTS2*10		0.365	0.275	75.3	20-150	
DIBUTYLCHLORENDATE	MG/KG			DA*NANFTS2*11		0.362	0.236	65.2	20-150	

NAME	UNITS	STOR*METH	BATCH	SAMPLE	DATE	TARGET	FOUND	%RECV	RECV CRIT	FOOTNOTE
DIBUTYLCHLORENDATE	MG/KG		G9464	DA*NANFTS2*13		0.367	0.207	56.4	20-150	
DIBUTYLCHLORENDATE	MG/KG			DA*NANFTS2*14		0.363	0.244	67.2	20-150	
DIBUTYLCHLORENDATE	MG/KG			DA*NANFTS2*15		0.365	0.246	67.4	20-150	
DIBUTYLCHLORENDATE	MG/KG			DA*NANFTS2*16		0.363	0.170	46.8	20-150	
DIBUTYLCHLORENDATE	MG/KG			DA*NANFTS2*17		0.367	0.187	51.0	20-150	
DIBUTYLCHLORENDATE	MG/KG			DA*NANFTS2*18		0.365	0.174	47.7	20-150	
DIBUTYLCHLORENDATE	MG/KG			DA*NANFTS4*6		0.367	0.482	131	20-150	
DIBUTYLCHLORENDATE	MG/KG			DA*NANFTS4*8		0.365	0.418	115	20-150	
DIBUTYLCHLORENDATE	MG/KG			DA*NANFTS4*10		0.367	0.202	55.0	20-150	
DIBUTYLCHLORENDATE	MG/KG			DA*NANFTS4*12		0.366	0.240	65.6	20-150	
DIBUTYLCHLORENDATE	MG/KG			DA*NANFTS4*14		0.367	0.245	66.8	20-150	
DIBUTYLCHLORENDATE	MG/KG			DA*NANFTS4*16		0.368	0.204	55.4	20-150	
DIBUTYLCHLORENDATE	MG/KG	97739*SUR	G9618	MB*NONE*1	10/23/89	0.368	0.256	69.6	20-150	
DIBUTYLCHLORENDATE	MG/KG			SP1*NONE*1		0.368	0.329	89.4	20-150	
DIBUTYLCHLORENDATE	MG/KG			SPM1*NANFTS1*50		0.364	0.991	272	20-150	*
DIBUTYLCHLORENDATE	MG/KG			SPM2*NANFTS1*50		0.366	0.390	107	20-150	
DIBUTYLCHLORENDATE	MG/KG			SPM1*NANFTS1*55		0.365	0.510	140	20-150	
DIBUTYLCHLORENDATE	MG/KG			SPM2*NANFTS1*55		0.365	0.576	158	20-150	*
DIBUTYLCHLORENDATE	MG/KG			SPM1*NANFTS1*56		0.365	0.507	139	20-150	
DIBUTYLCHLORENDATE	MG/KG			SPM2*NANFTS1*56		0.365	0.472	129	20-150	
DIBUTYLCHLORENDATE	MG/KG			DA*NANFTS1*10		0.367	0.320	87.2	20-150	
DIBUTYLCHLORENDATE	MG/KG			DA*NANFTS1*11		0.365	0.268	73.4	20-150	
DIBUTYLCHLORENDATE	MG/KG			DA*NANFTS1*12		0.365	0.283	77.5	20-150	
DIBUTYLCHLORENDATE	MG/KG			DA*NANFTS1*16		0.367	0.440	120	20-150	
DIBUTYLCHLORENDATE	MG/KG			DA*NANFTS1*17		0.368	0.310	84.2	20-150	
DIBUTYLCHLORENDATE	MG/KG			DA*NANFTS1*18		0.367	0.315	85.8	20-150	
DIBUTYLCHLORENDATE	MG/KG			DA*NANFTS1*19		0.365	0.261	71.5	20-150	
DIBUTYLCHLORENDATE	MG/KG			DA*NANFTS1*20		0.365	0.303	83.0	20-150	
DIBUTYLCHLORENDATE	MG/KG			DA*NANFTS1*21		0.365	0.287	78.6	20-150	
DIBUTYLCHLORENDATE	MG/KG			DA*NANFTS1*46		0.367	0.243	66.2	20-150	
DIBUTYLCHLORENDATE	MG/KG			DA*NANFTS1*47		0.365	0.253	69.3	20-150	
DIBUTYLCHLORENDATE	MG/KG			DA*NANFTS1*48		0.368	0.251	68.2	20-150	
DIBUTYLCHLORENDATE	MG/KG			DA*NANFTS1*50		0.365	0.241	66.0	20-150	
DIBUTYLCHLORENDATE	MG/KG			RP*NANFTS1*50		0.365	0.366	100	20-150	
DIBUTYLCHLORENDATE	MG/KG			DA*NANFTS4*2		0.367	0.323	88.0	20-150	
DIBUTYLCHLORENDATE	MG/KG			DA*NANFTS4*4		0.368	0.255	69.3	20-150	
DIBUTYLCHLORENDATE	MG/KG			DA*NANFTS4*18		0.367	0.269	73.3	20-150	
DIBUTYLCHLORENDATE	MG/KG			DA*NANFTS4*20		0.366	0.292	79.8	20-150	
DIBUTYLCHLORENDATE	MG/KG			DA*NANFTS4*22		0.368	0.252	68.5	20-150	
DIBUTYLCHLORENDATE	MG/KG			DA*NANFTS4*24		0.366	0.272	74.3	20-150	
DIBUTYLCHLORENDATE	MG/KG			DA*NANFTS4*26		0.367	0.307	83.7	20-150	
DIBUTYLCHLORENDATE	MG/KG		G9623	MB*NONE*1		0.364	0.277	76.1	20-150	
DIBUTYLCHLORENDATE	MG/KG			MB*NONE*2		0.365	0.236	64.7	20-150	
DIBUTYLCHLORENDATE	MG/KG			SP1*NONE*1		0.366	0.291	79.5	20-150	
DIBUTYLCHLORENDATE	MG/KG			SP2*NONE*1		0.362	0.352	97.2	20-150	
DIBUTYLCHLORENDATE	MG/KG			SPM1*NANFTS1*53		0.367	0.443	121	20-150	
DIBUTYLCHLORENDATE	MG/KG			SPM2*NANFTS1*53		0.367	0.383	104	20-150	
DIBUTYLCHLORENDATE	MG/KG			SPM1*NANFTS1*54		0.367	0.376	102	20-150	
DIBUTYLCHLORENDATE	MG/KG			SPM2*NANFTS1*54		0.367	0.373	102	20-150	

QC SUMMARY

Surrogate Spike Recovery Summary

NAME	UNITS	STOR*METH	BATCH	SAMPLE	DATE	TARGET	FOUND	%RECV	RECV CRIT	FOOTNOTE
DIBUTYLCHLORENDATE	MG/KG		G9623	DA*NANFTS1*1		0.365	0.323	88.5	20-150	
DIBUTYLCHLORENDATE	MG/KG			DA*NANFTS1*2		0.365	0.438	120	20-150	
DIBUTYLCHLORENDATE	MG/KG			DA*NANFTS1*5		0.365	0.355	97.3	20-150	
DIBUTYLCHLORENDATE	MG/KG			DA*NANFTS1*6		0.365	0.395	108	20-150	
DIBUTYLCHLORENDATE	MG/KG			DA*NANFTS1*8		0.368	0.300	81.5	20-150	
DIBUTYLCHLORENDATE	MG/KG			DA*NANFTS1*9		0.364	0.249	68.4	20-150	
DIBUTYLCHLORENDATE	MG/KG			DA*NANFTS1*13		0.361	0.350	97.0	20-150	
DIBUTYLCHLORENDATE	MG/KG			DA*NANFTS1*14		0.368	0.347	94.3	20-150	
DIBUTYLCHLORENDATE	MG/KG			DA*NANFTS1*15		0.362	0.385	106	20-150	
DIBUTYLCHLORENDATE	MG/KG			DA*NANFTS1*22		0.365	0.377	103	20-150	
DIBUTYLCHLORENDATE	MG/KG			DA*NANFTS1*23		0.367	0.394	107	20-150	
DIBUTYLCHLORENDATE	MG/KG			DA*NANFTS1*24		0.364	0.367	101	20-150	
DIBUTYLCHLORENDATE	MG/KG			DA*NANFTS1*25		0.368	0.405	110	20-150	
DIBUTYLCHLORENDATE	MG/KG			DA*NANFTS1*26		0.361	0.387	107	20-150	
DIBUTYLCHLORENDATE	MG/KG			DA*NANFTS1*30		0.367	0.257	70.0	20-150	
DIBUTYLCHLORENDATE	MG/KG			DA*NANFTS1*32		0.365	0.222	60.8	20-150	
DIBUTYLCHLORENDATE	MG/KG			DA*NANFTS1*33		0.362	0.203	56.1	20-150	
DIBUTYLCHLORENDATE	MG/KG	97739*SUR	G9623	DA*NANFTS1*35	10/23/89	0.347	0.300	86.5	20-150	
DIBUTYLCHLORENDATE	MG/KG			DA*NANFTS1*36		0.365	0.253	69.3	20-150	
DIBUTYLCHLORENDATE	MG/KG			DA*NANFTS1*37		0.368	0.303	82.3	20-150	
DIBUTYLCHLORENDATE	MG/KG			DA*NANFTS1*39		0.365	0.296	81.1	20-150	
DIBUTYLCHLORENDATE	MG/KG			DA*NANFTS1*44		0.366	0.303	82.8	20-150	
DIBUTYLCHLORENDATE	MG/KG			DA*NANFTS1*45		0.367	0.283	77.1	20-150	
DIBUTYLCHLORENDATE	UG/L	97502*SUR	G9350	MB*NANFTS2*1	10/12/89	0.920	1.69	184	24-154	*
DIBUTYLCHLORENDATE	UG/L			SP1*NANFTS2*1		0.920	1.83	199	24-154	*
DIBUTYLCHLORENDATE	UG/L			SP2*NANFTS2*1		0.920	0.309	33.6	24-154	
DIBUTYLCHLORENDATE	UG/L			DA*NANFTS2*4		0.920	0.982	107	24-154	
DIBUTYLCHLORENDATE	UG/L			DA*NANFTS2*5		0.920	0.173	18.8	24-154	*
DIBUTYLCHLORENDATE	UG/L			DA*NANFTS2*6		0.920	0.947	103	24-154	
DIBUTYLCHLORENDATE	UG/L			DA*NANFTS2*10		0.920	1.07	116	24-154	
DIBUTYLCHLORENDATE	UG/L			DA*NANFTS2*12		0.920	2.49	271	24-154	*
DIBUTYLCHLORENDATE	UG/L			DA*NANFTS2*13		0.920	5.86	637	24-154	*
DIBUTYLCHLORENDATE	UG/L		G9521	MB*NANFTS2*1	10/19/89	0.920	0.885	96.2	24-154	
DIBUTYLCHLORENDATE	UG/L			SP1*NANFTS2*1		0.920	0.971	106	24-154	
DIBUTYLCHLORENDATE	UG/L			SP2*NANFTS2*1		0.920	0.998	108	24-154	
DIBUTYLCHLORENDATE	UG/L			DA*NANFTS2*1		1.44	1.27	88.2	24-154	
DIBUTYLCHLORENDATE	UG/L			DA*NANFTS2*2		1.15	0.686	59.7	24-154	
DIBUTYLCHLORENDATE	UG/L			DA*NANFTS2*3		1.12	1.20	107	24-154	
DIBUTYLCHLORENDATE	UG/L			DA*NANFTS2*7		0.958	0.855	89.2	24-154	
DIBUTYLCHLORENDATE	UG/L			DA*NANFTS2*8		1.05	1.01	96.2	24-154	
DIBUTYLCHLORENDATE	UG/L			DA*NANFTS2*9		1.21	1.39	115	24-154	
DIBUTYLCHLORENDATE	UG/L			DA*NANFTS2*11		1.00	1.01	101	24-154	
DIBUTYLCHLORENDATE	UG/L			DA*NANFTS2*14		0.939	0.879	93.6	24-154	
DIBUTYLCHLORENDATE	UG/L			DA*NANFTS2*15		1.48	1.03	69.6	24-154	
DIBUTYLCHLORENDATE	UG/L			DA*NANFTS2*16		1.18	0.553	46.9	24-154	
DIBUTYLCHLORENDATE	UG/L			DA*NANFTS2*17		1.64	0.822	50.1	24-154	
DIBUTYLCHLORENDATE	UG/L			DA*NANFTS2*18		1.10	1.22	111	24-154	
DIBUTYLCHLORENDATE	UG/L			DA*NANFTS2*19		1.10	1.19	108	24-154	
DIBUTYLCHLORENDATE	UG/L		G9959	MB*NONE*1	11/08/89	0.541	0.406	75.0	24-154	
DIBUTYLCHLORENDATE	UG/L			SP1*NONE*1		0.541	0.638	118	24-154	
DIBUTYLCHLORENDATE	UG/L			DA*NANFTW1*1		0.541	0.290	53.6	24-154	
DIBUTYLCHLORENDATE	UG/L			DA*NANFTW1*2		0.541	0.421	77.8	24-154	

QC SUMMARY

Surrogate Spike Recovery Summary

NAME	UNITS	STOR*METH	BATCH	SAMPLE	DATE	TARGET	FOUND	%RECV	RECV CRIT	FOOTNOTE
BROMOFLUOROBENZENE,PID	MG/KG	97955*SUR	G9422	MB*NONE*1	10/11/89	33100	33600	102	36-152	
BROMOFLUOROBENZENE,PID	MG/KG			SP1*NONE*1		33100	32600	98.5	38-152	
BROMOFLUOROBENZENE,PID	MG/KG			SP2*NONE*1		33100	33400	101	38-152	
BROMOFLUOROBENZENE,PID	MG/KG			SPM1*NANFTS3*5		33100	33500	101	38-152	
BROMOFLUOROBENZENE,PID	MG/KG			SPM2*NANFTS3*5		33100	32900	99.4	38-152	
BROMOFLUOROBENZENE,PID	MG/KG			DA*NANFTS3*1		33100	36200	109	38-152	
BROMOFLUOROBENZENE,PID	MG/KG			DA*NANFTS3*2		33100	33800	102	38-152	
BROMOFLUOROBENZENE,PID	MG/KG			DA*NANFTS3*3		33100	33400	101	38-152	
BROMOFLUOROBENZENE,PID	MG/KG			DA*NANFTS3*4		33100	41600	126	38-152	
BROMOFLUOROBENZENE,PID	MG/KG			DA*NANFTS3*5		33100	31100	94.0	38-152	
BROMOFLUOROBENZENE,PID	MG/KG			DA*NANFTS3*6		33100	33700	102	38-152	
BROMOFLUOROBENZENE,PID	MG/KG		G9428	MB*NONE*1		33100	33600	102	38-152	
BROMOFLUOROBENZENE,PID	MG/KG			SP1*NONE*1		33100	33600	102	38-152	
BROMOFLUOROBENZENE,PID	MG/KG			SP2*NONE*1		33100	34100	103	38-152	
BROMOFLUOROBENZENE,PID	MG/KG			SPM1*NANFTS4*25		33100	31700	95.8	38-152	
BROMOFLUOROBENZENE,PID	MG/KG			SPM2*NANFTS4*25		33100	31800	96.1	38-152	
BROMOFLUOROBENZENE,PID	MG/KG			DA*NANFTS4*1		33100	34500	104	38-152	
BROMOFLUOROBENZENE,PID	MG/KG			DA*NANFTS4*3		33100	32700	98.8	38-152	
BROMOFLUOROBENZENE,PID	MG/KG			DA*NANFTS4*5		33100	33400	101	38-152	
BROMOFLUOROBENZENE,PID	MG/KG	97955*SUR	G9428	DA*NANFTS4*7	10/11/89	33100	34100	103	38-152	
BROMOFLUOROBENZENE,PID	MG/KG			DA*NANFTS4*9		33100	49100	148	38-152	
BROMOFLUOROBENZENE,PID	MG/KG			DA*NANFTS4*11		33100	32100	97.0	38-152	
BROMOFLUOROBENZENE,PID	MG/KG			DA*NANFTS4*13		33100	33800	102	38-152	
BROMOFLUOROBENZENE,PID	MG/KG			DA*NANFTS4*15		33100	34900	105	38-152	
BROMOFLUOROBENZENE,PID	MG/KG			DA*NANFTS4*17		33100	34000	103	38-152	
BROMOFLUOROBENZENE,PID	MG/KG			DA*NANFTS4*19		33100	34100	103	38-152	
BROMOFLUOROBENZENE,PID	MG/KG			DA*NANFTS4*21		33100	37900	115	38-152	
BROMOFLUOROBENZENE,PID	MG/KG			DA*NANFTS4*23		33100	33100	100	38-152	
BROMOFLUOROBENZENE,PID	MG/KG			DA*NANFTS4*25		33100	31100	94.0	38-152	
BROMOFLUOROBENZENE,PID	MG/KG			DA*NANFTS4*27		33100	32700	98.8	38-152	
BROMOFLUOROBENZENE,PID	MG/KG			DA*NANFTS4*28		33100	31500	95.2	38-152	
1,2-DICHLOROETHANE-D(4) UG/L	UG/L	98812*SUR	G9593	MB*1009*01	10/09/89	50	55	110	76-114	
1,2-DICHLOROETHANE-D(4) UG/L	UG/L			SP1*1009*01		50	50	100	76-114	
1,2-DICHLOROETHANE-D(4) UG/L	UG/L			MB*1010*01		50	42	84	76-114	
1,2-DICHLOROETHANE-D(4) UG/L	UG/L			DA*NANFTW1*1	10/11/89	50	44	88	76-114	
1,2-DICHLOROETHANE-D(4) UG/L	UG/L			DA*NANFTW1*2	10/10/89	50	49	98	76-114	
1,2-DICHLOROETHANE-D(4) UG/L	UG/L			SP1*1010*01		50	49	98	76-114	
1,2-DICHLOROETHANE-D4	UG/KG-DRY	97031*SUR	G9344	MB*NONE*1012	10/12/89	2500	2200	88	70-121	
1,2-DICHLOROETHANE-D4	UG/KG-DRY			SP1*NONE*1		2500	2600	100	70-121	
1,2-DICHLOROETHANE-D4	UG/KG-DRY			DA*NANFTS4*6		2500	1900	76	70-121	
1,2-DICHLOROETHANE-D4	UG/KG-DRY			DA*NANFTS4*10		2500	2000	80	70-121	
1,2-DICHLOROETHANE-D4	UG/KG-DRY			DA*NANFTS1*50		2500	2100	84	70-121	
1,2-DICHLOROETHANE-D4	UG/KG-DRY			DA*NANFTS1*51		2500	2200	88	70-121	
1,2-DICHLOROETHANE-D4	UG/KG-DRY			DA*NANFTS1*52		2500	2300	92	70-121	
1,2-DICHLOROETHANE-D4	UG/KG-DRY	97031*SUR	G9344	DA*NANFTS1*53	10/12/89	2500	2000	80	70-121	
1,2-DICHLOROETHANE-D4	UG/KG-DRY			DA*NANFTS1*55		2500	2100	84	70-121	
1,2-DICHLOROETHANE-D4	UG/KG-DRY			DA*NANFTS1*56		2500	2200	88	70-121	
1,2-DICHLOROETHANE-D4	UG/KG-DRY			DA*NANFTS1*57		2500	2100	84	70-121	
1,2-DICHLOROETHANE-D4	UG/KG-DRY			SPM1*NANFTS1*56		2500	2500	100	70-121	
1,2-DICHLOROETHANE-D4	UG/KG-DRY			SPM2*NANFTS1*56		2500	2400	96	70-121	
1,2-DICHLOROETHANE-D4	UG/KG-DRY			DA*NANFTS1*54		2500	2200	88	70-121	
1,2-DICHLOROETHANE-D4	UG/KG-DRY			DA*NANFTS1*10		2500	2300	92	70-121	

QC SUMMARY

Surrogate Spike Recovery Summary

NAME	UNITS	STOR*METH	BATCH	SAMPLE	DATE	TARGET	FOUND	%RECV	RECV CRIT	FOOTNOTE
1,2-DICHLOROETHANE-D4	UG/KG-DRY		G9363	MB*NONE*1011		2500	1900	76	70-121	
1,2-DICHLOROETHANE-D4	UG/KG-DRY			SP1*NONE*1		2500	1800	72	70-121	
1,2-DICHLOROETHANE-D4	UG/KG-DRY			DA*NANFTS1*1		2500	1800	72	70-121	
1,2-DICHLOROETHANE-D4	UG/KG-DRY			DA*NANFTS1*40		2500	2000	80	70-121	
1,2-DICHLOROETHANE-D4	UG/KG-DRY			DA*NANFTS1*41		2500	2000	80	70-121	
1,2-DICHLOROETHANE-D4	UG/KG-DRY			DA*NANFTS1*42		2500	1800	72	70-121	
1,2-DICHLOROETHANE-D4	UG/KG-DRY			DA*NANFTS1*49		2500	1800	72	70-121	
1,2-DICHLOROETHANE-D4	UG/KG-DRY			SPM1*NANFTS1*49		2500	2300	92	70-121	
1,2-DICHLOROETHANE-D4	UG/KG-DRY			SPM2*NANFTS1*49		2500	2300	92	70-121	
1,2-DICHLOROETHANE-D4	UG/KG-DRY		G9366	MB*NONE*1014	10/14/89	2500	2500	100	70-121	
1,2-DICHLOROETHANE-D4	UG/KG-DRY			SP1*NONE*1		2500	2600	100	70-121	
1,2-DICHLOROETHANE-D4	UG/KG-DRY			DA*NANFTS1*18		2500	2100	84	70-121	
1,2-DICHLOROETHANE-D4	UG/KG-DRY			DA*NANFTS1*19		2500	2200	88	70-121	
1,2-DICHLOROETHANE-D4	UG/KG-DRY			DA*NANFTS1*20		2500	2300	92	70-121	
1,2-DICHLOROETHANE-D4	UG/KG-DRY			DA*NANFTS1*21		2500	2200	88	70-121	
1,2-DICHLOROETHANE-D4	UG/KG-DRY		G9367	MB*NONE*1013	10/13/89	2500	2500	100	70-121	
1,2-DICHLOROETHANE-D4	UG/KG-DRY			SP1*NONE*1		2500	2900	120	70-121	
1,2-DICHLOROETHANE-D4	UG/KG-DRY			DA*NANFTS4*22		2500	2300	92	70-121	
1,2-DICHLOROETHANE-D4	UG/KG-DRY			DA*NANFTS1*11		2500	2100	84	70-121	
1,2-DICHLOROETHANE-D4	UG/KG-DRY			DA*NANFTS1*12		2500	2400	96	70-121	
1,2-DICHLOROETHANE-D4	UG/KG-DRY			DA*NANFTS1*16		2500	2300	92	70-121	
1,2-DICHLOROETHANE-D4	UG/KG-DRY			DA*NANFTS1*17		2500	2400	96	70-121	
1,2-DICHLOROETHANE-D4	UG/KG-DRY			DA*NANFTS4*16		2500	2200	88	70-121	
1,2-DICHLOROETHANE-D4	UG/KG-DRY			SPM1*NANFTS4*22		2500	2600	100	70-121	
1,2-DICHLOROETHANE-D4	UG/KG-DRY			SPM2*NANFTS4*22		2500	2700	110	70-121	
1,2-DICHLOROETHANE-D4	UG/KG-DRY			DA*NANFTS4*20		2500	2100	84	70-121	
1,2-DICHLOROETHANE-D4	UG/KG-DRY			DA*NANFTS4*2		2500	2500	100	70-121	
1,2-DICHLOROETHANE-D4	UG/KG-DRY		G9416	MB*NONE*1016	10/16/89	2500	2100	84	70-121	
1,2-DICHLOROETHANE-D4	UG/KG-DRY			SP1*NONE*1		2500	2000	80	70-121	
1,2-DICHLOROETHANE-D4	UG/KG-DRY			DA*NANFTS1*46		2500	2100	84	70-121	
1,2-DICHLOROETHANE-D4	UG/KG-DRY			DA*NANFTS1*47		2500	2400	96	70-121	
1,2-DICHLOROETHANE-D4	UG/KG-DRY			DA*NANFTS1*48		2500	1900	76	70-121	
1,2-DICHLOROETHANE-D4	UG/KG-DRY		G9533	MB*NONE*1009	10/09/89	2500	2600	100	70-121	
1,2-DICHLOROETHANE-D4	UG/KG-DRY			MB*NONE*1010	10/10/89	2500	2200	88	70-121	
1,2-DICHLOROETHANE-D4	UG/KG-DRY			MB*NONE*1011	10/11/89	2500	2300	92	70-121	
1,2-DICHLOROETHANE-D4	UG/KG-DRY			MB*NONE*1012	10/12/89	2500	2300	92	70-121	
1,2-DICHLOROETHANE-D4	UG/KG-DRY			MB*NONE*1016	10/16/89	2500	2400	96	70-121	
1,2-DICHLOROETHANE-D4	UG/KG-DRY			SP1*NONE*1	10/09/89	2500	2800	110	70-121	
1,2-DICHLOROETHANE-D4	UG/KG-DRY			SP2*NONE*1	10/10/89	2500	2200	88	70-121	
1,2-DICHLOROETHANE-D4	UG/KG-DRY			SPM1*NANFTS1*24	10/11/89	2500	2400	96	70-121	
1,2-DICHLOROETHANE-D4	UG/KG-DRY			SPM2*NANFTS1*24		2500	2500	100	70-121	
1,2-DICHLOROETHANE-D4	UG/KG-DRY			SPM1*NANFTS1*59	10/16/89	2500	2100	84	70-121	
1,2-DICHLOROETHANE-D4	UG/KG-DRY			SPM2*NANFTS1*59		2500	2100	84	70-121	
1,2-DICHLOROETHANE-D4	UG/KG-DRY			DA*NANFTS1*25	10/10/89	2500	2200	88	70-121	
1,2-DICHLOROETHANE-D4	UG/KG-DRY			DA*NANFTS1*26		2500	2200	88	70-121	
1,2-DICHLOROETHANE-D4	UG/KG-DRY			DA*NANFTS1*27		2500	2000	80	70-121	
1,2-DICHLOROETHANE-D4	UG/KG-DRY			DA*NANFTS1*28		2500	2200	88	70-121	
1,2-DICHLOROETHANE-D4	UG/KG-DRY			DA*NANFTS1*29		2500	2100	84	70-121	

Hunter/ESE, INC.
QC SUMMARY
Surrogate Spike Recovery Summary

NAME	UNITS	STOR*METH	BATCH	SAMPLE	DATE	TARGET	FOUND	%RECV	RECV CRIT	FOOTNOTE
1,2-DICHLOROETHANE-D4	UG/KG-DRY	97031*SUR	G9533	DA*NANFTS1*30	10/10/89	2500	2200	88	70-121	
1,2-DICHLOROETHANE-D4	UG/KG-DRY			DA*NANFTS1*31		2500	2200	88	70-121	
1,2-DICHLOROETHANE-D4	UG/KG-DRY			DA*NANFTS1*38		2500	2100	84	70-121	
1,2-DICHLOROETHANE-D4	UG/KG-DRY			DA*NANFTS1*37		2500	2200	88	70-121	
1,2-DICHLOROETHANE-D4	UG/KG-DRY			DA*NANFTS1*39		2500	2000	80	70-121	
1,2-DICHLOROETHANE-D4	UG/KG-DRY			DA*NANFTS1*43		2500	2100	84	70-121	
1,2-DICHLOROETHANE-D4	UG/KG-DRY			DA*NANFTS1*44		2500	2200	88	70-121	
1,2-DICHLOROETHANE-D4	UG/KG-DRY			DA*NANFTS1*45		2500	1900	76	70-121	
1,2-DICHLOROETHANE-D4	UG/KG-DRY			DA*NANFTS1*32		2500	2100	84	70-121	
1,2-DICHLOROETHANE-D4	UG/KG-DRY			DA*NANFTS1*33		2500	2000	80	70-121	
1,2-DICHLOROETHANE-D4	UG/KG-DRY			DA*NANFTS1*34		2500	2100	84	70-121	
1,2-DICHLOROETHANE-D4	UG/KG-DRY			DA*NANFTS1*35		2500	2000	80	70-121	
1,2-DICHLOROETHANE-D4	UG/KG-DRY			DA*NANFTS1*36		2500	1800	72	70-121	
1,2-DICHLOROETHANE-D4	UG/KG-DRY			DA*NANFTS1*5	10/11/89	2500	2100	84	70-121	
1,2-DICHLOROETHANE-D4	UG/KG-DRY			DA*NANFTS1*4		2500	2100	84	70-121	
1,2-DICHLOROETHANE-D4	UG/KG-DRY			DA*NANFTS1*24		2500	2000	80	70-121	
1,2-DICHLOROETHANE-D4	UG/KG-DRY			DA*NANFTS1*6		2500	2000	80	70-121	
1,2-DICHLOROETHANE-D4	UG/KG-DRY			DA*NANFTS1*9		2500	2200	88	70-121	
1,2-DICHLOROETHANE-D4	UG/KG-DRY			DA*NANFTS1*8		2500	1900	76	70-121	
1,2-DICHLOROETHANE-D4	UG/KG-DRY			DA*NANFTS1*7		2500	2000	80	70-121	
1,2-DICHLOROETHANE-D4	UG/KG-DRY			DA*NANFTS1*3		2500	2100	84	70-121	
1,2-DICHLOROETHANE-D4	UG/KG-DRY			DA*NANFTS1*2		2500	2100	84	70-121	
1,2-DICHLOROETHANE-D4	UG/KG-DRY			DA*NANFTS1*22	10/12/89	2500	2000	80	70-121	
1,2-DICHLOROETHANE-D4	UG/KG-DRY			DA*NANFTS1*23		2500	2200	88	70-121	
1,2-DICHLOROETHANE-D4	UG/KG-DRY			DA*NANFTS4*8		2500	2000	80	70-121	
1,2-DICHLOROETHANE-D4	UG/KG-DRY			DA*NANFTS4*26		2500	2200	88	70-121	
1,2-DICHLOROETHANE-D4	UG/KG-DRY			DA*NANFTS4*14		2500	1900	76	70-121	
1,2-DICHLOROETHANE-D4	UG/KG-DRY			DA*NANFTS4*12		2500	2000	80	70-121	
1,2-DICHLOROETHANE-D4	UG/KG-DRY			DA*NANFTS1*15		2500	2000	80	70-121	
1,2-DICHLOROETHANE-D4	UG/KG-DRY			DA*NANFTS1*14		2500	2000	80	70-121	
1,2-DICHLOROETHANE-D4	UG/KG-DRY			DA*NANFTS1*13		2500	2100	84	70-121	
1,2-DICHLOROETHANE-D4	UG/KG-DRY			DA*NANFTS4*24		2500	2000	80	70-121	
1,2-DICHLOROETHANE-D4	UG/KG-DRY			DA*NANFTS1*59	10/16/89	2500	2200	88	70-121	
1,2-DICHLOROETHANE-D4	UG/KG-DRY			DA*NANFTS4*4		2500	2300	92	70-121	
1,2-DICHLOROETHANE-D4	UG/KG-DRY			DA*NANFTS4*18		2500	2400	96	70-121	
BROMOFLUOROBENZENE	UG/KG-DRY	97027*SUR	G9344	MB*NONE*1012	10/12/89	2500	2300	92	74-121	
BROMOFLUOROBENZENE	UG/KG-DRY			SP1*NONE*1		2500	2600	100	74-121	
BROMOFLUOROBENZENE	UG/KG-DRY			DA*NANFTS4*6		2500	2100	84	74-121	
BROMOFLUOROBENZENE	UG/KG-DRY			DA*NANFTS4*10		2500	2400	96	74-121	
BROMOFLUOROBENZENE	UG/KG-DRY			DA*NANFTS1*50		2500	2100	84	74-121	
BROMOFLUOROBENZENE	UG/KG-DRY			DA*NANFTS1*51		2500	2300	92	74-121	
BROMOFLUOROBENZENE	UG/KG-DRY			DA*NANFTS1*52		2500	2400	96	74-121	
BROMOFLUOROBENZENE	UG/KG-DRY			DA*NANFTS1*53		2500	2100	84	74-121	
BROMOFLUOROBENZENE	UG/KG-DRY			DA*NANFTS1*55		2500	2200	88	74-121	
BROMOFLUOROBENZENE	UG/KG-DRY			DA*NANFTS1*56		2500	2100	84	74-121	
BROMOFLUOROBENZENE	UG/KG-DRY			DA*NANFTS1*57		2500	2000	80	74-121	
BROMOFLUOROBENZENE	UG/KG-DRY			SPM1*NANFTS1*56		2500	2400	96	74-121	
BROMOFLUOROBENZENE	UG/KG-DRY			SPM2*NANFTS1*56		2500	2400	96	74-121	
BROMOFLUOROBENZENE	UG/KG-DRY			DA*NANFTS1*54		2500	2200	88	74-121	
BROMOFLUOROBENZENE	UG/KG-DRY			DA*NANFTS1*10		2500	2400	96	74-121	
BROMOFLUOROBENZENE	UG/KG-DRY		G9363	MB*NONE*1011		2500	1900	76	74-121	
BROMOFLUOROBENZENE	UG/KG-DRY			SP1*NONE*1		2500	1900	76	74-121	
BROMOFLUOROBENZENE	UG/KG-DRY			DA*NANFTS1*1		2500	1800	72	74-121	*
BROMOFLUOROBENZENE	UG/KG-DRY			DA*NANFTS1*40		2500	2100	84	74-121	
BROMOFLUOROBENZENE	UG/KG-DRY			DA*NANFTS1*41		2500	2000	80	74-121	
BROMOFLUOROBENZENE	UG/KG-DRY			DA*NANFTS1*42		2500	1900	76	74-121	

Hunter/ESE, INC.
QC SUMMARY
Surrogate Spike Recovery Summary

NAME	UNITS	STOR*METH	BATCH	SAMPLE	DATE	TARGET	FOUND	%RECV	RECV CRIT	FOOTNOTE
BROMOFLUOROBENZENE	UG/KG-DRY	97027*SUR	G9363	DA*NANFTS1*49	10/12/89	2500	1900	76	74-121	
BROMOFLUOROBENZENE	UG/KG-DRY			SPM1*NANFTS1*49		2500	2400	96	74-121	
BROMOFLUOROBENZENE	UG/KG-DRY			SPM2*NANFTS1*49		2500	2400	96	74-121	
BROMOFLUOROBENZENE	UG/KG-DRY		G9366	MB*NONE*1014	10/14/89	2500	2400	96	74-121	
BROMOFLUOROBENZENE	UG/KG-DRY			SP1*NONE*1		2500	2400	96	74-121	
BROMOFLUOROBENZENE	UG/KG-DRY			DA*NANFTS1*18		2500	1900	76	74-121	
BROMOFLUOROBENZENE	UG/KG-DRY			DA*NANFTS1*19		2500	2000	80	74-121	
BROMOFLUOROBENZENE	UG/KG-DRY			DA*NANFTS1*20		2500	2100	84	74-121	
BROMOFLUOROBENZENE	UG/KG-DRY			DA*NANFTS1*21		2500	2100	84	74-121	
BROMOFLUOROBENZENE	UG/KG-DRY		G9367	MB*NONE*1013	10/13/89	2500	2500	100	74-121	
BROMOFLUOROBENZENE	UG/KG-DRY			SP1*NONE*1		2500	2700	110	74-121	
BROMOFLUOROBENZENE	UG/KG-DRY			DA*NANFTS4*22		2500	2300	92	74-121	
BROMOFLUOROBENZENE	UG/KG-DRY			DA*NANFTS1*11		2500	2000	80	74-121	
BROMOFLUOROBENZENE	UG/KG-DRY			DA*NANFTS1*12		2500	2400	96	74-121	
BROMOFLUOROBENZENE	UG/KG-DRY			DA*NANFTS1*16		2500	2200	88	74-121	
BROMOFLUOROBENZENE	UG/KG-DRY			DA*NANFTS1*17		2500	2300	92	74-121	
BROMOFLUOROBENZENE	UG/KG-DRY			DA*NANFTS4*16		2500	2700	110	74-121	
BROMOFLUOROBENZENE	UG/KG-DRY			SPM1*NANFTS4*22		2500	2900	120	74-121	
BROMOFLUOROBENZENE	UG/KG-DRY			SPM2*NANFTS4*22		2500	2600	100	74-121	
BROMOFLUOROBENZENE	UG/KG-DRY			DA*NANFTS4*20		2500	2400	96	74-121	
BROMOFLUOROBENZENE	UG/KG-DRY			DA*NANFTS4*2		2500	2500	100	74-121	
BROMOFLUOROBENZENE	UG/KG-DRY		G9416	MB*NONE*1016	10/16/89	2500	2200	88	74-121	
BROMOFLUOROBENZENE	UG/KG-DRY			SP1*NONE*1		2500	2100	84	74-121	
BROMOFLUOROBENZENE	UG/KG-DRY			DA*NANFTS1*46		2500	2100	84	74-121	
BROMOFLUOROBENZENE	UG/KG-DRY			DA*NANFTS1*47		2500	3000	120	74-121	
BROMOFLUOROBENZENE	UG/KG-DRY			DA*NANFTS1*48		2500	1900	76	74-121	
BROMOFLUOROBENZENE	UG/KG-DRY		G9533	MB*NONE*1009	10/09/89	2500	2600	100	74-121	
BROMOFLUOROBENZENE	UG/KG-DRY			MB*NONE*1010	10/10/89	2500	2300	92	74-121	
BROMOFLUOROBENZENE	UG/KG-DRY			MB*NONE*1011	10/11/89	2500	2300	92	74-121	
BROMOFLUOROBENZENE	UG/KG-DRY			MB*NONE*1012	10/12/89	2500	2200	88	74-121	
BROMOFLUOROBENZENE	UG/KG-DRY			MB*NONE*1016	10/16/89	2500	2400	96	74-121	
BROMOFLUOROBENZENE	UG/KG-DRY			SP1*NONE*1	10/09/89	2500	2900	120	74-121	
BROMOFLUOROBENZENE	UG/KG-DRY			SP2*NONE*1	10/10/89	2500	2200	88	74-121	
BROMOFLUOROBENZENE	UG/KG-DRY			SPM1*NANFTS1*24	10/11/89	2500	2500	100	74-121	
BROMOFLUOROBENZENE	UG/KG-DRY			SPM2*NANFTS1*24		2500	2500	100	74-121	
BROMOFLUOROBENZENE	UG/KG-DRY			SPM1*NANFTS1*59	10/16/89	2500	2200	88	74-121	
BROMOFLUOROBENZENE	UG/KG-DRY			SPM2*NANFTS1*59		2500	2200	88	74-121	
BROMOFLUOROBENZENE	UG/KG-DRY			DA*NANFTS1*25	10/10/89	2500	2200	88	74-121	
BROMOFLUOROBENZENE	UG/KG-DRY			DA*NANFTS1*26		2500	2200	88	74-121	
BROMOFLUOROBENZENE	UG/KG-DRY			DA*NANFTS1*27		2500	2000	80	74-121	
BROMOFLUOROBENZENE	UG/KG-DRY			DA*NANFTS1*28		2500	2100	84	74-121	
BROMOFLUOROBENZENE	UG/KG-DRY			DA*NANFTS1*29		2500	2100	84	74-121	
BROMOFLUOROBENZENE	UG/KG-DRY			DA*NANFTS1*30		2500	2200	88	74-121	
BROMOFLUOROBENZENE	UG/KG-DRY			DA*NANFTS1*31		2500	2100	84	74-121	
BROMOFLUOROBENZENE	UG/KG-DRY			DA*NANFTS1*38		2500	2000	80	74-121	
BROMOFLUOROBENZENE	UG/KG-DRY			DA*NANFTS1*37		2500	2300	92	74-121	
BROMOFLUOROBENZENE	UG/KG-DRY			DA*NANFTS1*39		2500	1900	76	74-121	
BROMOFLUOROBENZENE	UG/KG-DRY			DA*NANFTS1*43		2500	2000	80	74-121	
BROMOFLUOROBENZENE	UG/KG-DRY			DA*NANFTS1*44		2500	2100	84	74-121	
BROMOFLUOROBENZENE	UG/KG-DRY			DA*NANFTS1*45		2500	1900	76	74-121	
BROMOFLUOROBENZENE	UG/KG-DRY			DA*NANFTS1*32		2500	2100	84	74-121	
BROMOFLUOROBENZENE	UG/KG-DRY			DA*NANFTS1*33		2500	2000	80	74-121	
BROMOFLUOROBENZENE	UG/KG-DRY			DA*NANFTS1*34		2500	2100	84	74-121	
BROMOFLUOROBENZENE	UG/KG-DRY			DA*NANFTS1*35		2500	2000	80	74-121	
BROMOFLUOROBENZENE	UG/KG-DRY			DA*NANFTS1*36		2500	1900	76	74-121	
BROMOFLUOROBENZENE	UG/KG-DRY			DA*NANFTS1*5	10/11/89	2500	2100	84	74-121	

Hunter/ESE, INC.
QC SUMMARY
Surrogate Spike Recovery Summary

NAME	UNITS	STOR*METH	BATCH	SAMPLE	DATE	TARGET	FOUND	%RECV	RECV CRIT	FOOTNOTE
BROMOFLUOROBENZENE	UG/KG-DRY	97027*SUR	G9533	DA*NANFTS1*4	10/11/89	2500	2100	84	74-121	
BROMOFLUOROBENZENE	UG/KG-DRY			DA*NANFTS1*24		2500	1900	76	74-121	
BROMOFLUOROBENZENE	UG/KG-DRY			DA*NANFTS1*6		2500	2000	80	74-121	
BROMOFLUOROBENZENE	UG/KG-DRY			DA*NANFTS1*9		2500	2100	84	74-121	
BROMOFLUOROBENZENE	UG/KG-DRY			DA*NANFTS1*8		2500	1900	76	74-121	
BROMOFLUOROBENZENE	UG/KG-DRY			DA*NANFTS1*7		2500	2000	80	74-121	
BROMOFLUOROBENZENE	UG/KG-DRY			DA*NANFTS1*3		2500	2100	84	74-121	
BROMOFLUOROBENZENE	UG/KG-DRY			DA*NANFTS1*2		2500	2100	84	74-121	
BROMOFLUOROBENZENE	UG/KG-DRY			DA*NANFTS1*22	10/12/89	2500	2000	80	74-121	
BROMOFLUOROBENZENE	UG/KG-DRY			DA*NANFTS1*23		2500	2100	84	74-121	
BROMOFLUOROBENZENE	UG/KG-DRY			DA*NANFTS4*8		2500	3000	120	74-121	
BROMOFLUOROBENZENE	UG/KG-DRY			DA*NANFTS4*26		2500	2100	84	74-121	
BROMOFLUOROBENZENE	UG/KG-DRY			DA*NANFTS4*14		2500	2500	100	74-121	
BROMOFLUOROBENZENE	UG/KG-DRY			DA*NANFTS4*12		2500	2400	96	74-121	
BROMOFLUOROBENZENE	UG/KG-DRY			DA*NANFTS1*15		2500	1600	64	74-121	*
BROMOFLUOROBENZENE	UG/KG-DRY			DA*NANFTS1*14		2500	2100	84	74-121	
BROMOFLUOROBENZENE	UG/KG-DRY			DA*NANFTS1*13		2500	2200	88	74-121	
BROMOFLUOROBENZENE	UG/KG-DRY			DA*NANFTS4*24		2500	1900	76	74-121	
BROMOFLUOROBENZENE	UG/KG-DRY			DA*NANFTS1*59	10/16/89	2500	2100	84	74-121	
BROMOFLUOROBENZENE	UG/KG-DRY			DA*NANFTS4*4		2500	2200	88	74-121	
BROMOFLUOROBENZENE	UG/KG-DRY			DA*NANFTS4*18		2500	2300	92	74-121	
BROMOFLUOROBENZENE	UG/L	97947*SUR	G9593	MB*1009*01	10/09/89	50	48	96	86-115	
BROMOFLUOROBENZENE	UG/L			SP1*1009*01		50	45	90	86-115	
BROMOFLUOROBENZENE	UG/L			MB*1010*01		50	47	94	86-115	
BROMOFLUOROBENZENE	UG/L			DA*NANFTW1*1	10/11/89	50	43	86	86-115	
BROMOFLUOROBENZENE	UG/L			DA*NANFTW1*2	10/10/89	50	53	110	86-115	
BROMOFLUOROBENZENE	UG/L			SP1*1010*01		50	56	110	86-115	
TOLUENE-D(8)	UG/KG-DRY	97026*SUR	G9344	MB*NONE*1012	10/12/89	2500	2100	84	81-117	
TOLUENE-D(8)	UG/KG-DRY			SP1*NONE*1		2500	2400	96	81-117	
TOLUENE-D(8)	UG/KG-DRY			DA*NANFTS4*6		2500	1800	72	81-117	*
TOLUENE-D(8)	UG/KG-DRY			DA*NANFTS4*10		2500	2100	84	81-117	
TOLUENE-D(8)	UG/KG-DRY			DA*NANFTS1*50		2500	2000	80	81-117	*
TOLUENE-D(8)	UG/KG-DRY			DA*NANFTS1*51		2500	2100	84	81-117	
TOLUENE-D(8)	UG/KG-DRY			DA*NANFTS1*52		2500	2300	92	81-117	
TOLUENE-D(8)	UG/KG-DRY			DA*NANFTS1*53		2500	2000	80	81-117	*
TOLUENE-D(8)	UG/KG-DRY			DA*NANFTS1*55		2500	2100	84	81-117	
TOLUENE-D(8)	UG/KG-DRY			DA*NANFTS1*56		2500	2100	84	81-117	
TOLUENE-D(8)	UG/KG-DRY			DA*NANFTS1*57		2500	1900	76	81-117	*
TOLUENE-D(8)	UG/KG-DRY			SPM1*NANFTS1*56		2500	2400	96	81-117	
TOLUENE-D(8)	UG/KG-DRY			SPM2*NANFTS1*56		2500	2300	92	81-117	
TOLUENE-D(8)	UG/KG-DRY			DA*NANFTS1*54		2500	2100	84	81-117	
TOLUENE-D(8)	UG/KG-DRY			DA*NANFTS1*10		2500	2300	92	81-117	
TOLUENE-D(8)	UG/KG-DRY		G9363	MB*NONE*1011		2500	1900	76	81-117	*
TOLUENE-D(8)	UG/KG-DRY			SP1*NONE*1		2500	1800	72	81-117	*
TOLUENE-D(8)	UG/KG-DRY			DA*NANFTS1*1		2500	1800	72	81-117	*
TOLUENE-D(8)	UG/KG-DRY			DA*NANFTS1*40		2500	1900	76	81-117	*
TOLUENE-D(8)	UG/KG-DRY			DA*NANFTS1*41		2500	1900	76	81-117	*
TOLUENE-D(8)	UG/KG-DRY			DA*NANFTS1*42		2500	1800	72	81-117	*
TOLUENE-D(8)	UG/KG-DRY			DA*NANFTS1*49		2500	1800	72	81-117	*
TOLUENE-D(8)	UG/KG-DRY			SPM1*NANFTS1*49		2500	2200	88	81-117	
TOLUENE-D(8)	UG/KG-DRY			SPM2*NANFTS1*49		2500	2200	88	81-117	

Hunter/ESE, INC.
QC SUMMARY
Surrogate Spike Recovery Summary

NAME	UNITS	STOR*METH	BATCH	SAMPLE	DATE	TARGET	FOUND	%RECV	RECV CRIT	FOOTNOTE
TOLUENE-D(8)	UG/KG-DRY		G9366	MB*NONE*1014	10/14/89	2500	2300	92	81-117	
TOLUENE-D(8)	UG/KG-DRY			SP1*NONE*1		2500	2200	88	81-117	
TOLUENE-D(8)	UG/KG-DRY			DA*NANFTS1*18		2500	1900	76	81-117	*
TOLUENE-D(8)	UG/KG-DRY			DA*NANFTS1*19		2500	2000	80	81-117	*
TOLUENE-D(8)	UG/KG-DRY			DA*NANFTS1*20		2500	2000	80	81-117	*
TOLUENE-D(8)	UG/KG-DRY			DA*NANFTS1*21		2500	2000	80	81-117	*
TOLUENE-D(8)	UG/KG-DRY		G9367	MB*NONE*1013	10/13/89	2500	2400	96	81-117	
TOLUENE-D(8)	UG/KG-DRY			SP1*NONE*1		2500	2700	110	81-117	
TOLUENE-D(8)	UG/KG-DRY			DA*NANFTS4*22		2500	2200	88	81-117	
TOLUENE-D(8)	UG/KG-DRY			DA*NANFTS1*11		2500	2000	80	81-117	*
TOLUENE-D(8)	UG/KG-DRY			DA*NANFTS1*12		2500	2300	92	81-117	
TOLUENE-D(8)	UG/KG-DRY			DA*NANFTS1*16		2500	2100	84	81-117	
TOLUENE-D(8)	UG/KG-DRY			DA*NANFTS1*17		2500	2300	92	81-117	
TOLUENE-D(8)	UG/KG-DRY			DA*NANFTS4*16		2500	2200	88	81-117	
TOLUENE-D(8)	UG/KG-DRY			SPM1*NANFTS4*22		2500	2500	100	81-117	
TOLUENE-D(8)	UG/KG-DRY			SPM2*NANFTS4*22		2500	2500	100	81-117	
TOLUENE-D(8)	UG/KG-DRY			DA*NANFTS4*20		2500	1900	76	81-117	*
TOLUENE-D(8)	UG/KG-DRY			DA*NANFTS4*2		2500	2500	100	81-117	
TOLUENE-D(8)	UG/KG-DRY		G9416	MB*NONE*1016	10/16/89	2500	2100	84	81-117	
TOLUENE-D(8)	UG/KG-DRY			SP1*NONE*1		2500	2000	80	81-117	*
TOLUENE-D(8)	UG/KG-DRY			DA*NANFTS1*46		2500	1900	76	81-117	*
TOLUENE-D(8)	UG/KG-DRY			DA*NANFTS1*47		2500	2200	88	81-117	
TOLUENE-D(8)	UG/KG-DRY			DA*NANFTS1*48		2500	1900	76	81-117	*
TOLUENE-D(8)	UG/KG-DRY		G9533	MB*NONE*1009	10/09/89	2500	2600	100	81-117	
TOLUENE-D(8)	UG/KG-DRY			MB*NONE*1010	10/10/89	2500	2300	92	81-117	
TOLUENE-D(8)	UG/KG-DRY			MB*NONE*1011	10/11/89	2500	2300	92	81-117	
TOLUENE-D(8)	UG/KG-DRY			MB*NONE*1012	10/12/89	2500	2200	88	81-117	
TOLUENE-D(8)	UG/KG-DRY			MB*NONE*1016	10/16/89	2500	2400	96	81-117	
TOLUENE-D(8)	UG/KG-DRY			SP1*NONE*1	10/09/89	2500	2800	110	81-117	
TOLUENE-D(8)	UG/KG-DRY			SP2*NONE*1	10/10/89	2500	2200	88	81-117	
TOLUENE-D(8)	UG/KG-DRY	97026*SUR	G9533	SPM1*NANFTS1*24	10/11/89	2500	2400	96	81-117	
TOLUENE-D(8)	UG/KG-DRY			SPM2*NANFTS1*24		2500	2500	100	81-117	
TOLUENE-D(8)	UG/KG-DRY			SPM1*NANFTS1*59	10/16/89	2500	2100	84	81-117	
TOLUENE-D(8)	UG/KG-DRY			SPM2*NANFTS1*59		2500	2100	84	81-117	
TOLUENE-D(8)	UG/KG-DRY			DA*NANFTS1*25	10/10/89	2500	2300	92	81-117	
TOLUENE-D(8)	UG/KG-DRY			DA*NANFTS1*26		2500	2300	92	81-117	
TOLUENE-D(8)	UG/KG-DRY			DA*NANFTS1*27		2500	2100	84	81-117	
TOLUENE-D(8)	UG/KG-DRY			DA*NANFTS1*28		2500	2200	88	81-117	
TOLUENE-D(8)	UG/KG-DRY			DA*NANFTS1*29		2500	2200	88	81-117	
TOLUENE-D(8)	UG/KG-DRY			DA*NANFTS1*30		2500	2200	88	81-117	
TOLUENE-D(8)	UG/KG-DRY			DA*NANFTS1*31		2500	2200	88	81-117	
TOLUENE-D(8)	UG/KG-DRY			DA*NANFTS1*38		2500	2200	88	81-117	
TOLUENE-D(8)	UG/KG-DRY			DA*NANFTS1*37		2500	2200	88	81-117	
TOLUENE-D(8)	UG/KG-DRY			DA*NANFTS1*39		2500	1900	76	81-117	*
TOLUENE-D(8)	UG/KG-DRY			DA*NANFTS1*43		2500	2100	84	81-117	
TOLUENE-D(8)	UG/KG-DRY			DA*NANFTS1*44		2500	2200	88	81-117	
TOLUENE-D(8)	UG/KG-DRY			DA*NANFTS1*45		2500	2000	80	81-117	*
TOLUENE-D(8)	UG/KG-DRY			DA*NANFTS1*32		2500	2100	84	81-117	
TOLUENE-D(8)	UG/KG-DRY			DA*NANFTS1*33		2500	2000	80	81-117	*
TOLUENE-D(8)	UG/KG-DRY			DA*NANFTS1*34		2500	2100	84	81-117	
TOLUENE-D(8)	UG/KG-DRY			DA*NANFTS1*35		2500	2000	80	81-117	*
TOLUENE-D(8)	UG/KG-DRY			DA*NANFTS1*36		2500	1900	76	81-117	*
TOLUENE-D(8)	UG/KG-DRY			DA*NANFTS1*5	10/11/89	2500	2100	84	81-117	
TOLUENE-D(8)	UG/KG-DRY			DA*NANFTS1*4		2500	2100	84	81-117	
TOLUENE-D(8)	UG/KG-DRY			DA*NANFTS1*24		2500	2000	80	81-117	*

QC SUMMARY

Surrogate Spike Recovery Summary

NAME	UNITS	STOR*METH	BATCH	SAMPLE	DATE	TARGET	FOUND	%RECV	RECV CRIT	FOOTNOTE
TOLUENE-D(8)	UG/KG-DRY			DA*NANFTS1*6		2500	2000	80	81-117	*
TOLUENE-D(8)	UG/KG-DRY			DA*NANFTS1*9		2500	2200	88	81-117	
TOLUENE-D(8)	UG/KG-DRY			DA*NANFTS1*8		2500	1900	76	81-117	*
TOLUENE-D(8)	UG/KG-DRY			DA*NANFTS1*7		2500	2000	80	81-117	*
TOLUENE-D(8)	UG/KG-DRY			DA*NANFTS1*3		2500	2100	84	81-117	
TOLUENE-D(8)	UG/KG-DRY			DA*NANFTS1*2		2500	2100	84	81-117	
TOLUENE-D(8)	UG/KG-DRY			DA*NANFTS1*22	10/12/89	2500	2000	80	81-117	*
TOLUENE-D(8)	UG/KG-DRY			DA*NANFTS1*23		2500	2200	88	81-117	
TOLUENE-D(8)	UG/KG-DRY			DA*NANFTS4*8		2500	1900	76	81-117	*
TOLUENE-D(8)	UG/KG-DRY			DA*NANFTS4*26		2500	2000	80	81-117	*
TOLUENE-D(8)	UG/KG-DRY			DA*NANFTS4*14		2500	1800	72	81-117	*
TOLUENE-D(8)	UG/KG-DRY			DA*NANFTS4*12		2500	2100	84	81-117	
TOLUENE-D(8)	UG/KG-DRY			DA*NANFTS1*15		2500	1900	76	81-117	*
TOLUENE-D(8)	UG/KG-DRY			DA*NANFTS1*14		2500	2000	80	81-117	*
TOLUENE-D(8)	UG/KG-DRY			DA*NANFTS1*13		2500	2100	84	81-117	
TOLUENE-D(8)	UG/KG-DRY			DA*NANFTS4*24		2500	2000	80	81-117	*
TOLUENE-D(8)	UG/KG-DRY			DA*NANFTS1*59	10/16/89	2500	2100	84	81-117	
TOLUENE-D(8)	UG/KG-DRY			DA*NANFTS4*4		2500	2300	92	81-117	
TOLUENE-D(8)	UG/KG-DRY			DA*NANFTS4*18		2500	2400	96	81-117	
TOLUENE-D(8)	UG/L	98810*SUR	G9593	MB*1009*01	10/09/89	50	50	100	88-110	
TOLUENE-D(8)	UG/L			SP1*1009*01		50	74	150	88-110	*
TOLUENE-D(8)	UG/L			MB*1010*01		50	42	84	88-110	*
TOLUENE-D(8)	UG/L			DA*NANFTW1*1	10/11/89	50	46	92	88-110	
TOLUENE-D(8)	UG/L			DA*NANFTW1*2	10/10/89	50	47	94	88-110	
TOLUENE-D(8)	UG/L			SP1*1010*01		50	50	100	88-110	

* INDICATES OUTLIERS WHICH ARE SUMMARIZED IN OUTLIER SUMMARY.

APPENDIX J

Chain of Custodies

Hunter/ESE, Inc. 02-19-90 *** FIELD LOGSHEET *** FIELD GROUP: NANFTS5 3/14
PROJECT NUMBER 94025 0205 PROJECT NAME: NAVY - FTC - SOIL LAB COORD. JEFF SHAMIS RB

ESE #	SITE/STA FD#	HAZ?	FRACTIONS(CIRCLE)	DATE	TIME	PARAMETER LIST	
*1			SS SV			SVTPHM	
*2	MW 19		SS SV	2-26-90	~~12:57~~ 12:40	SVTPHM	0-5' COMPOSITE
*3			SS SV			SVTPHM	
*4			SS SV			SVTPHM	
*5			SS SV			SVTPHM	
*6			SS SV			SVTPHM	
*7			SS SV			SVTPHM	
*8			SS SV			SVTPHM	
*9			SS SV			SVTPHM	
*10			SS SV			SVTPHM	
*11			SS SV			SVTPHM	
*12			SS SV			SVTPHM	
*13			SS SV			SVTPHM	
*14			SS SV			SVTPHM	
*15			SS SV			SVTPHM	

NOTE -CHANGE OR ENTER SITE ID AS NECESSARY; UP TO 9 ALPHANUMERIC CHARACTERS MAY BE USED
-CIRCLE FRACTIONS COLLECTED. ENTER DATE,TIME,FIELD DATA (IF REQUIRED), HAZARD CODE AND NOTES
-HAZARD CODES: I-IGNITABLE C-CORROSIVE R-REACTIVE T-TOXIC WASTE H-OTHER ACUTE HAZARD: IDENTIFY SPECIFICS IF KNOWN
-PLEASE RETURN COMPLETED LOGSHEETS WITH SAMPLES TO Hunter/ESE, Inc.

RELINQUISHED BY: (NAME/ORGANIZATION/DATE/TIME)	VIA:	REC'D BY (NAME/ORGANIZATION/DATE/TIME)
1 C. Bowers/ESE/2-27-90/	FED EX.	V-Pham CAS ESE 2-28 1500
2		
3		

SAMPLER: MORE SAMPLES TO BE SHIPPED? Y IF YES, ANTICIPATED # ___ TO SHIP ON 2/28/90
SAMPLE CUSTODIAN: Custody Seals Intact? ✓ Samples Iced? ✓ Preservations Audited? N Problems? N

Hunter/ESE, Inc. 02-19-90 *** FIELD LOGSHEET *** FIELD GROUP: NANFTW2 3/14
PROJECT NUMBER 94025 0705 PROJECT NAME: NAVY - FTC LAB COORD. JEFF SHAMIS

ESE #	SITE/STA	HAZ?	FRACTIONS(CIRCLE)	DATE	TIME	PARAMETER LIST
*15			FI FI VP VP VP XP XP			VTPHTX
*16			FI FI VP VP VP XP XP			VTPHTX
*17			FI FI VP VP VP XP XP			VTPHTX
*18			FI FI VP VP VP XP XP			VTPHTX
*19			FI FI VP VP VP XP XP			VTPHTX
*20			FI FI VP VP VP XP XP			VTPHTX
*21			FI FI VP VP VP XP XP			VTPHTX
*22			FI FI VP VP VP XP XP			VTPHTX
*23			FI FI VP VP VP XP XP			VTPHTX
*24			FI FI VP VP VP XP XP			VTPHTX
*25			FI FI VP VP VP XP XP			VTPHTX
*26			FI FI VP VP VP XP XP			VTPHTX
*27			FI FI VP VP VP XP XP			VTPHTX
*28	MW-6		FI FI VP VP VP XP XP	2-27-90	17:47 17:53	VTPHTX

NOTE -CHANGE OR ENTER SITE ID AS NECESSARY: UP TO 9 ALPHANUMERIC CHARACTERS MAY BE USED
-CIRCLE FRACTIONS COLLECTED. ENTER DATE/TIME, FIELD DATA (IF REQUIRED), HAZARD CODE AND NOTES
-HAZARD CODES: I-IGNITABLE C-CORROSIVE R-REACTIVE T-TOXIC WASTE H-OTHER ACUTE HAZARD: IDENTIFY SPECIFICS IF KNOWN
-PLEASE RETURN COMPLETED LOGSHEETS WITH SAMPLES TO Hunter/ESE, Inc.

RELINQUISHED BY: (NAME/ORGANIZATION/DATE/TIME)	VIA:	REC'D BY (NAME/ORGANIZATION/DATE/TIME)
1 C. Bowles/ESE/2-27-90/	FEDEX	V. Prem OAD ESE 2 28 1500
2		
3		

SAMPLER: MORE SAMPLES TO BE SHIPPED? Y IF YES, ANTICIPATED # ___ TO SHIP ON 2/28/90

Hunter/ESE, Inc. 02-19-90 *** FIELD LOGSHEET *** FIELD GROUP: NANFTW2 3/14 R
PROJECT NUMBER 94025 0205 PROJECT NAME: NAVY - FTC LAB COORD. JEFF SHAMIS

B

ESE #	SITE/STA TRPBLK	HAZ?	FRACTIONS(CIRCLE)	DATE	TIME	PARAMETER LIST	
*1			VP VP VP			WCLP	
*2	SEQPBLK		FI FI VP VP VP XP XP			VTPH	
*3	WEQPBLK		FI FI VP VP VP XP XP			VTPHTX	
*4			C C N S			NANFTW2	(FOR NUTRIENTS, METALS, SOLIDS)
*5			C C N S			NANFTW2	
*6	FD#		XP XP FI FI VP VP VP XP XP FI FI VP VP VP			VTPHTX	
*7	MW-7		XP XP FI FI VP VP VP	2-27-90	1050	VTPHTX	
*8			FI FI VP VP VP XP XP			VTPHTX	
*9	MW-9		XP XP FI FI VP VP VP	2-27-90	13:15 13:23	VTPHTX	
*10	MW-10		XP XP FI FI VP VP VP	2-27-90	12:25 12:34	VTPHTX	
*11			FI FI VP VP VP XP XP			VTPHTX	
*12			FI FI VP VP VP XP XP			VTPHTX	
*13			FI FI VP VP VP XP XP			VTPHTX	
*14			FI FI VP VP VP XP XP			VTPHTX	

NOTE -CHANGE OR ENTER SITE ID AS NECESSARY; UP TO 9 ALPHANUMERIC CHARACTERS MAY BE USED
-CIRCLE FRACTIONS COLLECTED. ENTER DATE,TIME,FIELD DATA (IF REQUIRED), HAZARD CODE AND NOTES
-HAZARD CODES: I-IGNITABLE C-CORROSIVE R-REACTIVE T-TOXIC WASTE H-OTHER ACUTE HAZARD; IDENTIFY SPECIFICS IF KNOWN
-PLEASE RETURN COMPLETED LOGSHEETS WITH SAMPLES TO Hunter/ESE, Inc.

RELINQUISHED BY: (NAME/ORGANIZATION/DATE/TIME)	VIA:	REC'D BY (NAME/ORGANIZATION/DATE/TIME)
1 C. Bowers/ESE/2-27-90/	FED. EX.	V. Pum O&D ESE 2-28 1500
2		
3		

SAMPLER: MORE SAMPLES TO BE SHIPPED? Y IF YES, ANTICIPATED # ___ TO SHIP ON 2/28/90
SAMPLE CUSTODIAN: Custody Seals Intact? ✓ Samples Iced? ✓ Preservations Audited? ✓ Problems? N

HUNTER/ESE, INC. 02-21-90 *** FIELD LOGSHEET *** FIELD GROUP: NANFTS6

PROJECT NUMBER 94025 0205 PROJECT NAME: NAVY FTC OIL LAB COORD. JEFF SHAMES

RB

ESE #	SITE/STA HAZ?	FRACTIONS(CIRCLE)	DATE	TIME	FOLDER ID
*1	FDH	SS SV			NANFTS6
*2		SS SV			NANFTS6
*3		SS SV			NANFTS6
*4		SS SV			NANFTS6
*5	MW-5	SS SV	2-27-90	~~13:24~~ 13:30	NANFTS6
*6		SS SV			NANFTS6
*7		SS SV			NANFTS6
*8		SS SV			NANFTS6
*9		SS SV			NANFTS6
*10		SS SV			NANFTS6
*11		SS SV			NANFTS6
*12		SS SV			NANFTS6
*13		SS SV			NANFTS6
*14		SS SV			NANFTS6
*15		SS SV			NANFTS6
*16		SS SV			NANFTS6
*17		SS SV			NANFTS6
*18		SS SV			NANFTS6

NOTE -CHANGE OR ENTER SITE ID AS NECESSARY; UP TO 9 ALPHANUMERIC CHARACTERS MAY BE USED
CIRCLE FRACTIONS COLLECTED. ENTER DATE, TIME, FIELD DATA (IF REQUIRED), HAZARD CODE AND NOTES
HAZARD CODES: I-IGNITABLE C-CORROSIVE R-REACTIVE T-TOXIC WASTE H-OTHER ACUTE HAZARD, IDENTIFY SPECIFICS IF KNOWN
-PLEASE RETURN COMPLETED LOGSHEETS WITH SAMPLES TO Hunter/ESE, Inc.

RELINQUISHED BY: (NAME/ORGANIZATION/DATE/TIME)	VIA:	REC'D BY (NAME/ORGANIZATION/DATE/TIME)
1 C. Bowers/ESE/2-27-90/	FED EX.	V. Pham DAS ESE 2-28 1500
2		
3		

SAMPLER: MORE SAMPLES TO BE SHIPPED? Y IF YES, ANTICIPATED # ___ TO SHIP ON 2/28/90

SAMPLE CUSTODIAN: Custody Seals Intact? ✓ Samples Iced? ✓ Preservations Audited? N Problems? N

[illegible] 90 * FIT LOG SHEET * FIELD GROUP: NANF155

PROJECT NUMBER: 90025 0205 PROJECT NAME: NAVY FTC - SOIL LAB COORD. JEFF SHAMIS

3/16 K B

	SITE/STA HAZ FID#	FRACTIONS(CIRCLE) SS SV	DATE	TIME	PARAMETERS SVTPHM	
*1		SS SV			SVTPHM	
*2	~~[illegible]~~	~~SS SV~~	~~[illegible]~~ 2-28-90	~~[illegible]~~ 12.39	SVTPHM	~~0-5' COMPOSITE~~
*3	~~[illegible]~~ MW-17	SS SV	2-28-90 ~~2-28-90~~	16:31 ~~[illegible]~~	SVTPHM	
*4	MW-21	SS SV	2-28-90	12.05	SVTPHM	
*5		SS SV			SVTPHM	
*6		SS SV			SVTPHM	
*7		SS SV			SVTPHM	
*8		SS SV			SVTPHM	
*9		SS SV			SVTPHM	
*10		SS SV			SVTPHM	
*11		SS SV			SVTPHM	
*12		SS SV			SVTPHM	
*13		SS SV			SVTPHM	
*14		SS SV			SVTPHM	
*15	MW-20	SS SV	2-28-90	0845	SVTPHM	

NOTE CHANGE OR ENTER SITE ID AS NECESSARY; UP TO 9 ALPHANUMERIC CHARACTERS MAY BE USED
CIRCLE FRACTIONS COLLECTED. ENTER DATE, TIME, FIELD DATA (IF REQUIRED), HAZARD CODE AND NOTES
HAZARD CODES: I Ignitable C Corrosive R Reactive T Toxic Waste H Other Acute Hazard - IDENTIFY SPECIFICS IF KNOWN
PLEASE RETURN COMPLETED LOGSHEETS WITH SAMPLES TO Hunter/ESE, Inc.

RELINQUISHED BY: (NAME/ORGANIZATION/DATE/TIME)	VIA:	REC'D BY (NAME/ORGANIZATION/DATE/TIME)
1 C. Bowers / ESE / 2-28-90 / 20:00	FEDEX	V. Pierson OAS ESE 3-1 1530
2		
3		

SAMPLER: MORE SAMPLES TO BE SHIPPED? X IF YES, ANTICIPATED # TO SHIP ON 2/29/90

SAMPLE CUSTODIAN: Custody Seals Intact? ✓ Samples Iced? ✓ Preservations Audited? N Problems? N

HUNTER ESE, INC. 02-21-90 *** FIELD LOGSHEET *** FIELD GROUP: NANFTS6 3/16

PROJECT NUMBER 90025.0205 PROJECT NAME: NAVY FTC - OIL LAB COORD. JEFF SHAMIS

BR

ESE#	SITE/STA HAZ?	FRACTIONS(CIRCLE)	DATE	TIME	PARAMETER LIST	
*1	1 DIV	SS SV	2-28-90	16:20	NANFTS6	
*2	1D 78	SS SV			NANFTS6	
*3	TANK 54 Ug. DIESEL	SS SV	2-28-90	17:58	NANFTS6	
*4	MW-4	SS SV	2-28-90	16:04	NANFTS6	
*5	MW-5	SS SV	~~2-28-90~~	~~18:24~~	NANFTS6	
*6	Sun #2 ~~DIESEL~~	AFF SS SV	2-28-90	18:25	NANFTS6	TANK 54
*7		SS SV			NANFTS6	
*8		SS SV			NANFTS6	
*9	Sun. #2 DIESEL	SS SV	2-28-90	18:40	NANFTS6	TANK 54
*10		SS SV			NANFTS6	
*11		SS SV			NANFTS6	
*12		SS SV			NANFTS6	
*13		SS SV			NANFTS6	
*14		SS SV			NANFTS6	
*15		SS SV			NANFTS6	
*16		SS SV			NANFTS6	
*17		SS SV			NANFTS6	
*18		SS SV			NANFTS6	

use circled portions as IDs - 78

NOTE - CHANGE OR ENTER SITE ID AS NECESSARY; UP TO 9 ALPHANUMERIC CHARACTERS MAY BE USED
- CIRCLE FRACTIONS COLLECTED. ENTER DATE, TIME, FIELD DATA (IF REQUIRED), HAZARD CODE AND NOTES
HAZARD CODES: I-IGNITABLE C-CORROSIVE R-REACTIVE T-TOXIC WASTE H-OTHER ACUTE HAZARD. IDENTIFY SPECIFICS IF KNOWN
- PLEASE RETURN COMPLETED LOGSHEETS WITH SAMPLES TO Hunter/ESE, Inc.

RELINQUISHED BY: (NAME/ORGANIZATION/DATE/TIME)	VIA:	REC'D BY (NAME/ORGANIZATION/DATE/TIME)
1 C. Rogers / ESE / 2-28-90 / 20:00	Hand Ex	V. Prom Oab ESE 3-1 1530
2		

SAMPLER: MORE SAMPLES TO BE SHIPPED? X IF YES, ANTICIPATED # ___ TO SHIP ON 2/29/90

SAMPLE CUSTODIAN: Custody Seals Intact? ✓ Samples Iced? ✓ Preservations Audited? ✓ Problems? N

[illegible] 0 9-9 FI LC[illegible]EET ** [illegible]LD GROUP. [illegible]ANE[illegible]

PROJECT NUMBER 94025 0205 PROJECT NAME: NAVY - FTC LAB COORD. JEFF SHAMIS 3

ESE #	SITE/STA	HAZ?	FRACTIONS(CIRCLE)	DATE	TIME	PARAMETER LIST
*15			FI FI VP VP VP XP XP			VTPHTX
*16			FI FI VP VP VP XP XP			VTPHTX
*17			FI FI VP VP VP XP XP			VTPHTX
*18			FI FI VP VP VP XP XP			VTPHTX
*19			FI FI VP VP VP XP XP			VTPHTX
*20			FI FI VP VP VP XP XP			VTPHTX
*21			FI FI VP VP VP XP XP			VTPHTX
*22			FI FI VP VP VP XP XP			VTPHTX
*23			FI FI VP VP VP XP XP			VTPHTX
*24			FI FI VP VP VP XP XP			VTPHTX
*25			FI FI VP VP VP XP XP			VTPHTX
*26	MW-3		FI FI VP VP VP XP XP	2-28-90	16:56 16:57	VTPHTX
*27	MW-4		FI FI VP VP VP XP XP	2-28-90	19:28 19:18	VTPHTX
*28			FI FI VP VP VP XP XP			VTPHTX

NOTE -CHANGE OR ENTER SITE ID AS NECESSARY; UP TO 9 ALPHANUMERIC CHARACTERS MAY BE USED
-CIRCLE FRACTIONS COLLECTED. ENTER DATE,TIME,FIELD DATA (IF REQUIRED), HAZARD CODE AND NOTES
-HAZARD CODES: I-IGNITABLE C-CORROSIVE R-REACTIVE T-TOXIC WASTE H-OTHER ACUTE HAZARD; IDENTIFY SPECIFICS IF KNOWN
-PLEASE RETURN COMPLETED LOGSHEETS WITH SAMPLES TO Hunter/ESE, Inc.

RELINQUISHED BY: (NAME/ORGANIZATION/DATE/TIME)	VIA:	REC'D BY (NAME/ORGANIZATION/DATE/TIME)
1 C. Powers/ESE/2-28-90/20:00	FED EX	V. Pierm Das ESE 3-1 1530
2		
3		

SAMPLER: MORE SAMPLES TO BE SHIPPED? X IF YES, ANTICIPATED # ___ TO SHIP ON 2-29-90

HUNTER/ESE INC 02/19-90 FI LOGSHEET ** FIELD GROUP. NANFTW2
PROJECT NUMBER 94025 0205 PROJECT NAME: NAVY - FTC LAB COORD. JEFF SHAMIS

3/16 R B

ESE #	SITE/STA TRPBLK	HAZ?	FRACTIONS(CIRCLE)	DATE	TIME	PARAMETER LIST	
*1			VP VP VP			WCLP	
*2	SEQPBLK		XP XP FI FI VP VP VP			VTPH	
*3	WEQPBLK		XP XP FI FI VP VP VP			VTPHTX	
*4			C C N S			NANFTW2	(FOR NUTRIENTS, METALS, SOLIDS)
*5			C C N S			NANFTW2	
*6	FD#		XP XP XP XP FI FI VP VP VP FI FI VP VP VP			VTPHTX	
*7	FD#		XP XP XP XP FI FI VP VP VP FI FI VP VP VP			VTPHTX	
*8			XP XP FI FI VP VP VP			VTPHTX	
*9			XP XP FI FI VP VP VP			VTPHTX	
*10			XP XP FI FI VP VP VP			VTPHTX	
*11	MW-11		XP XP FI FI VP VP VP	2-28-90	12:15 12:05	VTPHTX	
*12	MW-12		XP XP FI FI VP VP VP	2-28-90	14:52 14:47	VTPHTX	
*13			XP XP FI FI VP VP VP			VTPHTX	
*14			XP XP FI FI VP VP VP			VTPHTX	

NOTE -CHANGE OR ENTER SITE ID AS NECESSARY; UP TO 9 ALPHANUMERIC CHARACTERS MAY BE USED
-CIRCLE FRACTIONS COLLECTED. ENTER DATE,TIME,FIELD DATA (IF REQUIRED), HAZARD CODE AND NOTES
-HAZARD CODES: I-IGNITABLE C-CORROSIVE R-REACTIVE T-TOXIC WASTE H-OTHER ACUTE HAZARD; IDENTIFY SPECIFICS IF KNOWN
-PLEASE RETURN COMPLETED LOGSHEETS WITH SAMPLES TO Hunter/ESE, Inc.

RELINQUISHED BY: (NAME/ORGANIZATION/DATE/TIME)	VIA:	REC'D BY (NAME/ORGANIZATION/DATE/TIME)
1 C Banks/ESE/2-28-90/20:00	FED EX	V Pham Oad ESE 3-1 1530
2		
3		

SAMPLER: MORE SAMPLES TO BE SHIPPED? X IF YES, ANTICIPATED # ___ TO SHIP ON 2/29/90
SAMPLE CUSTODIAN: Custody Seals Intact? ✓ Samples Iced? ✓ Preservations Audited? ✓ Problems? N

FIELD LOGSHEET FIELD GROUP: NANFTS5
PROJECT NAME: NAVY - FTC - SOIL LAB COORD. JEFF SHAMIS 3/16

BR

	SITE/STA NAME/STA NAME? FD#	FRACTIONS(CIRCLE)	DATE	TIME	PARAMETER LIST
*1		(SS) (SV)	3-1-90	—	SVTPHM
*2		SS SV			SVTPHM
*3		SS SV			SVTPHM
*4		SS SV			SVTPHM
*5		SS SV			SVTPHM
*6	MW-14	(SS) (SV)	3-1-90	1626	SVTPHM
*7	MW-12	(SS) (SV)	3-1-90	0830	SVTPHM
*8		SS SV			SVTPHM
*9	MW-16	(SS) (SV)	3-1-90	2024	SVTPHM
*10		SS SV			SVTPHM
*11		SS SV			SVTPHM
*12		SS SV			SVTPHM
*13	MW-15	(SS) (SV)	3-1-90	11:15	SVTPHM
*14		SS SV			SVTPHM
*15		SS SV			SVTPHM

NOTE -CHANGE OR ENTER SITE ID AS NECESSARY, UP TO 9 ALPHANUMERIC CHARACTERS MAY BE USED
-CIRCLE FRACTIONS COLLECTED. ENTER DATE, TIME, FIELD DATA (IF REQUIRED), HAZARD CODE AND NOTES
-HAZARD CODES: I-IGNITABLE C-CORROSIVE R-REACTIVE T-TOXIC WASTE H-OTHER ACUTE HAZARD: IDENTIFY SPECIFICS IF KNOWN
-PLEASE RETURN COMPLETED LOGSHEETS WIT SAMPLES TO Hunter/ESE, Inc.

RELINQUISHED BY: (NAME/ORGANIZATION/DATE/TIME	VIA:	REC'D BY (NAME/ORGANIZATION/DATE/TIME)
1 C. Bowers/ESE/3-1-90/19:45	FED EX	V. Plem QA ESE 3-2 1500
2		
3		

SAMPLER: MORE SAMPLES TO BE SHIPPED? X IF YE, ANTICIPATED ___ TO SHIP ON 3/1/90
SAMPLE CUSTODIAN: Custody Seals Intact? ✓ Saples Iced? ✓ Preservations Audited? N Problems? N

4

Hunter/ESE, Inc. 02-19-90 *** FIELD LOGSHEET *** FIELD GROUP: **NANFTW2**
PROJECT NUMBER 94025 0205 PROJECT NAME: NAVY - FTC LAB COORD. JEFF SHAMIS

3 | 16

ESE #	SITE/STA HAZ?	FRACTIONS(CIRCLE)		DATE	TIME	PARAMETER LIST
*15		XP XP	FI FI VP VP VP			VTPHTX
*16		XP XP	FI FI VP VP VP			VTPHTX
*17		XP XP	FI FI VP VP VP			VTPHTX
*18		XP XP	FI FI VP VP VP			VTPHTX
*19		XP XP	FI FI VP VP VP			VTPHTX
*20		XP XP	FI FI VP VP VP			VTPHTX
*21		XP XP	FI FI VP VP VP			VTPHTX
*22		XP XP	FI FI VP VP VP			VTPHTX
*23	MW-5	XP XP	FI FI VP VP VP	3-1-90	15:05 15:15	VTPHTX
*24	MW-1	XP XP	FI FI VP VP VP	3-1-90	12:40 12:55	VTPHTX
*25		XP XP	FI FI VP VP VP			VTPHTX
*26		XP XP	FI FI VP VP VP			VTPHTX
*27		XP XP	FI FI VP VP VP			VTPHTX
*28		XP XP	FI FI VP VP VP			VTPHTX

NOTE -CHANGE OR ENTER SITE ID AS NECESSARY; UP TO 9 ALPHANUMERIC CHARACTERS MAY BE USED
-CIRCLE FRACTIONS COLLECTED. ENTER DATE,TIME,FIELD DATA (IF REQUIRED), HAZARD CODE AND NOTES
-HAZARD CODES: I-IGNITABLE C-CORROSIVE R-REACTIVE T-TOXIC WASTE H-OTHER ACUTE HAZARD; IDENTIFY SPECIFICS IF KNOWN
-PLEASE RETURN COMPLETED LOGSHEETS WITH SAMPLES TO Hunter/ESE, Inc.

RELINQUISHED BY: (NAME/ORGANIZATION/DATE/TIME)	VIA:	REC'D BY (NAME/ORGANIZATION/DATE/TIME)
1 C. Powers / Hunter-ESE / 3-1-90 / 19:45	Fed Ex	V. Pham OAD ESE 3-2 1500
2		
3		

[illegible] / IF YES ANTICIPATED # TO SHIP ON 3/2/90

Hunter/ESE, Inc. 02-19-90 *** FIELD LOGSHEET *** FIELD GROUP: NANFTS5 3/17

PROJECT NUMBER 94025 0205 PROJECT NAME: NAVY - FTC - SOIL LAB COORD. JEFF SHAMIS

BR

ESE #	SITE/STA FD#	HAZ?	FRACTIONS(CIRCLE)	DATE	TIME	PARAMETER LIST
*1			SS SV			SVTPHM
*2			SS SV			SVTPHM
*3			SS SV			SVTPHM
*4			SS SV			SVTPHM
*5	MW-13		SS SV	3-1-90	20:40	SVTPHM
*6			SS SV			SVTPHM
*7			SS SV			SVTPHM
*8			SS SV			SVTPHM
*9			SS SV			SVTPHM
*10			SS SV			SVTPHM
*11			SS SV			SVTPHM
*12			SS SV			SVTPHM
*13			SS SV			SVTPHM
*14			SS SV			SVTPHM
*15			SS SV			SVTPHM

NOTE -CHANGE OR ENTER SITE ID AS NECESSARY; UP TO 9 ALPHANUMERIC CHARACTERS MAY BE USED
-CIRCLE FRACTIONS COLLECTED. ENTER DATE,TIME,FIELD DATA (IF REQUIRED), HAZARD CODE AND NOTES
-HAZARD CODES: I=IGNITABLE C=CORROSIVE R=REACTIVE T=TOXIC WASTE H=OTHER ACUTE HAZARD; IDENTIFY SPECIFICS IF KNOWN
-PLEASE RETURN COMPLETED LOGSHEETS WITH SAMPLES TO Hunter/ESE, Inc.

	RELINQUISHED BY: (NAME/ORGANIZATION/DATE/TIME)	VIA:	REC'D BY (NAME/ORGANIZATION/DATE/TIME)
1	M. Scrobacz / ESE / 3-2-90 / 5:30	FED Ex	V. Prem DGS ESE 3-4 1400
2			
3			

SAMPLER: MORE SAMPLES TO BE SHIPPED? ✓ IF YES, ANTICIPATED # ___ TO SHIP ON 3/5/90

SAMPLE CUSTODIAN: Custody Seals Intact? ✓ Samples Iced? ✓ Preservations Audited? N Problems? N

Hunter/ESE, Inc. 02-19-90 *** FIELD LOGSHEET *** FIELD GROUP: NANFTW2
PROJECT NUMBER 94025 0205 PROJECT NAME: NAVY - FTC LAB COORD. JEFF SHAMIS

3/19

ESE #	SITE/STA TRPBLK	HAZ?	FRACTIONS(CIRCLE)	DATE	TIME	PARAMETER LIST WCLP	
*1			VP VP VP	3-2-90			BR
*2	SEQPBLK		~~XP XP~~ FI FI VP VP VP	3-2-90	~~8:51~~ 8:46	VTPH	
*3	WEQPBLK		XP XP FI FI VP VP VP	3-2-90	~~9:16~~ 9:12	VTPHTX	
*4	MW-21		C C N S	3-2-90	~~1500~~ 1515	NANFTW2	(FOR NUTRIENTS, METALS, SOLIDS)
*5			C C N S			NANFTW2	
*6	FD#		XP XP FI FI VP VP VP XP XP FI FI VP VP VP			VTPHTX	
*7	FD#		XP XP FI FI VP VP VP XP XP FI FI VP VP VP			VTPHTX	
*8			XP XP FI FI VP VP VP			VTPHTX	
*9			XP XP FI FI VP VP VP			VTPHTX	
*10			XP XP FI FI VP VP VP			VTPHTX	
*11			XP XP FI FI VP VP VP			VTPHTX	
*12			XP XP FI FI VP VP VP			VTPHTX	
*13			XP XP FI FI VP VP VP			VTPHTX	
*14			XP XP FI FI VP VP VP			VTPHTX	

NOTE -CHANGE OR ENTER SITE ID AS NECESSARY; UP TO 9 ALPHANUMERIC CHARACTERS MAY BE USED
-CIRCLE FRACTIONS COLLECTED. ENTER DATE,TIME,FIELD DATA (IF REQUIRED), HAZARD CODE AND NOTES
-HAZARD CODES: I=IGNITABLE C=CORROSIVE R=REACTIVE T=TOXIC WASTE H=OTHER ACUTE HAZARD; IDENTIFY SPECIFICS IF KNOWN
-PLEASE RETURN COMPLETED LOGSHEETS WITH SAMPLES TO Hunter/ESE, Inc.

RELINQUISHED BY: (NAME/ORGANIZATION/DATE/TIME)	VIA:	REC'D BY (NAME/ORGANIZATION/DATE/TIME)
1 M. SKREPNICK / ESE / 3-2-90 / 15:30	FED EX	[illegible] ESE 3-4-90
2		
3		

SAMPLER: MORE SAMPLES TO BE SHIPPED? ✓ IF YES, ANTICIPATED # ___ TO SHIP ON 3/5/90
SAMPLE CUSTODIAN: Custody Seals Intact? ✓ Samples Iced? ✓ Preservations Audited? ✓ Problems? N

Hunter/ESE, Inc. 02-19-90 *** FIELD LOGSHEET *** FIELD GROUP: NANFTW2 3/19
PROJECT NUMBER 94025 0205 PROJECT NAME: NAVY - FTC LAB COORD. JEFF SHAMIS

ESE #	SITE/STA	HAZ?	FRACTIONS (CIRCLE)	DATE	TIME	PARAMETER LIST
*15			FI FI VP VP VP XP XP			VTPHTX
*16			FI FI VP VP VP XP XP			VTPHTX
*17			FI FI VP VP VP XP XP			VTPHTX
*18			FI FI VP VP VP XP XP			VTPHTX
*19	MW-19		FI FI VP VP VP XP XP	3-2-90	9:56	VTPHTX
*20	MW-20		FI FI VP VP VP XP XP	3-2-90	12:13	VTPHTX
*21	MW-21		FI FI VP VP VP XP XP	3-2-90	1440	VTPHTX
*22			FI FI VP VP VP XP XP			VTPHTX
*23			FI FI VP VP VP XP XP			VTPHTX
*24			FI FI VP VP VP XP XP			VTPHTX
*25			FI FI VP VP VP XP XP			VTPHTX
*26			FI FI VP VP VP XP XP			VTPHTX
*27			FI FI VP VP VP XP XP			VTPHTX
*28			FI FI VP VP VP XP XP			VTPHTX

NOTE -CHANGE OR ENTER SITE ID AS NECESSARY; UP TO 9 ALPHANUMERIC CHARACTERS MAY BE USED
-CIRCLE FRACTIONS COLLECTED. ENTER DATE,TIME,FIELD DATA (IF REQUIRED), HAZARD CODE AND NOTES
-HAZARD CODES: I-IGNITABLE C-CORROSIVE R-REACTIVE T-TOXIC WASTE H-OTHER ACUTE HAZARD; IDENTIFY SPECIFICS IF KNOWN
-PLEASE RETURN COMPLETED LOGSHEETS WITH SAMPLES TO Hunter/ESE, Inc.

RELINQUISHED BY: (NAME/ORGANIZATION/DATE/TIME)	VIA:	REC'D BY (NAME/ORGANIZATION/DATE/TIME)
1 M. SKOBACE / ESE / 3-2-90 / [illegible]	FED EX	[illegible] ESE 3-4 1400
2		
3		

SAMPLER: MORE SAMPLES TO BE SHIPPED? ✓ IF YES, ANTICIPATED # TO SHIP ON [illegible]

3/21

B
R

Hunter/ESE, Inc. 02-19-90 *** FIELD LOGSHEET *** FIELD GROUP: **NANFTW2**
PROJECT NUMBER 94025 0205 PROJECT NAME: NAVY - FTC LAB COORD. JEFF SHAMIS

ESE #	SITE/STA	HAZ?	FRACTIONS (CIRCLE)	DATE	TIME	PARAMETER LIST
*15	MW 15		XP XP FI FI VP VP VP	3-6-90	1200	VTPHTX
*16	MW 16		XP XP FI FI VP VP VP	3-6-90	1140	VTPHTX
*17	MW 17		XP XP FI FI VP VP VP	3-6-90	1040	VTPHTX
*18	MW 18		XP XP FI FI VP VP VP	3-6-90	1020	VTPHTX
*25	MW 02		XP XP FI FI VP VP VP	3-6-90	1640	VTPHTX
13	MW 13		XP XP FI FI VP VP VP	3-6-90	1530	VTPHTX
	MW 18		XP XP FI FI VP VP VP	3-6-90	1020	VTPHTX (VPI)
	~~MW 14~~		XP XP FI FI VP VP VP			VTPHTX
19	MW 14		XP XP FI FI VP VP VP	3-6-90	0915	VTPHTX
*24			XP XP FI FI VP VP VP			VTPHTX
*25			XP XP FI FI VP VP VP			VTPHTX
*26			XP XP FI FI VP VP VP			VTPHTX
*27			XP XP FI FI VP VP VP			VTPHTX
*28			XP XP FI FI VP VP VP			VTPHTX

clc data all updated & corrected by VPI upon receipt

NOTE -CHANGE OR ENTER SITE ID AS NECESSARY; UP TO 9 ALPHANUMERIC CHARACTERS MAY BE USED
-CIRCLE FRACTIONS COLLECTED. ENTER DATE,TIME,FIELD DATA (IF REQUIRED), HAZARD CODE AND NOTES
-HAZARD CODES: I-IGNITABLE C-CORROSIVE R-REACTIVE T-TOXIC WASTE H-OTHER ACUTE HAZARD; IDENTIFY SPECIFICS IF KNOWN
-PLEASE RETURN COMPLETED LOGSHEETS WITH SAMPLES TO Hunter/ESE, Inc.

RELINQUISHED BY: (NAME/ORGANIZATION/DATE/TIME)	VIA:	REC'D BY (NAME/ORGANIZATION/DATE/TIME)
1 Mark Skrobacz / ESE, Fairfax / 3-6-90 550pm	Fed Ex	V. Pam OGD ESE 3-7 1530
2		
3		

SAMPLER: MORE SAMPLES TO BE SHIPPED? X IF YES, ANTICIPATED # ___ TO SHIP ON 3/21/90

Hunter/ESE, Inc. 02-19-90 *** FIELD LOGSHEET *** FIELD GROUP: NANFTW2
PROJECT NUMBER 94025 0205 PROJECT NAME: NAVY - FTC LAB COORD. JEFF SHAMIS 3/30 B R

ESE #	SITE/STA	HAZ?	FRACTIONS(CIRCLE)	DATE	TIME	PARAMETER LIST	
*1	TRPBLK		VP VP VP			WCLP	
*2	SEQPBLK		~~XP XP~~ FI FI VP VP VP			VTPH	
~~*3~~ *29	WEQPBLK		XP XP FI FI VP VP VP	3/13	1300	VTPHTX	Haiden-Huber stem perm.
~~*4~~ *5	MW 22		C C N S	3/14	0915	NANFTW2	(FOR NUTRIENTS, METALS, SOLIDS)
~~*5~~			C C N S			NANFTW2	
*6	FD#		XP XP FI FI VP VP VP XP XP			VTPHTX	
*7	FD#		XP XP FI FI VP VP VP XP XP			VTPHTX	
~~*8~~ 22	MW 22		XP XP FI FI VP VP VP	3/14	0900 0905	VTPHTX	
*9			XP XP FI FI VP VP VP			VTPHTX	
*10			XP XP FI FI VP VP VP			VTPHTX	
*11			XP XP FI FI VP VP VP			VTPHTX	
*12			XP XP FI FI VP VP VP			VTPHTX	
*13			XP XP FI FI VP VP VP			VTPHTX	
*14			XP XP FI FI VP VP VP			VTPHTX	

NOTE -CHANGE OR ENTER SITE ID AS NECESSARY; UP TO 9 ALPHANUMERIC CHARACTERS MAY BE USED
-CIRCLE FRACTIONS COLLECTED. ENTER DATE,TIME,FIELD DATA (IF REQUIRED), HAZARD CODE AND NOTES
-HAZARD CODES: I-IGNITABLE C-CORROSIVE R-REACTIVE T-TOXIC WASTE H-OTHER ACUTE HAZARD; IDENTIFY SPECIFICS IF KNOWN
-PLEASE RETURN COMPLETED LOGSHEETS WITH SAMPLES TO Hunter/ESE, Inc.

RELINQUISHED BY: (NAME/ORGANIZATION/DATE/TIME)	VIA:	REC'D BY (NAME/ORGANIZATION/DATE/TIME)
1 Mark Skrobacz / ESE / 3/14 / 1030 AM	Fed-X	Chas. Giroux ESE 3/15/90 1200
2		
3		

SAMPLER: MORE SAMPLES TO BE SHIPPED? ___ IF YES, ANTICIPATED # ___ TO SHIP ON ___/___/___
SAMPLE CUSTODIAN: Custody Seals Intact? NO Samples Iced? ✓ Preservations Audited? ✓ Problems? some

Hunter/ESE, Inc. 02-21-90 *** FIELD LOGSHEET *** FIELD GROUP: ~~NANFTS6~~
PROJECT NUMBER 94025 0205 PROJECT NAME: NAVY - FTC - ~~OTE~~ SOIL LAB ~~COORD~~. JEFF SHAMIS

#	SITE/STA	HAZ?	FRACTIONS(CIRCLE)	DATE	TIME	PARAMETER LIST	
*1	~~FDH~~		SS SV			NANFTS6	
*2	MW22		SS SV	3/13	0835	NANFTS6	
*3	MW22		SS SV	3/13	0905	NANFTS6	Diff #
*4	MW22-T (top)		~~SS SV~~ organic content sieve analysis	3/13		~~NANFTS6~~	
*5	MW22-B (bottom)		~~SS SV~~ sieve analysis	3/13		~~NANFTS6~~	FTS6M
*6			SS SV organic content			NANFTS6	
*7			SS SV			NANFTS6	
*8			SS SV			NANFTS6	
*9			SS SV			NANFTS6	
*10			SS SV			NANFTS6	
*11			SS SV			NANFTS6	
*12			SS SV			NANFTS6	
*13			SS SV			NANFTS6	
*14			SS SV			NANFTS6	
*15			SS SV			NANFTS6	
*16			SS SV			NANFTS6	
*17			SS SV			NANFTS6	
*18			SS SV			NANFTS6	

NOTE: THIS IS NOT THE ORIGINAL COC FOR SOILS!

Sieve Analysis and Organic Content samples are placed in the Mason Jars w/ MW22 on the Lid which also identifies top & bottom

as received had many problems - see attached

NOTE -CHANGE ~~OR ENTER SITE~~ ID AS NECESSARY; UP TO 9 ALPHANUMERIC CHARACTERS MAY BE USED
-CIRCLE FRACTIONS COLLECTED. ENTER DATE,TIME,FIELD DATA (IF REQUIRED), HAZARD CODE AND NOTES
-HAZARD CODES: I-IGNITABLE C-CORROSIVE R-REACTIVE T-TOXIC WASTE H-OTHER ACUTE HAZARD: IDENTIFY SPECIFICS IF KNOWN
-PLEASE RETURN COMPLETED LOGSHEETS WITH SAMPLES TO Hunter/ESE, Inc.

RELINQUISHED BY: (NAME/ORGANIZATION/DATE/TIME) VIA: Fed-X REC'D BY (NAME/ORGANIZATION/DATE/TIME)

1 Mark Skrobacz / ESE / 3/14/ 1030 Am
2
3

SAMPLER: MORE SAMPLES TO BE SHIPPED? X IF YES, ANTICIPATED # 2 TO SHIP ON 3/14/90
SAMPLE CUSTODIAN: Custody Seals Intact? ___ Samples Iced? ✓ Preservations Audited? ✓ Problems? ___

SAMPLE RECORD UPDATE REQUEST

FIELD GROUP NANFTSS SAMPLE(S) _____

Please update sample records as indicated below:

	Current	Update
X Sta. I.D.	* 16 MW-T	MW-22T
__ Parameter List*	17 MW-B	MW-22B
__ Collection Date	18 MW-T	MW-22T
__ Collection Time	19 MW-B	MW-22B
__ Turnaround Time		
__ QC		
__ Comments/QC Fr.		
__ Matrix		
__ Det. Limits Spec'd?		
__ Due Date		
__ Project #		
__ Project Name		
__ Other: _____		

__ Arrival notices: ✓ distribute as per cc's __ do not distribute

__ Status: __Login __Unlog __Active __Inactive __Ongoing __Archive

* To change a 'locked' list, attach a list with required changes noted or provide clear instructions below under Comments.

Comments: per PM, Mark Skrobacz

Requested by [signature] Date 4/2/90
Lab Coordinator

Performed by _____ Date _____
Info Services

cc (Dept. Mgrs): _____ _____ _____ _____ _____ _____ _____ _____

Hunter/ESE, Inc. 02-19-90 *** FIELD LOGSHEET *** FIELD GROUP: NANFTS5 B 3/30
PROJECT NUMBER 94025 0205 PROJECT NAME: NAVY - FTC - SOIL LAB COORD. JEFF SHAMIS

ESE #	SITE/STA FD#	HAZ?	FRACTIONS(CIRCLE)	DATE	TIME	PARAMETER LIST
*1			SS SV			SVTPHM R
*2			SS SV			SVTPHM
*3			SS SV			SVTPHM
*4			SS SV			SVTPHM
*5			SS SV			SVTPHM
*6			SS SV			SVTPHM
*7			SS SV			SVTPHM
*8			SS SV			SVTPHM
*9			SS SV			SVTPHM
*10	MW-22		SS SV	3/13	835	SVTPHM
*11			SS SV		905	SVTPHM
16 ~~*12~~		-T	SS SV			~~SVTPHM~~ FTS5M
17 ~~*13~~		-B	SS SV			~~SVTPHM~~
18 ~~*14~~		-T	SS SV			~~SVTPHM~~ NA
19 ~~*15~~		-B	SS SV			~~SVTPHM~~

NOTE -CHANGE OR ENTER SITE ID AS NECESSARY; UP TO 9 ALPHANUMERIC CHARACTERS MAY BE USED
-CIRCLE FRACTIONS COLLECTED. ENTER DATE,TIME,FIELD DATA (IF REQUIRED), HAZARD CODE AND NOTES
-HAZARD CODES: I-IGNITABLE C-CORROSIVE R-REACTIVE T-TOXIC WASTE H-OTHER ACUTE HAZARD; IDENTIFY SPECIFICS IF KNOWN
-PLEASE RETURN COMPLETED LOGSHEETS WITH SAMPLES TO Hunter/ESE, Inc.

RELINQUISHED BY: (NAME/ORGANIZATION/DATE/TIME)	VIA:	REC'D BY (NAME/ORGANIZATION/DATE/TIME)
1		Chas. Fine ESE 3/15/90 1200
2		
3		

SAMPLER: MORE SAMPLES TO BE SHIPPED? ___ IF YES, ANTICIPATED # ___ TO SHIP ON ___/___/___
SAMPLE CUSTODIAN: Custody Seals Intact? NO Samples Iced? ✓ Preservations Audited? ✓ Problems? yes

- Logsheets had many discrepancies and were not accurate.
This logsheet has been written up to correct the problems.

Hunter/ESE, Inc. 02-19-90 *** FIELD LOGSHEET *** FIELD GROUP: NANFTW2
PROJECT NUMBER 94025 0205 PROJECT NAME: NAVY - FTC LAB COORD. JEFF SHAMIS 4/19

ESE #	SITE/STA	HAZ?	FRACTIONS(CIRCLE)	DATE	TIME	PARAMETER LIST	
*29			FI FI VP VP VP XP XP			VTPHTX	R
*30			FI FI VP VP VP XP XP			VTPHTX	
~~*31~~ 30	MW 14		~~FI FI VP VP VP~~ C C C S (N)	3/30/90	1035	~~VTPHTX~~ NANFTW2	HAVE BEEN ON ICE SINCE IT WAS COLLECTED
~~*32~~ 31	MW14F		~~XP XP~~ ~~FI FI VP VP VP~~ C (F) S (F) (N)	3/30/90		~~VTPHTX~~ NANFTW2	Please Filter !!
*33			FI FI VP VP VP XP XP			VTPHTX	
*34			FI FI VP VP VP XP XP			VTPHTX	(received very late!)
*35			FI FI VP VP VP XP XP			VTPHTX	
*36			FI FI VP VP VP XP XP			VTPHTX	(for comparative purposes re filtration)
*37			FI FI VP VP VP XP XP			VTPHTX	
*38			FI FI VP VP VP XP XP			VTPHTX	
*39			FI FI VP VP VP XP XP			VTPHTX	
*40			FI FI VP VP VP XP XP			VTPHTX	

NOTE -CHANGE OR ENTER SITE ID AS NECESSARY; UP TO 9 ALPHANUMERIC CHARACTERS MAY BE USED
-CIRCLE FRACTIONS COLLECTED. ENTER DATE,TIME,FIELD DATA (IF REQUIRED), HAZARD CODE AND NOTES
-HAZARD CODES: I-IGNITABLE C-CORROSIVE R-REACTIVE T-TOXIC WASTE H-OTHER ACUTE HAZARD; IDENTIFY SPECIFICS IF KNOWN
-PLEASE RETURN COMPLETED LOGSHEETS WITH SAMPLES TO Hunter/ESE, Inc.

RELINQUISHED BY: (NAME/ORGANIZATION/DATE/TIME)	VIA: Fed EX	REC'D BY (NAME/ORGANIZATION/DATE/TIME)
1 Mark Sikolay / ESE / 4-4-90 / 4:00		V. Prem Oad ESE 4-5 1530
2		
3		

SAMPLER: MORE SAMPLES TO BE SHIPPED? ___ IF YES, ANTICIPATED # ___ TO SHIP ON ___/___/___
SAMPLE CUSTODIAN: Custody Seals Intact? ✓ Samples Iced? ✓ Preservations Audited? ✓ Problems? N