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January 19, 2006

DAIM-BO-A-HA

SUBJECT: Forwarding the final *Groundwater Monitoring Report Winter 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 Winter 2005 Sampling Event POL Hill; Hamilton Army Airfield; Novato, CA* for your files. This report summarizes the results of the March 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

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 Groundwater Monitoring Report, Winter 2005 Sampling Event, POL Hill;
 Hamilton Army Airfield; Novato, CA

January 2006

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GROUNDWATER MONITORING REPORT

WINTER 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**

December, 2005

EXECUTIVE SUMMARY

This report summarizes the results of the winter 2005 (March) 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 groundwater is not migrating off-site and to monitor natural attenuation parameters.

Groundwater samples were collected from seven monitoring wells from 17 - 18 March 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 were generally consistent with previous findings.

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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 March 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 annual 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) from 17 to 18 March 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 conclusions and recommendations 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 17 or 18 March 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, dissolved oxygen (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 disposed 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 former Landfill 26 treatment plant.

3.0 SAMPLE ANALYSIS AND QUALITY ASSURANCE/QUALITY CONTROL

The March 2005 sampling event was performed 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-301) was collected at PL-MW-103. Field matrix spike (MS) and the matrix spike duplicate (MSD) samples were collected at PL-MW-103 and MW-POLA-121. 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.

3.5 Field and Laboratory QC Sample Results

QC deficiencies were observed resulting in the qualification of data. The holding times for total alkalinity and ferrous iron analyses were exceeded resulting in the estimation of total alkalinity results and the estimation or rejection of ferrous iron results. Non-detect ferrous iron results were rejected due to gross exceedance of holding time. All other 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 with some limitations.

4.0 GROUNDWATER MONITORING RESULTS

This section summarizes the results of the March 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 February/March 2004, static water levels raised in all seven wells, from 0.43-feet (PL-MW-103) to 3.73-feet (PL-MW-101). 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, the measured water levels during this event are higher than the measurements made in March 2004.

A groundwater gradient map was prepared based on the March 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. However, 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 March 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 was detected in six wells (PL-MW-101, PL-MW-104, PL-MW-114, PL-MW-115, PW-MW-116, and MW-POLA-121) and was not detected in one of the wells (PL-MW-103).

Purgeable TPH was detected in two wells (PL-MW-101 and MW-POLA-121). Concentrations in these two wells were not significantly different than 2004. The concentrations in the other five wells (PL-MW-103, PL-MW-104, PL-MW-114, PL-MW-115, and PL-MW-116) 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 March 2005 sampling event from those observed during previous events. The pH was close to neutral and ranged from 7.04 (PL-MW-103) to 7.99 (PL-MW-115). The temperature was mild and ranged from 15.0°C to 17.9°C (59.0°F to 64.2°F). 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 March 2005 samples are shown in Figures 9 through 11. The groundwater laboratory results are discussed below.

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 DO concentrations measured ranged from 0.35 mg/L (PL-MW-104) to 4.93 mg/L (MW-POLA-121) at the wells. The dissolved oxygen data from this event and previous events suggest an overall aerobic condition occurring in the wells with higher TPH values (lower D.O.).

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. However, as mentioned above, it is difficult to obtain representative readings when sampling at the slow recharging monitoring wells. Eh values tend to be inflated (more positive) by excessive drawdown of the standing

water in the well during the purge cycle. The reported Eh concentrations for this event ranged from -181.1 mv (PL-MW-101) to 7.2 mv (MW-POLA-121) at the wells. A positive Eh value resulting from the large amount of purge water removed from MW-POLA-121 makes sense. However, the lowest (most negative) Eh value reported in PL-MW-101; where, compared to the other wells, substantial water also is purged, appears not to correlate. The Eh in six of the wells when listed in decreasing negative values of Eh, with one exception at PL-MW-116, correlate with the relative concentrations of TPH remaining in those wells. This suggests that the reduction in TPH concentrations may be due to anaerobic degradation as well as aerobic degradation. The seventh well (MW-POLA-121) with a measured Eh value of 7.2 (oxidizing environment/aerobic degradation) and a DO of 4.93 suggests there was greater agitation or aeration of the water in this well during the purge cycle.

4.7 Methane

Methane was detected in wells PL-MW-101 (1.20 mg/L), PL-MW-103 (0.00078 J mg/L) and PL-MW-114 (0.0097 J mg/L). No methane was found in the other six wells. These data are consistent with the results from the previous events. The methane detection in wells PL-MW-101, PL-MM-103, and PL-MW-114 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 wells PL-MW-103 and MW-POLA-121 respectively 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 following summary is based on a review of the analytical data and field measurements collected during the winter 2005 groundwater-monitoring event and review of prior data:

- The results of the POL Hill Monitoring Program in the winter 2005 sampling event indicate a continuing trend to lower TPH values in the groundwater consistent with the trend shown during the last four years by the September 2001, February and August 2002 groundwater monitoring data (SOTA, 2001b, 2002a, and b), the winter 2003 (SOTA) and 2004 (USACE) data, as well as historical groundwater monitoring data (IT, 1999).

- During the winter 2005 event, the concentrations of TPH-contaminated groundwater samples near the former AST-2 were lower than the 2004 results. In all the wells the total TPH values have been less than the TPH residential cleanup goals (RCG) for groundwater for the last two sampling events (2004 and 2005). In the “trigger well” PL-MW-101 near the former AST-2, the data collected during the wet seasons (i.e., February 2002, March 2003, March 2004, and March 2005) and during the dry seasons (September 2001 and August 2002) indicate a consistent decrease in TPH concentrations since 2001. A similar trend generally is observed from the data collected in other wells where the data have been less than the RCGs for several years. The indication of anaerobic conditions at the location of the highest petroleum concentration, PL-MW-101, is consistent with natural biodegradation processes. Review of current and historical results of groundwater petroleum concentrations and natural attenuation parameters indicate that the petroleum contamination is reducing. The more recently reported TPH concentrations suggest the site may be considered for site closure.

The *Final POL Hill AST-2 Area Corrective Action Plan*, USACE/CH2M Hill, February 2004 - Section 7.3 defined the strategy and conditions for site closure and is quoted in the following:

“In order for the POL Hill AST-2 Area to be considered ready for closure, all groundwater samples must be below the GSA Phase 1 RCG [Residential Cleanup Goals] level for TPH. In particular, TPH concentrations must fall below this level (i.e., 1,200 µg/L TPH measured as diesel) in the POL Hill AST-2 Area trigger well, PL-MW-101(D).”

Furthermore, it also states that, “Because it is recognized that contaminant levels may fluctuate over time, it will be necessary for the interim monitoring data to demonstrate that TPH concentrations will not be likely to rebound after the monitoring program is considered complete. For this reason, it is proposed 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.

If needed to speed the site-closure process, it is proposed that monitoring-well sampling and analysis be shortened to a quarterly frequency once initial attainment of the Phase 1 RCG has been demonstrated. In this way, the required monitoring period to attain the compliance with three straight rounds of groundwater results can be shortened from three years to 1 year provided all wells in all of these final rounds have TPH levels below the RCG concentration.”

In November 2005, the Army collected another round of ground water samples at the POL Hill AST-2 site. Provided that contaminant levels have not increased above the GSA Phase I Residential Cleanup Goals, a case for closure will be presented to the RWQCB in accordance with the POL Hill Corrective Action Plan.

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, February 8, 2002

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

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

TABLES

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

Well No.	Date Completed	Total Drilled Depth (ft. bgs)	Total Well Depth (ft. bgs)	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	NA
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.

*: 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 Available

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	3/17/2005	49.46	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	3/17/2005	17.35	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	3/17/2005	27.28	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	3/4/2003	6.56	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	3/4/2003	7.11	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
PL-MW-114	3/17/2005	22.86	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

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-115	3/18/2005	26.94	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	3/17/2005	18.00	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	3/17/2005	51.66	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

^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
 (March 17-18, 2005)
 POL Hill, Hamilton Army Airfield, Novato, California

Well	TPH Purgeable as gasoline (EPA 8015B) (µg/L)	TPH Extracable as diesel fuel (EPA 8015B) (µg/L)	TPH Extracable 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) (mg/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 Temperatur e (°C)
PL-MW-101	120	540	NA	0.37	-181.1	0.00061 J	1.2	2.60	554 J-	7.51	1.2	16.40
PL-MW-103	ND (<50)	ND (<500)	NA	1.51	-85.1	ND (<0.1) R	0.00078 J	96.10	236 J-	7.04	-0.4	13.97
PL-MW-104	ND (<50)	180 J	NA	0.35	-91.6	ND (<0.1) R	ND (<0.005)	18.50	383 J-	7.21	12.1	17.28
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 (<50)	260 J	NA	1.31	-103.3	ND (<0.1) R	0.0097 J	97.60	237 J-	7.32	-0.3	15.50
PL-MW-115	ND (<50)	390 J	NA	1.30	-152.8	0.000029 J	ND (<0.005)	15.80	84.0 J-	7.99	NA	17.83
PL-MW-116	ND (<50)	370 J	NA	2.17	-81.8	ND (<0.1) R	ND (<0.005)	44.30	175 J-	7.14	491.0	16.26
MW-POLA-121	13 J	330 J	NA	4.93	7.2	ND (<0.01) R	ND (<0.005)	12.50	109 J-	7.22	53.4	15.05
PK-MW-301 (QC) ^a	ND (<50)	ND (<500)	NA	1.51	-85.1	NS	ND (<0.005)	97.40	NS	7.22	53.4	15.05

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 March 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	
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	
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	

Table 4
Historical Groundwater Organic Chemical Data Summary
POL Hill, Hamilton Army Airfield, Novato, California
(July 1992 through March 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-04	NS	NS	NS	NS	NS	NS	NS
	Mar-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
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

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

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

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

U not detected

J estimated value

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

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

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

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 exceedences

J- Estimate biased low

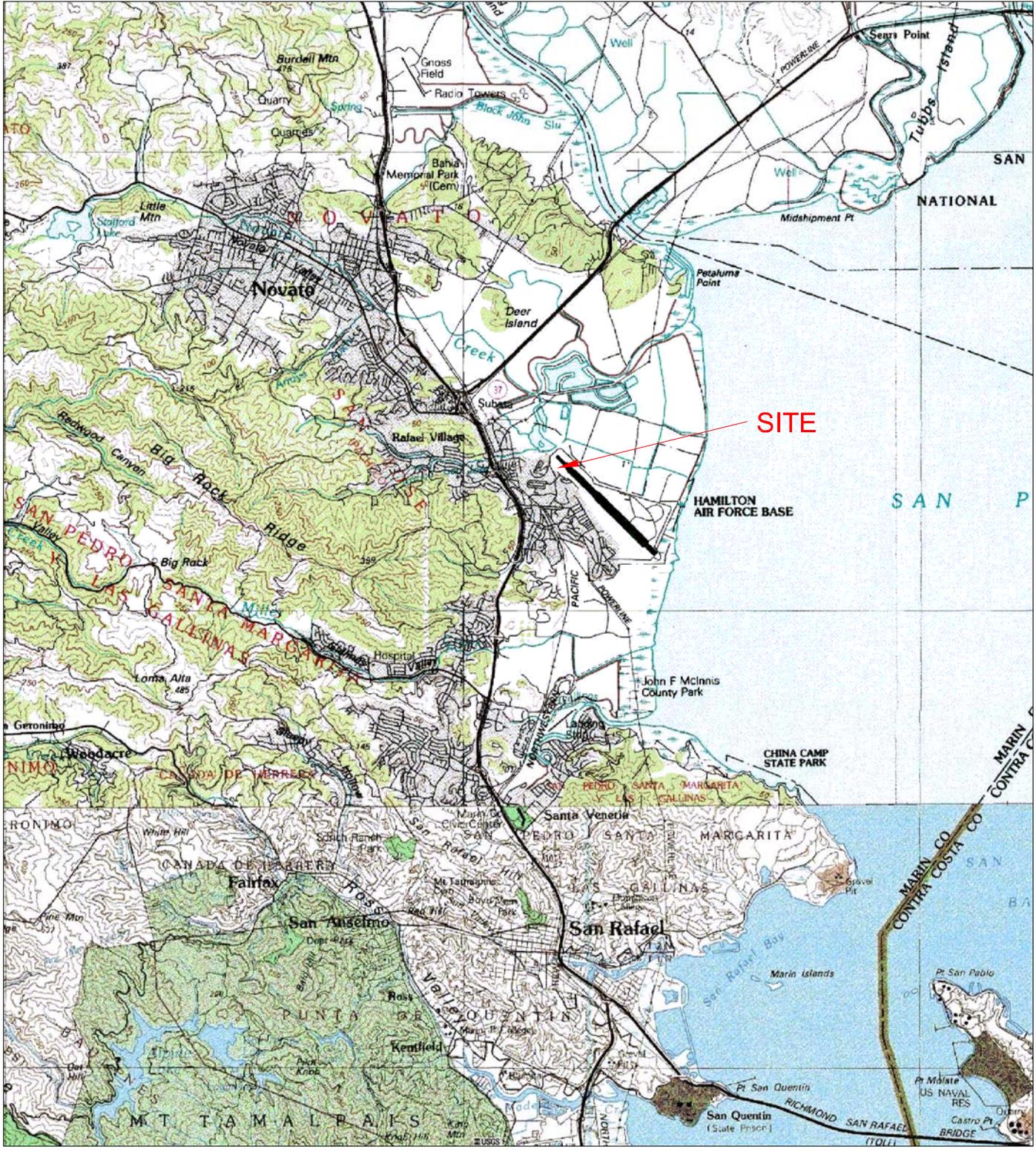
mg/L - Milligrams per liter

°C - Degrees Celsius

mv - Millivolts

NTU - Nephelometric Turbidity Units

FIGURES

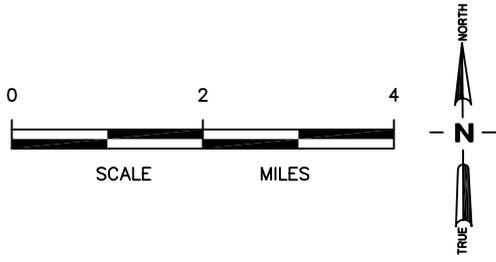


SITE

HAMILTON AIR FORCE BASE

SITE MAP

POL HILL, HAMILTON ARMY AIRFIELD
NOVATO, CALIFORNIA



US Army Corps
of Engineers
Sacramento District

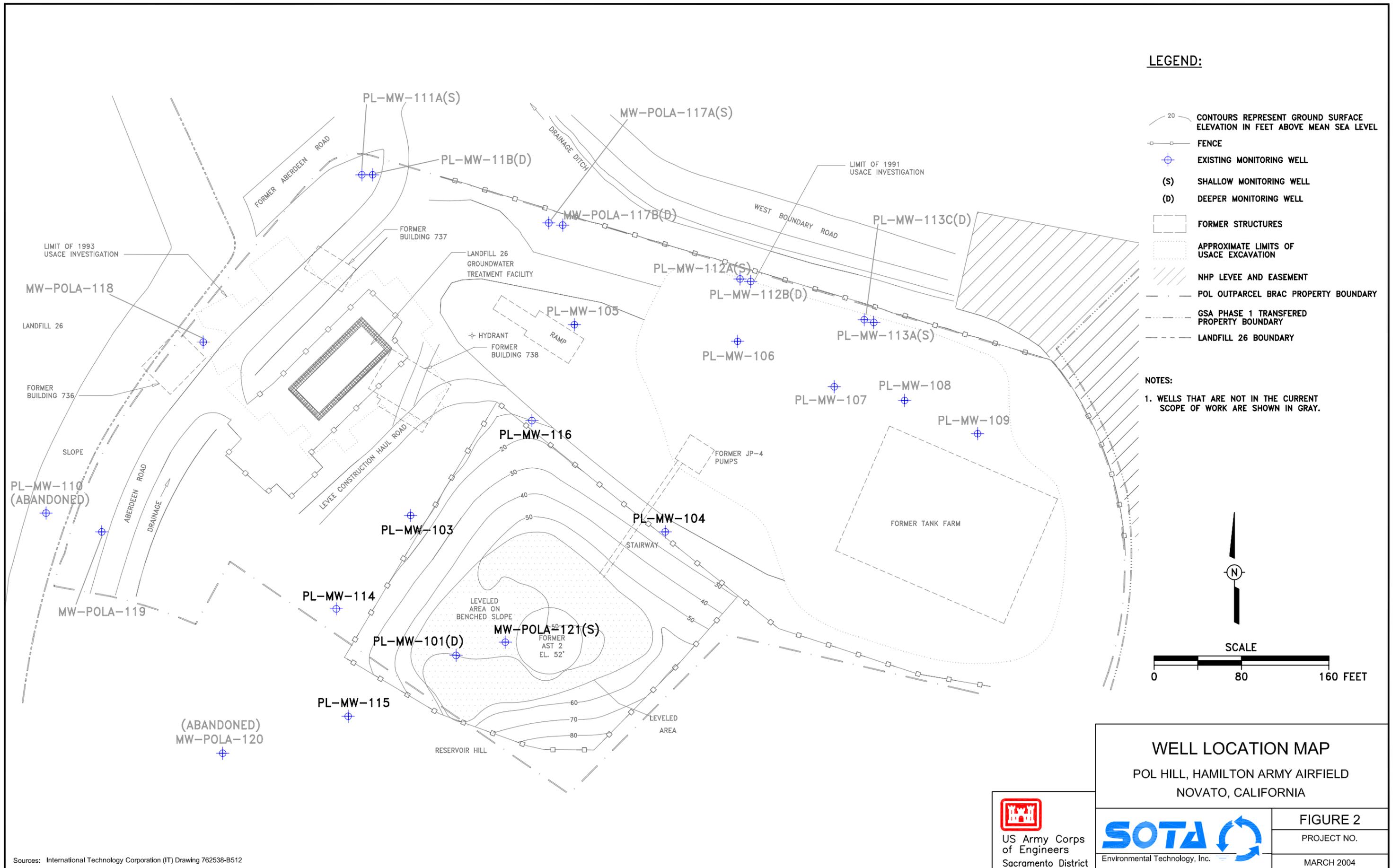


FIGURE 1

PROJECT NO.

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

Environmental Technology, Inc.

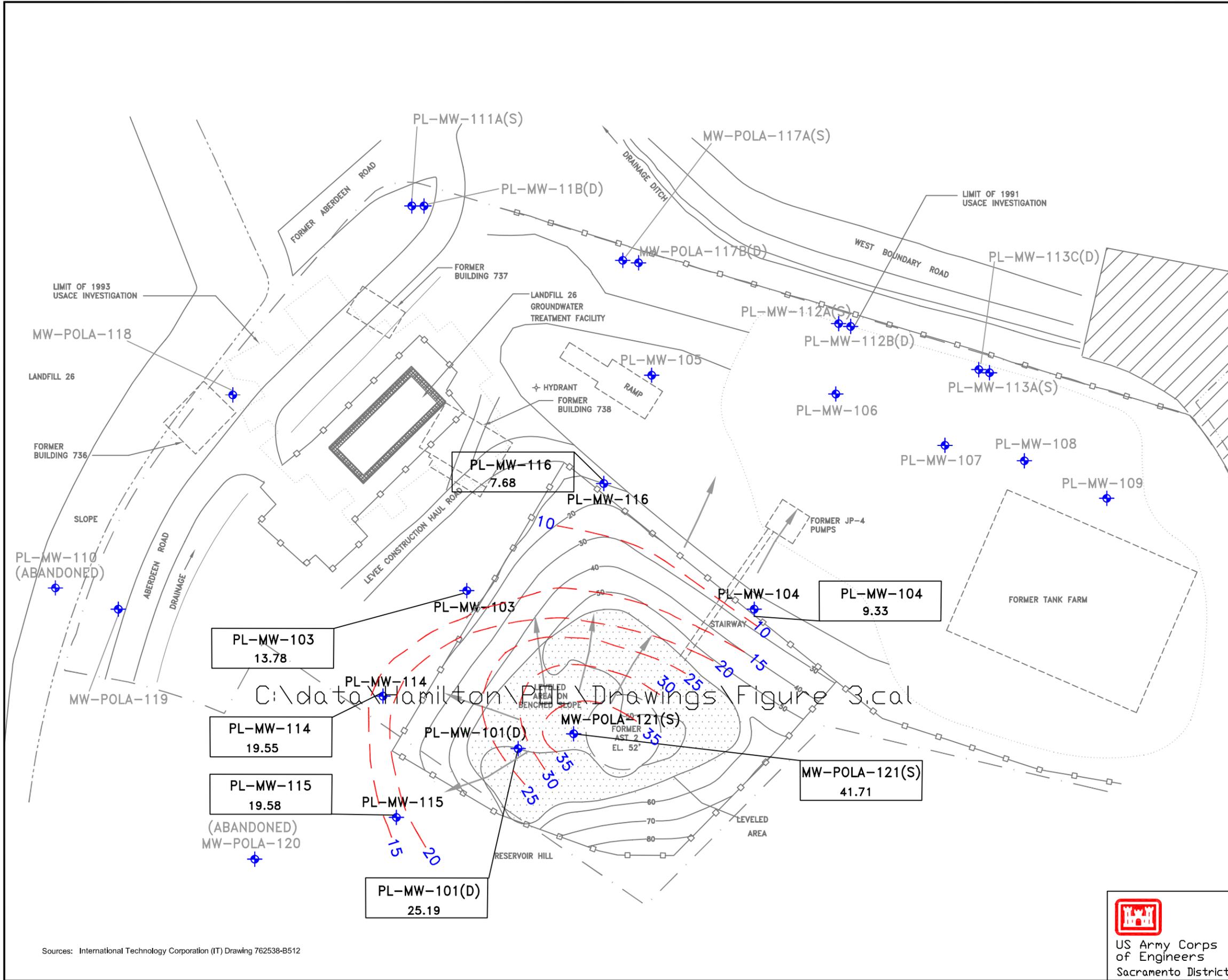
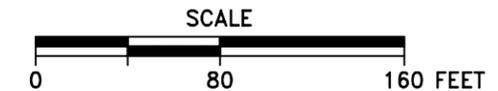


Sources: International Technology Corporation (IT) Drawing 762538-B512

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
- 5 GROUNDWATER ELEVATION CONTOUR
ELEVATION IN FEET ABOVE MEAN SEA LEVEL
- 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.



C:\data\Hamilton\PI\Drawings\Figure 3.cal

<p>GROUNDWATER ELEVATION MAP MARCH 2005 POL HILL, HAMILTON ARMY AIRFIELD NOVATO, CALIFORNIA</p>	
<p>SOTA Environmental Technology, Inc.</p>	<p>FIGURE 3 PROJECT NO. MARCH 2004</p>

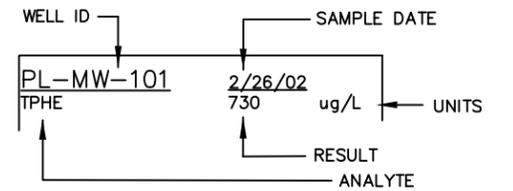
US Army Corps
of Engineers
Sacramento District

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

PL-MW-103 03/17/05	
TPH-P ND (<50) ug/L	
TPH-E ND (<500) ug/L	
DO 1.51 mg/L	
Eh -85.1 mv	
CH4 0.00078 mg/L	

PL-MW-116 03/17/05	
TPH-P ND (<50) ug/L	
TPH-E 370 ug/L	
DO 2.17 mg/L	
Eh -81.8 mv	
CH4 ND (<0.005) mg/L	

LEGEND:



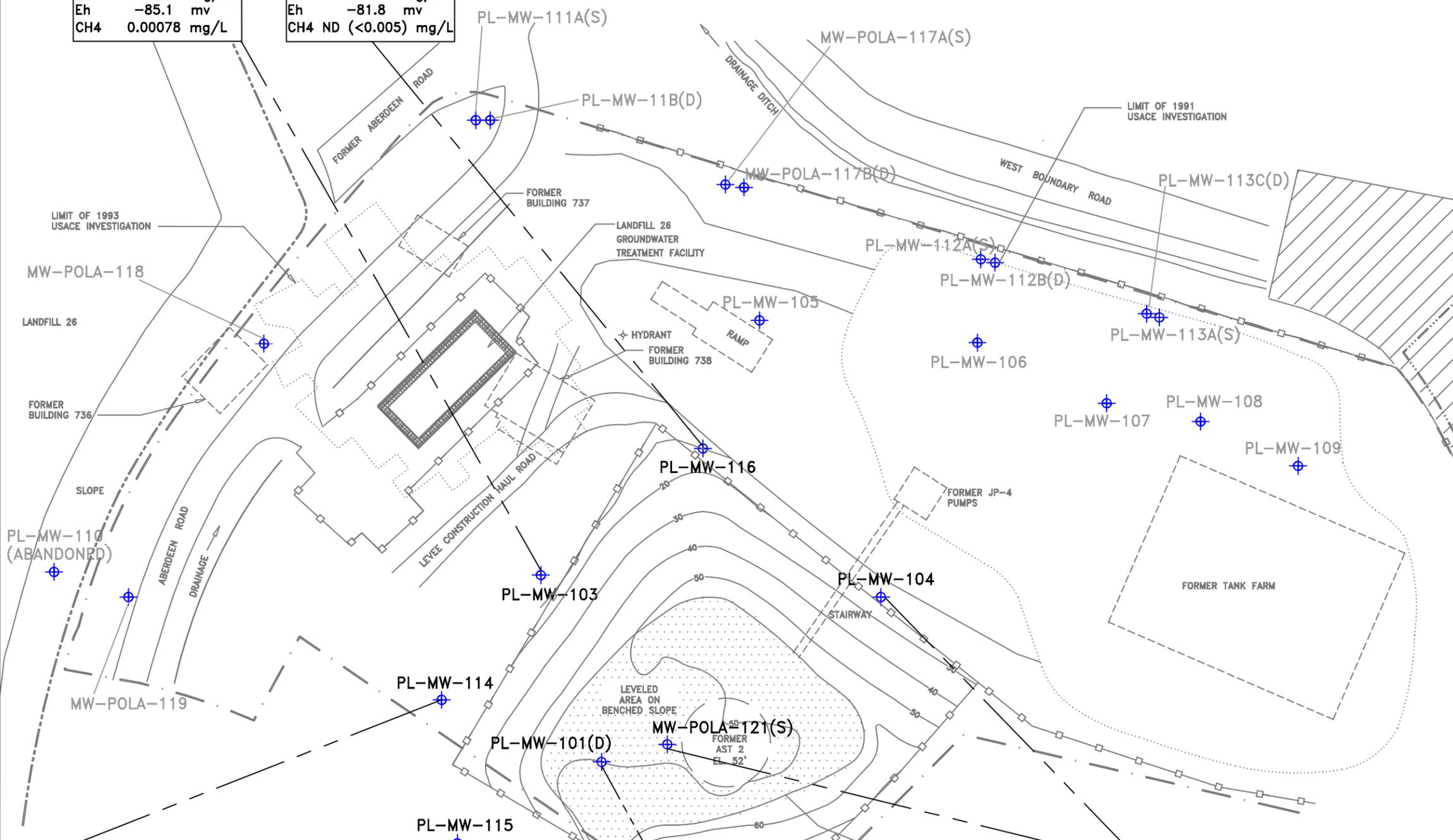
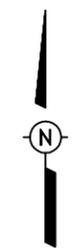
NOTES:

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

- 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:

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



PL-MW-114 03/17/05	
TPH-P ND (<50) ug/L	
TPH-E 260 ug/L	
DO 1.31 mg/L	
Eh -103.3 mv	
CH4 0.0097 mg/L	

PL-MW-115 03/18/05	
TPH-P ND (<50) ug/L	
TPH-E 390 ug/L	
DO 1.30 mg/L	
Eh -152.8 mv	
CH4 ND (<0.005) mg/L	

PL-MW-101 03/17/05	
TPH-P 120 ug/L	
TPH-E 540 ug/L	
DO 0.37 mg/L	
Eh -181.1 mv	
CH4 1.2 mg/L	

MW-POLA-121(S) 03/17/05	
TPH-P 13 ug/L	
TPH-E 330 ug/L	
DO 4.93 mg/L	
Eh 7.2 mv	
CH4 ND (<0.005) mg/L	

PL-MW-104 03/17/05	
TPH-P ND (<50) ug/L	
TPH-E 180 ug/L	
DO 0.35 mg/L	
Eh -91.6 mv	
CH4 ND (<0.005) mg/L	

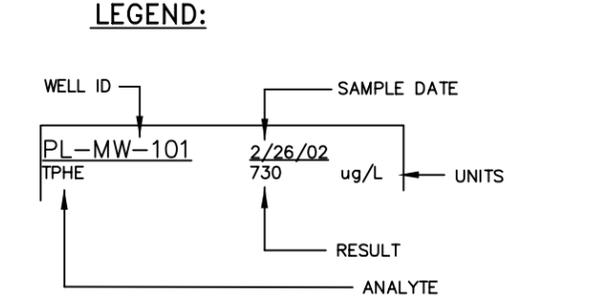
ANNUAL GROUNDWATER MONITORING RESULTS
MARCH 2005
POL HILL, HAMILTON ARMY AIRFIELD
NOVATO, CALIFORNIA

FIGURE 4
PROJECT NO.
MARCH 2004

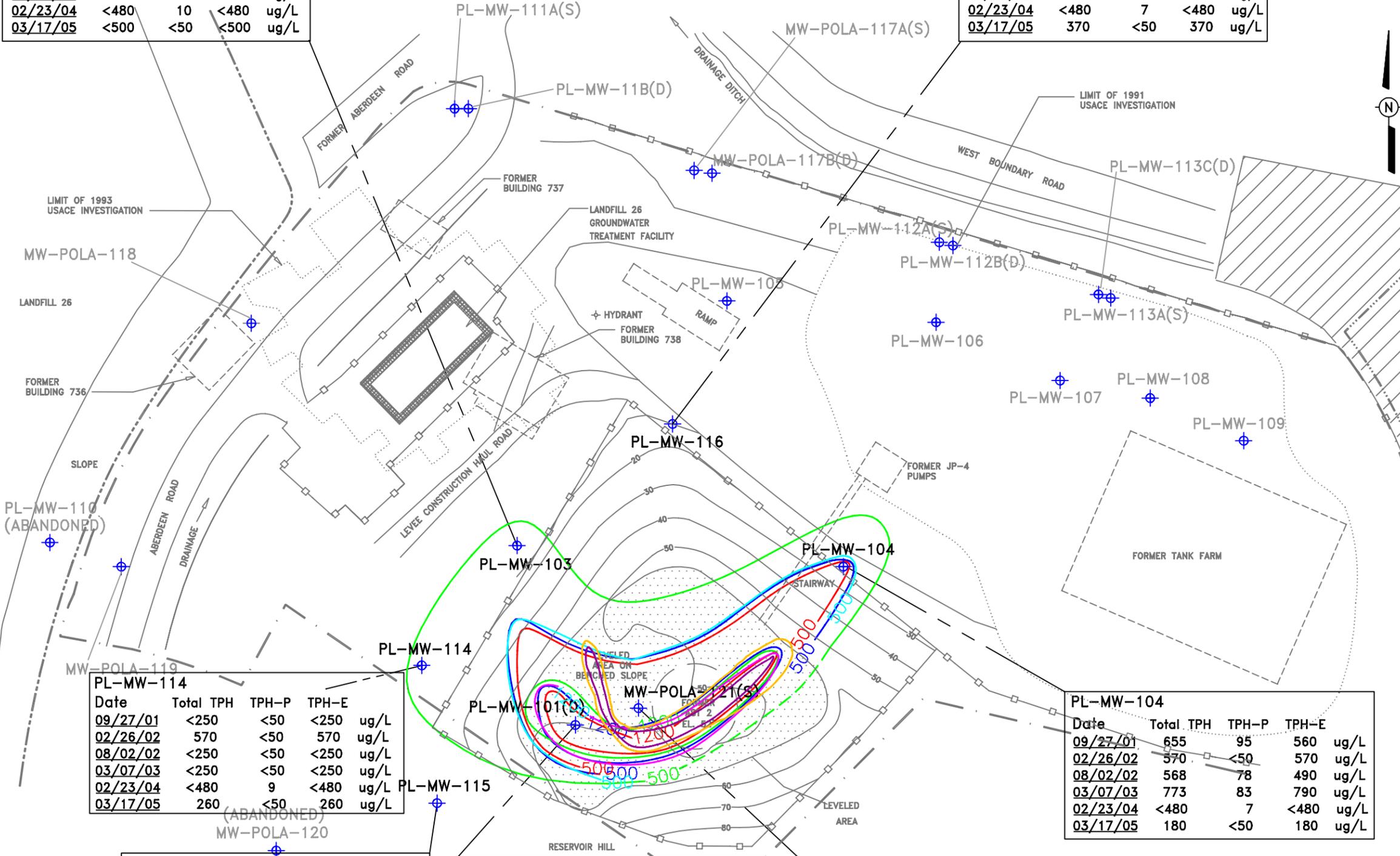


PL-MW-103				
Date	Total TPH	TPH-P	TPH-E	
09/27/01	320	<50	320	ug/L
02/26/02	570	<50	570	ug/L
08/02/02	<250	<50	<250	ug/L
03/07/03	<250	<50	<250	ug/L
02/23/04	<480	10	<480	ug/L
03/17/05	<500	<50	<500	ug/L

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



- NOTES:**
- TPHE = TOTAL PETROLEUM HYDROCARBONS AS EXTRACTABLE
 - TPHP = TOTAL PETROLEUM HYDROCARBONS AS PURGEABLE
 - ug/L = MICROGRAMS PER LITER
 - CONTOURS REPRESENT GROUND SURFACE ELEVATION IN FEET ABOVE MEAN SEA LEVEL
 - CONTOURS REPRESENT COMBINED TPHE/TPHP DETECTIONS IN ug/L, DASHED WHERE UNCERTAIN
 - (MAR. 2005 RESULTS IN PURPLE)
 - (MAR. 2004 RESULTS IN YELLOW)
 - (MAR. 2003 RESULTS IN CYAN)
 - (AUG. 2002 RESULTS IN RED)
 - (FEB. 2002 RESULTS IN GREEN)
 - (SEPT. 2001 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:**
- WELLS THAT ARE NOT IN THE CURRENT SCOPE OF WORK ARE SHOWN IN GRAY.



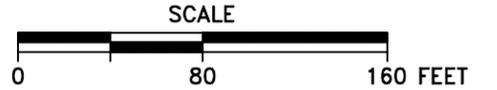
PL-MW-114				
Date	Total TPH	TPH-P	TPH-E	
09/27/01	<250	<50	<250	ug/L
02/26/02	570	<50	570	ug/L
08/02/02	<250	<50	<250	ug/L
03/07/03	<250	<50	<250	ug/L
02/23/04	<480	9	<480	ug/L
03/17/05	260	<50	260	ug/L

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

PL-MW-115				
Date	Total TPH	TPH-P	TPH-E	
09/27/01	<250	<50	<250	ug/L
02/26/02	250	<50	250	ug/L
08/02/02	<250	<50	<250	ug/L
03/07/03	<250	<50	<250	ug/L
03/08/04	870	<50	870	ug/L
03/18/05	390	<50	390	ug/L

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

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



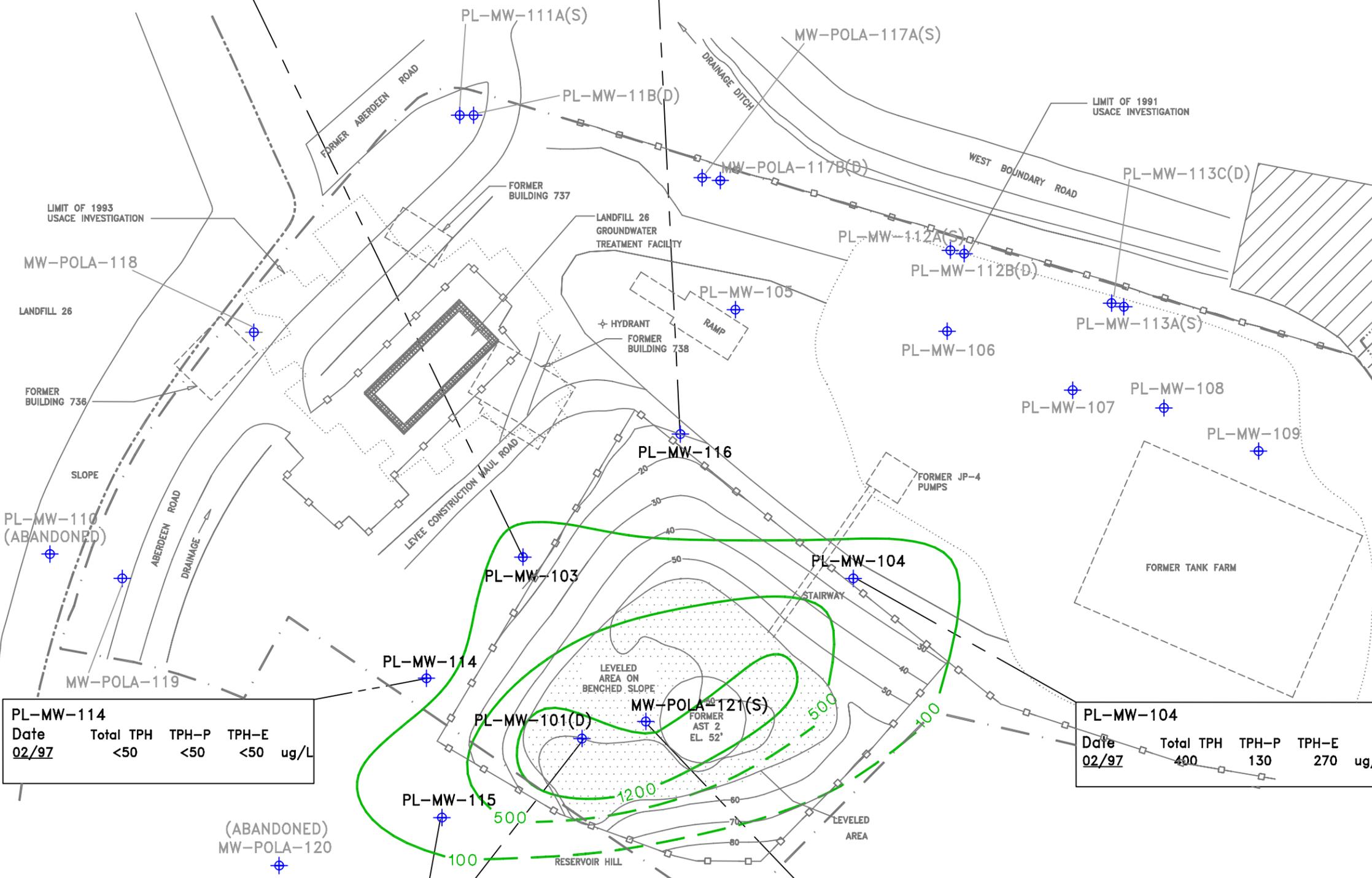
TOTAL PETROLEUM HYDROCARBON CONCENTRATIONS IN GROUNDWATER
 SEPTEMBER 2001 - MARCH 2005
 POL HILL, HAMILTON ARMY AIRFIELD
 NOVATO, CALIFORNIA



FIGURE 5
 PROJECT NO.
 MARCH 2004

PL-MW-103				
Date	Total TPH	TPH-P	TPH-E	
02/97	110	<50	110	ug/L

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



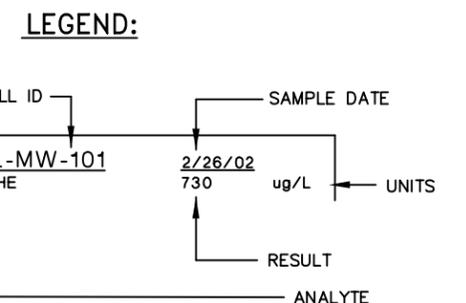
PL-MW-114				
Date	Total TPH	TPH-P	TPH-E	
02/97	<50	<50	<50	ug/L

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

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

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

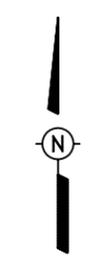
MW-POLA-121(S)				
Date	Total TPH	TPH-P	TPH-E	
02/97	1060	480	580	ug/L



- 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 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.



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

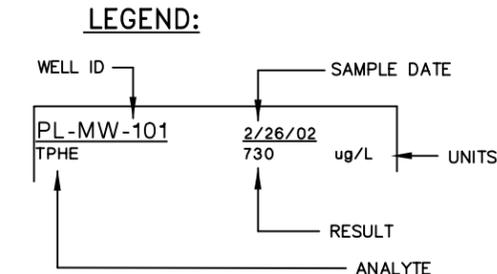
SOTA
 Environmental Technology, Inc.

FIGURE 6
 PROJECT NO.

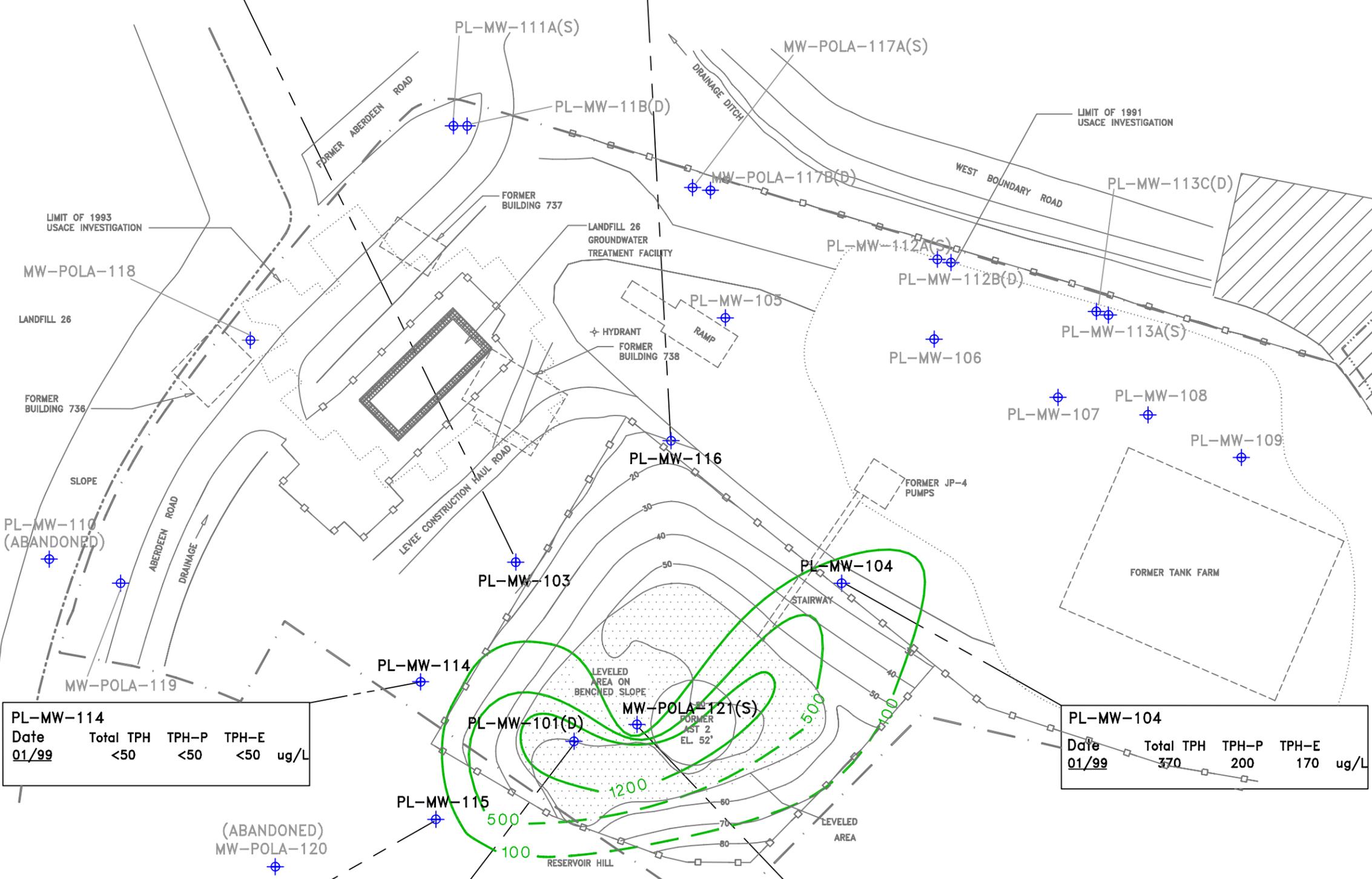
Sources: International Technology Corporation (IT) Drawing 762538-B512

PL-MW-103				
Date	Total TPH	TPH-P	TPH-E	
01/99	<50	<50	<50	ug/L

PL-MW-116				
Date	Total TPH	TPH-P	TPH-E	
01/99	<50	<50	<50	ug/L

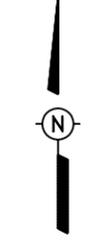


NOTES:
 TPHE = TOTAL PETROLEUM HYDROCARBONS AS EXTRACTABLE
 TPHP = TOTAL PETROLEUM HYDROCARBONS AS PURGEABLE
 ug/L = MICROGRAMS PER LITER



- 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 USACE EXCAVATION
- NHP LEVEE AND EASEMENT
- POL OUTPARCEL BRAC PROPERTY BOUNDARY
- GSA PHASE 1 TRANSFERRED PROPERTY BOUNDARY
- LANDFILL 26 BOUNDARY

- NOTES:**
- WELLS THAT ARE NOT IN THE CURRENT SCOPE OF WORK ARE SHOWN IN GRAY.
 - NOT SAMPLED (NS).



PL-MW-114				
Date	Total TPH	TPH-P	TPH-E	
01/99	<50	<50	<50	ug/L

PL-MW-104				
Date	Total TPH	TPH-P	TPH-E	
01/99	370	200	170	ug/L

PL-MW-115				
Date	Total TPH	TPH-P	TPH-E	
01/99	<50	<50	<50	ug/L

PL-MW-101(D)				
Date	Total TPH	TPH-P	TPH-E	
01/99	9700	4400	5300	ug/L

MW-POLA-121(S)				
Date	Total TPH	TPH-P	TPH-E	
01/99	54	54	<50	ug/L

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

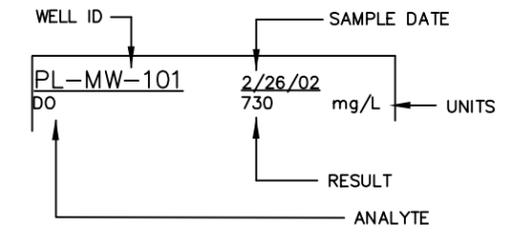


FIGURE 8
PROJECT NO.

PL-MW-103		
Date	DO	
09/27/01	1.40	mg/L
02/26/02	1.70	mg/L
08/02/02	3.70	mg/L
03/07/03	3.20	mg/L
02/23/04	1.04	mg/L
03/17/05	1.51	mg/L

PL-MW-116		
Date	DO	
09/27/01	2.80	mg/L
02/26/02	6.50	mg/L
08/02/02	6.80	mg/L
03/07/03	7.20	mg/L
02/23/04	6.66	mg/L
03/17/05	2.17	mg/L

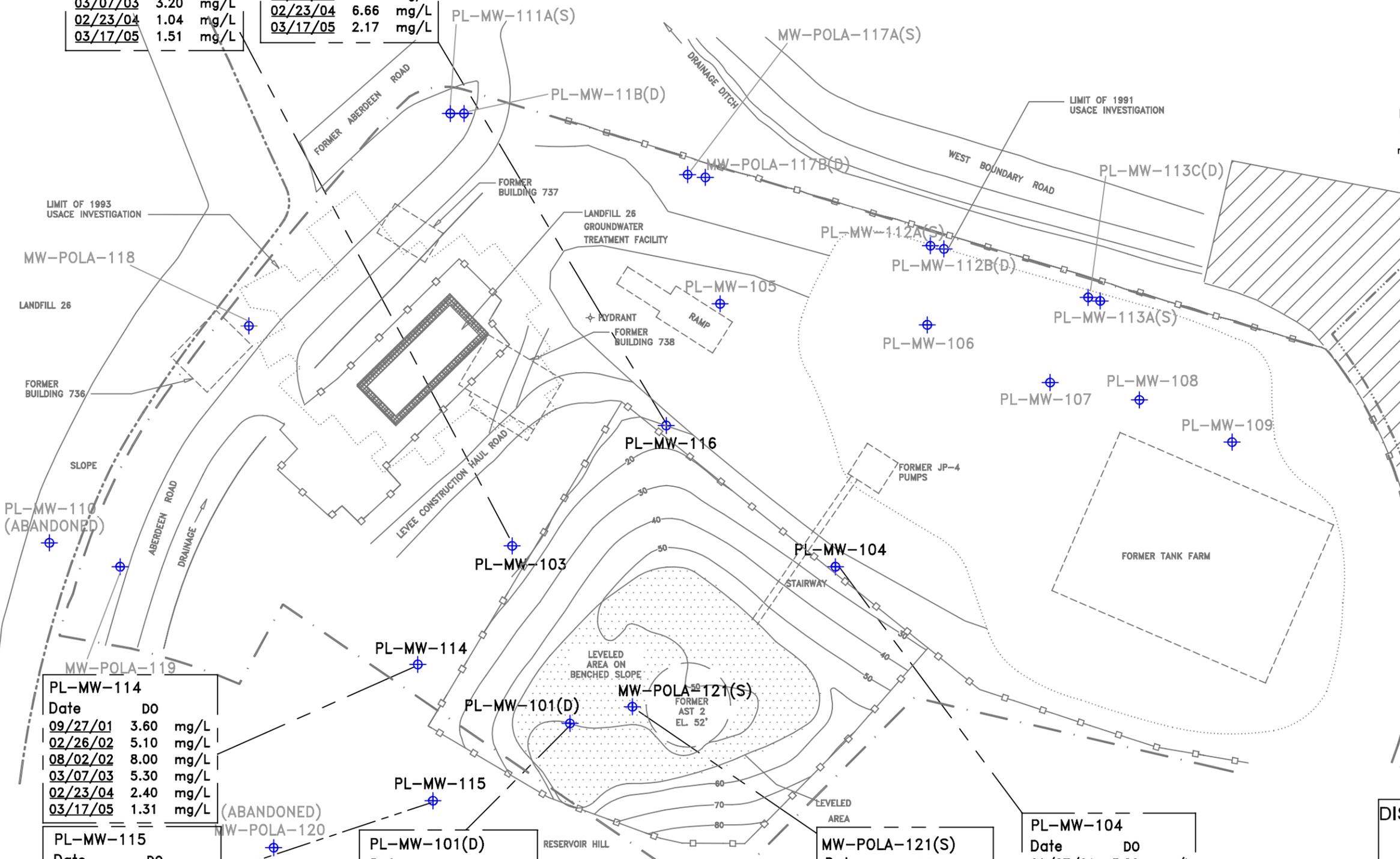
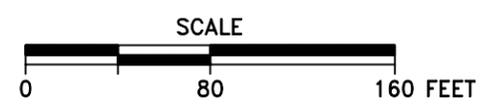
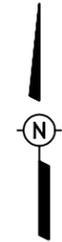
LEGEND:



NOTES:
 DO = DISSOLVED OXYGEN IN GROUNDWATER
 mg/L = MILLIGRAMS PER LITER

- 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 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	DO	
09/27/01	3.60	mg/L
02/26/02	5.10	mg/L
08/02/02	8.00	mg/L
03/07/03	5.30	mg/L
02/23/04	2.40	mg/L
03/17/05	1.31	mg/L

PL-MW-115		
Date	DO	
09/27/01	1.30	mg/L
02/26/02	2.60	mg/L
08/02/02	4.20	mg/L
03/07/03	2.60	mg/L
03/08/04	3.34	mg/L
03/18/05	1.30	mg/L

PL-MW-101(D)		
Date	DO	
09/27/01	3.10	mg/L
02/26/02	5.50	mg/L
08/02/02	6.60	mg/L
03/07/03	6.10	mg/L
02/24/04	0.72	mg/L
03/17/05	0.37	mg/L

MW-POLA-121(S)		
Date	DO	
09/27/01	3.10	mg/L
02/26/02	7.10	mg/L
08/02/02	6.90	mg/L
03/07/03	3.60	mg/L
02/24/04	7.79	mg/L
03/17/05	4.93	mg/L

PL-MW-104		
Date	DO	
09/27/01	3.80	mg/L
02/26/02	6.40	mg/L
08/02/02	7.20	mg/L
03/07/03	6.20	mg/L
02/23/04	0.63	mg/L
03/17/05	0.35	mg/L

DISSOLVED OXYGEN CONCENTRATIONS IN GROUNDWATER
 SEPTEMBER 2001 - MARCH 2005
 POL HILL, HAMILTON ARMY AIRFIELD
 NOVATO, CALIFORNIA

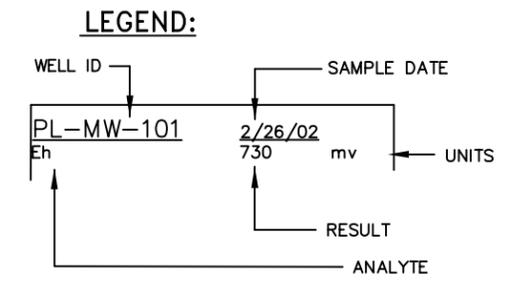


FIGURE 9
 PROJECT NO.
 MARCH 2004

Sources: International Technology Corporation (ITC) Drawing 762538-B512

PL-MW-103		
Date	Eh	
09/27/01	540	mv
02/26/02	230	mv
08/02/02	330	mv
03/07/03	560	mv
02/23/04	34.2	mv
03/17/05	-85.1	mv

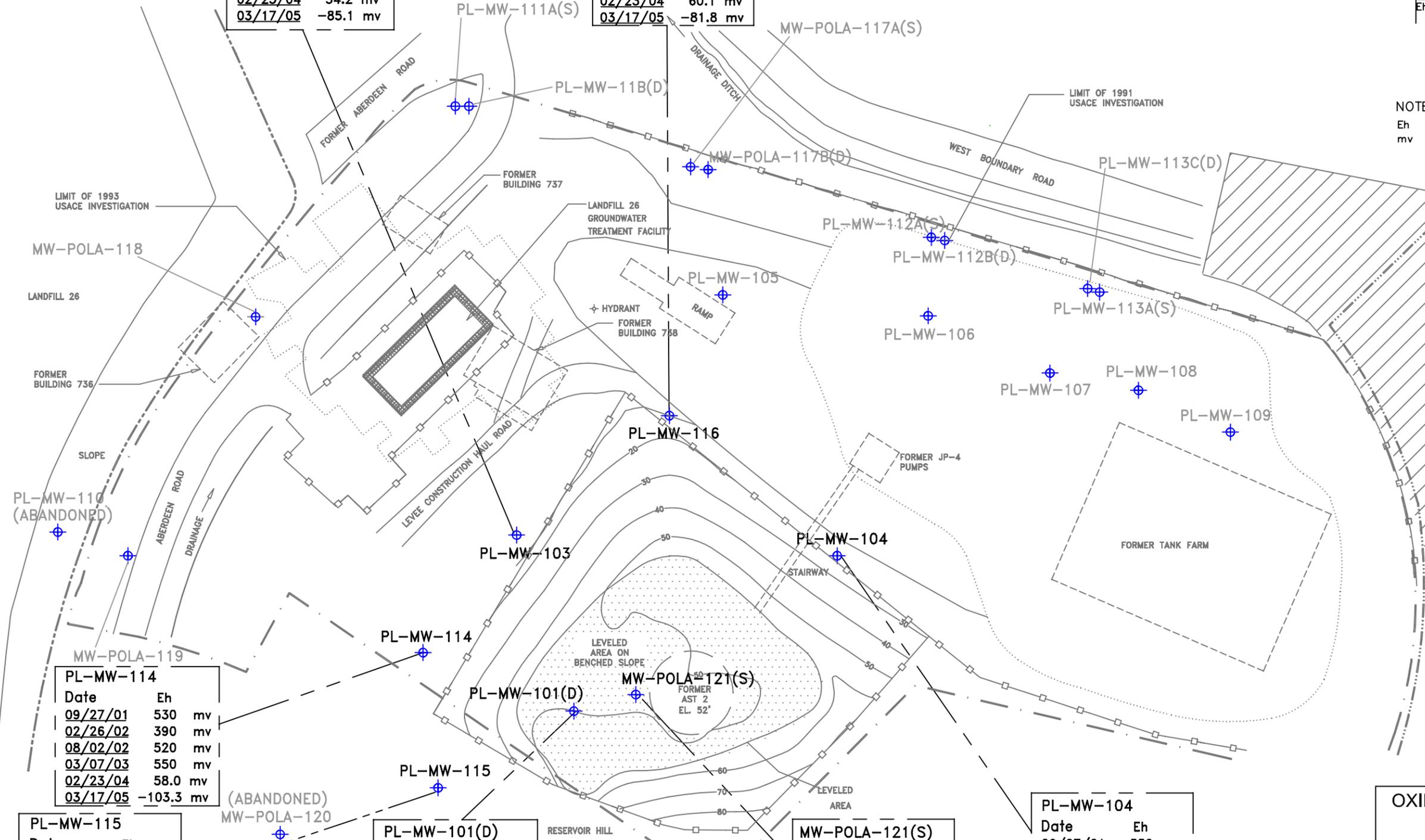
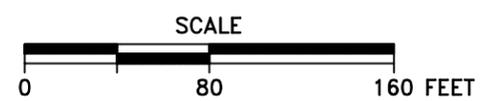
PL-MW-116		
Date	Eh	
09/27/01	520	mv
02/26/02	430	mv
08/02/02	540	mv
03/07/03	340	mv
02/23/04	60.1	mv
03/17/05	-81.8	mv



NOTES:
 Eh = OXIDATION/REDUCTION POTENTIAL
 mv = MILLIVOLTS

- 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.



PL-MW-114		
Date	Eh	
09/27/01	530	mv
02/26/02	390	mv
08/02/02	520	mv
03/07/03	550	mv
02/23/04	58.0	mv
03/17/05	-103.3	mv

PL-MW-115		
Date	Eh	
09/27/01	530	mv
02/26/02	420	mv
08/02/02	530	mv
03/07/03	560	mv
03/08/04	75.0	mv
03/18/05	-152.8	mv

PL-MW-101(D)		
Date	Eh	
09/27/01	550	mv
02/26/02	330	mv
08/02/02	450	mv
03/07/03	470	mv
02/24/04	-164.2	mv
03/17/05	-181.1	mv

MW-POLA-121(S)		
Date	Eh	
09/27/01	530	mv
02/26/02	410	mv
08/02/02	540	mv
03/07/03	570	mv
02/24/04	51.3	mv
03/17/05	7.2	mv

PL-MW-104		
Date	Eh	
09/27/01	550	mv
02/26/02	230	mv
08/02/02	520	mv
03/07/03	550	mv
02/23/04	48.1	mv
03/17/05	-91.6	mv

OXIDATION/REDUCTION POTENTIALS IN GROUNDWATER
 SEPTEMBER 2001 - MARCH 2005
 POL HILL, HAMILTON ARMY AIRFIELD
 NOVATO, CALIFORNIA



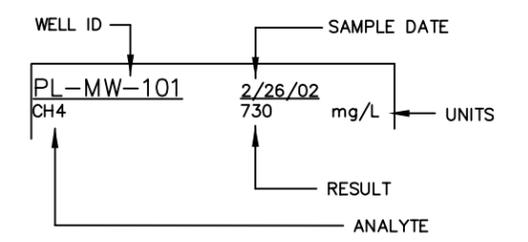
FIGURE 10
 PROJECT NO.
 MARCH 2004

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

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

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

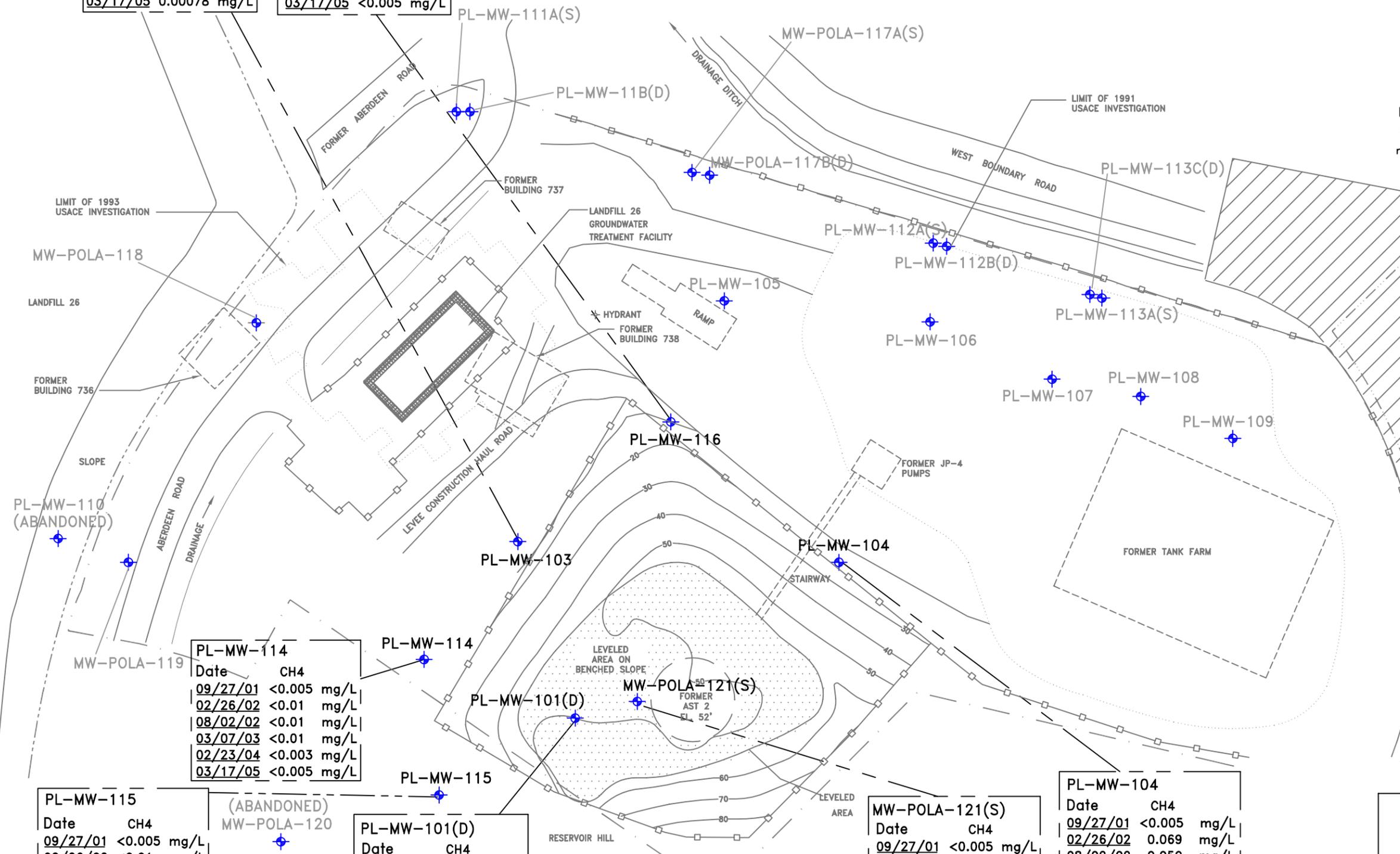
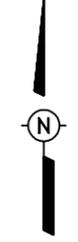
LEGEND:



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

- 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.



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

PL-MW-115	
Date	CH4
09/27/01	<0.005 mg/L
02/26/02	<0.01 mg/L
08/02/02	<0.01 mg/L
03/07/03	<0.01 mg/L
03/08/04	<0.003 mg/L
03/18/05	<0.005 mg/L

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

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

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

**METHANE CONCENTRATIONS
 IN GROUNDWATER
 SEPTEMBER 2001 - MARCH 2005
 POL HILL, HAMILTON ARMY AIRFIELD
 NOVATO, CALIFORNIA**



FIGURE 11
 PROJECT NO.
 MARCH 2004

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

APPENDIX A
LABORATORY ANALYTICAL
RESULTS

005266

CHAIN OF CUSTODY RECORD

Page 1 of 1

US ARMY CORPS OF ENGINEERS SACRAMENTO DISTRICT Environmental Engineering Branch SPK-ED-E 1325 J Street Sacramento, California 95814-2922		Project Name: <i>POL Hill</i> Project Location: <i>Hamm Hon Army Airfield</i> Project Coordinator: <i>Chuck Richmond</i> Phone: (916) 557-5331 FAX: (916) 557-7465 Sampler: <i>Pat Campbell</i>		Laboratory: <i>APCL</i> Address: <i>13766 Magnolia Ave</i> <i>Chico CA 95710</i> Contact: <i>Eric Wendland</i> Phone: <i>(909) 590-1828</i>														
ANALYSIS REQUESTED →																		
SAMPLE IDENTIFICATION		GRAB	DATE	TIME	TPH-P	TPH-E	Metals	Sulfate	Alkalinity	FERTILIZERS	MS/MSD	TURN/AROUND TIME (PAYS)	MATRIX CODE	NUMBER OF				
Field	Laboratory													COMPL				
<i>Temperature Blank</i>		✓											<i>W</i>		<i>1</i>			
<i>TRIP BLANK 5</i>		✓	<i>3/3/04</i>									<i>21</i>	<i>"</i>		<i>3</i>			<i>C</i>
<i>TRIP BLANK 6</i>		✓	<i>"</i>		✓							<i>"</i>	<i>"</i>		<i>3</i>			<i>C</i>
<i>PL-MW-115</i>		✓	<i>"</i>	<i>1110</i>	✓							<i>"</i>	<i>"</i>		<i>3</i>			<i>C</i>
<i>PL-MW-115</i>		✓	<i>"</i>	<i>1112</i>		✓						<i>"</i>	<i>"</i>		<i>3</i>			<i>C</i>
<i>PL-MW-115</i>		✓	<i>"</i>	<i>1120</i>	✓							<i>"</i>	<i>"</i>	<i>2</i>				
<i>PL-MW-115</i>		✓	<i>"</i>	<i>1117</i>			✓	✓	✓			<i>"</i>	<i>"</i>	<i>2</i>				
COMMENTS/SPECIAL INSTRUCTIONS:												CHECKED BY: <i>[Signature]</i>		PRESERVATIVE CODES: C = HCl N = HNO ₃ S = H ₂ SO ₄				
												SAMPLE DISPOSAL: <input checked="" type="checkbox"/> Hold <input type="checkbox"/> Dispose <input type="checkbox"/> Return		MATRIX CODES: W = Water Sl = Sludge SP = Solid Product S = Soil A = Air LP = Liquid Product Sd = Sediment				
RELINQUISHED BY <i>Pat Campbell</i>		DATE/TIME <i>3/3/04 1235</i>		RECEIVED BY <i>Fed Ex</i>		DATE/TIME <i>3/3/04 1000</i>		SHIPPING: <input type="checkbox"/> Fed Ex <input type="checkbox"/> Courier <input type="checkbox"/> Hand Deliver		Airbill Number: <i>8386 062 52069</i>								

CESPK FORM 111
13 Feb 02

DISTRIBUTION: WHITE and YELLOW - send to testing laboratory; PINK - retained by originator

Applied P & CH Laboratories

13760 Magnolia Ave. Chino CA 91710
Tel: (909) 590-1828 Fax: (909) 590-1498

APCL Analytical Report

Submitted to:
U.S. Army Corps of Engineers
Attention: Pamela Arnie
1325 J Street
Sacramento CA 95814-2922
Tel: (916) 557-7646 Fax: (916) 557-5307

Service ID #: 801-041985 Received: 03/09/04
Collected by: PC Extracted: 03/11/04
Collected on: 03/08/04 Tested: 03/09-17/04
Reported: 03/23/04

Sample Description: Water from Hamilton Army Airfield
Project Description: Pol Hill

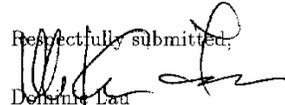
Analysis of Water Samples

Component Analyzed	Method	Unit	PQL	MDL	Analysis Result PL-MW-115 04-01985-1
ALKALINITY	319.1	mg/L	2	0.78	167
IRON (II)	SM3500DFE	mg/L	0.05	0.039	<0.05
Dilution Factor					5
SULFATE	300.0	mg/L	0.5	0.17	59.6
Dilution Factor					1
PHC AS GASOLINE	M8015V	mg/L	0.05	0.016	<0.05
Dilution Factor					0.96
PHC AS DIESEL FUEL (C12-C24)	SW8015B	mg/L	0.5	0.031	<0.48
Dilution Factor					0.96
MOTOR OIL (C24-C36)	SW8015B	mg/L	0.5	0.023	0.09J
Dilution Factor					1
METHANE	RSK175	mg/L	0.003	0.00024	<0.003

Component Analyzed	Method	Unit	PQL	MDL	Analysis Result TRIP BLANK 6 04-01985-3
Dilution Factor					1
PHC AS GASOLINE	M8015V	mg/L	0.05	0.016	<0.05

Component Analyzed	Method	Unit	PQL	MDL	Analysis Result TRIP BLANK 5 04-01985-2
Dilution Factor					1
METHANE	RSK175	mg/L	0.003	0.00024	<0.003

PQL: Practical Quantitation Limit. MDL: Method Detection Limit. CRDL: Contract Required Detection Limit
N.D.: Not Detected or less than the practical quantitation limit. "-": Analysis is not required.
J: Reported between PQL and MDL.
Listed Dilution Factors (DF) are relative to the method default DF. All unlisted DFs are 1.0

Respectfully submitted,

Dennis Lau
Laboratory Director
Applied P & Ch Laboratory

Applied P & CH Laboratories

13760 Magnolia Ave. Chino CA 91710

Tel: (909) 590-1828 Fax: (909) 590-1498

APCL Analytical Report

Submitted to:
 U.S. Army Corps of Engineers
 Attention: Pamela Amie
 1325 J Street
 Sacramento CA 95814-2922
 Tel: (916) 557-7646 Fax: (916) 557-5307

Service ID #: 801-041822 Received: 02/26/04
 Collected by: Pat C. Extracted: 03/01/04
 Collected on: 02/23-24/04 Tested: 02/26-03/04/04
 Reported: 03/10/04
 Sample Description: Water from Hamilton Army Airfield.
 Project Description: Pol Hill

Analysis of Water Samples

Component Analyzed	Method	Unit	PQL	MDL	Analysis Result		
					MW-12100 04-01822-1	MW-POLA-121 04-01822-2	PL-MW-101 04-01822-3
ALKALINITY	310.1	mg/L	2	1.5	204	148	562
IRON (II)	SM3500DFE	mg/L	0.05	0.0075	0.043J (a)	0.053	0.091
Dilution Factor					5	5	5
SULFATE	300.0	mg/L	0.5	0.089	15.7	15.6	6.7
Dilution Factor					0.96	0.96	0.96
PHC AS DIESEL FUEL (C12-C24)	SW8015B	mg/L	0.5	0.017	0.02J	0.02J	0.5J
Dilution Factor					0.96	0.96	0.96
MOTOR OIL (C24-C36)	SW8015B	mg/L	0.5	0.053	<0.48	<0.48	0.05J

Component Analyzed	Method	Unit	PQL	MDL	Analysis Result			
					PL-MW-114 04-01822-4	PL-MW-103 04-01822-7	PL-MW-104 04-01822-8	PL-MW-116 04-01822-9
ALKALINITY	310.1	mg/L	2	1.5	254	220	365	191
IRON (II)	SM3500DFE	mg/L	0.05	0.0075	0.051	0.010J (a)	0.071	<0.05
Dilution Factor					10	10	5	5
SULFATE	300.0	mg/L	0.5	0.089	108	67.2	25.5	39.6
Dilution Factor					0.96	0.96	0.96	0.96
PHC AS DIESEL FUEL (C12-C24)	SW8015B	mg/L	0.5	0.017	<0.48	<0.48	0.06J	<0.48
Dilution Factor					0.96	0.96	0.96	0.96
MOTOR OIL (C24-C36)	SW8015B	mg/L	0.5	0.053	<0.48	<0.48	<0.48	<0.48

Component Analyzed	Method	Unit	PQL	MDL	Analysis Result			
					MW-12100 04-01822-1	MW-POLA-121 04-01822-2	PL-MW-101 04-01822-3	PL-MW-114 04-01822-4
Dilution Factor					1	1	1	1
PHC AS GASOLINE	MS015V	mg/L	0.05	0.0035	0.02J	0.01J	0.13	0.009J
Dilution Factor					1	1	100	1
METHANE	RSK175	mg/L	0.002	0.00022	<0.003	<0.003	2.0	<0.003

Applied P & CH Laboratories

13760 Magnolia Ave. Chino CA 91710
Tel: (909) 590-1828 Fax: (909) 590-1498

APCL Analytical Report

Component Analyzed	Method	Unit	PQL	MDL	Analysis Result			
					TRIP BLANK 3 04-01822-5	TRIP BLANK 4 04-01822-6	PL-MW-103 04-01822-7	PL-MW-104 04-01822-8
Dilution Factor					1	1	1	1
PHC AS GASOLINE	M8015V	mg/L	0.05	0.0035	0.007J	-	0.01J	0.007J
Dilution Factor					1	1	1	5
METHANE	RSK175	mg/L	0.003	0.00022	-	<0.003	<0.003	0.11

Component Analyzed	Method	Unit	PQL	MDL	Analysis Result		
					PL-MW-116 04-01822-9	TRIP BLANK 1 04-01822-10	TRIP BLANK 2 04-01822-11
Dilution Factor					1	1	1
PHC AS GASOLINE	M8015V	mg/L	0.05	0.0035	0.007J	0.006J	-
Dilution Factor					1	1	1
METHANE	RSK175	mg/L	0.003	0.00022	<0.003	-	<0.003

PQL: Practical Quantitation Limit. MDL: Method Detection Limit. CRDL: Contract Required Detection Limit

N.D.: Not Detected or less than the practical quantitation limit. "-": Analysis is not required.

J: Reported between PQL and MDL.

Listed Dilution Factors (DF) are relative to the method default DF. All unlisted DFs are 1.0

(*) Result below PQL was unreliable due to the nature of Colorimetric Method.

Respectfully submitted,



Dominic Lau
Laboratory Director
Applied P & Ch Laboratory

005004

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: FOL Hill
 Project Location: Hamilton Army Airfield
 Project Coordinator: Chuck Richmond
 Phone: (916) 557-5381 FAX: (916) 557-7465
 Sampler: Pat Cantrell Phone: (916) 557-5371

Laboratory: ARCL
 Address: 13760 Magnolia Ave
China, CA 91710
 Contact: Eric Wendland
 Phone: (909) 590-1828

Field	SAMPLE IDENTIFICATION		ANALYSIS REQUESTED →				MSMSD	TURN AROUND TIME (DAYS)	MATRIX CODE	NUMBER OF					PRESERVATIVE CODE	
	Lab	Field	GRAB	DATE	TIME	TPH				TPH-E	Methane	Sulfate	Alkalinity	TPH		PLASTIC
TRIP Blank 1			✓	2/23/04		✓								3		C
TRIP Blank 2			✓	"		✓								3		C
PL-MW-103			✓	"	1155	✓								3		C
PL-MW-103			✓	"	1157	✓								3		C
PL-MW-103			✓	"	1203	✓								3		C
PL-MW-103			✓	"	1200	✓							2	3		C
PL-MW-116			✓	"	1252	✓								3		C
PL-MW-116			✓	"	1255	✓								3		C
PL-MW-116			✓	"	1257	✓								2		C
PL-MW-116			✓	"	1259	✓								2		C

18272

COMMENTS/SPECIAL INSTRUCTIONS:

CHECKED BY: [Signature]

PRESERVATIVE CODES:
 C = HCl N = HNO₃ S = H₂SO₄

SAMPLE DISPOSAL:
 Field Dispose Return

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

RELINQUISHED BY: Pat Cantrell DATE/TIME: 7/25/04 1050 RECEIVED BY: Fed Ex DATE/TIME: 2/26/04 1000

SHIPPING:
 Fed Ex Courier Hand Deliver
 Airbill Number: 9396 06257128

005079

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 Hill
 Project Location: Hamilton Army Airfield
 Project Coordinator: Chuck Richmond
 Phone: (916) 557-5381 FAX: (916) 557-7465
 Sampler: Pat Centret

Laboratory: APCL
 Address: 13760 Magdalena Ave
Chico CA 91710
 Contact: Eric Wendland
 Phone: (909) 590-1828

ANALYSIS REQUESTED →

Field	SAMPLE IDENTIFICATION		LABORATORY	DATE	TIME	MSMSD	TURN AROUND TIME (DAYS)	MATRIX CODE	NUMBER OF					PRESERVATIVE CODE
	GRAB	COMB							PLASTIC	GLASS	VOA	SLEEVE	ENCORE	
PL-MW-101	✓	✓	APCL	2/26/04	1040		21	W	2					
Temperature Blank	✓	✓	APCL				1	"						
PL-MW-101-M5	✓	✓	APCL	2/26/04	1100		1	"	2					
PL-MW-101-M5D	✓	✓	APCL	"	1132		1	"	2					
PL-MW-101-M5E	✓	✓	APCL	"	1152		1	"	1					
PL-MW-101-M5	✓	✓	APCL	"	1207		1	"	1					
PL-MW-101	✓	✓	APCL	"	1228		1	"	1					

1822

COMMENTS/SPECIAL INSTRUCTIONS:

CHECKED BY: EXE

PRESERVATIVE CODES:
 C = HCl N = HNO₃ S = H₂SO₄

SAMPLE DISPOSAL:
 Hold Dispose Return

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

RECEIVED BY: Pat Centret

DATE/TIME: 2/25/04 1107

DATE/TIME: 2/26/04 1000

SHIPPING:
 Fed Ex Courier Hand Deliver
 Airbill Number: 386 625 2140

005078

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 Hill
 Project Location: Hamilton Army Airfield
 Project Coordinator: Chuck Richmond
 Phone: (916) 557-5381 FAX: (916) 557-7465
 Sampler: Pat Campbell (916) 597-5371
 Laboratory: APC
 Address: 13760 Magnolia Ave
Chico CA 91710
 Contact: Eric Wendland
 Phone: (909) 590-1828

SAMPLE IDENTIFICATION	ANALYSIS REQUESTED →				MSMSD	TURN AROUND TIME (DAYS)	MATRIX CODE	NUMBER OF				PRESERVATIVE CODE	
	Field	Laboratory	GRAB	DATE				TIME	PLASTIC	GLASS	VOA		SLEEVE
MW-POLA-121			✓	2/4/03	0835		Z1	W	2				
MW-POLA-121			✓	"	0939		"	"	1				
TRIP BLANK 3			✓	"	"		"	"	3				
TRIP BLANK 4			✓	"	"		"	"	3				
PL-MW-101			✓	"	1014		"	"	3				
PL-MW-101			✓	"	1011		"	"	3				
PL-MW-101-M5			✓	"	1018		"	"	3				
PL-MW-101-M5D			✓	"	1022		"	"	3				
PL-MW-101-M5D			✓	"	1016		"	"	3				
PL-MW-101-M5			✓	"	1022		"	"	3				

1822

COMMENTS/SPECIAL INSTRUCTIONS:
 SPECIES BY: PK
 PRESERVATIVE CODES:
 C = HCl N = HNO₃ S = H₂SO₄
 SAMPLE DISPOSAL:
 Hold Dispose Return

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

RELINQUISHED BY: Pat Campbell DATE/TIME: 2/26/04 1100
 RECEIVED BY: [Signature] DATE/TIME: 2/26/04 1000
 SHIPPING: Fed Ex Courier Hand Deliver
 Airbill Number: 73860675 2129

005076

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: <u>POL Hill</u> Project Location: <u>Hamilton Army Airfield</u> Project Coordinator: <u>Chuck Richmond</u> Phone: <u>(916) 557-5381 FAX (916) 557-7465</u> Sampler: <u>Pat Cantrell</u>		Laboratory: <u>APC</u> Address: <u>13760 Magadua Ave</u> <u>Claremont CA 91710</u> Contact: <u>Eric Weadland</u> Phone: <u>(916) 590-1828</u>									
ANALYSIS REQUESTED →						NUMBER OF							
SAMPLE IDENTIFICATION		LAB	DATE	TIME	MSMSD	TURN AROUND TIME (DAYS)	MATRIX CODE	PLASTIC	GLASS	VOA	SLEEVE	ENCORE	PRESERVATIVE CODE
Field	Laboratory	GRAB	COMP										
PL-MW-114		✓		2/23/04 1459			Z1W1	1					
PL-MW-114		✓		" 1456			"	2					
PL-MW-114		✓		" 1454			"	3					
PL-MW-114		✓		" 1452			"	3					
MW-POLA-121		✓		2/24/04 0833			"	3					
MW-POLA-121		✓		" 0829			"	3					
MW-12100		✓		" 0853			"	3					
MW-12100		✓		" 0850			"	3					
MW-12100		✓		" 0859			"	1					
MW-12100		✓		" 0855			"	2					
COMMENTS/SPECIAL INSTRUCTIONS: CHECKED BY: <u>[Signature]</u> PRESERVATIVE CODES: C = HCl N = HNO ₃ S = H ₂ SO ₄ SAMPLE DISPOSAL: <input type="checkbox"/> Field <input type="checkbox"/> Dispose <input type="checkbox"/> Return													
RELINQUISHED BY		DATE/TIME		RECEIVED BY		DATE/TIME		SHIPPING:					
<u>Pat Cantrell</u>		2/23/04 1100		<u>[Signature]</u>		2/26/04 1000		<input type="checkbox"/> Fed Ex <input type="checkbox"/> Courier <input type="checkbox"/> Hand Deliver Airbill Number: <u>9886 0252139</u>					

CESPK FORM 111
13 Feb 02

DISTRIBUTION: WHITE and YELLOW - send to testing laboratory; PINK - retained by originator

005075

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 Hill
 Project Location: Hamilton Army Airfield
 Project Coordinator: Chuck Richmond
 Phone: (916) 557-5381 FAX: (916) 557-7465
 Sampler: Pat Campbell (Phone) 557-5371

Laboratory: ARCL
 Address: 3760 Magnolia Ave
China CA 91716
 Contact: Eric Wendland
 Phone: (916) 596-1828

ANALYSIS REQUESTED →

Field	SAMPLE IDENTIFICATION		LABORATORY	GRAB	COMP	DATE	TIME	TR-F	TR-E	Methane	Alkalinity	pH	MSMSD	TURN AROUND TIME (DAYS)	MATRIX CODE	NUMBER OF				PRESERVATIVE CODE
	PLASTIC	GLASS														VOL	SLEEVE	ENCORE		
PL-MW-104	✓			✓		4/23/04	1410	✓						21	W		3			C
PL-MW-104	✓			✓		"	1407	✓						1	"		3			C
PL-MW-104	✓			✓		"	1412	✓						1	"	2				
PL-MW-104	✓			✓		"	1415	✓						1	"	1				
Temperature Blank	✓			✓		-	-							1	"	1				
1822																				

COMMENTS/SPECIAL INSTRUCTIONS:

CHECKED BY: [Signature]

PRESERVATIVE CODES:
 C = HCl N = HNO₃ S = H₂SO₄

SAMPLE DISPOSAL:
 Field Dispose Return

RELINQUISHED BY	DATE/TIME	RECEIVED BY	DATE/TIME
<u>Pat Campbell</u>	<u>4/23/04 1050</u>	<u>[Signature]</u>	<u>2/26/04 1000</u>

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

SHIPPING:
 Fed Ex Counter Hand Deliver
 Airbill Number: 9386 0675 2128

CESPK FORM 111
13 Feb 02

DISTRIBUTION: WHITE and YELLOW - send to testing laboratory; PINK - retained by originator

Gas-Water

USACE-Sacramento District
1325 J Street
Sacramento, CA 95814

APPL Inc.
4203 West Swift Avenue
Fresno, CA 93722

Attn: Pamela Amie
Project: HAAF POL Hill
Sample ID: PL-MW-301
Sample Collection Date: 3/17/05

ARF: 46881
APPL ID: AX16069
QCG: \$GAS-050330A-85261

Method	Analyte	Result	PQL	MDL	Units	Extraction Date	Analysis Date
8015	Gasoline	Not detected	20	8.6	ug/L	3/31/05	3/31/05
8015	Surrogate-BFB	95.8	74-118		%	3/31/05	3/31/05

Run #: 0330H31.D
Instrument: HARPO
Sequence: 050317
Dilution Factor: 1
Initials: RS

Printed: 4/18/05 4:36:29 PM
APPL-F1-SC-MCRes/MCPOL-REG MDLs

RSK 175

USACE-Sacramento District
1325 J Street
Sacramento, CA 95814

Attn: Pamela Amie
Project: HAAF POL Hill
Sample ID: PL-MW-301
Sample Collection Date: 3/17/05

APPL Inc.
4203 West Swift Avenue
Fresno, CA 93722

ARF: 46881
APPL ID: AX16069
QCG: \$RSK-050324A-85012

Method	Analyte	Result	PQL	MDL	Units	Extraction Date	Analysis Date
RSK 175	Methane	Not detected	1.0	0.21	ug/L	3/24/05	3/24/05

Run #: 0324F007
Instrument: Frodo
Sequence: 050211
Dilution Factor: 1
Initials: LF

Printed: 4/18/05 4:36:29 PM
APPL-F1-SC-MCRes/MCPQL-REG MDLs

EPA 8015B TPH Diesel Water

USACE-Sacramento District
1325 J Street
Sacramento, CA 95814

APPL Inc.
4203 West Swift Avenue
Fresno, CA 93722

Attn: Pamela Amie
Project: HAAF POL Hill
Sample ID: PL-MW-301
Sample Collection Date: 3/17/05

ARF: 46881
APPL ID: AX16069
QCG: \$TPHD-050323A1-85076

Method	Analyte	Result	PQL	MDL	Units	Extraction Date	Analysis Date
EPA 8015B	Diesel Fuel	Not detected	50	40.4	ug/L	3/23/05	3/25/05
EPA 8015B	Motor Oil	Not detected	500	106	ug/L	3/23/05	3/25/05
EPA 8015B	Surrogate: Octacosane	94.1	28-142		%	3/23/05	3/25/05
EPA 8015B	Surrogate: Ortho-Terphenyl	89.7	49-128		%	3/23/05	3/25/05

Run #: 324042
Instrument: FID02
Sequence: 050324
Dilution Factor: 1
Initials: RWP

Printed: 4/18/05 4:36:29 PM
APPL-F1-SC-MCRes/MCPQL-REG MDLs

Gas-Water

USACE-Sacramento District
1325 J Street
Sacramento, CA 95814

Attn: Pamela Amie
Project: HAAF POL Hill
Sample ID: PL-MW-104
Sample Collection Date: 3/17/05

APPL Inc.
4203 West Swift Avenue
Fresno, CA 93722

ARF: 46881
APPL ID: AX16070
QCG: \$GAS-050330A-85261

Method	Analyte	Result	PQL	MDL	Units	Extraction Date	Analysis Date
8015	Gasoline	Not detected	20	8.6	ug/L	3/31/05	3/31/05
8015	Surrogate-BFB	94.6	74-118		%	3/31/05	3/31/05

Run #: 0330H32.D
Instrument: HARPO
Sequence: 050317
Dilution Factor: 1
Initials: RS

Printed: 4/18/05 4:36:29 PM
APPL-F1-SC-MCRes/MCPQL-REG MDLs

RSK 175

USACE-Sacramento District
1325 J Street
Sacramento, CA 95814

Attn: Pamela Amie
Project: HAAF POL Hill
Sample ID: PL-MW-104
Sample Collection Date: 3/17/05

APPL Inc.
4203 West Swift Avenue
Fresno, CA 93722

ARF: 46881
APPL ID: AX16070
QCG: \$RSK-050324A-85012

Method	Analyte	Result	PQL	MDL	Units	Extraction Date	Analysis Date
RSK 175	Methane	Not detected	1.0	0.21	ug/L	3/24/05	3/24/05

Run #: 0324F008
Instrument: Frodo
Sequence: 050211
Dilution Factor: 1
Initials: LF

Printed: 4/18/05 4:36:29 PM
APPL-F1-SC-MCRes/MCPQL-REG MDLs

EPA 8015B TPH Diesel Water

USACE-Sacramento District
1325 J Street
Sacramento, CA 95814

APPL Inc.
4203 West Swift Avenue
Fresno, CA 93722

Attn: Pamela Amie
Project: HAAF POL Hill
Sample ID: PL-MW-104
Sample Collection Date: 3/17/05

ARF: 46881
APPL ID: AX16070
QCG: \$TPHD-050323A1-85076

Method	Analyte	Result	PQL	MDL	Units	Extraction Date	Analysis Date
EPA 8015B	Diesel Fuel	180 ++	50	40.4	ug/L	3/23/05	3/25/05
EPA 8015B	Motor Oil	Not detected	500	106	ug/L	3/23/05	3/25/05
EPA 8015B	Surrogate: Octacosane	103	28-142		%	3/23/05	3/25/05
EPA 8015B	Surrogate: Ortho-Terphenyl	90.2	49-128		%	3/23/05	3/25/05

++(T1M) The analyst has noted that the chromatogram of this sample is mainly a wide range of hydrocarbons which are not necessarily indicative of diesel.

Run #: 324043
Instrument: FID02
Sequence: 050324
Dilution Factor: 1
Initials: RWP

Printed: 4/19/05 4:36:29 PM
APPL-F1-SC-MCRes/MCPQL-REG MDLs

Gas-Water

USACE-Sacramento District
1325 J Street
Sacramento, CA 95814

Attn: Pamela Amie
Project: HAAF POL Hill
Sample ID: PL-MW-103
Sample Collection Date: 3/17/05

APPL Inc.
4203 West Swift Avenue
Fresno, CA 93722

ARF: 46881
APPL ID: AX16071
QCG: \$GAS-050330B-85262

Method	Analyte	Result	PQL	MDL	Units	Extraction Date	Analysis Date
8015	Gasoline	Not detected	20	8.6	ug/L	3/31/05	3/31/05
8015	Surrogate-BFB	94.8	74-118		%	3/31/05	3/31/05

Run #: 0330H39.D
Instrument: HARPO
Sequence: 050317
Dilution Factor: 1
Initials: RS

Printed: 4/18/05 4:36:29 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: Pamela Amie
Project: HAAF POL Hill
Sample ID: PL-MW-103
Sample Collection Date: 3/17/05

ARF: 46881
APPL ID: AX16071
QCG: \$RSK-050324A-85012

Method	Analyte	Result	PQL	MDL	Units	Extraction Date	Analysis Date
RSK 175	Methane	0.78 J	1.0	0.21	ug/L	3/24/05	3/24/05

J = Estimated value, below quantitation limit.

Run #: 0324F009
Instrument: Frodo
Sequence: 050211
Dilution Factor: 1
Initials: LF

Printed: 4/18/05 4:36:29 PM
APPL-F1-SC-MCRes/MCPQL-REG MDLs

EPA 8015B TPH Diesel Water

USACE-Sacramento District
1325 J Street
Sacramento, CA 95814

APPL Inc.
4203 West Swift Avenue
Fresno, CA 93722

Attn: Pamela Amie
Project: HAAF POL Hill
Sample ID: **PL-MW-103**
Sample Collection Date: 3/17/05

ARF: 46881
APPL ID: **AX16071**
QCG: STPHD-050323A1-85076

Method	Analyte	Result	PQL	MDL	Units	Extraction Date	Analysis Date
EPA 8015B	Diesel Fuel	Not detected	50	40.4	ug/L	3/23/05	3/25/05
EPA 8015B	Motor Oil	Not detected	500	106	ug/L	3/23/05	3/25/05
EPA 8015B	Surrogate: Octacosane	106	28-142		%	3/23/05	3/25/05
EPA 8015B	Surrogate: Ortho-Terphenyl	90.7	49-128		%	3/23/05	3/25/05

Run #: 324044.D
Instrument: FID02
Sequence: 050324
Dilution Factor: 1
Initials: RWP

Printed: 4/18/05 4:36:29 PM
APPL-F1-SC-MCRes/MCPQL-REG MDLs

Gas-Water

USACE-Sacramento District
1325 J Street
Sacramento, CA 95814

APPL inc.
4203 West Swift Avenue
Fresno, CA 93722

Attn: Pamela Amie
Project: HAAF POL Hill
Sample ID: PL-MW-116
Sample Collection Date: 3/17/05

ARF: 46881
APPL ID: AX16072
QCG: \$GAS-050330B-85262

Method	Analyte	Result	PQL	MDL	Units	Extraction Date	Analysis Date
8015	Gasoline	Not detected	20	8.6	ug/L	3/31/05	3/31/05
8015	Surrogate-BFB	94.0	74-118		%	3/31/05	3/31/05

Run #: 0330H40.D
Instrument: HARPO
Sequence: 050317
Dilution Factor: 1
Initials: RS

Printed: 4/18/05 4:36:30 PM
APPL-F1-SC-MCRas/MCPQL-REG MDLs

RSK 175

USACE-Sacramento District
1325 J Street
Sacramento, CA 95814

Attn: Pamela Amie
Project: HAAF POL Hill
Sample ID: PL-MW-116
Sample Collection Date: 3/17/05

APPL Inc.
4203 West Swift Avenue
Fresno, CA 93722

ARF: 46881
APPL ID: AX16072
QCG: SRSK-050324A-85012

Method	Analyte	Result	PQL	MDL	Units	Extraction Date	Analysis Date
RSK 175	Methane	Not detected	1.0	0.21	ug/L	3/24/05	3/24/05

Run #: 0324F010
Instrument: Frodo
Sequence: 050211
Dilution Factor: 1
Initials: LF

Printed: 4/19/05 4:36:30 PM
APPL-F1-SC-MCRes/MCPQL-REG MDLs

EPA 8015B TPH Diesel Water

USACE-Sacramento District
1325 J Street
Sacramento, CA 95814

APPL Inc.
4203 West Swift Avenue
Fresno, CA 93722

Attn: Pamela Amie
Project: HAAF POL Hill
Sample ID: PL-MW-116
Sample Collection Date: 3/17/05

ARF: 46881
APPL ID: AX16072
QCG: \$TPHD-050323A1-85076

Method	Analyte	Result	PQL	MDL	Units	Extraction Date	Analysis Date
EPA 8015B	Diesel Fuel	Not detected	50	40.4	ug/L	3/23/05	3/25/05
EPA 8015B	Motor Oil	370 J	500	106	ug/L	3/23/05	3/25/05
EPA 8015B	Surrogate: Octacosane	112	28-142		%	3/23/05	3/25/05
EPA 8015B	Surrogate: Ortho-Terphenyl	83.0	49-128		%	3/23/05	3/25/05

J = Estimated value, below quantitation limit.

Run #: 324047.D
Instrument: FID03
Sequence: 050324
Dilution Factor: 1
Initials: RWP

Printed: 4/18/05 4:36:30 PM
APPL-F1-SC-MCRes/MCPQL-REG MDLs

Gas-Water

USACE-Sacramento District
1325 J Street
Sacramento, CA 95814

Attn: Pamela Amie
Project: HAAF POL Hill
Sample ID: **PL-MW-115**
Sample Collection Date: 3/18/05

APPL Inc.
4203 West Swift Avenue
Fresno, CA 93722

ARF: 46881
APPL ID: **AX16073**
QCG: \$GAS-050330B-85262

Method	Analyte	Result	PQL	MDL	Units	Extraction Date	Analysis Date
8015	Gasoline	Not detected	20	8.6	ug/L	3/31/05	3/31/05
8015	Surrogate-BFB	93.8	74-118		%	3/31/05	3/31/05

Run #: 0330H41.D
Instrument: HARPO
Sequence: 050317
Dilution Factor: 1
Initials: RS

Printed: 4/18/05 4:36:30 PM
APPL-F1-SC-MCRes/MCPQL-REG MDLs

RSK 175

USACE-Sacramento District
1325 J Street
Sacramento, CA 95814

Attn: Pamela Amie
Project: HAAF POL Hill
Sample ID: PL-MW-115
Sample Collection Date: 3/18/05

APPL Inc.
4203 West Swift Avenue
Fresno, CA 93722

ARF: 46881
APPL ID: AX16073
QCG: \$RSK-050324A-85012

Method	Analyte	Result	PQL	MDL	Units	Extraction Date	Analysis Date
RSK 175	Methane	Not detected	1.0	0.21	ug/L	3/24/05	3/24/05

Run #: 0324F011
Instrument: Frodo
Sequence: 050211
Dilution Factor: 1
Initials: LF

Printed: 4/18/05 4:36:30 PM
APPL-F1-SC-MCRes/MCPQL-REG MDLs

EPA 8015B TPH Diesel Water

USACE-Sacramento District
1325 J Street
Sacramento, CA 95814

APPL Inc.
4203 West Swift Avenue
Fresno, CA 93722

Attn: Pamela Amie
Project: HAAF POL Hill
Sample ID: PL-MW-115
Sample Collection Date: 3/18/05

ARF: 46881
APPL ID: AX16073
QCG: STPHD-050323A1-85076

Method	Analyte	Result	PQL	MDL	Units	Extraction Date	Analysis Date
EPA 8015B	Diesel Fuel	Not detected	50	40.4	ug/L	3/23/05	3/25/05
EPA 8015B	Motor Oil	390 J	500	106	ug/L	3/23/05	3/25/05
EPA 8015B	Surrogate: Octacosane	92.0	28-142		%	3/23/05	3/25/05
EPA 8015B	Surrogate: Ortho-Terphenyl	79.4	49-128		%	3/23/05	3/25/05

J = Estimated value, below quantitation limit.

Run #: 324048.D
Instrument: FID02
Sequence: 050324
Dilution Factor: 1
Initials: RWP

Printed: 4/18/05 4:36:30 PM
APPL-F1-SC-MCRes/MCPQL-REG MDLs

Gas-Water

USACE-Sacramento District
1325 J Street
Sacramento, CA 95814

Attn: Pamela Amie
Project: HAAF POL Hill
Sample ID: TRIP BLANK 1
Sample Collection Date: 3/18/05

APPL Inc.
4203 West Swift Avenue
Fresno, CA 93722

ARF: 46881
APPL ID: AX16074
QCG: \$GAS-050330B-85262

Method	Analyte	Result	PQL	MDL	Units	Extraction Date	Analysis Date
8015	Gasoline	Not detected	20	8.6	ug/L	3/31/05	3/31/05
8015	Surrogate-BFB	93.0	74-118		%	3/31/05	3/31/05

Run #: 0330H42.D
Instrument: HARPO
Sequence: 050317
Dilution Factor: 1
Initials: RS

Printed: 4/18/05 4:36:30 PM
APPL-F1-SC-MCRes/MCPQL-REG MDLs

Gas-Water

USACE-Sacramento District
1325 J Street
Sacramento, CA 95814

APPL Inc.
4203 West Swift Avenue
Fresno, CA 93722

Attn: Pamela Amie
Project: HAAF POL Hill
Sample ID: **MW-POLA-121**
Sample Collection Date: 3/17/05

ARF: 46881
APPL ID: **AX16066**
QCG: SGAS-050330A-85261

Method	Analyte	Result	PQL	MDL	Units	Extraction Date	Analysis Date
8015	Gasoline	13 J ++	20	8.6	ug/L	3/30/05	3/30/05
8015	Surrogate-BFB	95.6	74-118		%	3/30/05	3/30/05

J = Estimated value, below quantitation limit.
++(G1) The analyst has noted that the chromatogram of this sample includes a wide range of hydrocarbons which does not match our gasoline standard.

Run #: 0330H28.D
Instrument: HARPO
Sequence: 050317
Dilution Factor: 1
Initials: RS

Printed: 4/18/05 4:36:29 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: Pamela Amie
Project: HAAF POL Hill
Sample ID: MW-POLA-121
Sample Collection Date: 3/17/05

ARF: 46881
APPL ID: AX16066
QCG: \$RSK-050324A-85012

Method	Analyte	Result	PQL	MDL	Units	Extraction Date	Analysis Date
RSK 175	Methane	Not detected	1.0	0.21	ug/L	3/24/05	3/24/05

Run #: 0324F004
Instrument: Frodo
Sequence: 050211
Dilution Factor: 1
Initials: LF

Printed: 4/18/05 4:36:29 PM
APPL-F1-SC-MCRes/MCPOL-REG MDLs

EPA 8015B TPH Diesel Water

USACE-Sacramento District
1325 J Street
Sacramento, CA 95814

APPL Inc.
4203 West Swift Avenue
Fresno, CA 93722

Attn: Pamela Amie
Project: HAAF POL Hill
Sample ID: MW-POLA-121
Sample Collection Date: 3/17/05

ARF: 46881
APPL ID: AX16066
QCG: \$TPHD-050323A1-85076

Method	Analyte	Result	PQL	MDL	Units	Extraction Date	Analysis Date
EPA 8015B	Diesel Fuel	Not detected	50	40.4	ug/L	3/23/05	3/24/05
EPA 8015B	Motor Oil	390 J	500	106	ug/L	3/23/05	3/24/05
EPA 8015B	Surrogate: Octacosane	97.9	28-142		%	3/23/05	3/24/05
EPA 8015B	Surrogate: Ortho-Terphenyl	92.3	49-128		%	3/23/05	3/24/05

J = Estimated value, below quantitation limit.

Run #: 324039
Instrument: FID02
Sequence: 050324
Dilution Factor: 1
Initials: RWP

Printed: 4/18/05 4:36:29 PM
APPL-F1-SC-MCRes/MCPQL-REG MDLs

Gas-Water

USACE-Sacramento District
1325 J Street
Sacramento, CA 95814

APPL Inc.
4203 West Swift Avenue
Fresno, CA 93722

Attn: Pamela Amie
Project: HAAF POL Hill
Sample ID: PL-MW-101
Sample Collection Date: 3/17/05

ARF: 46881
APPL ID: AX16067
QCG: \$GAS-050330A-85261

Method	Analyte	Result	PQL	MDL	Units	Extraction Date	Analysis Date
8015	Gasoline	120 ++	20	8.6	ug/L	3/31/05	3/31/05
8015	Surrogate-BFB	102	74-118		%	3/31/05	3/31/05

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

Run #: 0330H29.D
Instrument: HARPO
Sequence: 050317
Dilution Factor: 1
Initials: RS

Printed: 4/18/05 4:36:29 PM
APPL-F1-SC-MCRes/MCPQL-REG MDLs

RSK 175

USACE-Sacramento District
1325 J Street
Sacramento, CA 95814

Attn: Pamela Amie
Project: HAAF PCL Hill
Sample ID: PL-MW-101
Sample Collection Date: 3/17/05

APPL Inc.
4203 West Swift Avenue
Fresno, CA 93722

ARF: 46881
APPL ID: AX16067
OCG: SRSK-050324A-85012

Method	Analyte	Result	PQL	MDL	Units	Extraction Date	Analysis Date
RSK 175	Methane	1200	1.0	0.21	ug/L	3/24/05	3/24/05

EPA 8015B TPH Diesel Water

> District
314

APPL Inc.
4203 West Swift Avenue
Fresno, CA 93722

ARF: 46881
APPL ID: AX16067

OCG	Result	PQL	MDL	Units	Extraction Date	Analysis Date
9: 3/17/05	650 ++	50	40.4	ug/L	3/23/05	3/24/05
	Not detected	500	106	ug/L	3/23/05	3/24/05
	acosane	114	28-142	%	3/23/05	3/24/05
	o-Terphenyl	97.3	49-128	%	3/23/05	3/24/05

Run #: 0324F005
Instrument: Frodo
Sequence: 050211
Dilution Factor: 1
Initials: LF
Printed: 4/18/05 4:36:29 PM
APPL-F1-SC-MCRew/MCPOL-REG MDLs

e chromatogram of this sample is mainly lower
pinils, jet fuel, kerosene, stoddard solvent or white

Run #: 324040
Instrument: FID02
Sequence: 050324
Dilution Factor: 1
Initials: RWP
Printed: 4/18/05 4:35:29 PM
APPL-F1-SC-MCRew/MCPOL-REG MDLs

Gas-Water

USACE-Sacramento District
1325 J Street
Sacramento, CA 95814

APPL Inc.
4203 West Swift Avenue
Fresno, CA 93722

Attn: Pamela Amie
Project: HAAF POL Hill
Sample ID: PL-MW-114
Sample Collection Date: 3/17/05

ARF: 46881
APPL ID: AX16068
QCG: \$GAS-050330A-85261

Method	Analyte	Result	PQL	MDL	Units	Extraction Date	Analysis Date
8015	Gasoline	Not detected	20	8.6	ug/L	3/31/05	3/31/05
8015	Surrogate-BFB	96.0	74-118		%	3/31/05	3/31/05

Run #: 0330H30.D
Instrument: HARPO
Sequence: 050317
Dilution Factor: 1
Initials: RS

Printed: 4/19/05 4:36:29 PM
APPL-F1-SC-MCRes/MCPOL-REG MDLs

RSK 175

USACE-Sacramento District
1325 J Street
Sacramento, CA 95814

Attn: Pamela Amie
Project: HAAF POL Hill

Sample ID: PL-MW-114

Sample Collection Date: 3/17/05

APPL Inc.
4203 West Swift Avenue
Fresno, CA 93722

ARF: 46881

APPL ID: AX16068

QCG: \$RSK-050324A-85012

Method	Analyte	Result	PQL	MDL	Units	Extraction Date	Analysis Date
RSK 175	Methane	0.97 J	1.0	0.21	ug/L	3/24/05	3/24/05

J = Estimated value, below quantitation limit.

Run #: 0324F006
Instrument: Frodo
Sequence: 050211
Dilution Factor: 1
Initials: LF

Printed: 4/19/05 4:36:29 PM
APPL-F1-SC-MCRes/MCPQL-REG MDLs

EPA 8015B TPH Diesel Water

USACE-Sacramento District
1325 J Street
Sacramento, CA 95814

APPL Inc.
4203 West Swift Avenue
Fresno, CA 93722

Attn: Pamela Amie
Project: HAAF POL Hill

ARF: 46881

Sample ID: PL-MW-114

APPL ID: AX16068

Sample Collection Date: 3/17/05

QCG: \$TPHD-050323A1-85076

Method	Analyte	Result	PQL	MDL	Units	Extraction Date	Analysis Date
EPA 8015B	Diesel Fuel	Not detected	50	40.4	ug/L	3/23/05	3/25/05
EPA 8015B	Motor Oil	260 J	500	106	ug/L	3/23/05	3/25/05
EPA 8015B	Surrogate: Octacosane	111	28-142		%	3/23/05	3/25/05
EPA 8015B	Surrogate: Ortho-Terphenyl	94.0	49-128		%	3/23/05	3/25/05

J = Estimated value, below quantitation limit.

Run #: 324041
Instrument: FID02
Sequence: 050324
Dilution Factor: 1
Initials: RWP

Printed: 4/18/05 4:36:29 PM
APPL-F1-SC-MCRes/MCPQL-REG MDLs

Wet Lab Analysis

USACE-Sacramento District
1325 J Street
Sacramento, CA 95814

APPL Inc.
4203 West Swift Avenue
Fresno, CA 93722

Attn: Pamela Arnie

Project: HAAF POL Hill

Sample ID: MW-POLA-121

Sample Collection Date: 3/17/05

APPL ID: AX16066

ARF: 46881

Method	Analyte	Result	PQL	MDL	Units	Prep Date	Analysis Date
EPA 300.0	Sulfate	12.5	1	0.09	mg/L	3/22/05	3/22/05
EPA310.1	Total Aikalinity	109	2.0	0.02376	mg/L	3/24/05	3/24/05
SM3500FeB	Ferrous Iron	Not detected	1.0	0.024	ug/L	3/21/05	3/21/05

Printed: 4/18/05 4:36:05 PM

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

Wet Lab Analysis

USACE-Sacramento District
1325 J Street
Sacramento, CA 95814

APPL Inc.
4203 West Swift Avenue
Fresno, CA 93722

Attn: Pamela Amie

Project: HAAF POL Hill

Sample ID: PL-MW-101

Sample Collection Date: 3/17/05

APPL ID: AX16067

ARF: 46881

Method	Analyte	Result	PQL	MDL	Units	Prep Date	Analysis Date
EPA 300.0	Sulfate	2.6	1	0.09	mg/L	3/22/05	3/22/05
EPA310.1	Total Alkalinity	554	2.0	0.02376	mg/L	3/24/05	3/24/05
SM3500FeB	Ferrous Iron	0.61 J	1.0	0.024	ug/L	3/21/05	3/21/05

J = Estimated value, below quantitation limit.

Printed: 4/18/05 4:36:05 PM

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

Wet Lab Analysis

USACE-Sacramento District
1325 J Street
Sacramento, CA 95814

APPL Inc.
4203 West Swift Avenue
Fresno, CA 93722

Attn: Pamela Amie

Project: HAAF POL Hill

Sample ID: PL-MW-114

Sample Collection Date: 3/17/05

APPL ID: AX16068

ARF: 46881

Method	Analyte	Result	PQL	MDL	Units	Prep Date	Analysis Date
EPA 300.0	Sulfate	105 E	1	0.09	mg/L	3/22/05	3/22/05
EPA 300.0	Sulfate	97.6	2.0	0.18	mg/L	3/23/05	3/23/05
EPA310.1	Total Alkalinity	237	2.0	0.02376	mg/L	3/24/05	3/24/05
SM3500FeB	Ferrous Iron	Not detected	1.0	0.024	ug/L	3/21/05	3/21/05

E = The reported value exceeds linear range.

Printed: 4/18/05 4:36:05 PM

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

Wet Lab Analysis

USACE-Sacramento District
1325 J Street
Sacramento, CA 95814

APPL Inc.
4203 West Swift Avenue
Fresno, CA 93722

Attn: Pamela Amie
Project: HAAF POL Hill
Sample ID: PL-MW-301
Sample Collection Date: 3/17/05

APPL ID: AX16069
ARF: 46881

Method	Analyte	Result	PQL	MDL	Units	Prep Date	Analysis Date
EPA 300.0	Sulfate	97.4	2.0	0.09	mg/L	3/23/05	3/23/05

Printed: 4/18/05 4:36:05 PM

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

Wet Lab Analysis

USACE-Sacramento District
1325 J Street
Sacramento, CA 95814

APPL Inc.
4203 West Swift Avenue
Fresno, CA 93722

Attn: Pamela Amie

Project: HAAF POL Hill

Sample ID: PL-MW-104

Sample Collection Date: 3/17/05

APPL ID: AX16070

ARF: 46881

Method	Analyte	Result	PQL	MDL	Units	Prep Date	Analysis Date
EPA 300.0	Sulfate	18.5	1	0.09	mg/L	3/22/05	3/22/05
EPA310.1	Total Alkalinity	383	2.0	0.02376	mg/L	3/24/05	3/24/05
SM3500FeB	Ferrous Iron	Not detected	1.0	0.024	ug/L	3/21/05	3/21/05

Printed: 4/18/05 4:35:05 PM

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

Wet Lab Analysis

USACE-Sacramento District
1325 J Street
Sacramento, CA 95814

APPL Inc.
4203 West Swift Avenue
Fresno, CA 93722

Attn: Pamela Amie
Project: HAAF POL Hill
Sample ID: PL-MW-103
Sample Collection Date: 3/17/05

APPL ID: AX16071
ARF: 46881

Method	Analyte	Result	PQL	MDL	Units	Prep Date	Analysis Date
EPA 300.0	Sulfate	96.1	1	0.09	mg/L	3/22/05	3/22/05
EPA310.1	Total Alkalinity	236	2.0	0.02376	mg/L	3/24/05	3/24/05
SM3500FeB	Ferrous Iron	Not detected	1.0	0.024	ug/L	3/21/05	3/21/05

Printed: 4/18/05 4:36:06 PM

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

Wet Lab Analysis

USACE-Sacramento District
1325 J Street
Sacramento, CA 95814

APPL Inc.
4203 West Swift Avenue
Fresno, CA 93722

Attn: Pamela Arnie

Project: HAAF POL Hill

Sample ID: PL-MW-116

Sample Collection Date: 3/17/05

APPL ID: AX16072

ARF: 46881

Method	Analyte	Result	PQL	MDL	Units	Prep Date	Analysis Date
EPA 300.0	Sulfate	44.3	1	0.09	mg/L	3/22/05	3/22/05
EPA310.1	Total Alkalinity	175	2.0	0.02376	mg/L	3/24/05	3/24/05
SM3500FeB	Ferrous Iron	Not detected	1.0	0.024	ug/L	3/21/05	3/21/05

Printed: 4/18/05 4:36:06 PM

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

Wet Lab Analysis

USACE-Sacramento District
1325 J Street
Sacramento, CA 95814

APPL Inc.
4203 West Swift Avenue
Fresno, CA 93722

Attn: Pamela Amie

Project: HAAF POL Hill

Sample ID: PL-MW-115

Sample Collection Date: 3/18/05

APPL ID: AX16073

ARF: 46881

Method	Analyte	Result	PQL	MDL	Units	Prep Date	Analysis Date
EPA 300.0	Sulfate	15.8	1	0.09	mg/L	3/22/05	3/22/05
EPA310.1	Total Alkalinity	84.0	2.0	0.02376	mg/L	3/24/05	3/24/05
SM350FeB	Ferrous Iron	0.029 J	1.0	0.024	ug/L	3/21/05	3/21/05

J = Estimated value, below quantitation limit.

Printed: 4/18/05 4:36:06 PM

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

BPA CALL

BPA MASTER NUMBER DACW05-01-A-0003		BPA CALL NUMBER 0018		DATE OF CALL 13-Apr-2005		DISCOUNT TERMS	
ISSUED BY USACE SACRAMENTO DISTRICT ATTN: CONTRACTING DIVISION 1325 J STREET SACRAMENTO CA 95814-2922		CODE W91238	PAYMENT WILL BE MADE BY USAED, FINANCE CENTER ATTN: CEFC-AD-P 5720 INTEGRITY DRIVE MILLINGTON TN 38054-5005			CODE 00008	
CONTRACTOR EMAX LABORATORIES INC D-CHARLOTTE GLASTER 1835 2025TH STREET TORRENCE CA 90501		CODE 1HDU3	SHIP TO ENVIRONMENTAL CHEMISTRY SECTIO 1325 J STREET SACRAMENTO CA 95814-2922			CODE L2L0920	
Line Item Summary		Total Cost \$13,970.88		Accounting and Appropriation Data			
		Total Funding \$13,970.88		See Schedule			
BY: <i>Shauna L Martinez</i> SHAUNAL MARTINEZ		TEL: 916/667-6110 EMAIL: shauna.l.martinez@usace.army.mil CONTRACTING/ORDERING OFFICER					

NSN	Var. in Qty (-) %	Var. in Qty (-) %	BN/SS	Quantity	Unit of Issue	Unit Price	Amount
0001				1.00	LS	\$13,970.88	\$13,970.88
DACW05-01-A-0003-0018			PR: W62N6M50961056			Total Funded Amount :	\$13,970.88

Project: Hamilton army Airfield Revetments

Laboratory BPA Call Order for Analytical Testing Services to be performed per the scope of work dated March 31, 2005, for chemical Analysis at the Hamilton Army Airfield Site.

Total Cost: \$13,970.88

Legend:
LS - Lump Sum

DELIVERY INFORMATION

0001 Ship a quantity of 1.00 on 13 APR 2005 to:

ENVIRONMENTAL CHEMISTRY SECTIO
1325 J STREET
SACRAMENTO CA 95814-2922
TEL:

UIC: L2L0920

ACCOUNTING AND APPROPRIATION DATA

AA 97 NA X 0510340K1 L2 2005 08 8091 618A8R06000 04167 3230 3JHD5
AMOUNT: \$13,970.88

CLIN/ACRN Cross Reference

<u>CLIN</u>	<u>ACRN</u>	<u>Amount</u>
0001	AA	\$13,970.88



4203 West Swift ∇ Fresno, California 93722 ∇ Phone 559-275-2175 ∇ Fax 559-275-4422

April 27, 2005

USACE – Sacramento District
1325 J Street
Sacramento, California 95814

Attn: Pamela Amie

Subject: Report of Data: Case 46881

Results in this report apply to the samples analyzed in accordance with the chain of custody document. This analytical report must be reproduced in its entirety.

Dear Ms. Amie,

Eight water samples and a trip blank for project "HAAF POL Hill" were received on March 19, 2005. One amber liter was received broken for each of the following samples: PL-MW-301, PL-MW-103, and PL-MW-115. The PL-MW-115 containers were labeled with a March 18 sampling date and the COC indicated a March 17 collection date. Pamela Amie was notified of the breakage and discrepancies; all sample IDs were changed from POL to PL. Written results are being provided on this April 27, 2005, for the requested analysis.

For the EPA 300.0, 310.1, and SM 3500FeB analyses, the samples were prepared and analyzed according to the methods. The samples were received more than 24 hours after sample collection and on a Saturday; the Ferrous Iron analysis was performed as soon as possible on the following Monday. The client was notified of the hold time exceedance.

No unusual problems or complications were encountered with this sample set.

If you have any questions or require further information, please contact us at your convenience. Thank you for choosing APPL, Inc.

Sincerely,

Leonard Fong, Ph.D, Laboratory Director
APPL, Inc.

LF/rp
Enclosure
cc: File

POL HILL

INORGANIC ANALYSIS

APPL, INC.

Data Validation Package
for

INORGANIC ANALYSIS

TABLE OF CONTENTS

LABORATORY NAME: APPL, Inc.

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Calibration Data	<u>27</u>
Raw Data	<u>35</u>

APPL, INC.

INORGANIC ANALYSIS
Case Narrative

APPL, INC.

INORGANIC ANALYSIS
Chain of Custody and ARF

APPL, INC.

APPL - Analysis Request Form

46881

Client: USACE-Sacramento District	Received by: CM	
Address: 1325 J Street	Date Received: 3/19/05	Time: 08:00
Sacramento, CA 95814	Delivered by: FED EX	
Attn: Pamela Amie	Shuttle Custody Seals (Y/N): Y	
Phone: 916-557-7811 Fax: 916-557-7465	Chest Temp(s): 5.5*3*3.5°C HB250392	
Job: HAAF POL Hill	Color: VOA/PURPLE	
PO #: NA	Samples Chilled until Placed in Refrig/Freezer: Y	
Chain of Custody (Y/N): Y # 005678	Project Manager: Robert Wise p.w.	
RAD Screen (Y/N): Y pH (Y/N): Y	QC Report Type: USACE/CA	
Turn Around Type: STD	Due Date: 3/31/05	

Comments:

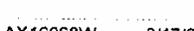
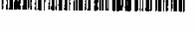
REPORT J-VALUES DOWN TO THE MDL. SEE INCOMING SAMPLE NOTICE FOR SPECIFICATIONS
 USACE QAPP. RL is 3x MDL. dry wt soils. LCSD or MS/MSD required for RPD.
 Further QA info available in the SHELL or project specific QAPP.
 Broken ambers: MW-301, MW-103 & MW-115. MW-115 container labels have 3-18
 sampling date; COC has 3-17. Ferrous iron rec'd past HT. Client notified. *rw*
 Changed sample IDs & sampling date to match container labels per Pamela. a.b.

Diesel Motor oil

Sample Distribution:

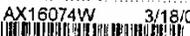
GC: 8-\$TPHD
 Extractions: 8- SEP011
 VOA: 9-\$GAS, 8-\$RSK
 Wetlab: 7-\$300W(SO4), 7-\$310(), 7-\$35FE()

Charges: Invoice To:

Client ID	APPL ID	Sampled	Analyses Requested
1. MW-POLA-121	AX16066W 	3/17/05 12:10	\$300W(SO4), \$310(), \$35FE(), \$GAS, \$RSK, \$TPHD
2. PL-MW-101	AX16067W 	3/17/05 13:12	\$300W(SO4), \$310(), \$35FE(), \$GAS, \$RSK, \$TPHD
3. PL-MW-114	AX16068W 	3/17/05 15:07	\$300W(SO4), \$310(), \$35FE(), \$GAS, \$RSK, \$TPHD
4. PL-MW-301	AX16069W 	3/17/05 14:05	\$GAS, \$RSK, \$TPHD
5. PL-MW-104	AX16070W 	3/17/05 16:25	\$300W(SO4), \$310(), \$35FE(), \$GAS, \$RSK, \$TPHD
6. PL-MW-103	MS/MSD AX16071W 	3/17/05 17:10	\$300W(SO4), \$310(), \$35FE(), \$GAS, \$RSK, \$TPHD

APPL - Analysis Request Form

46881

7. PL-MW-116	AX16072W 	3/17/05	18:09	\$300W(SO4), \$310(), \$35FE(), \$GAS, \$RSK, \$TPHD
8. PL-MW-115	AX16073W 	3/18/05	08:26	\$300W(SO4), \$310(), \$35FE(), \$GAS, \$RSK, \$TPHD
9. TRIP BLANK 1	AX16074W 	3/18/05	00:00	\$GAS

005678

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: <u>HAAF POL Hill</u> Project Location: <u>Novato, CA</u> Project Coordinator: <u>Pamela Jimie</u> Phone: <u>916-557-7811</u> FAX: <u>916-557-7465</u> Sampler: <u>Chuck Richmond</u> Phone: <u>916-557-538</u>		Laboratory: <u>APPL, Inc</u> Address: <u>4203 W Swift Ave</u> <u>Fresno, CA 93722</u> Contact: <u>Robert Wise</u> Phone: <u>(559) 275-2175</u>														
ANALYSIS REQUESTED →																		
SAMPLE IDENTIFICATION		GRAPH COMP	DATE	TIME	NUMBER OF													
Field	Laboratory				501.50	501.50	501.50	501.50	501.50	501.50	501.50	501.50	501.50	501.50	501.50	501.50	501.50	501.50
NW-121		X	3/17/05	1210	X	X	X	X	X	X	X	X	X	X	X	X	X	X
MW-101		X	3/17/05	1312	X	X	X	X	X	X	X	X	X	X	X	X	X	X
MW-114		X	3/17/05	1507	X	X	X	X	X	X	X	X	X	X	X	X	X	X
MW-301	FD	X	3/17/05	1405	X	X	X	X	X	X	X	X	X	X	X	X	X	X
MW-104		X	3/17/05	1625	X	X	X	X	X	X	X	X	X	X	X	X	X	X
MW-103		X	3/17/05	1710	X	X	X	X	X	X	X	X	X	X	X	X	X	X
MW-116		X	3/17/05	1809	X	X	X	X	X	X	X	X	X	X	X	X	X	X
MW-115		X	3/17/05	0826	X	X	X	X	X	X	X	X	X	X	X	X	X	X
TRIP BLANK 1		X	3/18/05	—	X													
TEMP BLANK		X	—	—														
COMMENTS/SPECIAL INSTRUCTIONS: ⊗ = HOLD FOR ANALYSIS Changed sample IDs & sampling date to match container labels per Pamela Jimie, 3/18/05.					CHECKED BY: <u>JKA</u>		PRESERVATIVE CODES: C = HCl N = HNO ₃ S = H ₂ SO ₄		SAMPLE DISPOSAL: <input type="checkbox"/> Hold <input checked="" type="checkbox"/> Dispose <input type="checkbox"/> Return									
RELINQUISHED BY		DATE/TIME		RECEIVED BY		DATE/TIME		MATRIX CODES: W = Water Sl = Sludge SP = Solid Product S = Soil A = Air LP = Liquid Product Sd = Sediment										
<u>Chuck Richmond</u>		3/18/05 1536		<u>Renee Patten</u>		3-19-05 0800		SHIPPING: <input checked="" type="checkbox"/> Fed Ex <input type="checkbox"/> Courier <input type="checkbox"/> Hand Delivered Airbill Number: <u>83580625098</u>										

CESPK FORM 111
13 Feb 02

DISTRIBUTION: WHITE and YELLOW - send to testing laboratory; PINK - retained by originator

27

COOLER RECEIPT FORM

Project: HAAF POL Hill Date Received: 3-19-05

Coolers: Number of Coolers: 3

YES NO Were coolers and samples screened for radioactivity?

YES NO Were custody seals on outside of cooler? How many? 6 Date on seal? 3-18-05

YES NO NA Name on seal? see back page

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) 0306-025-0927 2) masters 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: n/a

Cooler temp(s): 1) 5.5°C 2) 3°C 3) 3.5°C 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: Trip Blank 1 Ax 16074 w=3

Preservation & 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: Samples rec'd past Feiroux Iron HT; 3 samples rec'd broken MW-301

MW-103 + MW-115; MW-115 sampling date different on CoC + labels;

All labels PL-MW - CoC, POL-MW

Signature of personnel receiving samples: Renee Patterson Second reviewer: Chris Furell

Signature of project manager notified: Robert Date and Time of notification: 3-21-03

Name of client notified: _____ Date and Time of notification: _____

Information given to client: _____ by whom (Initials): _____

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	3/22/05	3/22/05	\$300W-050322A-AX16066
SM3500FeB	Ferrous Iron	Not detected	1.0	ug/L	3/21/05	3/21/05	\$35FE-050321A-AX16066
EPA 300.0	Sulfate	Not detected	1	mg/L	3/23/05	3/23/05	\$300WD-050322B-AX1606
EPA 300.0	Sulfate	Not detected	1	mg/L	3/22/05	3/22/05	\$300W-050322A1-AX1607
EPA310.1	Total Alkalinity	Not detected	2.0	mg/L	3/24/05	3/24/05	\$310-050324A-AX16071

Printed: 4/4/05 10:49:50 AM

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	30	28.1	93.7	90-110	3/22/05	3/22/05	\$300W-050322A-AX16066

12

Comments:

Printed: 4/4/05 10:49:57 AM
APPL Standard LCS

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	30	27.9	93.0	90-110	3/23/05	3/23/05	\$300WD-050322B-AX16068

13

Comments:

Printed: 4/4/05 10:49:57 AM
APPL Standard LCS

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	30	28.1	93.7	90-110	3/22/05	3/22/05	\$300W-050322A1-AX16071
EPA310.1	Total Alkalinity	250	247	98.8	80-120	3/24/05	3/24/05	\$310-050324A-AX16071

14

Comments: _____

Printed: 4/4/05 10:49:57 AM
APPL Standard LCS

Laboratory Control Spike Recovery
WETLAB

APPL Inc.
4203 West Swift Avenue
Fresno, CA 93722

Method	Compound Name	Spike Level ug/L	SPK Result ug/L	SPK % Recovery	Recovery Limits	Extract Date	Analysis Date	QC Group
SM3500Fe	Ferrous Iron	3.0	2.96	98.7	80-120	3/21/05	3/21/05	\$35FE-050321A-AX16066

3

Comments:

Printed: 4/4/05 10:49:57 AM
APPL Standard LCS

Matrix Spike Recoveries
WETLAB

APPL Inc.
4203 West Swift Avenue
Fresno, CA 93722

Method	Compound Name	Spike Lvl mg/L	Matrix Res mg/L	SPK Res mg/L	DUP Res mg/L	SPK % Recovery	DUP % Recovery	Recovery Limits	Extract Date-Spk	Analysis Date-Spk	Extract Date-Dup	Analysis Date-Dup	QC Group	QC Sample
EPA 300.0	Sulfate	150	96.1	228	228	87.9 #	87.9 #	90-110	3/23/05	3/23/05	3/23/05	3/23/05	\$300W-050322A	AX16071
EPA310.1	Total Alkalinity	250	236	486	486	100	100	80-120	3/24/05	3/24/05	3/24/05	3/24/05	\$310-050324A-8	AX16071

16

= Recovery is outside QC limits.

Comments:

Printed: 4/4/05 10:50:32 AM
APPL MSD SCI

Matrix Spike Recovery
WETLAB

APPL Inc.
4203 West Swift Avenue
Fresno, CA 93722

Method	Compound Name	Spike Level ug/L	Matrix Result ug/L	SPK Result ug/L	SPK % Recovery	Recovery Limits	Extract Date	Analysis Date	QC Group	QC Sample
SM3500Fe	Ferrous Iron	3.0	ND	3.02	101	80-120	3/21/05	3/21/05	\$35FE-050321A	AX16066

17

Comments: _____

Printed: 4/4/05 10:50:41 AM
APPL MS SCH

INORGANIC ANALYSIS
Sample Data

APPL, INC.

Wet Lab Analysis

USACE-Sacramento District
1325 J Street
Sacramento, CA 95814

APPL Inc.
4203 West Swift Avenue
Fresno, CA 93722

Attn: Pamela Amie

Project: HAAF POL Hill

Sample ID: MW-POLA-121

Sample Collection Date: 3/17/05

APPL ID: AX16066

ARF: 46881

Method	Analyte	Result	PQL	MDL	Units	Prep Date	Analysis Date
EPA 300.0	Sulfate	12.5	1	0.09	mg/L	3/22/05	3/22/05
EPA310.1	Total Alkalinity	109	2.0	0.02376	mg/L	3/24/05	3/24/05
SM3500FeB	Ferrous Iron	Not detected	1.0	0.024	ug/L	3/21/05	3/21/05

Printed: 4/4/05 10:50:52 AM

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

Wet Lab Analysis

USACE-Sacramento District
1325 J Street
Sacramento, CA 95814

APPL inc.
4203 West Swift Avenue
Fresno, CA 93722

Attn: Pamela Amie
Project: HAAF POL Hill
Sample ID: PL-MW-101
Sample Collection Date: 3/17/05

APPL ID: AX16067
ARF: 46881

Method	Analyte	Result	PQL	MDL	Units	Prep Date	Analysis Date
EPA 300.0	Sulfate	2.6	1	0.09	mg/L	3/22/05	3/22/05
EPA310.1	Total Alkalinity	554	2.0	0.02376	mg/L	3/24/05	3/24/05
SM3500FeB	Ferrous Iron	0.61 J	1.0	0.024	ug/L	3/21/05	3/21/05

J = Estimated value, below quantitation limit.

Printed: 4/4/05 10:50:53 AM
APPL-F1-SC-MCRes/MCPQL-REG MDLs

Wet Lab Analysis

USACE-Sacramento District
1325 J Street
Sacramento, CA 95814

APPL Inc.
4203 West Swift Avenue
Fresno, CA 93722

Attn: Pamela Amie

Project: HAAF POL Hill

Sample ID: PL-MW-114

Sample Collection Date: 3/17/05

APPL ID: AX16068

ARF: 46881

Method	Analyte	Result	PQL	MDL	Units	Prep Date	Analysis Date
EPA 300.0	Sulfate	105 E	1	0.09			
EPA 300.0	Sulfate	97.6	2.0	0.18	mg/L	3/22/05	3/22/05
EPA310.1	Total Alkalinity	257	2.0	0.02376	mg/L	3/23/05	3/23/05
SM3500FeB	Ferrous Iron	Not detected	1.0	0.024	ug/L	3/24/05	3/24/05
						3/21/05	3/21/05

E = The reported value exceeds linear range.

Printed: 4/4/05 10:50:53 AM

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

Wet Lab Analysis

USACE-Sacramento District
1325 J Street
Sacramento, CA 95814

APPL Inc.
4203 West Swift Avenue
Fresno, CA 93722

Attn: Pamela Amie
Project: HAAF POL Hill
Sample ID: PL-MW-301
Sample Collection Date: 3/17/05

APPL ID: AX16069
ARF: 46881

Method	Analyte	Result	PQL	MDL	Units	Prep Date	Analysis Date
EPA 300.0	Sulfate	97.4	2.0	0.09	mg/L	3/23/05	3/23/05

Printed: 4/4/05 10:50:53 AM
APPL-F1-SC-MCRes/MCPQL-REG MDLs

Wet Lab Analysis

USACE-Sacramento District
1325 J Street
Sacramento, CA 95814

APPL Inc.
4203 West Swift Avenue
Fresno, CA 93722

Attn: Pamela Amie

Project: HAAF POL Hill

Sample ID: **PL-MW-104**

Sample Collection Date: 3/17/05

APPL ID: **AX16070**

ARF: 46881

Method	Analyte	Result	PQL	MDL	Units	Prep Date	Analysis Date
EPA 300.0	Sulfate	18.5	1	0.09	mg/L	3/22/05	3/22/05
EPA310.1	Total Alkalinity	383	2.0	0.02376	mg/L	3/24/05	3/24/05
SM3500FeB	Ferrous Iron	Not detected	1.0	0.024	ug/L	3/21/05	3/21/05

Printed: 4/4/05 10:50:53 AM

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

Wet Lab Analysis

USACE-Sacramento District
1325 J Street
Sacramento, CA 95814

APPL Inc.
4203 West Swift Avenue
Fresno, CA 93722

Attn: Pamela Amie

Project: HAAF POL Hill

Sample ID: PL-MW-103

Sample Collection Date: 3/17/05

APPL ID: AX16071

ARF: 46881

Method	Analyte	Result	PQL	MDL	Units	Prep Date	Analysis Date
EPA 300.0	Sulfate	96.1	1	0.09	mg/L	3/22/05	3/22/05
EPA310.1	Total Alkalinity	236	2.0	0.02376	mg/L	3/24/05	3/24/05
SM3500FeB	Ferrous Iron	Not detected	1.0	0.024	ug/L	3/21/05	3/21/05

Printed: 4/4/05 10:50:53 AM

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

Wet Lab Analysis

USACE-Sacramento District
1325 J Street
Sacramento, CA 95814

APPL Inc.
4203 West Swift Avenue
Fresno, CA 93722

Attn: Pamela Amie

Project: HAAF POL Hill

Sample ID: PL-MW-116

Sample Collection Date: 3/17/05

APPL ID: AX16072

ARF: 46881

Method	Analyte	Result	PQL	MDL	Units	Prep Date	Analysis Date
EPA 300.0	Sulfate	44.3	1	0.09	mg/L	3/22/05	3/22/05
EPA310.1	Total Alkalinity	175	2.0	0.02376	mg/L	3/24/05	3/24/05
SM3500FeB	Ferrous Iron	Not detected	1.0	0.024	ug/L	3/21/05	3/21/05

Printed: 4/4/05 10:50:53 AM

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

Wet Lab Analysis

USACE-Sacramento District
1325 J Street
Sacramento, CA 95814

APPL Inc.
4203 West Swift Avenue
Fresno, CA 93722

Attn: Pamela Amie

Project: HAAF POL Hill

Sample ID: PL-MW-115

Sample Collection Date: 3/18/05

APPL ID: AX16073

ARF: 46881

Method	Analyte	Result	PQL	MDL	Units	Prep Date	Analysis Date
EPA 300.0	Sulfate	15.8	1	0.09	mg/L	3/22/05	3/22/05
EPA310.1	Total Alkalinity	84.0	2.0	0.02376	mg/L	3/24/05	3/24/05
SM3500FeB	Ferrous Iron	0.029 J	1.0	0.024	ug/L	3/21/05	3/21/05

J = Estimated value, below quantitation limit.

Printed: 4/4/05 10:50:53 AM

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

INORGANIC ANALYSIS
Calibration Data

APPL, INC.

INORGANIC ANALYSES
AUTO CALIBRATION

Analytical Method: 300.0

Lab Name: APPL, Inc.

Instrument ID: Dionex

Autocal ID: 050321

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

Analyte	1	2	3	4	5	6
	Autocal 10:59	Autocal 11:14	Autocal 11:28	Autocal 11:43	Autocal 11:57	Autocal 12:27
Bromide	18704.6	113076.193939394	227118.803313609	594826.539655172	1259495.2375	2771662.6
Chloride	113890.657746479	607537.56969697	1214335.25383374	3288379.22758621	7175645.8	15347073.1355932
Fluoride	15645	83721.6	169266.2	413593.2	848821.2	1791250.8
Nitrate-N	45141.4	272441.563636364	545142.144378698	1459338.86206897	3179988.6125	7101565.10847458
Nitrite-N	21865.333802817	131411.490909091	257481.256804734	673042.227586207	1401660.475	2972423.23248986
Phosphate-P	21321.4	110254.181443299	208376.581818182	510782.236363636	1041581.311111111	2231462.11683168
Sulfate	70496.6	391265.779381443	795957.363636364	2127821.38051948	4626282.30246914	10293839.360396

Comments:

INORGANIC ANALYSES
CALIBRATION VERIFICATION

Analytical Method: 300.0

Lab Name: APPL, Inc.

Instrument ID: Dionex

ICV ID: ICV 14:17

ICV ICAL ID: 050321

CCV #1 ID: CCV 14:46

CCV #2 ID:

CCV #3 ID:

CCV #4 ID:

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

CCV ICAL ID 050321

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	5.15017	-3.0%	25	23.6352	5.8%						
Chloride	10	8.97071	10.3%	50	47.7204	4.8%						
Fluoride	5	4.90657	1.9%	5	4.79676	4.2%						
Nitrate-N	5	4.65306	6.9%	10	9.38298	6.6%						
Nitrite-N	5	4.56642	8.7%	5	4.84999	3.1%						
Phosphate-P	5	4.81984	3.6%	10	9.55543	4.7%						
Sulfate	10	10.493	-4.9%	50	47.0023	6.4%						

Comments:

INORGANIC ANALYSES
CALIBRATION BLANK

Analytical Method: 300.0

Lab Name: APPL, Inc.

Instrument ID: Dionex

ICB ID: icb 14:32

ICB ICAL ID: 050321

CCB #1 ID: ccb 15:01

CCB #2 ID:

CCB #3 ID:

CCB #4 ID:

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

CCB ICAL ID 050321

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

Comments:

INORGANIC ANALYSES
CALIBRATION VERIFICATION

Analytical Method: 300.0

Lab Name: APPL, Inc.

Instrument ID: Dionex

ICV ID:

ICV ICAL ID: 050322

CCV #1 ID: CCV 08:59

CCV #2 ID: CCV 11:54

CCV #3 ID: CCV 14:48

CCV #4 ID: CCV 11:00

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

CCV ICAL ID 050322

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			25	23.6068	5.9%	23.5134	6.3%	23.3848	6.9%	23.6337	5.8%
Chloride	10			50	48.3209	3.5%	48.0243	4.1%	47.9375	4.3%	48.2729	3.6%
Fluoride	5			5	4.85261	3.0%	4.68431	6.7%	4.73402	5.6%	4.69758	6.4%
Nitrate-N	5			10	9.45945	5.7%	9.38512	6.6%	9.31872	7.3%	9.42507	6.1%
Nitrite-N	5			5	4.65927	7.3%	4.60193	8.7%	4.60511	8.6%	4.62556	8.1%
Phosphate-P	5			10	9.45537	5.8%	9.25726	8.0%	9.07238	10.2%	9.31993	7.3%
Sulfate	10			50	47.0939	6.2%	47.1469	6.1%	46.9777	6.4%	47.3279	5.6%

Comments:

INORGANIC ANALYSES
CALIBRATION BLANK

Analytical Method: 300.0

Lab Name: APPL, Inc.

Instrument ID: Dionex

ICB ID:

ICB ICAL ID: 050322

CCB #1 ID: ccb 09:14

CCB #2 ID: ccb 12:08

CCB #3 ID: ccb 15:02

CCB #4 ID: ccb 11:15

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

CCB ICAL ID 050322

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 ANALYSES
CALIBRATION VERIFICATION

Analytical Method: 300.0

Lab Name: APPL, Inc.

Instrument ID: Dionex

ICV ID:

ICV ICAL ID: 050323

CCV #1 ID: CCV 13:32

CCV #2 ID: CCV 16:12

CCV #3 ID:

CCV #4 ID:

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

CCV ICAL ID 050323

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			25	23.7063	5.5%	23.3008	7.3%				
Chloride	10			50	48.2518	3.6%	47.9937	4.2%				
Fluoride	5			5	4.68185	6.8%	4.64226	7.7%				
Nitrate-N	5			10	9.40688	6.3%	9.11057	9.8%				
Nitrite-N	5			5	4.75163	5.2%	4.70608	6.2%				
Phosphate-P	5			10	9.30238	7.5%	9.02078	10.9%				
Sulfate	10			50	47.8154	4.6%	47.4740	5.3%				

Comments:

INORGANIC ANALYSES
CALIBRATION BLANK

Analytical Method: 300.0

Lab Name: APPL, Inc.

Instrument ID: Dionex

ICB ID:

ICB ICAL ID: 050323

CCB #1 ID: ccb 13:46

CCB #2 ID: ccb 16:26

CCB #3 ID:

CCB #4 ID:

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

CCB ICAL ID 050323

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

Comments:

INORGANIC ANALYSIS
Raw Data

APPL, INC.

ALKALINITY WORKSHEET II.xls

Method: 2320B		QCG: 050324A										
Standardization: Used 15 ml 0.05 N Na ₂ CO ₃ (VWR Lot 4103-13331.)												
Std 1 - 35.61 ml + 0.71 ml = 36.32 ml												
Std 2 - 36.04 ml + 0.44 ml = 36.48 ml. 15 X 0.05/36.40 = 0.0206 N H ₂ SO ₄ .												
1. Normality of Titrant. 0.0206 (3/6/05)												
2. LCS Used 3 ml ISS(12/6/04)/50 ml DI = 250 mg/L.												
3. MS/MSD Used 3 ml ISS(12/6/04)/50 ml = 250 mg/L.												
4. COMMENTS:												
Date: 3/24/05 Initials:												
Time	Sample I.D.	pH	8.3 (mL)	4.5 (mL)	P	OH mg/L	CO ₃ mg/L	HCO ₃ mg/L	Total Alk (mg/L)	% Rec	RPD	Vol (mL)
1	1454	050324APB		0	0	0	0	0	0			50
2	1456	050324ALCS(250)		12.01	0	0	0	247.406	247.406	99		50
3	1502	AX15703W01	7.04	0	1.97	0	0	40.582	40.582			50
4	1508	AX16066W08	6.72	0	5.29	0	0	108.974	108.974			50
5	1514	AX16067W08	7.50	0	26.87	0	0	553.522	553.522			50
6	1519	AX16068W08	7.51	0	11.5	0	0	236.9	236.9			50
7	1526	AX16070W08	7.60	0	18.59	0	0	382.954	382.954			50
8	1530	AX16071W14	7.19	0	11.47	0	0	236.282	236.282			50
9	1533	AX16071W14MS		23.58	0	0	0	485.748	485.748	100		50
10	1537	AX16071W14MSD		23.59	0	0	0	485.954	485.954	100		50
11	1542	AX16072W08	7.07	0	8.51	0	0	175.306	175.306			50
12	1544	AX16073W08	8.19	0	4.08	0	0	84.048	84.048			50
13				0	0	0	0	0	0			50
14				0	0	0	0	0	0			50
15				0	0	0	0	0	0			50
16				0	0	0	0	0	0			50
17				0	0	0	0	0	0			50
18				0	0	0	0	0	0			50
19				0	0	0	0	0	0			50
20				0	0	0	0	0	0			50
21				0	0	0	0	0	0			50
22				0	0	0	0	0	0			50
23				0	0	0	0	0	0			50
24				0	0	0	0	0	0			50
25				0	0	0	0	0	0			50
26				0	0	0	0	0	0			50
27				0	0	0	0	0	0			50
28				0	0	0	0	0	0			50
29				0	0	0	0	0	0			50
30				0	0	0	0	0	0			50
31				0	0	0	0	0	0			50
32				0	0	0	0	0	0			50
33				0	0	0	0	0	0			50
34				0	0	0	0	0	0			50
35				0	0	0	0	0	0			50
36				0	0	0	0	0	0			50
37				0	0	0	0	0	0			50
38				0	0	0	0	0	0			50
39				0	0	0	0	0	0			50
40				0	0	0	0	0	0			50
41				0	0	0	0	0	0			50
42				0	0	0	0	0	0			50
43				0	0	0	0	0	0			50
44				0	0	0	0	0	0			50
45				0	0	0	0	0	0			50
46				0	0	0	0	0	0			50
47				0	0	0	0	0	0			50

CRW 3-21-05

3-21-05
CRW

QCG 050321A - ~~Fe~~ SM 3500 Fe

sample ^{no} sigil
050321 Bbb

Abx 510 mm

		TIME
	0.000	
1	0.109	
2	0.213	
4	0.417	
5	0.516	
10	1.022 $n^2 = 0.9998997$	
1cv (3)	0.311 $\rightarrow 2.99409 (= 99.8\%)$	
CCV (4)	0.415 $\rightarrow 4.015231 (= 100.4\%)$	
CCB/Bbb	0.000 \rightarrow ND	
LES (3)	0.308 $\rightarrow 2.964634 (= 98.8\%)$	1614
Ax 16066 WDg	0.007 $\rightarrow 0.009218$	1615
MS (3)	0.314 $\rightarrow 3.023546 (= 100.8\%)$	1615
Ax 16067 WDg	0.068 $\rightarrow 0.608156$	1616
Ax 16068 WDg	0.005 $\rightarrow -0.01042$	1616
Ax 16069 WDg	0.002 \rightarrow ND	1617
Ax 16070 WDg	0.000 \rightarrow ND	1617
Ax 16071 WDg	0.000 \rightarrow ND	1618
Ax 16072 WDg	0.000 \rightarrow ND	1618
Ax 16073 WDg	0.009 $\rightarrow 0.028855$	1619
050321 @ CV (5)	0.508 $\rightarrow 4.928366 (= 98.6\%)$	1619
CCB	0.002 \rightarrow ND	1620
		1620

APPL, Inc.
Analysis listing Dionex
03/21/05

Injection:	Sample Name:	Date Time Collected:
1	cb	3/21/05 10:42
2	autocal1 050321	3/21/05 10:59
3	autocal2 050321	3/21/05 11:14
4	autocal3 050321	3/21/05 11:28
5	autocal4 050321	3/21/05 11:43
6	autocal5 050321	3/21/05 11:57
7	wash	3/21/05 12:12
8	autocal6 050321	3/21/05 12:27
9	050321 icv 5, 10 ppm	3/21/05 14:17
10	050321 icb	3/21/05 14:32
11	050321 ccv 5, 10, 25, 50ppm	3/21/05 14:46
12	050321 ccb/pb	3/21/05 15:01

APPL, Inc.
Analysis listing Dionex
03/22/05

Injection:	Sample Name:	Date Time Collected:
1	050322 ccv 5, 10, 25, 50ppm	3/22/05 8:59
2	050322 ccb/pb	3/22/05 9:14
3	050322a lcs 5, 6, 30ppm	3/22/05 9:28
4	AX16027W11	3/22/05 9:43
5	AX16034W10	3/22/05 9:57
6	AX16066W07	3/22/05 10:12
7	AX16067W07	3/22/05 10:26
8	AX16068W08	3/22/05 10:41
9	AX16069W07	3/22/05 10:55
10	AX16070W07	3/22/05 11:10
11	AX16071W13	3/22/05 11:25
12	AX16072W07	3/22/05 11:39
13	050322 ccv 5, 10, 25, 50ppm	3/22/05 11:54
14	050322 ccb	3/22/05 12:08
15	AX16073W08	3/22/05 12:23
16	AX16027W11-1/2	3/22/05 12:37
17	AX16027W11-1/10	3/22/05 12:52
18	AX16027W11-dup	3/22/05 13:06
19	AX16027W11-dup-1/2	3/22/05 13:21
20	AX16027W11-dup-1/10	3/22/05 13:35
21	AX16027W11-MS-1/25	3/22/05 13:50
22	AX16034W10-1/2	3/22/05 14:04
23	AX16034W10-dup	3/22/05 14:18
24	AX16034W10-dup-1/2	3/22/05 14:33
25	050322 ccv 5, 10, 25, 50ppm	3/22/05 14:48
26	050322 ccb/pb	3/22/05 15:02
27	050322b lcs 5, 6, 30ppm	3/22/05 15:17
28	AX16034W10-MS-1/5	3/22/05 15:31
29	AX16027W11-1/20	3/22/05 15:57
30	050322b lcs 5, 6, 30ppm	3/23/05 9:19
31	AX16027W11-1/20-Dup	3/23/05 9:33
32	AX16084W04-1/2	3/23/05 9:48
33	AX16085W04-1/2	3/23/05 10:02
34	AX16086W04-1/2	3/23/05 10:17
35	AX16086W04-1/25	3/23/05 10:31
36	AX16087W04-1/5	3/23/05 10:46
37	050322 ccv 5, 10, 25, 50ppm	3/23/05 11:00
38	050322 ccb	3/23/05 11:15
39	AX16088W04-1/2	3/23/05 11:29
40	AX16089W04-1/5	3/23/05 11:44
41	AX16089W04-1/5MS	3/23/05 11:58
42	AX16068W08-1/2	3/23/05 12:13
43	AX16069W07-1/2	3/23/05 12:27
44	050322 ccv 5, 10, 25, 50ppm	3/23/05 12:42
45	050322 ccb	3/23/05 12:56

APPL, Inc.
Analysis listing Dionex
03/23/05

Injection:	Sample Name:	Date Time Collected:
1	050323 ccv 5, 10, 25, 50ppm	3/23/05 13:32
2	050323 ccb/pb	3/23/05 13:46
3	050323a ics 5, 6, 30ppm	3/23/05 14:01
4	AX16071W13-1/5 MS	3/23/05 15:43
5	AX16071W13-1/5 MSD	3/23/05 15:57
6	050323 ccv 5, 10, 25, 50ppm	3/23/05 16:12
7	050323 ccb	3/23/05 16:26

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METHOD 5030/8015
Total Petroleum Hydrocarbons
Gasoline

APPL, INC.

Data Validation Package
for
EPA 8015-purgable
Total Petroleum Hydrocarbons
Gasoline

TABLE OF CONTENTS

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APPL, INC.

METHOD 5030/8015
Total Petroleum Hydrocarbons - Gasoline

Case Narrative

APPL, INC.



4203 West Swift ∇ Fresno, California 93722 ∇ Phone 559-275-2175 ∇ Fax 559-275-4422

April 26, 2005

USACE – Sacramento District
1325 J Street
Sacramento, California 95814

Attn: Pamela Amie

Subject: Report of Data: Case 46881

Results in this report apply to the samples analyzed in accordance with the chain of custody document. This analytical report must be reproduced in its entirety.

Dear Ms. Amie,

Eight water samples and a trip blank for project "HAAF POL Hill" were received on March 19, 2005. One amber liter was received broken for each of the following samples: PL-MW-301, PL-MW-103, and PL-MW-115. The PL-MW-115 containers were labeled with a March 18 sampling date and the COC indicated a March 17 collection date. Pamela Amie was notified of the breakage and discrepancies; all sample IDs were changed from POL to PL. Written results are being provided on this April 26, 2005, for the requested analysis. All holding times were met.

For the EPA 8015B TPH-Gasoline analysis, the samples were purged according to EPA method 5030B.

No unusual problems or complications were encountered with this sample set.

If you have any questions or require further information, please contact us at your convenience. Thank you for choosing APPL, Inc.

Sincerely,

Leonard Fong, Ph.D, Laboratory Director
APPL, Inc.

LF/rp
Enclosure
cc: File

METHOD 5030/8015
Total Petroleum Hydrocarbons - Gasoline
Chain of Custody and ARF

APPL, INC.

APPL - Analysis Request Form

46881

Client: **USACE-Sacramento District**
 Address: **1325 J Street**
 Sacramento, CA 95814
 Attn: **Pamela Amie**
 Phone: **916-557-7811** Fax: **916-557-7463**
 Job: **HAAF POL Hill**
 PO #: **NA**
 Chain of Custody (Y/N): **Y # 005678**
 RAD Screen (Y/N): **Y** pH (Y/N): **Y**
 Turn Around Type: **STD**

Received by: **CM**
 Date Received: **3/19/05** Time: **08:00**
 Delivered by: **FED EX**
 Shuttle Custody Seals (Y/N): **Y**
 Chest Temp(s): **5.5°3°3.5°C HB250392**
 Color: **VOA/PURPLE**
 Samples Chilled until Placed in Refrig/Freezer: **Y**
 Project Manager: **Robert Wise P.W.**
 QC Report Type: **USACE/CA**
 Due Date: **3/31/05**

Comments:
REPORT J-VALUES DOWN TO THE MDL. SEE INCOMING SAMPLE NOTICE FOR SPECIFICATIONS
USACE QAPP. RL is 3x MDL. dry wt soils. LCSD or MS/MSD required for RPD.
Further QA info available in the SHELL or project specific QAPP.
Broken ambers: MW-301, MW-103 & MW-115. MW-115 container labels have 3-18
sampling date; COC has 3-17. Ferrous iron rec'd past HT. Client notified. *RM*
Changed sample IDs & sampling date to match container labels per Pamela. a.b.

Diesel & Motor oil

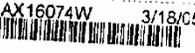
Sample Distribution:
GC: 8-\$TPHD
Extractions: 8- SEP011
VOA: 9-\$GAS, 8-\$RSK
Wetlab: 7-\$300W(SO4), 7-\$310(), 7-\$35FE()

Charges: **Invoice To:**

Client ID	APPL ID	Sampled	Analyses Requested
1. MW-POLA-121	AX16066W 	3/17/05 12:10	\$300W(SO4), \$310(), \$35FE(), \$GAS, \$RSK, \$TPHD
2. PL-MW-101	AX16067W 	3/17/05 13:12	\$300W(SO4), \$310(), \$35FE(), \$GAS, \$RSK, \$TPHD
3. PL-MW-114	AX16068W 	3/17/05 15:07	\$300W(SO4), \$310(), \$35FE(), \$GAS, \$RSK, \$TPHD
PL-MW-301	AX16069W 	3/17/05 14:05	\$GAS, \$RSK, \$TPHD
PL-MW-104	AX16070W 	3/17/05 16:25	\$300W(SO4), \$310(), \$35FE(), \$GAS, \$RSK, \$TPHD
PL-MW-103	MSMSD AX16071W 	3/17/05 17:10	\$300W(SO4), \$310(), \$35FE(), \$GAS, \$RSK, \$TPHD

APPL - Analysis Request Form

46881

7. PL-MW-116	AX16072W 	3/17/05	18:09	\$300W(SO4), \$310(), \$35FE(), SGAS, \$RSK, \$TPHD
8. PL-MW-115	AX16073W 	3/18/05	08:26	\$300W(SO4), \$310(), \$35FE(), SGAS, \$RSK, \$TPHD
9. TRIP BLANK 1	AX16074W 	3/18/05	00:00	SGAS

005678

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: HAAF POL Hill
 Project Location: Novato, CA
 Project Coordinator: Pamela Amie
 Phone: 916-557-7811 FAX: 916-557-7465
 Sampler: Chuck Richmond Phone: 916-557-5881

Laboratory: HPPL, Inc.
 Address: 4703 W. Swift Ave
Fresno, CA 93722
 Contact: Robert Wise
 Phone: (559) 275-2175

SAMPLE IDENTIFICATION		LAB	COMP	DATE	TIME	ANALYSIS REQUESTED →												MSEB	TURN-AROUND TIME (DAYS)	MATRIX CODE	NUMBER OF					PRESERVATIVE CODE
Field	Laboratory					PAH	PCB	PCDD	PCDF	PCB	PCDD	PCDF	PCB	PCDD	PCDF	PCB	PCDD				PCDF	PCB	PCDD	PCDF	PLASTIC	
MW-POLA-121		X		3/17/05	1210	X	X	X	X	X	X	X	X	X	X	X	X	21W	3	2	6			C		
MW-POL-101		X		3/17/05	1312	X	X	X	X	X	X	X	X	X	X	X	X	111	3	2	6			C		
MW-POL-114		X		3/17/05	1507	X	X	X	X	X	X	X	X	X	X	X	X	111	3	2	6			C		
MW-POL-301		X		3/17/05	1405	X	X	X	X	X	X	X	X	X	X	X	X	111	3	2	6			C		
MW-POL-104		X		3/17/05	1625	X	X	X	X	X	X	X	X	X	X	X	X	111	3	2	6			C		
MW-POL-103		X		3/17/05	1710	X	X	X	X	X	X	X	X	X	X	X	X	111	3	2	6			C		
MW-POL-116		X		3/17/05	1809	X	X	X	X	X	X	X	X	X	X	X	X	111	3	4	12			C		
MW-POL-115		X		3/17/05	0826	X	X	X	X	X	X	X	X	X	X	X	X	111	3	2	6			C		
TRIP BLANK 1		X		3/18/05		X												111	3	2	6			C		
TEMP BLANK		X																111	3					C		

COMMENTS/SPECIAL INSTRUCTIONS:
 ⊗ = HOLD FOR ANALYSIS
 Changed sample ID's & sampling date to match container labels per Pamela 3/17/05, 2/2/05.

RELINQUISHED BY: Chuck Richmond DATE/TIME: 3/16/05 1536
 RECEIVED BY: Renee Patterson DATE/TIME: 3-17-05 0800

Checked by: [Signature]
 PRESERVATIVE CODES: C = HCl N = HNO₃ S = H₂SO₄
 SAMPLE DISPOSAL: Hold Dispose Return
 MATRIX CODES: W = Water Sl = Sludge SP = Solid Product
 S = Soil A = Air LP = Liquid Product
 Sd = Sediment
 SHIPPING: Fed Ex Courier Hand Deliver
 Airbill Number: 83860625098

CESPK FORM 111
 13 Feb 02

DISTRIBUTION: WHITE and YELLOW - send to testing laboratory; PINK - retained by originator

27

COOLER RECEIPT FORM

Project: HAAF POL Hill Date Received: 3-19-05

Coolers: Number of Coolers: 3
 YES NO Were coolers and samples screened for radioactivity?
 YES NO Were custody seals on outside of cooler? How many? 6 Date on seal? 3-18-05
 Name on seal? see back page
 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) 0386-025-0927 2) masters 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: n/a
 Cooler temp(s): 1) 5.5°C 2) 3°C 3) 3.5°C 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: Trip Blank / Ax 16074 v. 3

Preservation & 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: Samples rec'd past Feirous Iron HT; 3 samples rec'd broken MW-301
MW-103 + MW-115; MW-115 sampling date different on CoC + labels;
All labels PL-MW - CoC, POL-MW

Signature of personnel receiving samples: Renee Patterson Second reviewer: Chris Furett
 Signature of project manager notified: Robert Date and Time of notification: 3-21-05
 Name of client notified: _____ Date and Time of notification: _____
 Information given to client: _____ by whom (Initials): _____

METHOD 5030/8015
Total Petroleum Hydrocarbons - Gasoline

QC Summary

APPL, INC.

Method Blank
Gas-Water

Blank Name/QCG: 050330W-16066 - 85261
Batch ID: \$GAS-050330A

APPL Inc.
4203 West Swift Avenue
Fresno, CA 93722

Sample Type	Analyte	Result	PQL	MDL	Units	Extraction Date	Analysis Date
BLANK	Gasoline	Not detected	20	8.6	ug/L	3/30/05	3/30/05
BLANK	Surrogate-BFB	94.6	74-118		%	3/30/05	3/30/05

Run #: 0330H07.D
Instrument: HARPO
Sequence: 050317
Initials: RS

GC SC-Blank-REG MDLs
Printed: 4/4/05 4:08:16 PM

Method Blank
Gas-Water

Blank Name/QCG: 050331W-16071 - 85262
Batch ID: \$GAS-050330B

APPL Inc.
4203 West Swift Avenue
Fresno, CA 93722

Sample Type	Analyte	Result	PQL	MDL	Units	Extraction Date	Analysis Date
BLANK	Gasoline	Not detected	20	8.6	ug/L	3/31/05	3/31/05
BLANK	Surrogate-BFB	93.5	74-118		%	3/31/05	3/31/05

Run #: 0330H37.D
Instrument: HARPO
Sequence: 050317
Initials: RS

GC SC-Blank-REG MDLs
Printed: 4/4/05 4:08:16 PM

Volatile Analysis by
Method BTEX/GAS

Form 2 & 8

Surrogate Recovery - Retention Time Summary

Lab Name: APPL, Inc. SDG No: 46881
 Case No: 46881 Date Analyzed: 3/30/05
 Matrix: Water Instrument: HARPO

Client Sample No.	APPL ID.	Surrogate Recovery - Retention Time					
		a'a' - TFT #2		Bromofluorobenzene #2		Bromochlorobenzene #2	
		%	RT	%	RT	%	RT
1	Lab Control Spike	050330A	LCS-2 GA			104	16.05
2	Lab Control SpikeD	050330A	LCSD-2 G			105	16.04
3	Blank	050330A	BLANK			94.6	16.04
4	MW-POLA-121	AX16066	W04			95.6	16.04
5	PØL-MW-101	AX16067	W04			102	16.04
6	PØL-MW-114	AX16068	W04			96.0	16.04
7	PØL-MW-301	AX16069	W04			95.8	16.03
8	PØL-MW-104	AX16070	W04			94.6	16.03
9	Lab Control Spike	050330B	LCS-1 GA			104	16.04
10	Blank	050330B	BLANK			93.5	16.04
11	PØL-MW-103	AX16071	W04			94.8	16.04
12	PØL-MW-116	AX16072	W04			94.0	16.04
13	PØL-MW-115	AX16073	W04			93.8	16.04
14	TRIP BLANK 1	AX16074	W04			93.0	16.04
15	Matrix Spike	AX16071	W7-9 MS-			105	16.04
16	Matrix SpikeD	AX16071	W7-9 MST			107	16.04
17							
18							
19							
20							
21							
22							
23							
24							
25							
26							
27							
28							
29							
30							

Laboratory Control Spike Recoveries
Gas-Water

APPL ID: 050330W-16066 LCS - 85261
Batch ID: \$GAS-050330A

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
Gasoline	300	301	304	100	101	73-120	0.99	25
Surrogate-BFB	20.4	21.3	21.4	104	105	74-118		

Comments: _____

Primary	SPK	DUP
Extraction Date :	3/30/05	3/30/05
Analysis Date :	3/30/05	3/30/05
Instrument :	HARPO	HARPO
Run :	0330H05.D	0330H06.D
Initials :	RS	

Laboratory Control Spike Recovery
Gas-Water

APPL ID: 050331W-16071 LCS - 85262
Batch ID: SGAS-050330B

APPL Inc.
4203 West Swift Avenue
Fresno, CA 93722

Compound Name	Spike Level ug/L	SPK Result ug/L	SPK % Recovery	Recovery Limits
Gasoline	300	309	103	73-120
Surrogate-BFB	20.4	21.2	104	74-118

Comments:

Primary	SPK
Extraction Date :	3/31/05
Analysis Date :	3/31/05
Instrument :	HARPO
Run :	0330H35.D
Initials :	RS

Printed: 4/4/05 4:06:43 PM

APPL Standard LCS

Matrix Spike Recoveries
Gas-Water

APPL ID: 050331W-16071 MS - 85262
Batch ID: \$GAS-050330B
Sample ID: AX16071

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
Gasoline	300	ND	326	323	109	108	73-120	0.92	25
Surrogate-BFB	20.4	NA	21.3	21.8	104	107	74-118		

Comments:

Primary	SPK	DUP
Extraction Date :	3/31/05	3/31/05
Analysis Date :	3/31/05	3/31/05
Instrument :	HARPO	HARPO
Run :	0330H47.D	0330H48.D
Initials :	RS	

Printed: 4/4/05 4:03:28 PM
APPL MSD SCII

Volatile Analysis by
Method BTEX/GAS

Form 4
Blank Summary

Lab Name: APPL Inc.
Case No: 46881
Matrix: Water
Blank ID: 050330A BLANK

SDG No: 46881
Date Analyzed: 3/30/05
Instrument: HARPO
Time Analyzed: 12:22

corrected sample ID, 4-26-05

Client Sample No.	APPL ID.	File ID.	Date Analyzed	
1	Lab Control Spike	050330A LCS-2 GAS@0330H05.D	3/30/05 11:17	
2	Lab Control SpikeD	050330A LCSD-2 GAS@0330H06.D	3/30/05 11:50	
3	Blank	050330A BLANK	0330H07.D	3/30/05 12:22
4	MW-POLA-121	AX16066 W04	0330H28.D	3/30/05 23:48
5	PØL-MW-101	AX16067 W04	0330H29.D	3/31/05 0:20
6	PØL-MW-114	AX16068 W04	0330H30.D	3/31/05 0:53
7	PØL-MW-301	AX16069 W04	0330H31.D	3/31/05 1:26
8	PØL-MW-104	AX16070 W04	0330H32.D	3/31/05 1:59
9				
10				
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30				

Volatile Analysis by
Method BTEX/GAS

Form 4

Blank Summary

Lab Name: APPL Inc.
Case No: 46881
Matrix: Water
Blank ID: 050330B BLANK

SDG No: 46881
Date Analyzed: 3/31/05
Instrument: HARPO
Time Analyzed: 4:42

copied from 46881-20-05

Client Sample No.	APPL ID.	File ID.	Date Analyzed
1	Lab Control Spike	050330B LCS-1 GAS@3	0330H35.D 3/31/05 3:37
2	Blank	050330B BLANK	0330H37.D 3/31/05 4:42
3	PØL-MW-103	AX16071 W04	0330H39.D 3/31/05 5:48
4	PØL-MW-116	AX16072 W04	0330H40.D 3/31/05 6:20
5	PØL-MW-115	AX16073 W04	0330H41.D 3/31/05 6:53
6	TRIP BLANK 1	AX16074 W04	0330H42.D 3/31/05 7:26
7	Matrix Spike	AX16071 W7-9 MS-1 GA	0330H47.D 3/31/05 10:09
8	Matrix SpikeD	AX16071 W7-9 MSD-1	0330H48.D 3/31/05 10:42
9			
10			
11			
12			
13			
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METHOD 5030/8015
Total Petroleum Hydrocarbons - Gasoline

Sample Data

APPL, INC.

Gas-Water

USACE-Sacramento District
1325 J Street
Sacramento, CA 95814

APPL Inc.
4203 West Swift Avenue
Fresno, CA 93722

Attn: Pamela Amie
Project: HAAF POL Hill
Sample ID: **MW-POLA-121**
Sample Collection Date: 3/17/05

ARF: 46881
APPL ID: **AX16066**
QCG: SGAS-050330A-85261

Method	Analyte	Result	PQL	MDL	Units	Extraction Date	Analysis Date
8015	Gasoline	13 J ++	20	8.6	ug/L	3/30/05	3/30/05
8015	Surrogate-BFB	95.6	74-118		%	3/30/05	3/30/05

J = Estimated value, below quantitation limit.

++(G1) The analyst has noted that the chromatogram of this sample includes a wide range of hydrocarbons which does not match our gasoline standard.

Run #: 0330H28.D
Instrument: HARPO
Sequence: 050317
Dilution Factor: 1
Initials: RS

Printed: 4/5/05 10:39:12 AM
APPL-F1-SC-MCRes/MCPQL-REG MDLs

Gas-Water

USACE-Sacramento District
1325 J Street
Sacramento, CA 95814

APPL Inc.
4203 West Swift Avenue
Fresno, CA 93722

Attn: Pamela Amie
Project: HAAF POL Hill
Sample ID: PL-MW-101
Sample Collection Date: 3/17/05

ARF: 46881
APPL ID: AX16067
QCG: \$GAS-050330A-85261

Method	Analyte	Result	PQL	MDL	Units	Extraction Date	Analysis Date
8015	Gasoline	120 ++	20	8.6	ug/L	3/31/05	3/31/05
8015	Surrogate-BFB	102	74-118		%	3/31/05	3/31/05

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

Run #: 0330H29.D
Instrument: HARPO
Sequence: 050317
Dilution Factor: 1
Initials: RS

Printed: 4/4/05 4:03:37 PM
APPL-F1-SC-MCRes/MCPQL-REG MDLs

Gas-Water

USACE-Sacramento District
1325 J Street
Sacramento, CA 95814

APPL Inc.
4203 West Swift Avenue
Fresno, CA 93722

Attn: Pamela Amie
Project: HAAF POL Hill
Sample ID: PL-MW-114
Sample Collection Date: 3/17/05

ARF: 46881
APPL ID: AX16068
QCG: \$GAS-050330A-85261

Method	Analyte	Result	PQL	MDL	Units	Extraction Date	Analysis Date
8015	Gasoline	Not detected	20	8.6	ug/L	3/31/05	3/31/05
8015	Surrogate-BFB	96.0	74-118		%	3/31/05	3/31/05

Run #: 0330H30.D
Instrument: HARPO
Sequence: 050317
Dilution Factor: 1
Initials: RS

Printed: 4/4/05 4:03:37 PM
APPL-F1-SC-MCRes/MCPQL-REG MDLs

Gas-Water

USACE-Sacramento District
1325 J Street
Sacramento, CA 95814

APPL Inc.
4203 West Swift Avenue
Fresno, CA 93722

Attn: Pamela Amie
Project: HAAF POL Hill
Sample ID: **PL-MW-301**
Sample Collection Date: 3/17/05

ARF: 46881
APPL ID: **AX16069**
QCG: \$GAS-050330A-85261

Method	Analyte	Result	PQL	MDL	Units	Extraction Date	Analysis Date
8015	Gasoline	Not detected	20	8.6	ug/L	3/31/05	3/31/05
8015	Surrogate-BFB	95.8	74-118		%	3/31/05	3/31/05

Run #: 0330H31.D
Instrument: HARPO
Sequence: 050317
Dilution Factor: 1
Initials: RS

Printed: 4/4/05 4:03:37 PM
APPL-F1-SC-MCRes/MCPQL-REG MDLs

Gas-Water

USACE-Sacramento District
1325 J Street
Sacramento, CA 95814

APPL Inc.
4203 West Swift Avenue
Fresno, CA 93722

Attn: Pamela Amie
Project: HAAF POL Hill

ARF: 46881

Sample ID: PL-MW-104

APPL ID: AX16070

Sample Collection Date: 3/17/05

QCG: SGAS-050330A-85261

Method	Analyte	Result	PQL	MDL	Units	Extraction Date	Analysis Date
8015	Gasoline	Not detected	20	8.6	ug/L	3/31/05	3/31/05
8015	Surrogate-BFB	94.6	74-118		%	3/31/05	3/31/05

Run #: 0330H32.D
Instrument: HARPO
Sequence: 050317
Dilution Factor: 1
Initials: RS

Printed: 4/4/05 4:03:37 PM
APPL-F1-SC-MCRes/MCPQL-REG MDLs

Gas-Water

USACE-Sacramento District
1325 J Street
Sacramento, CA 95814

APPL Inc.
4203 West Swift Avenue
Fresno, CA 93722

Attn: Pamela Amie
Project: HAAF POL Hill

ARF: 46881

Sample ID: PL-MW-103

APPL ID: AX16071

Sample Collection Date: 3/17/05

QCG: \$GAS-050330B-85262

Method	Analyte	Result	PQL	MDL	Units	Extraction Date	Analysis Date
8015	Gasoline	Not detected	20	8.6	ug/L	3/31/05	3/31/05
8015	Surrogate-BFB	94.8	74-118		%	3/31/05	3/31/05

Run #: 0330H39.D
Instrument: HARPO
Sequence: 050317
Dilution Factor: 1
Initials: RS

Printed: 4/4/05 4:03:37 PM
APPL-F1-SC-MCRes/MCPQL-REG MDLs

Gas-Water

USACE-Sacramento District
1325 J Street
Sacramento, CA 95814

Attn: Pamela Amie
Project: HAAF POL Hill
Sample ID: **PL-MW-116**
Sample Collection Date: 3/17/05

APPL Inc.
4203 West Swift Avenue
Fresno, CA 93722

ARF: 46881
APPL ID: **AX16072**
QCG: \$GAS-050330B-85262

Method	Analyte	Result	PQL	MDL	Units	Extraction Date	Analysis Date
8015	Gasoline	Not detected	20	8.6	ug/L	3/31/05	3/31/05
8015	Surrogate-BFB	94.0	74-118		%	3/31/05	3/31/05

Run #: 0330H40.D
Instrument: HARPO
Sequence: 050317
Dilution Factor: 1
Initials: RS

Printed: 4/4/05 4:03:37 PM
APPL-F1-SC-MCRes/MCPQL-REG MDLs

Gas-Water

USACE-Sacramento District
1325 J Street
Sacramento, CA 95814

APPL Inc.
4203 West Swift Avenue
Fresno, CA 93722

Attn: Pamela Amie
Project: HAAF POL Hill

ARF: 46881

Sample ID: PL-MW-115
Sample Collection Date: 3/18/05

APPL ID: AX16073
QCG: SGAS-050330B-85262

Method	Analyte	Result	PQL	MDL	Units	Extraction Date	Analysis Date
8015	Gasoline	Not detected	20	8.6	ug/L	3/31/05	3/31/05
8015	Surrogate-BFB	93.8	74-118		%	3/31/05	3/31/05

Run #: 0330H41.D
Instrument: HARPO
Sequence: 050317
Dilution Factor: 1
Initials: RS

Printed: 4/4/05 4:03:37 PM
APPL-F1-SC-MCRes/MCPQL-REG MDLs

Gas-Water

USACE-Sacramento District
1325 J Street
Sacramento, CA 95814

APPL Inc.
4203 West Swift Avenue
Fresno, CA 93722

Attn: Pamela Amie
Project: HAAF POL Hill
Sample ID: TRIP BLANK 1
Sample Collection Date: 3/18/05

ARF: 46881
APPL ID: AX16074
QCG: SGAS-050330B-85262

Method	Analyte	Result	PQL	MDL	Units	Extraction Date	Analysis Date
8015	Gasoline	Not detected	20	8.6	ug/L	3/31/05	3/31/05
8015	Surrogate-BFB	93.0	74-118		%	3/31/05	3/31/05

Run #: 0330H42.D
Instrument: HARPO
Sequence: 050317
Dilution Factor: 1
Initials: RS

Printed: 4/4/05 4:03:37 PM
APPL-F1-SC-MCRes/MCPQL-REG MDLs

METHOD 5030/8015
Total Petroleum Hydrocarbons - Gasoline
Calibration Data

APPL, INC.

Volatile Analysis by
Method BTEX/GAS

Form 7

SECOND SOURCE

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

SDG No: 46881
Date Analyzed: 3/11/05
Instrument: HARPO
Cal. Date: 3/12/05
Data File: 0311H09.D

	Compound	MEAN	CCRF	%D	%Drift	
41	HMBT Gasoline #2	15354	11297	26	HMBTL	14
42						
43						
44						
45						
46						
47						
48						
49						
50						
51						
52						
53						
54						
55						
56						
57						
58						
59						
60						
61						
62						
63						
64						
65						
66						
67						
68						
69						
70						
71						
72						
73						
74						
75						
76						
77						
78						
79						
80	Average			26.0		

Volatile Analysis by
Method BTEX/GAS

Form 7
Continuing Calibration

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

SDG No: 46881
Date Analyzed: 3/30/05
Instrument: HARPO
Cal. Date: 3/17/05
Data File: 0330H03.D

	Compound	MEAN	CCRF	%D	%Drift	
41	HMBT Gasoline #2	15354	13041	15	HMBTL	0.06
42						
43						
44						
45						
46						
47						
48						
49						
50						
51						
52						
53						
54						
55						
56						
57						
58						
59						
60						
61						
62						
63						
64						
65						
66						
67						
68						
69						
70						
71						
72						
73						
74						
75						
76						
77						
78						
79						
80	Average			15.0		

Volatile Analysis by
Method BTEX/GAS

Form 7

Continuing Calibration

Lab Name: APPL, Inc. _____

SDG No: 46881 _____

Case No: _____

Date Analyzed: 3/30/05 _____

Matrix: Water _____

Instrument: HARPO _____

Cal. Date: 3/17/05 _____

Data File: 0330H19.D _____

	Compound	MEAN	CCRF	%D	%Drift
41	HMBT Gasoline #2	15354	12844	16	HMBTL 1.2
42					
43					
44					
45					
46					
47					
48					
49					
50					
51					
52					
53					
54					
55					
56					
57					
58					
59					
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63					
64					
65					
66					
67					
68					
69					
70					
71					
72					
73					
74					
75					
76					
77					
78					
79					
80	Average			16.0	

Volatile Analysis by
Method BTEX/GAS

Form 7

Continuing Calibration

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

SDG No: 46881
Date Analyzed: 3/31/05
Instrument: HARPO
Cal. Date: 3/17/05
Data File: 0330H34.D

	Compound	MEAN	CCRF	%D	%Drift
41	HMBT Gasoline #2	15354	13385	13	HMBTL 2.8
42					
43					
44					
45					
46					
47					
48					
49					
50					
51					
52					
53					
54					
55					
56					
57					
58					
59					
60					
61					
62					
63					
64					
65					
66					
67					
68					
69					
70					
71					
72					
73					
74					
75					
76					
77					
78					
79					
80	Average			13.0	

Volatile Analysis by
Method BTEX/GAS

Form 7

Continuing Calibration

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

SDG No: 46881
Date Analyzed: 3/31/05
Instrument: HARPO
Cal. Date: 3/17/05
Data File: 0330H49.D

	Compound	MEAN	CCRF	%D	%Drift
41	HMBT Gasoline #2	15354	13016	15	HMBTL 2.6
42					
43					
44					
45					
46					
47					
48					
49					
50					
51					
52					
53					
54					
55					
56					
57					
58					
59					
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61					
62					
63					
64					
65					
66					
67					
68					
69					
70					
71					
72					
73					
74					
75					
76					
77					
78					
79					
80	Average			15.0	

METHOD 5030/8015
Total Petroleum Hydrocarbons - Gasoline

Raw Data

APPL, INC.

Method Blank
Gas-Water

Blank Name/QCG: 050330W-16066 - 85261
Batch ID: \$GAS-050330A

APPL Inc.
4203 West Swift Avenue
Fresno, CA 93722

Sample Type	Analyte	Result	PQL	MDL	Units	Extraction Date	Analysis Date
BLANK	Gasoline	Not detected	20	6.6	ug/L	3/30/05	3/30/05
BLANK	Surrogate-BFB	94.6	74-118		%	3/30/05	3/30/05

Run #: 0330H07.D
Instrument: HARPO
Sequence: 050317
Initials: RS
GC SC-Blank-REG MDLs
Printed: 4/4/05 4:03:31 PM

Method Blank
Gas-Water

Blank Name/QCG: 050331W-16071 - 85262
Batch ID: \$GAS-050330B

APPL Inc.
4203 West Swift Avenue
Fresno, CA 93722

Sample Type	Analyte	Result	PQL	MDL	Units	Extraction Date	Analysis Date
BLANK	Gasoline	Not detected	20	8.6	ug/L	3/31/05	3/31/05
BLANK	Surrogate-BFB	93.5	74-118		%	3/31/05	3/31/05

Run #: 0330H37.D
Instrument: HARPO
Sequence: 050317
Initials: RS
GC SC-Blank-REG MDLs
Printed: 4/4/05 4:03:31 PM

Laboratory Control Spike Recoveries
Gas-Water

APPL ID: 050330W-16066 LCS - 85261
Batch ID: SGAS-050330A

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
Gasoline	300	301	304	100	101	73-120	0.99	25
Surrogate-BFB	20.4	21.3	21.4	104	105	74-118		

Comments: _____

Primary	SPK	DUP
Extraction Date :	3/30/05	3/30/05
Analysis Date :	3/30/05	3/30/05
Instrument :	HARPO	HARPO
Run :	0330H05.D	0330H06.D
Initials :	RS	

Laboratory Control Spike Recovery
Gas-Water

APPL ID: 050331W-16071 LCS - 85262
Batch ID: SGAS-050330B

APPL Inc.
4203 West Swift Avenue
Fresno, CA 93722

Compound Name	Spike Level ug/L	SPK Result ug/L	SPK % Recovery	Recovery Limits
Gasoline	300	309	103	73-120
Surrogate-BFB	20.4	21.2	104	74-118

Comments: _____

Primary	SPK
Extraction Date :	3/31/05
Analysis Date :	3/31/05
Instrument :	HARPO
Run :	0330H35.D
Initials :	RS

Printed: 4/4/05 4:03:19 PM
APPL Standard LCS

Matrix Spike Recoveries
Gas-Water

APPL ID: 050331W-16071 MS - 85262
Batch ID: \$GAS-050330B
Sample ID: AX16071

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
Gasoline	300	ND	326	323	109	108	73-120	0.92	25
Surrogate-BFB	20.4	NA	21.3	21.8	104	107	74-118		

Comments:

Primary	SPK	DUP
Extraction Date :	3/31/05	3/31/05
Analysis Date :	3/31/05	3/31/05
Instrument :	HARPO	HARPO
Run :	0330H47.D	0330H48.D
Initials :	RS	

Printed: 4/4/05 4:03:29 PM
APPL MSD SCI

Directory: v:\harpoldata\050310

Injection Log

Line	Vial	FileName	Multiplier	SampleName	Misc Info	Injected
1	1	0310H01.D	1.	INSTRUMENT BLK	Water	10 Mar 2005 19:23
2	2	0310H02.D	1.	INSTRUMENT BLK	Water	10 Mar 2005 19:55
3	3	0310H03.D	1.	Gro/Voc@50/5.0ug/L	MIX A	10 Mar 2005 20:27
4	4	0310H04.D	1.	Gro/Voc@10/1.0ug/L	MIX A	10 Mar 2005 20:59
5	5	0310H05.D	1.	Gro/Voc@30/3.0ug/L	MIX A	10 Mar 2005 21:32
6	6	0310H06.D	1.	Gro/Voc@50/5.0ug/L	MIX A	10 Mar 2005 22:04
7	7	0310H07.D	1.	Gro/Voc@100/10.0ug/L	MIX A	10 Mar 2005 22:37
8	8	0310H08.D	1.	Gro/Voc@200/20.0ug/L	MIX A	10 Mar 2005 23:09
9	9	0310H09.D	1.	Gro/Voc@400/40.0ug/L	MIX A	10 Mar 2005 23:41
10	10	0310H10.D	1.	2nd Source Gro/Voc@100/10.0ug/L	Water	11 Mar 2005 00:13
11	11	0310H11.D	1.	050310A BLANK	Water	11 Mar 2005 00:45
12	12	0310H12.D	1.	050310A LCS-1 TGRO@100ug/L	Water	11 Mar 2005 01:17
13	13	0310H13.D	1.	050310A LCSD-1 TGRO@100ug/L	Water	11 Mar 2005 01:49
14	14	0310H14.D	50.	AX14459 W04 DF50	Water	11 Mar 2005 02:21
15	15	0310H15.D	25.	AX14969 W05 DF25	Water	11 Mar 2005 02:53
16	16	0310H16.D	10.	AX14970 W05 DF10	Water	11 Mar 2005 03:25
17	17	0310H17.D	10.	AX14975 W05 DF10	Water	11 Mar 2005 03:57
18	18	0310H18.D	10.	AX14976 W05 DF10	Water	11 Mar 2005 04:30
19	19	0310H19.D	1.	AX14971 W05	Water	11 Mar 2005 05:02
20	20	0310H20.D	1.	AX14972 W05	Water	11 Mar 2005 05:34
21	21	0310H21.D	1.	3/10/05 CCV TGRO@100ug/L	Water	11 Mar 2005 06:06
22	22	0310H22.D	1.	AX14967 W04	Water	11 Mar 2005 06:37
23	23	0310H23.D	1.	AX14968 W05	Water	11 Mar 2005 07:09
24	24	0310H24.D	1.	050310B BLANK	Water	11 Mar 2005 07:41
25	25	0310H25.D	1.	050310B LCS-1 TGRO@100ug/L	Water	11 Mar 2005 08:13
26	26	0310H26.D	1.	050310B LCSD-1 TGRO@100ug/L	Water	11 Mar 2005 08:45
27	27	0310H27.D	50.	AX14969 W05 DF50	Water	11 Mar 2005 09:17
28	28	0310H28.D	1.	AX14966 W13-15 MS-1 TGRO@100ug/L	Water	11 Mar 2005 09:50
29	29	0310H29.D	1.	AX14966 W13-15 MSD-1 TGRO@100ug/L	Water	11 Mar 2005 10:23
30	30	0310H30.D	1.	AX14966 W10	Water	11 Mar 2005 10:55
31	31	0310H31.D	1.	3/10/05 CCV TGRO@100ug/L	Water	11 Mar 2005 11:28
32	32	0310H32.D	1.	AX14982 W04	Water	11 Mar 2005 12:15
33	33	0310H33.D	1.	AX14983 W04	Water	11 Mar 2005 12:48
34	34	0310H34.D	1.	AX14984 W04	Water	11 Mar 2005 13:24
35	35	0310H35.D	1.	AX14985 W04	Water	11 Mar 2005 13:54
36	36	0310H36.D	5.	AX14985 W05 DF5	Water	11 Mar 2005 14:45
37	37	0310H37.D	1.	3/10/05 CCV TGRO@100ug/L	Water	11 Mar 2005 15:18
38	38	0310H38.D	1.	BLANK	Water	11 Mar 2005 15:50
39	1	0311H01.D	1.	3/11/05 GAS@20ug/L	MIX B	11 Mar 2005 16:36
40	2	0311H02.D	1.	3/11/05 GAS@50ug/L	MIX B	11 Mar 2005 17:09
41	3	0311H03.D	1.	3/11/05 GAS@100ug/L	MIX B	11 Mar 2005 17:43
42	4	0311H04.D	1.	3/11/05 GAS@300ug/L	MIX B	11 Mar 2005 18:15
43	5	0311H05.D	1.	3/11/05 GAS@600ug/L	MIX B	11 Mar 2005 18:47
44	6	0311H06.D	1.	3/11/05 GAS@800ug/L	MIX B	11 Mar 2005 19:20
45	7	0311H07.D	1.	3/11/05 GAS@1000ug/L	MIX B	11 Mar 2005 19:53
46	8	0311H08.D	1.	WA VPH CARBON MARKER	Water	11 Mar 2005 20:26
47	9	0311H09.D	1.	2ND SOURCE GAS@300ug/L	Water	11 Mar 2005 20:59
48	1	0312H01.D	1.	test GAS@300ug/L	Water	12 Mar 2005 10:32
49	2	0312H02.D	1.	test BTEX/MTBE@10ug/L	Water	12 Mar 2005 11:05
50	3	0312H03.D	1.	3/12/05 CCV GAS@300ug/L	Water	12 Mar 2005 11:38
51	4	0312H04.D	1.	3/12/05 CCV BTEX/MTBE@10ug/L	Water	12 Mar 2005 12:10
52	5	0312H05.D	1.	050312A LCS-1 GAS@300ug/L	Water	12 Mar 2005 12:43
53	6	0312H06.D	1.	050312A LCS-2 BTEX/MTBE@10ug/L	Water	12 Mar 2005 13:15

Injection Log

Directory: v:\harpoldata\050317

Line	Vial	FileName	Multiplier	SampleName	Misc Info	Injected
155	7	0327H07.D	1.	050327A LCSD-1 TGRO@100ug/L	Water	27 Mar 2005 14:08
156	8	0327H08.D	1.	AX15792 W05	Water	27 Mar 2005 14:41
157	9	0327H09.D	1.	AX15794 W05	Water	27 Mar 2005 15:13
158	10	0327H10.D	1.	AX15733 W05	Water	27 Mar 2005 15:46
159	11	0327H11.D	1.	AX15734 W05	Water	27 Mar 2005 16:19
160	12	0327H12.D	1.	AX15735 W05	Water	27 Mar 2005 16:52
161	13	0327H13.D	1.	AX16158 W05	Water	27 Mar 2005 17:25
162	14	0327H14.D	25.	AX16158 W05 DF25	Water	27 Mar 2005 17:57
163	15	0327H15.D	1.	3/27/05 CCV TGRO@100ug/L	Water	27 Mar 2005 18:30
164	16	0327H16.D	1.	BLANK	Water	27 Mar 2005 19:02
165	1	0329H01.D	1.	3/29/05 CCV BTEX/MTBE@10ug/L	Water	29 Mar 2005 09:13
166	2	0329H02.D	1.	3/29/05 CCV GAS@300ug/L	Water	29 Mar 2005 09:46
167	3	0329H03.D	1.	050329A LCS-1 GAS@300ug/L	Water	29 Mar 2005 10:20
168	4	0329H04.D	1.	050329A LCSD-1 GAS@300ug/L	Water	29 Mar 2005 10:53
169	5	0329H05.D	1.	050329A LCS-2 BTEX/MTBE@10ug/L	Water	29 Mar 2005 11:25
170	6	0329H06.D	1.	050329A LCSD-2 BTEX/MTBE@10ug/L	Water	29 Mar 2005 11:59
171	7	0329H07.D	1.	050329A BLANK	Water	29 Mar 2005 12:41
172	8	0329H08.D	1.	050329A BLANK	Water	29 Mar 2005 13:14
173	9	0329H09.D	1.	AX16322 W01	Water	29 Mar 2005 14:15
174	10	0329H10.D	1.	AX16313 W01	Water	29 Mar 2005 14:47
175	11	0329H11.D	1.	AX16312 W01	Water	29 Mar 2005 15:20
176	12	0329H12.D	1.	AX16632 W04	Water	29 Mar 2005 15:53
177	13	0329H13.D	1.	3/29/05 CCV BTEX/MTBE@10ug/L	Water	29 Mar 2005 16:31
178	14	0329H14.D	1.	3/29/05 CCV GAS@600ug/L	Water	29 Mar 2005 17:04
179	15	0329H15.D	1.	INSTRUMENT BLANK	Water	29 Mar 2005 17:36
180	16	0329H16.D	1.	INSTRUMENT BLANK	Water	29 Mar 2005 18:09
181	17	0329H17.D	1.	INSTRUMENT BLANK	Water	29 Mar 2005 18:41
182	1	0330H01.D	1.	INSTRUMENT BLANK	Water	30 Mar 2005 09:06
183	2	0330H02.D	1.	3/30/05 CCV BTEX/MTBE@10ug/L	Water	30 Mar 2005 09:39
184	3	0330H03.D	1.	3/30/05 CCV GAS@300ug/L	Water	30 Mar 2005 10:12
185	4	0330H04.D	1.	050330A LCS-1 BTEX/MTBE@10ug/L	Water	30 Mar 2005 10:45
186	5	0330H05.D	1.	050330A LCS-2 GAS@300ug/L	Water	30 Mar 2005 11:17
187	6	0330H06.D	1.	050330A LCSD-2 GAS@300ug/L	Water	30 Mar 2005 11:50
188	7	0330H07.D	1.	050330A BLANK	Water	30 Mar 2005 12:22
189	8	0330H08.D	1.	050330A BLANK	Water	30 Mar 2005 12:55
190	9	0330H09.D	1.	AX16633 W02	Water	30 Mar 2005 13:27
191	10	0330H10.D	1.	AX16589 W01	Water	30 Mar 2005 14:00
192	11	0330H11.D	1.	AX16495 W01	Water	30 Mar 2005 14:32
193	12	0330H12.D	1.	AX16494 W01	Water	30 Mar 2005 15:05
194	13	0330H13.D	1.	AX16503 W01	Water	30 Mar 2005 15:38
195	14	0330H14.D	1.	AX16499 W01	Water	30 Mar 2005 16:11
196	15	0330H15.D	1.	AX16313 W4-6 MS-1 BTEX@10ug/L	Water	30 Mar 2005 16:44
197	16	0330H16.D	1.	AX16313 W4-6 MS-1 BTEX@10ug/L	Water	30 Mar 2005 17:17
198	17	0330H17.D	1.	AX16495 W4-6 MS-2 BTEX@10ug/L	Water	30 Mar 2005 17:49
199	18	0330H18.D	1.	AX16495 W4-6 MS-2 BTEX@10ug/L	Water	30 Mar 2005 18:22
200	19	0330H19.D	1.	3/30/05 CCV GAS@600ug/L	Water	30 Mar 2005 18:54
201	20	0330H20.D	1.	3/30/05 CCV GAS@600ug/L	Water	30 Mar 2005 19:27
202	21	0330H21.D	1.	3/30/05 CCV BTEX/MTBE@20ug/L	Water	30 Mar 2005 20:00
203	22	0330H22.D	1.	3/30/05 CCV BTEX/MTBE@20ug/L	Water	30 Mar 2005 20:32

Injection Log

Directory: v:\harp\data\050317

Line	Vial	FileName	Multiplier	SampleName	Misc Info	Injected
204	23	0330H23.D	1	AX16031 W04	Water	30 Mar 2005 21:05
205	24	0330H24.D	1	AX16313 W2-4 MS-3 GAS@300ug/L	Water	30 Mar 2005 21:38
206	25	0330H25.D	1	AX16313 W2-4 MSD-3 GAS@300ug/L	Water	30 Mar 2005 22:11
207	26	0330H26.D	1	AX16495 W2-4 MS-4 GAS@300ug/L	Water	30 Mar 2005 22:43
208	27	0330H27.D	1	AX16495 W2-4 MSD-4 GAS@300ug/L	Water	30 Mar 2005 23:15
209	28	0330H28.D	1	AX16066 W04	Water	30 Mar 2005 23:48
210	29	0330H29.D	1	AX16067 W04	Water	31 Mar 2005 00:20
211	30	0330H30.D	1	AX16068 W04	Water	31 Mar 2005 00:53
212	31	0330H31.D	1	AX16069 W04	Water	31 Mar 2005 01:26
213	32	0330H32.D	1	AX16070 W04	Water	31 Mar 2005 01:59
214	33	0330H33.D	1	3/30/05 CCV GAS@300ug/L	Water	31 Mar 2005 02:32
215	34	0330H34.D	1	3/30/05 CCV GAS@300ug/L	Water	31 Mar 2005 03:05
216	35	0330H35.D	1	050330B LCS-1 GAS@300ug/L	Water	31 Mar 2005 03:37
217	36	0330H36.D	1	050330B LGSD-1 GAS@300ug/L	Water	31 Mar 2005 04:09
218	37	0330H37.D	1	050330B BLANK	Water	31 Mar 2005 04:42
219	38	0330H38.D	1	050330B BLANK	Water	31 Mar 2005 05:15
220	39	0330H39.D	1	AX16071 W04	Water	31 Mar 2005 05:48
221	40	0330H40.D	1	AX16072 W04	Water	31 Mar 2005 06:20
222	41	0330H41.D	1	AX16073 W04	Water	31 Mar 2005 06:53
223	42	0330H42.D	1	AX16074 W04	Water	31 Mar 2005 07:26
224	43	0330H43.D	1	AX16270 W02	Water	31 Mar 2005 07:59
225	44	0330H44.D	1	AX16271 W01	Water	31 Mar 2005 08:32
226	45	0330H45.D	1	AX16324 W07	Water	31 Mar 2005 09:04
227	46	0330H46.D	1	AX16325 W09	Water	31 Mar 2005 09:37
228	47	0330H47.D	1	AX16071 W7-9 MS-1 GAS@300ug/L	Water	31 Mar 2005 10:09
229	48	0330H48.D	1	AX16071 W7-9 MSD-1 GAS@300ug/L	Water	31 Mar 2005 10:42
230	49	0330H49.D	1	3/30/05 CCV GAS@600ug/L	Water	31 Mar 2005 11:15
231	50	0330H50.D	1	3/30/05 CCV GAS@600ug/L	Water	31 Mar 2005 11:48
232	51	0330H51.D	25	AX16380 W02 DF25	Water	31 Mar 2005 12:21
233	52	0330H52.D	25	AX16381 W04 DF25	Water	31 Mar 2005 12:54
234	53	0330H53.D	25	AX16382 W01 DF25	Water	31 Mar 2005 13:26
235	54	0330H54.D	25	AX16383 W06 DF25	Water	31 Mar 2005 13:59
236	55	0330H55.D	25	AX16457 W02 DF25	Water	31 Mar 2005 14:32
237	56	0330H56.D	25	AX16458 W02 DF25	Water	31 Mar 2005 15:04
238	57	0330H57.D	10	AX16383 W06 DF10	Water	31 Mar 2005 15:37
239	58	0330H58.D	1	AX16389 W09	Water	31 Mar 2005 16:09
240	59	0330H59.D	25	AX16381 W04 MS-2 GAS@7500ug/L	Water	31 Mar 2005 16:42
241	60	0330H60.D	25	AX16381 W04 MSD-2 GAS@7500ug/L	Water	31 Mar 2005 17:15
242	61	0330H61.D	1	3/31/05 GAS@300ug/L	Water	31 Mar 2005 17:47
243	62	0330H62.D	1	3/31/05 GAS@300ug/L	Water	31 Mar 2005 18:20
244	1	0401H01.D	1	4/1/05 CCV GAS@600ug/L	Water	01 Apr 2005 10:05
245	2	0401H02.D	1	4/1/05 CCV GAS@600ug/L	Water	01 Apr 2005 10:37
246	3	0401H03.D	1	050401A LCS-1 GAS@300ug/L	Water	01 Apr 2005 11:21
247	4	0401H04.D	1	050401A LGSD-1 GAS@300ug/L	Water	01 Apr 2005 11:54
248	5	0401H05.D	1	050401A BLANK	Water	01 Apr 2005 12:26
249	6	0401H06.D	1	050401A BLANK	Water	01 Apr 2005 12:59
250	7	0401H07.D	25	AX16464 W03 DF25	Water	01 Apr 2005 13:32
251	8	0401H08.D	25	AX16463 W02 DF25	Water	01 Apr 2005 14:05



RSK-175

APPL, INC.

Data Validation Package
for

RSK-175

TABLE OF CONTENTS

LABORATORY NAME: APPL, Inc.

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**RSK-175
Case Narrative**

APPL, INC.



4203 West Swift ∇ Fresno, California 93722 ∇ Phone 559-275-2175 ∇ Fax 559-275-4422

April 27, 2005

USACE – Sacramento District
1325 J Street
Sacramento, California 95814

Attn: Pamela Amie

Subject: Report of Data: Case 46881

Results in this report apply to the samples analyzed in accordance with the chain of custody document. This analytical report must be reproduced in its entirety.

Dear Ms. Amie,

Eight water samples and a trip blank for project "HAAF POL Hill" were received on March 19, 2005. One amber liter was received broken for each of the following samples: PL-MW-301, PL-MW-103, and PL-MW-115. The PL-MW-115 containers were labeled with a March 18 sampling date and the COC indicated a March 17 collection date. Pamela Amie was notified of the breakage and discrepancies; all sample IDs were changed from POL to PL. Written results are being provided on this April 27, 2005, for the requested analysis. All holding times were met.

Methane was analyzed according to the modified RSK 175 protocol.

No unusual problems or complications were encountered with this sample set.

If you have any questions or require further information, please contact us at your convenience. Thank you for choosing APPL, Inc.

Sincerely,

Leonard Fong, Ph.D, Laboratory Director
APPL, Inc.

LF/rp
Enclosure
cc: File

RSK-175
Chain of Custody and ARF

APPL, INC.

APPL - Analysis Request Form

46881

Client: USACE-Sacramento District Address: 1325 J Street Sacramento, CA 95814 Attn: Pamela Amie Phone: 916-557-7811 Fax: 916-557-7463 Job: HAAF POL Hill PO #: NA Chain of Custody (Y/N): Y # 005678 RAD Screen (Y/N): Y pH (Y/N): Y Turn Around Type: STD	Received by: CM Date Received: 3/19/05 Time: 08:00 Delivered by: FED EX Shuttle Custody Seals (Y/N): Y Chest Temp(s): 5.5°3°3.5°C HB250392 Color: VOA/PURPLE Samples Chilled until Placed in Refrig/Freezer: Y Project Manager: Robert Wise a.w. QC Report Type: USACE/CA Due Date: 3/31/05
---	---

Comments:

REPORT J-VALUES DOWN TO THE MDL. SEE INCOMING SAMPLE NOTICE FOR SPECIFICATIONS
USACE QAPP. RL is 3x MDL. dry wt soils. LCSD or MS/MSD required for RPD.
Further QA info available in the SHELL or project specific QAPP.
Broken ambers: MW-301, MW-103 & MW-115. MW-115 container labels have 3-18
sampling date; COC has 3-17. Ferrous iron rec'd past HT. Client notified. *RMW*
Changed sample IDs & sampling date to match container labels per Pamela. a.b.

Diesel Motor oil

Sample Distribution:

GC: 8-\$TPHD Extractions: 8- SEP011 VOA: 9-\$GAS, 8-\$RSK Wetlab: 7-\$300W(SO4), 7-\$310(), 7-\$35FE()	<u>Charges:</u>	<u>Invoice To:</u>
---	-----------------	--------------------

Client ID	APPL ID	Sampied	Analyses Requested
1. MW-POLA-121	AX16066W 	3/17/05 12:10	\$300W(SO4), \$310(), \$35FE(), \$GAS, \$RSK, \$TPHD
2. PL-MW-101	AX16067W 	3/17/05 13:12	\$300W(SO4), \$310(), \$35FE(), \$GAS, \$RSK, \$TPHD
3. PL-MW-114	AX16068W 	3/17/05 15:07	\$300W(SO4), \$310(), \$35FE(), \$GAS, \$RSK, \$TPHD
4. PL-MW-301	AX16069W 	3/17/05 14:05	\$GAS, \$RSK, \$TPHD
5. PL-MW-104	AX16070W 	3/17/05 16:25	\$300W(SO4), \$310(), \$35FE(), \$GAS, \$RSK, \$TPHD
6. PL-MW-103	MS/MSD AX16071W 	3/17/05 17:10	\$300W(SO4), \$310(), \$35FE(), \$GAS, \$RSK, \$TPHD

APPL - Analysis Request Form

46881

7. PL-MW-116	AX16072W 	3/17/05	18:09	\$300W(SO4), \$310(), \$35FE(), \$GAS, \$RSK, \$TPHD
8. PL-MW-115	AX16073W 	3/18/05	08:26	\$300W(SO4), \$310(), \$35FE(), \$GAS, \$RSK, \$TPHD
9. TRIP BLANK 1	AX16074W 	3/18/05	00:00	\$GAS

COOLER RECEIPT FORM

Project: HAAF POL Hill Date Received: 3-19-05

Coolers: Number of Coolers: 3
 YES NO Were coolers and samples screened for radioactivity?
 YES NO Were custody seals on outside of cooler? How many? 6 Date on seal? 3-18-05
 Name on seal? See Back page
 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) 0300-025-0927 2) Master's 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: n/a
 Cooler temp(s): 1) 5.5°C 2) 3°C 3) 3.5°C 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: Trip Blank / Ax 16074 w/3

Preservation & 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: Samples rec'd past Feirrous Iron HT; 3 samples rec'd broken MW-301
MW-103 & MW-115; MW-115 sampling date different on CoC & labels;
All labels PL-MW - CoC, POL-MW

Signature of personnel receiving samples: Renee Patterson Second reviewer: Cheryl Furell

Signature of project manager notified: Robert Date and Time of notification: 3-21-05

Name of client notified: _____ Date and Time of notification: _____

Information given to client: _____ by whom (Initials): _____

**RSK-175
QC Summary**

APPL, INC.

Method Blank
RSK 175

Blank Name/QCG: 050324W-16066 - 85012
Batch ID: \$RSK-050324A

APPL Inc.
4203 West Swift Avenue
Fresno, CA 93722

Sample Type	Analyte	Result	PQL	MDL	Units	Extraction Date	Analysis Date
BLANK	Methane	Not detected	1.0	0.21	ug/L	3/24/05	3/24/05

Run #: 0324F002
Instrument: Frodo
Sequence: 050211
Initials: LF
GC SC-Blank-REG MDLs
Printed: 3/28/05 4:12:29 PM

Laboratory Control Spike Recovery
RSK 175

APPL ID: 050324W-16066 LCS - 85012
Batch ID: \$RSK-050324A

APPL Inc.
4203 West Swift Avenue
Fresno, CA 93722

Compound Name	Spike Level ug/L	SPK Result ug/L	SPK % Recovery	Recovery Limits
Methane	26.7	24.4	91.4	70-130

Comments:

Primary	SPK
Extraction Date :	3/24/05
Analysis Date :	3/24/05
Instrument :	Frodo
Run :	0324F003
Initials :	LF

Printed: 3/26/05 4:12:27 PM

APPL Standard LCS

Matrix Spike Recoveries
RSK 175

APPL ID: 050324W-16066 MS - 85012
Batch ID: \$RSK-050324A
Sample ID: AX16066

APPL Inc.
4203 West Swift Avenue
Fresno, CA 93722

Compound Name	Spike Lvl	Matrix Result	SPK Result	DUP Result	SPK %	DUP %	Recovery	RPD	RPD
	ug/L	ug/L	ug/L	ug/L	Recovery	Recovery	Limits	%	Limits
Methane	26.7	ND	27.9	24.3	104	91.0	70-130	13.8	30

Comments:

Primary	SPK	DUP
Extraction Date :	3/24/05	3/24/05
Analysis Date :	3/24/05	3/24/05
Instrument :	Frodo	Frodo
Run :	0324F013	0324F014
Initials :	LF	

Printed: 3/28/05 4:12:23 PM
APPL MSD SCI

RSK 175

Form 4
Blank Summary

Lab Name: APPL Inc.
Case No: 46881
Matrix: Water
Blank ID: 050324A BLK-1

SDG No: 46881
Date Analyzed: 3/24/05
Instrument: Frodo
Time Analyzed: 15:01

Sample ID: 4-24-05-12

Client Sample No.	APPL ID.	File ID.	Date Analyzed	
1	Blank	050324A BLK-1	0324F002.D	3/24/05 15:01
2	Lab Control Spike	050324A LCS-1	0324F003.D	3/24/05 15:07
3	MW-POLA-121	AX16066W01	0324F004.D	3/24/05 15:33
4	PØL-MW-101	AX16067W01	0324F005.D	3/24/05 15:38
5	PØL-MW-114	AX16068W02	0324F006.D	3/24/05 15:44
6	PØL-MW-301	AX16069W01	0324F007.D	3/24/05 15:49
7	PØL-MW-104	AX16070W01	0324F008.D	3/24/05 15:55
8	PØL-MW-103	AX16071W01	0324F009.D	3/24/05 16:02
9	PØL-MW-116	AX16072W01	0324F010.D	3/24/05 16:07
10	PØL-MW-115	AX16073W01	0324F011.D	3/24/05 16:15
11	PØL-MW-103 MS-1	AX16071W02 MS-1	0324F013.D	3/24/05 16:28
12	PØL-MW-103 MSD-1	AX16071W02 MS-1	0324F014.D	3/24/05 16:35
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**RSK-175
Sample Data**

APPL, INC.

RSK 175

USACE-Sacramento District
1325 J Street
Sacramento, CA 95814

Attn: Pamela Amie
Project: HAAF POL Hill
Sample ID: MW-POLA-121
Sample Collection Date: 3/17/05

APPL Inc.
4203 West Swift Avenue
Fresno, CA 93722

ARF: 46881
APPL ID: AX16066
QCG: \$RSK-050324A-85012

Method	Analyte	Result	PQL	MDL	Units	Extraction Date	Analysis Date
RSK 175	Methane	Not detected	1.0	0.21	ug/L	3/24/05	3/24/05

Run #: 0324F004
Instrument: Frodo
Sequence: 050211
Dilution Factor: 1
Initials: LF

Printed: 3/28/05 4:12:31 PM
APPL-F1-SC-MCRes/MCPQL-REG MDLs

RSK 175

USACE-Sacramento District
1325 J Street
Sacramento, CA 95814

Attn: Pamela Amie
Project: HAAF POL Hill
Sample ID: **PL-MW-101**
Sample Collection Date: 3/17/05

APPL Inc.
4203 West Swift Avenue
Fresno, CA 93722

ARF: 46881
APPL ID: **AX16067**
QCG: \$RSK-050324A-85012

Method	Analyte	Result	PQL	MDL	Units	Extraction Date	Analysis Date
RSK 175	Methane	1200	1.0	0.21	ug/L	3/24/05	3/24/05

Run #: 0324F005
Instrument: Frodo
Sequence: 050211
Dilution Factor: 1
Initials: LF

Printed: 3/28/05 4:12:32 PM
APPL-F1-SC-MCRes/MCPQL-REG MDLs

RSK 175

USACE-Sacramento District
1325 J Street
Sacramento, CA 95814

Attn: Pamela Amie
Project: HAAF POL Hill
Sample ID: PL-MW-114
Sample Collection Date: 3/17/05

APPL Inc.
4203 West Swift Avenue
Fresno, CA 93722

ARF: 46881
APPL ID: AX16068
QCG: \$RSK-050324A-85012

Method	Analyte	Result	PQL	MDL	Units	Extraction Date	Analysis Date
RSK 175	Methane	0.97 J	1.0	0.21	ug/L	3/24/05	3/24/05

J = Estimated value, below quantitation limit.

Run #: 0324F006
Instrument: Frodo
Sequence: 050211
Dilution Factor: 1
Initials: LF

Printed: 3/28/05 4:12:32 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: Pamela Amie
Project: HAAF POL Hill
Sample ID: **PL-MW-301**
Sample Collection Date: 3/17/05

ARF: 46881
APPL ID: **AX16069**
QCG: SRSK-050324A-85012

Method	Analyte	Result	PQL	MDL	Units	Extraction Date	Analysis Date
RSK 175	Methane	Not detected	1.0	0.21	ug/L	3/24/05	3/24/05

Run #: 0324F007
Instrument: Frodo
Sequence: 050211
Dilution Factor: 1
Initials: LF

Printed: 3/28/05 4:12:32 PM
APPL-F1-SC-MCRes/MCPOL-REG MDLs

RSK 175

USACE-Sacramento District
1325 J Street
Sacramento, CA 95814

Attn: Pamela Amie
Project: HAAF POL Hill
Sample ID: **PL-MW-104**
Sample Collection Date: 3/17/05

APPL Inc.
4203 West Swift Avenue
Fresno, CA 93722

ARF: 46881
APPL ID: **AX16070**
QCG: SRSK-050324A-85012

Method	Analyte	Result	PQL	MDL	Units	Extraction Date	Analysis Date
RSK 175	Methane	Not detected	1.0	0.21	ug/L	3/24/05	3/24/05

Run #: 0324F008
Instrument: Frodo
Sequence: 050211
Dilution Factor: 1
Initials: LF

Printed: 3/28/05 4:12:32 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: Pamela Amie
Project: HAAF POL Hill
Sample ID: PL-MW-103
Sample Collection Date: 3/17/05

ARF: 46881
APPL ID: AX16071
QCG: \$RSK-050324A-85012

Method	Analyte	Result	PQL	MDL	Units	Extraction Date	Analysis Date
RSK 175	Methane	0.78 J	1.0	0.21	ug/L	3/24/05	3/24/05

J = Estimated value, below quantitation limit.

Run #: 0324F009
Instrument: Frodo
Sequence: 050211
Dilution Factor: 1
Initials: LF

Printed: 3/28/05 4:12:32 PM
APPL-F1-SC-MCRes/MCPQL-REG MDLs

RSK 175

USACE-Sacramento District
1325 J Street
Sacramento, CA 95814

Attn: Pamela Amie
Project: HAAF POL Hill
Sample ID: PL-MW-116
Sample Collection Date: 3/17/05

APPL Inc.
4203 West Swift Avenue
Fresno, CA 93722

ARF: 46881
APPL ID: AX16072
QCG: \$RSK-050324A-85012

Method	Analyte	Result	PQL	MDL	Units	Extraction Date	Analysis Date
RSK 175	Methane	Not detected	1.0	0.21	ug/L	3/24/05	3/24/05

Run #: 0324F010
Instrument: Frodo
Sequence: 050211
Dilution Factor: 1
Initials: LF

Printed: 3/28/05 4:12:32 PM
APPL-F1-SC-MCRes/MCPOL-REG MDLs

RSK 175

USACE-Sacramento District
1325 J Street
Sacramento, CA 95814

APPL Inc.
4203 West Swift Avenue
Fresno, CA 93722

Attn: Pamela Amie
Project: HAAF POL Hill
Sample ID: PL-MW-115
Sample Collection Date: 3/18/05

ARF: 46881
APPL ID: AX16073
QCG: \$RSK-050324A-85012

Method	Analyte	Result	PQL	MDL	Units	Extraction Date	Analysis Date
RSK 175	Methane	Not detected	1.0	0.21	ug/L	3/24/05	3/24/05

Run #: 0324F011
Instrument: Frodo
Sequence: 050211
Dilution Factor: 1
Initials: LF

Printed: 3/28/05 4:12:32 PM
APPL-F1-SC-MCRes/MCPQL-REG MDLs

**RSK-175
Calibration Data**

APPL, INC.

RSK 175

Form 6 GC Initial Calibration

Lab Name: APPL, Inc. SDG No: 46881
Case No: _____ Initial Cal. Date: 2/11/05
Matrix: Water Instrument: Frodo
0211F002.D 0211F003.D 0211F004.D 0211F005.D 0211F006.D

Initials: _____

Compound	1	2	3	4	5	Avg	%RSD
1 ATM Methane	2491	1934	1728	1937	1808	1900	15
2 ATM Ethane	1739	1952	1854	2119	1992	1931	7.4
3 ATM Ethane	2144	1887	1804	2047	1915	1859	6.9
4							
5							
6							
7							
8							
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35							

Calexcel

0.84

APPL 3/29/05 5:38 PM

RSK 175

Form 7
Second Source

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

SDG No: 46881
Date Analyzed: 2/11/05
Instrument: Frodo
Initial Cal. Date: 2/11/05
Data File: 0211F007.D

	Compound	MEAN	CCRF	%D	%Drift
1	ATM Methane	1980	1932	2.4	ATM
2	ATM Ethene	1931	2225	15	ATM
3	ATM Ethane	1959	2068	5.5	ATM
4					
5					
6					
7					
8					
9					
10					
11					
12					
13					
14					
15					
16					
17					
18					
19					
20					
21					
22					
23					
24					
25					
26					
27					
28					
29					
30					
31					
32					
33					
34					
35					
36					
37					
38					
39					
40	Average			7.6	

RSK 175

Form 7
Continuing Calibration

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

SDG No: 46881
Date Analyzed: 3/24/05
Instrument: Frodo
Initial Cal. Date: 2/11/05
Data File: 0324F001.D

	Compound	MEAN	CCRF	%D	%Drift
1	ATM Methane	1980	1869	5.6	ATM
2	ATM Ethene	1931	1985	2.8	ATM
3	ATM Ethane	1959	1889	3.6	ATM
4					
5					
6					
7					
8					
9					
10					
11					
12					
13					
14					
15					
16					
17					
18					
19					
20					
21					
22					
23					
24					
25					
26					
27					
28					
29					
30					
31					
32					
33					
34					
35					
36					
37					
38					
39					
40					
Average				4.0	

RSK 175

Form 7

Continuing Calibration

Lab Name: APPL, Inc.

SDG No: 46881

Case No: _____

Date Analyzed: 3/24/05

Matrix: Water

Instrument: Frodo

Initial Cal. Date: 2/11/05

Data File: 0324F012.D

	Compound	MEAN	CCRF	%D	%Drift
1	ATM Methane	1980	1793	9.4	ATM
2	ATM Ethene	1931	1959	1.5	ATM
3	ATM Ethane	1959	1880	4.0	ATM
4					
5					
6					
7					
8					
9					
10					
11					
12					
13					
14					
15					
16					
17					
18					
19					
20					
21					
22					
23					
24					
25					
26					
27					
28					
29					
30					
31					
32					
33					
34					
35					
36					
37					
38					
39					
40					
Average				5.0	

RSK 175

Form 7
Continuing Calibration

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

SDG No: 46881
Date Analyzed: 3/24/05
Instrument: Frodo
Initial Cal. Date: 2/11/05
Data File: 0324F021.D

		Compound	MEAN	CCRF	%D	%Drift
1	ATM	Methane	1980	1708	14	ATM
2	ATM	Ethene	1931	1916	0.79	ATM
3	ATM	Ethane	1959	1833	6.4	ATM
4						
5						
6						
7						
8						
9						
10						
11						
12						
13						
14						
15						
16						
17						
18						
19						
20						
21						
22						
23						
24						
25						
26						
27						
28						
29						
30						
31						
32						
33						
34						
35						
36						
37						
38						
39						
40						
Average					7.1	

RSK-175
Raw Data

APPL, INC.

Method Blank
RSK 175

Blank Name/QCG: 050324W-16066 - 85012
Batch ID: \$RSK-050324A

APPL Inc.
4203 West Swift Avenue
Fresno, CA 93722

Sample Type	Analyte	Result	PQL	MDL	Units	Extraction Date	Analysis Date
BLANK	Methane	Not detected	1.0	0.21	ug/L	3/24/05	3/24/05

Run #: 0324F002
Instrument: Frodo
Sequence: 050211
Initials: LF
GC SC-Blank-REG MDLs
Printed: 3/28/05 4:12:28 PM

Laboratory Control Spike Recovery
RSK 175

APPL ID: 050324W-16066 LCS - 85012
Batch ID: SRSK-050324A

APPL Inc.
4203 West Swift Avenue
Fresno, CA 93722

Compound Name	Spike Level ug/L	SPK Result ug/L	SPK % Recovery	Recovery Limits
Methane	26.7	24.4	91.4	70-130

Comments:

Primary	SPK
Extraction Date :	3/24/05
Analysis Date :	3/24/05
Instrument :	Frodo
Run :	0324F003
Initials :	LF

Printed: 3/28/05 4:12:26 PM
APPL Standard LCS

Matrix Spike Recoveries
RSK 175

APPL ID: 050324W-16066 MS - 85012
Batch ID: SRSK-050324A
Sample ID: AX16066

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
Methane	26.7	ND	27.9	24.3	104	91.0	70-130	13.8	30

Comments:

Primary	SPK	DUP
Extraction Date :	3/24/05	3/24/05
Analysis Date :	3/24/05	3/24/05
Instrument :	Frodo	Frodo
Run :	0324F013	0324F014
Initials :	LF	

Printed: 3/28/05 4:12:22 PM
APPL MSD SCII

Injection Log

Line	Vial	FileName	Multiplier	SampleName	Misc Info	Injected
1	1	0211F001.D	1	INSTRUMENT-BLK	Water	11 Feb 2005 14:20
2	2	0211F002.D	1	RSK L-1 02-11-05 LF	Water	11 Feb 2005 15:37
3	3	0211F003.D	1	RSK L-2 02-11-05 LF	Water	11 Feb 2005 15:45
4	4	0211F004.D	1	RSK L-3 02-11-05 LF	Water	11 Feb 2005 16:19
5	5	0211F005.D	1	RSK L-4 02-11-05 LF	Water	11 Feb 2005 16:28
6	6	0211F006.D	1	RSK L-5 02-11-05 LF	Water	11 Feb 2005 16:39
7	7	0211F007.D	1	RSK 2nd SRC 02-11-05 LF	Water	11 Feb 2005 16:49
8	8	0211F008.D	1	050211A BLK-1	Water	11 Feb 2005 17:00
9	9	0211F009.D	1	050211A LCS-1	Water	11 Feb 2005 17:08
10	10	0211F010.D	1	AX12522W08	Water	11 Feb 2005 17:56
11	11	0211F011.D	1	AX12523W07	Water	11 Feb 2005 18:06
12	12	0211F012.D	1	AX12730W04	Water	11 Feb 2005 18:16
13	13	0211F013.D	1	AX12731W05	Water	11 Feb 2005 18:25
14	14	0211F014.D	1	AX12525W07	Water	11 Feb 2005 18:34
15	15	0211F015.D	1	AX12526W01	Water	11 Feb 2005 18:43
16	16	0211F016.D	1	AX12527W01	Water	11 Feb 2005 18:52
17	17	0211F017.D	1	AX12528W01	Water	11 Feb 2005 19:01
18	18	0211F018.D	1	RSK L-3 02-11-05 LF	Water	11 Feb 2005 19:38
19	19	0211F019.D	1	AX12529W05	Water	11 Feb 2005 19:47
20	20	0211F020.D	1	AX12530W02	Water	11 Feb 2005 19:56
21	21	0211F021.D	1	AX12531W01	Water	11 Feb 2005 20:05
22	22	0211F022.D	1	AX12626W17	Water	11 Feb 2005 20:13
23	23	0211F023.D	1	AX12627W07	Water	11 Feb 2005 20:22
24	24	0211F024.D	1	AX12628W07	Water	11 Feb 2005 20:30
25	25	0211F025.D	1	AX12629W07	Water	11 Feb 2005 20:39
26	26	0211F026.D	1	AX12630W07	Water	11 Feb 2005 20:48
27	27	0211F027.D	1	AX12626W16 MS-1	Water	11 Feb 2005 20:56
28	28	0211F028.D	1	AX12626W16 MSD-1	Water	11 Feb 2005 21:06
29	29	0211F029.D	1	RSK L-3 02-11-05 LF	Water	11 Feb 2005 21:15
30	30	0211F030.D	1	050211B BLK-1	Water	11 Feb 2005 21:23
31	31	0211F031.D	1	050211B LCS-1	Water	11 Feb 2005 21:32
32	32	0211F032.D	1	AX12631W07	Water	11 Feb 2005 21:41
33	33	0211F033.D	1	AX12632W06	Water	11 Feb 2005 21:49
34	34	0211F034.D	1	AX12633W07	Water	11 Feb 2005 21:57
35	35	0211F035.D	1	AX12634W07	Water	11 Feb 2005 22:06
36	36	0211F036.D	1	AX12635W16	Water	11 Feb 2005 22:14
37	37	0211F037.D	1	AX12636W07	Water	11 Feb 2005 22:23
38	38	0211F038.D	1	AX12637W07	Water	11 Feb 2005 22:31
39	39	0211F039.D	1	AX12638W07	Water	11 Feb 2005 22:42
40	40	0211F040.D	1	RSK L-3 02-11-05 LF	Water	11 Feb 2005 22:50
41	41	0211F041.D	1	AX12635W17 MS-1	Water	11 Feb 2005 23:00
42	42	0211F042.D	1	AX12635W17 MSD-1	Water	12 Feb 2005 00:28
43	43	0211F043.D	1	RSK L-3 02-11-05 LF	Water	16 Feb 2005 09:30
44	1	0216F001.D	1	RSK L-3 02-16-05 LF	Water	16 Feb 2005 09:44
45	2	0216F002.D	1	050216A BLK-1	Water	16 Feb 2005 09:53
46	3	0216F003.D	1	050216A LCS-1	Water	16 Feb 2005 10:12
47	4	0216F004.D	1	AX12639W07	Water	16 Feb 2005 10:22
48	5	0216F005.D	1	AX12640W07	Water	16 Feb 2005 10:31
49	6	0216F006.D	1	AX12809W06	Water	16 Feb 2005 10:43
50	7	0216F007.D	1	AX12810W06	Water	16 Feb 2005 10:51
1	8	0216F008.D	1	AX12811W06	Water	16 Feb 2005 11:02
2	9	0216F009.D	1	AX12812W06	Water	16 Feb 2005 11:15
3	10	0216F010.D	1	AX12813W06	Water	16 Feb 2005 11:33
4	11	0216F011.D	1	AX12814W06	Water	16 Feb 2005 11:43
5	12	0216F012.D	1	RSK L-3 02-16-05 LF	Water	16 Feb 2005 11:43

Directory: v:\froid\data\050211

Injection Log

Line	Vial	FileName	Multiplier	SampleName	Misc Info	Injected
276	20	0320F020.D	10	AX15255W07 DF10	Water	20 Mar 2005 20:06
277	21	0320F021.D	1	MI	Water	20 Mar 2005 20:11
278	22	0320F022.D	1	MI	Water	20 Mar 2005 20:11
279	23	0320F023.D	1	RSK L-3 03-20-05 LF	Water	20 Mar 2005 20:24
280	24	0320F024.D	1	050320B BLK	Water	20 Mar 2005 20:29
281	25	0320F025.D	1	050320B LCS-1	Water	20 Mar 2005 20:34
282	26	0320F026.D	1	AX15364W06	Water	20 Mar 2005 20:38
283	27	0320F027.D	1	AX15365W06	Water	20 Mar 2005 20:43
284	28	0320F028.D	1	AX15366W06	Water	20 Mar 2005 20:48
285	29	0320F029.D	1	AX15367W06	Water	20 Mar 2005 20:53
286	30	0320F030.D	1	AX15368W06	Water	20 Mar 2005 20:58
287	31	0320F031.D	1	AX15520W06	Water	20 Mar 2005 21:02
288	32	0320F032.D	25	AX15364W07 DF25	Water	20 Mar 2005 21:08
289	33	0320F033.D	1	AX15130W17 MS-1	Water	20 Mar 2005 21:12
290	34	0320F034.D	1	AX15130W17 MSD-1	Water	20 Mar 2005 21:20
291	35	0320F035.D	1	RSK L-3 03-20-05 LF	Water	20 Mar 2005 21:25
292	1	0324F001.D	1	RSK L-3 03-24-05 LF	Water	20 Mar 2005 21:30
293	2	0324F002.D	1	050324A BLK-1	Water	24 Mar 2005 14:50
294	3	0324F003.D	1	050324A LCS-1	Water	24 Mar 2005 15:01
295	4	0324F004.D	1	AX16066W01	Water	24 Mar 2005 15:07
296	5	0324F005.D	1	AX16067W01	Water	24 Mar 2005 15:33
297	6	0324F006.D	1	AX16068W02	Water	24 Mar 2005 15:38
298	7	0324F007.D	1	AX16069W01	Water	24 Mar 2005 15:44
299	8	0324F008.D	1	AX16070W01	Water	24 Mar 2005 15:49
300	9	0324F009.D	1	AX16071W01	Water	24 Mar 2005 15:55
301	10	0324F010.D	1	AX16072W01	Water	24 Mar 2005 16:02
302	11	0324F011.D	1	AX16073W01	Water	24 Mar 2005 16:07
303	12	0324F012.D	1	RSK L-3 03-24-05 LF	Water	24 Mar 2005 16:15
304	13	0324F013.D	1	AX16071W02 MS-1	Water	24 Mar 2005 16:20
305	14	0324F014.D	1	AX16071W02 MS-1	Water	24 Mar 2005 16:28
306	15	0324F015.D	1	AX15684W06	Water	24 Mar 2005 16:35
307	16	0324F016.D	1	AX15685W06	Water	24 Mar 2005 16:40
308	17	0324F017.D	1	AX16104W06	Water	24 Mar 2005 16:44
309	18	0324F018.D	1	AX15687W06	Water	24 Mar 2005 16:52
310	19	0324F019.D	1	AX15688W16	Water	24 Mar 2005 16:57
311	20	0324F020.D	1	AX16271W10	Water	24 Mar 2005 17:06
312	21	0324F021.D	1	RSK L-3 03-24-05 LF	Water	24 Mar 2005 17:14
313	1	0328F001.D	1	RSK L-3 03-28-05 LF	Water	24 Mar 2005 17:34
314	2	0328F002.D	1	050328A BLK-1	Water	28 Mar 2005 09:23
315	3	0328F003.D	1	050328A LCS-1	Water	28 Mar 2005 09:32
316	4	0328F004.D	10	AX15685W07 DF10	Water	28 Mar 2005 09:42
317	5	0328F005.D	10	AX16104W07 DF10	Water	28 Mar 2005 10:40
318	6	0328F006.D	10	AX15688W18 DF10	Water	28 Mar 2005 10:45
319	7	0328F007.D	20	AX15688W18 MS-1 DF20	Water	28 Mar 2005 10:56
320	8	0328F008.D	20	AX15688W18 MSD-1 DF20	Water	28 Mar 2005 11:01
321	9	0328F009.D	1	AX15733W06	Water	28 Mar 2005 11:09
322	10	0328F010.D	1	AX15734W06	Water	28 Mar 2005 11:51
323	11	0328F011.D	1	AX15735W06	Water	28 Mar 2005 11:56
324	12	0328F012.D	1	RSK L-3 03-28-05 LF	Water	28 Mar 2005 12:03
325	13	0328F013.D	1	AX15736W06	Water	28 Mar 2005 12:08
326	14	0328F014.D	1	AX15737W06	Water	28 Mar 2005 12:13
327	15	0328F015.D	1	AX15792W07	Water	28 Mar 2005 12:23
328	16	0328F016.D	1	AX15793W07	Water	28 Mar 2005 12:34
329	17	0328F017.D	1	AX15794W07	Water	28 Mar 2005 12:39
330	18	0328F018.D	1	AX15795W07	Water	28 Mar 2005 12:47



**EPA Method 8015B
Total Petroleum Hydrocarbons (extractable)
Diesel**

APPL, INC.

Data Validation Package
for
EPA Method 8015B
Total Petroleum Hydrocarbons
Diesel

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APPL, INC.

**EPA Method 8015B
Total Petroleum Hydrocarbons - Diesel
Case Narrative**

APPL, INC.



4203 West Swift ∇ Fresno, California 93722 ∇ Phone 559-275-2175 ∇ Fax 559-275-4422

April 26, 2005

USACE – Sacramento District
1325 J Street
Sacramento, California 95814

Attn: Pamela Amie

Subject: Report of Data: Case 46881

Results in this report apply to the samples analyzed in accordance with the chain of custody document. This analytical report must be reproduced in its entirety.

Dear Ms. Amie,

Eight water samples and a trip blank for project "HAAF POL Hill" were received on March 19, 2005. One amber liter was received broken for each of the following samples: PL-MW-301, PL-MW-103, and PL-MW-115. The PL-MW-115 containers were labeled with a March 18 sampling date and the COC indicated a March 17 collection date. Pamela Amie was notified of the breakage and discrepancies; all sample IDs were changed from POL to PL. Written results are being provided on this April 26, 2005, for the requested analysis. All holding times were met.

For the EPA 8015B TPH-Diesel and Motor Oil analysis, the samples were extracted according to EPA method 3510C.

No unusual problems or complications were encountered with this sample set.

If you have any questions or require further information, please contact us at your convenience. Thank you for choosing APPL, Inc.

Sincerely,

Leonard Fong, Ph.D, Laboratory Director
APPL, Inc.

LF/tp
Enclosure
cc: File

**EPA Method 8015B
Total Petroleum Hydrocarbons - Diesel**

Chain of Custody and ARF

APPL, INC.

APPL - Analysis Request Form

46881

Client: USACE-Sacramento District	Received by: CM	
Address: 1325 J Street	Date Received: 3/19/05	Time: 08:00
Sacramento, CA 95814	Delivered by: FED EX	
Attn: Pamela Amie	Shuttle Custody Seals (Y/N): Y	
Phone: 916-557-7811 Fax: 916-557-7465	Chest Temp(s): 5.5°3°3.5°C HB250392	
Job: HAAF POL Hill	Color: VOA/PURPLE	
PO #: NA	Samples Chilled until Placed in Refrig/Freezer: Y	
Chain of Custody (Y/N): Y # 005678	Project Manager: Robert Wise P.W.	
RAD Screen (Y/N): Y pH (Y/N): Y	QC Report Type: USACE/CA	
Turn Around Type: STD	Due Date: 3/31/05	

Comments:

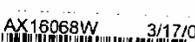
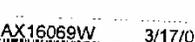
REPORT J-VALUES DOWN TO THE MDL. SEE INCOMING SAMPLE NOTICE FOR SPECIFICATIONS
USACE QAPP. RL is 3x MDL. dry wt soils. LCSD or MS/MSD required for RPD.
Further QA info available in the SHELL or project specific QAPP.
Broken ambers: MW-301, MW-103 & MW-115. MW-115 container labels have 3-18
sampling date; COC has 3-17. Ferrous iron rec'd past HT. Client notified. P.W.
Changed sample IDs & sampling date to match container labels per Pamela. a.b.

Diesel Motor oil

Sample Distribution:

GC: 8-\$TPHD
Extractions: 8-SEP011
VOA: 9-\$GAS, 8-\$RSK
Wetlab: 7-\$300W(SO4), 7-\$310(), 7-\$35FE()

Charges: Invoice To:

Client ID	APPL ID	Sampled	Analyses Requested
1. MW-POLA-121	AX16066W 	3/17/05 12:10	\$300W(SO4), \$310(), \$35FE(), \$GAS, \$RSK, \$TPHD
2. PL-MW-101	AX16067W 	3/17/05 13:12	\$300W(SO4), \$310(), \$35FE(), \$GAS, \$RSK, \$TPHD
3. PL-MW-114	AX16068W 	3/17/05 15:07	\$300W(SO4), \$310(), \$35FE(), \$GAS, \$RSK, \$TPHD
PL-MW-301	AX16069W 	3/17/05 14:05	\$GAS, \$RSK, \$TPHD
PL-MW-104	AX16070W 	3/17/05 16:25	\$300W(SO4), \$310(), \$35FE(), \$GAS, \$RSK, \$TPHD
PL-MW-103	MS/MSD AX16071W 	3/17/05 17:10	\$300W(SO4), \$310(), \$35FE(), \$GAS, \$RSK, \$TPHD

APPL - Analysis Request Form

46881

7. PL-MW-116	AX16072W 	3/17/05	18:09	\$300W(SO4), \$310(), \$35FE(), \$GAS, \$RSK, \$TPHD
8. PL-MW-115	AX16073W 	3/18/05	08:26	\$300W(SO4), \$310(), \$35FE(), \$GAS, \$RSK, \$TPHD
9. TRIP BLANK 1	AX16074W 	3/18/05	00:00	\$GAS

005678

CHAIN OF CUSTODY RECORD

Page 1 of 1

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

Project Name: HAZ PDL Hill
 Project Location: NOVATO, CA
 Project Coordinator: PAULETTE FINE
 Phone: 916-557-7811 FAX: 916-557-7465
 Sampler: Mark Richardson Phone: 916-557-5581

Laboratory: HPPL, Inc
 Address: 4303 W. SUTHERLAND
 FRESNO, CA 93722
 Contact: ROBERT WISE
 Phone: (559) 275-2175

ANALYSIS REQUESTED →

Field	Laboratory	GRAB	COMP	DATE	TIME	ANALYSIS REQUESTED	MSMSD	TURN AROUND TIME (DAYS)	MATRIX CODE	PLASTIC	GLASS	VOA	SLEEVE	ENCORE	PRESERVATIVE CODE
MW-PDLA-181		X		3/17/05	12:10	EPA 8015B TPH - Fuig.		21 W	3	2	6				C
MW-MW-101		X		3/17/05	13:12	EPA 8015B TPH - Ext.			3	2	6				C
MW-MW-114		X		3/17/05	15:07	EPA RSK 175 Methanol			3	2	6				C
MW-MW-301		X		3/17/05	14:05	EPA 310.1 Total Alkalinity			3	2	6				C
MW-MW-104		X		3/17/05	16:25	EPA 300.0 Sulfate			3	2	6				C
MW-MW-103		X		3/17/05	17:10	MSM 3500 mg Total Iron			3	2	6				C
MW-MW-116		X		3/17/05	18:09	Cobalt Temp.			3	2	6				C
MW-MW-115		X		3/17/05	08:26				3	2	6				C
TRIP BLANK 4		X		3/18/05					3	2	6				C
TEMP BLANK		X		3/18/05					3	2	6				C

COMMENTS/SPECIAL INSTRUCTIONS:
 ⊗ = HOLD FOR ANALYSIS

Changed sample IDs & sampling date to match container labels per Pamela Stephens.

RELINQUISHED BY: Maagk DATE/TIME: 3/18/05 1530
 RECEIVED BY: Pamela Stephens DATE/TIME: 3-19-05 0820

Shipping: Fed Ex Courier Hand Deliver
 Matrix Codes: W = Water, S = Soil, Sd = Sediment, Sl = Sludge, A = Air, SP = Solid Product, LP = Liquid Product
 Sample Disposal: Hold Dispose Return
 Preservative Codes: C = HCl, N = HNO₃, S = H₂SO₄
 Author Number: 83380162509

DISTRIBUTION: WHITE and YELLOW - send to testing laboratory; PINK - retained by originator

COOLER RECEIPT FORM

Project: HAAF POL Hill Date Received: 3-19-05

Coolers: Number of Coolers: 3
YES NO Were coolers and samples screened for radioactivity?
YES NO Were custody seals on outside of cooler? How many? 6 Date on seal? 3-18-05

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
Name on seal? see Back page

Shipping slip numbers: 1) 0306-025-0927 2) 0306-025-0927 3) 0306-025-0927
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: n/a
Cooler temp(s): 1) 5.5°C 2) 3°C 3) 3.5°C 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: Trip Blank 1 Ax 16074 w 3

Preservation & 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: Samples rec'd past Feirous Iron HT; 3 samples rec'd broken MW-301
MW-103 + MW-115; MW-115 sampling date different on CoC + labels;
All labels PL-MW - CoC, POL-MW

Signature of personnel receiving samples: Renee Patterson second reviewer: Chloe Furell
Signature of project manager notified: Robert Date and Time of notification: 3-21-03
Name of client notified: _____ Date and Time of notification: _____
Information given to client: _____ by whom (Initials): _____

EPA Method 8015B
Total Petroleum Hydrocarbons - Diesel
QC Summary

APPL, INC.

Method Blank
EPA 8015B TPH Diesel Water

Blank Name/QCG: 050323W-16071 - 85076
Batch ID: \$TPHD-050323A1

APPL Inc.
4203 West Swift Avenue
Fresno, CA 93722

Sample Type	Analyte	Result	PQL	MDL	Units	Extraction Date	Analysis Date
BLANK	Diesel Fuel	Not detected	50	40.4	ug/L	3/23/05	3/24/05
BLANK	Motor Oil	Not detected	500	106	ug/L	3/23/05	3/24/05
BLANK	Surrogate: Octacosane	86.8	28-142		%	3/23/05	3/24/05
BLANK	Surrogate: Ortho-Terphenyl	79.8	49-128		%	3/23/05	3/24/05

Run #: 324029
Instrument: FID02
Sequence: 050324
Initials: RWP
GC SC-Blank-REG MDLs
Printed: 3/30/05 2:09:17 AM

TPH Extractables

Form 2 & 8

Surrogate Recovery - Retention Time Summary

Lab Name: APPL, Inc.
 Case No: 46881
 Matrix: Water

SDG No: 46881
 Date Analyzed: 3/24/05
 Instrument: FID02

Client Sample No.	APPL ID.	Surrogate Recovery - Retention Time				
		Ortho-Terphenyl(S)		Octacosane(S)		
		%	RT	%	RT	
1	Blank					
2	Lab Control Spike	050323A BLK 5/1000	79.8	4.38	86.8	6.25
3	PL-MW-103	050323A LCS-1 5/10	83.0	4.38	95.2	6.25
4	PL-MW-103	AX16071W18 MS-1	113	4.37	121	6.24
5	PL-MW-103	AX16071W18 MSD-	107	4.37	119	6.24
6	MW-POLA-121	AX16066W10 5/1000	92.3	4.37	97.9	6.24
7	PL-MW-101	AX16067W11 5/1050	97.3	4.37	114	6.24
8	PL-MW-114	AX16068W11 5/1050	94.0	4.37	111	6.24
9	PL-MW-301	AX16069W10 5/1050	89.6	4.37	94.1	6.24
10	PL-MW-104	AX16070W10 5/1050	90.2	4.37	103	6.24
11	PL-MW-103	AX16071W17 5/1050	90.7	4.37	106	6.24
12	PL-MW-116	AX16072W10 5/1050	83.0	4.37	112	6.24
13	PL-MW-115	AX16073W10 5/1040	79.4	4.37	92.0	6.24
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Laboratory Control Spike Recovery
EPA 8015B TPH Diesel Water

APPL ID: 050323W-16071 LCS - 85076
 Batch ID: \$TPHD-050323A1

APPL Inc.
 4203 West Swift Avenue
 Fresno, CA 93722

Compound Name	Spike Level ug/L	SPK Result ug/L	SPK % Recovery	Recovery Limits
Diesel Fuel	1000	724	72.4	23-132
Motor Oil	1000	1010	101	23-132
Surrogate: Octacosane	50	47.6	95.2	28-142
Surrogate: Ortho-Terphenyl	50	41.5	83.0	49-128

= Recovery is outside QC limits.

Comments:

Primary	SPK
Extraction Date :	3/23/05
Analysis Date :	3/24/05
Instrument :	FID02
Run :	324030,31.D
Initials :	RWP

Printed: 4/5/05 10:36:40 AM
 APPL Standard LCS

Matrix Spike Recoveries
EPA 8015B TPH Diesel Water

APPL ID: 050323W-16071 MS - 85076
 Batch ID: \$TPHD-050323A1
 Sample ID: AX16071

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
Diesel Fuel	1000	ND	784	759	78.4	75.9	23-132	3.2	25
Motor Oil	1000	ND	1100	1270	110	127	23-132	14.3	25
Surrogate: Octacosane	50	NA	48.2	47.7	96.4	95.4	28-142		
Surrogate: Ortho-Terphenyl	50	NA	45.3	42.9	90.6	85.8	49-128		

Comments:

Primary	SPK	DUP
Extraction Date :	3/23/05	3/23/05
Analysis Date :	3/24/05	3/24/05
Instrument :	FID02	FID02
Run :	324035.37.D	324036.38.D
Initials :	RWP	

Printed: 4/5/05 10:36:36 AM
 APPL MSD SCI

TPH Extractables

Form 4

Blank Summary

Lab Name: APPL Inc.
 Case No: 46881
 Matrix: Water
 Blank ID: 050323A BLK 5/1000

SDG No: 46881
 Date Analyzed: 3/24/05
 Instrument: FID02
 Time Analyzed: 21:03

Client Sample No.	APPL ID.	File ID.	Date Analyzed
1	Blank		
2	Lab Control Spike	050323A BLK 5/1000 324029.D	3/24/05 9:03 PM
3	Lab Control Spike	050323A LCS-1 5/1000 324030.D	3/24/05 9:18 PM
4	PL-MW-103	050323A LCS-2 5/1000 324031.D	3/24/05 9:34 PM
5	PL-MW-103	AX16071W18 MS-1 2/50 324035.D	3/24/05 10:35 PM
6	PL-MW-103	AX16071W18 MSD-1 2/50 324036.D	3/24/05 10:51 PM
7	PL-MW-103	AX16071W16 MS-2 2/50 324037.D	3/24/05 11:06 PM
8	MW-POLA-121	AX16071W16 MSD-2 2/50 324038.D	3/24/05 11:21 PM
9	PL-MW-101	AX16066W10 5/1000 324039.D	3/24/05 11:37 PM
10	PL-MW-114	AX16067W11 5/1050 324040.D	3/24/05 11:52 PM
11	PL-MW-301	AX16068W11 5/1050 324041.D	3/25/05 12:07 AM
12	PL-MW-104	AX16069W10 5/1050 324042.D	3/25/05 12:23 AM
13	PL-MW-103	AX16070W10 5/1050 324043.D	3/25/05 12:38 AM
14	PL-MW-116	AX16071W17 5/1050 324044.D	3/25/05 12:53 AM
15	PL-MW-115	AX16072W10 5/1050 324047.D	3/25/05 1:40 AM
16		AX16073W10 5/1040 324048.D	3/25/05 1:55 AM
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**EPA Method 8015B
Total Petroleum Hydrocarbons - Diesel**

Sample Data

APPL, INC.

EPA 8015B TPH Diesel Water

USACE-Sacramento District
 1325 J Street
 Sacramento, CA 95814

APPL Inc.
 4203 West Swift Avenue
 Fresno, CA 93722

Attn: Pamela Amie

Project: HAAF POL Hill

Sample ID: MW-POLA-121

Sample Collection Date: 3/17/05

ARF: 46881

APPL ID: AX16066

QCG: \$TPHD-050323A1-85076

Method	Analyte	Result	PQL	MDL	Units	Extraction Date	Analysis Date
EPA 8015B	Diesel Fuel	Not detected	50	40.4	ug/L	3/23/05	3/24/05
EPA 8015B	Motor Oil	330 J	500	106	ug/L	3/23/05	3/24/05
EPA 8015B	Surrogate: Octacosane	97.9	28-142		%	3/23/05	3/24/05
EPA 8015B	Surrogate: Ortho-Terphenyl	92.3	49-128		%	3/23/05	3/24/05

J = Estimated value, below quantitation limit.

Run #: 324039
 Instrument: FID02
 Sequence: 050324
 Dilution Factor: 1
 Initials: RWP

Printed: 3/30/05 2:09:23 AM
 APPL-F1-SC-MCRes/MCPQL-REG MDLs

EPA 8015B TPH Diesel Water

USACE-Sacramento District
1325 J Street
Sacramento, CA 95814

APPL Inc.
4203 West Swift Avenue
Fresno, CA 93722

Attn: Pamela Amie
Project: HAAF POL Hill
Sample ID: **PL-MW-101**
Sample Collection Date: 3/17/05

ARF: 46881
APPL ID: **AX16067**
QCG: \$TPHD-050323A1-85076

Method	Analyte	Result	PQL	MDL	Units	Extraction Date	Analysis Date
EPA 8015B	Diesel Fuel	650 ++	50	40.4	ug/L	3/23/05	3/24/05
EPA 8015B	Motor Oil	Not detected	500	106	ug/L	3/23/05	3/24/05
EPA 8015B	Surrogate: Octacosane	114	28-142		%	3/23/05	3/24/05
EPA 8015B	Surrogate: Ortho-Terphenyl	97.3	49-128		%	3/23/05	3/24/05

++(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 #: 324040
Instrument: FID02
Sequence: 050324
Dilution Factor: 1
Initials: RWP

Printed: 4/5/05 10:41:27 AM
APPL-F1-SC-MCRes/MCPQL-REG MDLs

EPA 8015B TPH Diesel Water

USACE-Sacramento District
1325 J Street
Sacramento, CA 95814

APPL Inc.
4203 West Swift Avenue
Fresno, CA 93722

Attn: Pamela Amie
Project: HAAF POL Hill
Sample ID: **PL-MW-114**
Sample Collection Date: 3/17/05

ARF: 46881
APPL ID: **AX16068**
QCG: \$TPHD-050323A1-85076

Method	Analyte	Result	PQL	MDL	Units	Extraction Date	Analysis Date
EPA 8015B	Diesel Fuel	Not detected	50	40.4	ug/L	3/23/05	3/25/05
EPA 8015B	Motor Oil	260 J	500	106	ug/L	3/23/05	3/25/05
EPA 8015B	Surrogate: Octacosane	111	28-142		%	3/23/05	3/25/05
EPA 8015B	Surrogate: Ortho-Terphenyl	94.0	49-128		%	3/23/05	3/25/05

J = Estimated value, below quantitation limit.

Run #: 324041
Instrument: FID02
Sequence: 050324
Dilution Factor: 1
Initials: RWP

Printed: 3/30/05 2:09:24 AM
APPL-F1-SC-MCRes/MCPQL-REG MDLs

EPA 8015B TPH Diesel Water

USACE-Sacramento District
1325 J Street
Sacramento, CA 95814

Attn: Pamela Amie
Project: HAAF POL Hill

Sample ID: PL-MW-301

Sample Collection Date: 3/17/05

APPL Inc.
4203 West Swift Avenue
Fresno, CA 93722

ARF: 46881

APPL ID: AX16069

QCG: STPHD-050323A1-85076

Method	Analyte	Result	PQL	MDL	Units	Extraction Date	Analysis Date
EPA 8015B	Diesel Fuel	Not detected	50	40.4	ug/L	3/23/05	3/25/05
EPA 8015B	Motor Oil	Not detected	500	106	ug/L	3/23/05	3/25/05
EPA 8015B	Surrogate: Octacosane	94.1	28-142		%	3/23/05	3/25/05
EPA 8015B	Surrogate: Ortho-Terphenyl	89.7	49-128		%	3/23/05	3/25/05

Run #: 324042
Instrument: FID02
Sequence: 050324
Dilution Factor: 1
Initials: RWP

Printed: 4/5/05 10:41:27 AM
APPL-F1-SC-MCRes/MCPQL-REG MDLs

EPA 8015B TPH Diesel Water

USACE-Sacramento District
1325 J Street
Sacramento, CA 95814

Attn: Pamela Amie
Project: HAAF POL Hill

Sample ID: PL-MW-104

Sample Collection Date: 3/17/05

APPL Inc.
4203 West Swift Avenue
Fresno, CA 93722

ARF: 46881

APPL ID: AX16070

QCG: \$TPHD-050323A1-85076

Method	Analyte	Result	PQL	MDL	Units	Extraction Date	Analysis Date
EPA 8015B	Diesel Fuel	180 ++	50	40.4	ug/L	3/23/05	3/25/05
EPA 8015B	Motor Oil	Not detected	500	106	ug/L	3/23/05	3/25/05
EPA 8015B	Surrogate: Octacosane	103	28-142		%	3/23/05	3/25/05
EPA 8015B	Surrogate: Ortho-Terphenyl	90.2	49-128		%	3/23/05	3/25/05

++(T1M) The analyst has noted that the chromatogram of this sample is mainly a wide range of hydrocarbons which are not necessarily indicative of diesel.

Run #: 324043
Instrument: FID02
Sequence: 050324
Dilution Factor: 1
Initials: RWP

Printed: 4/5/05 10:41:27 AM
APPL-F1-SC-MCRes/MCPQL-REG MDLs

EPA 8015B TPH Diesel Water

USACE-Sacramento District
1325 J Street
Sacramento, CA 95814

Attn: Pamela Amie
Project: HAAF POL Hill

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

Sample Collection Date: 3/17/05

APPL Inc.
4203 West Swift Avenue
Fresno, CA 93722

ARF: 46881

APPL ID: **AX16071**

QCG: \$TPHD-050323A1-85076

Method	Analyte	Result	PQL	MDL	Units	Extraction Date	Analysis Date
EPA 8015B	Diesel Fuel	Not detected	50	40.4	ug/L	3/23/05	3/25/05
EPA 8015B	Motor Oil	Not detected	500	106	ug/L	3/23/05	3/25/05
EPA 8015B	Surrogate: Octacosane	106	28-142		%	3/23/05	3/25/05
EPA 8015B	Surrogate: Ortho-Terphenyl	90.7	49-128		%	3/23/05	3/25/05

Run #: 324044.D
Instrument: FID02
Sequence: 050324
Dilution Factor: 1
Initials: RWP

Printed: 3/30/05 2:09:24 AM
APPL-F1-SC-MCRes/MCPQL-REG MDLs

EPA 8015B TPH Diesel Water

USACE-Sacramento District
1325 J Street
Sacramento, CA 95814

APPL Inc.
4203 West Swift Avenue
Fresno, CA 93722

Attn: Pamela Amie
Project: HAAF POL Hill

ARF: 46881
APPL ID: AX16072
QCG: \$TPHD-050323A1-85076

Sample ID: PL-MW-116
Sample Collection Date: 3/17/05

Method	Analyte	Result	PQL	MDL	Units	Extraction Date	Analysis Date
EPA 8015B	Diesel Fuel	Not detected	50	40.4	ug/L	3/23/05	3/25/05
EPA 8015B	Motor Oil	370 J	500	106	ug/L	3/23/05	3/25/05
EPA 8015B	Surrogate: Octacosane	112	28-142		%	3/23/05	3/25/05
EPA 8015B	Surrogate: Ortho-Terphenyl	83.0	49-128		%	3/23/05	3/25/05

J = Estimated value, below quantitation limit.

Run #: 324047.D
Instrument: FID03
Sequence: 050324
Dilution Factor: 1
Initials: RWP

Printed: 3/30/05 2:09:24 AM
APPL-F1-SC-MCRes/MCPQL-REG MDLs

EPA 8015B TPH Diesel Water

USACE-Sacramento District
1325 J Street
Sacramento, CA 95814

Attn: Pamela Amie
Project: HAAF POL Hill

Sample ID: **PL-MW-115**

Sample Collection Date: 3/18/05

APPL Inc.
4203 West Swift Avenue
Fresno, CA 93722

ARF: 46881

APPL ID: **AX16073**

QCG: \$TPHD-050323A1-85076

Method	Analyte	Result	PQL	MDL	Units	Extraction Date	Analysis Date
EPA 8015B	Diesel Fuel	Not detected	50	40.4	ug/L	3/23/05	3/25/05
EPA 8015B	Motor Oil	390 J	500	106	ug/L	3/23/05	3/25/05
EPA 8015B	Surrogate: Octacosane	92.0	28-142		%	3/23/05	3/25/05
EPA 8015B	Surrogate: Ortho-Terphenyl	79.4	49-128		%	3/23/05	3/25/05

J = Estimated value, below quantitation limit.

Run #: 324048.D
Instrument: FID02
Sequence: 050324
Dilution Factor: 1
Initials: RWP

Printed: 3/30/05 2:09:24 AM
APPL-F1-SC-MCRes/MCPQL-REG MDLs

**EPA Method 8015B
Total Petroleum Hydrocarbons - Diesel**

Calibration Data

APPL, INC.

TPH Extractables

Form 6 GC
Initial Calibration

Lab Name: APPL, Inc.
Case No: 4681
Matrix: WATER

SDG No: 4681
Initial Cal. Date: 3/15/05
Instrument: FID02

Initials: RWP

Compound	1	2	3	4	5	6	Avg	%RSD
1 HATM	38653	32469	31264	32031	32973		33278	6.1
2 HBT	23346	19633	19652	18891	19718		20308	8.6
3 SA	6043	5384	5301	4733	4869		5200	9.3
4 SA	2923	2720	2523	2521	2060		2549	13
5								
6								
7								

TPH Extractables

Form 7

2ND SOURCE

Lab Name: APPL, Inc.
 Case No: 46881
 Matrix: WATER

SDG No: 46881
 Date Analyzed: 3/16/05
 Instrument: FID02
 Initial Cal. Date: 3/15/05
 Data File: 315021.D

	Compound	MEAN	CCRF	%D	%Drift
1	HATM DIESEL	33278	31585	5.1	HATM
2					
3					
4					
5					

TPH Extractables

Form 7
Continuing Calibration

Lab Name: APPL, Inc.
Case No: 46881
Matrix: WATER

SDG No: 46881
Date Analyzed: 3/24/05
Instrument: FID02
Initial Cal. Date: 3/15/05
Data File: 324021,22.D

	Compound	MEAN	CCRF	%D	%Drift
1	HATM DIESEL				
2	HBT MOTOR OIL	33278	35075	5.4	HATM
3	SA Ortho-Terphenyl(S)	20308	21456	5.7	HBT
4	SA Octacosane(S)	5290	6036	14	SA
5		2549	2759	8.2	SA
6					
7					
8					
9					
10					
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29					
30					
31					
32					
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35					
36					
37					
38					
39					
40	Average			8.3	

TPH Extractables

Form 7

Continuing Calibration

Lab Name: APPL, Inc.
 Case No: 46881
 Matrix: WATER

SDG No: 46881
 Date Analyzed: 3/24/05
 Instrument: FID02
 Initial Cal. Date: 3/15/05
 Data File: 324033,34.D

	Compound	MEAN	CCRF	%D	%Drift
1	HATM DIESEL	33278	31926	4.1	HATM
2	HBT MOTOR OIL	20308	21494	6.8	HBT
3	SA Ortho-Terphenyl(S)	5290	5543	4.8	SA
4	SA Octacosane(S)	2549	2806	10	SA
5					
6					
7					
8					
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39					
40	Average			6.2	

TPH Extractables

Form 7

Continuing Calibration

Lab Name: APPL, Inc.

SDG No: 46881

Case No: 46881

Date Analyzed: 3/25/05

Matrix: WATER

Instrument: FID02

Initial Cal. Date: 3/15/05

Data File: 324045,46.D

	Compound	MEAN	CCRF	%D	%Drift
1	HATM DIESEL	33278	33504	0.68	HATM
2	HBT MOTOR OIL	20308	20492	0.91	HBT
3	SA Ortho-Terphenyl(S)	5290	5508	4.1	SA
4	SA Octacosane(S)	2549	2611	2.4	SA
5					
6					
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9					
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32					
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34					
35					
36					
37					
38					
39					
40	Average			2.0	

TPH Extractables

Form 7
Continuing Calibration

Lab Name: APPL, Inc.
Case No: 46881
Matrix: WATER

SDG No: 46881
Date Analyzed: 3/25/05
Instrument: FID02
Initial Cal. Date: 3/15/05
Data File: 324051,52.D

	Compound	MEAN	CCRF	%D	%Drift
1	HATM DIESEL				
2	HBT MOTOR OIL	33278	35807	7.6	HATM
3	SA Ortho-Terphenyl(S)	20309	19670	3.1	HBT
4	SA Octacosane(S)	5290	5617	6.2	SA
5		2549	2765	8.5	SA
6					
7					
8					
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39					
40	Average			6.4	

**EPA Method 8015B
Total Petroleum Hydrocarbons - Diesel**

Raw Data

APPL, INC.

Method Blank
EPA 8015B TPH Diesel Water

Blank Name/QCG: 050323W-16071 - 85076
 Batch ID: \$TPHD-050323A1

APPL Inc.
 4203 West Swift Avenue
 Fresno, CA 93722

Sample Type	Analyte	Result	PQL	MDL	Units	Extraction Date	Analysis Date
BLANK	Diesel Fuel	Not detected	50	40.4	ug/L	3/23/05	3/24/05
BLANK	Motor Oil	Not detected	500	106	ug/L	3/23/05	3/24/05
BLANK	Surrogate: Octacosane	86.8	28-142		%	3/23/05	3/24/05
BLANK	Surrogate: Ortho-Terphenyl	79.8	49-128		%	3/23/05	3/24/05

Run #: 324029
 Instrument: FID02
 Sequence: 050324
 Initials: RWP
 GC SC-Blank-REG MDLs
 Printed: 3/30/05 2:09:18 AM

Laboratory Control Spike Recovery
EPA 8015B TPH Diesel Water

APPL ID: 050323W-16071 LCS - 85076
 Batch ID: \$TPHD-050323A1

APPL Inc.
 4203 West Swift Avenue
 Fresno, CA 93722

Compound Name	Spike Level ug/L	SPK Result ug/L	SPK % Recovery	Recovery Limits
Diesel Fuel	1000	724	72.4	23-132
Motor Oil	1000	1010	101	23-132
Surrogate: Octacosane	50	47.6	95.2	28-142
Surrogate: Ortho-Terphenyl	50	41.5	83.0	49-128

* = Recovery is outside QC limits.

Comments:

Primary	SPK
Extraction Date :	3/23/05
Analysis Date :	3/24/05
Instrument :	FID02
Run :	324030,31.D
Initials :	RWP

Printed: 4/5/05 10:36:41 AM
 APPL Standard LCS

Matrix Spike Recoveries
EPA 8015B TPH Diesel Water

APPL ID: 050323W-16071 MS - 85076
 Batch ID: \$TPHD-050323A1
 Sample ID: AX16071

APPL Inc.
 4203 West Swift Avenue
 Fresno, CA 93722

Compound Name	Spike Lvl	Matrix Result	SPK Result	DUP Result	SPK %	DUP %	Recovery	RPD	RPD
	ug/L	ug/L	ug/L	ug/L	Recovery	Recovery	Limits	%	Limits
Diesel Fuel	1000	ND	784	759	78.4	75.9	23-132	3.2	25
Motor Oil	1000	ND	1100	1270	110	127	23-132	14.3	25
Surrogate: Octacosane	50	NA	48.2	47.7	96.4	95.4	28-142		
Surrogate: Ortho-Terphenyl	50	NA	45.3	42.9	90.6	85.8	49-128		

Comments:

	Primary	SPK	DUP
Extraction Date :	3/23/05	3/23/05	3/23/05
Analysis Date :	3/24/05	3/24/05	3/24/05
Instrument :	FID02	FID02	FID02
Run :	324035.37.D	324036.38.D	
Initials :	RWP		

Printed: 4/5/05 10:36:37 AM
 APPL MSD SCI

_SEP011

Organic Extraction Worksheet

Method THC Separatory Funnel Extraction

Extraction Set 050323A

Extraction Method 3510C

Units mL

Spiked ID 1 Diesel Sp.Ke 3/22/05 Qid 3/22/05
 Spiked ID 2 Motor Oil Spike 3/9/05 Qid 3/9/05
 Spiked ID 3
 Spiked ID 4
 Spiked ID 5
 Spiked ID 6
 Spiked ID 7
 Spiked ID 8

Surrogate ID 1 THC Surrogate 3/23/05 Qid 3/23/05
 Surrogate ID 2
 Surrogate ID 3
 Surrogate ID 4
 Surrogate ID 5

Ext. End Time:

GC Requires Extract By:

Spiked By: AT CA Date 3-23-05 3/24/05 Witnessed By: JT DW Date 3/23/05 3/24/05
 Sample Container Sample Spike Amount Spike Surrogate Surrogate Extract Final pH Extract Date/Time Comments

Sample	Container	Sample	Spike	Spike Amount	Surrogate ID	Surrogate Amount	Extract Amount	Final Volume	pH	Extract Date/Time	Comments
1 050323A Bix							1000	5	7	03/23/05 16:45	
2 050323A LCS-1							1000	5	7	03/23/05 16:45	
3 050323A LCS-2							1000	5	7	03/23/05 16:45	
4 AX16066		AX16066W10					1000	5	7	03/23/05 16:45	
5 AX16067		AX16067W11					1000	5	7	03/23/05 16:45	
6 AX16068		AX16068W11					1050	5	7	03/23/05 16:45	
7 AX16069		AX16069W10					1050	5	7	03/23/05 16:45	
8 AX16070		AX16070W10					1050	5	7	03/23/05 16:45	
9 AX16071 MS-1		AX16071W18	0.5				500	2	7	03/23/05 16:45	
10 AX16071 MSD-1		AX16071W18	0.5				500	2	7	03/23/05 16:45	
11 AX16071 MS-2		AX16071W16	0.5				500	2	7	03/23/05 16:45	
12 AX16071 MSD-2		AX16071W16	0.5				500	2	7	03/23/05 16:45	
13 AX16071		AX16071W17					500	2	7	03/23/05 16:45	
14 AX16072		AX16072W10					1050	5	7	03/23/05 16:45	
15 AX16073		AX16073W10					1050	5	7	03/23/05 16:45	
16 AX16174		AX16174W10					1040	5	7	03/23/05 16:45	
17 AX16176		AX16176W01					1040	5	7	03/23/05 16:45	
18 AX16250		AX16250W05					1040	5	7	03/23/05 16:45	
							1020	5	7	03/24/05 16:40	RUSH

CA 3/24/05

Event and Lot#

44342-1998
ISO4 45027-20078

Extraction COC Transfer

Extraction lab employee Initials

GC analyst's initials (CA)

Date

Time

Refrigerator

CA

3/24/05

2:30 PM

GC

Technician's Initials

Scanned By

Sample Preparation

Extraction

Concentration

Modified

3/24/05 4:39:07 PM

Reviewed By:

CA Date 3/28/05

Ext_ID 36 5231

15 4:39:36 PM

Injection Log

Directory: G:\FID02\DATA\050315\050324

Line	Vial	FileName	Multiplier	SampleName	Misc Info	Injected
1	5	315007.D	1	DIESEL 10PPM 2/20/05		
2	6	315008.D	1	DIESEL 100PPM 2/20/05	Mix(A)	
3	7	315009.D	1	DIESEL 400PPM 2/20/05	Mix(A)	15 Mar 2005 12:53
4	8	315010.D	1	DIESEL 800PPM 2/20/05	Mix(A)	15 Mar 2005 13:08
5	9	315011.D	1	DIESEL 1000PPM 2/20/05	Mix(A)	15 Mar 2005 13:23
6	11	315013.D	1	MO 50PPM 2/20/05	Mix(A)	15 Mar 2005 13:39
7	12	315014.D	1	MO 200PPM 2/20/05	Mix(B)	15 Mar 2005 13:54
8	13	315015.D	1	MO 400PPM 2/20/05	Mix(B)	15 Mar 2005 14:24
9	14	315016.D	1	MO 600PPM 2/20/05	Mix(B)	15 Mar 2005 14:40
10	15	315017.D	1	MO 1000PPM 2/20/05	Mix(B)	15 Mar 2005 14:55
11	19	315021.D	1	DIESEL 2ND SOURCE 400PPM 3/16/05	Mix(B)	15 Mar 2005 15:10
12	21	324021.D	1	DIESEL 400PPM 2/20/05	Mix(A)	15 Mar 2005 15:26
13	22	324022.D	1	MO 400PPM 2/20/05	Mix(A)	16 Mar 2005 10:29
14	29	324029.D	5	050323A BLK 5/1000	Mix(B)	24 Mar 2005 17:04
15	30	324030.D	5	050323A LCS-1 5/1000	Water	24 Mar 2005 17:20
16	31	324031.D	5	050323A LCS-2 5/1000	Water	24 Mar 2005 21:03
17	33	324033.D	1	DIESEL 400PPM 2/20/05	Water	24 Mar 2005 21:18
18	34	324034.D	1	MO 400PPM 2/20/05	Mix(A)	24 Mar 2005 21:34
19	35	324035.D	4	AX16071W18 MS-1 2/500	Mix(B)	24 Mar 2005 22:05
20	36	324036.D	4	AX16071W18 MSD-1 2/500	Water	24 Mar 2005 22:20
21	37	324037.D	4	AX16071W16 MS-2 2/500	Water	24 Mar 2005 22:35
22	38	324038.D	4	AX16071W16 MSD-2 2/500	Water	24 Mar 2005 22:51
23	39	324039.D	5	AX16066W10 5/1000	Water	24 Mar 2005 23:06
24	40	324040.D	4.7619	AX16067W11 5/1050	Water	24 Mar 2005 23:21
25	41	324041.D	4.7619	AX16068W11 5/1050	Water	24 Mar 2005 23:37
26	42	324042.D	4.7619	AX16069W10 5/1050	Water	24 Mar 2005 23:52
27	43	324043.D	4.7619	AX16070W10 5/1050	Water	25 Mar 2005 00:07
28	44	324044.D	4.7619	AX16071W17 5/1050	Water	25 Mar 2005 00:23
29	45	324045.D	1	DIESEL 400PPM 2/20/05	Water	25 Mar 2005 00:38
30	46	324046.D	1	MO 400PPM 2/20/05	Mix(A)	25 Mar 2005 00:53
31	47	324047.D	4.7619	AX16072W10 5/1050	Mix(B)	25 Mar 2005 01:09
32	48	324048.D	4.80769	AX16073W10 5/1040	Water	25 Mar 2005 01:24
33	51	324051.D	1	DIESEL 400PPM 2/20/05	Water	25 Mar 2005 01:40
34	52	324052.D	1	MO 400PPM 2/20/05	Mix(A)	25 Mar 2005 01:55
					Mix(B)	25 Mar 2005 02:41
						25 Mar 2005 02:57