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NAB LITTLE CREEK
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TECHNICAL MEMORANDUM RESULTS OF FIELD SCREENING AT SITE 17 NAB LITTLE CREEK VA
4/30/2002
CH2MHILL

Results of Field Screening at Site 17

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Introduction and methods

A site screening investigation of the surface soil was conducted at Site 17 to define the extent of contamination and note the location of any hot spots. A grid was imposed over a 50 x 50-foot area thought to be the limits of the contamination. Grid lines (running approximately N-S and E-W) were then established every 5 feet (Figure 1).

The site was found to contain a top layer of loose pea gravel ranging from 6 inches to 12 inches, underneath which exists a hard packed gravel layer extending approximately 12 inches. The hard packed layer grades into a dark brown to black sandy soil of approximately 6 inches and then to a dense reddish brown clay layer.

A power auger was advanced into the soil to penetrate the hard packed gravel layer. A hand auger was then used to extract the screening sample. It should be noted that the power auger was not able to penetrate below the compacted gravel layer in all locations, most notably in proximity to the road where gravel tended to be larger and more angular.

Initial screening was conducted at 10 foot intervals (over grid intersections) using the head space screening method. To define the vertical extent and thickness of contamination, the soil was screened at two intervals, 0-6 inches and 6–12 inches below the bottom of the gravel horizon. Zero depth for screening samples was established at the bottom of the hard packed gravel layer (Figure 2). Soil screening samples were then placed into an airtight plastic bag and massaged to desegregate the soil and maximize the volatilization. Each bag was left for approximately 15 minutes to allow for volatilization.

A photoionization detector (PID) was then used to make an initial assessment of the soil contamination. After allowing the samples to volatilize, a small incision was made in the bag and the PID was inserted. The highest PID reading was entered into the logbook for each interval.

To obtain good resolution of the lateral extent of the contamination subsequent screenings were performed where high PID readings were noted. Head space screenings were taken on grid points immediately adjacent to those with readings greater than or equal to 50 parts per million (ppm). Screenings were performed in all directions of "hot spots" to define their boundaries. In addition several spots well to the north and west (10 to 25 feet) of the grid area were investigated to confirm the estimated limits of the contaminated area.

Based upon the PID readings, the TPH contamination is limited to the north-central portion of the grid area. Two hot spots (PID readings greater than 100ppm) were noted within this contaminated area. Four samples were taken in the area of the two hot spots and analyzed for total petroleum hydrocarbons (TPH), Diesel Range Organics (DRO) by SW 846 Method 8015B. The samples taken for TPH analysis were collected using a method similar to that of the screening, however the samples were placed in soil sampling jars. Samples were collected from two depth intervals, 0-6 inches and 6-12 inches from below the bottom of the gravel layer.

Analytical Results

Results of analytical testing indicate TPH-DRO concentrations ranging from non-detect (at 11 mg/kg) to 2,800 mg/kg. Three samples were non-detect, ~~one sample was estimated at~~ the detection limit. The four remaining samples ranged from 930 mg/kg to 2,800 mg/kg. Table 1 provides a complete listing of the sample results.

These results are consistent with those found during the PSI conducted by Ebasco Services, Inc. in 1991. TPH was detected in one surface soil sample at a concentration of 2,750 mg/kg during this investigation and was limited to small area (4 feet square). This limited area of contamination was confirmed by visible oil-stained soil.

During this Site Screening conducted in 2002 to determine the presence of residual contamination at Site 17, no signs of stained soils were evident. The area thought to be affected by former operations at the site has been nearly entirely covered with gravel.

Table 1
CTO 159
Site 17
Surface and Subsurface Soil Detections
NAB Little Creek

				LS17-SB01-01-02B	LS17-SB02-01-02B	LS17-SB03-01-02B	LS17-SB04-01-02B	LS17-SS01-00-02B	LS17-SS02-00-02B	LS17-SS03-00-02B	LS17-SS04-00-02B
Sample Date				04/11/2002	04/11/2002	04/11/2002	04/11/2002	04/11/2002	04/11/2002	04/11/2002	04/11/2002
Chemical Name	**Frequency**	**Max Value**	**Max Location**								
Total Petroleum Hydrocarbons (MG/KG)											
DIESEL	5 / 8	2,800	LS17-SS01-00-02B	11 J	11 U	11 U	11 U	2,800	930	930	1,200

Notes:
Indicates Detection
J - Analyte Present. Reported Result may not be accurate or precise.
U - Not Detected.

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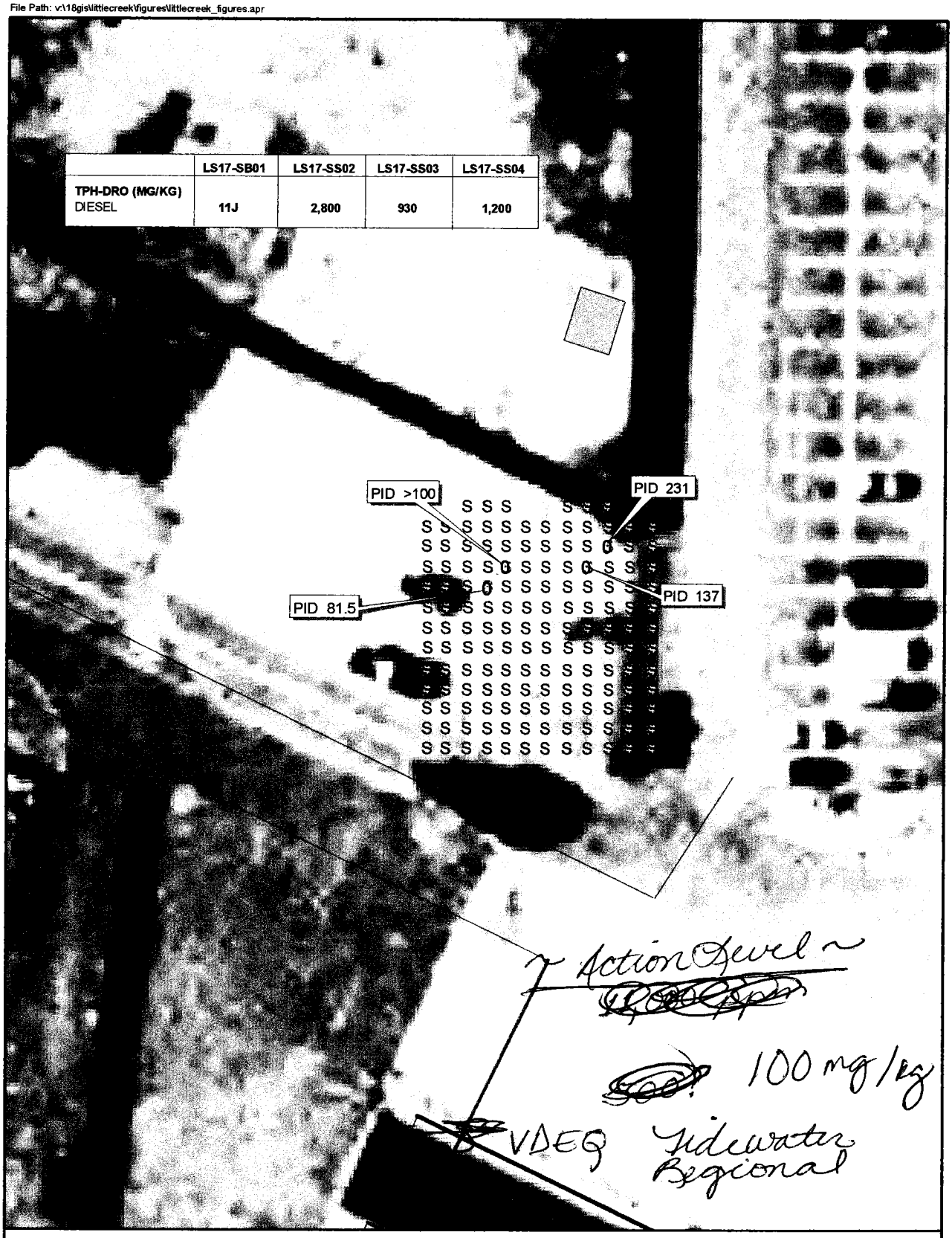

	LS17-SB01	LS17-SS02	LS17-SS03	LS17-SS04
TPH-DRO (MG/KG) DIESEL	11J	2,800	930	1,200

LEGEND

S Grid Point

0 Soil Sample Location

N

0 30 60 Feet

Figure 1
Site 17 Grid Points
NAB Little Creek
Virginia Beach, Virginia

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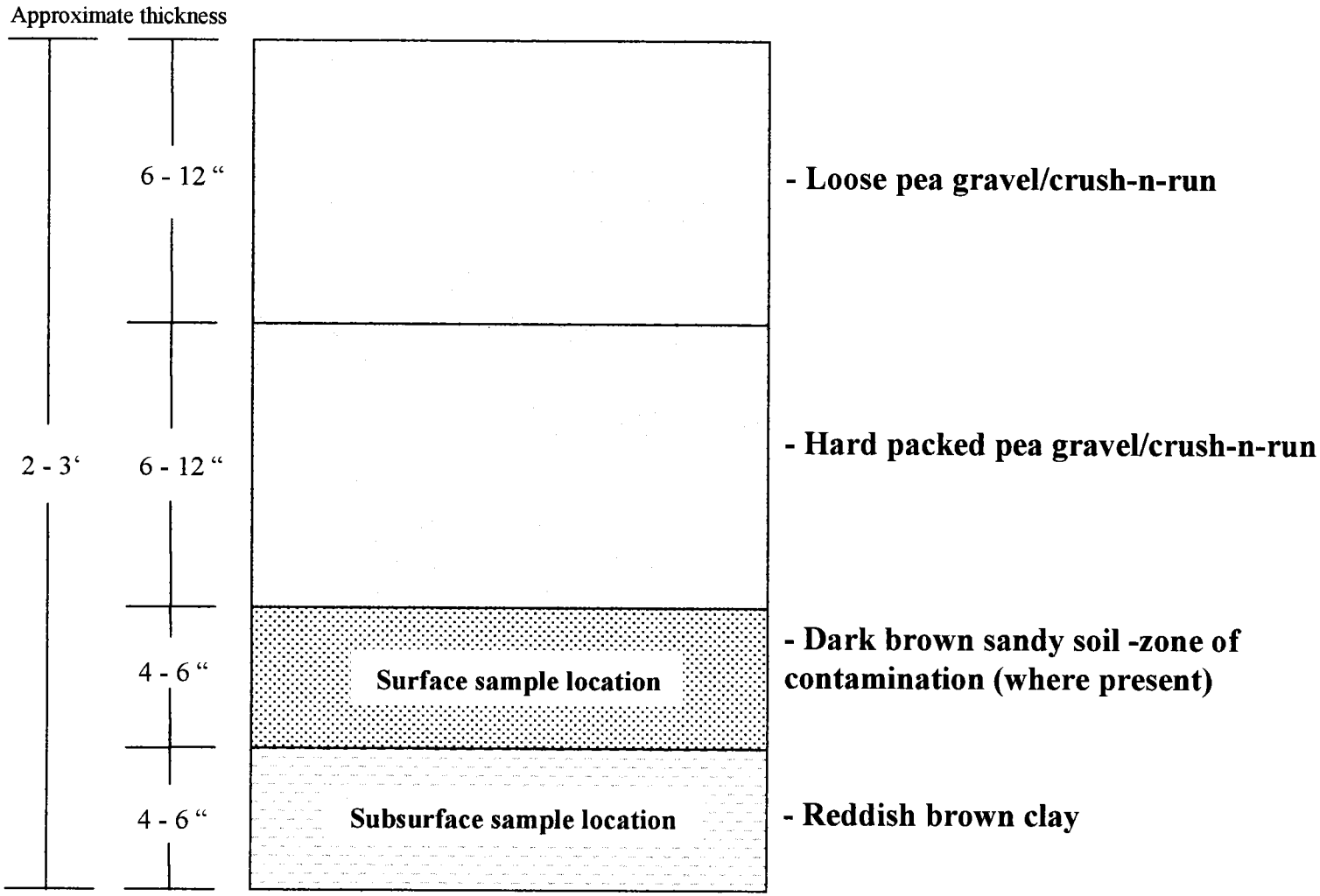

Figure 2
Site 17 Results of Field Screening
Soil cross section
NAB Little Creek
Virginia Beach, VA

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