



DEPARTMENT OF THE ARMY
BASE REALIGNMENT AND CLOSURE
ATLANTA FIELD OFFICE
BRAC ENVIRONMENTAL COORDINATOR
HAMILTON ARMY AIRFIELD
1 BURMA ROAD
NOVATO, CALIFORNIA 94949



March 28, 2006

DAIM-BO-A-HA

SUBJECT: Forwarding the final *Groundwater Monitoring Report Fall 2005 Sampling Event POL Hill; Hamilton Army Airfield; Novato, CA.*

Ms. Naomi Feger
CA Regional Water Quality Control Board
1515 Clay Street, Suite 1400
Sacramento, CA 94612

Dear Ms. Feger:

The Army is pleased to provide the final *Groundwater Monitoring Report Fall 2005 Sampling Event POL Hill; Hamilton Army Airfield; Novato, CA* for your files. This report summarizes the results of the November 2005 groundwater sampling event.

If you have any questions, please contact me at (415) 883-6386.

Sincerely,

Edward Keller, P.E.
Hamilton Army Airfield
BRAC Environmental Coordinator

Enclosure
Copies Furnished:

L. McMahan (DTSC)
R. Zimy (USACE)
BRAC Office Files
City of Novato

**GROUNDWATER MONITORING REPORT
FALL 2005 SAMPLING EVENT
POL HILL
HAMILTON ARMY AIRFIELD
NOVATO, CALIFORNIA**



Final

Prepared By:



**US Army Corps
of Engineers** ®

Sacramento District

Environmental Design Section

Prepared for:



**Department
Of the Army**

March, 2006

EXECUTIVE SUMMARY

This report summarizes the results of the fall 2005 (November) groundwater sampling and analysis that were completed as part of the groundwater-monitoring program at the POL Hill site at the former Hamilton Army Airfield (HAAF), Novato, California. The purpose of the groundwater-monitoring program at the POL Hill site is to confirm that the known petroleum hydrocarbon contamination in the ground water is not migrating off-site and to monitor natural attenuation parameters.

Groundwater samples were collected from seven monitoring wells on 9 November 2005. The samples were analyzed for total petroleum hydrocarbons measured as purgeable and extractable, methane, total alkalinity, ferrous iron, oxidation/reduction potential (Eh), and dissolved oxygen (DO). Field parameters, temperature, pH, and turbidity were also measured and recorded.

Groundwater elevations measured during this sampling event generally were consistent with previous findings.

The results of the POL Hill Monitoring Program indicate a continuing trend to lower TPH values in the groundwater. The concentration of total TPH (summed extractable and purgeable range hydrocarbons) measured in groundwater at POL Hill has been less than the GSA Phase I residential cleanup goal (RCG) of 1.8 mg/L (0.6 mg/l TPH-gas RCG & 1.2 mg/l TPH diesel/JP-4 RCG combined) for the last three sampling events including the November 2005 event.

Based on the sampling results, the US Army recommends discontinuing POL Hill well monitoring and closure of these wells by proper abandonment. The Army will request site closure in accordance with the Interim Guidance on Required Cleanup at Low Risk Fuel Sites (RWQCB, 1996)

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LIST OF ACRONYMS

AST	Aboveground Storage Tank
bgs	below ground surface
BRAC	Base Realignment and Closure
BTEX	Benzene, toluene, ethylbenzene, and xylenes
DO	Dissolved oxygen
DQO	Data Quality Objectives
Eh	Oxidation/Reduction Potential
EPA	(United States) Environmental Protection Agency
Gal	Gallon
gpd	Gallons per day
HAAF	Hamilton Army Airfield
IDW	Investigation-Derived Waste
JP	Jet propellant
MS	Matrix spike
MSD	Matrix spike duplicate
MSL	Mean Sea Level
PNA	Polynuclear aromatic hydrocarbon
POL	Petroleum, Oil, and Lubricant
QA	Quality assurance
QC	Quality control
SAP	Sampling and Analysis Plan
TPH	Total petroleum hydrocarbons
UST	Underground storage tank
VOA	Volatile organic analysis
VOC	Volatile organic compound

GROUNDWATER MONITORING REPORT
POL HILL
HAMILTON ARMY AIRFIELD
NOVATO, CALIFORNIA

1.0 INTRODUCTION

This report summarizes the groundwater monitoring results at the POL Hill site located at the former Hamilton Army Airfield (HAAF), Novato, California for the November 2005 sampling event. It also includes results from previous sampling events that were completed as part of the groundwater-monitoring program at the Petroleum, Oil, and Lubricant (POL) Hill site. A site map is shown in Figure 1. The objective of the groundwater-monitoring program is to ensure that the known petroleum hydrocarbon contamination in groundwater is not migrating off-site and to monitor the natural attenuation parameters.

During this event, groundwater samples were collected from seven monitoring wells (MW-POLA-121, PL-MW-101, PL-MW-103, PL-MW-104, PL-MW-114, PL-MW-115, and PL-MW-116) on 09 November 2005. A well location map is shown in Figure 2. A detailed summary of the well construction for the POL Hill groundwater monitoring wells is included in Table 1. Groundwater monitoring activities included the following tasks:

- Depth to groundwater was measured, and water table elevations were determined, and
- Groundwater samples were collected, and parameters were measured in the field for turbidity, temperature, specific conductivity, and pH.
- Samples were analyzed in the fixed laboratory for TPH both as purgeable and as extractable, methane, total alkalinity, ferrous iron, oxidation/reduction potential (Eh), and dissolved oxygen (DO).

The groundwater-monitoring event was performed in accordance with the *Final Work Plan* prepared by SOTA Environmental Technology (SOTA), dated 2001.

A summary of the groundwater monitoring procedures is described in Section 2.0, sample analyses, quality assurance and quality control procedures are described in Section 3.0, laboratory analytical results are presented in Section 4.0, and a summary in Section 5.0.

2.0 FIELD SAMPLING PROCEDURES

2.1 Monitoring Well Inspection and Water Level Measurements

Water levels were measured in monitoring wells PL-MW-101, PL-MW-103, PL-MW-104, PL-MW-114, PL-MW-115, PL-MW-116, and MW-POLA-121 on 09 November 2005. Each well was visually inspected for its integrity prior to purging and sampling. All field notes were recorded in the field logbook. Observations regarding the conditions of the well cover, casing cover, locking mechanism, and other miscellaneous remarks were documented in the groundwater monitoring logs. The well water was checked visually for free product.

Using an electronic water level meter, the depth to groundwater was measured from a permanent measuring point marked on the top of each PVC casing, and recorded on the groundwater monitoring logs. Groundwater elevations are summarized in Table 2.

2.2 Groundwater Sample Collection Procedures

Groundwater samples were collected from seven selected monitoring wells (PL-MW-101, PL-MW-103, PL-MW-104, PL-MW-114, PL-MW-115, PL-MW-116, and MW-POLA-121) at the POL Hill site. After the static water level was measured, each well was purged using a low flow peristaltic pump until the field parameters stabilized (pH, conductivity, turbidity, specific conductivity, and DO, and temperature). The parameters were measured using a QED MP20 flow cell. The sampling order began with wells having the least contamination historically and progressed to the most contaminated monitoring wells.

All sample bottles were labeled, and immediately placed in a cooler with ice at 4 ± 2 degrees Celsius. Each cooler included a temperature blank.

2.3 Decontamination Procedures

Sampling equipment used in the collection of groundwater samples at the POL Hill site was decontaminated prior to use according to the procedures detailed in the Work Plan. The water quality meter, water level indicator, and low flow pump were decontaminated prior to and after each well sampling activity. The flexible tubing used in conjunction with sampling was discarded following the collection of samples from each monitoring well.

2.4 Investigation-Derived Waste

Approximately eight gallons of investigation-derived waste (IDW) was generated during the groundwater-monitoring event from decontamination procedures and well purging. IDW water was placed into a 55-gallon drum in the Landfill 26 treatment plant.

3.0 SAMPLE ANALYSIS AND QUALITY ASSURANCE/QUALITY CONTROL

The Army performed the November 2005 sampling event according to the Work Plan for groundwater monitoring at POL Hill. *Final Work Plan, Groundwater Monitoring, POL HILL, Hamilton Army Airfield, Novato, California*, SOTA Environmental Technology, Inc. October 31, 2001

3.1 Analytical Laboratory

Agriculture & Priority Pollutants Laboratories (APPL) of Fresno, California, analyzed the groundwater samples collected by the USACE. Groundwater samples collected were submitted to the laboratory in acceptable condition with appropriate chain-of-custody documentation.

3.2 Analytical Methods

The laboratory analytical methods and results are presented in Section 4.2 and Table 3.

3.3 Field and Laboratory Quality Control Samples

The field duplicate (PL-MW-130) was collected at PL-MW-103. Field matrix spike (MS) and the matrix spike duplicate (MSD) samples were collected at PL-MW-103. The QC samples were handled and transported in the same manner as the primary groundwater monitoring well samples. Field and laboratory quality control samples (including surrogate compound, laboratory control and duplicate, field MS and MSD) are presented in Section 4.8.

3.4 Data Verification and Validation

The purpose of data verification and validation is to ensure that the data collected meet the data quality objectives (DQOs), and that the data are of sufficient quality to meet the objectives outlined in the Work Plan. The data meet the DQOs and project objectives. The data verification and validation reports are included as Appendix C.

3.5 Field and Laboratory QC Sample Results

All QC parameters were within acceptance criteria. Results of surrogate compound, laboratory control sample and duplicate, field MS and MSD, and method blank analysis were within the project quality control limits. Overall, the data can be used for the purpose of evaluating trends.

4.0 GROUNDWATER MONITORING RESULTS

This section summarizes the results of the November 2005 groundwater monitoring event, including groundwater gradient, flow direction, and analytical results.

4.1 Groundwater Elevations and Gradient

The depth to groundwater and corresponding groundwater elevations measured in the seven POL Hill monitoring wells during this and previous monitoring events are summarized in Table 2. Free product or phase-separated product was not observed in any well.

Compared to measurements made in March 2005, static water levels dropped in four wells and rose slightly in three wells, with a range from -11.95-feet (MW-POLA -121) to +0.57-feet (PL-MW-103). The wet season typically extends from November through March, during which rainfall averages 4-7 inches per month, and results in an elevated groundwater table and some surface ponding. However, November 2005 was relatively dry and the measured water levels during this event, on average, are lower than the measurements made in February and March 2005.

A groundwater gradient map was prepared based on the November 2005 groundwater elevation measurements, and is presented in Figure 3.

Consistent with previous groundwater elevation data, the water table generally mimics site topography, in that groundwater flows from high to low elevations, suggesting that groundwater at the site occurs under unconfined conditions. Previous monitoring data indicate that the water levels did not rise or fall uniformly in all wells, suggesting factors, such as fractures in the bedrock, possibly influence the groundwater level. Fractured bedrock was observed during drilling and soil sampling at most of the monitoring wells. Based on previous data, an upward hydraulic gradient may also exist between deep and shallow units.

4.2 Groundwater Analytical Results

Groundwater samples were analyzed and measured for the following parameters: TPH-purgeable, TPH-extractable, methane, ferrous iron, sulfate, total alkalinity, Eh, DO, pH, field turbidity and temperature. The November 2005 analytical results and field measurements are presented in Table 3 and Figure 4.

4.3 Total Petroleum Hydrocarbons - Purgeable and Extractable

The TPH-purgeable results were quantitated against the gasoline standard ranging from C6 to

C12. The TPH-extractable results were quantitated against the diesel and motor oil standards ranging from C10 to C40. The extent of detected TPH is shown in Figure 5. In addition, a summary of organic chemical concentrations and TPH contours in groundwater at the site of the current and previous sampling events are presented in Table 4 and Figures 5 through 8.

TPH-extractable and TPH-purgeable concentrations were detected in one of the wells (PL-MW-101) and were not detected in the other six wells (PL-MW-103, PL-MW-104, PL-MW-114, PL-MW-115, PW-MW-116, and MW-POLA-121).

The combined TPH-extractable and purgeable concentration (930 ug/L) in well PL-MW-101 was slightly higher than reported for March 2005. The concentrations in the other six wells (PL-MW-103, PL-MW-104, PL-MW-114, PL-MW-115, PL-MW-116, and MW-POLA-121) were not detected at the 50 mg/L reporting limit.

4.4 Geochemical Parameters

No significant variations in groundwater pH were identified at the site during the November 2005 sampling event from those observed during previous events. The pH was close to neutral and ranged from 6.35 (PL-MW-114) to 8.13 (PL-MW-115). The Ph values were slightly higher in wells PL-MW-104 and PL-MW-115 and dropped slightly in the other five wells. The temperature was ranged from 18.3°C to 22.3°C. These temperatures and pH conditions are favorable for natural attenuation of groundwater contamination through biodegradation.

Geochemical parameters for concentrations in groundwater samples collected during the current and previous sampling events are presented in Table 5. The concentrations of DO, Eh, and methane reported for the November 2005 samples are shown in Figures 9 through 11.

4.5 Dissolved Oxygen

Aerobic biodegradation decreases the available DO in groundwater and provides an indicator of fuel biodegradation. However, it is difficult to collect representative DO and Eh readings when monitoring wells do not recharge adequately during purging and sampling. Excessive drawdown (greater than 5 percent) of the standing water in the well during the purge cycle tends to aerate the well water and inflate the DO and Eh readings. The POL Hill wells are screened in very low permeability bedrock, and aeration of the well water during purging cycle may be a problem with most of the wells. During this event, the measured DO concentrations ranged from 0.43 mg/L (MW-POLA-121) to 4.70 mg/L (PL-MW-103) at the

wells as shown in Table 3.

4.6 Oxidation/Reduction Potential

Generally, negative Eh values strongly indicate a reducing condition, possibly due to the anoxic or anaerobic degradation in groundwater. Positive Eh values indicate an oxidizing condition that is favorable to aerobic degradation. The reported Eh concentrations for this event ranged from -116.0 mv (PL-MW-104) to +114.0 mv (PL-MW-116) at the wells.

4.7 Methane

Methane was detected in wells PL-MW-101 (5.9 mg/L), PL-MW-103 (0.018 mg/L), PL-MW-104 (0.67 mg/L), PL-MW-114 (0.014 mg/L), and MW-POLA-121 (0.020 mg/L). No methane was found in wells PL-MW-115 and PL-MW-116. These data are consistent with the results from the previous events. The methane detections in the five wells may be indicative of natural attenuation occurring by anaerobic biodegradation of methanogenic respiration occurring in groundwater near the former AST-2.

4.8 Field and Laboratory QC Sample Results

All field QC sample results were within the project quality control limits. The temperature blanks in each cooler were within $4^{\circ}\text{C} \pm 2^{\circ}\text{C}$. All analytical results for the field duplicate and the field MS/MSD collected at well PL-MW-103 were within the project quality control limits.

All laboratory QC samples were within the project quality control limits. Results of surrogate compound, laboratory control sample and duplicate, field MS and MSD, and method blank analysis were within the project quality control limits.

5.0 SUMMARY

The Army reviewed the current and previous analytical data and field measurements collected during the November 2005 groundwater-monitoring event and prior events. A summary of the findings follows:

- During the November 2005 event the measured groundwater elevations were lower than the elevations measured in February 2005 in wells PL-MW-101, PL-MW-104, PL-MW-116, and MW-POLA-121; but slightly higher in wells PL-MW-103, PL-MW-114, and PL-MW-115. The area of higher groundwater elevations coincides with an area where there is a suspected water line leak. The area around wells PL-MW-103, PL-MW-114 and PL-MW-115 has remained very wet and has surface water flowing through the dry season. This has not been observed in the past and could account for the rise in groundwater elevations in this area. The rest of the groundwater elevations were lower in the dry season which follows the general trend in the historic data.

- During the November 2005 event, the laboratory identified TPH in the groundwater near the former AST-2 in only one well (PL-MW-101). Although in this well, the concentration reported was slightly higher (930 ug/L vs. 660 ug/L) than in the previous sampling event, during this event the laboratory reported no TPH concentrations from wells PL-MW-104, PL-MW-114, PL-MW-115, PL-MW-116, and MW-POLA-121 where TPH had been reported during the last sampling event.

- The results of the POL Hill Monitoring Program indicate a continuing trend to lower TPH values in the groundwater. The concentration of total TPH (summed extractable and purgeable range hydrocarbons) measured in groundwater at POL Hill has been less than the GSA Phase I residential cleanup goal (RCG) of 1.8 mg/L (0.6 mg/l TPH-gas RCG & 1.2 mg/l TPH diesel/JP-4 RCG combined) for the last three sampling events including the November 2005 event.

The indication of anaerobic conditions at the location of the highest petroleum concentration is consistent with natural biodegradation processes. Review of current and historical results of groundwater petroleum concentrations and natural attenuation parameters (Tables 4 and 5) indicates that the petroleum contamination is diminishing consistently.

The Army anticipates closure of the POL Hill AST-2 site. The final figures – 12, 13, and 14 – summarize the reported petroleum attenuation. Figure 12 presents the early data from 1997 with the last three sampling events in 2004 and 2005, for comparison. Using the data displayed in figure 12, figures 13 and 14 respectively present estimated TPH iso-concentration contours of 500 ug/l and 1,200 ug/l measured in groundwater. The 1,200 ug/l

(1.2 mg/l) mentioned above is the diesel/JP-4 RCG.

The *Final POL Hill AST-2 Area Corrective Action Plan* states that in order for the site to be considered ready for closure, all groundwater samples must be below the GSA Phase I RCG level for TPH. It also proposes that three rounds of groundwater samples in a row with no exceedances of the TPH RCG level in any of the AST-2 wells be required.

Based on the above, the US Army recommends discontinuing POL Hill well monitoring and closure of these wells by proper abandonment. The Army will request site closure in accordance with the Interim Guidance on Required Cleanup at Low Risk Fuel Sites (RWQCB, 1996).

6.0 REFERENCES

Work Plan, Groundwater Monitoring, POL Hill, Hamilton Army Airfield, Novato, California, SOTA Environmental Technology, October 2001.

Annual Groundwater Monitoring Report, POL Hill, Hamilton Army Airfield, Novato, California, SOTA Environmental Technology, December 2003.

Groundwater Monitoring Report, Winter 2004 Sampling Event, POL Hill, Hamilton Army Airfield, Novato, California, US Army Corps of Engineers, Sacramento District, June 2004.

Groundwater Monitoring Report, Winter 2005 Sampling Event, POL Hill, Hamilton Army Airfield, Novato, California, US Army Corps of Engineers, Sacramento District, June 2005.

Final POL Hill AST-2 Area Corrective Action Plan, US Army Corps of Engineers, Sacramento District/CH2M Hill, February 2004

San Francisco Bay Regional Water Quality Control Board Interim Guidance Document 1996 (Regional Board Supplemental Instructions to State Water Board December 8, 1995, Walt Pettit letter regarding – “Recommendations to Improve the Cleanup Process for California’s Leaking Underground Fuel Tanks (LUFTs)” Lawrence Livermore National laboratory)

TABLES

Table 1
Monitoring Well Construction Details
POL Hill, Hamilton Army Airfield, Novato, California

Well No.	Date Completed	Total Drilled Depth (ft.)	Total Well Depth (ft.)	Borehole Diameter (in.)	Casing Diameter (in.)	Screen Interval (ft.)	Filter Pack Interval (ft.)	Bentonite Seal Interval (ft.)	Grout Seal Interval (ft.)	PVC Stickup (ft.)	Steel Monument Stickup (ft.)
PL-MW-101	1/31/1991	53.0	49.8	8	4	29.8-49.3	24.8-53.0	19.8-24.8	0-19.8	2.3	2.5
PL-MW-103	1/31/1991	27.0	27.0	8	4	11.5-26.5	8.5-27.0	3.5-8.5	0-3.5	2.5	2.7
PL-MW-104	1/31/1991	42.8	42.8	8	4	27.8-42.3	22.8-42.8	17.8-22.8	0-17.8	2.45	2.7
PL-MW-106	1/23/1991	18.0	18.0	8	4	7.8-17.3	5.8-18.0	3.8-5.8	0-3.8	2.2	2.4
PL-MW-107	1/23/1991	17.3	17.3	10	4	7.2-16.7	4.3-17.3	2.1-4.3	0-2.1	2.55	2.75
PL-MW-114	8/18/1992	27.8	27.5	8	4	12.0-27.0	7.0-27.8	5.0-7.0	0-5.0	2.23	2.5
PL-MW-115	08/21/1992 *	28.0	28.0	8	4	17.5-27.5	12.5-28.0	7.0-12.5	0-7.0	1.84	2.1
	7/1/2000 **	33.1	33.1	8	4	22.6-32.6	17.6-33.1	12.1-17.6	0-12.1	-0.47	NA
PL-MW-116	3/2/1994	35.0	22.5	8.5	4	11.3-21.3	9.0-22.5	7.2-9.0	0-7.2	2.15	2.82
MW-POLA-121	1/31/1997	33.6	32.67	8.63	4	7.0-32.0	6.0-33.6	3.0-6.0	0-3.0	2.4	3.4

Note:

All data are extracted from POL Hill Monitoring Well Installation Data Records.

All depths, intervals, and stickup lengths are measured relative to the ground surface at each well.

*: Well construction details for PL-MW-115 were obtained from the original well installation specification.

** : Updated well construction details for PL-MW-115 were obtained from the original well installation specification and the well topographic survey in August 2001. In 2000, well PL-MW-115 was included in a residential reuse plan and the ground level of the well was elevated for the construction of a roadway which required adjusting some of the data pertaining to well. The adjustments were made only at the top of the casings from an addition of fill to what was the existing ground level. Therefore, the new top of casing as it is today is 26.94 ft versus the old top of casing of 24.41 ft prior to the reuse. The PVC casing is now 0.47 ft below ground surface.

NA - Not Applicable

Table 2
Monitoring Well Water Level Measurements
POL Hill, Hamilton Army Airfield, Novato, California

Well No.	Date Measured	Casing Elevation ^a (Feet, MSL)	Depth to Groundwater (Feet)	Free product Thickness (Feet)	Groundwater Elevation (Feet, MSL)	Change in Elevation (Feet)
PL-MW-101	11/9/2005	49.46	25.15	0.0	24.31	-0.88
	3/17/2005		24.27	0.0	25.19	3.73
	2/24/2004		28.00	0.0	21.46	-3.50
	3/4/2003		24.50	0.0	24.96	0.64
	8/1/2002		25.14	0.0	24.32	-0.68
	2/25/2002		24.46	0.0	25.00	1.05
	9/26/2001		25.51	0.0	23.95	-1.21
	3/27/1997		24.30	0.0	25.16	-0.21
	2/28/1997		24.09	0.0	25.37	NA
PL-MW-103	11/9/2005	17.35	3.00	0.0	14.35	0.57
	3/17/2005		3.57	0.0	13.78	0.43
	2/23/2004		4.00	0.0	13.35	0.14
	3/4/2003		4.14	0.0	13.21	1.15
	8/1/2002		5.29	0.0	12.06	-1.58
	2/25/2002		3.71	0.0	13.64	1.20
	9/26/2001		4.91	0.0	12.44	2.11
	3/27/1997		7.02	0.0	10.33	-0.94
	2/27/1997		6.08	0.0	11.27	NA
PL-MW-104	11/9/2005	27.28	23.20	0.0	4.08	-5.25
	3/17/2005		17.95	0.0	9.33	1.05
	2/23/2004		19.00	0.0	8.28	-2.20
	3/4/2003		16.80	0.0	10.48	3.66
	8/1/2002		20.46	0.0	6.82	-3.93
	2/25/2002		16.53	0.0	10.75	4.98
	9/26/2001		21.51	0.0	5.77	-2.11
	3/26/1997		19.40	0.0	7.88	-0.20
	2/28/1997		19.20	0.0	8.08	NA
PL-MW-106	11/9/2005	6.56	NS	NS	NS	NS
	3/17/2005		NS	NS	NS	NS
	2/23/2004		NS	NS	NS	NS
	3/4/2003		3.58	0.0	2.98	3.32
	8/1/2002		6.90	0.0	-0.34	-3.58
	2/25/2002		3.32	0.0	3.24	4.53
	9/26/2001		7.85	0.0	-1.29	-3.40
	3/25/1997		4.45	0.0	2.11	-0.45
	2/26/1997		4.00	0.0	2.56	NA
PL-MW-107	11/9/2005	7.11	NS	NS	NS	NS
	3/17/2005		NS	NS	NS	NS
	2/23/2004		NS	NS	NS	NS
	3/4/2003		4.16	0.0	2.95	3.83
	8/1/2002		7.99	0.0	-0.88	-4.08
	2/25/2002		3.91	0.0	3.20	5.30
	9/26/2001		9.21	0.0	-2.10	-4.01
	3/25/1997		5.20	0.0	1.91	-0.64
	2/26/1997		4.56	0.0	2.55	NA

Table 2
Monitoring Well Water Level Measurements
POL Hill, Hamilton Army Airfield, Novato, California

Well No.	Date Measured	Casing Elevation ^a (Feet, MSL)	Depth to Groundwater (Feet)	Free product Thickness (Feet)	Groundwater Elevation (Feet, MSL)	Change in Elevation (Feet)
PL-MW-114	11/9/2005	22.86	3.11	0.0	19.75	0.20
	3/17/2005		3.31	0.0	19.55	0.69
	2/23/2004		4.00	0.0	18.86	-0.43
	3/4/2003		3.57	0.0	19.29	0.19
	8/1/2002		3.76	0.0	19.10	-0.26
	2/25/2002		3.50	0.0	19.36	0.47
	9/26/2001		3.97	0.0	18.89	2.13
	3/25/1997		6.10	0.0	16.76	-1.43
	2/28/1997		4.67	0.0	18.19	NA
PL-MW-115	11/9/2005	26.94	6.89	0.0	20.05	0.47
	3/18/2005		7.36	0.0	19.58	3.64
	3/8/2004		11.00	0.0	15.94	-3.78
	3/4/2003		7.22	0.0	19.72	0.73
	8/1/2002		7.95	0.0	18.99	-0.47
	2/25/2002		7.48	0.0	19.46	0.42
	9/26/2001		7.90	0.0	19.04	-1.42
	3/26/1997		6.48	0.0	20.46	-0.20
	2/28/1997		6.28	0.0	20.66	NA
PL-MW-116	11/9/2005	18.00	11.61	0.0	6.39	-1.29
	3/17/2005		10.32	0.0	7.68	1.68
	2/23/2004		12.00	0.0	6.00	-0.51
	3/4/2003		11.49	0.0	6.51	4.48
	8/1/2002		15.97	0.0	2.03	-4.80
	2/25/2002		11.17	0.0	6.83	5.95
	9/26/2001		17.12	0.0	0.88	-2.89
	3/26/1997		14.23	0.0	3.77	-0.97
	2/27/1997		13.26	0.0	4.74	NA
MW-POLA-121	11/9/2005	51.66	21.90	0.0	29.76	-11.95
	3/17/2005		9.95	0.0	41.71	2.05
	2/24/2004		12.00	0.0	39.66	-2.28
	3/4/2003		9.72	0.0	41.94	9.83
	8/1/2002		19.55	0.0	32.11	-10.32
	2/25/2002		9.23	0.0	42.43	12.05
	9/26/2001		21.28	0.0	30.38	-1.87
	3/26/1997		19.41	0.0	32.25	-5.45
	2/28/1997		13.96	0.0	37.70	NA

Note:

Historical data are extracted from IT report (IT, 1999)

MSL - Relative to Mean Sea Level - NGVD 1929 (SOTA Feb 8, 2002)

NA - Not Available

NS - Not Sampled

^a: Top of Casing elevation obtained from 2001 topographic survey. TOC is used as the reference point for groundwater elevation

Table 3
Groundwater Organic and Geochemical Parameters Summary
 (November 9, 2005)
 POL Hill, Hamilton Army Airfield, Novato, California

Well	TPH Purgeable as gasoline (EPA 8015B) (µg/L)	TPH Extractable as diesel fuel (EPA 8015B) (µg/L)	TPH Extractable as motor oil (EPA 8015M) (µg/L)	Dissolved Oxygen (EPA 360.1) (mg/L)	Redox (ASTM 1498) (mv)	Ferrous Iron (SM 3500) (mg/L)	Methane (RSK 175) (µg/L)	Sulfate (EPA 300.0) (mg/L)	Total Alkalinity as CaCO ₃ (EPA 310.1) (mg/L)	pH (EPA 150.1) (pH Unit)	Turbidity (EPA 180.1) (NTU)	Field Temperature (°C)
PL-MW-101	170	760	NA	0.85	-107.3	0.8	5900	1.2	531	6.91	5.6	18.3
PL-MW-103	ND (<20)	ND (<50)	NA	4.70	51.6	ND (<0.1)	18	68.1	249	6.66	8.9	18.3
PL-MW-104	ND (<20)	ND (<50)	NA	0.54	-116.0	2	670	19.1	352	7.84	6.1	19.1
PL-MW-106	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS
PL-MW-107	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS
PL-MW-114	ND (<20)	ND (<50)	NA	1.82	12.1	ND (<0.1)	14	67.3	269	6.35	0.6	18.6
PL-MW-115	ND (<20)	ND (<50)	NA	0.66	-28.1	ND (<0.1)	ND (<1.0)	27.9	154	8.13	21.9	22.3
PL-MW-116	ND (<20)	ND (<50)	NA	0.61	114.0	ND (<0.1)	ND (<1.0)	62.5	222	6.38	0.1	20.6
MW-POLA-121	ND (<20)	ND (<50)	NA	0.43	-37.0	ND (<0.1)	20	14.1	203	6.86	9.6	20.1
PK-MW-130 (QC) ^a	ND (<20)	ND (<50)	NA	4.70	51.6	ND (<0.1)	7.6	66.9	249	6.66	8.9	18.3

Notes:

µg/L - Micrograms per liter

mg/L - Milligrams per liter

mv - Millivolts

°C - Degrees Celsius

NTU - Nephelometric Turbidity Units

ND - Not detected above practical quantitation limit (practical quantitation limit is in parenthesis)

J - Estimated

J- Estimate biased low

^a Field duplicate for PL-MW-103

NA- Not Analyzed

NS- Not Sampled

Table 4
Historical Groundwater Organic Chemical Data Summary
POL Hill, Hamilton Army Airfield, Novato, California
(July 1992 through November 2005)

Well	Monitoring Event Date	Benzene (µg/L)	Toluene (µg/L)	Ethylbenzene (µg/L)	Xylenes (µg/L)	Total TPH ^a (µg/L)	TPH-P ^b (µg/L)	TPH-E ^c (µg/L)
PL-MW-101	Jul-92	6	10	110	290	(d)	(d)	(d)
	Aug-92	6	4.3	94	260	(d)	(d)	(d)
	Mar-94	<5	<5	129	405	5350	(e)	5350
	Feb-97	<10	<10	78	140	11400	4800	6600
	Mar-97	<1	<1	77	120	8500	4600	3900
	Apr-98	<1	<1	46	52	4800	2700	2100
	Jul-98	<1	<1	42	34	3900	2300	1600
	Oct-98	<1	<1	39	47	7600	2900	4700
	Jan-99	NA	NA	NA	NA	9700	4400	5300
	Sep-01	NA	NA	NA	NA	6200	3300	2900
	Feb-02	NA	NA	NA	NA	16000	6200	9800
	Aug-02	NA	NA	NA	NA	5300	2600	2700
	Mar-03	NA	NA	NA	NA	7200	3100	4100
	Feb-04	NA	NA	NA	NA	874J	130	744J
	Mar-05	NA	NA	NA	NA	660	120	540
Nov-05	NA	NA	NA	NA	930	170	760	
PL-MW-103	Jul-92	<1	<1.5	<1.4	<1.4	(d)	(d)	(d)
	Aug-92	<1	<1.5	<1.4	<1.4	(d)	(d)	(d)
	Mar-94	<0.5	<0.5	<0.5	<0.5	417	(e)	417
	Feb-97	<1	<1	<1	<1	110	<50	110
	Mar-97	<1	<1	<1	<1	<50	<50	<50
	Apr-98	<1	<1	<1	<1	200	(e)	200
	Jul-98	<1	<1	<1	<1	76	76	<50
	Oct-98	<1	<1	<1	<1	<50	<50	<50
	Jan-99	NA	NA	NA	NA	<50	<50	<50
	Sep-01	NA	NA	NA	NA	320	<50	320
	Feb-02	NA	NA	NA	NA	570	<50	570
	Aug-02	NA	NA	NA	NA	<250	<50	<250
	Mar-03	NA	NA	NA	NA	<250	<50	<250
	Feb-04	NA	NA	NA	NA	<240	<11	<240
	Mar-05	NA	NA	NA	NA	<550	<50	<500
Nov-05	NA	NA	NA	NA	<50	<20	<50	
PL-MW-104	Jul-92	<1	<1.5	<1.4	<1.4	(d)	(d)	(d)
	Aug-92	<1	<1.5	<1.4	<1.4	(d)	(d)	(d)
	Mar-94	<0.5	<0.5	<0.5	<0.5	464	(e)	464
	Feb-97	<1	<1	<1	<1	400	130	270
	Mar-97	<1	<1	<1	<1	410	180	230
	Apr-98	<1	<1	<1	<1	287	67	220
	Jul-98	<1	<1	<1	<1	<50	<50	<50
	Oct-98	<1	<1	<1	<1	263	83	180
	Jan-99	NA	NA	NA	NA	370	200	170
	Sep-01	NA	NA	NA	NA	655	95	560
	Feb-02	NA	NA	NA	NA	890	110	780
	Aug-02	NA	NA	NA	NA	568	78	490
	Mar-03	NA	NA	NA	NA	873	83	790
	Feb-04	NA	NA	NA	NA	72 J	<7	72 J
	Mar-05	NA	NA	NA	NA	180 J	<50	180 J
Nov-05	NA	NA	NA	NA	<50	<20	<50	

Table 4
Historical Groundwater Organic Chemical Data Summary
POL Hill, Hamilton Army Airfield, Novato, California
(July 1992 through November 2005)

Well	Monitoring Event Date	Benzene (µg/L)	Toluene (µg/L)	Ethylbenzene (µg/L)	Xylenes (µg/L)	Total TPH ^a (µg/L)	TPH-P ^b (µg/L)	TPH-E ^c (µg/L)
PL-MW-106	Jul-92	NA	NA	NA	NA	NA	NA	NA
	Aug-92	NA	NA	NA	NA	NA	NA	NA
	Mar-94	NA	NA	NA	NA	NA	NA	NA
	Feb-97	<1	<1	<1	<1	<50	<50	<50
	Mar-97	<1	<1	<1	<1	<50	<50	<50
	Apr-98	<1	<1	<1	<1	<50	<50	<50
	Jul-98	NA	NA	NA	NA	NA	NA	NA
	Sep-98	<1	<1	<1	<1	<50	<50	<50
	Jan-99	NA	NA	NA	NA	NA	NA	NA
	Sep-01	NA	NA	NA	NA	<250	<50	<250
	Feb-02	NA	NA	NA	NA	<250	<50	<250
	Aug-02	NA	NA	NA	NA	<250	<50	<250
	Mar-03	NA	NA	NA	NA	<250	<50	<250
	Feb-05	NS	NS	NS	NS	NS	NS	NS
	Mar-05	NS	NS	NS	NS	NS	NS	NS
Nov-05	NS	NS	NS	NS	NS	NS	NS	
PL-MW-107	Jul-92	NA	NA	NA	NA	NA	NA	NA
	Aug-92	NA	NA	NA	NA	NA	NA	NA
	Mar-94	NA	NA	NA	NA	NA	NA	NA
	Feb-97	<1	<1	<1	<1	<50	<50	<50
	Mar-97	<1	<1	<1	<1	<50	<50	<50
	Apr-98	<1	<1	<1	<1	<50	<50	<50
	Jul-98	<1	<1	<1	<1	<50	<50	<50
	Sep-98	<1	<1	<1	<1	<50	<50	<50
	Jan-99	NA	NA	NA	NA	NA	NA	NA
	Sep-01	NA	NA	NA	NA	<250	<50	<250
	Feb-02	NA	NA	NA	NA	<250	<50	<250
	Aug-02	NA	NA	NA	NA	<250	<50	<250
	Mar-03	NA	NA	NA	NA	<250	<50	<250
	Feb-04	NS	NS	NS	NS	NS	NS	NS
	Mar-05	NS	NS	NS	NS	NS	NS	NS
Nov-05	NS	NS	NS	NS	NS	NS	NS	
PL-MW-114	Jul-92	<1.1	<1.5	<1.4	<1.4	(d)	(d)	(d)
	Aug-92	<1.1	<1.5	<1.4	<1.4	(d)	(d)	(d)
	Mar-94	<0.5	<0.5	<0.5	<0.5	355	(e)	355
	Feb-97	<1	<1	<1	<1	<50	<50	<50
	Mar-97	<1	<1	<1	<1	<50	<50	<50
	Apr-98	<1	<1	<1	<1	<50	<50	<50
	Jul-98	<1	<1	<1	<1	<50	<50	<50
	Oct-98	<1	<1	<1	<1	<50	<50	<50
	Jan-99	NA	NA	NA	NA	<50	<50	<50
	Sep-01	NA	NA	NA	NA	<250	<50	<250
	Feb-02	NA	NA	NA	NA	570	<50	570
	Aug-02	NA	NA	NA	NA	<250	<50	<250
	Mar-03	NA	NA	NA	NA	<250	<50	<250
	Feb-04	NA	NA	NA	NA	<240	<9	<240
	Mar-05	NA	NA	NA	NA	260 J	<50	260 J
Nov-05	NA	NA	NA	NA	<50	<20	<50	

Table 4
Historical Groundwater Organic Chemical Data Summary
POL Hill, Hamilton Army Airfield, Novato, California
(July 1992 through November 2005)

Well	Monitoring Event Date	Benzene (µg/L)	Toluene (µg/L)	Ethylbenzene (µg/L)	Xylenes (µg/L)	Total TPH ^a (µg/L)	TPH-P ^b (µg/L)	TPH-E ^c (µg/L)
PL-MW-115	Jul-92	<1.1	<1.5	<1.4	<1.4	(d)	(d)	(d)
	Aug-92	<1.1	<1.5	<1.4	<1.4	(d)	(d)	(d)
	Mar-94	<0.5	<0.5	<0.5	<0.5	803	(e)	803
	Feb-97	<1	<1	<1	<1	140	<50	140
	Mar-97	<1	<1	<1	<1	<50	<50	<50
	Apr-98	<1	<1	<1	<1	100	<50	100
	Jul-98	<1	<1	<1	<1	<50	<50	<50
	Oct-98	<1	<1	<1	<1	<50	<50	<50
	Jan-99	NA	NA	NA	NA	<50	<50	<50
	Sep-01	NA	NA	NA	NA	<250	<50	<250
	Feb-02	NA	NA	NA	NA	250	<50	250
	Aug-02	NA	NA	NA	NA	<250	<50	<250
	Mar-03	NA	NA	NA	NA	<250	<50	<250
	Mar-04	NA	NA	NA	NA	87 J	<50	87 J
	Mar-05	NA	NA	NA	NA	390 J	<50	390 J
Nov-05	NA	NA	NA	NA	<50	<20	<50	
PL-MW-116	Jul-92	NA	NA	NA	NA	NA	NA	NA
	Aug-92	NA	NA	NA	NA	NA	NA	NA
	Mar-94	NA	NA	NA	NA	NA	NA	NA
	Feb-97	<1	<1	<1	<1	<50	<50	<50
	Mar-97	<1	<1	<1	<1	<50	<50	<50
	Apr-98	<1	<1	<1	<1	<50	<50	<50
	Jul-98	NA	NA	NA	NA	NA	NA	NA
	Sep-98	<1	<1	<1	<1	<50	<50	<50
	Jan-99	NA	NA	NA	NA	<50	<50	<50
	Sep-01	NA	NA	NA	NA	<250	<50	<250
	Feb-02	NA	NA	NA	NA	330 (f)	<50	330 (f)
	Aug-02	NA	NA	NA	NA	<250	<50	<250
	Mar-03	NA	NA	NA	NA	<250	<50	<250
	Feb-04	NA	NA	NA	NA	<240	<7	<240
	Mar-05	NA	NA	NA	NA	370 J	<50	370 J
Nov-05	NA	NA	NA	NA	<50	<20	<50	

Table 4
Historical Groundwater Organic Chemical Data Summary
POL Hill, Hamilton Army Airfield, Novato, California
(July 1992 through November 2005)

Well	Monitoring Event Date	Benzene (µg/L)	Toluene (µg/L)	Ethylbenzene (µg/L)	Xylenes (µg/L)	Total TPH ^a (µg/L)	TPH-P ^b (µg/L)	TPH-E ^c (µg/L)
MW-POLA-121	Jul-92	NS (g)	NS	NS	NS	NS	NS	NS
	Aug-92	NS	NS	NS	NS	NS	NS	NS
	Mar-94	NS	NS	NS	NS	NS	NS	NS
	Feb-97	2.7	<1	7.3	7.7	1060	480	580
	Mar-97	4.6	<1	10	13	1360	630	730
	Apr-98	<1	<1	<1	<1	100	<50	100
	Jul-98	<1	<1	<1	<1	<50	<50	<50
	Oct-98	<1	<1	<1	<1	<50	<50	<50
	Jan-99	NA	NA	NA	NA	54	54	<50
	Sep-01	NA	NA	NA	NA	640	<50	640
	Feb-02	NA	NA	NA	NA	530	<50	530
	Aug-02	NA	NA	NA	NA	360	<50	360
	Mar-03	NA	NA	NA	NA	650	<50	650
	Feb-04	NA	NA	NA	NA	21 J	<11	21 J
	Mar-05	NA	NA	NA	NA	343 J	13 J	330 J
Nov-05	NA	NA	NA	NA	<50	<20	<50	

Notes:

Historical data are extracted from IT report (IT, 1999)

All detected analytes are shown in bold

NA - Not analyzed

NS - Not sampled

^a Total petroleum hydrocarbons (extractable and purgeable). The extractable and purgeable hydrocarbons results

^b Total petroleum hydrocarbons measured as purgeable

^c Total petroleum hydrocarbons measured as extractable (range C10-C40)

EPA Method 8015M results obtained from the March 1994 and later monitoring events. The data were not available in IT report (IT, 1999)

(e) no associated result

(f) Result from duplicate sample

(g) not sampled, well was not installed until January 1997

J estimated value

Table 5
Historical Groundwater Geochemical Parameters Summary
POL Hill, Hamilton Army Airfield, Novato, California
(March/April 1998 through November 2005)

Well NO.	Date Sampled	Dissolved Oxygen (mg/L)	Redox (mv)	Ferrous Iron (mg/L)	Methane (mg/L)	Sulfate (mg/L)	Total Sulfide (mg/L)	Nitrate (mg/L)	Total Alkalinity as CaCO ₃ (mg/L)	pH	Turbidity (NTU)	Temperature (°C)
PL-MW-101	March/April 1998	0.50	-225.6	0.07	2.8	53	ND (<0.05)	ND (<0.05)	516	6.96	NA	19.4
	Sept/Oct 1998	0.82	-228.8	0.22	3.2	53	0.36	ND (<0.05)	544	6.94	NA	21.2
	September 2001	3.10	550	ND (<0.10)	2.8 ^a /1.1J ^b	70	NA	NA	470	7.34	12.0	17.5
	February 2002	5.50	330	ND (<0.10)	1.0	75	NA	NA	490	7.42	15.0	18.0
	August 2002	6.60	450	ND (<0.10)	0.1	69	NA	NA	490J	7.39	4.5	18.5
	March 2003	6.10	470	NA	0.4	NA	NA	NA	NA	7.38	7.0	18.3
	February 2004	0.72	-164	0.09	2.00	6.7	NA	NA	562	7.51	1.2	16.4
	March 2005	0.37	-181	0.00061 J	1.20	2.6	NA	NA	554 J-	7.42	0.7	17.94
	November 2005	0.85	-107	0.80	5.90	1.2	NA	NA	531	6.91	5.6	18.3
PL-MW-103	March/April 1998	0.70	121.1	ND (<0.05)	0.0039	69	ND (<0.05)	0.24	205	6.87	NA	16.8
	Sept/Oct 1998	2.85	79.9	0.29	0.010	109	0.01	ND (<0.05)	240	6.94	NA	22.2
	September 2001	1.40	540	ND (<0.10)	ND (<1.0)/ND (<0.005)	120	NA	NA	250	6.92	3.0	19.8
	February 2002	1.70	230	ND (<0.10)	ND (<0.01)	100	NA	NA	210	7.24	17.0	15.5
	August 2002	3.70	330	ND (<0.10)	ND (<0.01)	110	NA	NA	240J	6.95	12.0	18.8
	March 2003	3.20	560	NA	ND (<0.01)	NA	NA	NA	NA	7.06	72.0	16.3
	February 2004	1.04	34	0.010 J	ND (<0.003)	67.2	NA	NA	220	7.04	-0.4	13.97
	March 2005	1.51	-85	ND (<0.10) R	0.00078 J	96.1	NA	NA	236 J-	7.12	0.4	15.01
	November 2005	4.70	52	ND (<0.1)	0.018	68.1	NA	NA	249	6.66	8.9	18.3
PL-MW-104	March/April 1998	0.60	24.6	0.01	0.04	10	ND (<0.05)	ND	509	6.78	NA	18.7
	Sept/Oct 1998	1.94	-50.2	0.01	0.15	8	ND (<0.05)	ND (<0.05)	556	6.77	NA	25.4
	September 2001	3.80	550	ND (<0.10)	ND (<1.0)/ND (<0.005)	110	NA	NA	470	7.46	11.0	17.9
	February 2002	6.40	230	ND (<0.10)	0.069	8.2	NA	NA	510	7.28	5.7	16.8
	August 2002	7.20	520	ND (<0.10)	0.05	9.1	NA	NA	500J	7.16	4.8	18.0
	March 2003	6.20	550	NA	0.3	NA	NA	NA	NA	7.04	12.0	17.9
	February 2004	0.63	48	0.07	0.11	25.5	NA	NA	365	7.21	12.1	17.28
	March 2005	0.35	-92	ND (<0.01) R	ND (<0.005)	18.5	NA	NA	383 J-	7.33	0.5	17
	November 2005	0.54	-116	2.00	0.670	19.1	NA	NA	352	7.84	6.1	19.1

Table 5
Historical Groundwater Geochemical Parameters Summary
POL Hill, Hamilton Army Airfield, Novato, California
(March/April 1998 through November 2005)

Well NO.	Date Sampled	Dissolved Oxygen (mg/L)	Redox (mv)	Ferrous Iron (mg/L)	Methane (mg/L)	Sulfate (mg/L)	Total Sulfide (mg/L)	Nitrate (mg/L)	Total Alkalinity as CaCO ₃ (mg/L)	pH	Turbidity (NTU)	Temperature (°C)
PL-MW-106	March/April 1998	5.20	217.7	ND (<0.05)	0.0028	105	ND (<0.05)	0.09	493	7.30	NA	16.6
	Sept/Oct 1998	2.12	131.3	ND (<0.05)	0.0046	107	0.03	0.088	514	7.24	NA	25.5
	September 2001	3.70	560	ND (<0.10)	ND (<1.0)/ND (<0.005)	9	NA	NA	510	7.15	5.2	18.5
	February 2002	6.70	360	ND (<0.10)	ND (<0.01)	110	NA	NA	480	7.53	14.0	14.3
	August 2002	7.50	500	ND (<0.10)	ND (<0.01)	100	NA	NA	470J	7.36	6.9	19.2
	March 2003	7.60	550	NA	ND (<0.01)	NA	NA	NA	NA	7.79	28	15.7
	February 2004	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
	March 2005	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
	November 2005	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
PL-MW-107	March/April 1998	6.50	174.0	0.01	ND (<0.002)	261	ND (<0.05)	0.1	749	8.05	NA	19.7
	Sept/Oct 1998	7.99	285.2	ND (<0.05)	ND (<0.002)	210	0.12	0.06	756	8.12	NA	22.5
	September 2001	3.50	510	ND (<0.10)	ND (<1.0)/ND (<0.005)	190	NA	NA	720	8.46	150.0	20.4
	February 2002	8.10	330	ND (<0.10)	ND (<0.01)	260	NA	NA	720	8.3	18.0	15.9
	August 2002	7.10	470	ND (<0.10)	ND (<0.01)	210	NA	NA	720J	8.25	37.0	19.2
	March 2003	8.30	500	NA	ND (<0.01)	NA	NA	NA	NA	8.34	62.0	16
	February 2004	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
	March 2005	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
	November 2005	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
PL-MW-114	March/April 1998	1.40	179.0	0.01	ND (<0.002)	49	ND (<0.05)	0.06	176	7.40	NA	17.7
	Sept/Oct 1998	1.52	225.6	ND (<0.05)	0.13	78	ND (<0.05)	0.055	227	7.06	NA	20.7
	September 2001	3.60	530	ND (<0.10)	ND (<1.0)/ND (<0.005)	120	NA	NA	290	7.12	8.7	19.8
	February 2002	5.10	390	ND (<0.10)	ND (<0.01)	150	NA	NA	240	7.17	9.0	14.9
	August 2002	8.00	520	ND (<0.10)	ND (<0.01)	95	NA	NA	270J	7.06	5.1	21.2
	March 2003	5.30	550	NA	ND (<0.01)	NA	NA	NA	NA	7.24	17.0	17.4
	February 2004	2.40	58	0.05	ND (<0.003)	108	NA	NA	254	7.32	-0.3	15.5
	March 2005	1.31	-103	ND (<0.10) R	0.00097 J	97.6	NA	NA	237 J-	7.40	0.4	15.75
	November 2005	1.82	12	ND (<0.1)	0.014	67.3	NA	NA	269	6.35	0.6	18.6

Table 5
Historical Groundwater Geochemical Parameters Summary
POL Hill, Hamilton Army Airfield, Novato, California
(March/April 1998 through November 2005)

Well NO.	Date Sampled	Dissolved Oxygen (mg/L)	Redox (mv)	Ferrous Iron (mg/L)	Methane (mg/L)	Sulfate (mg/L)	Total Sulfide (mg/L)	Nitrate (mg/L)	Total Alkalinity as CaCO ₃ (mg/L)	pH	Turbidity (NTU)	Temperature (°C)
PL-MW-115	March/April 1998	1.00	144.5	0.02	0.058/0.062	132/130	ND (<0.05)	ND (<0.05)/ND (<0.05)	300/301	7.35	NA	17.0
	Sept/Oct 1998	2.10	10.6	ND (<0.05)	0.052/0.051	137/148	0.01	ND (<0.05)/ND (<0.05)	281/283	7.09	NA	21.2
	September 2001	1.30	530	ND (<0.10)	ND (<1.0)/ND (<0.005)	130	NA	NA	280	7.19	1.1	19.6
	February 2002	2.60	420	ND (<0.10)	ND (<0.01)	120	NA	NA	280	7.35	3.0	17.9
	August 2002	4.20	530	ND (<0.10)	ND (<0.01)	140	NA	NA	270J	7.29	ND (<1.0)	23.5
	March 2003	2.60	560	NA	ND (<0.01)	NA	NA	NA	NA	7.47	3.0	18.7
	March 2004	3.34	75	ND (<0.05)	ND (<0.003)	59.6	NA	NA	167	7.99	NA	17.83
	March 2005	1.30	-153	0.000029 J	ND (<0.005)	15.8	NA	NA	84.0 J-	8.33	0.1	16.92
	November 2005	0.66	-28	ND (<0.1)	ND (<0.001)	27.9	NA	NA	154	8.13	21.9	22.3
PL-MW-116	March/April 1998	6.70	197.4	ND (<0.05)	ND (<0.002)	26	ND (<0.05)	1.3	165	6.94	NA	17.3
	Sept/Oct 1998	6.11	285.5	0.01	ND (<0.002)	29	0.04	0.98	166	6.96	NA	22.2
	September 2001	2.80	520	ND (<0.10)	ND (<1.0)/ND (<0.005)	38	NA	NA	160	7.16	23.0	19.4
	February 2002	6.50	430	ND (<0.10)	ND (<0.01)	32	NA	NA	170	7.2	26.0	16.2
	August 2002	6.80	540	ND (<0.10)	ND (<0.01)	32	NA	NA	160J	7.16	12.0	19.2
	March 2003	7.20	340	NA	ND (<0.01)	NA	NA	NA	NA	8.01	28.0	15.7
	February 2004	6.66	60	ND (<0.05)	ND (<0.003)	39.6	NA	NA	191	7.14	491	16.26
	March 2005	2.17	-82	ND (<0.10) R	ND (<0.005)	44.3	NA	NA	175 J-	7.13	0.3	15.89
	November 2005	0.61	114	ND (<0.1)	ND (<0.001)	62.5	NA	NA	222	6.38	0.1	20.6
MW-POLA-121	March/April 1998	0.60	11.5	ND (<0.05)	0.12	15	ND (<0.05)	ND (<0.05)	128	6.42	NA	17.9
	Sept/Oct 1998	1.91	-61.5	2.88	0.6	13	0.06	ND (<0.05)	404	6.81	NA	22.8
	September 2001	3.10	530	ND (<0.10)	ND (<1.0)/ND (<0.005)	16	NA	NA	290	7.04	12.0	18.4
	February 2002	7.10	410	ND (<0.10)	ND (<0.01)	24	NA	NA	160	7.34	8.5	18.6
	August 2002	6.90	540	ND (<0.10)	ND (<0.01)	20	NA	NA	240J	7.2	110.0	18.2
	March 2003	3.60	570	NA	ND (<0.01)	NA	NA	NA	NA	7.21	40.0	18.7
	February 2004	3.79	51	0.05	ND (<0.003)	15.6	NA	NA	148	7.22	53	15.05
	March 2005	4.93	7	ND (<0.10) R	ND (<0.005)	12.5	NA	NA	109 J-	7.13	0.2	16.63
	November 2005	0.43	-37	ND (<0.1)	0.020	14.1	NA	NA	203	6.86	9.6	20.1

Notes:

Historical data are extracted from IT report (IT, 1999)

ND - Not detected above practical quantitation limit (practical quantitation limit is in parenthesis)

NA - Not analyzed

^a Initial analysis

^b Reanalysis

J Estimated

R Rejected due to hold time exceedances

J- Estimate biased low

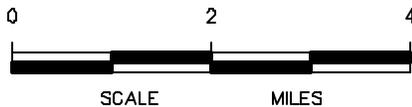
mg/L - Milligrams per liter

°C - Degrees Celsius

mv - Millivolts

NTU - Nephelometric Turbidity Units

FIGURES



SITE MAP
POL HILL, HAMILTON ARMY AIRFIELD
NOVATO, CALIFORNIA



FIGURE 1
PROJECT NO.
09-11007
MAY 2008

SOURCE: USGS 30X60 MINUTE QUADRANGLE Topographic Map - 01 Jul 1983

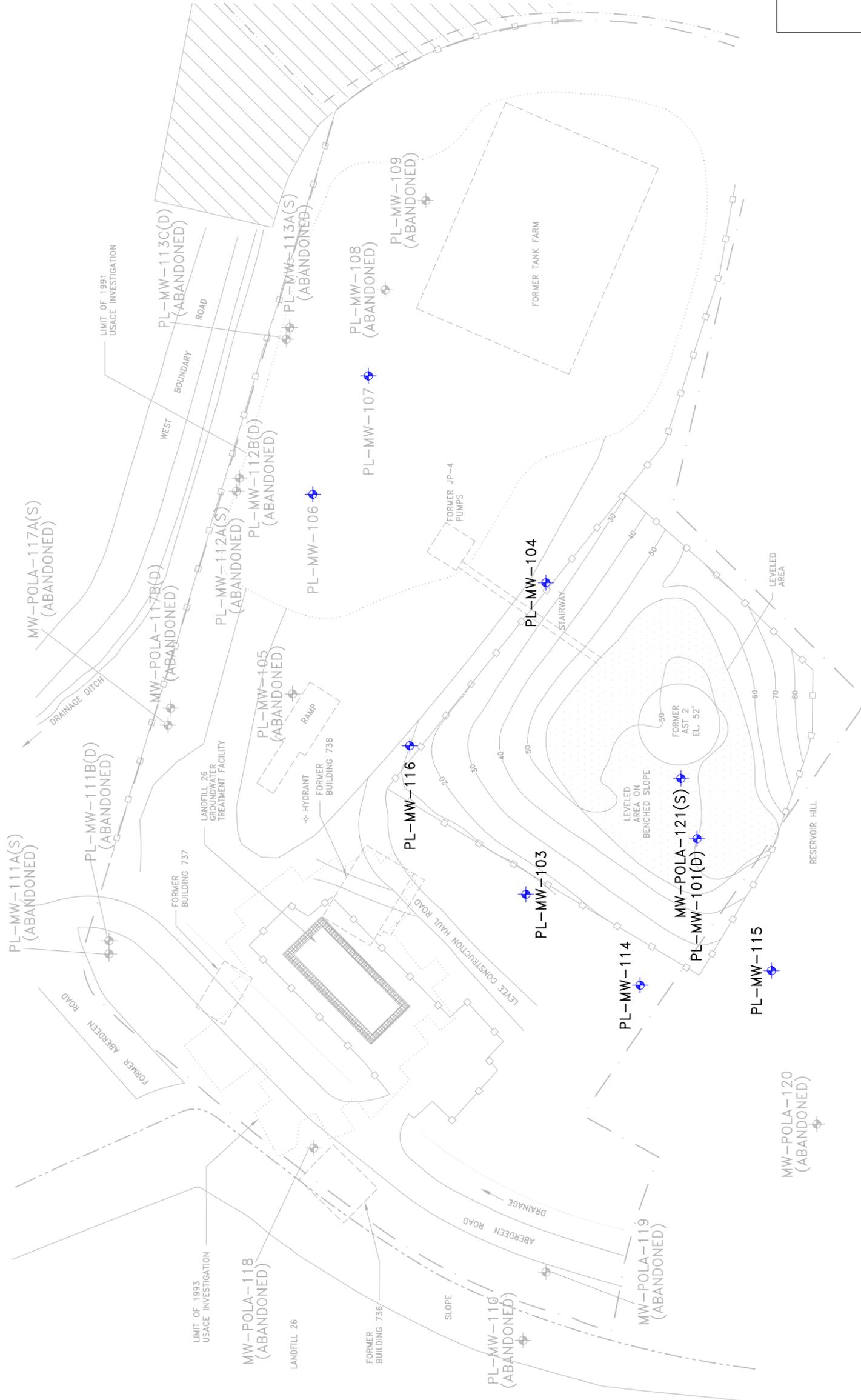
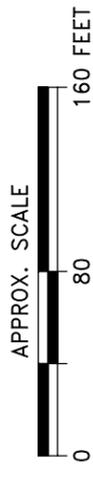
LEGEND:

- 20

CONTOURS REPRESENT GROUND SURFACE ELEVATION IN FEET ABOVE MEAN SEA LEVEL
- FENCE
- ⊕
EXISTING MONITORING WELL
- (S)
SHALLOW MONITORING WELL
- (D)
DEEPER MONITORING WELL
- FORMER STRUCTURES
- APPROXIMATE LIMITS OF USACE EXCAVATION
- NHP LEVEE AND EASEMENT
- POL OUTPARCEL BRAC PROPERTY BOUNDARY
- GSA PHASE 1 TRANSFERRED PROPERTY BOUNDARY
- LANDFILL 26 BOUNDARY

NOTES:

1. WELLS THAT ARE NOT IN THE CURRENT SCOPE OF WORK ARE SHOWN IN GRAY.



MW-POLA-120
(ABANDONED)

WELL LOCATION MAP

NOVEMBER 2005
POL HILL, HAMILTON ARMY AIRFIELD
NOVATO, CALIFORNIA



US Army Corps
of Engineers
Sacramento District

FIGURE 2

PROJECT NO.

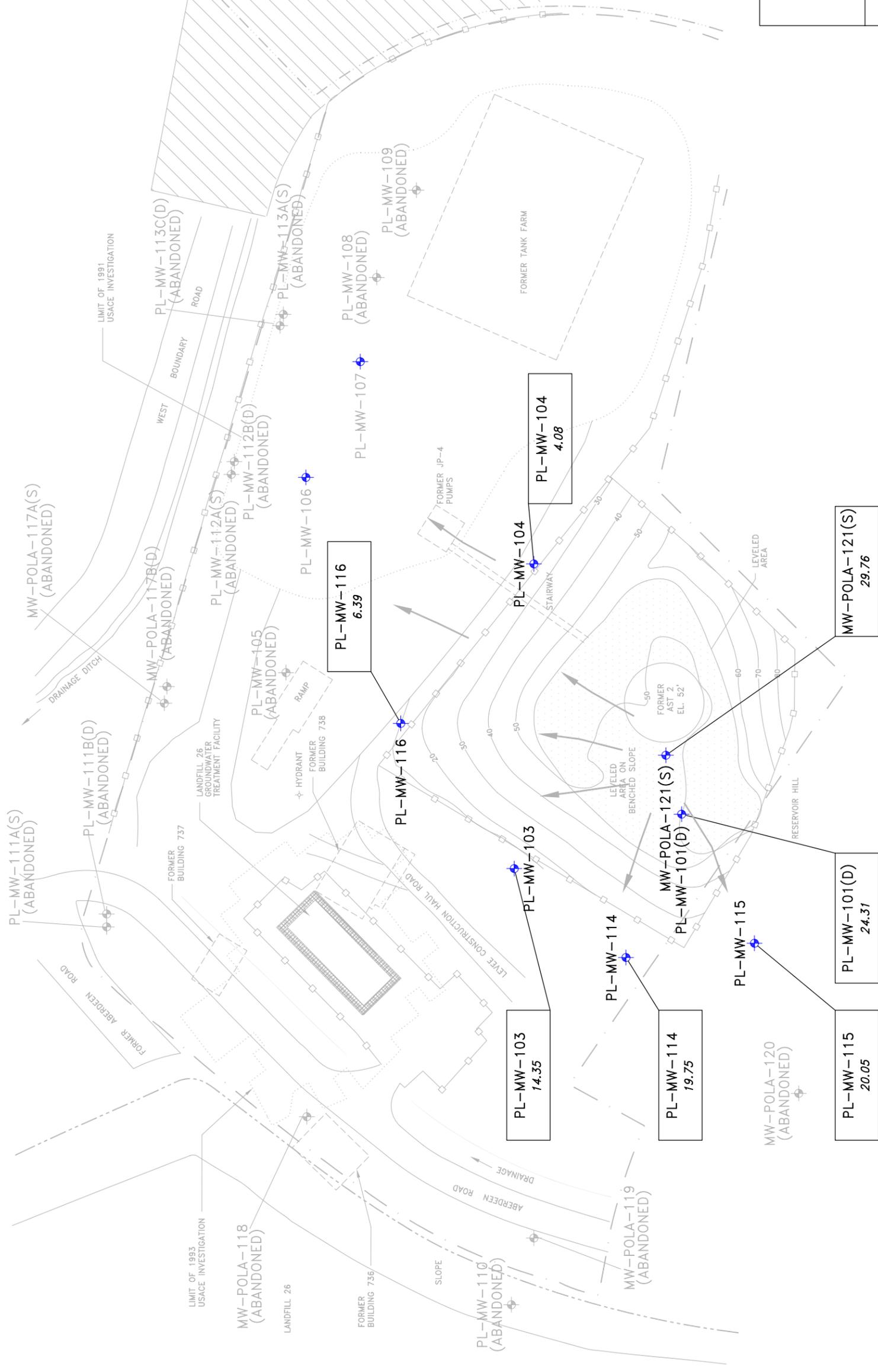
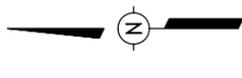
NOVEMBER 2005

LEGEND:

- PL-MW-101
5.77
EXISTING MONITORING WELL ID
GROUNDWATER ELEVATION IN FEET
ABOVE MEAN SEA LEVEL
- EXISTING MONITORING WELL
- (S)
SHALLOW MONITORING WELL
- (D)
DEEPER MONITORING WELL
- FENCE
- 20
CONTOURS REPRESENT GROUND SURFACE
ELEVATION IN FEET ABOVE MEAN SEA LEVEL
- INFERRED GROUNDWATER FLOW DIRECTION
- FORMER STRUCTURES
- APPROXIMATE LIMITS OF
USACE EXCAVATION
- NHP LEVEE AND EASEMENT
- POL OUTPARCEL BRAC PROPERTY BOUNDARY
- GSA PHASE 1 TRANSFERRED
PROPERTY BOUNDARY
- LANDFILL 26 BOUNDARY

NOTES:

1. WELLS THAT ARE NOT IN THE CURRENT SCOPE OF WORK ARE SHOWN IN GRAY.



GROUNDWATER ELEVATION MAP

NOVEMBER 2005

POL HILL, HAMILTON ARMY AIRFIELD

NOVATO, CALIFORNIA

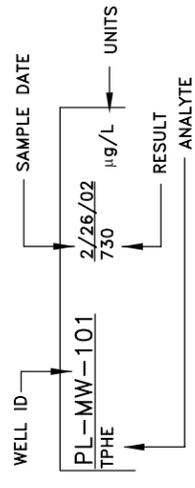
US Army Corps of Engineers
Sacramento District

FIGURE 3

PROJECT NO.

NOVEMBER 2005

LEGEND:



NOTES:

- TPHE = TOTAL PETROLEUM HYDROCARBONS AS EXTRACTABLE
- TPHP = TOTAL PETROLEUM HYDROCARBONS AS PURGEABLE
- Eh = OXIDATION/REDUCTION POTENTIAL
- DO = DISSOLVED OXYGEN
- CH4 = METHANE
- µg/L = MICROGRAMS PER LITER
- mg/L = MILLIGRAMS PER LITER
- mv = MILLIVOLTS

CONTOURS REPRESENT GROUND SURFACE ELEVATION IN FEET ABOVE MEAN SEA LEVEL

20

FENCE

EXISTING MONITORING WELL

(S)

SHALLOW MONITORING WELL

(D)

DEEPER MONITORING WELL

FORMER STRUCTURES

APPROXIMATE LIMITS OF USACE EXCAVATION

NHP LEVEE AND EASEMENT

POL OUTPARCEL BRAC PROPERTY BOUNDARY

GSA PHASE 1 TRANSFERRED PROPERTY BOUNDARY

LANDFILL 26 BOUNDARY

NOTES:

1. WELLS THAT ARE NOT IN THE CURRENT SCOPE OF WORK ARE SHOWN IN GRAY.



APPROX. SCALE



ANNUAL GROUNDWATER MONITORING RESULTS
 NOVEMBER 2005
 FEET
 POL HILL, HAMILTON ARMY AIRFIELD
 NOVATO, CALIFORNIA



US Army Corps of Engineers
 Sacramento District
FIGURE 4
 PROJECT NO.
 NOVEMBER 2005

PL-MW-116	
11/09/05	
TPH-P	ND (<20) µg/L
TPH-E	ND (<50) µg/L
DO	0.61 mg/L
Eh	114.0 mv
CH4	ND (<1.0) µg/L

PL-MW-103	
11/09/05	
TPH-P	ND (<20) µg/L
TPH-E	ND (<50) µg/L
DO	4.70 mg/L
Eh	51.6 mv
CH4	18.0 µg/L

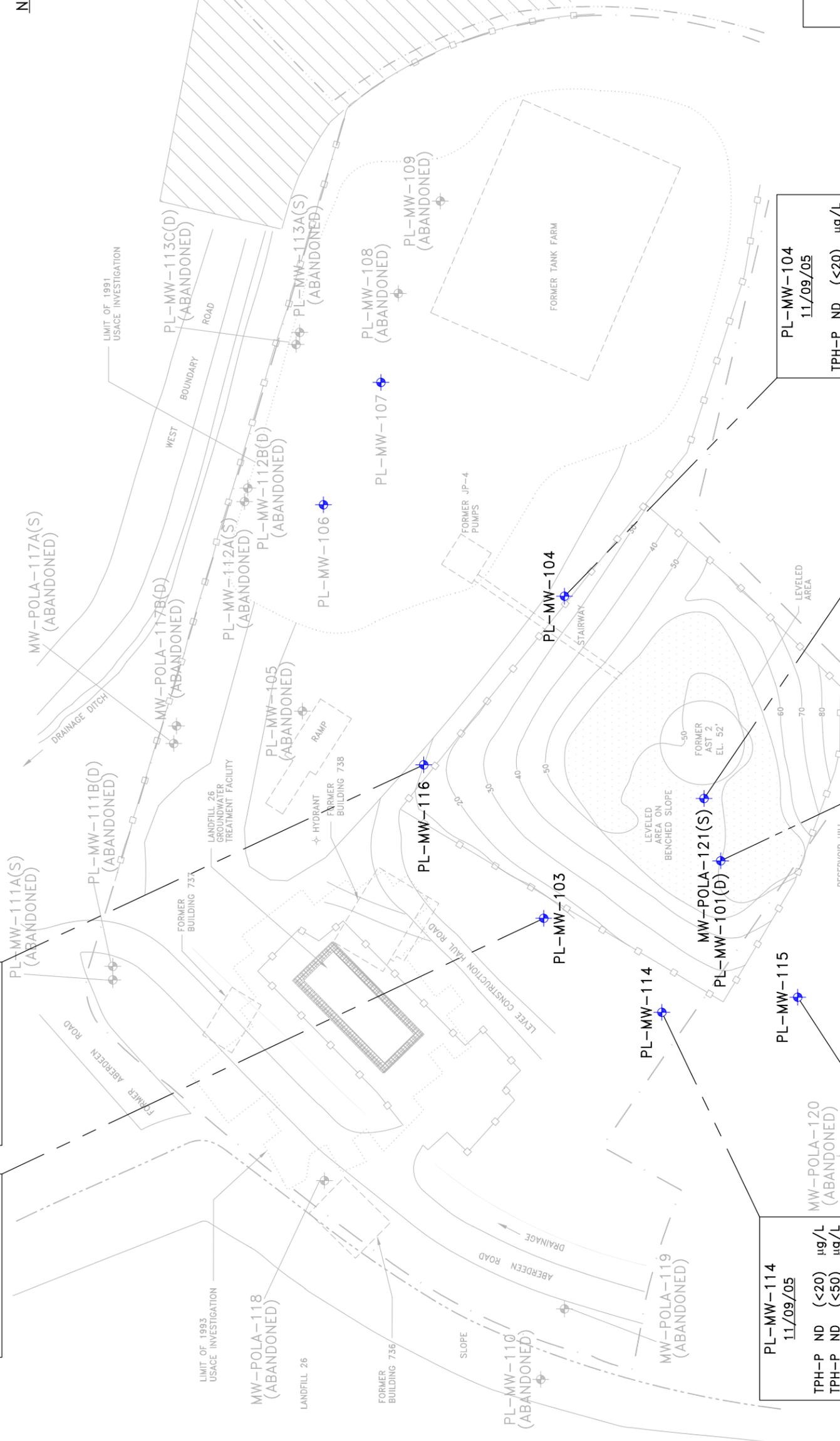
PL-MW-114	
11/09/05	
TPH-P	ND (<20) µg/L
TPH-E	ND (<50) µg/L
DO	1.82 mg/L
Eh	12.1 mv
CH4	14.0 µg/L

PL-MW-115	
11/09/05	
TPH-P	ND (<20) µg/L
TPH-E	ND (<50) µg/L
DO	0.66 mg/L
Eh	-28.1 mv
CH4	ND (<1.0) µg/L

PL-MW-101	
11/09/05	
TPH-P	170 µg/L
TPH-E	760 µg/L
DO	0.85 mg/L
Eh	-107.3 mv
CH4	5900 µg/L

MW-POLA-121(S)	
11/09/05	
TPH-P	ND (<20) µg/L
TPH-E	ND (<50) µg/L
DO	0.43 mg/L
Eh	-37.0 mv
CH4	20.0 µg/L

PL-MW-104	
11/09/05	
TPH-P	ND (<20) µg/L
TPH-E	ND (<50) µg/L
DO	0.54 mg/L
Eh	-116.0 mv
CH4	670 µg/L



PL-MW-103				
Date	Total TPH	TPH-P	TPH-E	µg/L
09/27/01	320	<50	320	µg/L
02/26/02	570	<50	570	µg/L
08/02/02	<250	<50	<250	µg/L
03/07/03	<250	<50	<250	µg/L
02/23/04	<480	10	<480	µg/L
03/17/05	<500	<50	<500	µg/L
11/09/05	<50	<20	<50	µg/L

PL-MW-116				
Date	Total TPH	TPH-P	TPH-E	µg/L
09/27/01	<250	<50	<250	µg/L
02/26/02	330	<50	330	µg/L
08/02/02	<250	<50	<250	µg/L
03/07/03	<250	<50	<250	µg/L
02/23/04	<480	7	<480	µg/L
03/17/05	370	<50	370	µg/L
11/09/05	<50	<20	<50	µg/L

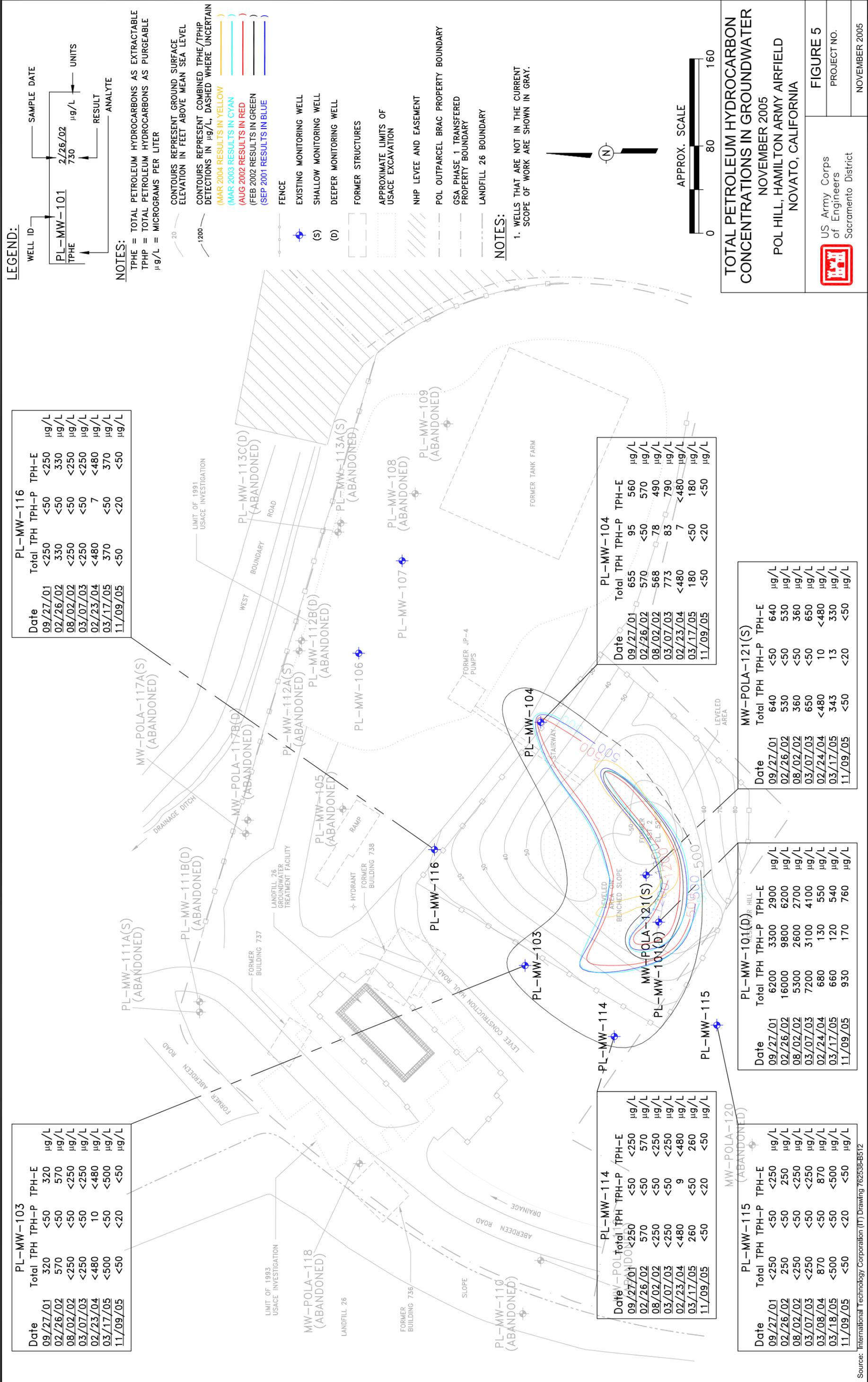
PL-MW-114				
Date	Total TPH	TPH-P	TPH-E	µg/L
09/27/01	<250	<50	<250	µg/L
02/26/02	570	<50	570	µg/L
08/02/02	<250	<50	<250	µg/L
03/07/03	<250	<50	<250	µg/L
02/23/04	<480	9	<480	µg/L
03/17/05	260	<50	260	µg/L
11/09/05	<50	<20	<50	µg/L

PL-MW-104				
Date	Total TPH	TPH-P	TPH-E	µg/L
09/27/01	655	95	560	µg/L
02/26/02	570	<50	570	µg/L
08/02/02	568	78	490	µg/L
03/07/03	773	83	790	µg/L
02/23/04	<480	7	<480	µg/L
03/17/05	180	<50	180	µg/L
11/09/05	<50	<20	<50	µg/L

PL-MW-115				
Date	Total TPH	TPH-P	TPH-E	µg/L
09/27/01	<250	<50	<250	µg/L
02/26/02	250	<50	250	µg/L
08/02/02	<250	<50	<250	µg/L
03/07/03	<250	<50	<250	µg/L
03/08/04	870	<50	870	µg/L
03/18/05	<500	<50	<500	µg/L
11/09/05	<50	<20	<50	µg/L

PL-MW-101(D)R HILL				
Date	Total TPH	TPH-P	TPH-E	µg/L
09/27/01	6200	3300	2900	µg/L
02/26/02	16000	9800	6200	µg/L
08/02/02	5300	2600	2700	µg/L
03/07/03	7200	3100	4100	µg/L
02/24/04	680	130	550	µg/L
03/17/05	660	120	540	µg/L
11/09/05	930	170	760	µg/L

MW-POLA-121(S)				
Date	Total TPH	TPH-P	TPH-E	µg/L
09/27/01	640	<50	640	µg/L
02/26/02	530	<50	530	µg/L
08/02/02	360	<50	360	µg/L
03/07/03	650	<50	650	µg/L
02/24/04	<480	10	<480	µg/L
03/17/05	343	13	330	µg/L
11/09/05	<50	<20	<50	µg/L



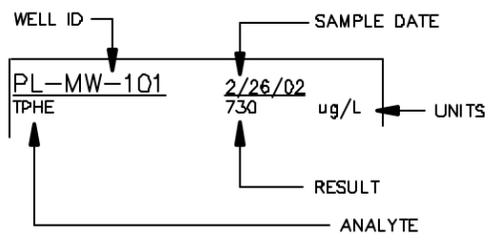
PL-MW-103				
Date	Total TPH	TPH-P	TPH-E	ug/L
02/97	<50	<50	<50	

PL-MW-116				
Date	Total TPH	TPH-P	TPH-E	ug/L
02/97	<50	<50	<50	

PL-MW-106				
Date	Total TPH	TPH-P	TPH-E	ug/L
02/97	<50	<50	<50	

PL-MW-107				
Date	Total TPH	TPH-P	TPH-E	ug/L
02/97	<50	<50	<50	

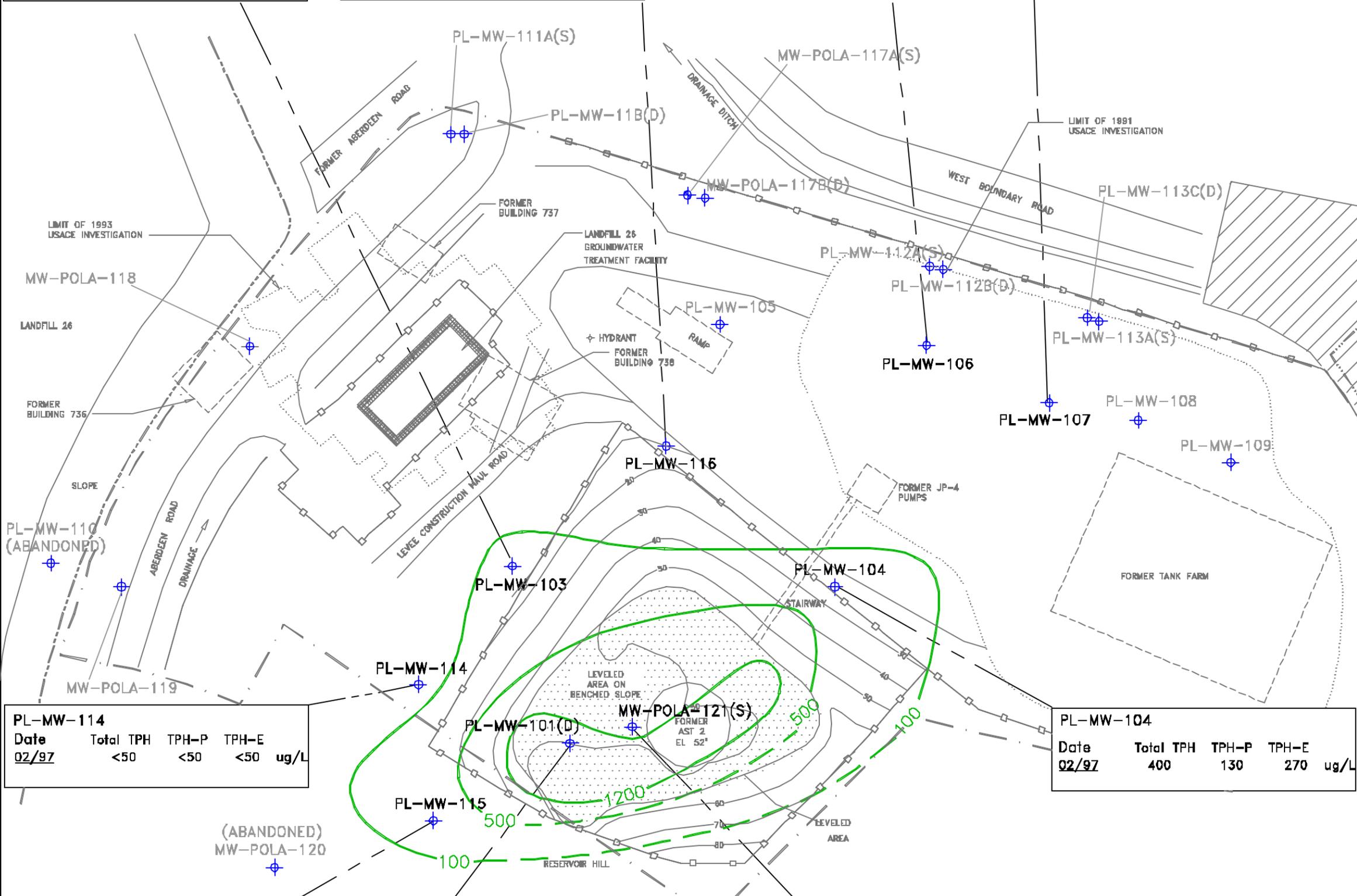
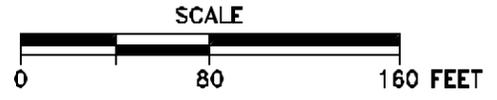
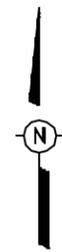
LEGEND:



- NOTES:**
- TPHE = TOTAL PETROLEUM HYDROCARBONS AS EXTRACTABLE
 - TPHP = TOTAL PETROLEUM HYDROCARBONS AS PURGEABLE
 - ug/L = MICROGRAMS PER LITER
 - 20' CONTOURS REPRESENT GROUND SURFACE ELEVATION IN FEET ABOVE MEAN SEA LEVEL
 - 1200' CONTOURS REPRESENT COMBINED TPHE/TPHP DETECTIONS IN ug/L, DASHED WHERE UNCERTAIN
 - FENCE
 - EXISTING MONITORING WELL
 - (S) SHALLOW MONITORING WELL
 - (D) DEEPER MONITORING WELL
 - FORMER STRUCTURES
 - APPROXIMATE LIMITS OF USAGE EXCAVATION
 - NHP LEVEE AND EASEMENT
 - POL OUTPARCEL BRAC PROPERTY BOUNDARY
 - GSA PHASE 1 TRANSFERRED PROPERTY BOUNDARY
 - LANDFILL 26 BOUNDARY

NOTES:

1. WELLS THAT ARE NOT IN THE CURRENT SCOPE OF WORK ARE SHOWN IN GRAY.



PL-MW-114				
Date	Total TPH	TPH-P	TPH-E	ug/L
02/97	<50	<50	<50	

PL-MW-104				
Date	Total TPH	TPH-P	TPH-E	ug/L
02/97	400	130	270	

PL-MW-115				
Date	Total TPH	TPH-P	TPH-E	ug/L
02/97	140	<50	140	

PL-MW-101(D)				
Date	Total TPH	TPH-P	TPH-E	ug/L
02/97	11400	4800	6600	

MW-POLA-121(S)				
Date	Total TPH	TPH-P	TPH-E	ug/L
02/97	1060	480	580	

TOTAL PETROLEUM HYDROCARBON CONCENTRATIONS IN GROUNDWATER
FEBRUARY 1997
POL HILL, HAMILTON ARMY AIRFIELD
NOVATO, CALIFORNIA



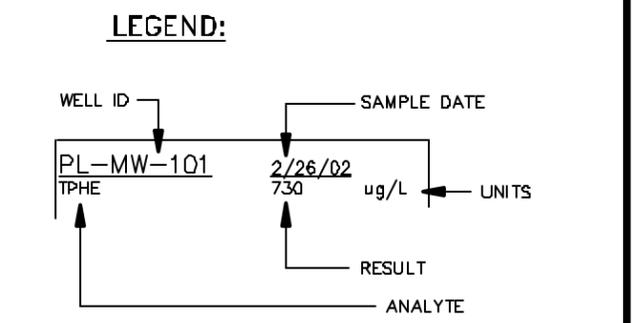
FIGURE 8
PROJECT NO. 01HW007
MAY 2008

PL-MW-103				
Date	Total TPH	TPH-P	TPH-E	ug/L
04/98	200	(E)	200	

PL-MW-116				
Date	Total TPH	TPH-P	TPH-E	ug/L
04/98	<50	<50	<50	

PL-MW-106				
Date	Total TPH	TPH-P	TPH-E	ug/L
04/98	<50	<50	<50	

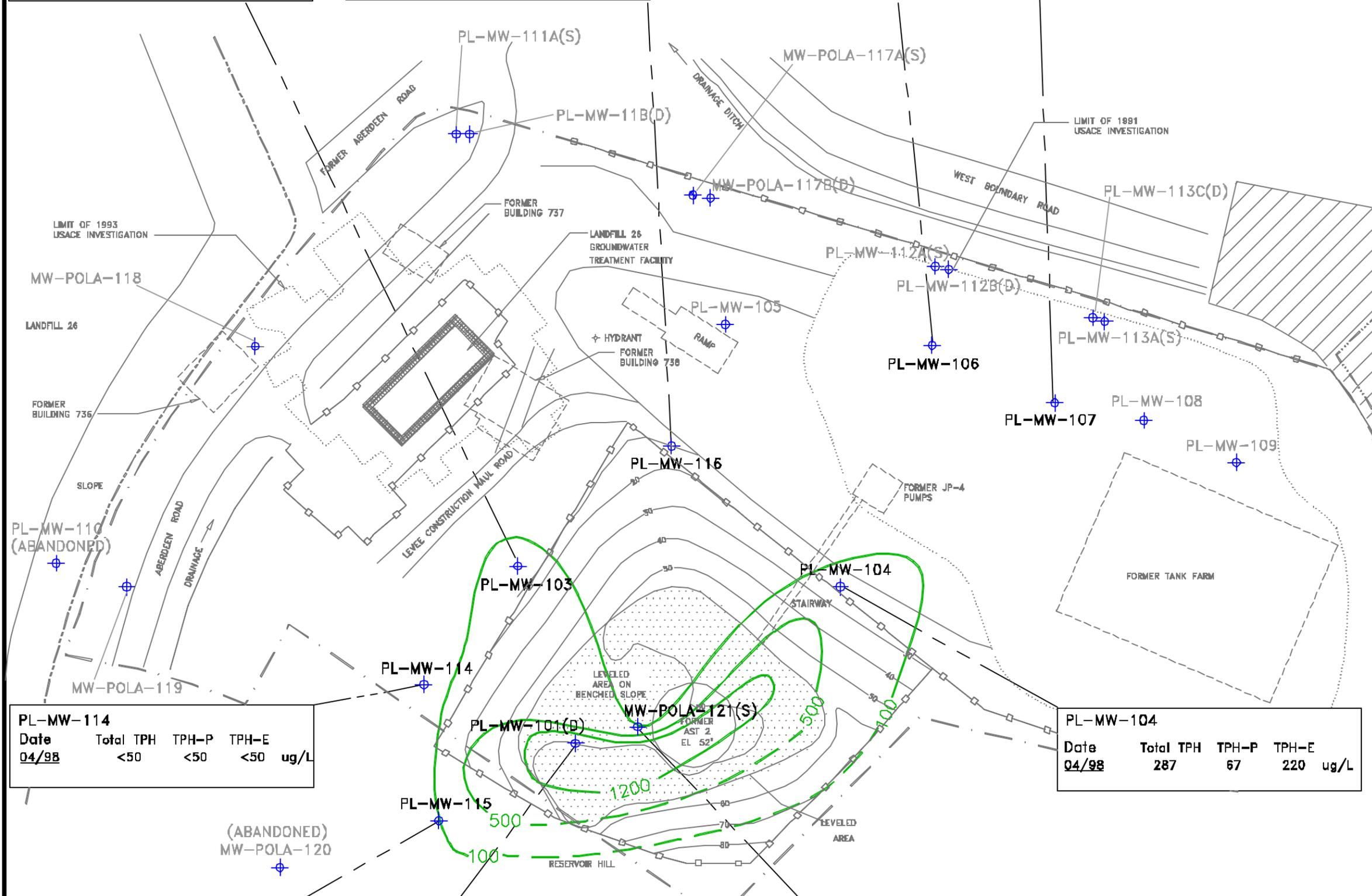
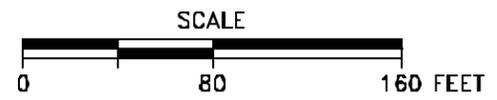
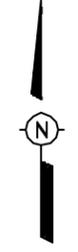
PL-MW-107				
Date	Total TPH	TPH-P	TPH-E	ug/L
04/98	<50	<50	<50	



NOTES:
 TPHE = TOTAL PETROLEUM HYDROCARBONS AS EXTRACTABLE
 TPHP = TOTAL PETROLEUM HYDROCARBONS AS PURGEABLE
 ug/L = MICROGRAMS PER LITER

- 20 CONTOURS REPRESENT GROUND SURFACE ELEVATION IN FEET ABOVE MEAN SEA LEVEL
- 1200 CONTOURS REPRESENT COMBINED TPHE/TPHP DETECTIONS IN ug/L, DASHED WHERE UNCERTAIN
- FENCE
- EXISTING MONITORING WELL
- (S) SHALLOW MONITORING WELL
- (D) DEEPER MONITORING WELL
- FORMER STRUCTURES
- APPROXIMATE LIMITS OF USAGE EXCAVATION
- NHP LEVEE AND EASEMENT
- POL OUTPARCEL BRAC PROPERTY BOUNDARY
- GSA PHASE 1 TRANSFERRED PROPERTY BOUNDARY
- LANDFILL 26 BOUNDARY

- NOTES:**
1. WELLS THAT ARE NOT IN THE CURRENT SCOPE OF WORK ARE SHOWN IN GRAY.
 2. NO ASSOCIATED RESULT (E).



PL-MW-114				
Date	Total TPH	TPH-P	TPH-E	ug/L
04/98	<50	<50	<50	

PL-MW-104				
Date	Total TPH	TPH-P	TPH-E	ug/L
04/98	287	67	220	

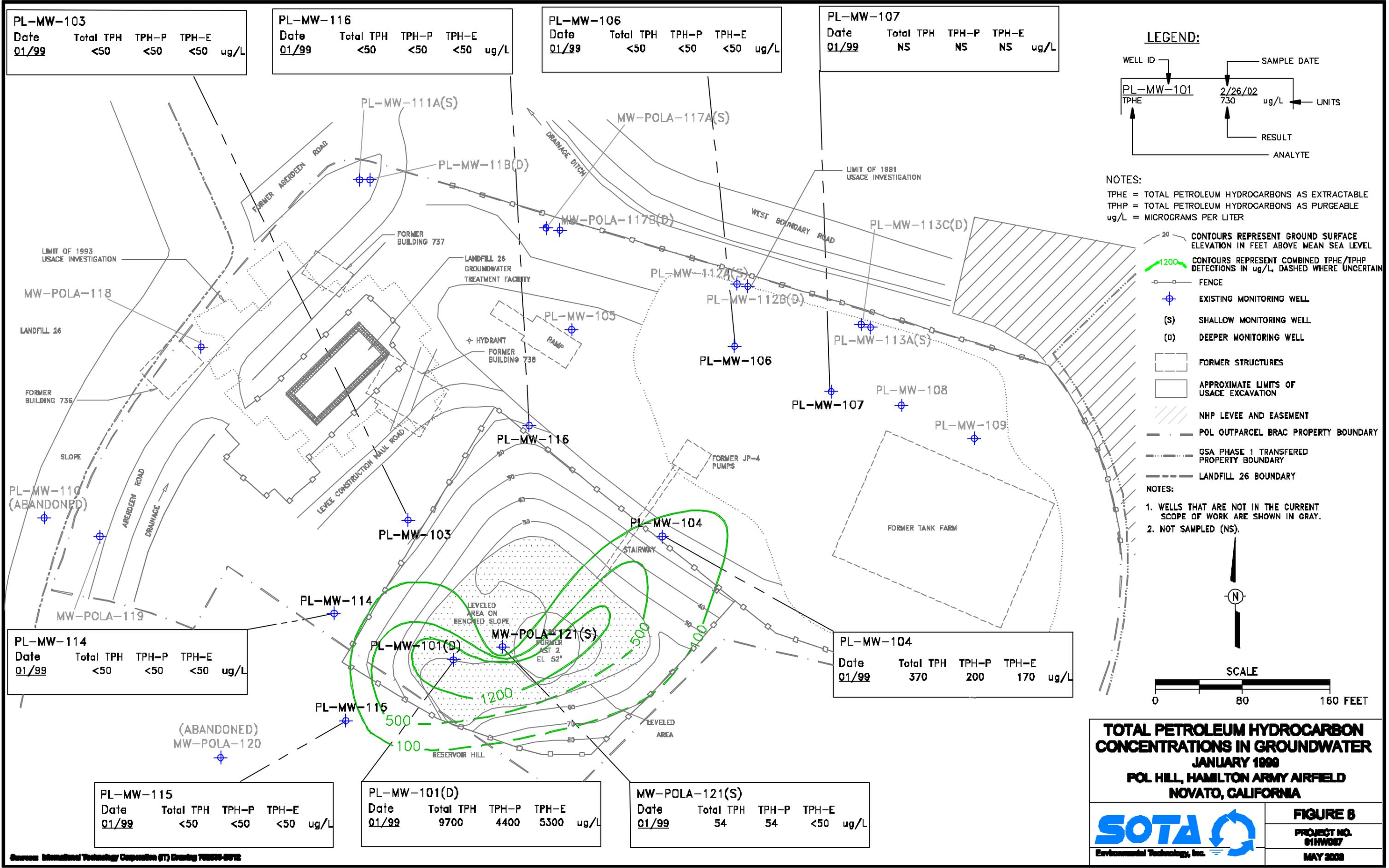
PL-MW-115				
Date	Total TPH	TPH-P	TPH-E	ug/L
04/98	100	<50	100	

PL-MW-101(D)				
Date	Total TPH	TPH-P	TPH-E	ug/L
04/98	4800	2700	2100	

MW-POLA-121(S)				
Date	Total TPH	TPH-P	TPH-E	ug/L
04/98	100	<50	100	

TOTAL PETROLEUM HYDROCARBON CONCENTRATIONS IN GROUNDWATER
APRIL 1998
POL HILL, HAMILTON ARMY AIRFIELD
NOVATO, CALIFORNIA

FIGURE 7
PROJECT NO. 01HW007
MAY 2008



TOTAL PETROLEUM HYDROCARBON CONCENTRATIONS IN GROUNDWATER
JANUARY 1999
POL HILL, HAMILTON ARMY AIRFIELD
NOVATO, CALIFORNIA

SOTA
Environmental Technology, Inc.

FIGURE 8
PROJECT NO. 01HW007
MAY 2008

Source: International Technology Corporation (IT) Drawing 70000-0012

PL-MW-103	
Date	CH4 mg/L
09/27/01	<0.005
02/26/02	<0.01
08/02/02	<0.01
03/07/03	<0.01
02/23/04	<0.003
03/17/05	0.00078
11/09/05	0.018

PL-MW-116	
Date	CH4 mg/L
09/27/01	<0.005
02/26/02	<0.01
08/02/02	<0.01
03/07/03	<0.01
02/23/04	<0.003
03/17/05	<0.005
11/09/05	<0.001

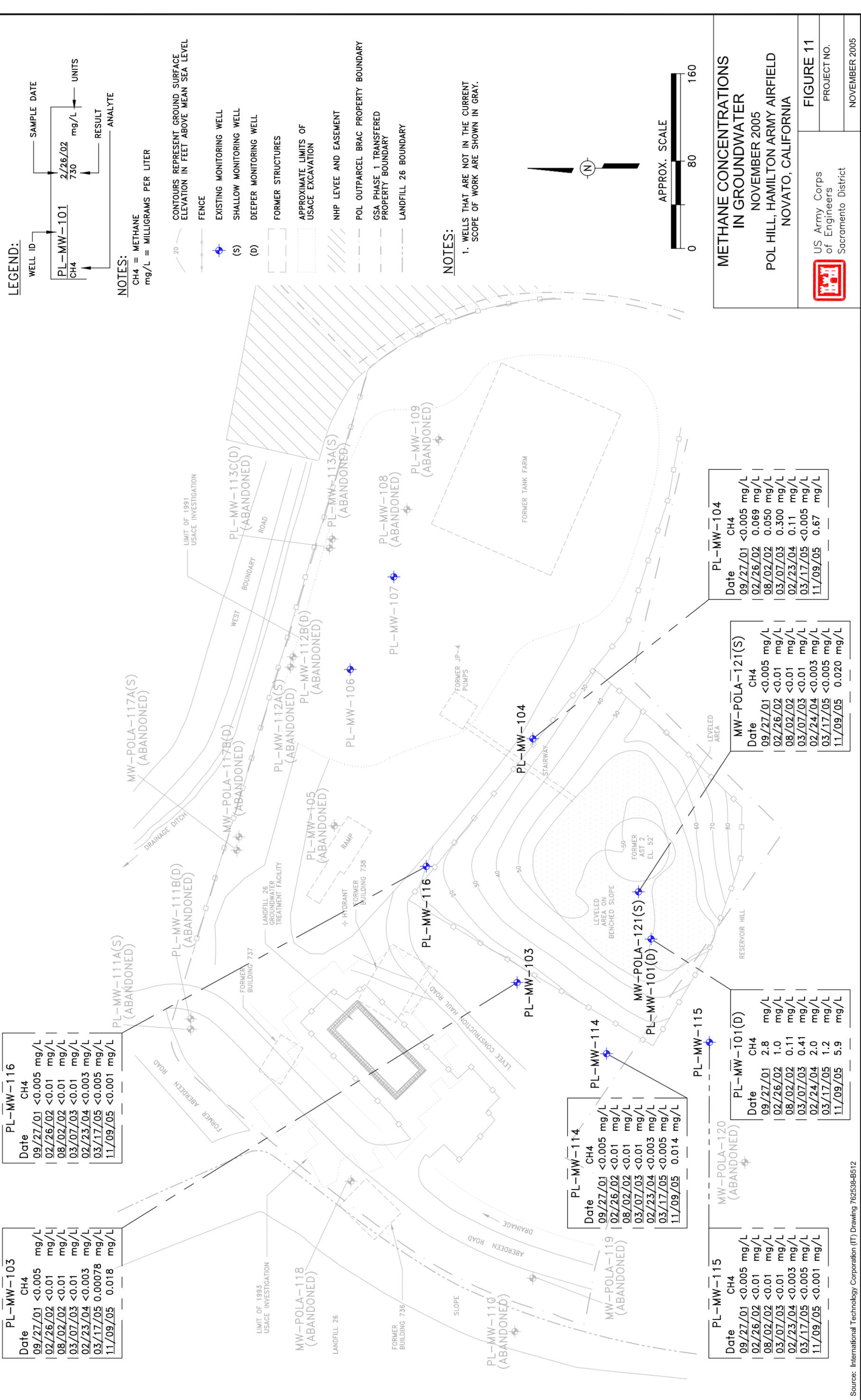
PL-MW-114	
Date	CH4 mg/L
09/27/01	<0.005
02/26/02	<0.01
08/02/02	<0.01
03/07/03	<0.01
02/23/04	<0.003
03/17/05	<0.005
11/09/05	0.014

PL-MW-115	
Date	CH4 mg/L
09/27/01	<0.005
02/26/02	<0.01
08/02/02	<0.01
03/07/03	<0.01
02/23/04	<0.003
03/17/05	<0.005
11/09/05	<0.001

PL-MW-101(D)	
Date	CH4 mg/L
09/27/01	2.8
02/26/02	1.0
08/02/02	0.11
03/07/03	0.41
02/24/04	2.0
03/17/05	1.2
11/09/05	5.9

MW-POLA-121(S)	
Date	CH4 mg/L
09/27/01	<0.005
02/26/02	<0.01
08/02/02	<0.01
03/07/03	<0.01
02/24/04	<0.003
03/17/05	<0.005
11/09/05	0.020

PL-MW-104	
Date	CH4 mg/L
09/27/01	<0.005
02/26/02	0.069
08/02/02	0.050
03/07/03	0.300
02/23/04	0.11
03/17/05	<0.005
11/09/05	0.67

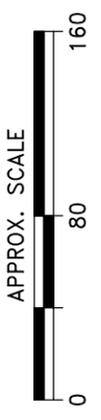
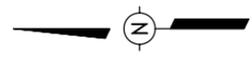


LEGEND:
 WELL ID: PL-MW-101
 ANALYTE: CH4
 RESULT: 730
 UNITS: mg/L
 SAMPLE DATE: 2/26/02

NOTES:
 CH4 = METHANE
 mg/L = MILLIGRAMS PER LITER

- CONTOURS REPRESENT GROUND SURFACE ELEVATION IN FEET ABOVE MEAN SEA LEVEL
- FENCE
- EXISTING MONITORING WELL (S)
- SHALLOW MONITORING WELL (D)
- DEEPER MONITORING WELL
- FORMER STRUCTURES
- APPROXIMATE LIMITS OF USAGE EXCAVATION
- NHP LEVEE AND EASEMENT
- POL OUTPARCEL BRAC PROPERTY BOUNDARY
- GSA PHASE 1 TRANSFERRED PROPERTY BOUNDARY
- LANDFILL 26 BOUNDARY

NOTES:
 1. WELLS THAT ARE NOT IN THE CURRENT SCOPE OF WORK ARE SHOWN IN GRAY.



METHANE CONCENTRATIONS IN GROUNDWATER
 NOVEMBER 2005
 POL HILL, HAMILTON ARMY AIRFIELD
 NOVATO, CALIFORNIA

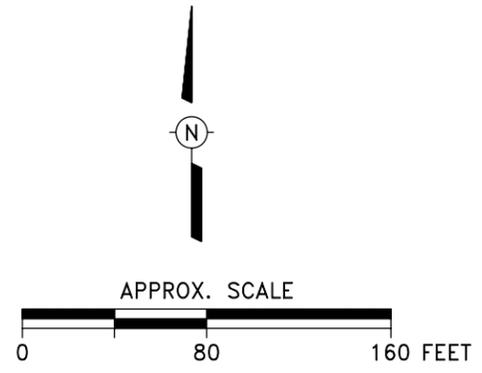
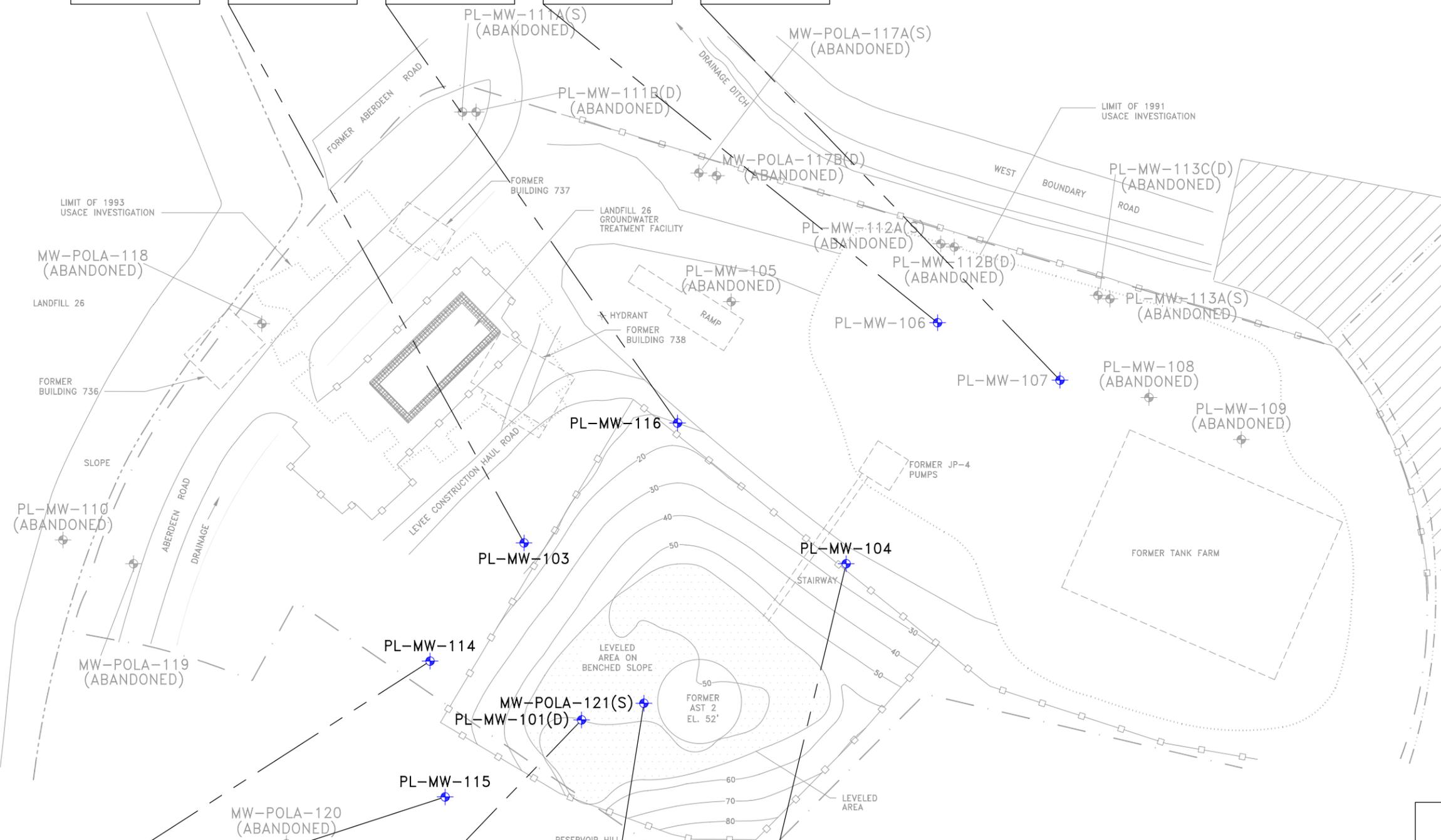
FIGURE 11
 PROJECT NO.
 NOVEMBER 2005

US Army Corps of Engineers
 Sacramento District

SAMPLE DATE	PL-MW-103	PL-MW-116	PL-MW-106	PL-MW-107
02/27/97	110	ND<50	ND<50	ND<50
02/24/04	ND<240	ND<240	NS	NS
03/17/05	ND<550	370 J	NS	NS
11/09/05	ND<50	ND<50	NS	NS

- LEGEND:**
- 20 CONTOURS REPRESENT GROUND SURFACE ELEVATION IN FEET ABOVE MEAN SEA LEVEL
 - FENCE
 - EXISTING MONITORING WELL
 - (S) SHALLOW MONITORING WELL
 - (D) DEEPER MONITORING WELL
 - FORMER STRUCTURES
 - APPROXIMATE LIMITS OF USACE EXCAVATION
 - NHP LEVEE AND EASEMENT
 - POL OUTPARCEL BRAC PROPERTY BOUNDARY
 - GSA PHASE 1 TRANSFERRED PROPERTY BOUNDARY
 - LANDFILL 26 BOUNDARY

- NOTES:**
1. WELLS THAT ARE NOT IN THE CURRENT SCOPE OF WORK ARE SHOWN IN GRAY.
 2. ALL RESULTS ARE QUANTIFIED IN LIMITS OF MICROGRAMS PER LITER (µg/L).



SAMPLE DATE	PL-MW-114	PL-MW-115	PL-MW-101	PL-MW-121	PL-MW-104
02/27/97	ND<50	140	11,400	1060	400
02/24/04	ND<240	87 J	874	21 J	72 J
03/17/05	260 J	390 J	660	343 J	180 J
11/09/05	ND<50	<50	930	<50	ND<50

TPH CONCENTRATIONS
FEBRUARY 1997, FEBRUARY 2004,
MARCH 2005 AND NOVEMBER 2005
POL HILL, HAMILTON ARMY AIRFIELD
NOVATO, CALIFORNIA

	FIGURE 12
	PROJECT NO.
	NOVEMBER 2005

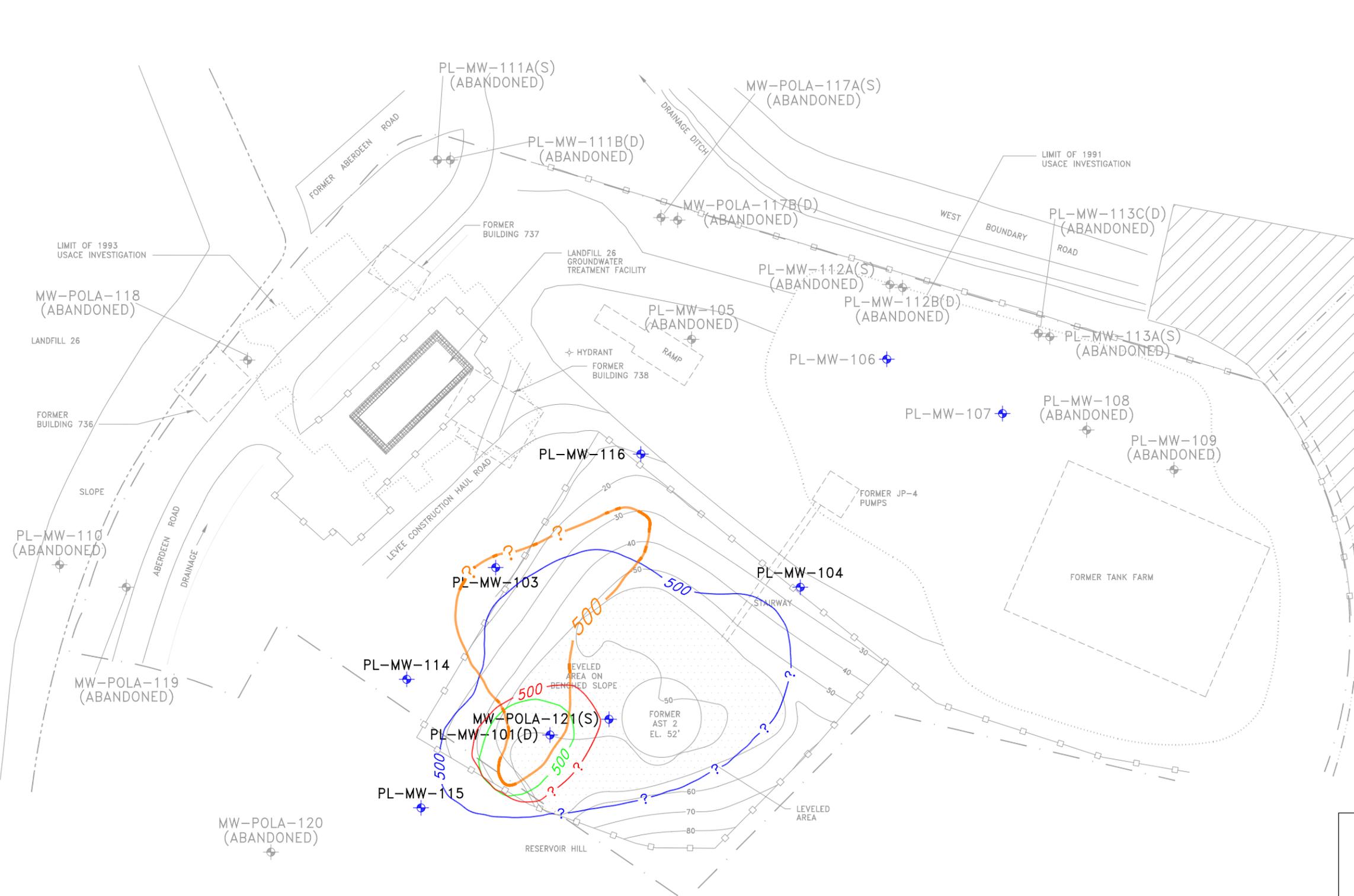
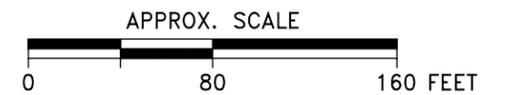
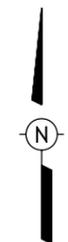
Source: International Technology Corporation (IT) Drawing 762538-B512

LEGEND:

-  20 CONTOURS REPRESENT GROUND SURFACE ELEVATION IN FEET ABOVE MEAN SEA LEVEL
-  500 CONTOURS REPRESENT ESTIMATED TPH CONCENTRATIONS IN GROUNDWATER (500 µg/L), DASHED WHERE UNCERTAIN
-  (FEB 1997 RESULTS IN BLUE)
-  (FEB 2004 RESULTS IN GREEN)
-  (MAR 2005 RESULTS IN ORANGE)
-  (NOV 2005 RESULTS IN RED)
-  FENCE
-  EXISTING MONITORING WELL
- (S) SHALLOW MONITORING WELL
- (D) DEEPER MONITORING WELL
-  FORMER STRUCTURES
-  APPROXIMATE LIMITS OF USACE EXCAVATION
-  NHP LEVEE AND EASEMENT
-  POL OUTPARCEL BRAC PROPERTY BOUNDARY
-  GSA PHASE 1 TRANSFERRED PROPERTY BOUNDARY
-  LANDFILL 26 BOUNDARY

NOTES:

1. WELLS THAT ARE NOT IN THE CURRENT SCOPE OF WORK ARE SHOWN IN GRAY.
2. ALL RESULTS ARE QUANTIFIED IN LIMITS OF MICROGRAMS PER LITER (µg/L).



**ESTIMATED TPH CONCENTRATION
CONTOURS IN GROUNDWATER
(500 µg/L)**

**POL HILL, HAMILTON ARMY AIRFIELD
NOVATO, CALIFORNIA**

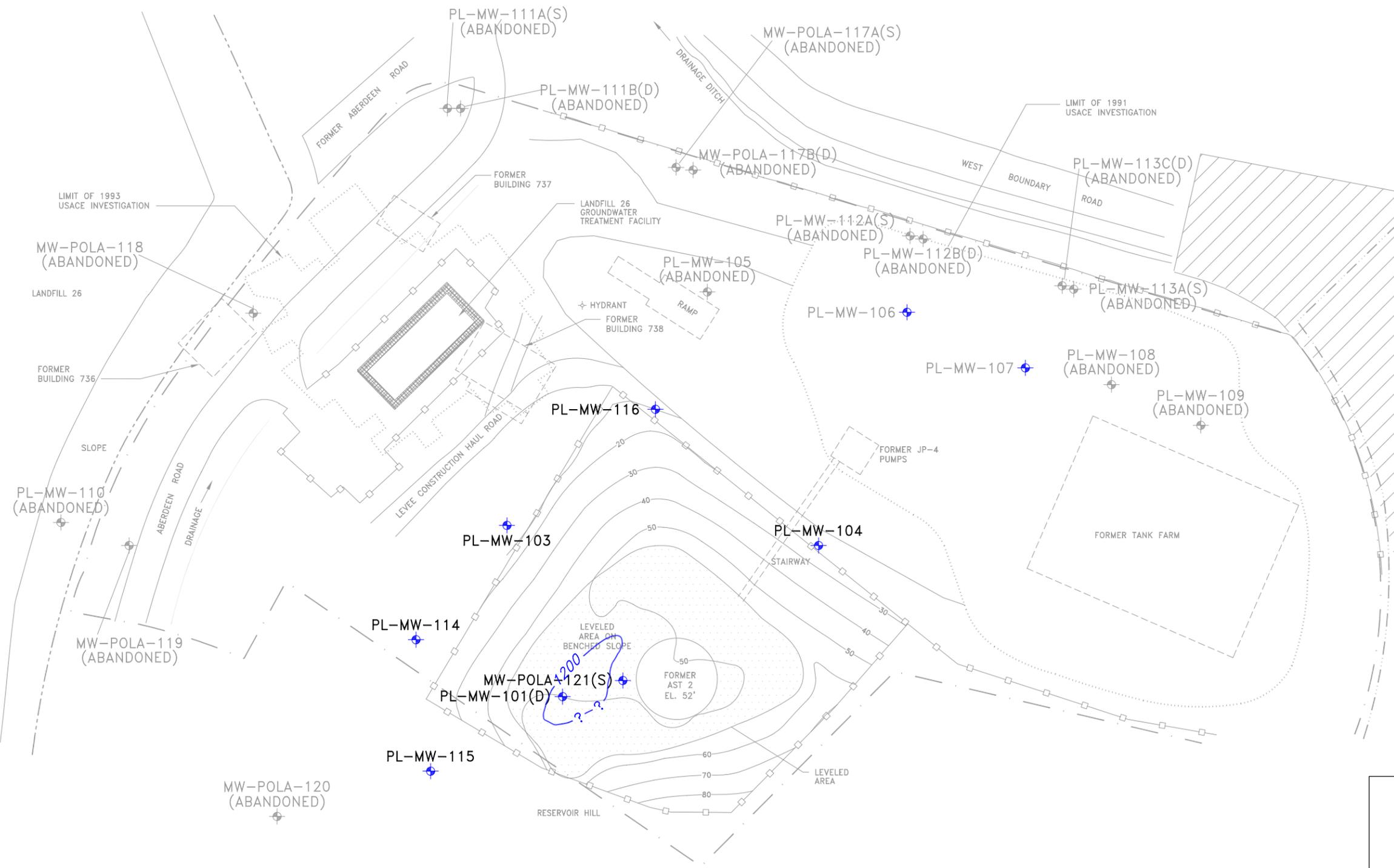
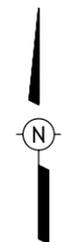
 US Army Corps of Engineers Sacramento District	FIGURE 13
	PROJECT NO.
	NOVEMBER 2005

LEGEND:

-  20 CONTOURS REPRESENT GROUND SURFACE ELEVATION IN FEET ABOVE MEAN SEA LEVEL
-  1200 CONTOURS REPRESENT ESTIMATED TPH CONCENTRATIONS IN GROUNDWATER (1200 µg/L), DASHED WHERE UNCERTAIN
(FEB 1997 RESULTS IN BLUE)
-  FENCE
-  EXISTING MONITORING WELL
- (S) SHALLOW MONITORING WELL
- (D) DEEPER MONITORING WELL
-  FORMER STRUCTURES
-  APPROXIMATE LIMITS OF USACE EXCAVATION
-  NHP LEVEE AND EASEMENT
-  POL OUTPARCEL BRAC PROPERTY BOUNDARY
-  GSA PHASE 1 TRANSFERRED PROPERTY BOUNDARY
-  LANDFILL 26 BOUNDARY

NOTES:

1. WELLS THAT ARE NOT IN THE CURRENT SCOPE OF WORK ARE SHOWN IN GRAY.
2. ALL RESULTS ARE QUANTIFIED IN LIMITS OF MICROGRAMS PER LITER (µg/L).
3. THE RESIDENTIAL CLEANUP GOAL (RCG) FOR EXTRACTABLE RANGE TOTAL PETROLEUM HYDROCARBONS IS 1200 µg/L.



**ESTIMATED TPH CONCENTRATION
CONTOUR IN GROUNDWATER
(1200 µg/L)**

**POL HILL, HAMILTON ARMY AIRFIELD
NOVATO, CALIFORNIA**

 US Army Corps of Engineers Sacramento District	FIGURE 14
	PROJECT NO.
	NOVEMBER 2005

APPENDIX A
LABORATORY ANALYTICAL
RESULTS

Laboratory Report

USACE

**HAAF POL Hill
GW Monitoring**

November 9, 2005

APPL, Inc.

**Data Validation Package
for**

HAAF POL Hill

ARF 49057

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CASE NARRATIVE



Case Narrative

APPL, Inc. California State Certification No. 1312

ARF Number: 49057 Revised

Project: HAAF POL Hill-GW Monitoring

Sample Receipt Information

The sample group was received on November 11, 2005, at 3.5°C and 3.0°C. The sample numbers and requested analyses were compared to the chains of custody. The samples were assigned Analytical Request Form (ARF) number 49057. No exception was encountered.

Sample Table

CLIENT ID	APPL ID	Matrix	Date Sampled	Date Received
PL-MW-101	AX30161	WATER	11/9/05	11/11/05
PL-MW-103	AX30162	WATER	11/9/05	11/11/05
PL-MW-104	AX30163	WATER	11/9/05	11/11/05
PL-MW-114	AX30164	WATER	11/9/05	11/11/05
PL-MW-115	AX30165	WATER	11/9/05	11/11/05
PL-MW-116	AX30166	WATER	11/9/05	11/11/05
MW-POLA-121	AX30167	WATER	11/9/05	11/11/05
PL-MW-130	AX30168	WATER	11/9/05	11/11/05
TRIP BLANK	AX30169	WATER	8/8/08	11/11/05

AMENDED PAGE

EPA Method 8015B

Total Extractable Petroleum Hydrocarbons (C12-C40)

Sample Preparation:

The water samples were extracted according to EPA method 3510C. All holding times were met.

Sample Analysis Information:

The samples were analyzed according to the method using a Hewlett Packard Gas Chromatograph with a flame ionization detector. The client requested the TPH-Extractable results to be reported as "TPH-Extractable C12-C40", rather than "Diesel" and "Motor Oil" which were reported in the original report. It should be noted that the actual carbon-chain range analyzed was C10-C30. Since APPL's quantitation range started at C10 (rather than the client's C12 requirement), all of the sample data was reviewed for hydrocarbon responses between C10 and C12. Only one sample (PL-MW-101) had significant hydrocarbon responses between the C10 and C12 range. This sample was re-quantitated to exclude the responses between C10 and C12, and therefore the result for this sample was slightly lower than originally reported. The Diesel and Motor Oil lab control spikes were added together for a total value in the amended report. The Motor Oil MDL (106 ug/L) was used to screen the samples for J-values between the MDL and PQL, as per the client's instructions.

Quality Control/Assurance

Calibrations:

Initial and continuing calibrations were performed according to the method. All calibration criteria were met.

Blanks:

No target analyte was detected above the reporting limits in the method blank.

Spikes:

A Laboratory Control Spike (LCS) was used for quality assurance. All acceptance criteria were met.

Sample PL-MW-103 was designated by the client for an MS/MSD analysis.

Surrogates

The surrogates recovered below the 50% lower control limit in sample PL-MW-103 at 20.2%. All other surrogate recoveries met acceptance criteria.

Summary:

No other problem was encountered.

AMENDED PAGE

EPA Method 8015B

Total Purgeable Petroleum Hydrocarbons (C6-C12)

Sample Preparation:

The water samples were purged according to EPA method 5030B. All holding times were met.

Sample Analysis Information:

The samples were analyzed according to the method using a Hewlett Packard Gas Chromatograph with a PID/FID detector. All holding times were met.

Quality Control/Assurance

Calibrations:

Initial and continuing calibrations were performed according to the method. All acceptance criteria were met.

Blanks:

The blank contained no target analyte at or above the reporting limits.

Spikes:

A Laboratory Control Spike (LCS) was used for quality assurance. All acceptance criteria were met.

Sample PL-MW-103 was designated by the client for an MS/MSD analysis. All acceptance criteria were met.

Surrogates

All surrogate recoveries were within control limits.

Summary:

No problem was encountered. All data were acceptable.

AMENDED PAGE

Dissolved Gases

Modified RSK-175

Sample Preparation and Analysis

The water sample was analyzed with guidance from RSK-175. The sample was allowed to equilibrate for 10 minutes at 40°C and a portion of the headspace was analyzed using a Hewlett Packard Gas Chromatograph with a flame ionization detector.

Quality Control/Assurance

Spike Recovery

Laboratory Control Spikes (LCS/LCSD) were used for quality assurance. All recoveries met acceptance criteria.

Sample PL-MW-103 was designated by the client for an MS/MSD analysis. Ethane recovered above the 130% upper control limit at 131% in the MSD.

Method blanks

No target analyte was detected at or above the reporting limits for the method blank.

Calibration

Initial and continuing calibrations were analyzed with guidance from RSK-175. All calibration criteria were met.

Summary:

No analytical exception was noted.

EPA Methods 300.0 and 310.1

Sulfate and Total Alkalinity

Sample Preparation Information:

The waters were prepared and analyzed according to the methods. All holding times were met.

Analysis Information:

Samples:

All holding times were met.

Calibrations:

Calibrations were performed according to the methods for the initial calibration and the initial calibration verification. The initial calibration verification is prepared from a second source standard.

Blanks:

No target analyte was detected above the reporting limits in the method blanks.

Spikes:

Laboratory Control Spikes (LCS), Sample Duplicates, and Matrix Spikes (MS) were used for quality assurance, volume permitting. Sulfate recovered below the 90% lower control limit at 85.2% in the MS.

Summary:

No other analytical exception is noted.

Certification

I certify that this data package is in compliance with the terms and conditions of the contract, both technically and for completeness, for other than the conditions detailed above. Release of the hard copy has been authorized by the Laboratory Manager or his designee, as verified by the following signature.

Leonard Fong ^{by VT} 10/19/05
Leonard Fong, Ph.D, Laboratory Director / Date

**CHAIN OF CUSTODY
AND ARF**

APPL - Analysis Request Form

49057



Client: USACE-Sacramento District
 Address: 1325 J Street
Sacramento, CA 95814
 Attn: JOHN YAREMCHUK
 Phone: 916-557-7180 Fax: 916-557-7465
 Job: HAAF POL HILL-GW MONITORING
 PO #: NA
 Chain of Custody (Y/N): Y # 005955
 RAD Screen (Y/N): Y pH (Y/N): N
 Turn Around Type: STD

Received by: CM
 Date Received: 11/11/05 Time: 09:45
 Delivered by: FED EX
 Shuttle Custody Seals (Y/N): Y
 Chest Temp(s): 3.5°C 3.0°C
 Color: VOA/BROWN
 Samples Chilled until Placed in Refrig/Freezer: Y
 Project Manager: Cynthia Heeb
 QC Report Type: ADR EDD/CA/Level III
 Due Date: 11/23/05

Comments:

REPORT J-VALUES DOWN TO THE MDL. SEE INCOMING SAMPLE NOTICE FOR SPECIFICATIONS
USACE QAPP. RL is 3x MDL. dry wt soils. LCSD required for RPD.
Further QA info available in the SHELL or project specific QAPP.
Send copy of COC w/ invoice.
ADR = A1 and A3 tables

*Sample ID PL-MW-103 is missing one 250 plastic container.
 3 Trip Blank was added to ARF.*

Sample Distribution: Charges: Invoice To:
3C: 8-\$TPHD
Extractions: 8- SEP011
/OA: 9-\$GAS, 9-\$RSK
Metlab: 9-\$300W(SO4), 8-\$310

Client ID	APPL ID	Sampled	Analyses Requested
1. PL-MW-101	AX30161W 	11/9/05 15:00	\$300W(SO4), \$310, \$GAS, \$RSK, \$TPHD
2. PL-MW-103	MS/MSD AX30162W 	11/9/05 11:35	\$300W(SO4), \$310, \$GAS, \$RSK, \$TPHD
3. PL-MW-104	AX30163W 	11/9/05 12:53	\$300W(SO4), \$310, \$GAS, \$RSK, \$TPHD
4. PL-MW-114	AX30164W 	11/9/05 16:05	\$300W(SO4), \$310, \$GAS, \$RSK, \$TPHD
5. PL-MW-115	AX30165W 	11/9/05 16:55	\$300W(SO4), \$310, \$GAS, \$RSK, \$TPHD
6. PL-MW-116	AX30166W 	11/9/05 10:30	\$300W(SO4), \$310, \$GAS, \$RSK, \$TPHD
7. MW-POLA-121	AX30167W 	11/9/05 14:05	\$300W(SO4), \$310, \$GAS, \$RSK, \$TPHD

APPL - Analysis Request Form

49057

8. PL-MW-130	AX30168W	11/9/05	00:00	\$300W(SO4), \$310, \$GAS, \$RSK, \$TPHD
				
9. TRIP BLANK	AX30169W	NA	00:00	\$300W(SO4), \$GAS, \$RSK
				

Initials _____ Date _____

APPL Sample Receipt Form

ARF# 49057

Sample	Container Type	Count	Sample	Container Type	Count	Sample	Container Type	Count
AX30161	³ PL 250mL	1						
	¹³ VOAs - HCL	6						
	¹⁷ Amber Liter	1						
AX30162	³ PL 250mL	1						
	¹³ VOAs - HCL	12						
	¹⁷ Amber Liter	4						
AX30163	³ PL 250mL	1						
	¹³ VOAs - HCL	6						
	¹⁷ Amber Liter	1						
AX30164	³ PL 250mL	1						
	¹³ VOAs - HCL	6						
	¹⁷ Amber Liter	1						
AX30165	³ PL 250mL	1						
	¹³ VOAs - HCL	6						
	¹⁷ Amber Liter	1						
AX30166	³ PL 250mL	1						
	¹³ VOAs - HCL	6						
	¹⁷ Amber Liter	2						
AX30167	³ PL 250mL	1						
	¹³ VOAs - HCL	6						
	¹⁷ Amber Liter	1						
AX30168	³ PL 250mL	1						
	¹³ VOAs - HCL	6						
	¹⁷ Amber Liter	1						
AX30169	¹³ VOAs - HCL	3						

CHAIN OF CUSTODY RECORD



US ARMY CORPS OF ENGINEERS
SACRAMENTO DISTRICT
 Environmental Engineering Branch
 SPK-ED-E
 1325 J Street
 Sacramento, California
 95814-2922

Project Name: POL-H11 - GW Monitoring
 Project Location: HAAF
 Project Coordinator: John Yaremchuk
 Phone: 916-557-7504 FAX: 916-557-5307
 Sampler: JL/JY Phone:

Laboratory: APPL
 Address: 4203 W. Swift Ave
Fresno, CA 93722
 Contact: TR. Wise
 Phone: 559-275-2175

ANALYSIS REQUESTED →

SAMPLE IDENTIFICATION	Field	Laboratory	GRAB	COMP	DATE	TIME	ANALYSIS REQUESTED					MS/MSD	TURN AROUND TIME (DAYS)	MATRIX CODE	NUMBER OF					PRESERVATIVE CODE		
							PLASTIC	GLASS	VOA	SLEEVE	ENCORE				PRESERVATIVE CODE							
PL-MW-101			✓		11/9	1500	X	X	X	X	X			W	1	1	6					
PL-MW-103			✓		11/9	1135	X	X	X	X	X		X	W	2	4	12					
PL-MW-104			✓		11/9	1253	X	X	X	X	X			W	1	1	6					
PL-MW-114			✓		11/9	1605	X	X	X	X	X			W	1	1	6					
PL-MW-115			✓		11/9	1655	X	X	X	X	X			W	1	1	6					
PL-MW-116			✓		11/9	1030	X	X	X	X	X			W	1	2	6					
MW-POLA-181			✓		11/9	1405	X	X	X	X	X			M	1	2	6					
MW-PL-MW-113																						
PL-MW-130			✓		11/9	-	X	X	X	X	X			W	1	1	6					

CHECKED BY:

PRESERVATIVE CODES: C = HCl N = HNO₃ S = H₂SO₄
 SAMPLE DISPOSAL: Hold Dispose Return

MATRIX CODES: W = Water SI = Sludge SP = Solid Product
 S = Soil A = Air LP = Liquid Product
 Sd = Sediment

RELINQUISHED BY: [Signature] DATE/TIME: 11/10/2005 0800 RECEIVED BY: [Signature] DATE/TIME: 11/10/05 0945

SHIPPING: Fed Ex Courier Hand Deliver
 Airbill Number: 8457-9147-2045

COOLER RECEIPT FORM

Project: Pol-Hill-GW-Monitoring 2 Date Received: 11-11-05

Coolers: Number of Coolers: 2
YES NO Were coolers and samples screened for radioactivity?
YES NO Were custody seals on outside of cooler? How many? 2 Date on seal? 11-9-05
Name on seal? See Below
YES NO NA Were custody seals unbroken and intact at the time of arrival?
YES NO Did the cooler come with a shipping slip (air bill, etc.)? Carrier name: Fed-ex
Shipping slip numbers: 1) 8457-9147-2045 2) 8457-9147-2078 3) _____
YES NO NA Was the shipping slip scanned into the database?
YES NO NA If cooler belongs to APPL, has it been logged into the ice chest database?
Describe type of packing in cooler (bubble wrap, popcorn, type of ice, etc.): Wrap & wet ice

YES NO NA For hand delivered samples was sufficient ice present to start the cooling process?
YES NO Was a temperature blank included in the cooler?
Serial number of certified NIST thermometer used: HB 250392 Correction factor: 0
Cooler temp(s): 1) 3.5 C 2) 3.0 C 3) _____ 4) _____ 5) _____ 6) _____ 7) _____ 8) _____

Chain of custody:
YES NO Was a chain of custody received?
YES NO Were the custody papers signed in the appropriate places?
YES NO Was the project identifiable from custody papers?
YES NO Did the chain of custody include date and time of sampling?
YES NO Is location where sample was taken listed on the chain of custody?

Sample Labels:
YES NO Were container labels in good condition?
YES NO Was the client ID on the label?
YES NO Was the date of sampling on the label?
YES NO Was the time of sampling on the label?
YES NO Did all container labels agree with custody papers?

Sample Containers:
YES NO Were all containers sealed in separate bags?
YES NO Did all containers arrive unbroken?
YES NO Was there any leakage from samples?
YES NO Were any of the lids cracked or broken?
YES NO Were correct containers used for the tests indicated?
YES NO Was a sufficient amount of sample sent for tests indicated?
YES NO NA Were bubbles present in volatile samples? If yes, the following were received with air bubbles:

Larger than a pea: _____
Smaller than a pea: As 30169 w03

Reservation & Hold time:
YES NO Was a sufficient amount of holding time remaining to analyze the samples?
YES NO NA Were correct preservatives added to the samples?
YES NO NA Was the pH taken of all non-VOA preserved samples and written on the sample container?
YES NO NA Was the pH of acid preserved samples < 2 & sodium hydroxide preserved samples > 10?

Lab notified if pH was not adequate: _____

Deficiencies: Sample ID PL-MW-103 has one missing container 250 plastic.
Also 3 trip was added to APF.
Blank

Signature of personnel receiving samples: [Signature] Second reviewer: _____
Signature of project manager notified: [Signature] Date and Time of notification: 11/10/05 11
Name of client notified: _____ Date and Time of notification: _____
Information given to client: _____ by whom (Initials): _____

CUSTODY SEAL
Person Collecting Sample: [Signature] Sample No: _____
Date Collected: 11/9/05 Time Collected: _____
(signature)

**EPA 8015-Extractables
Total Petroleum Hydrocarbons**

EPA 8015 - Extractables
Total Petroleum Hydrocarbons

QC Summary

Method Blank
EPA 8015B TPH Extractable

Blank Name/QCG: **051116W-30162 - 95145**
Batch ID: \$TP40-051115A

APPL Inc.
4203 West Swift Avenue
Fresno, CA 93722

Sample Type	Analyte	Result	PQL	MDL	Units	Extraction Date	Analysis Date
BLANK	TPH-Extractable C12-C40	Not detected	500	106	ug/L	11/16/05	11/17/05
BLANK	Surrogate: Ortho-Terphenyl	50.6	50-150		%	11/16/05	11/17/05

Run #: 12
Instrument: APOLLO
Sequence: 051117
Initials: KW

GC SC-Blank-REG MDLs
Printed: 01/23/06 3:49:07 PM

TPH Extractables

Form 2 & 8

Surrogate Recovery - Retention Time Summary

Lab Name: APPL, Inc. SDG No: 49057
 Case No: 49057 Date Analyzed: 12/11/2005
 Matrix: Water Instrument: Apollo

Client Sample No.	APPL ID.	Surrogate Recovery - Retention Time					
		Ortho-Terphenyl(S)		Octacosane(S)			
		%	RT	%	RT		
1	PL-MW-116	AX30166W08	10/10	122	8.13	# 145	11.15
2	MW-POLA-121	AX30167W08	5/105	87.1	8.13	98.8	11.14
3	PL-MW-130	AX30168W08	5/105	74.8	8.13	83.0	11.15
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Laboratory Control Spike Recovery

EPA 8015B TPH Extractable

APPL ID: 051116W-30162 LCS - 95145
 Batch ID: \$TP40-051115A

APPL Inc.
 4203 West Swift Avenue
 Fresno, CA 93722

Compound Name	Spike Level ug/L	SPK Result ug/L	SPK % Recovery	Recovery Limits
TPH-Extractable C12-C40	1000	1080	108	50-150
Surrogate: Ortho-Terphenyl	50.0	48.8	97.6	50-150

Comments:

Primary	SPK
Extraction Date :	11/16/05
Analysis Date :	11/17/05
Instrument :	APOLLO
Run :	13
Initials :	KW

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APPL Standard LCS

Matrix Spike Recoveries EPA 8015B TPH Extractable

APPL ID: 051115W-30162 MS - 95145
 Batch ID: \$TP40-051115A
 Sample ID: AX30162
 Client ID: PL-MW-103

APPL Inc.
 4203 West Swift Avenue
 Fresno, CA 93722

Compound Name	Spike Lvl ug/L	Matrix Result ug/L	SPK Result ug/L	DUP Result ug/L	SPK % Recovery	DUP % Recovery	Recovery Limits	RPD %	RPD Limits
TPH-Extractable C12-C40	952	ND	1010	996	106	105	50-150	1.4	25
Surrogate: Ortho-Terphenyl	47.6	NA	41.5	43.5	87.2	91.4	50-150		

Comments:

Primary	SPK	DUP
Extraction Date :	11/15/05	11/15/05
Analysis Date :	11/17/05	11/17/05
Instrument :	APOLLO	APOLLO
Run :	17	18
Initials :	KW	

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 APPL MSD SCII

AMENDED PAGE

TPH Extractables

Form 4
Blank Summary

Lab Name: APPL Inc.
 Case No: 49044
 Matrix: Water
 Blank ID: 1117012.D

SDG No: 49044
 Date Analyzed: 11/17/2005
 Instrument: Apollo
 Time Analyzed: 17:56

Client Sample No.	APPL ID.	File ID.	Date Analyzed	
1	Blank	051115A BLK 5/1000	1117012.D	11/17/05 5:56 PM
2	Lab Control Spike	051115A LCS-1 5/1000	1117013.D	11/17/05 6:17 PM
3	CW-7R	AX30039W04 5/1040	1117014.D	11/17/05 6:38 PM
4	PL-MW-101	AX30161W08 5/1050	1117015.D	11/17/05 6:58 PM
5	PL-MW-103	AX30162W17 5/1050	1117016.D	11/17/05 7:19 PM
6	PL-MW-103	AX30162W18 MS-1 5/1050	1117017.D	11/17/05 7:40 PM
7	PL-MW-103	AX30162W15 MSD-1 5/1050	1117018.D	11/17/05 8:01 PM
8	PL-MW-104	AX30163W08 5/1050	1117019.D	11/17/05 8:22 PM
9	PL-MW-114	AX30164W08 5/1040	1117020.D	11/17/05 8:43 PM
10	PL-MW-115	AX30165W08 5/1030	1117021.D	11/17/05 9:03 PM
11	PL-MW-116	AX30166W08 10/1050	1208078.D	12/11/05 7:54 PM
12	MW-POLA-121	AX30167W08 5/1050	1208079.D	12/11/05 8:17 PM
13	PL-MW-130	AX30168W08 5/1050	1208080.D	12/11/05 9:32 PM
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EPA 8015 - Extractables
Total Petroleum Hydrocarbons

Sample Data

EPA 8015B TPH Extractable

USACE-Sacramento District
1325 J Street
Sacramento, CA 95814

Attn: JOHN YAREMCHUK
Project: HAAF POL HILL-GW MONITORING

Sample ID: PL-MW-101

Sample Collection Date: 11/09/05

APPL Inc.
4203 West Swift Avenue
Fresno, CA 93722

ARF: 49057

APPL ID: AX30161

QCG: \$TP40-051115A-95145

Method	Analyte	Result	PQL	MDL	Units	Extraction Date	Analysis Date
EPA 8015B	TPH-Extractable C12-C40	720 ++	500	106	ug/L	11/15/05	11/17/05
EPA 8015B	Surrogate: Ortho-Terphenyl	73.4	50-150		%	11/15/05	11/17/05

++(T2M) The analyst has noted that the chromatogram of this sample is mainly lower boiling hydrocarbons such as mineral spirits, jet fuel, kerosene, stoddard solvent or white gas.

Run #: 15
Instrument: APOLLO
Sequence: 051117
Dilution Factor: 1
Initials: KW

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APPL-F1-SC-MCRes/MCPQL-REG MDLs

AMENDED PAGE
26

EPA 8015B TPH Extractable

USACE-Sacramento District
1325 J Street
Sacramento, CA 95814

APPL Inc.
4203 West Swift Avenue
Fresno, CA 93722

Attn: JOHN YAREMCHUK
Project: HAAF POL HILL-GW MONITORING

ARF: 49057

Sample ID: **PL-MW-103**

APPL ID: AX30162

Sample Collection Date: 11/09/05

QCG: \$TP40-051115A-95145

Method	Analyte	Result	PQL	MDL	Units	Extraction Date	Analysis Date
EPA 8015B	TPH-Extractable C12-C40	Not detected	500	106	ug/L	11/15/05	11/17/05
EPA 8015B	Surrogate: Ortho-Terphenyl	20.2 #	50-150		%	11/15/05	11/17/05

= Recovery (or RPD) is outside QC limits.

Run #: 16
Instrument: APOLLO
Sequence: 051117
Dilution Factor: 1
Initials: KW

AMENDED PAGE

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APPL-F1-SC-MCRes/MCPQL-REG MDLs

EPA 8015B TPH Extractable

USACE-Sacramento District
1325 J Street
Sacramento, CA 95814

APPL Inc.
4203 West Swift Avenue
Fresno, CA 93722

Attn: JOHN YAREMCHUK
Project: HAAF POL HILL-GW MONITORING

ARF: 49057

Sample ID: PL-MW-104

APPL ID: AX30163

Sample Collection Date: 11/09/05

QCG: \$TP40-051115A-95145

Method	Analyte	Result	PQL	MDL	Units	Extraction Date	Analysis Date
EPA 8015B	TPH-Extractable C12-C40	Not detected	500	106	ug/L	11/15/05	11/17/05
EPA 8015B	Surrogate: Ortho-Terphenyl	72.3	50-150		%	11/15/05	11/17/05

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Run #:
Instrument: 051117
Sequence: 19
Dilution Factor: 1
Initials: KW

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APPL-F1-SC-MCRes/MCPQL-REG MDLs

EPA 8015B TPH Extractable

USACE-Sacramento District
1325 J Street
Sacramento, CA 95814

Attn: JOHN YAREMCHUK
Project: HAAF POL HILL-GW MONITORING

Sample ID: PL-MW-114

Sample Collection Date: 11/09/05

APPL Inc.
4203 West Swift Avenue
Fresno, CA 93722

ARF: 49057

APPL ID: AX30164

QCG: \$TP40-051115A-95145

Method	Analyte	Result	PQL	MDL	Units	Extraction Date	Analysis Date
EPA 8015B	TPH-Extractable C12-C40	Not detected	500	106	ug/L	11/15/05	11/17/05
EPA 8015B	Surrogate: Ortho-Terphenyl	74.4	50-150		%	11/15/05	11/17/05

Run #: 20
Instrument: APOLLO
Sequence: 051117
Dilution Factor: 1
Initials: KW

AMENDED PAGE

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APPL-F1-SC-MCRes/MCPQL-REG MDLs*

EPA 8015B TPH Extractable

USACE-Sacramento District
1325 J Street
Sacramento, CA 95814

APPL Inc.
4203 West Swift Avenue
Fresno, CA 93722

Attn: JOHN YAREMCHUK
Project: HAAF POL HILL-GW MONITORING

ARF: 49057

Sample ID: PL-MW-115

APPL ID: AX30165

Sample Collection Date: 11/09/05

QCG: \$TP40-051115A-95145

Method	Analyte	Result	PQL	MDL	Units	Extraction Date	Analysis Date
EPA 8015B	TPH-Extractable C12-C40	Not detected	500	106	ug/L	11/15/05	11/17/05
EPA 8015B	Surrogate: Ortho-Terphenyl	73.6	50-150		%	11/15/05	11/17/05

Run #: 21
Instrument: APOLLO
Sequence: 051117
Dilution Factor: 1
Initials: KW

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APPL-F1-SC-MCRes/MCPQL-REG MDLs

EPA 8015B TPH Extractable

USACE-Sacramento District
1325 J Street
Sacramento, CA 95814

APPL Inc.
4203 West Swift Avenue
Fresno, CA 93722

Attn: JOHN YAREMCHUK
Project: HAAF POL HILL-GW MONITORING

ARF: 49057

Sample ID: PL-MW-116

APPL ID: AX30166

Sample Collection Date: 11/9/05

QCG: \$TP40-051115A-95145

Method	Analyte	Result	PQL	MDL	Units	Extraction Date	Analysis Date
EPA 8015B	TPH-Extractable C12-C40	Not detected	500	106	ug/L	11/15/05	12/11/05
EPA 8015B	Surrogate: Ortho-Terphenyl	97.6	50-150		%	11/15/05	12/11/05

Run #: 78
Instrument: APOLLO
Sequence: 051208
Dilution Factor: 1
Initials: KW

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APPL-F1-SC-MCRes/MCPQL-REG MDLs

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EPA 8015B TPH Extractable

USACE-Sacramento District
1325 J Street
Sacramento, CA 95814

Attn: JOHN YAREMCHUK
Project: HAAF POL HILL-GW MONITORING

Sample ID: MW-POLA-121

Sample Collection Date: 11/09/05

APPL Inc.
4203 West Swift Avenue
Fresno, CA 93722

ARF: 49057

APPL ID: AX30167

QCG: \$TP40-051115A-95145

Method	Analyte	Result	PQL	MDL	Units	Extraction Date	Analysis Date
EPA 8015B	TPH-Extractable C12-C40	Not detected	500	106	ug/L	11/15/05	12/11/05
EPA 8015B	Surrogate: Ortho-Terphenyl	69.9	50-150		%	11/15/05	12/11/05

Run #: 79
Instrument: APOLLO
Sequence: 051208
Dilution Factor: 1
Initials: KW

AMENDED PAGE

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APPL-F1-SC-MCRes/MCPQL-REG MDLs

EPA 8015B TPH Extractable

USACE-Sacramento District
1325 J Street
Sacramento, CA 95814

APPL Inc.
4203 West Swift Avenue
Fresno, CA 93722

Attn: JOHN YAREMCHUK
Project: HAAF POL HILL-GW MONITORING

ARF: 49057

Sample ID: PL-MW-130

APPL ID: AX30168

Sample Collection Date: 11/09/05

QCG: \$TP40-051115A-95145

Method	Analyte	Result	PQL	MDL	Units	Extraction Date	Analysis Date
EPA 8015B	TPH-Extractable C12-C40	Not detected	500	106	ug/L	11/15/05	12/11/05
EPA 8015B	Surrogate: Ortho-Terphenyl	60.1	50-150		%	11/15/05	12/11/05

Run #: 80
Instrument: APOLLO
Sequence: 051208
Dilution Factor: 1
Initials: KW

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APPL-F1-SC-MCRes/MCPQL-REG MDLs

EPA 8015 - Extractables
Total Petroleum Hydrocarbons

Calibration Data

**Form 6 GC
Initial Calibration**

Lab Name: APPL, Inc.

SDG No: 49057

Case No: 49057

Initial Cal. Date: 11/15/2005

Matrix: Water

Instrument: Apollo

Initials: RWP

1115002.D 1115003.D 1115004.D 1115005.D 1115006.D 1115007.D

	1	2	3	4	5	6	Avg	%RSD	
1 HATML Diesel	658353	152104	164126	166603	172020	169819	247171	82	HATML
2 SA Ortho-Terphenyl(S)	262573	281732	291822	286486	290186	283973	283129	3.8	SA
3 SA Octacosane(S)	251467	202329	202718	199438	200900	196665	208919	10	SA
4									

TPH Extractables
TPHDMJ.M

Form 7
DIESEL 2ND SOURCE

Lab Name: APPL, Inc.
Case No: 49057
Matrix: WATER

SDG No: 49057
Date Analyzed: 11/15/2005
Instrument: Apollo
Initial Cal. Date: 11/15/2005
Data File: 1115008.D

		Compound	MEAN	CCRF	%D	%Drift	
1	HATM	Diesel	247171	149893	39	HATML	12
2							
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40		Average			39.0		

TPH Extractables
TPHDMJ.M

Form 7

Continuing Calibration

Lab Name: APPL, Inc.
Case No: 49057
Matrix: WATER

SDG No: 49057
Date Analyzed: 11/17/2005
Instrument: Apollo
Initial Cal. Date: 11/15/2005
Data File: 1117009.D

		Compound	MEAN	CCRF	%D		%Drift
1	HATM	Diesel	247171	176304	29	HATML	3.7
2	SA	Ortho-Terphenyl(S)	283129	291578	3.0	SA	
3	SA	Octacosane(S)	208919	198728	4.9	SA	
4							
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40							

Average

12.3

TPH Extractables
TPHDMJ.M

Form 7

Continuing Calibration

Lab Name: APPL, Inc.
Case No: 49057
Matrix: Water

SDG No: 49057
Date Analyzed: 11/17/2005
Instrument: Apollo
Initial Cal. Date: 11/15/2005
Data File: 1117022.D

		Compound	MEAN	CCRF	%D	%Drift	
1	HATM	Diesel	247171	165494	33	HATML	2.9
2	SA	Ortho-Terphenyl(S)	283129	269347	4.9	SA	
3	SA	Octacosane(S)	208919	187443	10	SA	
4							
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39							
40		Average			16.0		

TPH Extractables
TPHDMJ.M

Form 6 GC
Initial Calibration

Lab Name: APPL, Inc. SDG No: 49057
 Case No: 49057 Initial Cal. Date: 12/8/2005
 Matrix: WATER Instrument: Apollo
Initials: RWP

1208022.D 1208023.D 1208024.D 1208025.D 1208026.D 1208042.D

	1	2	3	4	5	6	Avg	%RSD	
1 HTCML JP-5	232999	118157	138403	142163	145977	137591	152548	27	HTCML 0.998
2 HATML Diesel	257539	123683	147226	156762	148790	158777	165463	28	HATML 0.997
3 SA Ortho-Terphenyl(S)	206266	218493	223125	238681	235229	241980	227296	6.0	SA
4 SA Octacosane(S)	212279	182752	188989	198090	190467	191751	194055	5.3	SA
5									
6									

TPH Extractables
TPHDMJ.M

Form 7

DIESEL 2ND SOURCE

Lab Name: APPL, Inc.
Case No: 49057
Matrix: WATER

SDG No: 49057
Date Analyzed: 12/9/2005
Instrument: Apollo
Initial Cal. Date: 12/8/2005
Data File: 1208021.D

	Compound	MEAN	CCRF	%D	%Drift
1	HATM Diesel	165463	137291	17	HATML 9.6
2					
3					
4					
5					
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39					
40	Average			17.0	

TPH Extractables
TPHDMJ.M

Form 7

Continuing Calibration

Lab Name: APPL, Inc.
Case No: 49057
Matrix: WATER

SDG No: 49057
Date Analyzed: 12/11/2005
Instrument: Apollo
Initial Cal. Date: 12/8/2005
Data File: 1208076,77.D

		Compound	MEAN	CCRF	%D	%Drift	
1	HATM	Diesel	165463	153344	7.3	HATML	0.04
2	SA	Ortho-Terphenyl(S)	227296	242547	6.7	SA	
3	SA	Octacosane(S)	194055	190029	2.1	SA	
4							
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Average

5.4

TPH Extractables
TPHDMJ.M

Form 7

Continuing Calibration

Lab Name: APPL, Inc.
Case No: 49057
Matrix: WATER

SDG No: 49057
Date Analyzed: 12/11/2005
Instrument: Apollo
Initial Cal. Date: 12/8/2005
Data File: 1208082,83.D

		Compound	MEAN	CCRF	%D		%Drift
1	HATM	Diesel	165463	150140	9.3	HATML	2.0
2	SA	Ortho-Terphenyl(S)	227296	240628	5.9	SA	
3	SA	Octacosane(S)	194055	186634	3.8	SA	
4							
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Average

6.3

EPA 8015 - Extractables
Total Petroleum Hydrocarbons

Raw Data

Method Blank
EPA 8015B TPH Extractable

Blank Name/QCG: **051116W-30162 - 95145**
Batch ID: \$TP40-051115A

APPL Inc.
4203 West Swift Avenue
Fresno, CA 93722

Sample Type	Analyte	Result	PQL	MDL	Units	Extraction Date	Analysis Date
BLANK	TPH-Extractable C12-C40	Not detected	500	106	ug/L	11/16/05	11/17/05
BLANK	Surrogate: Ortho-Terphenyl	50.6	50-150		%	11/16/05	11/17/05

Run #: 12
Instrument: APOLLO
Sequence: 051117
Initials: KW

GC SC-Blank-REG MDLs
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Laboratory Control Spike Recovery

EPA 8015B TPH Extractable

APPL ID: 051116W-30162 LCS - 95145

Batch ID: \$TP40-051115A

APPL Inc.

4203 West Swift Avenue

Fresno, CA 93722

Compound Name	Spike Level ug/L	SPK Result ug/L	SPK % Recovery	Recovery Limits
TPH-Extractable C12-C40	1000	1080	108	50-150
Surrogate: Ortho-Terphenyl	50.0	48.8	97.6	50-150

Comments:

<u>Primary</u>	<u>SPK</u>
Extraction Date :	11/16/05
Analysis Date :	11/17/05
Instrument :	APOLLO
Run :	13
Initials :	KW

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APPL Standard LCS

AMENDED PAGE

Matrix Spike Recoveries

EPA 8015B TPH Extractable

APPL ID: **051115W-30162 MS - 95145**
 Batch ID: \$TP40-051115A
 Sample ID: AX30162
 Client ID: PL-MW-103

APPL Inc.
 4203 West Swift Avenue
 Fresno, CA 93722

Compound Name	Spike Lvl ug/L	Matrix Result ug/L	SPK Result ug/L	DUP Result ug/L	SPK % Recovery	DUP % Recovery	Recovery Limits	RPD %	RPD Limits
TPH-Extractable C12-C40	952	ND	1010	996	106	105	50-150	1.4	25
Surrogate: Ortho-Terphenyl	47.6	NA	41.5	43.5	87.2	91.4	50-150		

Comments:

<u>Primary</u>	<u>SPK</u>	<u>DUP</u>
Extraction Date :	11/15/05	11/15/05
Analysis Date :	11/17/05	11/17/05
Instrument :	APOLLO	APOLLO
Run :	17	18
Initials :	KW	

Printed: 01/23/06 3:51:01 PM
 APPL MSD SCII

AMENDED PAGE

Organic Extraction Worksheet

Method	THC Separatory Funnel Extraction	Extraction Set	051115A	Extraction Method	3510C	Units	mL
Spiked ID 1	Diesel Spike 11/15/05, 11/16/05	Surrogate ID 1	THC Surrogate	11/01/05, Q.d.			
Spiked ID 2		Surrogate ID 2					
Spiked ID 3		Surrogate ID 3					
Spiked ID 4		Surrogate ID 4					
Spiked ID 5		Surrogate ID 5					
Spiked ID 6							
Spiked ID 7		Ext. End Time:					
Spiked ID 8		GC Requires Extract By:					

Spiked By: *My* Date 11/15/05, 11/16/05 Witnessed By: *AB* Date 11/15/05, 11/16/05

Sample	Sample Container	Spike Amount	Spike ID	Surrogate Amount	Surrogate ID	Extract Amount	Final Volume	pH	Extract Date/Time	Comments
1 051115A Blk				1	1	1000	5	7	11/16/05 12:00	
2 051115A LCS-1		1	1	1	1	1000	5	7	11/16/05 12:00	
3 AX30039	AX30039W04			1	1	1040	5	7	11/15/05 18:00	
4 AX30161	AX30161W08			1	1	1050	5	7	11/15/05 18:00	
5 AX30162 MS-1	AX30162W18	1	1	1	1	1050	5	7	11/15/05 18:00	
6 AX30162 MSD-1	AX30162W15	1	1	1	1	1050	5	7	11/15/05 18:00	
7 AX30162	AX30162W17			1	1	1050	5	7	11/15/05 18:00	
8 AX30163	AX30163W08			1	1	1050	5	7	11/15/05 18:00	
9 AX30164	AX30164W08			1	1	1040	5	7	11/15/05 18:00	
10 AX30165	AX30165W08			1	1	1030	5	7	11/15/05 18:00	
11 AX30166	AX30166W08			1	1	1050	5.10ml RVP	7	11/15/05 18:00	
12 AX30167	AX30167W08			1	1	1050	5.12/11/05	7	11/15/05 18:00	
13 AX30168	AX30168W08			1	1	1050	5	7	11/15/05 18:00	

AB 11/22/05

Solvent and Lot#
MC 45186-22292
Na2SO4 45154529-22331

Extraction COC Transfer
Extraction lab employee Initials <i>AB</i>
GC analyst's initials <i>RVP</i>
Date <i>11/16/05</i>
Time <i>5:50pm</i>
Refrigerator <i>GC-13</i>

Technician's Initials	CG
Scanned By	CG <i>DC</i>
Sample Preparation	<i>DC</i>
Extraction	<i>AB</i>
Concentration	
Modified	11/16/05 11:43:51 AM

Reviewed By: *AB* Date *11/22/05*

Directory: G:\APOLLO\DATA\051208\

Line	Vial	FileName	Multiplier	SampleName	Misc Info	Injected
1	15	1208015.D	1	DIESEL 10PPM 12/03/05	Mix(A)	12-8-05 23:56:42
2	16	1208016.D	1	DIESEL 100PPM 12/03/05	Mix(A)	12-9-05 0:19:31
3	17	1208017.D	1	DIESEL 400PPM 12/03/05	Mix(A)	12-9-05 0:42:23
4	18	1208018.D	1	DIESEL 600PPM 12/03/05	Mix(A)	12-9-05 1:05:08
5	19	1208019.D	1	DIESEL 800PPM 12/03/05	Mix(A)	12-9-05 1:27:59
6	20	1208020.D	1	DIESEL 1000PPM 12/03/05	Mix(A)	12-9-05 1:50:47
7	21	1208021.D	1	DIESEL 400PPM 7/15/05	Mix(A)	12-9-05 2:13:37
8	76	1208076.D	1	DIESEL 500PPM 12/03/05	Mix(A)	12-11-05 16:40:07
9	78	1208078.D	9.52381	AX30166W08 10/1050	Water	12-11-05 19:54:44
10	79	1208079.D	4.7619	AX30167W08 5/1050	Water	12-11-05 20:17:26
11	80	1208080.D	4.7619	AX30168W08 5/1050	Water	12-11-05 21:32:07
12	82	1208082.D	1	DIESEL 500PPM 12/03/05	Mix(A)	12-11-05 23:17:19

Injection Log

Directory: G:\APOLLO\DATA\051115\051117

Line	Vial	FileName	Multiplier	SampleName	Misc Info	Injected
1	2	1115002.D	1	DIESEL 10PPM 11/11/05	Mix(A)	11-15-05 12:24:14
2	3	1115003.D	1	DIESEL 100PPM 11/11/05	Mix(A)	11-15-05 12:44:58
3	4	1115004.D	1	DIESEL 400PPM 11/11/05	Mix(A)	11-15-05 13:05:55
4	5	1115005.D	1	DIESEL 600PPM 11/11/05	Mix(A)	11-15-05 13:26:41
5	6	1115006.D	1	DIESEL 800PPM 11/11/05	Mix(A)	11-15-05 13:47:26
6	7	1115007.D	1	DIESEL 1000PPM 11/11/05	Mix(A)	11-15-05 14:08:14
7	8	1115008.D	1	DIESEL 2ND 400PPM 7/15/05	Mix(A)	11-15-05 14:29:01
8	9	1117009.D	1	DIESEL 500PPM 11/11/05	Mix(A)	11-17-05 13:19:09
9	12	1117012.D	5	051115A BLK 5/1000	Water	11-17-05 17:56:45
10	13	1117013.D	5	051115A LCS-1 5/1000	Water	11-17-05 18:17:28
11	15	1117015.D	4.7619	AX30161W08 5/1050	Water	11-17-05 18:58:58
12	16	1117016.D	4.7619	AX30162W17 5/1050	Water	11-17-05 19:19:47
13	17	1117017.D	4.7619	AX30162W18 MS-1 5/1050	Water	11-17-05 19:40:38
14	18	1117018.D	4.7619	AX30162W15 MSD-1 5/1050	Water	11-17-05 20:01:25
15	19	1117019.D	4.7619	AX30163W08 5/1050	Water	11-17-05 20:22:12
16	20	1117020.D	4.7619	AX30164W08 5/1040	Water	11-17-05 20:43:05
17	21	1117021.D	4.7619	AX30165W08 5/1030	Water	11-17-05 21:03:52
18	22	1117022.D	1	DIESEL 400PPM 11/11/05	Water	11-17-05 21:24:40

**EPA 8015-purgable
Total Petroleum Hydrocarbons
Gasoline**

**EPA 8015-purgable
Total Petroleum Hydrocarbons - Gasoline
QC Summary**

Method Blank
Gas-Water

Blank Name/QCG: **051120W-30162 - 93560**
Batch ID: \$GAS-051120AH

APPL Inc.
4203 West Swift Avenue
Fresno, CA 93722

Sample Type	Analyte	Result	PQL	Units	Extraction Date	Analysis Date
BLANK	TPH - Purgable (C6-C12)	Not detected	50	ug/L	11/20/05	11/20/05
BLANK	Surrogate-BFB	93.9	65-135	%	11/20/05	11/20/05

AMENDED PAGE

Run #: 1120H03
Instrument: HARPO
Sequence: 051114
Initials: KT

Printed: 01/23/06 3:49:45 PM

Surrogate Recovery - Retention Time Summary

Lab Name: APPL, Inc.

SDG No: 49057

Case No: 49057

Date Analyzed: 11/20/2005

Matrix: WATER

Instrument: HARPO

APPL ID.	Client Sample No.	Surrogate-BFB
051120AH-LCS	Lab Control Spike	113
051120AH-BLK	Blank	93.9
AX30161	PL-MW-101	108
AX30162	PL-MW-103	95.2
AX30163	PL-MW-104	94.2
AX30164	PL-MW-114	90.9
AX30165	PL-MW-115	90.2
AX30166	PL-MW-116	89.8
AX30167	MW-POLA-121	88.7
AX30168	PL-MW-130	86.8
AX30169	TRIP BLANK	88.5
051120AH-MS	Matrix Spike	111
051120AH-MSD	Matrix SpikeD	110

Comments: Batch: \$GAS-051120AH

Laboratory Control Spike Recovery

Gas-Water

APPL ID: 051120W-30162 LCS - 93560
 Batch ID: \$GAS-051120AH

APPL Inc.
 4203 West Swift Avenue
 Fresno, CA 93722

Compound Name	Spike Level ug/L	SPK Result ug/L	SPK % Recovery	Recovery Limits
TPH - Purgable (C6-C12)	300	307	102	65-135
Surrogate-BFB	21.5	24.3	113	65-135

Comments:

Primary	SPK
Extraction Date :	11/20/05
Analysis Date :	11/20/05
Instrument :	HARPO
Run :	1120H02
Initials :	KT

Printed: 01/23/06 3:50:15 PM

APPL Standard LCS

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Matrix Spike Recoveries

Gas-Water

APPL ID: 051121W-30162 MS - 93560
 Batch ID: \$GAS-051120AH
 Sample ID: AX30162
 Client ID: PL-MW-103

APPL Inc.
 4203 West Swift Avenue
 Fresno, CA 93722

Compound Name	Spike Lvl ug/L	Matrix Result ug/L	SPK Result ug/L	DUP Result ug/L	SPK % Recovery	DUP % Recovery	Recovery Limits	RPD %	RPD Limits
TPH - Purgable (C6-C12)	300	ND	295	288	98.3	96.0	65-135	2.4	20
Surrogate-BFB	21.5	NA	23.9	23.6	111	110	65-135		

Comments:

	<u>Primary</u>	<u>SPK</u>	<u>DUP</u>
Extraction Date :	11/21/05	11/21/05	11/21/05
Analysis Date :	11/21/05	11/21/05	11/21/05
Instrument :	HARPO	HARPO	HARPO
Run :	1121H18	1121H18	1121H19
Initials :	KT		

Printed: 01/23/06 3:49:41 PM
 APPL Standard MSD

8015

Form 4

Blank Summary

Lab Name: APPL, Inc.

SDG No: 49057

Case No: 49057

Date Analyzed: 11/20/2005

Matrix: WATER

Instrument: HARPO

Blank ID: 051120AH-BLK

Time Analyzed: 1228

APPL ID.	Client Sample No.	File ID.	Date Analyzed
051120AH-LCS	Lab Control Spike	1120H02	11/20/2005 1155
051120AH-BLK	Blank	1120H03	11/20/2005 1228
AX30161	PL-MW-101	1121H07	11/21/2005 1446
AX30162	PL-MW-103	1121H08	11/21/2005 1519
AX30163	PL-MW-104	1121H09	11/21/2005 1551
AX30164	PL-MW-114	1121H10	11/21/2005 1624
AX30165	PL-MW-115	1121H11	11/21/2005 1657
AX30166	PL-MW-116	1121H12	11/21/2005 1729
AX30167	MW-POLA-121	1121H13	11/21/2005 1801
AX30168	PL-MW-130	1121H14	11/21/2005 1834
AX30169	TRIP BLANK	1121H15	11/21/2005 1906
051120AH-MS	Matrix Spike	1121H18	11/21/2005 2044
051120AH-MSD	Matrix Spiked	1121H19	11/21/2005 2117

Comments: Batch: \$GAS-051120AH

Printed: 12/16/2005 8:28:44 AM
Form 4, Blank Summary

**EPA 8015-purgable
Total Petroleum Hydrocarbons - Gasoline**

Sample Data

Gas-Water

USACE-Sacramento District
1325 J Street
Sacramento, CA 95814

APPL Inc.
4203 West Swift Avenue
Fresno, CA 93722

Attn: JOHN YAREMCHUK

Project: HAAF POL HILL-GW MONITORING

ARF: 49057

Sample ID: PL-MW-101

APPL ID: AX30161

Sample Collection Date: 11/09/05

QCG: \$GAS-051120AH-93560

Method	Analyte	Result	PQL	Units	Extraction Date	Analysis Date
8015	TPH - Purgable (C6-C12)	170 ++	50	ug/L	11/21/05	11/21/05
8015	Surrogate-BFB	108	65-135	%	11/21/05	11/21/05

++(G3) The analyst has noted that the chromatogram of this sample includes higher boiling hydrocarbons such as diesel.

Run #: 1121H07
Instrument: HARPO
Sequence: 051114
Dilution Factor: 1
Initials: KT

Printed: 01/23/06 3:49:50 PM
Form 1 - APPL Standard GC - No MC

Gas-Water

USACE-Sacramento District
1325 J Street
Sacramento, CA 95814

Attn: JOHN YAREMCHUK
Project: HAAF POL HILL-GW MONITORING

Sample ID: PL-MW-103

Sample Collection Date: 11/09/05

APPL Inc.
4203 West Swift Avenue
Fresno, CA 93722

ARF: 49057

APPL ID: AX30162

QCG: \$GAS-051120AH-93560

Method	Analyte	Result	PQL	Units	Extraction Date	Analysis Date
8015	TPH - Purgable (C6-C12)	Not detected	50	ug/L	11/21/05	11/21/05
8015	Surrogate-BFB	95.2	65-135	%	11/21/05	11/21/05

Run #: 1121H08
Instrument: HARPO
Sequence: 051114
Dilution Factor: 1
Initials: KT

Printed: 01/23/06 3:49:50 PM
Form 1 - APPL Standard GC - No MC

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Gas-Water

USACE-Sacramento District
1325 J Street
Sacramento, CA 95814

APPL Inc.
4203 West Swift Avenue
Fresno, CA 93722

Attn: JOHN YAREMCHUK
Project: HAAF POL HILL-GW MONITORING

ARF: 49057

Sample ID: PL-MW-104

APPL ID: AX30163

Sample Collection Date: 11/09/05

QCG: \$GAS-051120AH-93560

Method	Analyte	Result	PQL	Units	Extraction Date	Analysis Date
8015	TPH - Purgable (C6-C12)	Not detected	50	ug/L	11/21/05	11/21/05
8015	Surrogate-BFB	94.2	65-135	%	11/21/05	11/21/05

Run #: 1121H09
Instrument: HARPO
Sequence: 051114
Dilution Factor: 1
Initials: KT

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Form 1 - APPL Standard GC - No MC

Gas-Water

USACE-Sacramento District
1325 J Street
Sacramento, CA 95814

APPL Inc.
4203 West Swift Avenue
Fresno, CA 93722

Attn: JOHN YAREMCHUK

Project: HAAF POL HILL-GW MONITORING

Sample ID: **PL-MW-114**

Sample Collection Date: 11/09/05

ARF: 49057

APPL ID: **AX30164**

QCG: \$GAS-051120AH-93560

Method	Analyte	Result	PQL	Units	Extraction Date	Analysis Date
8015	TPH - Purgable (C6-C12)	Not detected	50	ug/L	11/21/05	11/21/05
8015	Surrogate-BFB	90.9	65-135	%	11/21/05	11/21/05

Run #: 1121H10
Instrument: HARPO
Sequence: 051114
Dilution Factor: 1
Initials: KT

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Form 1 - APPL Standard GC - No MC

Gas-Water

USACE-Sacramento District
1325 J Street
Sacramento, CA 95814

Attn: JOHN YAREMCHUK
Project: HAAF POL HILL-GW MONITORING

Sample ID: PL-MW-115

Sample Collection Date: 11/09/05

APPL Inc.
4203 West Swift Avenue
Fresno, CA 93722

ARF: 49057

APPL ID: AX30165

QCG: \$GAS-051120AH-93560

Method	Analyte	Result	PQL	Units	Extraction Date	Analysis Date
8015	TPH - Purgable (C6-C12)	Not detected	50	ug/L	11/21/05	11/21/05
8015	Surrogate-BFB	90.2	65-135	%	11/21/05	11/21/05

Run #: 1121H11
Instrument: HAPRO
Sequence: 051114
Dilution Factor: 1
Initials: KT

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Form 1 - APPL Standard GC - No MC

Gas-Water

USACE-Sacramento District
1325 J Street
Sacramento, CA 95814

Attn: JOHN YAREMCHUK
Project: HAAF POL HILL-GW MONITORING

Sample ID: PL-MW-116

Sample Collection Date: 11/09/05

APPL Inc.
4203 West Swift Avenue
Fresno, CA 93722

ARF: 49057

APPL ID: AX30166

QCG: \$GAS-051120AH-93560

Method	Analyte	Result	PQL	Units	Extraction Date	Analysis Date
8015	TPH - Purgable (C6-C12)	Not detected	50	ug/L	11/21/05	11/21/05
8015	Surrogate-BFB	89.8	65-135	%	11/21/05	11/21/05

Run #: 1121H12
Instrument: HARPO
Sequence: 051114
Dilution Factor: 1
Initials: KT

Printed: 01/23/06 3:49:50 PM
Form 1 - APPL Standard GC - No MC

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Gas-Water

USACE-Sacramento District
1325 J Street
Sacramento, CA 95814

APPL Inc.
4203 West Swift Avenue
Fresno, CA 93722

Attn: JOHN YAREMCHUK
Project: HAAF POL HILL-GW MONITORING

ARF: 49057

Sample ID: MW-POLA-121

APPL ID: AX30167

Sample Collection Date: 11/09/05

QCG: \$GAS-051120AH-93560

Method	Analyte	Result	PQL	Units	Extraction Date	Analysis Date
8015	TPH - Purgable (C6-C12)	Not detected	50	ug/L	11/21/05	11/21/05
8015	Surrogate-BFB	88.7	65-135	%	11/21/05	11/21/05

Run #: 1121H13
Instrument: HARPO
Sequence: 051114
Dilution Factor: 1
Initials: KT

Printed: 01/23/06 3:49:50 PM
Form 1 - APPL Standard GC - No MC

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Gas-Water

USACE-Sacramento District
1325 J Street
Sacramento, CA 95814

APPL Inc.
4203 West Swift Avenue
Fresno, CA 93722

Attn: JOHN YAREMCHUK
Project: HAAF POL HILL-GW MONITORING

ARF: 49057

Sample ID: PL-MW-130

APPL ID: AX30168

Sample Collection Date: 11/09/05

QCG: \$GAS-051120AH-93560

Method	Analyte	Result	PQL	Units	Extraction Date	Analysis Date
8015	TPH - Purgable (C6-C12)	Not detected	50	ug/L	11/21/05	11/21/05
8015	Surrogate-BFB	86.8	65-135	%	11/21/05	11/21/05

Run #: 1121H14
Instrument: HARPO
Sequence: 051114
Dilution Factor: 1
Initials: KT

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Form 1 - APPL Standard GC - No MC

Gas-Water

USACE-Sacramento District
1325 J Street
Sacramento, CA 95814

APPL Inc.
4203 West Swift Avenue
Fresno, CA 93722

Attn: JOHN YAREMCHUK
Project: HAAF POL HILL-GW MONITORING

ARF: 49057

Sample ID: TRIP BLANK

APPL ID: AX30169

Sample Collection Date: No Date Specified

QCG: \$GAS-051120AH-93560

Method	Analyte	Result	PQL	Units	Extraction Date	Analysis Date
8015	TPH - Purgable (C6-C12)	Not detected	50	ug/L	11/21/05	11/21/05
8015	Surrogate-BFB	88.5	65-135	%	11/21/05	11/21/05

Run #: 1121H15
Instrument: HAPRO
Sequence: 051114
Dilution Factor: 1
Initials: KT

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Form 1 - APPL Standard GC - No MC

**EPA 8015-purgable
Total Petroleum Hydrocarbons - Gasoline**

Calibration Data

Volatile Analysis by
Method BTEX/GAS

Form 6 GC

Initial Calibration

Lab Name: APPL, Inc.

SDG No: 49057

Case No: _____

Initial Cal. Date: 11/14/2005

Matrix: Water

Instrument: HARPO

Initials: _____

1114H11.D 1114H10.D 1114H12.D 1114H13.D 1114H14.D 1114H15.D 1114H16.D

Compound	20	50	100	300	600	800	1000	Avg	%RSD	HIMBTL	0.995
1 HMBTL Gasoline #2	25003	11774	7816	6278	7025	7339	7299	10362	65	HIMBTL	0.995
2											
3											
4											
5											
6											
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35											

1.85

Volatile Analysis by
Method BTEX/GAS

Form 7
Second Source

Lab Name: APPL, Inc.
Case No: _____
Matrix: Water

SDG No: 49057
Date Analyzed: 11/14/2005
Instrument: HARPO
Cal. Date: 11/14/2005
Data File: 1114H17.D

	Compound	MEAN	CCRF	%D	%Drift	
41						
42	HMBT Gasoline #2	10362	7753	25	HMBTL	3.9
43						
44						
45						
46						
47						
48						
49						
50						
51						
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53						
54						
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72						
73						
74						
75						
76						
77						
78						
79						
80	Average			25.0		

Volatile Analysis by
Method BTEX/GAS

Form 7

Continuing Calibration

Lab Name: APPL, Inc.
Case No: _____
Matrix: Water

SDG No: _____
Date Analyzed: 11/21/2005
Instrument: HARPO
Cal. Date: 11/14/2005
Data File: 1121H01.D

	Compound	MEAN	CCRF	%D	%Drift	
41						
42	HMBT Gasoline #2	10362	7300	30	HMBTL	2.5
43						
44						
45						
46						
47						
48						
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53						
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67						
68						
69						
70						
71						
72						
73						
74						
75						
76						
77						
78						
79						
80	Average			30.0		

Volatile Analysis by
Method BTEX/GAS

Form 7

Continuing Calibration

Lab Name: APPL, Inc.
Case No: _____
Matrix: Water

SDG No: 49057
Date Analyzed: 11/21/2005
Instrument: HARPO
Cal. Date: 11/14/2005
Data File: 1121H16.D

	Compound	MEAN	CCRF	%D	%Drift	
41						
42	HMBT Gasoline #2	10362	6988	33	HMBTL	6.9
43						
44						
45						
46						
47						
48						
49						
50						
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68						
69						
70						
71						
72						
73						
74						
75						
76						
77						
78						
79						
80	Average			33.0		

Volatile Analysis by
Method BTEX/GAS

Form 7

Continuing Calibration

Lab Name: APPL, Inc.
Case No: _____
Matrix: Water

SDG No: 49057
Date Analyzed: 11/22/2005
Instrument: HARPO
Cal. Date: 11/14/2005
Data File: 1121H28.D

	Compound	MEAN	CCRF	%D		%Drift
41						
42	HMBT Gasoline #2	10362	8203	21	HMBTL	10
43						
44						
45						
46						
47						
48						
49						
50						
51						
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53						
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72						
73						
74						
75						
76						
77						
78						
79						
80	Average			21.0		

**EPA 8015-purgable
Total Petroleum Hydrocarbons - Gasoline**

Raw Data

Method Blank

Gas-Water

Blank Name/QCG: 051120W-30162 - 93560
Batch ID: \$GAS-051120AH

APPL Inc.
4203 West Swift Avenue
Fresno, CA 93722

Sample Type	Analyte	Result	PQL	Units	Extraction Date	Analysis Date
BLANK	TPH - Purgable (C6-C12)	Not detected	50	ug/L	11/20/05	11/20/05
BLANK	Surrogate-BFB	93.9	65-135	%	11/20/05	11/20/05

AMENDED PAGE

Run #: 1120H03
Instrument: HARPO
Sequence: 051114
Initials: KT

Printed: 01/23/06 3:50:39 PM

Laboratory Control Spike Recovery

Gas-Water

APPL ID: 051120W-30162 LCS - 93560
 Batch ID: \$GAS-051120AH

APPL Inc.
 4203 West Swift Avenue
 Fresno, CA 93722

Compound Name	Spike Level ug/L	SPK Result ug/L	SPK % Recovery	Recovery Limits
TPH - Purgable (C6-C12)	300	307	102	65-135
Surrogate-BFB	21.5	24.3	113	65-135

Comments:

<u>Primary</u>	<u>SPK</u>
Extraction Date :	11/20/05
Analysis Date :	11/20/05
Instrument :	HARPO
Run :	1120H02
Initials :	KT

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APPL Standard LCS

AMENDED PAGE

Matrix Spike Recoveries Gas-Water

APPL ID: 051121W-30162 MS - 93560
 Batch ID: \$GAS-051120AH
 Sample ID: AX30162
 Client ID: PL-MW-103

APPL Inc.
 4203 West Swift Avenue
 Fresno, CA 93722

Compound Name	Spike Lvl ug/L	Matrix Result ug/L	SPK Result ug/L	DUP Result ug/L	SPK % Recovery	DUP % Recovery	Recovery Limits	RPD %	RPD Limits
TPH - Purgable (C6-C12)	300	ND	295	288	98.3	96.0	65-135	2.4	20
Surrogate-BFB	21.5	NA	23.9	23.6	111	110	65-135		

Comments:

Primary	SPK	DUP
Extraction Date :	11/21/05	11/21/05
Analysis Date :	11/21/05	11/21/05
Instrument :	HARPO	HARPO
Run :	1121H18	1121H19
Initials :	KT	

Printed: 01/23/06 3:50:36 PM
 APPL Standard MSD

Injection Log

Directory: v:\harpoldata\051114

Line	Vial	FileName	Multiplier	SampleName	Misc Info	Injected
1	1	1114H01.D	1.	BLK	Water	14 Nov 2005 11:58
2	2	1114H02.D	1.	11/14/05 GRO@0.5ug/L	WATER	14 Nov 2005 12:30
3	3	1114H03.D	1.	11/14/05 GRO@1.0ug/L	WATER	14 Nov 2005 13:03
4	4	1114H04.D	1.	11/14/05 GRO@3.0ug/L	WATER	14 Nov 2005 13:36
5	5	1114H05.D	1.	11/14/05 GRO@5.0ug/L	WATER	14 Nov 2005 14:08
6	6	1114H06.D	1.	11/14/05 GRO@10ug/L	WATER	14 Nov 2005 14:41
7	7	1114H07.D	1.	11/14/05 GRO@20ug/L	WATER	14 Nov 2005 15:15
8	8	1114H08.D	1.	11/14/05 GRO@40ug/L	WATER	14 Nov 2005 15:47
9	9	1114H09.D	1.	11/14/05 GRO 2ND S. 10	Water	14 Nov 2005 16:19
10	10	1114H10.D	1.	11/14/05 GAS@50ug/L	MIX B	14 Nov 2005 16:54
11	11	1114H11.D	1.	11/14/05 GAS@20ug/L	MIX B	14 Nov 2005 17:27
12	12	1114H12.D	1.	11/14/05 GAS@100ug/L	MIX B	14 Nov 2005 17:59
13	13	1114H13.D	1.	11/14/05 GAS@300ug/L	MIX B	14 Nov 2005 18:32
14	14	1114H14.D	1.	11/14/05 GAS@600ug/L	MIX B	14 Nov 2005 19:04
15	15	1114H15.D	1.	11/14/05 GAS@800ug/L	MIX B	14 Nov 2005 19:36
16	16	1114H16.D	1.	11/14/05 GAS@1000ug/L	MIX B	14 Nov 2005 20:08
17	17	1114H17.D	1.	11/14/05 GAS 2ND S. 300	Water	14 Nov 2005 20:41
18	18	1114H18.D	1.	CGV GAS	Water	14 Nov 2005 21:13
19	19	1114H19.D	50.	051114A LCS GAS MEOH	Water	14 Nov 2005 21:46
20	20	1114H20.D	50.	051114A LCSD GAS MEOH	Water	14 Nov 2005 22:19
21	21	1114H21.D	50.	AX29549 S01 DF50	Water	14 Nov 2005 22:51
22	22	1114H22.D	50.	AX29555 S01 DF50	Water	14 Nov 2005 23:23
23	23	1114H23.D	50.	AX29557 S01 DF50	Water	14 Nov 2005 23:56
24	24	1114H24.D	50.	AX29663 S01 DF50	Water	15 Nov 2005 05:54
25	25	1114H25.D	50.	AX29665 S01 DF50	Water	15 Nov 2005 06:26
26	26	1114H26.D	50.	AX29666 S01 DF50	Water	15 Nov 2005 06:59
27	27	1114H27.D	50.	AX29668 S01 DF50	Water	15 Nov 2005 07:32
28	28	1114H28.D	50.	AX29669 S01 DF50	Water	15 Nov 2005 08:05
29	29	1114H29.D	50.	AX29671 S01 DF50	Water	15 Nov 2005 08:37
30	30	1114H30.D	50.	051114A BLK MEOH	Water	15 Nov 2005 09:10
31	31	1114H31.D	1.	11-14-05 GAS@200ug/L	Water	15 Nov 2005 09:42
32	32	1114H32.D	50.	AX29677 S01 DF50	Water	15 Nov 2005 10:15
33	33	1114H33.D	50.	AX29680 S01 DF50	Water	15 Nov 2005 10:47
34	34	1114H34.D	50.	AX29674 S01 DF50	Water	15 Nov 2005 11:20
35	35	1114H35.D	50.	AX29685 S01 DF50	Water	15 Nov 2005 11:53
36	36	1114H36.D	50.	AX29686 S01 DF50	Water	15 Nov 2005 12:26
37	37	1114H37.D	50.	AX29688 S01 DF50	Water	15 Nov 2005 12:58
38	38	1114H38.D	50.	AX29690 S01 DF50	Water	15 Nov 2005 13:31
39	39	1114H39.D	50.	AX29692 S01 DF50	Water	15 Nov 2005 14:03
40	40	1114H40.D	50.	AX29693 S01 DF50	Water	15 Nov 2005 14:36
41	41	1114H41.D	50.	AX29694 S01 DF50	Water	15 Nov 2005 15:08
42	42	1114H42.D	1.	11-14-05 GAS@200ug/L	Water	15 Nov 2005 15:41
43	43	1114H43.D	2.	AX29558 W02,3 DF2	Water	15 Nov 2005 16:13
44	44	1114H44.D	2.	AX29560 W02,3 DF2	Water	15 Nov 2005 16:46
45	45	1114H45.D	1.	AX29681 W02,4	Water	15 Nov 2005 17:19
46	46	1114H46.D	1.	AX29682 W02,4	Water	15 Nov 2005 17:51
47	47	1114H47.D	1.	AX29683 W02,4	Water	15 Nov 2005 18:23
48	48	1114H48.D	1.	051115A LCS GAS@200ug/L	Water	15 Nov 2005 18:56
49	49	1114H49.D	2.	AX29888 W02,3 DF2	Water	15 Nov 2005 19:28
50	50	1114H50.D	2.	AX29889 W02,3 DF2	Water	15 Nov 2005 20:00
51	51	1114H51.D	1.	AX29890 W03,4	Water	15 Nov 2005 20:33
52	52	1114H52.D	50.	051115B LCS GAS MEOH	Water	15 Nov 2005 21:06
53	53	1114H53.D	50.	051115B LCSD GAS MEOH	Water	15 Nov 2005 21:38
54	54	1114H54.D	50.	AX29696 S03 DF50	Water	15 Nov 2005 22:11
55	55	1114H55.D	50.	AX29698 S03 DF50	Water	15 Nov 2005 22:43

Injection Log

Directory: v:\harpo\data\051114

Line	Vial	FileName	Multiplier	SampleName	Misc Info	Injected
166	27	1118H27.D	1.	11-18-05 TGRO@10ug/L	Water	19 Nov 2005 00:52
167	1	1120H01.D	1.	11-20-05 GAS@300ug/L	Water	20 Nov 2005 11:23
168	2	1120H02.D	1.	051120A LCS GAS	Water	20 Nov 2005 11:55
169	3	1120H03.D	1.	051120A BLK	Water	20 Nov 2005 12:28
170	4	1120H04.D	1.	AX30039 W03	Water	20 Nov 2005 13:00
171	5	1120H05.D	1.	AX30161 W01	Water	20 Nov 2005 13:33
172	6	1120H06.D	1.	AX30162 W01	Water	20 Nov 2005 14:06
173	7	1120H07.D	1.	AX30163 W01	Water	20 Nov 2005 14:39
174	8	1120H08.D	1.	AX30164 W01	Water	20 Nov 2005 15:11
175	9	1120H09.D	1.	AX30165 W01	Water	20 Nov 2005 15:43
176	10	1120H10.D	1.	AX30166 W01	Water	20 Nov 2005 16:16
177	11	1120H11.D	1.	AX30167 W01	Water	20 Nov 2005 16:48
178	1	1121H01.D	1.	11-20-05 GAS@300ug/L	Water	21 Nov 2005 11:31
179	2	1121H02.D	1.	11-20-05 TGRO@10ug/L	Water	21 Nov 2005 12:03
180	3	1121H03.D	1.	051121A LCS GAS	Water	21 Nov 2005 12:36
181	4	1121H04.D	1.	051121A LCS TGRO	Water	21 Nov 2005 13:09
182	5	1121H05.D	1.	051121A BLK	Water	21 Nov 2005 13:41
183	6	1121H06.D	1.	AX30039 W03	Water	21 Nov 2005 14:14
184	7	1121H07.D	1.	AX30161 W02	Water	21 Nov 2005 14:46
185	8	1121H08.D	1.	AX30162 W05	Water	21 Nov 2005 15:19
186	9	1121H09.D	1.	AX30163 W02	Water	21 Nov 2005 15:51
187	10	1121H10.D	1.	AX30164 W02	Water	21 Nov 2005 16:24
188	11	1121H11.D	1.	AX30165 W02	Water	21 Nov 2005 16:57
189	12	1121H12.D	1.	AX30166 W02	Water	21 Nov 2005 17:29
190	13	1121H13.D	1.	AX30167 W02	Water	21 Nov 2005 18:01
191	14	1121H14.D	1.	AX30168 W01	Water	21 Nov 2005 18:34
192	15	1121H15.D	1.	AX30169 W01	Water	21 Nov 2005 19:06
193	16	1121H16.D	1.	11-21-05 GAS@300ug/L	Water	21 Nov 2005 19:39
194	17	1121H17.D	1.	11-21-05 TGRO@10ug/L	Water	21 Nov 2005 20:12
195	18	1121H18.D	1.	AX30162 MS GAS W06,7,8	Water	21 Nov 2005 20:44
196	19	1121H19.D	1.	AX30162 MSD GAS W06,7,8	Water	21 Nov 2005 21:17
197	20	1121H20.D	1.	AX30673 W01	Water	21 Nov 2005 21:49
198	21	1121H21.D	1.	AX30674 W01	Water	21 Nov 2005 22:22
199	22	1121H22.D	1.	AX30675 W01	Water	21 Nov 2005 22:54
200	23	1121H23.D	1.	AX30676 W01	Water	21 Nov 2005 23:27
201	24	1121H24.D	1.	AX30677 W01	Water	22 Nov 2005 00:00
202	25	1121H25.D	1.	AX30678 W01	Water	22 Nov 2005 00:33
203	26	1121H26.D	1.	AX30679 W01	Water	22 Nov 2005 01:05
204	27	1121H27.D	1.	AX30680 W01	Water	22 Nov 2005 01:38
205	28	1121H28.D	1.	11-21-05 GAS@300ug/L	Water	22 Nov 2005 07:52
206	29	1121H29.D	1.	11-21-05 TGRO@10ug/L	Water	22 Nov 2005 08:24
207	30	1121H30.D	1.	051121B LCS GAS	Water	22 Nov 2005 08:56
208	31	1121H31.D	1.	051121B BLK	Water	22 Nov 2005 09:29
209	32	1121H32.D	1.	AX30291 W04	Water	22 Nov 2005 10:01
210	33	1121H33.D	1.	AX30292 W04	Water	22 Nov 2005 10:34
211	34	1121H34.D	1.	AX30293 W04	Water	22 Nov 2005 11:07
212	35	1121H35.D	1.	AX30294 W04	Water	22 Nov 2005 11:39
213	36	1121H36.D	1.	AX30295 W04	Water	22 Nov 2005 12:12
214	37	1121H37.D	1.	AX30296 W04	Water	22 Nov 2005 12:44
215	38	1121H38.D	1.	AX30297 W04	Water	22 Nov 2005 13:17
216	39	1121H39.D	1.	AX30298 W04	Water	22 Nov 2005 13:49
217	40	1121H40.D	1.	AX30587 W03	Water	22 Nov 2005 14:23
218	41	1121H41.D	1.	AX30881 W02	Water	22 Nov 2005 14:56
219	42	1121H42.D	1.	11/22/05 GCV GAS	Water	22 Nov 2005 15:28
220	43	1121H43.D	1.	11/22/05 GCV TGRO	Water	22 Nov 2005 16:01

RSK-175

APPL, INC.

RSK-175
QC Summary

APPL, INC.

Method Blank
RSK 175

Blank Name/QCG: **051123W-30162 - 94030**
Batch ID: \$RSK-051123A

APPL Inc.
4203 West Swift Avenue
Fresno, CA 93722

Sample Type	Analyte	Result	PQL	Units	Extraction Date	Analysis Date
BLANK	Ethane	Not detected	1.7	ug/L	11/23/05	11/23/05
BLANK	Ethene	Not detected	1.8	ug/L	11/23/05	11/23/05
BLANK	Methane	Not detected	1.0	ug/L	11/23/05	11/23/05

Run #: 1123F002
Instrument: Frodo
Sequence: 051003
Initials: LF

Printed: 12/15/05 2:59:22 PM

Laboratory Control Spike Recoveries

RSK 175

APPL ID: 051123W-30162 LCS - 94030
 Batch ID: \$RSK-051123A

APPL Inc.
 4203 West Swift Avenue
 Fresno, CA 93722

Compound Name	Spike Lvl ug/L	SPK Result ug/L	DUP Result ug/L	SPK % Recovery	DUP % Recovery	Recovery Limits	RPD %	RPD Limits
Ethane	50.0	60.1	49.8	120	99.6	70-130	18.7	30
Ethene	46.6	53.8	44.7	115	95.9	70-130	18.5	30
Methane	26.7	28.3	22.6	106	84.6	70-130	22.4	30

Comments:

<u>Primary</u>	<u>SPK</u>	<u>DUP</u>
Extraction Date :	11/23/05	11/23/05
Analysis Date :	11/23/05	11/23/05
Instrument :	Frodo	Frodo
Run :	1123F003	1123F004
Initials :	LF	

Matrix Spike Recoveries RSK 175

APPL ID: 051123W-30162 MS - 94030
 Batch ID: \$RSK-051123A
 Sample ID: AX30162
 Client ID: PL-MW-103

APPL Inc.
 4203 West Swift Avenue
 Fresno, CA 93722

Compound Name	Spike Lvl ug/L	Matrix Result ug/L	SPK Result ug/L	DUP Result ug/L	SPK % Recovery	DUP % Recovery	Recovery Limits	RPD %	RPD Limits
Ethane	50.0	ND	53.7	65.5	107	131 #	70-130	19.8	30
Ethene	46.6	ND	47.7	57.0	102	122	70-130	17.8	30
Methane	26.7	18	38.2	47.1	75.7	109	70-130	20.9	30

= Recovery is outside QC limits.

Comments:

Primary	SPK	DUP
Extraction Date :	11/23/05	11/23/05
Analysis Date :	11/23/05	11/23/05
Instrument :	Frodo	Frodo
Run :	1123F015	1123F016
Initials :	LF	

Printed: 12/15/05 2:59:13 PM
 APPL Standard MSD

RSK 175

Form 4

Blank Summary

Lab Name: APPL, Inc.

SDG No: 49057

Case No: 49057

Date Analyzed: 11/23/05

Matrix: WATER

Instrument: Frodo

Blank ID: 051123A-BLK

Time Analyzed: 0648

<u>APPL ID.</u>	<u>Client Sample No.</u>	<u>File ID.</u>	<u>Date Analyzed</u>
051123A-BLK	Blank	1123F002	11/23/05 0648
051123A-LCS	Lab Control Spike	1123F003	11/23/05 0653
051123A-LCSD	Lab Control SpikeD	1123F004	11/23/05 0657
AX30161	PL-MW-101	1123F005	11/23/05 0708
AX30162	PL-MW-103	1123F006	11/23/05 0713
AX30163	PL-MW-104	1123F007	11/23/05 0718
AX30164	PL-MW-114	1123F008	11/23/05 0722
AX30165	PL-MW-115	1123F009	11/23/05 0727
AX30166	PL-MW-116	1123F010	11/23/05 0732
AX30167	MW-POLA-121	1123F011	11/23/05 0737
AX30168	PL-MW-130	1123F013	11/23/05 0748
AX30169	TRIP BLANK	1123F014	11/23/05 0753
051123A-MS	Matrix Spike	1123F015	11/23/05 0757
051123A-MSD	Matrix SpikeD	1123F016	11/23/05 0804

Comments: Batch: \$RSK-051123A

**RSK-175
Sample Data**

APPL, INC.

RSK 175

USACE-Sacramento District
1325 J Street
Sacramento, CA 95814

Attn: JOHN YAREMCHUK
Project: HAAF POL HILL-GW MONITORING

Sample ID: **PL-MW-101**
Sample Collection Date: 11/9/05

APPL Inc.
4203 West Swift Avenue
Fresno, CA 93722

ARF: 49057
APPL ID: **AX30161**
QCG: \$RSK-051123A-94030

Method	Analyte	Result	PQL	MDL	Units	Extraction Date	Analysis Date
RSK 175	Ethane	Not detected	8.5	2.55	ug/L	11/23/05	11/23/05
RSK 175	Ethene	Not detected	9	2.35	ug/L	11/23/05	11/23/05
RSK 175	Methane	5900	5.0	1.05	ug/L	11/23/05	11/23/05

Run #: 1123F005
Instrument: Frodo
Sequence: 051003
Dilution Factor: 5
Initials: LF

Printed: 12/15/05 2:58:37 PM
APPL-F1-SC-MCRes/MCPQL-REG MDLs

RSK 175

USACE-Sacramento District
1325 J Street
Sacramento, CA 95814

APPL Inc.
4203 West Swift Avenue
Fresno, CA 93722

Attn: JOHN YAREMCHUK
Project: HAAF POL HILL-GW MONITORING

ARF: 49057

Sample ID: PL-MW-103

APPL ID: AX30162

Sample Collection Date: 11/9/05

QCG: \$RSK-051123A-94030

Method	Analyte	Result	PQL	MDL	Units	Extraction Date	Analysis Date
RSK 175	Ethane	Not detected	1.7	0.51	ug/L	11/23/05	11/23/05
RSK 175	Ethene	Not detected	1.8	0.47	ug/L	11/23/05	11/23/05
RSK 175	Methane	18	1.0	0.21	ug/L	11/23/05	11/23/05

Run #: 1123F006
Instrument: Frodo
Sequence: 051003
Dilution Factor: 1
Initials: LF

Printed: 12/15/05 2:58:37 PM
APPL-F1-SC-MCRes/MCPQL-REG MDLs

RSK 175

USACE-Sacramento District
1325 J Street
Sacramento, CA 95814

APPL Inc.
4203 West Swift Avenue
Fresno, CA 93722

Attn: JOHN YAREMCHUK
Project: HAAF POL HILL-GW MONITORING

ARF: 49057

Sample ID: PL-MW-104

APPL ID: AX30163

Sample Collection Date: 11/9/05

QCG: \$RSK-051123A-94030

Method	Analyte	Result	PQL	MDL	Units	Extraction Date	Analysis Date
RSK 175	Ethane	Not detected	1.7	0.51	ug/L	11/23/05	11/23/05
RSK 175	Ethene	Not detected	1.8	0.47	ug/L	11/23/05	11/23/05
RSK 175	Methane	670	1.0	0.21	ug/L	11/23/05	11/23/05

Run #: 1123F007
Instrument: Frodo
Sequence: 051003
Dilution Factor: 1
Initials: LF

Printed: 12/15/05 2:58:37 PM
APPL-F1-SC-MCRes/MCPQL-REG MDLs

RSK 175

USACE-Sacramento District
1325 J Street
Sacramento, CA 95814

Attn: JOHN YAREMCHUK
Project: HAAF POL HILL-GW MONITORING

Sample ID: PL-MW-114

Sample Collection Date: 11/9/05

APPL Inc.
4203 West Swift Avenue
Fresno, CA 93722

ARF: 49057

APPL ID: AX30164

QCG: \$RSK-051123A-94030

Method	Analyte	Result	PQL	MDL	Units	Extraction Date	Analysis Date
RSK 175	Ethane	Not detected	1.7	0.51	ug/L	11/23/05	11/23/05
RSK 175	Ethene	Not detected	1.8	0.47	ug/L	11/23/05	11/23/05
RSK 175	Methane	14	1.0	0.21	ug/L	11/23/05	11/23/05

Run #: 1123F008
Instrument: Frodo
Sequence: 051003
Dilution Factor: 1
Initials: LF

Printed: 12/15/05 2:58:37 PM
APPL-F1-SC-MCRes/MCPQL-REG MDLs

RSK 175

USACE-Sacramento District
1325 J Street
Sacramento, CA 95814

APPL Inc.
4203 West Swift Avenue
Fresno, CA 93722

Attn: JOHN YAREMCHUK
Project: HAAF POL HILL-GW MONITORING

ARF: 49057

Sample ID: PL-MW-115

APPL ID: AX30165

Sample Collection Date: 11/9/05

QCG: \$RSK-051123A-94030

Method	Analyte	Result	PQL	MDL	Units	Extraction Date	Analysis Date
RSK 175	Ethane	Not detected	1.7	0.51	ug/L	11/23/05	11/23/05
RSK 175	Ethene	Not detected	1.8	0.47	ug/L	11/23/05	11/23/05
RSK 175	Methane	Not detected	1.0	0.21	ug/L	11/23/05	11/23/05

Run #: 1123F009
Instrument: Frodo
Sequence: 051003
Dilution Factor: 1
Initials: LF

Printed: 12/15/05 2:58:37 PM
APPL-F1-SC-MCRes/MCPQL-REG MDLs

RSK 175

USACE-Sacramento District
1325 J Street
Sacramento, CA 95814

Attn: JOHN YAREMCHUK
Project: HAAF POL HILL-GW MONITORING

Sample ID: PL-MW-116

Sample Collection Date: 11/9/05

APPL Inc.
4203 West Swift Avenue
Fresno, CA 93722

ARF: 49057

APPL ID: AX30166

QCG: \$RSK-051123A-94030

Method	Analyte	Result	PQL	MDL	Units	Extraction Date	Analysis Date
RSK 175	Ethane	Not detected	1.7	0.51	ug/L	11/23/05	11/23/05
RSK 175	Ethene	Not detected	1.8	0.47	ug/L	11/23/05	11/23/05
RSK 175	Methane	Not detected	1.0	0.21	ug/L	11/23/05	11/23/05

Run #: 1123F010
Instrument: Frodo
Sequence: 051003
Dilution Factor: 1
Initials: LF

Printed: 12/15/05 2:58:37 PM
APPL-F1-SC-MCRes/MCPQL-REG MDLs

RSK 175

USACE-Sacramento District
1325 J Street
Sacramento, CA 95814

APPL Inc.
4203 West Swift Avenue
Fresno, CA 93722

Attn: JOHN YAREMCHUK
Project: HAAF POL HILL-GW MONITORING

ARF: 49057

Sample ID: MW-POLA-121

APPL ID: AX30167

Sample Collection Date: 11/9/05

QCG: \$RSK-051123A-94030

Method	Analyte	Result	PQL	MDL	Units	Extraction Date	Analysis Date
RSK 175	Ethane	Not detected	1.7	0.51	ug/L	11/23/05	11/23/05
RSK 175	Ethene	Not detected	1.8	0.47	ug/L	11/23/05	11/23/05
RSK 175	Methane	20	1.0	0.21	ug/L	11/23/05	11/23/05

Run #: 1123F011
Instrument: Frodo
Sequence: 051003
Dilution Factor: 1
Initials: LF

Printed: 12/15/05 2:58:37 PM
APPL-F1-SC-MCRes/MCPQL-REG MDLs

RSK 175

USACE-Sacramento District
1325 J Street
Sacramento, CA 95814

APPL Inc.
4203 West Swift Avenue
Fresno, CA 93722

Attn: JOHN YAREMCHUK
Project: HAAF POL HILL-GW MONITORING

ARF: 49057

Sample ID: PL-MW-130

APPL ID: AX30168

Sample Collection Date: 11/9/05

QCG: \$RSK-051123A-94030

Method	Analyte	Result	PQL	MDL	Units	Extraction Date	Analysis Date
RSK 175	Ethane	Not detected	1.7	0.51	ug/L	11/23/05	11/23/05
RSK 175	Ethene	Not detected	1.8	0.47	ug/L	11/23/05	11/23/05
RSK 175	Methane	7.6	1.0	0.21	ug/L	11/23/05	11/23/05

Run #: 1123F013
Instrument: Frodo
Sequence: 051003
Dilution Factor: 1
Initials: LF

Printed: 12/15/05 2:58:37 PM
APPL-F1-SC-MCRes/MCPQL-REG MDLs

RSK 175

USACE-Sacramento District
1325 J Street
Sacramento, CA 95814

APPL Inc.
4203 West Swift Avenue
Fresno, CA 93722

Attn: JOHN YAREMCHUK
Project: HAAF POL HILL-GW MONITORING

ARF: 49057

Sample ID: TRIP BLANK

APPL ID: AX30169

Sample Collection Date: No Date Specified

QCG: \$RSK-051123A-94030

Method	Analyte	Result	PQL	MDL	Units	Extraction Date	Analysis Date
RSK 175	Ethane	Not detected	1.7	0.51	ug/L	11/23/05	11/23/05
RSK 175	Ethene	Not detected	1.8	0.47	ug/L	11/23/05	11/23/05
RSK 175	Methane	Not detected	1.0	0.21	ug/L	11/23/05	11/23/05

Run #: 1123F014
Instrument: Frodo
Sequence: 051003
Dilution Factor: 1
Initials: LF

Printed: 12/15/05 2:58:37 PM
APPL-F1-SC-MCRes/MCPQL-REG MDLs

**RSK-175
Calibration Data**

APPL, INC.

Form 6 GC Initial Calibration

Lab Name: APPL, Inc. SDG No: 49057
 Case No: _____ Initial Cal. Date: 5/3/05
 Matrix: Water Instrument: Frodo Initials: _____
503F002.D 503F003.D 503F004.D 503F005.D 503F006.D 503F007.D

Compound	1	2	3	4	5	6	Avg	%RSD	R2
1 ATML Methane	303	222	158	121	91.4	6	179	47	1.00
2 ATM Ethane	119	122	124	116	99.4	114	116	7.6	ATM
3 ATM Ethene	156	124	133	117	101	117	125	15	ATM
4									
5									
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35									

1.99

RSK 175

Form 7
Second Source

Lab Name: APPL, Inc.
Case No: _____
Matrix: Water

SDG No: 49057
Date Analyzed: 3 May 2005 11:45
Instrument: Frodo
Initial Cal. Date: 5/3/05
Data File: 503F008.D

		Compound	MEAN	CCRF	%D		%Drift
1	ATML	Methane	179	114	36	ATML	0.84
2	ATM	Ethane	116	129	12	ATM	
3	ATM	Ethene	125	130	4.3	ATM	
4							
5							
6							
7							
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40							

Average

17.4

Form 7
Continuing Calibration

Lab Name: APPL, Inc.
Case No: _____
Matrix: Water

SDG No: 49057
Date Analyzed: 11/23/05
Instrument: Frodo
Initial Cal. Date: 5/3/05
Data File: 1123F001.D

		Compound	MEAN	CCRF	%D	%Drift	
1	ATML	Methane	179	98.3	45	ATML	18
2	ATM	Ethane	116	101	12	ATM	
3	ATM	Ethene	125	105	16	ATM	
4							
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Average

24.3

Form 7
Continuing Calibration

Lab Name: APPL, Inc.
Case No: _____
Matrix: Water

SDG No: 49057
Date Analyzed: 11/23/05
Instrument: Frodo
Initial Cal. Date: 10/3/05 ~~5/23/05~~ ^{UP 12/15/05} _{1/31/06}
Data File: 1123F012.D

		Compound	MEAN	CCRF	%D	%Drift	
1	ATML	Methane	179	102	43	ATML	14
2	ATM	Ethane	116	125	7.9	ATM	
3	ATM	Ethene	125	130	3.9	ATM	
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40							

Average

18.3

Form 7

Continuing Calibration

Lab Name: APPL, Inc.
 Case No: _____
 Matrix: Water

SDG No: 49057
 Date Analyzed: 11/23/05
 Instrument: Frodo
 Initial Cal. Date: ~~10/3/05~~ 5/21/05 W 12/15/05
 Data File: 1123F020.D

		Compound	MEAN	CCRF	%D	%Drift
1	ATML	Methane	179	126	30	ATML 13
2	ATM	Ethane	116	127	10	ATM
3	ATM	Ethene	125	129	3.7	ATM
4						
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40						

Average 14.6

**RSK-175
Raw Data**

APPL, INC.

Method Blank
RSK 175

Blank Name/QCG: **051123W-30162 - 94030**
Batch ID: \$RSK-051123A

APPL Inc.
4203 West Swift Avenue
Fresno, CA 93722

Sample Type	Analyte	Result	PQL	Units	Extraction Date	Analysis Date
BLANK	Ethane	Not detected	1.7	ug/L	11/23/05	11/23/05
BLANK	Ethene	Not detected	1.8	ug/L	11/23/05	11/23/05
BLANK	Methane	Not detected	1.0	ug/L	11/23/05	11/23/05

Run #: 1123F002
Instrument: Frodo
Sequence: 051003
Initials: LF

Printed: 12/15/05 2:59:23 PM

Laboratory Control Spike Recoveries

RSK 175

APPL ID: 051123W-30162 LCS - 94030
 Batch ID: \$RSK-051123A

APPL Inc.
 4203 West Swift Avenue
 Fresno, CA 93722

Compound Name	Spike Lvl ug/L	SPK Result ug/L	DUP Result ug/L	SPK % Recovery	DUP % Recovery	Recovery Limits	RPD %	RPD Limits
Ethane	50.0	60.1	49.8	120	99.6	70-130	18.7	30
Ethene	46.6	53.8	44.7	115	95.9	70-130	18.5	30
Methane	26.7	28.3	22.6	106	84.6	70-130	22.4	30

Comments:

	<u>Primary</u>	<u>SPK</u>	<u>DUP</u>
Extraction Date :	11/23/05	11/23/05	11/23/05
Analysis Date :	11/23/05	11/23/05	11/23/05
Instrument :	Frodo	Frodo	Frodo
Run :	1123F003	1123F004	1123F004
Initials :	LF		

Matrix Spike Recoveries RSK 175

APPL ID: 051123W-30162 MS - 94030
 Batch ID: \$RSK-051123A
 Sample ID: AX30162
 Client ID: PL-MW-103

APPL Inc.
 4203 West Swift Avenue
 Fresno, CA 93722

Compound Name	Spike Lvl ug/L	Matrix Result ug/L	SPK Result ug/L	DUP Result ug/L	SPK % Recovery	DUP % Recovery	Recovery Limits	RPD %	RPD Limits
Ethane	50.0	ND	53.7	65.5	107	131 #	70-130	19.8	30
Ethene	46.6	ND	47.7	57.0	102	122	70-130	17.8	30
Methane	26.7	18	38.2	47.1	75.7	109	70-130	20.9	30

= Recovery is outside QC limits.

Comments:

<u>Primary</u>	<u>SPK</u>	<u>DUP</u>
Extraction Date :	11/23/05	11/23/05
Analysis Date :	11/23/05	11/23/05
Instrument :	Frodo	Frodo
Run :	1123F015	1123F016
Initials :	LF	

Printed: 12/15/05 2:59:12 PM
 APPL Standard MSD

Injection Log

Directory: v:\Frodo\DATA\050503

Line	Vial	FileName	Multiplier	SampleName	Misc Info	Injected
1	1	503F001.D	1.	INSTRUMENT-BLK	Water	03 May 2005 10:59
2	2	503F002.D	1.	RSK L-1 05-03-05 LF	Water	03 May 2005 11:07
3	3	503F003.D	1.	RSK L-2 05-03-05 LF	Water	03 May 2005 11:12
4	4	503F004.D	1.	RSK L-3 05-03-05 LF	Water	03 May 2005 11:20
5	5	503F005.D	1.	RSK L-4 05-03-05 LF	Water	03 May 2005 11:27
6	6	503F006.D	1.	RSK L-5 05-03-05 LF	Water	03 May 2005 11:32
7	7	503F007.D	1.	RSK L-6 05-03-05 LF	Water	03 May 2005 11:38
8	8	503F008.D	1.	RSK 2nd SRC 05-03-05 LF	Water	03 May 2005 11:45
9	9	503F009.D	1.	050503A BLK-1	Water	03 May 2005 11:49
10	10	503F010.D	1.	050503A LCS-1	Water	03 May 2005 11:55
11	11	503F011.D	1.	AX18111W06	Water	03 May 2005 12:02
12	12	503F012.D	1.	AX18112W06	Water	03 May 2005 12:07
13	13	503F013.D	1.	AX18113W16	Water	03 May 2005 12:14
14	14	503F014.D	1.	AX18114W06	Water	03 May 2005 12:19
15	15	503F015.D	1.	AX18115W06	Water	03 May 2005 12:24
16	16	503F016.D	1.	AX18116W06	Water	03 May 2005 12:29
17	17	503F017.D	1.	AX18117W07	Water	03 May 2005 12:34
18	18	503F018.D	1.	AX18118W06	Water	03 May 2005 12:39
19	19	503F019.D	1.	RSK L-4 05-03-05 LF	Water	03 May 2005 12:50
20	20	503F020.D	1.	AX18119W06	Water	03 May 2005 12:58
21	21	503F021.D	1.	AX18120W06	Water	03 May 2005 13:02
22	22	503F022.D	1.	AX18121W06	Water	03 May 2005 13:07
23	23	503F023.D	1.	AX18122W06	Water	03 May 2005 13:15
24	24	503F024.D	1.	AX18123W06	Water	03 May 2005 13:19
25	25	503F025.D	1.	RSK L-4 05-03-05 LF	Water	03 May 2005 13:24
26	26	503F026.D	20.	AX18111W07 DF20	Water	03 May 2005 15:38
27	27	503F027.D	10.	AX18112W07 DF10	Water	03 May 2005 15:44
28	28	503F028.D	10.	AX18113W17 DF10	Water	03 May 2005 15:49
29	29	503F029.D	20.	AX18116W07 DF20	Water	03 May 2005 15:55
30	30	503F030.D	10.	AX18123W07 DF10	Water	03 May 2005 16:03
31	31	503F031.D	80.	AX18113W17 MS-1 DF80	Water	03 May 2005 16:08
32	32	503F032.D	80.	AX18113W17 MSD-1 DF80	Water	03 May 2005 16:15
33	33	503F033.D	1.	RSK L-4 05-03-05 LF	Water	03 May 2005 16:36
34	34	503F034.D	1.	050503B BLK-1	Water	03 May 2005 16:41
35	35	503F035.D	1.	050503B LCS-1	Water	03 May 2005 16:46
36	36	503F036.D	1.	AX18099W04	Water	03 May 2005 17:06
37	37	503F037.D	1.	AX18101W04	Water	03 May 2005 17:11
38	38	503F038.D	1.	AX18102W04	Water	03 May 2005 17:21
39	39	503F039.D	1.	AX18103W07	Water	03 May 2005 17:26
40	40	503F040.D	1.	AX18104W04	Water	03 May 2005 17:31
41	41	503F041.D	1.	AX18105W04	Water	03 May 2005 17:37
42	42	503F042.D	1.	AX18106W03	Water	03 May 2005 17:44
43	43	503F043.D	1.	AX18107W03	Water	03 May 2005 17:48
44	44	503F044.D	1.	AX18108W03	Water	03 May 2005 17:54
45	45	503F045.D	1.	RSK L-4 05-03-05 LF	Water	03 May 2005 18:05
46	46	503F046.D	5.	AX18099W06 DF5	Water	03 May 2005 18:12
47	47	503F047.D	10.	AX18103W07 DF10	Water	03 May 2005 18:17
48	48	503F048.D	10.	AX18104W05 DF10	Water	03 May 2005 18:23
49	49	503F049.D	10.	AX18105W06 DF10	Water	03 May 2005 18:28
50	50	503F050.D	1.	AX18259W04	Water	03 May 2005 18:36
51	51	503F051.D	1.	AX18260W04	Water	03 May 2005 18:40
52	52	503F052.D	1.	AX18262W04	Water	03 May 2005 18:45
53	53	503F053.D	1.	AX18263W04	Water	03 May 2005 18:50
54	54	503F054.D	1.	AX18264W04	Water	03 May 2005 18:54
55	55	503F055.D	1.	AX18267W04	Water	03 May 2005 18:59

Injection Log

Directory: v:\frodo\data\051003

Line	Vial	FileName	Multiplier	SampleName	Misc Info	Injected
276	6	1108F006.D	5.	AX29243W02	Water	08 Nov 2005 07:38
277	7	1108F007.D	1.	AX29244W02	Water	08 Nov 2005 07:42
278	8	1108F008.D	5.	AX29245W02	Water	08 Nov 2005 07:47
279	9	1108F009.D	5.	AX29246W02	Water	08 Nov 2005 07:52
280	10	1108F010.D	5.	AX29247W02	Water	08 Nov 2005 07:57
281	11	1108F011.D	5.	AX29248W02	Water	08 Nov 2005 08:02
282	12	1108F012.D	1.	RSK L-4 11-08-05 LF	Water	08 Nov 2005 08:13
283	1	1123F001.D	1.	RSK L-4 11-23-05 LF	Water	23 Nov 2005 06:40
284	2	1123F002.D	1.	051123A BLK-1	Water	23 Nov 2005 06:48
285	3	1123F003.D	1.	051123A LCS-1	Water	23 Nov 2005 06:53
286	4	1123F004.D	1.	051123A LCSD-1	Water	23 Nov 2005 06:57
287	4	1123F005.D	5.	AX30161W04 DF5	Water	23 Nov 2005 07:08
288	5	1123F006.D	1.	AX30162W09	Water	23 Nov 2005 07:13
289	6	1123F007.D	1.	AX30163W06	Water	23 Nov 2005 07:18
290	7	1123F008.D	1.	AX30164W04	Water	23 Nov 2005 07:22
291	8	1123F009.D	1.	AX30165W04	Water	23 Nov 2005 07:27
292	9	1123F010.D	1.	AX30166W06	Water	23 Nov 2005 07:32
293	10	1123F011.D	1.	AX30167W06	Water	23 Nov 2005 07:37
294	12	1123F012.D	1.	RSK L-4 11-23-05 LF	Water	23 Nov 2005 07:42
295	14	1123F013.D	1.	AX30168W05	Water	23 Nov 2005 07:48
296	15	1123F014.D	1.	AX30169W02	Water	23 Nov 2005 07:53
297	16	1123F015.D	1.	AX30162W09 MS-1	Water	23 Nov 2005 07:57
298	17	1123F016.D	1.	AX30162W09 MSD-1	Water	23 Nov 2005 08:04
299	18	1123F017.D	1.	AX30190W04	Water	23 Nov 2005 08:08
300	19	1123F018.D	1.	AX30191W06	Water	23 Nov 2005 08:14
301	20	1123F019.D	1.	AX30192W06	Water	23 Nov 2005 08:19
302	19	1123F020.D	1.	RSK L-4 11-23-05 LF	Water	23 Nov 2005 08:24
303	20	1123F021.D	1.	AX30546W04	Water	23 Nov 2005 08:47
304	21	1123F022.D	1.	AX30547W04	Water	23 Nov 2005 08:54
305	22	1123F023.D	1.	AX30548W04	Water	23 Nov 2005 09:01
306	22	1123F024.D	1.	RSK L-4 11-23-05 LF	Water	23 Nov 2005 09:06

INORGANIC ANALYSIS

APPL, INC.

INORGANIC ANALYSIS
QC Summary

APPL, INC.

WETLAB BLANK

APPL Inc.
4203 West Swift Avenue
Fresno, CA 93722

Method	Analyte	Result	PQL	Units	Prep Date	Anal Date	QC Group
EPA 300.0	Sulfate	Not Detected	1	mg/L	11/15/05	11/15/05	\$300W-051115A-AX30162
EPA310.1	Total Alkalinity	Not detected	2.0	mg/L	11/16/05	11/16/05	\$310-051116A-AX30162

Laboratory Control Spike Recovery

WETLAB

APPL Inc.
 4203 West Swift Avenue
 Fresno, CA 93722

Method	Compound Name	Spike Level mg/L	SPK Result mg/L	SPK % Recovery	Recovery Limits	Extract Date	Analysis Date	QC Group
EPA 300.0	Sulfate	15.0	14.0	93.3	90-110	11/15/05	11/15/05	\$300W-051115A-AX30162
EPA310.1	Total Alkalinity	250	249	99.6	80-120	11/16/05	11/16/05	\$310-051116A-AX30162

Comments:

Matrix Spike Recovery

WETLAB

APPL Inc.
 4203 West Swift Avenue
 Fresno, CA 93722

Method	Compound Name	Spike Level mg/L	Matrix Result mg/L	SPK Result mg/L	SPK % Recovery	Recovery Limits	Extract Date	Analysis Date	QC Group	QC Sample
EPA 300.0	Sulfate	75.0	74.1	138	85.2 #	90-110	11/15/05	11/15/05	\$300W-051115A	AX30162
EPA310.1	Total Alkalinity	250	249	498	99.6	80-120	11/16/05	11/16/05	\$310-051116A	AX30162

= Recovery is outside QC limits.

Comments:

Wetlab Results

USACE-Sacramento District
1325 J Street
Sacramento, CA 95814

ARF: 49057

APPL Inc.
4203 West Swift Avenue
Fresno, CA 93722

Attn: JOHN YAREMCHUK

Method	Analyte	Result	PQL	Units	Prep Date	Analysis Date
APPL ID: AX30161 -Client Sample ID: PL-MW-101		-Sample Collection Date: 11/9/05		Project: HAAF POL HILL-GW		
EPA 300.0	Sulfate	1.2	1	mg/L	11/15/05	11/15/05
EPA310.1	Total Alkalinity	531	2.0	mg/L	11/16/05	11/16/05
APPL ID: AX30162 -Client Sample ID: PL-MW-103		-Sample Collection Date: 11/9/05		Project: HAAF POL HILL-GW		
EPA 300.0	Sulfate	68.1	2	mg/L	11/15/05	11/15/05
EPA 300.0	Sulfate	74.1 E	1	mg/L	11/15/05	11/15/05
EPA310.1	Total Alkalinity	249	2.0	mg/L	11/16/05	11/16/05
APPL ID: AX30163 -Client Sample ID: PL-MW-104		-Sample Collection Date: 11/9/05		Project: HAAF POL HILL-GW		
EPA 300.0	Sulfate	19.1	1	mg/L	11/15/05	11/15/05
EPA310.1	Total Alkalinity	352	2.0	mg/L	11/16/05	11/16/05
APPL ID: AX30164 -Client Sample ID: PL-MW-114		-Sample Collection Date: 11/9/05		Project: HAAF POL HILL-GW		
EPA 300.0	Sulfate	73.4 E	1	mg/L	11/15/05	11/15/05
EPA 300.0	Sulfate	67.3	2	mg/L	11/15/05	11/15/05
EPA310.1	Total Alkalinity	269	2.0	mg/L	11/16/05	11/16/05
APPL ID: AX30165 -Client Sample ID: PL-MW-115		-Sample Collection Date: 11/9/05		Project: HAAF POL HILL-GW		
EPA 300.0	Sulfate	27.9	1	mg/L	11/15/05	11/15/05
EPA310.1	Total Alkalinity	154	2.0	mg/L	11/16/05	11/16/05
APPL ID: AX30166 -Client Sample ID: PL-MW-116		-Sample Collection Date: 11/9/05		Project: HAAF POL HILL-GW		
EPA 300.0	Sulfate	67.6 E	1	mg/L	11/15/05	11/15/05
EPA 300.0	Sulfate	62.5	2	mg/L	11/15/05	11/15/05
EPA310.1	Total Alkalinity	222	2.0	mg/L	11/16/05	11/16/05
APPL ID: AX30167 -Client Sample ID: MW-POLA-121		-Sample Collection Date: 11/9/05		Project: HAAF POL HILL-GW		
EPA 300.0	Sulfate	14.1	1	mg/L	11/15/05	11/15/05
EPA310.1	Total Alkalinity	203	2.0	mg/L	11/16/05	11/16/05
APPL ID: AX30168 -Client Sample ID: PL-MW-130		-Sample Collection Date: 11/9/05		Project: HAAF POL HILL-GW		
EPA 300.0	Sulfate	66.9	2	mg/L	11/15/05	11/15/05
EPA 300.0	Sulfate	72.8	1	mg/L	11/15/05	11/15/05
EPA310.1	Total Alkalinity	249	2.0	mg/L	11/16/05	11/16/05

Printed: 12/13/05 9:04:55 AM

INORGANIC ANALYSIS
Calibration Data

APPL, INC.

INORGANIC ANALYSIS
Sample Data

APPL, INC.

INORGANIC ANALYSES
AUTO CALIBRATION

Analytical Method: 300.0

Lab Name: APPL, Inc.

Instrument ID: Dionex

Autocal ID: 051114

Concentration Units (mg/L or mg/kg): mg/L

Analyte	1 Autocal 16:23	2 Autocal 16:35	3 Autocal 16:48	4 Autocal 17:00	5 Autocal 17:13	6 Autocal 17:38
Bromide	12780.7	33009.7	70693.483977901	144318.134482759	632585.088664987	779559.787979094
Chloride	125426.521348314	282472.45	588139.076243094	1253478.01034483	3449838.81712846	7687103.4
Fluoride	12327.2	39103.9	79384.1	166045.055172414	395654.6	815494
Nitrate-N	57717.2	136179.2	279349.813259668	571284.35862069	1534853.32191436	3439692.03571429
Nitrite-N	21573.438202247	55804.715384615	117701.264088398	238919.634482759	597282.305289672	1248363.61760291
Phosphate-P	53198.429787234	117210.538860104	185433.72	305641.609756098	646158.838691323	1252927.49504951
Sulfate	91214.524113475	211075.169948187	425460.68	869054.936585366	2321139.34822191	5080263.78712871

Comments:

INORGANIC ANALYSES
CALIBRATION VERIFICATION

Analytical Method: 300.0

Lab Name: APPL, Inc.

Instrument ID: Dionex

ICV ID: ICV 17:51

ICV ICAL ID: 051114

CCV #1 ID: CCV 18:16

CCV #2 ID: CCV 20:46

CCV #3 ID:

CCV #4 ID:

Concentration Units (mg/L or mg/kg): mg/L

CCV ICAL ID 051114

Analyte	Initial Calibration Verification			Continuing Calibration Verification								
	Expected	Found	%D	Expected	Found 1	%D	Found 2	%D	Found 3	%D	Found 4	%D
Bromide	5	6.87307	37.5%	12.5	17.5201	40.2%	17.4667	39.7%				
Chloride	5	4.82786	3.4%	25	23.4979	6.0%	23.4404	6.2%				
Fluoride	2.5	2.51413	0.6%	2.5	2.51873	0.7%	2.46797	1.3%				
Nitrate-N	2.5	2.25809	9.7%	5	4.66264	6.7%	4.65325	6.9%				
Nitrite-N	2.5	2.36437	5.4%	2.5	2.42292	3.1%	2.38765	4.5%				
Phosphate-P	2.5	2.54746	1.9%	5	4.95246	1.0%	4.80673	3.9%				
Sulfate	5	4.96202	0.8%	25	23.7885	4.8%	23.6819	5.3%				

Comments:

INORGANIC ANALYSES
CALIBRATION BLANK

Analytical Method: 300.0

Lab Name: APPL, Inc.

Instrument ID: Dionex

ICB ID: icb 18:03

ICB ICAL ID: 051114

CCB #1 ID: ccb 18:28

CCB #2 ID: ccb 20:59

CCB #3 ID:

CCB #4 ID:

Concentration Units (mg/L or mg/kg): mg/L

CCB ICAL ID 051114

Analyte	Initial Calibration Blank	Continuing Calibration Blank			
	Found	Found 1	Found 2	Found 3	Found 4
Bromide	ND	ND	ND		
Chloride	ND	ND	ND		
Fluoride	ND	ND	ND		
Nitrate-N	ND	ND	ND		
Nitrite-N	ND	ND	ND		
Phosphate-P	ND	ND	ND		
Sulfate	ND	ND	ND		

Comments:

INORGANIC ANALYSES
CALIBRATION VERIFICATION

Analytical Method: 300.0

Lab Name: APPL, Inc.

Instrument ID: Dionex

ICV ID:

ICV ICAL ID: NA

CCV #1 ID: CCV 08:39

CCV #2 ID: CCV 11:46

CCV #3 ID: CCV 16:19

CCV #4 ID: CCV 19:02

Concentration Units (mg/L or mg/kg): mg/L

CCV ICAL ID 051115

Analyte	Initial Calibration Verification			Continuing Calibration Verification									
	Expected	Found	%D	Expected	Found 1	%D	Found 2	%D	Found 3	%D	Found 4	%D	
Bromide	5			12.5	17.3822	39.1%	17.705	41.6%	17.6872	41.5%	17.6968	41.6%	
Chloride	5			25	23.5085	6.0%	23.6205	5.5%	23.5313	5.9%	23.5760	5.7%	
Fluoride	2.5			2.5	2.38146	4.7%	2.51967	0.8%	2.49269	0.3%	2.52925	1.2%	
Nitrate-N	2.5			5	4.65257	6.9%	4.69873	6.0%	4.69533	6.1%	4.69238	6.2%	
Nitrite-N	2.5			2.5	2.36177	5.5%	2.4032	3.9%	2.40171	3.9%	2.41941	3.2%	
Phosphate-P	2.5			5	4.82051	3.6%	4.76821	4.6%	4.80128	4.0%	4.81378	3.7%	
Sulfate	5			25	23.7771	4.9%	23.6227	5.5%	23.6955	5.2%	23.703	5.2%	

Comments:

INORGANIC ANALYSES
CALIBRATION BLANK

Analytical Method: 300.0

Lab Name: APPL, Inc.

Instrument ID: Dionex

ICB ID:

ICB ICAL ID: NA

CCB #1 ID: ccb 08:52

CCB #2 ID: ccb 11:58

CCB #3 ID: ccb 16:31

CCB #4 ID: ccb 19:15

Concentration Units (mg/L or mg/kg): mg/L

CCB ICAL ID 051115

Analyte	Initial Calibration Blank	Continuing Calibration Blank			
	Found	Found 1	Found 2	Found 3	Found 4
Bromide		ND	ND	ND	ND
Chloride		ND	ND	ND	ND
Fluoride		ND	ND	ND	ND
Nitrate-N		ND	ND	ND	ND
Nitrite-N		ND	ND	ND	ND
Phosphate-P		ND	ND	ND	ND
Sulfate		ND	ND	ND	ND

Comments:

INORGANIC ANALYSIS
Raw Data

APPL, INC.

ALKALINITY WORKSHEET II.xls

Method: 2320B, 310.1		QCG: 051116A											
Standardization: Performed on 11/15/05.													
1. Normality of Titrant 0.0211 (11/15/05)													
2. LCS/LCSD Used 3 ml ISS(9/28/05)/50 ml DI = 250 mg/L.													
3. MS/MSD Used 3 ml ISS(9/28/05)/50 ml = 250 mg/L.													
4. COMMENTS:													
Date: 11/16/2005		Initials: AP											
	Time	Sample I.D.	pH	8.3 (mL)	4.5 (mL)	P	OH ⁻ mg/L	CO ₃ ²⁻ mg/L	HCO ₃ ⁻ mg/L	Total Alk (mg/L)	% Rec	RPD	Vol (mL)
1	1144	051116APB		0	0	0	0	0	0	0			50
2	1146	051116ALCS(250)			11.8	0	0	0	248.98	248.98	100		50
3	1148	051116ALCSD(250)			11.8	0	0	0	248.98	248.98			50
4	1154	AX30161W07	7.28	0	25.17	0	0	0	531.087	531.087			50
5	1212	AX30162W13	7.25	0	11.79	0	0	0	248.769	248.769			50
6	1215	AX30162W13MS			23.59	0	0	0	497.749	497.749			50
7	1218	AX30162W13MSD			23.6	0	0	0	497.96	497.96			50
8	1256	AX30163W07	7.23	0	16.7	0	0	0	352.37	352.37			50
9	1259	AX30164W07	7.21	0	12.77	0	0	0	269.447	269.447			50
10	1332	AX30165W07	8.64	0.22	7.32	4.642	0	9.284	145.168	154.452			50
11	1337	AX30166W07	7.09	0	10.51	0	0	0	221.761	221.761			50
12	1340	AX30167W07	7.19	0	9.61	0	0	0	202.771	202.771			50
13	1343	AX30168W07	7.15	0	11.81	0	0	0	249.191	249.191			50
14						0	0	0	0	0			50
15						0	0	0	0	0			50
16						0	0	0	0	0			50
17						0	0	0	0	0			50
18						0	0	0	0	0			50
19						0	0	0	0	0			50
20						0	0	0	0	0			50
21						0	0	0	0	0			50
22						0	0	0	0	0			50
23						0	0	0	0	0			50
24						0	0	0	0	0			50
25						0	0	0	0	0			50
26						0	0	0	0	0			50
27						0	0	0	0	0			50
28						0	0	0	0	0			50
29						0	0	0	0	0			50
30						0	0	0	0	0			50
31						0	0	0	0	0			50
32						0	0	0	0	0			50
33						0	0	0	0	0			50
34						0	0	0	0	0			50
35						0	0	0	0	0			50
36						0	0	0	0	0			50
37						0	0	0	0	0			50
38						0	0	0	0	0			50
39						0	0	0	0	0			50
40						0	0	0	0	0			50
41						0	0	0	0	0			50
42						0	0	0	0	0			50
43						0	0	0	0	0			50
44						0	0	0	0	0			50
45						0	0	0	0	0			50
46						0	0	0	0	0			50
47						0	0	0	0	0			50

APPL, Inc.
Analysis listing Dionex
11/14/05

Injection:	Sample Name:	Date Time Collected:
1	cb	11/14/05 16:10
2	autocal1 051114	11/14/05 16:23
3	autocal2 051114	11/14/05 16:35
4	autocal3 051114	11/14/05 16:48
5	autocal4 051114	11/14/05 17:00
6	autocal5 051114	11/14/05 17:13
7	wash	11/14/05 17:25
8	autocal6 051114	11/14/05 17:38
9	051114 icv 2.5, 5PPM	11/14/05 17:51
10	051114 icb	11/14/05 18:03
11	051114 ccv	11/14/05 18:16
12	051114a pb ccb	11/14/05 18:28
13	051114a les	11/14/05 18:41
14	AX27903W01	11/14/05 18:53
15	AX27903W01-dup	11/14/05 19:06
16	AX27903W01-1/5	11/14/05 19:19
17	AX27903W01-1/5-dup	11/14/05 19:31
18	AX30194W05	11/14/05 19:44
19	AX30195W05	11/14/05 19:56
20	AX30195W05-me	11/14/05 20:09
21	AX27892W01	11/14/05 20:21
22	AX27892W01-dup	11/14/05 20:34
23	051114 ccv	11/14/05 20:46
24	051114 ccb	11/14/05 20:59

APPL, Inc.
Analysis listing Dionex
11/15/05

Injection:	Sample Name:	Date Time Collected:
1	051115 ccv	11/15/05 8:39
2	051115a pb ccb	11/15/05 8:52
3	051115a lcs	11/15/05 9:04
4	AX30241W04	11/15/05 10:06
5	AX30242W04	11/15/05 10:18
6	AX30243W04	11/15/05 10:31
7	AX30243W04-ms	11/15/05 10:43
8	AX30241W04-1/5	11/15/05 10:56
9	AX30242W04-1/5	11/15/05 11:08
10	AX30243W04-1/10	11/15/05 11:21
11	AX30243W04-1/10-ms	11/15/05 11:33
12	051115 ccv	11/15/05 11:46
13	051115 ccb	11/15/05 11:58
14	AX30307W04	11/15/05 14:13
15	AX30161W07	11/15/05 14:26
16	AX30162W13	11/15/05 14:38
17	AX30163W07	11/15/05 14:51
18	AX30164W07	11/15/05 15:03
19	AX30165W07	11/15/05 15:16
20	AX30166W07	11/15/05 15:28
21	AX30167W07	11/15/05 15:41
22	AX30168W07	11/15/05 15:54
23	AX30190W07	11/15/05 16:06
24	051115 ccv	11/15/05 16:19
25	051115b pb ccb	11/15/05 16:31
26	051115b lcs	11/15/05 16:44
27	AX30191W07	11/15/05 16:56
28	AX30192W07	11/15/05 17:09
29	AX29237W04-1/5	11/15/05 17:21
30	AX29238W04-1/5	11/15/05 17:34
31	AX30162W13-1/2	11/15/05 17:47
32	AX30164W07-1/2	11/15/05 17:59
33	AX30166W07-1/2	11/15/05 18:12
34	AX30168W07-1/2	11/15/05 18:24
35	AX30162W13-1/5-ms	11/15/05 18:37
36	AX30162W13-1/5-msd	11/15/05 18:49
37	051115 ccv	11/15/05 19:02
38	051115 ccb	11/15/05 19:15
39	AX30191W07-1/2	11/15/05 19:27
40	AX30191W07-1/2-dup	11/15/05 19:40
41	AX30191W07-dup	11/15/05 19:52
42	AX30191W07-1/2-ms	11/15/05 20:05
43	AX30192W07-1/2	11/15/05 20:17
44	051115-ccv-	11/15/05 20:30
45	051115-ccb	11/15/05 20:42



**US ARMY CORPS OF ENGINEERS
SACRAMENTO DISTRICT**

Environmental Engineering Branch
SPK-ED-E
1325 J Street
Sacramento, California
95814-2922

Project Name: HAAF - POL HILL - GW
Project Location: HAAF
Project Coordinator: *John Yaremchuk*

Phone: 916-557-7504 FAX: 916-557-5307

Sampler: *JL/JY* Phone:

Laboratory: EMAX
Address: 1835 W. 205th St
Terrace, CA 90501
Contact: Richard Bevil
Phone: 310-618-8889x118

ANALYSIS REQUESTED →

Field	Laboratory	GRB	COMP	DATE	TIME	MS/MSD	TURN AROUND TIME (DAYS)	MATRIX CODE	NUMBER OF				PRESERVATIVE CODE	
									PLASTIC	GLASS	VOA	SLEEVE		
<i>PL-MW-103</i>		<input checked="" type="checkbox"/>		<i>11/9</i>	<i>1135</i>				<i>3</i>	<i>0</i>				

T = 8.3°C

COMMENTS/SPECIAL INSTRUCTIONS:

CHECKED BY: PRESERVATIVE CODES: C = HCl N = HNO₃ S = H₂SO₄
SAMPLE DISPOSAL: Hold Dispose Return

RELINQUISHED BY

DATE/TIME

RECEIVED BY

DATE/TIME

MATRIX CODES:
W = Water SI = Sludge SP = Solid Product
S = Soil A = Air LP = Liquid Product
SD = Sediment

SHIPPING:
 Fed Ex Courier Hand Deliver
Airbill Number: 8457-9147-2034

Labor Authorization Status Report

sort by Labor Code

Emp ID : YAREJ0593
 CCS :
 Org Code :

Parent WI :
 AMSCO :
 Approp :

Work Item :
 Labor Cd :

Organization	Employee	Work Item	Labor Code	PR&C No	PR&C Line No	Line Item Description	Funds Authorized	Expended to Date	Unexpended Balance	Pending	Balance Available	Est. Rem. Hrs.
L2L0750	YAREJ0593	B81KFG	012C89	286441	3	EPA ANAL SGV LAB JY	690.30	648.85	31.45	0.00	31.45	0.34
L2L0750	YAREJ0593	1HB82J	01D89B	840281	1	LABOR-ENVR CHEM-EPA LAVVA CAP - ANALY	600.00	352.66	247.34	0.00	247.34	2.67
L2L0750	YAREJ0593	1KFK35	02B8CF	393657	1	LABOR - JOHN YAREMCHUK EPA LAB SUPPLH	1,600.00	1,598.00	2.00	0.00	2.00	0.02
L2L0750	YAREJ0593	64LF7J	0273A6	524278	1	SIAD GW MONITORING LABOR FOR JOHN YAI	15,803.55	14,310.49	1,493.06	0.00	1,493.06	16.13
L2L0750	YAREJ0593	471K2J	02781C	544490	1	LABOR - JOHN YAREMCHUK - EPA OIL CD3	4,758.19	0.00	4,758.19	0.00	4,758.19	51.39
L2L0750	YAREJ0593	D8610G	02781D	544490	2	LABOR - JOHN YAREMCHUK - EPA OIL LFG	2,000.00	184.94	1,815.06	0.00	1,815.06	19.60
L2L0750	YAREJ0593	3LG729	02781E	544486	1	LABOR - JOHN YAREMCHUK - EPA WDI SANT	3,999.90	0.00	3,999.90	0.00	3,999.90	43.20
L2L0750	YAREJ0593	GKJ293	033C4F	927223	6	SAC AD: JOHN YAREMCHUK, 35% GW MONIT	7,068.00	6,759.99	308.01	0.00	308.01	3.33
L2L0750	YAREJ0593	94LFD5	03DDE7	865828	1	FUDS-DQ UNIVERSITY LABOR J.YAREMCHUK	4,000.00	3,987.21	12.79	0.00	12.79	0.14
L2L0750	YAREJ0593	L5FCCG	03FD8B	926495	1	DDHU: FY06 LABOR FOR JOHN YAREMCHUC	20,000.00	7,257.64	12,742.36	0.00	12,742.36	137.62
L2L0750	YAREJ0593	B72D9F	042E03	077929	1	LABOR - EPA LAB NTS - JOHN YAREMCHUK	400.00	358.39	41.61	0.00	41.61	0.45
L2L0750	YAREJ0593	BKKB07	042EAE	077949	1	LABOR - EPA LAB SAN FERNANDO - JOHN YA	400.00	358.39	41.61	0.00	41.61	0.45
L2L0750	YAREJ0593	4KF50H	043948	128194	1	HAAF POL HILL GW MONITORING...J YAREMC	7,000.00	6,227.19	772.81	0.00	772.81	8.35
L2L0750	YAREJ0593	B45618	04529D	219106	1	NAPA HATT TO 1ST LABOR J YAREMCHUK	1,075.32	1,030.43	44.89	0.00	44.89	0.48
L2L0750	YAREJ0593	DG7B46	045DB9	269548	1	DCD LABOR FOR JOHN YAREMCHUK	1,443.00	89.61	1,353.39	0.00	1,353.39	14.62
L2L0750	YAREJ0593	5LG729	046D60	350224	1	JOHN YAREMCHUK LABOR FOR HAAF SRW D	5,000.00	1,433.61	3,566.39	0.00	3,566.39	38.52
L2L0750	YAREJ0593	1G9F63	049A02	541566	2	FUDS-HAMILTON LF 26 LABOR J.YAREMCHUK	1,100.00	1,075.21	24.79	0.00	24.79	0.27
L2L0750	YAREJ0593	2C3H6C	04ABB8	032217	1	LABOR - JOHN YAREMCHUK - EPA LAB LEVA	286.75	89.61	197.14	0.00	197.14	2.13
L2L0750	YAREJ0593	G23483	04COE8	122867	1	LABOR-JOHN YAREMCHUK-MCCORMICK & B	1,800.00	0.00	1,800.00	0.00	1,800.00	19.44
L2L0750	YAREJ0593	62FG3D	L78903	853856	1	LABOR FOR JOHN Y LOS ALAMOS DEEP WEL	5,000.00	4,795.32	204.68	0.00	204.68	2.21
Total:							84,015.01	50,557.54	33,457.47	0.00	33,457.47	361.35

OABC 69 F

TABLE OF CONTENTS

CLIENT: USACE
PROJECT: HAAF, POL HILL
SDG: 05K094

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GC/MS-SVOA	**	3000 –
GC-VOA	METHOD 5030B/M8015	4000 – 4020
GC-SVOA	METHOD 3520C/M8015	5000 – 5026
HPLC	**	6000 –
METALS	**	7000 –
WET	**	8000 –
OTHERS	**	9000 –

** - Not Requested



LABORATORIES, INC.

1835 W. 205th Street
Torrance, CA 90501
Tel: (310) 618-8889
Fax: (310) 618-0818

Date: 11-30-2005
EMAX Batch No.: 05K094

Attn: Pamela Amie

USACE
1325 J Street
Sacramento CA 95814-2922

Subject: Laboratory Report
Project: HAAF, POL Hill

Enclosed is the Laboratory report for samples received on 11/11/05.
The data reported include :

Sample ID	Control #	Col Date	Matrix	Analysis
PL-MW-103	K094-01	11/09/05	WATER	TPH DIESEL TPH GASOLINE
TRIP BLANK	K094-02	11/09/05	WATER	TPH GASOLINE

The results are summarized on the following pages.

Please feel free to call if you have any questions concerning these results.

Sincerely yours,

Kam Y. Pang, Ph.D.
Laboratory Director

SAMPLE RECEIPT FORM 1

Type of Delivery	Delivered By/Airbill	ECN	15K074
<input type="checkbox"/> EMAX Courier		Receipt	Sergay S
<input type="checkbox"/> Client Delivery		Date	11-11-05
<input checked="" type="checkbox"/> Third Party <i>Fedex</i>	8457 9147 2034	Time	9:45

COC Inspection		
<input checked="" type="checkbox"/> Client Name	<input type="checkbox"/> Sampler Name	<input type="checkbox"/> Sampling Date/Time/Location
<input checked="" type="checkbox"/> Address	<input type="checkbox"/> Courier Signature/Date/Time	<input checked="" type="checkbox"/> Analysis Required
<input type="checkbox"/> Client PM/FC	<input type="checkbox"/> TAT	<input type="checkbox"/> Matrix
<input type="checkbox"/> Tel #/Fax #	<input checked="" type="checkbox"/> Sample ID	<input type="checkbox"/> Preservative (if any)
Safety Issues <input type="checkbox"/> None	<input type="checkbox"/> High Concentrations expected	<input type="checkbox"/> Superfund Site Samples
Comments: <input type="checkbox"/> Rad Screening Required		

Packaging Inspection			
Container	<input checked="" type="checkbox"/> Cooler	<input type="checkbox"/> Box	<input type="checkbox"/>
Condition	<input type="checkbox"/> Custody Seal	<input checked="" type="checkbox"/> Intact	<input type="checkbox"/> Damaged
Packaging	<input type="checkbox"/> Bubble Pack	<input type="checkbox"/> Styrofoam	<input type="checkbox"/> Sufficient
Temperatures	<input checked="" type="checkbox"/> Cooler 1 <i>3.3°C</i>	<input checked="" type="checkbox"/> Cooler 2	<input type="checkbox"/> Cooler 3
	<input type="checkbox"/> Cooler 5	<input type="checkbox"/> Cooler 6	<input type="checkbox"/> Cooler 4
	<input type="checkbox"/> Cooler 9	<input type="checkbox"/> Cooler 10	<input type="checkbox"/> Cooler 7
			<input type="checkbox"/> Cooler 8
			<input type="checkbox"/> Cooler 11
			<input type="checkbox"/> Cooler 12
Comments:			

LSCID	Client ID	Discrepancy	Corrective Action
01		REC'D (3) Vials for gasoline	Inform client.
01	-006	NO DATA on Amber Container for TPH	
02	TRIP BLANK	REC'D (2) Trip Blank Vials (EMAX TRIP BLANK) NOT listed on cal.	Analyze for TPH-P

LSCID: Lab Sample Container ID

REVIEWS

Sample Labeling *[Signature]* Date *11-11-05*

SRF *[Signature]* Date *11/15/05*

PM *[Signature]* Date *11/15/05*

FedEx Express *US Airbill*

FedEx Tracking Number

8457 9147 2034

SAC23
0215 Recipient's Copy

RECIPIENT: PEEL HERE

1 From This portion can be removed for Recipient's records.

Date 11/10/2005 FedEx Tracking Number 845791472034

Sender's Name JOHN YAREMCHUK Phone 716 557 5330

Company UN APPLY CORP OF ENGLAND

Address 1000 W 9th 05K094

City SEBRANTON State CA ZIP 95814 2926 Dept./Room/Suite/Room 11-11-05

2 Your Internal Billing Reference

09:45

3 To

Recipient's Name R Beauvil Phone 310 618-8889

Company EMAX LABORATORIES

Recipient's Address 1825 West 205th St. Dept./Room/Suite/Room x 118

Address To request a package be held at a specific FedEx location, print FedEx address here.

City TORRANCE State CA ZIP 90501



4a Express Package Service

FedEx Priority Overnight Next business morning* FedEx Standard Overnight Next business afternoon* FedEx First Overnight Earliest next business morning delivery to select locations*
 FedEx 2Day Second business day* FedEx Express Saver Third business day*
FedEx Envelope rate not available. Minimum charge: One-pound rate

Packages up to 150 lbs. *To most locations

4b Express Freight Service

FedEx 1Day Freight* Next business day** FedEx 2Day Freight Second business day** FedEx 3Day Freight Third business day**

Packages over 150 lbs. **To most locations

5 Packaging

FedEx Envelope* FedEx Pak* Includes FedEx Small Pak, FedEx Large Pak, and FedEx Sturdy Pak FedEx Box FedEx Tube Other

*Declared value limit \$500

6 Special Handling

SATURDAY Delivery Available ONLY for FedEx Priority Overnight, FedEx 2Day, FedEx 1Day Freight, and FedEx 2Day Freight to select ZIP codes HOLD Weekday at FedEx Location Not available for FedEx First Overnight HOLD Saturday at FedEx Location Available ONLY for FedEx Priority Overnight and FedEx 2Day to select locations

Include FedEx address in Section 3.

Does this shipment contain dangerous goods? One box must be checked.
 No Yes As per attached Shipper's Declaration Yes Shipper's Declaration not required
Dry Ice Dry Ice, 9, UN 1845 x _____ kg
Dangerous goods (including Dry Ice) cannot be shipped in FedEx packaging Cargo Aircraft Only

7 Payment

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REPORTING CONVENTIONS

DATA QUALIFIERS:

Lab Qualifier	AFCEE Qualifier	Description
J	F	Indicates that the analyte is positively identified and the result is less than RL but greater than MDL.
N		Indicates presumptive evidence of a compound.
B	B	Indicates that the analyte is found in the associated method blank as well as in the sample at above QC level.
E	J	Indicates that the result is above the maximum calibration range.
*	*	Out of QC limit.

Note: The above qualifiers are used to flag the results unless the project requires a different set of qualification criteria.

ACRONYMS AND ABBREVIATIONS:

CRDL	Contract Required Detection Limit
RL	Reporting Limit
MRL	Method Reporting Limit
PQL	Practical Quantitation Limit
MDL	Method Detection Limit
DO	Diluted out

DATES

The date and time information for leaching and preparation reflect the beginning date and time of the procedure unless the method, protocol, or project specifically requires otherwise.

LABORATORY REPORT FOR

USACE

HAAF, POL HILL

METHOD 5030B/M8015
TOTAL PETROLEUM HYDROCARBONS BY PURGE & TRAP

SDG#: 05K094

4000

CASE NARRATIVE

CLIENT: USACE
PROJECT: HAAF, POL HILL
SDG: 05K094

METHOD 5030B/M8015 TOTAL PETROLEUM HYDROCARBONS BY PURGE AND TRAP

Two (2) water samples were received on 11/11/05 for Total Petroleum Hydrocarbons by Purge and Trap analysis by Method 5030B/M8015 in accordance with SW846 3rd Edition.

1. Holding Time

Analytical holding time was met. Samples were preserved.

2. Calibration

Initial calibration was seven points. %RSD was within 20%. Continuing calibrations were carried out at every 10 samples. All recoveries were within 85-115%.

3. Method Blank

Method blank was free of contamination at half of the reporting limit.

4. Surrogate Recovery

All recoveries were within QC limits.

5. Lab Control Sample/Lab Control Sample Duplicate

All recoveries were within QC limits.

6. Matrix Spike/Matrix Spike Duplicate

No MS/MSD sample was designated in this SDG.

7. Sample Analysis

Samples were analyzed according to the prescribed QC procedures. All criteria were met. Results were quantified from C6 to C10 using GRO (C6-C10) calibration factor.

LAB CHRONICLE
TOTAL PETROLEUM HYDROCARBONS BY PURGE AND TRAP

Client : USACE
Project : HAAF, POL HILL

SDG NO. : 05K094
Instrument ID : GCT039

Client Sample ID	Laboratory Sample ID	Dilution Factor	% Moist	WATER		Extraction Date/Time	Sample Data FN	Calibration Prep. Data FN	Batch	Notes
				Analysis Date/Time	Prep. Date/Time					
MBLK1W	VA39K12B	1	NA	11/17/0512:06	11/17/0512:06	EK17003A	EK17002A	VA39K12	Method Blank	
LCST1W	VA39K12L	1	NA	11/17/0512:42	11/17/0512:42	EK17004A	EK17002A	VA39K12	Lab Control Sample (LCS)	
LCD1W	VA39K12C	1	NA	11/17/0513:18	11/17/0513:18	EK17005A	EK17002A	VA39K12	LCS Duplicate	
PL-MW-103	K094-01	1	NA	11/17/0519:59	11/17/0519:59	EK17016A	EK17014A	VA39K12	Field Sample	
TRIP BLANK	K094-02	1	NA	11/17/0519:23	11/17/0519:23	EK17015A	EK17014A	VA39K12	Field Sample	

FN - Filename
% Moist - Percent Moisture

SAMPLE RESULTS

METHOD 5030B/M8015
TOTAL PETROLEUM HYDROCARBONS BY PURGE AND TRAP

```

=====
Client      : USACE                      Date Collected: 11/09/05
Project    : HAAF, POL HILL             Date Received: 11/11/05
Batch No.  : 05K094                     Date Extracted: 11/17/05 19:59
Sample ID  : PL-MW-103                  Date Analyzed: 11/17/05 19:59
Lab Samp ID: K094-01                    Dilution Factor: 1
Lab File ID: EK17016A                   Matrix          : WATER
Ext Btch ID: VA39K12                    % Moisture      : NA
Calib. Ref.: EK17014A                   Instrument ID   : GCT039
=====

```

PARAMETERS	RESULTS (mg/L)	RL (mg/L)	MDL (mg/L)
GASOLINE	ND	.1	.02

SURROGATE PARAMETERS	% RECOVERY	QC LIMIT
BROMOFLUOROBENZENE	92	65-135

RL : Reporting Limit
Parameter H-C Range
Gasoline C6-C10

METHOD 5030B/M8015
TOTAL PETROLEUM HYDROCARBONS BY PURGE AND TRAP

```

=====
Client      : USACE                      Date Collected: 11/09/05
Project     : HAAF, POL HILL             Date Received: 11/11/05
Batch No.   : 05K094                    Date Extracted: 11/17/05 19:23
Sample ID   : TRIP BLANK                 Date Analyzed: 11/17/05 19:23
Lab Samp ID: K094-02                     Dilution Factor: 1
Lab File ID: EK17015A                   Matrix          : WATER
Ext Btch ID: VA39K12                    % Moisture      : NA
Calib. Ref.: EK17014A                   Instrument ID   : GCT039
=====

```

PARAMETERS	RESULTS (mg/L)	RL (mg/L)	MDL (mg/L)
GASOLINE	ND	.1	.02

SURROGATE PARAMETERS	% RECOVERY	QC LIMIT
BROMOFLUOROBENZENE	93	65-135

RL : Reporting Limit
Parameter H-C Range
Gasoline C6-C10

QC SUMMARIES

METHOD 5030B/M8015
TOTAL PETROLEUM HYDROCARBONS BY PURGE AND TRAP

```

=====
Client      : USACE                      Date Collected: NA
Project    : HAAF, POL HILL             Date Received: 11/17/05
Batch No.  : 05K094                     Date Extracted: 11/17/05 12:06
Sample ID  : MBLK1W                     Date Analyzed: 11/17/05 12:06
Lab Samp ID: VA39K12B                   Dilution Factor: 1
Lab File ID: EK17003A                   Matrix          : WATER ✓
Ext Btch ID: VA39K12                     % Moisture      : NA
Calib. Ref.: EK17002A                   Instrument ID   : GCT039
=====

```

PARAMETERS	RESULTS (mg/L)	RL (mg/L)	MDL (mg/L)
GASOLINE	ND	.1	.02

SURROGATE PARAMETERS	% RECOVERY	QC LIMIT
BROMOFLUOROBENZENE	100	65-135

RL : Reporting Limit
Parameter H-C Range
Gasoline C6-C10

EMAX QUALITY CONTROL DATA
LCS/LCD ANALYSIS

CLIENT: USACE
PROJECT: HAAF, POL HILL
BATCH NO.: 05K094
METHOD: METHOD 50308/M8015

MATRIX: WATER % MOISTURE: NA
DILUTION FACTOR: 1 1 1
SAMPLE ID: MBLK1W
LAB SAMP ID: VA39K12B VA39K12L VA39K12C
LAB FILE ID: EK17003A EK17004A EK17005A
DATE EXTRACTED: 11/17/0512:06 11/17/0512:42 11/17/0513:18 DATE COLLECTED: NA
DATE ANALYZED: 11/17/0512:06 11/17/0512:42 11/17/0513:18 DATE RECEIVED: 11/17/05
PREP. BATCH: VA39K12 VA39K12 VA39K12
CALIB. REF: EK17002A EK17002A EK17002A

ACCESSION:

PARAMETER	BLNK RSLT (mg/L)	SPIKE AMT (mg/L)	BS RSLT (mg/L)	BS % REC	SPIKE AMT (mg/L)	BSD RSLT (mg/L)	BSD % REC	RPD (%)	QC LIMIT (%)	MAX RPD (%)
Gasoline	ND	.5	.46	92	.5	.499	100	8	65-135	20

SURROGATE PARAMETER	SPIKE AMT (mg/L)	BS RSLT (mg/L)	BS % REC	SPIKE AMT (mg/L)	BSD RSLT (mg/L)	BSD % REC	QC LIMIT (%)
Bromofluorobenzene	.04	.0422	106	.04	.0434	109	65-135

INITIAL CALIBRATION

INITIAL CALIBRATION
5030B/M8015

Lab Name : EMAX Inc
 Instrument ID : GCT39
 GC Column : DB-5
 Column size ID : 30MX.53MM
 LFID & Datetime: EJ14014A 10/14/05 18:07 ..
 LFID & Datetime: EJ14011A 10/14/05 16:17 ✓
 LFID & Datetime: EJ14012A 10/14/05 16:53 ✓
 LFID & Datetime: EJ14013A 10/14/05 17:30 ✓
 LFID & Datetime: EJ14015A 10/14/05 18:43 ✓
 LFID & Datetime: EJ14016A 10/14/05 19:19 ✓
 LFID & Datetime: EJ14017A 10/14/05 19:55 ✓
 CONC UNIT: ppb

COMPOUND	CONC X	CALIBRATION FACTORS (AREA or HEIGHT)/UNIT								MEAN	%RSD
		1.00X	2.50X	5.00X	25.00X	50.00X	100.00X	125.00X			
Gasoline(TOTAL)	20.00	✓15041	-16238	-16549	-17954	-19115	-19654	-18723	-17610.5	9.7	
GRO(C6-C10)	20.00	✓13729	✓13106	-13369	-14431	-15336	✓15660	-14974	✓14372.0	6.9	
GRO(2MP-124TMB)	20.00	✓13729	✓13106	✓13564	-14605	-15517	-15737	-15049	✓14472.4	7.1	
GRO(C5-C12)	20.00	✓14813	-16006	-16333	-17601	-18657	✓19114	-18251	-17253.5	9.1	
SURROGATE	X	1.00X	2.00X	3.00X	4.00X	5.00X	7.50X	10.00X	MEAN	%RSD	
Bromofluorobenzene	10.00	13916	14274	14136	16201	18148	19706	17580	16280.2	14.0	
1,1,1-Trifluorotoluene	10.00	20125	19976	20156	23300	25599	27811	25446	23201.8	13.8	

VG39J14.MET

NA
4010

INITIAL CALIBRATION
50308/M8015

Lab Name : EMAX Inc
 Instrument ID : GCT39
 GC Column : DB-5
 Column size ID : 30MX.53MM
 LFID & Datetime: EJ14014A 10/14/05 18:07
 LFID & Datetime: EJ14011A 10/14/05 16:17
 LFID & Datetime: EJ14012A 10/14/05 16:53
 LFID & Datetime: EJ14013A 10/14/05 17:30
 LFID & Datetime: EJ14015A 10/14/05 18:43
 LFID & Datetime: EJ14016A 10/14/05 19:19
 LFID & Datetime: EJ14017A 10/14/05 19:55

COMPOUND	RT OF STANDARDS (MIN)							MEAN RT	RT WINDOW		RTWINDOW WIDTH
	1.0X	2.5X	5.0X	25.0X	50.0X	100.0X	125.0X		FROM	TO	
Gasoline(TOTAL)	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	1.500
GRO(C6-C10)	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	1.500
GRO(2MP-124TMB)	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	1.500
GRO(C5-C12)	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	1.500
SURROGATE	1.0X	2.0X	3.0X	4.0X	5.0X	7.5X	10.0X	R1	FROM	TO	WIDTH
Bromofluorobenzene	10.817	10.817	10.817	10.817	10.808	10.808	10.817	10.814	10.761	10.867	0.053
1,1,1-Trifluorotoluene	3.358	3.333	3.350	3.350	3.333	3.342	3.342	3.344	3.243	3.445	0.101

MS
AS
10/15/05

VG39J14.MET

SECOND SOURCE

INITIAL CALIBRATION VERIFICATION
5030B/M8015

Lab Name : EMAX
 Instrument ID : GCT39
 GC Column : DB-5
 Column size ID : 30MX.53MM
 Mid Conc Init LFID & Datetime: EJ14013A 10/14/2005 17:30
 Conc Cont LFID & Datetime: EJ14018A 10/14/2005 20:31 ✓
 CONC UNIT : ppb

COMPOUND	RT MINUTES	RT WINDOW		TRUE CONC	AVERAGE CF	RESULT			QL	%D LIMITS
		FROM	TO			AREA	CONC	%D		
Gasoline(TOTAL)	0.000	0.000	0.000	500.0	17610.5	8886905	504.64	1		15
GRO(C6-C10)	0.000	0.000	0.000	500.0	14372.0	7277507	506.37	1		15
GRO(2MP-124TMB)	0.000	0.000	0.000	500.0	14472.4	7235052	499.92	-0		15
GRO(C5-C12)	0.000	0.000	0.000	500.0	17253.5	8666657	502.31	0		15
SURROGATE	MINUTES	FROM	TO	TRUECON	CF	AREA	CONC	%D	QL	LIMITS
Bromofluorobenzene	10.817	10.764	10.870	40.0	16280.2	630771	38.74	-3		15
1,1,1-Trifluorotoluene	3.325	3.224	3.426	40.0	23201.8	883013	38.06	-5		15

VG39J14.MET

DAILY CALIBRATION

CONTINUE CALIBRATION
5030B/M8015

Lab Name : EMAX
 Instrument ID : GCT39
 GC Column : DB-5
 Column size ID : 30MX.53MM
 Mid Conc Init LFID & Datetime: EJ14013A 10/14/2005 17:30
 Conc Cont LFID & Datetime: EK17002A 11/17/2005 11:29
 CONC UNIT : ppb

COMPOUND	RT MINUTES	RT WINDOW		TRUE CONC	AVERAGE CF	RESULT		%D	QL	%D LIMITS
		FROM	TO			AREA	CONC			
Gasoline(TOTAL)	0.000	0.000	0.000	500.0	17610.5	8618980	489.42	-2		15
GRO(C6-C10)	0.000	0.000	0.000	500.0	14372.0	6933541	482.43	-4		15
GRO(2MP-124TMB)	0.000	0.000	0.000	500.0	14472.4	6968849	481.53	-4		15
GRO(C5-C12)	0.000	0.000	0.000	500.0	17253.5	8451371	489.83	-2		15
SURROGATE	MINUTES	FROM	TO	TRUECON	CF	AREA	CONC	%D	QL	LIMITS
Bromofluorobenzene	10.800	10.747	10.853	40.0	16280.2	690571	42.42	6		15
1,1,1-Trifluorotoluene	3.300	3.199	3.401	40.0	23201.8	979948	42.24	6		15

CONTINUE CALIBRATION
50308/MB015

Lab Name : EMAX
 Instrument ID : GCT39
 GC Column : DB-5
 Column size ID : 30MX.53MM
 Mid Conc Init LFID & Datetime: EJ14013A 10/14/2005 17:30
 Conc Cont LFID & Datetime: EK17014A 11/17/2005 18:47
 CONC UNIT : ppb

COMPOUND	RT MINUTES	RT WINDOW		TRUE CONC	AVERAGE CF	RESULT		%D	QL	%D LIMITS
		FROM	TO			AREA	CONC			
Gasoline(TOTAL)	0.000	0.000	0.000	500.0	17610.5	8167513	463.79	-7		15
GRD(C6-C10)	0.000	0.000	0.000	500.0	14372.0	6588579	458.43	-8		15
GRD(2MP-124TMB)	0.000	0.000	0.000	500.0	14472.4	6593351	455.58	-9		15
GRD(C5-C12)	0.000	0.000	0.000	500.0	17253.5	7994268	463.34	-7		15
SURROGATE	MINUTES	FROM	TO	TRUECON	CF	AREA	CONC	%D	QL	LIMITS
Bromofluorobenzene	10.808	10.755	10.861	40.0	16280.2	657158	40.37	1		15
1,1,1-Trifluorotoluene	3.308	3.207	3.409	40.0	23201.8	943956	40.69	2		15

CONTINUE CALIBRATION
50308/MB015

Lab Name : EMAX
 Instrument ID : GCT39
 GC Column : DB-5
 Column size ID : 30MX.53MM
 Mid Conc Init LFID & Datetime: EJ14013A 10/14/2005 17:30
 Conc Cont LFID & Datetime: EK17024A 11/18/2005 00:48
 CONC UNIT : ppb

COMPOUND	RT MINUTES	RT WINDOW		TRUE CONC	AVERAGE CF	RESULT		%D	QL	%D LIMITS
		FROM	TO			AREA	CONC			
Gasoline(TOTAL)	0.000	0.000	0.000	500.0	17610.5	8054332	457.36	-9		15
GRO(C6-C10)	0.000	0.000	0.000	500.0	14372.0	6539999	455.05	-9		15
GRO(2MP-124TMB)	0.000	0.000	0.000	500.0	14472.4	6576678	454.43	-9		15
GRO(C5-C12)	0.000	0.000	0.000	500.0	17253.5	7907149	458.29	-8		15
SURROGATE	MINUTES	FROM	TO	TRUECON	CF	AREA	CONC	%D	QL	LIMITS
Bromofluorobenzene	10.800	10.747	10.853	40.0	16280.2	653568	40.15	0		15
1,1,1-Trifluorotoluene	3.300	3.199	3.401	40.0	23201.8	939835	40.51	1		15

ANALYTICAL LOGS

ANALYSIS RUN LOG FOR NONHALOGENATED VOLATILES

SOP: EMAX-5030B Rev. No. 1 EMAX-BTEXM Rev. No. 1 EMAX-8015G Rev. No. 1 Book # A39-022

Starting Date: 10/14/05 Time: 10:14 Ending Date: 10/15/05 Time: 03:45

Sample Prep. ID	Data File Name	Lab Sample ID	Sparger #	Sample Amount	Purge Volume	pH	Matrix	Notes	Instrument No:	Initial Calibration Reference
*01	EJ14-001	VB39J280	17	5.0ml	5.0ml	4.4	W		39	FID Channel A PID Channel B
*02	.002	VH39J14-01	18	0.5ul				5PPB	VG39J14	VG39J14
*03	.003		19	1ul				1PPB	10/14/05	10/14/05
*04	.004		20	5ul				5PPB	VG39J14-GAS	
*05	.005		21	2.0ul				20PPB	VH39J14-BTEXM	
*06	.006		22	4.0ul				40PPB	VG39J1401-GAS	
*07	.007		23	7.5ul				75PPB	VH39J1401-BTEXM	
*08	.008		24	10ul				100PPB	VH39J1401-BTEXM	
*09	.009	VH39J1401	25	2.0ul				40/40 BTEXM	ID	Conc.(mg/L)
*10	.010	VG39J14-01	26	0.4ul/10ul				Not indicated	SV2A-04-5B	2500
*11	.011		27	0.10/12ul				50/20	SV2A-04-23-2	50
*12	.012		28	2ul/3ul				100/30	SV2A-04-2L-2	50
*13	.013		29	1ul/14ul				500/10	SV2A-04-59	5000
*14	.014		30	0.4ul/10ul				20/10	MS/MSD	
*15	.015		31	2.0ul/5ul				1000/50	1051ul BTEXM SV2A-04-23-3	100
*16	.016		32	4.0ul/15ul				2000/75	Solvent	ID
*17	.017		1	5.0ul/10ul				2500/100	Methanol	
*18	.018	VG39J1401	2	1.5ul/4ul				50/40 Gas Li	Electronic Data Archival	
*19	.019	2MP/12.4-7MB	3	10ul/5ul					Location	Date
*20	.020	PENTANE/NAPHTHALENE	4	10ul/5ul					EZC-3-BTEX	
*21	.021	DRO	5	0.5ul				Not used		
*22	.022	RINSE	6	5.0ml						
*23	.023	RINSE	7							
*24	.024	GRD	8	0.5ul						
*25	.025	VB39J281	9	5.0ml						
*26	.026	VG39J14281	10	10ul/4ul				500/40 GAS		
*27	.027	VG39J14282	11							
*28	.028	VHJ0075B	12	10ul						
*29	.029		13							
*30	.030		14							

ANALYTICAL BATCH * VMJ0075

Comments:

Analyzed By: SC

Disposed on: 10/17/05

By: SC

ANALYSIS RUN LOG FOR NONHALOGENATED VOLATILES

SOP: EMAX-5030B Rev. No. 1 EMAX-BTEXM Rev. No. 1 EMAX-8015GR Rev. No. 1 Book # A39-023

Starting Date: 11/17/05 Time: 10:48 Ending Date: 11/18/05 Time: 10:52

Sample Prep. ID	Data File Name	Lab Sample ID	Sparger#	Sample Amount	Purge Volume	pH	Matrix	Notes	Instrument No:	Initial Calibration Reference
*01	EK17.001	1839K388	17	5.0ml	5.0ml	N/A				FID Channel A PID Channel B
*02		CV639J14388	18	1.0ml/1.0ul			W	500/40 GAS	Method File	V639J14
*03		VA39K12.B	19	5.0ml					Date	10/14/05
*04		L	20						ICAL ID	V639J14-GAS
*05		C	21					DF=2	ICV ID	V639J1401-GAS
*06	.006	05K088-06T	22	2.5ml				DF=20	Std.	ID
*07	.007	↓ -10T	23	2.5ml				DF=20	DCC GAS	SV2A-04-58
*08	.008	so 01/13/05 TEST	23	5.0ml				DF=20	DCC BTEX	
*09	.009	05K102-02T	24	250ul				DF=20	FBF/TFT	SV2C-04-26-1
*10	.010	-02U	25	250ul				DF=20	LCS/LCSD	SV2A-04-59
*11	.011	-02V	26	250ul				DF=20	MS/MSD	SV2A-04-59
*12	.012	-04T	27	1.0ml				DF=20	Solvent	ID
*13	.013	↓ -06	28	5.0ml				DF=20	Methanol	
*14	.014	CV639J14389	29	1.0ml/1.0ul				DF=20	Electronic Data Archival	
*15	.015	05K094-02	30	5.0ml				DF=20	Location	EZC-3-BTEX
*16	.016	↓ -01	31					DF=20	Date	
*17	.017	05K113-01	32					DF=20	Comments:	
*18	.018	-02	17					DF=20		
*19	.019	-03	18					DF=20		
*20	.020	-04	19					DF=20		
*21	.021	-05	20					DF=20		
*22	.022	-06	21					DF=20		
*23	.023	↓ -07	22					DF=20		
*24	.024	CV639J14390	23	1.0ml/1.0ul				DF=20		
*25	.025	CV639J14391	24	↓				DF=20		
*26	.026	05K112-02	25	5.0ml				DF=20		
*27	.027	↓ -04	26	↓				DF=20		
*28	.028	05K102-04T	27	5ml				DF=20		
*29	.029	CV639J14392	28	1.0ml/1.0ul				DF=20		
*30	↓ .030	TEST	29	5.0ml				DF=20		

ANALYTICAL BATCH # VA39K12

Analyzed By: SC
Disposed on: 11/18/05 By: SC

LABORATORY REPORT FOR

USACE

HAAF, POL HILL

METHOD 3520C/M8015
TOTAL PETROLEUM HYDROCARBONS BY EXTRACTION

SDG#: 05K094

5000

CASE NARRATIVE

CLIENT: USACE
PROJECT: HAAF, POL HILL
SDG: 05K094

METHOD 3520C/M8015 TOTAL PETROLEUM HYDROCARBONS BY EXTRACTION

One (1) water sample was received on 11/11/05 for Total Petroleum Hydrocarbons by Extraction by Method 3520C/M8015 in accordance with SW846 3RD Edition.

1. Holding Time

Analytical holding time was met. Extraction was performed on 11/16/05 and completed on 11/17/05.

2. Calibration

Initial calibration was seven points for Diesel and Motor oil. %RSDs were within 20%. Continuing calibrations were carried out at 10-sample intervals and all recoveries were within 85-115%. ✓

3. Method Blank

Method blank was free of contamination at half of the Reporting Limit.

4. Surrogate Recovery

All recoveries were within QC limits.

5. Lab Control Sample/Lab Control Sample Duplicate

All recoveries were within QC limits.

6. Matrix Spike/Matrix Spike Duplicate

No sample was designated for MS/MSD.

7. Sample Analysis

Sample was analyzed according to the prescribed QC procedures. All criteria were met. Sample result was quantitated from C10 to C24 using Diesel (C10-C24) calibration factor and from C24 to C36 using Motor oil calibration factor.

SAMPLE RESULTS

METHOD 3520C/M8015
TOTAL PETROLEUM HYDROCARBONS BY EXTRACTION

```

=====
Client      : USACE                      Date Collected: 11/09/05
Project     : HAAF, POL HILL             Date Received: 11/11/05
Batch No.   : 05K094                    Date Extracted: 11/16/05 11:00
Sample ID   : PL-MW-103                 Date Analyzed: 11/17/05 20:29
Lab Samp ID: K094-01                    Dilution Factor: .95
Lab File ID: TK17009A                   Matrix          : WATER
Ext Btch ID: DSK014W                    % Moisture      : NA
Calib. Ref.: TK17004A                    Instrument ID   : GCT050
=====

```

PARAMETERS	RESULTS (mg/L)	RL (mg/L)	MDL (mg/L)
DIESEL	ND	.48	.095
MOTOR OIL	ND	.95	.095

SURROGATE PARAMETERS	% RECOVERY	QC LIMIT
BROMOBENZENE	88	50-150
HEXACOSANE	100	50-150

RL : Reporting Limit
Parameter H-C Range
Diesel C10-C24
Motor Oil C24-C36

QC SUMMARIES

METHOD 3520C/MB015
TOTAL PETROLEUM HYDROCARBONS BY EXTRACTION

```

=====
Client      : USACE                      Date Collected: NA
Project     : HAAF, POL HILL             Date Received: 11/16/05
Batch No.   : 05K094                     Date Extracted: 11/16/05 11:00
Sample ID:  MBLK1W                       Date Analyzed: 11/17/05 18:23
Lab Samp ID: DSK014WB                    Dilution Factor: 1
Lab File ID: TK17006A                    Matrix          : WATER
Ext Btch ID: DSK014W                     % Moisture      : NA
Calib. Ref.: TK17004A                    Instrument ID   : GCT050
=====

```

PARAMETERS	RESULTS (mg/L)	RL (mg/L)	MDL (mg/L)
DIESEL	ND	.5	.1
MOTOR OIL	ND	1	.1

SURROGATE PARAMETERS	% RECOVERY	QC LIMIT
BROMOBENZENE	85	50-150
HEXACOSANE	100	50-150

RL : Reporting Limit ✓
Parameter H-C Range
Diesel C10-C24
Motor Oil C24-C36

EMAX QUALITY CONTROL DATA
LCS/LCD ANALYSIS

CLIENT: USACE
PROJECT: HAAF, POL HILL
BATCH NO.: 05K094
METHOD: METHOD 3520C/M8015

MATRIX: WATER % MOISTURE: NA
DILUTION FACTOR: 1 1 1
SAMPLE ID: MBLK1W
LAB SAMP ID: DSK014WB DSK014WL DSK014WC
LAB FILE ID: TK17006A TK17007A TK17008A
DATE EXTRACTED: 11/16/0511:00 11/16/0511:00 11/16/0511:00 DATE COLLECTED: NA
DATE ANALYZED: 11/17/0518:23 11/17/0519:05 11/17/0519:47 DATE RECEIVED: 11/16/05
PREP. BATCH: DSK014W DSK014W DSK014W
CALIB. REF: TK17004A TK17004A ✓ TK17004A

ACCESSION:

PARAMETER	BLNK RSLT (mg/L)	SPIKE AMT (mg/L)	BS RSLT (mg/L)	BS % REC	SPIKE AMT (mg/L)	BSD RSLT (mg/L)	BSD % REC	RPD (%)	QC LIMIT (%)	MAX RPD (%)
Diesel	ND	5	4.77	95	5	4.81	96	1	50-150	20

SURROGATE PARAMETER	SPIKE AMT (mg/L)	BS RSLT (mg/L)	BS % REC	SPIKE AMT (mg/L)	BSD RSLT (mg/L)	BSD % REC	QC LIMIT (%)
Bromobenzene	1	.971	97	1	.954	95	50-150
Hexacosane	.25	.256	102	.25	.256	102	50-150

INITIAL CALIBRATION

INITIAL CALIBRATION
METHOD MB015

Lab Name : EMAX Inc
 Instrument ID : GCT050
 GC Column : DB-5
 Column size ID : 30MX0.25MM
 LFID & Datetime: TK04030A 11/05/05 10:42 ✓
 LFID & Datetime: TK04038A 11/05/05 16:18
 LFID & Datetime: TK04032A 11/05/05 12:06
 LFID & Datetime: TK04033A 11/05/05 12:48
 LFID & Datetime: TK04034A 11/05/05 13:30 ✓
 LFID & Datetime: TK04035A 11/05/05 14:12
 LFID & Datetime: TK04036A 11/05/05 14:54
 CONC UNIT: ppm

COMPOUND	CONC X	CALIBRATION FACTORS (AREA or HEIGHT)/UNIT							MEAN	%RSD
		1.00X	2.00X	10.00X	20.00X	100.00X	300.00X	600.00X		
DIESEL(TOTAL)	5.00	26200	26202	25576	23449	21892	24628	23322	24466.9	6.7
DIESEL(C10-C24)	5.00	26200	26202	25576	23431	21675	24265	23032	24340.1	7.1
DIESEL(C10-C28)	5.00	26200	26202	25576	23449	21693	24286	23052	24351.3	7.1
SURROGATE	X	0.50X	1.00X	2.00X	3.00X	5.00X	7.00X	11.00X	MEAN	%RSD
BROMOBENZENE	20.00	-1	13200	12657	12570	13261	13841	13906	13239.2	4.3
HEXACOSANE	5.00	-1	25659	27636	27870	29297	32033	28555	28508.2	7.4

DS50K04.MET

LS
5009

INITIAL CALIBRATION
METHOD M8015

Lab Name : EMAX Inc
 Instrument ID : GCT050
 GC Column : DB-5
 Column size ID : 30MX0.25MM
 LFID & Datetime: TK04030A 11/05/05 10:42
 LFID & Datetime: TK04038A 11/05/05 16:18
 LFID & Datetime: TK04032A 11/05/05 12:06
 LFID & Datetime: TK04033A 11/05/05 12:48
 LFID & Datetime: TK04034A 11/05/05 13:30
 LFID & Datetime: TK04035A 11/05/05 14:12
 LFID & Datetime: TK04036A 11/05/05 14:54

COMPOUND	RT OF STANDARDS (MIN)							MEAN RT	RT WINDOW		RTWINDOW WIDTH
	1.0X	2.0X	10.0X	20.0X	100.0X	300.0X	600.0X		FROM	TO	
DIESEL(TOTAL)	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	1.500
DIESEL(C10-C24)	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	1.500
DIESEL(C10-C28)	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	1.500
SURROGATE	0.5X	1.0X	2.0X	3.0X	5.0X	7.0X	11.0X	RT	FROM	TO	WIDTH
BROMOBENZENE	0.000	5.408	5.408	5.408	5.408	5.408	5.408	4.635	4.548	4.722	0.087
HEXACOSANE	0.000	15.408	15.417	15.417	15.417	15.425	15.433	13.217	12.884	13.550	0.333

AS
11/7/05

DS50K04.MET

DS5010
11/7/05

INITIAL CALIBRATION
METHOD M8015

Lab Name : EMAX Inc
 Instrument ID : GCT050
 GC Column : DB-5
 Column size ID : 30MX0.25MM
 LFID & Datetime: T101014A 09/02/05 00:02
 LFID & Datetime: T101015A 09/02/05 00:44
 LFID & Datetime: T101016A 09/02/05 01:26
 LFID & Datetime: T101017A 09/02/05 02:08 ✓
 LFID & Datetime: T101018A 09/02/05 02:49
 LFID & Datetime: T101019A 09/02/05 03:31
 LFID & Datetime: T101020A 09/02/05 04:13
 CONC UNIT: ppm

COMPOUND	CONC X	CALIBRATION FACTORS (AREA or HEIGHT)/UNIT							MEAN	%RSD
		1.00X	2.00X	5.00X	50.00X	100.00X	200.00X	300.00X		
MOTOR OIL 5W30	10.00	28893	26974	32324	29859	29037	28479	28614	29168.5	5.6

M550101.MET

LA
glucos

5011

INITIAL CALIBRATION
METHOD M8015

Lab Name : EMAX Inc
 Instrument ID : GCT050
 GC Column : DB-5
 Column size ID : 30MX0.25MM
 LFID & Datetime: T101014A 09/02/05 00:02
 LFID & Datetime: T101015A 09/02/05 00:44
 LFID & Datetime: T101016A 09/02/05 01:26
 LFID & Datetime: T101017A 09/02/05 02:08
 LFID & Datetime: T101018A 09/02/05 02:49
 LFID & Datetime: T101019A 09/02/05 03:31
 LFID & Datetime: T101020A 09/02/05 04:13

COMPOUND	RT OF STANDARDS (MIN)							MEAN RT	RT WINDOW		RTWINDOW WIDTH
	1.0X	2.0X	5.0X	50.0X	100.0X	200.0X	300.0X		FROM	TO	
MOTOR OIL 5W30	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	1.500

NA
As
9/2/05

M550101.MET

As
9/2/05

SECOND SOURCE

INITIAL CALIBRATION VERIFICATION
METHOD M8015

Lab Name : EMAX
 Instrument ID : GCT050
 GC Column : DB-5
 Column size ID : 30MX0.25MM
 Mid Conc Init LFID & Datetime: TK04035A 11/05/2005 14:12
 Conc Cont LFID & Datetime: TK04039A 11/05/2005 17:00 ✓
 CONC UNIT : ppm

COMPOUND	RT MINUTES	RT WINDOW		TRUE CONC	AVERAGE CF	RESULT		%D	QL	%D LIMITS
		FROM	TO			AREA	CONC			
DIESEL(TOTAL)	0.000	0.000	0.000	1500.0	24466.9	34483132	1409.38	-6		15
DIESEL(C10-C24)	0.000	0.000	0.000	1500.0	24340.1	33857448	1391.02	-7		15
DIESEL(C10-C28)	0.000	0.000	0.000	1500.0	24351.3	33946684	1394.04	-7		15

DS50K04.MET

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11/7/05
5014

INITIAL CALIBRATION VERIFICATION
METHOD M8015

Lab Name : EMAX
 Instrument ID : GCT050
 GC Column : DB-5
 Column size ID : 30MX0.25MM
 Mid Conc Init LFID & Datetime: T101017A 09/02/2005 02:08
 Conc Cont LFID & Datetime: T101021A 09/02/2005 04:55 ✓
 CONC UNIT : ppm

COMPOUND	RT MINUTES	RT WINDOW		TRUE CONC	AVERAGE CF	RESULT		%D	QL	%D LIMITS
		FROM	TO			AREA	CONC			
MOTOR OIL 5W30	0.000	0.000	0.000	500.0	29168.5	15371112	526.98	5		15

M550101.MET

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5015

DAILY CALIBRATION

CONTINUE CALIBRATION
METHOD M8015

Lab Name : EMAX
 Instrument ID : GCT050
 GC Column : DB-5
 Column size ID : 30MX0.25MM
 Mid Conc Init LFID & Datetime: TK04034A 11/05/2005 13:30
 Conc Cont LFID & Datetime: TK17004A 11/17/2005 16:59
 CONC UNIT : ppm

COMPOUND	RT MINUTES	RT WINDOW		TRUE CONC	AVERAGE CF	RESULT		%D	QL	%D LIMITS
		FROM	TO			AREA	CONC			
=====	=====	=====	=====	=====	=====	=====	=====	=====	=====	=====
DIESEL(TOTAL)	0.000	0.000	0.000	500.0	24466.9	12519411	511.69	2		15
DIESEL(C10-C24)	0.000	0.000	0.000	500.0	24340.1	12325054	506.37	1		15
DIESEL(C10-C28)	0.000	0.000	0.000	500.0	24351.3	12342176	506.84	1		15
-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----
SURROGATE	MINUTES	FROM	TD	TRUECON	CF	AREA	CONC	%D	QL	LIMITS
=====	=====	=====	=====	=====	=====	=====	=====	=====	=====	=====
BROMOBENZENE	5.383	5.296	5.470	100.0	13239.2	1364204	103.04	3		15
HEXACOSANE	15.400	15.067	15.733	25.0	28508.2	734701	25.77	3		15

CONTINUE CALIBRATION
METHOD M8015

Lab Name : EMAX
 Instrument ID : GCT050
 GC Column : DB-5
 Column size ID : 30MX0.25MM
 Mid Conc Init LFID & Datetime: T101017A 09/02/2005 02:08
 Conc Cont LFID & Datetime: TK17005A 11/17/2005 17:41
 CONC UNIT : ppm

COMPOUND	RT MINUTES	RT WINDOW		TRUE CONC	AVERAGE CF	RESULT		%D	QL	%D LIMITS
		FROM	TO			AREA	CONC			
MOTOR OIL 5W30	0.000	0.000	0.000	500.0	29168.5	14240483	488.21	-2		15

CONTINUE CALIBRATION
METHOD M8015

Lab Name : EMAX
 Instrument ID : GCT050 ✓
 GC Column : DB-5
 Column size ID : 30MX0.25MM
 Mid Conc Init LFID & Datetime: TK04034A 11/05/2005 13:30
 Conc Cont LFID & Datetime: TK17016A 11/18/2005 01:22 ✓
 CONC UNIT : ppm

COMPOUND	RT MINUTES	RT WINDOW		TRUE CONC	AVERAGE CF	RESULT		%D	QL	%D LIMITS
		FROM	TO			AREA	CONC			
=====	=====	=====	=====	=====	=====	=====	=====	=====	=====	=====
DIESEL(TOTAL)	0.000	0.000	0.000	500.0	24466.9	12969151	530.07	6		15
DIESEL(C10-C24)	0.000	0.000	0.000	500.0	24340.1	12761624	524.30	5		15
DIESEL(C10-C28)	0.000	0.000	0.000	500.0	24351.3	12782387	524.92	5		15
-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----
SURROGATE	MINUTES	FROM	TO	TRUECON	CF	AREA	CONC	%D	QL	LIMITS
=====	=====	=====	=====	=====	=====	=====	=====	=====	=====	=====
BROMOBENZENE	5.392	5.305	5.479	100.0	13239.2	1389894	104.98	5		15
HEXACOSANE	15.408	15.075	15.741	25.0	28508.2	749875	26.30	5		15

CONTINUE CALIBRATION
METHOD M8015

Lab Name : EMAX
 Instrument ID : GCT050
 GC Column : DB-5
 Column size ID : 30MX0.25MM
 Mid Conc Init LFID & Datetime: T101017A 09/02/2005 02:08
 Conc Cont LFID & Datetime: TK17017A 11/18/2005 02:03 ✓
 CONC UNIT : ppm

COMPOUND	RT MINUTES	RT WINDOW		TRUE CONC	AVERAGE CF	RESULT		%D	QL	%D LIMITS
		FROM	TO			AREA	CONC			
MOTOR OIL SW30	0.000	0.000	0.000	500.0	29168.5	14272334	489.31	-2		15

ANALYTICAL LOGS

ANALYSIS RUN LOG FOR TPH

SOP EMAX-M8015D Revision No. 3 EMAX-LUFTE Revision No. 3 Book # A50-020

Starting Date: 09/01/05 Time: 22:38 Ending Date: 09-01-05 Time: 05:37

Preparative Batch	Data File Name	Lab Sample ID	DF	Matrix		Notes	Instrument No:	ID	Date
				S	W				
	T101-012	TEST					M5570101		09/01/05
	013	18501781							
	014	M557010101			10	PPM			
	015	02			20				
	016	03			50				
	017	04			500				
	018	05			1000				
	019	06			3000				
	020	07			500				
	021	M5570101							
	022	HC-CHAIN							
<div style="display: flex; justify-content: space-between;"> ANALYTICAL BATCH N/A </div>									
<div style="display: flex; justify-content: space-between;"> Electronic Data Archival Date </div>									
<div style="display: flex; justify-content: space-between;"> Location Date </div>									
<input type="checkbox"/> EZC_1_Diesel									
<input type="checkbox"/>									
Comments:									
Analyzed By: <u>JD</u>									
Disposed on: <u>09/02/05</u> By: <u>JD</u>									

ANALYSIS RUN LOG FOR TPH

SOP EMAX-M8015D Revision No. 3 EMAX-LUFTE Revision No. 3 Book # A50-020

Starting Date: 11-05-05 Time: 10:00

Ending Date: 11-05-05

Time: 17:42

Preparative Batch	Data File Name	Lab Sample ID	DF	Matrix		Notes
				S	W	
	TRC4 089	18520XK041				DL (mm) SUBR
	090	05520K041 01				5
	091	02				- fuel injection
	092	03				40/10
	093	04				6/15
	094	05				100/15
	095	06				140/15
	096	07				200/15
	097	01				not evaluated
	098	02				10
	099	18520K041 0205				1500 DEL 100
	100	HC - CHAIN				

Instrument No:		50
INITIAL CALIBRATION REFERENCE		
Diesel	ID	Date
Diesel	05520K041	11-04-05
Motor oil		
JP 5		
Standards		
Name	ID	Conc (mg/L)
CH ₂ Cl ₂	45209	1000
DCC		
DAL 10AL +		5 300
SURR	55380 00-611	17.07%
DAL 100	55380 00-19-2	1000

Comments:

Analyzed By: QC
 Disposed on: 11-07-05
 By: [Signature]

ANALYTICAL BATCH 0/A

ANALYSIS RUN LOG FOR TPH

Book # A50-021

SOP EMAX-M8015D Revision No. 3 EMAX-LUFTE Revision No. 3

Starting Date: 11-17-05 Time: 14:53

Ending Date: 11-18-05

Preparative Batch	Data File Name	Lab Sample ID	DF	Matrix		Notes
				S	W	
	TR17-001	1B50K115				
	002	TEST				
	003	↓				
	004	0050K04115				
	005	01550201416				D520
D51014W	006	05K014WB	1			SW30, 500 PPM
	007	↓				
	008	↓				
	009	05K094-01				
	010	05K090-01				
	011	02				
	012	↓				
	013	↓				
	014	05K092-01				
	015	↓				
	016	0050K04117				D500
	017	01550201118				SW30; 500 PPM
D5K04W	018	05K092-03	1			
	019	↓				
	020	05K102-02				
	021	↓				
	022	↓				
	023	↓				
	024	↓				
	025	05K112-02				

ANALYTICAL BATCH 0050K04115

Instrument No: 50		
INITIAL CALIBRATION REFERENCE		
ID	Date	
D50K04	11-17-05	
M50L11	11-17-05	
JP 5		
Standards		
Name	ID	Conc. (mg/L)
CH ₂ Cl ₂	45209	1000
DCC 15L	530 06 49 1	1000
90350L	530 06 48 3	1000
Electronic Data Archival		
Location	Date	
<input type="checkbox"/> E2C_1_Diesel		
<input type="checkbox"/>		

Comments:

Analyzed By: JP
 Disposed on: 11-18-05 By: JP

EXTRACTION LOGS

EXTRACTION LOG FOR TPH

SOP EMAX-3550 Rev. No. 1 EMAX-3520 Rev. No. 1 EMAX-LUFT E Rev. No. 1 EMAX-3540 Rev. No. 0 EMAX-3510 Rev. No. 1

Matrix: Water Start Date: 11/16/05 Time: 11:00 End Date: 11/17/05 Time: 5:00 Book # EDS-025

Sample Prep ID	Lab Sample ID	Sonicator Number	Sample Amount (g; ml)	Extract Volume (ml)	Silica Gel Clean-up	Notes
01	DSK014 - WB	N/A	1000	10		
02	↓ -WL		1000	10		
03	↓ -WC		1000	10		
04	OSK094 - 01		1050	10		
05	OSK090 - 01		1060	10		
06	↓ -02		1060	10		
07	↓ -03		1060	10		
08	↓ -04		1060	10		
09	OSK092 - 01		1070	10		
10	↓ -02		980	10		
11	↓ -03		1020	10		
12	↓ -08		1040	10		
13	OSK102 - 02		1050	10		
14	↓ -04		1040	10		
15	↓ -06		1050	10		
16	↓ -08		1050	10		
17	↓ -10		1050	10		
18	OSK112 - 02		1050	10		
19	↓ -04		1030	10		
20	OSK114 - 02		1060	10		
21	OSK115 - 03		1060	10		
22						
23						
24						
25						
26						
27						

PREPARATION BATCH * DSK014 - W

Standards	ID	Amount Added (ml)
Surrogate	SS38-06-78-1	1.0
LCS/MS	SS38-06-79-2	1.0
Reagent	Lot#	ID
CH ₂ Cl ₂	45257	
Na ₂ SO ₄	45045	
HCl	45105	
Silica Sand	N/A	
Sonicator #	Real Lag	
	N/A	
TUNING		
Concentrator Water Bath Temp (C)		
1	35	35
2	35	35
3	35	35
4	35	35
5		
6		

Comments: Test thermometer = J;

Prepared By: SS Standard Added By: SS
 Witnessed By: JM Checked By: JM
 Extract Received by: Q HHS Extract Location: SS602
 Disposal Date: _____

This page is checked during data review.

APPENDIX B
FIELD DATA SHEETS

ENVIRONMENTAL DESIGN SECTION – WELL SAMPLING DATA SHEET

Project: POL 14.11

Well Number: PL-MW-103

Date: 11/09/05 Purge Method: low - flow

Samplers: JL/JY Purge Method Type: _____

Sampling Method: peristaltic pump

Time	Elapsed Time	Intake Depth	Discharge (gal)	Cumulative Volume	Temp (C°)	pH	Conduct (µmhos)	Turbidity	Dissolved Oxygen	ORP	Remarks Color, odor
1118					18.7	6.32	605	11.4	5.33	116.2	clear
1122					18.4	6.45	607	12.2	5.96	108.5	clear
1126					18.3	6.48	608	13.7	5.47	93.6	clear
1130					18.3	6.53	609	8.8	5.12	77.0	clear
1134					18.3	6.66	609	8.9	4.70	51.6	clear

Comments:

Depth to H₂O = 3.00

Bottom = 29.99

Fe¹² = 0.0 mg/L

ORP = PL-MW-130

QA = EMAX Lab.

ENVIRONMENTAL DESIGN SECTION - WELL SAMPLING DATA SHEET

Project: HAAF

Well Number: PL-MW-116

Date: 11/9/05 0953 Purge Method: Low-Flow

Samplers: JL/JY Purge Method Type: _____

Sampling Method: peristaltic pump

Time	Elapsed Time	Intake Depth	Discharge (gal)	Cumulative Volume	Temp (C°)	pH	Conduct (µmhos)	Turbidity	Dissolved Oxygen	ORP	Remarks Color, odor
1017					20.7	6.37	570	-.1	1.16	126.5	Clear
1021					20.6	6.28	568	0	0.72	124.8	Clear
1025					20.6	6.33	568	-.1	0.69	121.7	clear
1030					20.6	6.31	568	-.1	0.66	116.7	clear
1035					20.6	6.38	568	-.1	0.61	114.0	clear

Comments:

TCC -> H₂O = 11.6 l
Bottom = 23.62
Fe⁺² = 0 mg/l *af*

APPENDIX C
DATA VALIDATION

US Army Corps of Engineers
1325 J Street
Sacramento, CA 95814-2922

January 11, 2006

SUBJECT: Hamilton Army Airfield POL Hill– Data Validation Report

Enclosed is the validation report for the above referenced project for the samples listed below:

Project: HAAF POL Hill:
APPL SDG #

Analysis

ARF 49057

Total Petroleum Hydrocarbons (Gasoline, Diesel)
by EPA 8015B

The data validation was performed under EPA level III/IV guidelines. Data validation was performed using the following documents:

- *Work Plan, Groundwater Monitoring, POL Hill, Hamilton Army Airfield, Novato, California, SOTA Environmental Technology, October 2001.*
- *Contract Laboratory Program National Functional Guidelines for Organic Data Review, USEPA, October 1999.*
- *EM 200-1-3, Shell for Analytical Chemistry Requirements, USACE, February 2001.*
- *Test Methods for Evaluating Solid Waste Physical/Chemical Methods (SW846) Third Edition, USEPA, December 1996.*

If you have any questions, please contact me.

John Yaremchuk
QA Chemist
USACE-SPK-ED-EC

Data Validation Report

Project/Site Name: Hamilton Army Airfield POL Hill

Collection Date: 9 November 2005

Matrix: Groundwater

Parameters Total Petroleum Hydrocarbons (USEPA 8015B)

Validation Level: EPA Level III

Laboratory: Agriculture & Priority Pollutants Laboratories, Inc. (APPL)

Sample Delivery Group: ARF 49057

Sample Identification

Sample ID	Laboratory ID
PL-MW-101	AX30161
PL-MW-103	AX30162
PL-MW-104	AX30163
PL-MW-114	AX30164
PL-MW-115	AX30165
PL-MW-116	AX30166
PL-POLA-121	AX30167
PL-MW-130 (QA)	AX30168
TRIP BLANK	AX30169

Introduction

This data review covers the sample delivery groups listed on the cover sheet including dilutions and reanalysis as applicable.

The analyses were:

- Total petroleum hydrocarbons (extractable and purgeable) by USEPA 8015B.

This review follows the outline of the USEPA Contract Laboratory Program National Functional Guidelines for Organic Data Review (October 1999) as well as information provided in the Work Plan for HAAF POL Hill.

A table summarizing all data qualification flags is provided at the end of this report.

Raw data was reviewed back to the bench level in 10% of the samples; if there were any discrepancies another 10 % back check was performed.

The following are definitions of the data qualifiers:

- U Indicates the compound or analyte was analyzed for but not detected at or above the stated limit.
- J Indicates an estimated value.
- J+ Indicates possible high bias and/or false positives.
- J- Indicates possible low bias and/or false negatives.
- R Quality control indicates the data is not usable.
- N Presumptive evidence of presence of the constituent.
- UJ Indicates the compound or analyte was analyzed for but not detected. The sample detection limit is an estimated value.
- None Indicates the finding did not significantly impact the data, therefore qualification was not required.

I. Diesel Range Organics – EPA Method 8015B – TPH Extractable

A. Technical Holding Times

For semivolatile compounds in cooled (4°C) water samples, the maximum holding time is 7 days from sample collection to extraction and 40 days from sample extraction to analysis.

Collection Date	Received Date	Extraction Date	Analysis Date
11/09/05	11/11/05	11/16/05	11/17/05

B. Calibration

Initial calibration was performed using six standards for diesel range organics (DRO). A second source standard was run after the calibration after initial calibration. All acceptance criteria defined in the method were met.

C. Blanks

Method blank shows no contaminants above the MDL (0.0404 mg/L).

D. Surrogates

Surrogate recoveries meet the criteria specified in the HAAF POL Hill Work Plan (WP) with the following exception:

- PL-MW-103 had low surrogate recoveries (19.4 and 20.1%) below the criteria of 65% per the WP. The sample result, non-detect should be flagged with a “UJ”.

E. Laboratory Control Sample Evaluation

The WP defines the minimum frequency of 1 per preparation batch; the LCS recoveries met the WP criteria.

F. Matrix Spike/Matrix Spike Duplicate Analysis

The WP defines the minimum frequency of 1 per preparation batch; the MS/MSD recoveries met the WP criteria

G. Field Duplicate Samples

Sample PL-MW-130 (AX30168) was a field duplicate of sample PL-MW-103 (AX30162); both samples were non-detect.

H. Compound Quantitation, Dilution and Reporting Limits

Peaks were identified within the C12-C26 carbon range as diesel and peaks identified within the C26-C40 carbon range were calculated as motor oil. The laboratory used professional judgment in the determination of whether each component was present based on the distinctive pattern associated with each set. Sample PL-MW-101 which was the only sample with a positive result (760 µg/L) exhibited lower boiling hydrocarbons such as mineral spirits, jet fuel, kerosene, Stoddard solvent or white gas.

I. Method Detection Limits

There was no method detection limit study supplied with this SDG. The PQL's for this SDG met the WP criteria.

J. Overall Assessment of Data

Data flags have been summarized at the end of this report.

II. Gasoline Range Organics (GRO) – EPA Method 8015B

A. Technical Holding Times

Maximum holding times for gasoline range organics in water samples is 14 days if preserved (pH<2) and 7 days unpreserved. Samples collected in the field were preserved.

Collection Date	Received Date	Analysis Date
11/09/05	11/11/05	11/20/05 11/21/05

B. Initial Calibration

Initial calibration was performed using a six point calibration. Least squares fit met the 0.995 acceptance criteria.

C. Continuing Calibration

Continuing calibration was performed at the required frequencies.

The continuing calibration percent drift (%D) between the initial calibration and the continuing calibration $<\pm 20\%$.

D. Blanks

There were no volatile contaminants found in the method blanks.

E. Surrogate Spikes

Surrogate recoveries met the criteria specified within the WP.

F. Laboratory Control Samples (LCS)

LCS samples were reviewed as applicable for percent recoveries (%R), which met the specifications in the WP.

G. Matrix Spike/Matrix Spike Duplicates

MS/MSD samples were reviewed as applicable for percent recoveries (%R) and relative percent difference (%RPD); these were deemed acceptable.

H. Field Duplicates

Sample PL-MW-130 (AX30168) was a field duplicate of sample PL-MW-103 (AX30162); both samples were non-detect.

I. Target Compound Verification

The sample relative retention times met the QC requirements of the method.

J. Compound Quantitation, Dilution and Reporting Limits

Compound quantitation verification shows that the reported results are calculated correctly. The PQL's reported are within the calibration of the method, however there was no MDL study supplied with the data.

K. Overall Assessment

Data flags have been summarized at the end of the report.

Data Qualifications

SAMPLE ID	LABORATORY ID	ANALYTE	RESULT	QUALIFIER
PL-MW-103	AX30162	TPH-Diesel	ND	UJ

QUALITY CONTROL SUMMARY REPORT

GROUNDWATER MONITORING POL HILL HAMILTON ARMY AIRFIELD Novato, California



U.S. Army Corps of Engineers
Sacramento District
Environmental Chemistry Section

January 11, 2006

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List of Acronyms

APPL	Agriculture & Priority Pollutant Laboratories, Inc.
CCV	Continuing Calibration Verification
°C	Degree Celsius
DQO	Data Quality Objectives
HAAF	Hamilton Army Airfield
EDD	Electronic Data Deliverables
EPA	Environmental Protection Agency
FD	Field Duplicate
ICV	Initial Calibration Verification
LCS	Laboratory Control Spike
LCSD	Laboratory Control Spike Duplicate
MDL	Method Detection Limit
mg/L	Milligram per liter
MS	Matrix Spike
MSD	Matrix Spike Duplicate
NELAP	National Environmental Laboratory Accreditation Program
ORP	Oxidation/Reduction Potential
POL	Petroleum, Oil and Lubricant
PQL	practical quantitation limit
QA	Quality Assurance
QC	Quality Control
QCSR	Quality Control Summary Report
RRF	Relative Response Factor
RPD	Relative Percent Difference
RSD	Relative Standard Deviation
USACE	United States Army Corps of Engineers

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1.0 INTRODUCTION

This quarterly sampling event was conducted on 9 November 2005 for monitoring groundwater samples at the Petroleum, Oil and Lubricant (POL) Hill site at Hamilton Army Airfield (HAAF), Novato, California.

1.1 Project Scope

Groundwater monitoring will consist of: 1) checking for the presence of free product, 2) measuring depth to groundwater, 3) determining water level elevation relative to mean sea level (msl) in feet, and 4) collecting and analyzing samples from seven selected groundwater monitoring wells (namely, PL-MW-101, PL-MW-103, PL-MW-104, PL-MW-114, PL-MW-115, PL-MW-116, PL-POLA-121).

Groundwater samples will be analyzed for the following: total petroleum hydrocarbons measured as both extractable (diesel) and purgeable (gasoline), methane, ferrous iron, sulfate, total alkalinity, oxidation/reduction potential (ORP), dissolved oxygen, pH, turbidity and field temperature.

2.0 Sampling Procedures

2.1 Sampling Handling

Groundwater samples were collected from each designated monitoring well after appropriate purging techniques were employed. Field parameters were taken throughout the process and only when stabilized ($\pm 10\%$) was the sample collected. The sample was then placed in a pre-cleaned container, then sealed, labeled, secured in a Zip-loc™ bag, cooled and shipped to the laboratory for analysis.

A field duplicate sample (at a rate of 10%) was prepared for analysis. The field duplicate was submitted blind to the laboratory.

3.0 Summary of Quality Control Activities

3.1 Quality Control Samples

3.1.1 Field Duplicate Samples

Field duplicate samples (fig 3-1) were collected in the field at a rate of 10 percent. The duplicate samples will be submitted blind to the primary laboratory. The duplicate samples are used to check for the natural sample variance, consistency of field collection techniques, and laboratory analyses. The replicate sample is collected and analyzed for the same constituents as the primary sample.

Fig 3-1

Field QC Sample Collection Frequencies And Acceptance Limits

QC Sample Type	Collection Frequency	Acceptance Limits
Field Duplicate	1 per 10 investigative samples collected	≤ 20% RPD

3.2 Laboratory Quality Control Samples

Internal laboratory QC samples were analyzed at the frequency specified by the method and in the WP specifications. These QC samples will include method blanks, matrix spikes, matrix spike duplicates, and surrogate analysis for organics. (Fig 3-2)

3.2.1 Method Blank

One method blank sample will be analyzed for every 20 samples (minimum of one per day, one per matrix). The method blank is taken through the whole analytical process. The analytical results of the method blank are then reported to show that the blank is free of analytical interference.

3.2.2 Matrix Spike /Matrix Spike Duplicate

Matrix spike and matrix spike duplicates are samples to which known concentrations of analytes are added prior to sample preparation. The matrix spike and matrix spike duplicates are taken through the whole analytical process. Following the analytical process, the recoveries of the spike analytes are calculated and reported for assessment of accuracy. When a matrix spike duplicate is analyzed, the relative percent differences between the matrix spike and the matrix spike duplicate results will also be calculated and reported. The percent recoveries and the relative percent differences are used to evaluate the effect of the sample matrix on the accuracy and precision of the analysis. The samples to be used for MS/MSD will be identified on the COC and sufficient sample will be submitted for these samples.

3.2.3 Surrogate Spike

Surrogate spike is a known concentration of a non-target analyte added prior to sample preparation. The surrogate spike recovery must meet the established acceptance criteria, and measures the efficiency of the steps of the analytical method in recovering the non-target analytes.

Fig 3-2

**Quality Control Criteria for Total Petroleum Hydrocarbons
EPA Method 8015B**

SW-8015B	PQL Water mg/L	LCS Control Limit Water RPD-20% %R	MS/MSD Control Limit Water RPD-20% %R
TPH-Diesel	0.050	50-150	50-150
TPH-Gasoline	0.050	65-135	65-135
<i>Surrogate</i>	<i>Surrogate Control Limits</i>		
<i>Ortho-terphenyl (DRO)</i>	50-150 (water)		
<i>Bromofluorobenzene (GRO)</i>	65-135 (water)		

4.0 Analytical Procedure

EPA SW 846 Method 8015B, *Non-halogenated Organics using GC/FID* was the method employed by the laboratory for this investigation. Method quality control parameters are listed in the following table. (Fig 4-1)

**Fig 4-1
Method Quality Control Parameters**

Analytical Method	Applicable Parameter	Quality Control Check	Minimum Frequency	Acceptance Criteria	Corrective Action ^a
SW8081A	TPH	ICAL five-point minimum	Initially and as required	% RSD < 20% or r ≥ 0.995.	1) Check Calculation 2) Recalibrate as necessary
		ICV	Daily, prior to sample analysis	± 25% difference from expected concentration	1) Check Calculation 2) Rerun ICV 3) Recalibrate as necessary
		CCV	After every 10 samples and end of sequence	± 15% difference from expected concentration	1) Check calculation 2) Rerun ICV. 3) Reanalyze samples subsequent to failed CCV 4) Recalibrate as necessary
		Calibration blanks	After each ICV and CCV	< 2 PQL	1) Rerun blank once

Analytical Method	Applicable Parameter	Quality Control Check (ICB, CCB)	Minimum Frequency	Acceptance Criteria	Corrective Action ^a
		ICAL five-point minimum	Initially and as required	% RSD < 20% or r ≥ 0.995.	2) Clear system 3) Reanalyze samples back to last clear blank
		MS and MSD (level at the mid-level standard)	1 MS/MSD per preparation batch	Recovery and RPD within project limits	1) Check Calculation 2) Recalibrate as necessary. 1) Evaluate for supportable matrix effect. 2) If no interference is evident re-extract and reanalyze MS/MSD once. 3) If still out report both sets of data.
		LCS (prepared with second source standard)	LCS per preparation batch	Recovery within project limits (Fig 3-2)	1) Check Calculation. 2) Reanalyze LCS, if passes, report 3) If still out, re-extract and reanalyze LCS and its associated samples.
		Surrogate Spike	Every sample, method blank, and standard	Recovery within project limits (Fig 3-2)	1) Check calculation 2) Assess impact and narrate outlier 3) Reanalyze once 4) Re-extract if both surrogate are outside of acceptance limits

^aAll corrective actions associated with USACE project work shall be documented and the records maintained by the laboratory.

PQL = Practical Quantitation Limit
MSD = Matrix Spike Duplicate
ND = Not detected
LCS = Laboratory Control Sample

CCV = Continuing Calibration Verification
MS = Matrix Spike
RF = Response Factor
RSD = Relative Standard Deviation

5.0 Data Review Findings Summary

5.1 Total Petroleum Hydrocarbons by EPA SW-846 Method 8015B

During the field-sampling event of 9 November 2005 a total of 9 water samples were taken. The samples were shipped via FedEx overnight to Agriculture & Priority Pollutant

Laboratories, Inc. located in Fresno, CA for analysis. At the laboratory the samples were prepared per the specifications of the WP.

Data deliverables included a level III data package as well as electronic deliverables (EDD) in the Automated Data Review (ADR) format. ADR facilitates the validation process by incorporating the key elements of: *USEPA Contract Laboratory Program National Functional Guidelines for Organic Review*, EPA540/R-99/008, October 1999. The electronic data library, which contains the QC acceptance criteria detailed within the WP, is supplied to the laboratory to support the EDD. QA of the library is performed within the USACE chemistry section by another individual not involved in the project library creation. A 10% manual laboratory validation is also performed on the raw data supplied by the laboratory as a check on the ADR validation. Professional judgment is applied in those cases where specific guidance is not available.

6.0 Chemical Data Quality Assessment

6.1 Discussion of Qualified Data

One sample, PL-MW-103 was qualified (UJ) due to poor surrogate recoveries. The sample was non-detect and was designated as the MS/MSD sample within the sample delivery group. MS/MSD analyses show recoveries within the acceptance criteria of the project. Sample PL-MW-130 was the field duplicate of PL-MW-103 and was non-detect with no qualification.

6.2 Preservation and Holding Times

All samples were shipped on ice and arrived intact at the laboratory at the proper temperature (2-6 °C). The samples were extracted/analyzed within the holding times.

6.3 Laboratory Blanks

Laboratory method blanks were analyzed at the required frequency of one method blank per laboratory batch. Sample data shows no detectable concentrations above the MDL of the method.

6.4 MS/MSD Recoveries and Precision

A MS/MSD sample was collected over the course of this field effort. The MS/MSD sample pairs met the WP criteria (Fig 3-2).

6.5 Laboratory Control Standard (LCS) and Laboratory Control Standard Duplicates (LCSD)

LCS/LCSD sample pairs were prepared and analyzed at the appropriate frequency of one pair per laboratory batch. All LCS/LCSD results were within the project control limits for precision and accuracy.

6.6 Field Duplicate

A field duplicate sample was collected in the field at a rate of 11%, which met the requirements of the WP. The duplicate samples are used to check for the natural sample variance, consistency of field collection techniques, and laboratory analyses. The

acceptance criteria of 20% RPD for field duplicate precision of water was specified in the SAP. The field duplicate met the WP criteria.

6.7 Analyte Identification and Analyte Quantitation

Analyte identification was performed using a relative retention time/linear regression as established in Method SW 8015B. The laboratory did not report any analyte identification and quantitation problems in the laboratory case narratives.

7.0 Overall Data Quality

7.1 Summary

The Hamilton Army Airfield POL Hill groundwater sampling event overall data quality is considered acceptable and meets the DQOs for this project. The one instance of qualified data, which for the purposes of this event did not affect data usability.

8.0 References

United States Environmental Protection Agency (EPA), 1999. *Contract Laboratory Program National Functional Guidelines for Organic Data Review*, October.

United States Army Corps of Engineers (USACE), 1998. *Environmental Data Quality Management Program Specifications, Ver 1.08*.

SOTA Environmental Technology, October 2001. *Work Plan, Groundwater Monitoring, POL Hill, Hamilton Army Airfield, Novato, California*.