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LOCKHEED MARTIN

October 14, 2007

Mr. Emad Yemut
Site Mitigation Operations Branch
Department of Toxic Substances Control
5796 Corporate Avenue
Cypress, California 90630

Subject: **Submittal of *Site Investigation Report for Soil Investigations at the Earthen Prism Shaped Structure and Possible Liquid Waste Discharge Ponds at Lockheed Martin Beaumont Site 2 (Laborde Canyon)***

Dear Mr. Yemut:

Please find enclosed one (1) copy of the *Site Investigation Report for Soil Investigations at the Earthen Prism Shaped Structure and Possible Liquid Waste Discharge Ponds at Lockheed Martin Beaumont Site 2 (Laborde Canyon)*, prepared by Tetra Tech, for your review. This documents the results of the above mentioned soil investigation activities conducted at Beaumont Site 2.

Should you have any questions or concerns, please feel free to call me at (818) 847-0197.

Sincerely,

Gene Matsushita
Technical Project Manager

Enclosure

cc: Dan Zogaib, Department of Toxic Substances Control
Tom Villeneuve, Tetra Tech

BUR243 Beaumont 2 Prism and Ponds SI Rpt Transmittal.doc

TETRA TECH

Mr. Gene Matsushita
Lockheed Martin Corporation
Energy, Environment, Safety & Health
2950 N. Hollywood Way, Suite 125
Burbank, CA 91505

12 October 2007

Subject: **Site Investigation Report for Soil Investigations at the Earthen Prism Shaped Structure and Possible Liquid Waste Discharge Ponds at Lockheed Martin Beaumont Site 2 (Laborde Canyon)**

Dear Mr. Matsushita:

Tetra Tech has prepared this report on behalf of Lockheed Martin Corporation (LMC) to document the soil investigation activities in two possible source locations at LMC Beaumont Site 2 (Laborde Canyon). The soil investigations were conducted at the prism shaped earthen structure (Prism) located near the former test bays in Operational Area K and the possible liquid waste discharge ponds (Discharge Ponds) located in a canyon south of the former homestead and the four known Operational Areas (J, K, L, and M). The soil investigations included a geophysical survey at the Prism and soil sampling at both the Prism and the Discharge Ponds. Figure 1 presents the location of the Prism and Discharge Ponds locations within Site 2. The investigations were conducted in accordance with the *Letter Work Plan to Conduct Soil Investigations at the Prism Structure and Possible Liquid Waste Discharge Ponds at Lockheed Martin Beaumont Site 2* (Tetra Tech, 2007). All sampling locations were surveyed using global positioning system (GPS) techniques. Final boring locations were resurveyed using GPS after sampling was performed.

Prism

The Prism is a large structure located in front of the former Test Bays (Figure 1). Aerial photographs of the site indicate that the Prism was built between 1984 and 1990. Recent information (a former LMC employee whom had worked for General Dynamics) indicated that the Prism was used by General Dynamics to test a remote sensing devise. A balloon carrying the device was used to try and peer into the Prism. Details concerning construction of the Prism are

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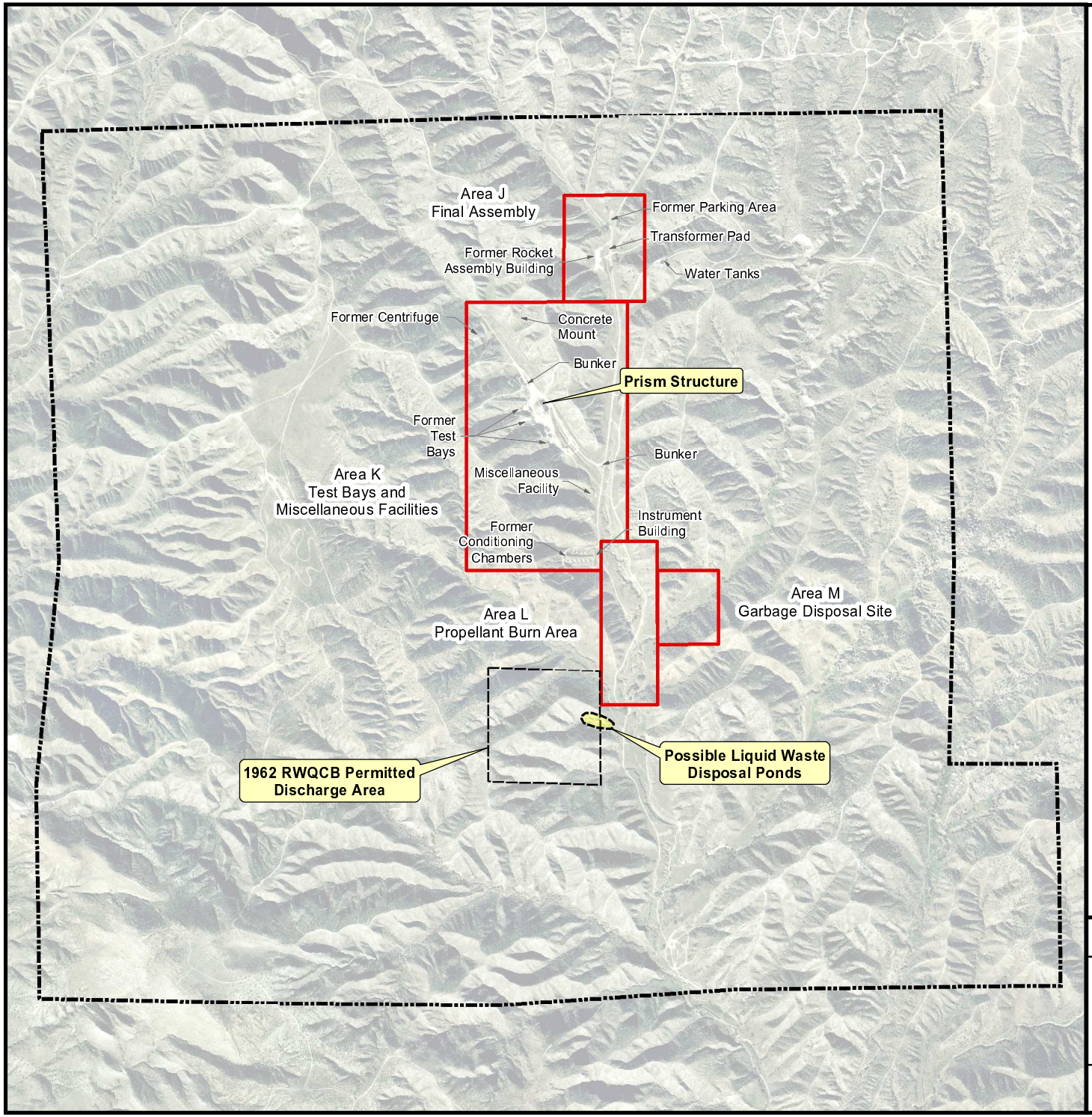

0 1,000 2,000 Feet

Adapted from: February 2006 aerial photograph.

LEGEND

- Historical Operational Unit Boundary
- LMC Property Boundary
- RWQCB Permitted Discharge Area

Note: Beaumont Site 2 property boundary from Hillwig-Goodrow survey. May 2004.

Beaumont Site 2

Figure 1
Location of Prism Structure and Possible Liquid Waste Disposal Ponds

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not available but it appears to have been constructed from soils from the area immediately surrounding the Prism. Pieces of transite asbestos-cement pipe had previously been observed in the Prism soils and on the ground surface in the surrounding area south of the Prism. In September 2003, three surface sample and three samples from 4 feet inside the Prism were collected and tested for perchlorate. Laboratory results ranged from 29 to 285 µg/kg.

The objective of this phase of field activities at the Prism was to determine if the interior contains structures not visible from the exterior and to provide additional information regarding possible impacts to soils used to construct the Prism. Soil sampling of the Prism structure was conducted to provide information on potential impacts to Prism soil. In addition, geophysical testing (ground-penetrating radar and electromagnetic surveys) of the Prism were performed in order to assess the potential internal features.

Soil Sampling at Prism – On 02 and 03 July 2007, soil samples were collected at eight locations in the Prism, two sampling locations on each side of the Prism, as shown in Figure 2. Two Samples were collected at each sampling location using hand sampling techniques. Samples were collected from near surface to 6 inches and at approximately 5 feet into the side of the Prism, approximately perpendicular to the slope, with disposable sampling equipment. Hand auger techniques were used for all samples taken, with a 4-inch diameter auger bucket. Sample collection was attempted by driving a sampler lined with sleeves into the borehole using a slide-hammer; however, due to no recovery from the slide-hammer, samples were collected directly from the hand auger bucket. After each sample was collected the sampling equipment was decontaminated. Decontamination consisted of a phosphate-free Liquinox® detergent wash and two potable water rinses. Copies of the soil boring logs generated during field activities can be found in Appendix A.

Samples for volatile organic compound (VOC) testing were collected in pre-preserved, pre-weighed sample vials in accordance with United States Environmental Protection Agency (EPA) Method 5035. Remaining soil samples were placed into glass jars with Teflon lined lids and air-tight Ziploc® baggies. The samples were stored at 4 ± 2 °C in a refrigerator in Tetra Tech's storage facility and shipped via courier to EMAX Laboratory, a State of California-certified laboratory, for analysis of VOCs by EPA Method 8260B, semi-volatile organic compounds (SVOCs) by EPA Method 8270C, perchlorate by EPA Method 314.0 modified, and California Assessment Manual (CAM)17 metals by EPA Methods 6010B/7471A. In addition, samples were

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0 50 100 Feet

Adapted from: February 2006 aerial photograph.

LEGEND

Sampling Point

Note: Coordinates are in UTM, NAD83, Zone 11, meters.

Beaumont Site 2

Figure 2

Prism Structure Sampling Locations

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shipped via Fed-Ex to LA Testing, a National Voluntary Laboratory Accreditation Program (NVLAP) accredited laboratory, for asbestos analysis by polarized light microscopy per EPA Method 600/R-93/116. Quality assurance/quality control (QA/QC) samples consisted of equipment rinsate blanks (EBs), trip blanks (TBs), matrix spike/matrix spike duplicate (MS/MSD) samples, and blind field duplicates. Copies of boring logs are provided in Appendix A.

Geophysical Survey at the Prism – Between 01 and 10 August 2007, a geophysical survey was performed on the Prism consisting of Geophysical Survey Systems, Incorporated model SIR-3000 continuously recording ground-penetrating radar (GPR) data system with 400 and 100 MHz antennas equipped with a Trimble model AgGPS-114 GPS receiver. Data was measured along a profile created along the Prism's long axis and three equally spaced profiles extending perpendicular to the long axis. The GPS X,Y data was used to generate a profile location map, which is included in Appendix B. The GPS elevations were combined with the digital radar data and displayed as color cross sections. Fence diagrams along the Prism's long axis and across both the north and south faces were produced. An electromagnetic (EM) survey along the same data profiles was performed using a Geonics model EM-31-MK2 terrain conductivity meter connected to an Omnidata model 516-C logger in order to show changes in soil conductivity and detect possible metal (both ferrous and nonferrous) objects within the Prism. The report of the geophysical survey results is attached as Appendix B and summarized in the following sections.

Results of the Investigation at the Prism – A summary of the analytical test results from soil samples collected at the Prism is included in Table 1. Note that only the analytes positively detected are shown. A complete list of analytes tested for is included in the laboratory analytical data package in Appendix C.

As shown on Table 1, perchlorate was detected in all eight sampling locations at 0.5 feet into the side of the Prism ranging from 19.8 J to 2,950 micrograms per kilogram (µg/kg). At 5 feet into the Prism, perchlorate was detected in five of the eight sampling locations (PRISM3, 4, 5, 7, and 8) ranging from 35.5 to 778 µg/kg. VOCs including benzene, 2–butanone, and toluene were reported at concentrations ranging from non-detectable concentrations to 12 µg/kg with the majority of the concentrations reported below the practical quantitation limits ("J" qualified). In addition, acetone was detected in all samples; however, due to the detection of acetone in the

Table 1
Soil Analytical Results
Earthen Prism Structure
LMC Beaumont Site 2

Sample ID			Analytical Results																			
				Organics (µg/kg)							Metals (mg/kg)											
Boring Location	Depth	Sample Date	Perchlorate (µg/kg)	Total SVOCs	Total VOCs	Acetone	Benzene	2-Butanone	Toluene	Arsenic	Barium	Beryllium	Chromium	Cobalt	Copper	Lead	Nickel	Selenium	Thallium	Vanadium	Zinc
MDL			10.1-524 (1)	--	--	4.6-8.3 (1)	4.6-8.3 (1)	1.8-3.3 (1)	1.8-3.3 (1)	0.408-0.449 (1)	0.203-0.225 (1)	0.203-0.225 (1)	1.01-1.12 (1)	1.01-1.12 (1)	0.507-0.562 (1)	0.203-0.225 (1)	1.01-1.12 (1)	0.507-0.562 (1)	0.507-0.562 (1)	0.507-0.562 (1)	0.507-0.562 (1)
PRISM1	0.5'	7/3/2007	19.8 J	ND	ND	49 B	ND	ND	ND	3.92	102	0.439 J	22.1	10.1	23.4	9.78	17.9	1.20	ND	41.1	49.8
PRISM1	5'	7/3/2007	ND	ND	6.1	45 B	ND	6.1 J	ND	3.71	114	0.470 J	23.6	10.7	24.9	7.16	19.2	1.16	ND	42.1	53.8
PRISM2	0.5'	7/3/2007	179	ND	12	57 B	2.1 J	10	ND	2.96	114	0.469 J	21.1	10.60	24.5	6.66	18.5	1.20	ND	41.4	51.2
PRISM2	5'	7/3/2007	ND	ND	13	58 B	2.9 J	8.1 J	2.3 J	3.13	119	0.542 J	22.7	11.3	25.9	7.24	19.8	1.30	ND	45.0	57.3
PRISM3	0.5'	7/3/2007	39.8	ND	111	92	3.4 J	12 J	3.2 J	5.16	110	0.459 J	21.7	10.6	23.8	6.79	19.0	1.15	ND	41.5	49.8
PRISM3	5'	7/3/2007	52.8	ND	11	42 B	2.3 J	7.0 J	2.1 J	2.69	109	0.452 J	22.8	10.1	24.0	7.09	17.6	1.06	ND	42.6	50.2
PRISM4	0.5'	7/2/2007	209	ND	92	80	ND	12	ND	3.08	130	0.596 J	25.1	11.6	27.2	6.76	20.3	0.518 J	1.84	44.8	55.5
PRISM4	5'	7/2/2007	94.7	ND	12	39 B	2.6 J	7.2 J	2.5 J	4.26	116	0.510 J	21.9	10.7	24.9	6.50	27.4	ND R	1.65	43.1	50.3
PRISM5	0.5'	7/2/2007	112	ND	76	63	2.2 J	8.9 J	2.1 J	2.73	117	0.513 J	21.3	10.4	24.2	6.46	18.7	ND R	1.63	42.0	51.8
PRISM5	5'	7/2/2007	778	ND	112	96	2.7 J	10 J	2.9 J	2.94	118	0.509 J	22.2	10.9	26.4	8.96	19.4	0.830 J	1.67	44.1	67.7
PRISM6	0.5'	7/2/2007	27.4	ND	74	55	3.1 J	12 J	3.7 J	3.05	126	0.696 J	21.7	10.6	24.7	6.24	18.5	0.795 J	1.61	43.1	50.3
PRISM6	5'	7/2/2007	ND	ND	89	75	3.0 J	8.1 J	2.7 J	2.44	110	0.432 J	18.5	9.37	21.8	5.34	16.7	ND R	0.969 J	37.2	45.0
PRISM7	0.5'	7/3/2007	2,950	ND	ND	24 BJ	ND	ND	ND	3.12	129	0.596 J	25.1	11.4	27.9	7.89	20.1	1.33	0.531 J	45.5	56.4
PRISM7	5'	7/3/2007	131	ND	ND	41 B	ND	ND	ND	4.05	132	0.522 J	25.0	11.3	26.8	7.69	19.9	1.23	0.531 J	44.3	53.9
PRISM8	0.5'	7/3/2007	50.5	ND	ND	33 B	ND	ND	ND	3.24	123	0.462 J	22.5	10.1	24.2	9.60	17.9	1.23	ND	41.3	53.2
PRISM8	5'	7/3/2007	35.5	ND	ND	28 B	ND	ND	ND	3.49	169	0.528 J	32.9	12.9	28.7	8.74	21.3	1.13	ND	45.7	58.0

Notes:

Only the analytes positively detected are shown. A complete list of analytes tested for is included in the laboratory data package in Appendix C.

-- - Screening levels not available

(1) - MDL range for samples. Note that MDL varies depending on moisture content, sample weight, and dilution factor.

µg/kg - microgram per kilogram (parts-per-billion)

mg/kg - milligram per kilogram (parts-per-million)

MDL - Method Detection Limit

ND - not detected at or above laboratory reporting limits

SVOC - semivolatile organic compound

VOC - volatile organic compound

B - The sample result is less than 5 times (10 times for common organic laboratory contaminants) the amount of blank contamination. The result is considered not to have originated from the environmental sample, because cross-contamination is suspected.

J - The analyte was positively identified and the result is usable; however, the analyte concentration is an estimated value.

R - The sample result is rejected and not usable for any purpose. The presence or absence of the analyte cannot be verified.

associated equipment blank samples, several detections were "B" qualified and the results are considered not to have originated from the environmental samples. It should also be noted that the sodium bisulfate preservative specified in the low-level procedure of the EPA SW-846 Method 5035 has been documented to react with carbonate-containing soils and organic material, forming acetone (EPA, Method 5035A Draft Revision 1, July 2002), styrene, and other ketones including 2–butanone (Uhfelder, M.M., *Study of Acetone Production in SW-846 Method 5035 (Low Level) Associated with Various Preservation Techniques and Storage Conditions*, 2000). No other VOCs were detected in samples collected at the Prism. CAM 17 metals analyses showed that detected metals included arsenic, barium, beryllium, chromium, cobalt, copper, lead, nickel, selenium, thallium, vanadium, and zinc. All soil samples collected at the Prism were reported as non-detect for SVOCs and asbestos.

Results of Geophysical Survey at the Prism – Four data profiles were surveyed by EM and GPR techniques, one along the long axis of the Prism and three perpendicular to the long axis. Measurement parameters were designed for maximum penetration so most of the prism volume would be investigated. The EM survey was able to reach a penetration depth of approximately 16 feet into the Prism. The GPR survey was able to reach a maximum penetration depth of up to 40 feet into the Prism by recording and summing several measurements at each location thereby reducing random background noise and enhancing subtle amplitude anomalies from deeply buried objects. Measurements toward the center of the Prism have greater uncertainty than those within the normal range of detection for the instrumentation used, and some material within the center of the prism was not surveyed because it was out of the instruments' detectable ranges. The height of the Prism is 38 feet and due to the size and thickness of the Prism, data is limited to what the instrumentation is capable of measuring. A cross-sectional view was prepared and showed that the entire volume of material within the Prism was not investigated because each instrument had a finite penetration (Appendix B).

There was no visual or geophysical evidence of a room size or larger structure within the prism. Visual examination of the entire prism surface did not find manholes, access covers, vent pipes, electrical conduits, or piping connecting anything from the interior to the outside of the Prism. EM showed that small anomalies were present on the prism crest and probably represented randomly spaced, shallow buried, small dimension metal objects. The absence of significant radar anomalies

most likely indicates that the prism material is relatively consistent with no distinct layering or compaction changes.

Discharge Ponds

The Discharge Ponds became known to LMC by the recent discovery of a waste discharge permit from 1962, which is included as Appendix D. The permit allowed a discharge of up to 5,000 gallons per year of rocket fuel residuum into unlined pits in the southwest quarter of the northwest quarter of Section 19, Township 03 South, Range 01 West (Figure 1). The permit indicated that the discharge area is located within a small side canyon extending west from Laborde Canyon. Four small depressions were found in a small canyon in the area described. All four depressions are located at different elevations within the canyon. The area identified in the permit is outside all previously known Operational Areas. The objective of the field activities at the Discharge Ponds was to gather additional information regarding possible impacts to soil within the pond structures, because it was unknown if the Discharge Ponds were ever used.

Soil Boring and Sampling at Discharge Ponds – On 29 June and 02 July 2007, soil samples were collected at five boring locations as shown on Figure 3, using the hollow-stem auger (HSA) drilling technique with a split-spoon sampler. Biological monitoring was performed during all drilling operations, and in order to ensure clearance from underground utilities or other subsurface obstructions, all borings were hand-augered to a depth of 5 feet below ground surface (bgs). One boring was advanced in each of four potential liquid waste discharge ponds/depressions and one downslope of the depressions within the same canyon. The split-spoon sampler was decontaminated prior to and after each sample was collected, using a phosphate-free Liquinox® detergent wash and two potable water rinses. The borings were drilled to a total depth of approximately 30 feet bgs. Groundwater was not encountered in any of the borings. Weathered strata of the San Timoteo Formation was encountered between approximately 20 to 30 feet bgs in four of the five soil borings.

All HSA borings were sampled at 5 foot intervals for lithological logging using the Unified Soil Classification System (USCS), and three soil samples were collected per boring (5 feet bgs, 10 feet bgs, and total depth) for laboratory analysis. In addition, near surface (0.5 feet bgs) samples were collected from the five locations on 17 August 2007 using the hand auger. Samples for

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Feet

Adapted from: February 2006 aerial photograph.

LEGEND

- Sampling Point
- Historical Operational Area Boundary

Note: Coordinates are in UTM, NAD83, Zone 11, meters.

Beaumont Site 2

Figure 3

Possible Liquid Waste Discharge Ponds Sampling Locations

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VOC testing were collected in pre-preserved, pre-weighed sample vials in accordance with EPA Method 5035. Remaining soil samples were placed into glass jars with Teflon lined lids. The samples were stored at 4 ± 2 °C in a refrigerator in Tetra Tech's storage facility and shipped via courier to EMAX Laboratory, a State of California-certified laboratory, and tested for VOCs by EPA Method 8260B, perchlorate by EPA Method 314.0 modified, SVOCs by EPA Method 8270C, and CAM17 metals by EPA Methods 6010B/7471A. Field QA/QC samples consisted of EBs, TBs, MS/MSDs, and blind field duplicates. Copies of boring logs are provided in Appendix A.

Results of Investigation at the Discharge Ponds – Lithologies encountered in the HSA borings consisted of sands and silts with minor amounts of clays present in thin lenses or nodules. There were no clay layers continuous throughout the area of investigation. Idealized geologic cross sections were prepared using the lithological data collected from the HSA borings. Figure 4 shows the locations of the geologic cross-sections, and Figures 5 and 6 show the idealized geologic cross sections A–A' and B–B', respectively. As shown in Figures 5 and 6, weathered siltstone and silty sandstones of the San Timoteo formation were encountered in four of the five borings at approximately 20 to 30 feet bgs.

A summary of the sampling results from field activities at the Discharge Ponds is included in Table 2. Note that only the analytes positively detected are shown. A complete list of analytes tested for is included in the laboratory data package in Appendix C. As shown on Table 2, perchlorate was detected in four of the five sampling locations ranging from 29.5 to 13,400 µg/kg. In sampling locations POND3 and POND4, perchlorate was detected in samples collected at all four depths sampled (0.5, 5, 10, and 25 feet bgs), and in two other boring locations perchlorate was detected at just one depth sampled (POND1 at 25 feet bgs with a concentration of 1,200 µg/kg and POND5 at 10 feet bgs with 29.5 µg/kg). Perchlorate was not detected in downslope location POND2. Lithologic and contaminant data suggest that a permeability contrast may be present at the bedrock contact resulting in the lateral distribution of perchlorate at this contact during infiltration.

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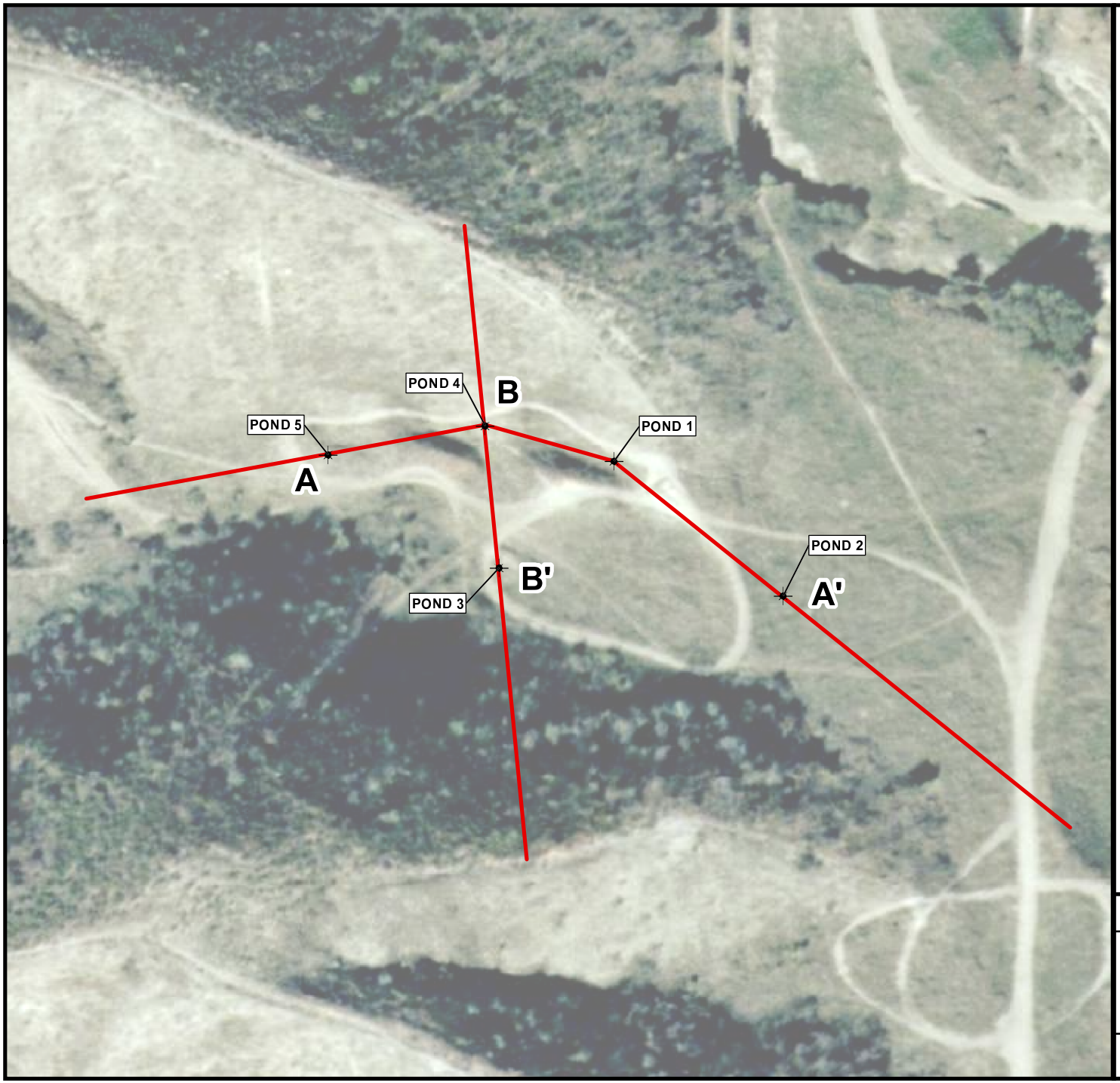

0 50 100 Feet

Adapted from: February 2006 aerial photograph.

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- Sampling Point
- Cross Section Location

Beaumont Site 2

Figure 4

Cross Section Locations

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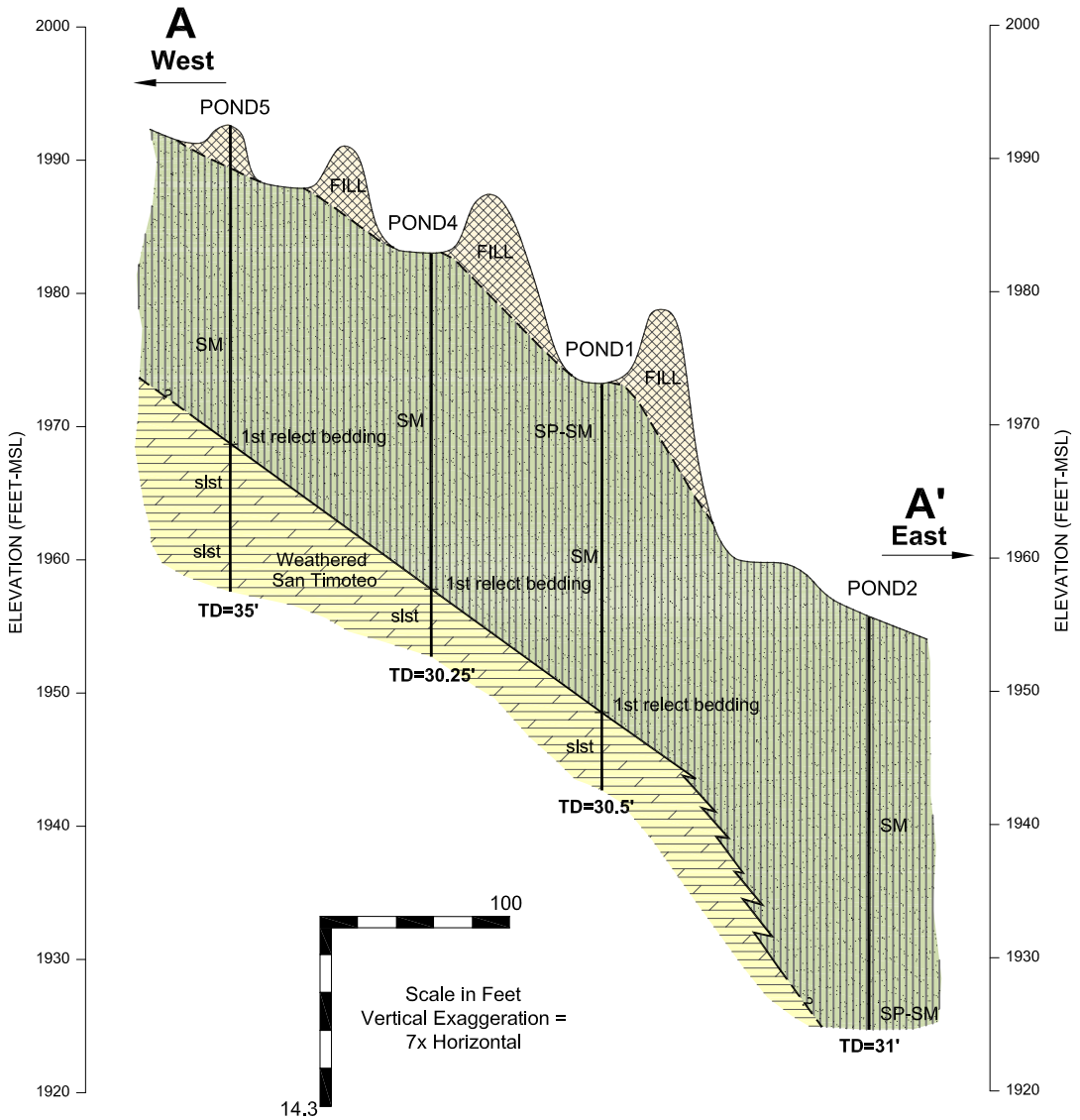

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- Fill from surrounding soils (Fill)
- Silty Sand (SM), poorly graded sand w/ silt (SP-SM)
- Siltstone (slst)
- Inferred Contact
- Boring
- TD=62' Total Boring Depth (feet)

Beaumont Site 2

Figure 5
Idealized Geologic Cross Section A-A'

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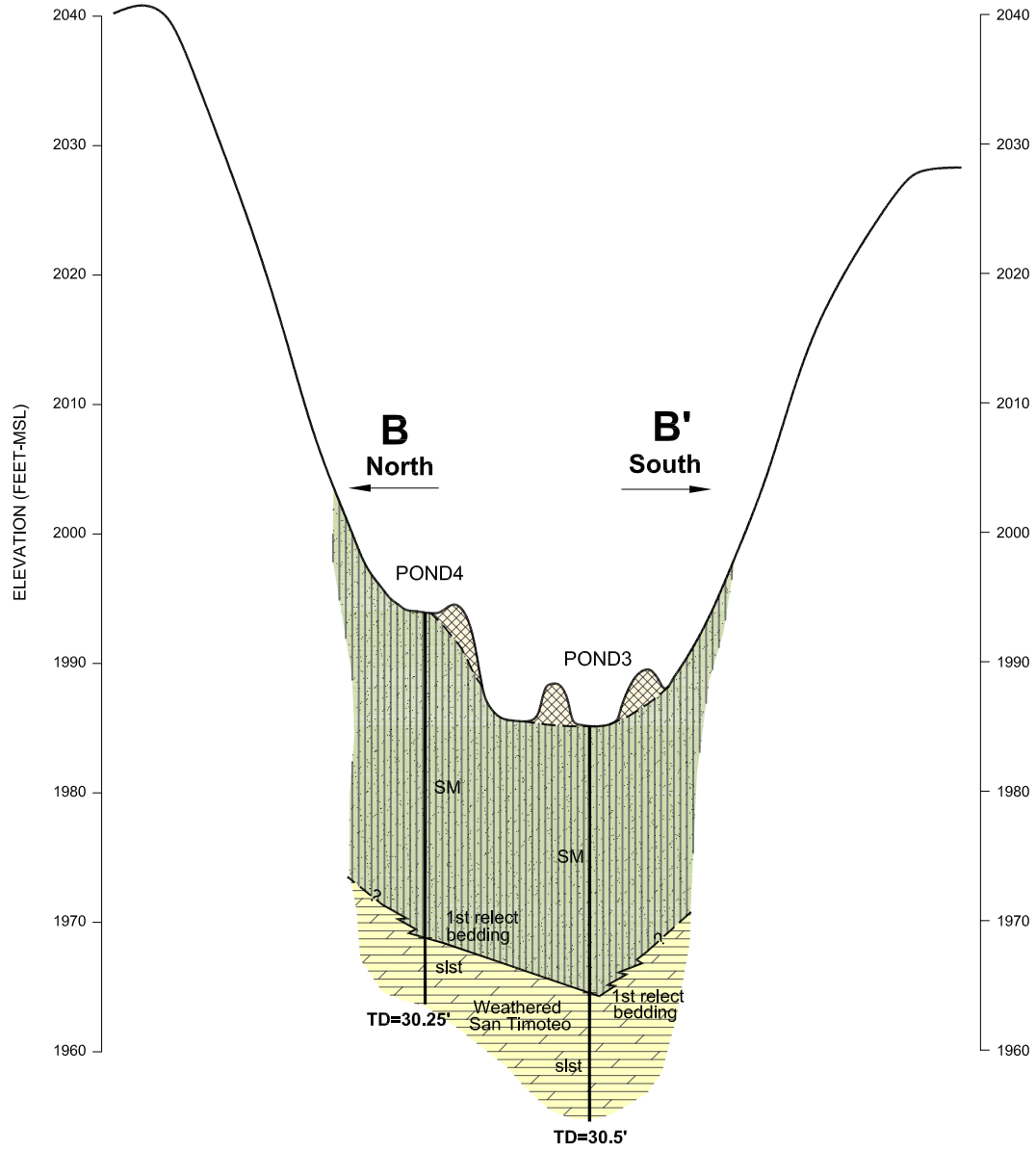

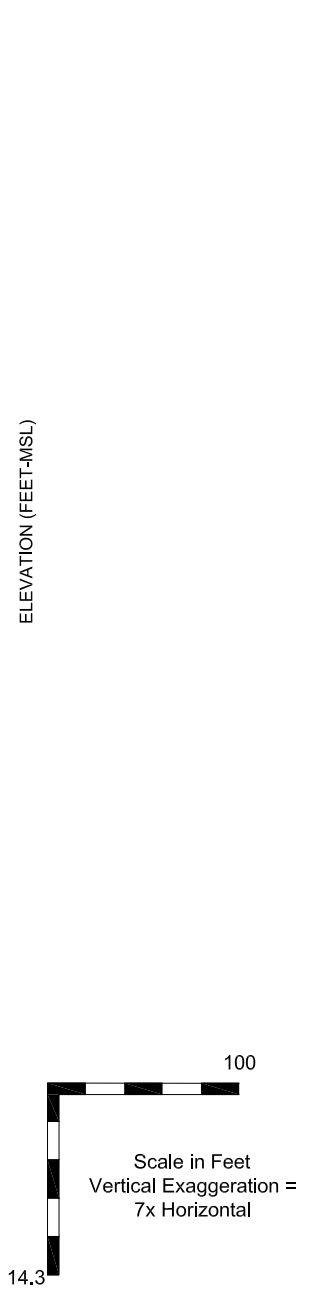

LEGEND

- Fill from surrounding soils (Fill)
- Silty Sand (SM)
- Siltstone (slst)
- Inferred Contact
- Boring
- TD=62' Total Boring Depth (feet)

Beaumont Site 2

Figure 6
Idealized Geologic Cross Section B-B'

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Table 2
Soil Analytical Results
Possible Liquid Waste Disposal Ponds
LMC Beaumont Site 2

Sample ID			Analytical Results																												
				Organics (µg/kg)													Metals (mg/kg)															
Boring Location	Depth	Sample Date	Perchlorate (µg/kg)	Total SVOCs	Bis(2-ethylhexyl)phthalate	Total VOCs	Acetone	Benzene	Bromomethane	2-Butanone	Carbon Disulfide	Chloromethane	Methylene Chloride	Toluene	Trichloroethene (TCE)	m,p-Xylenes	Arsenic	Barium	Beryllium	Cadmium	Chromium	Cobalt	Copper	Lead	Molybdenum	Nickel	Selenium	Thallium	Vanadium	Zinc
		MDL	[1] 10.1-524	--	[1] 170-190	--	[1] 4.6-8.3	[1] 4.6-8.3	[1] 1.8-3.3	[1] 1.8-3.3	[1] 1.8-3.3	[1] 1.8-3.3	[1] 1.8-3.3	[1] 1.8-3.3	[1] 1.8-3.3	[1] 1.8-3.3	[1] 0.408-0.449	[1] 0.203-0.225	[1] 0.203-0.225	[1] 0.507-0.562	[1] 1.01-1.12	[1] 1.01-1.12	[1] 0.507-0.562	[1] 0.203-0.225	[1] 0.507-0.562	[1] 1.01-1.12	[1] 0.507-0.562	[1] 0.507-0.562	[1] 0.507-0.562	[1] 0.507-0.562
POND1	0.5’	8/17/2007	ND	ND	ND	121	100	4.8 J	ND	12	ND	ND	ND	4.5 J	ND	ND	8.09	203	0.658 J	ND	35.1	10.8	26.0	5.2	ND	19.4	ND	1.0	70.4	52.8
POND1	5’	6/29/2007	ND	ND	ND	37	30	ND	ND	6.7 J	ND	ND	ND	ND	ND	ND	15.8	1,650	0.818 J	ND	36.9	18.2	41.9	13.1	ND	28.7	1.83	ND	96.4	72.5
POND1	10’	6/29/2007	ND	ND	ND	13	13	ND	ND	ND	ND	ND	ND	ND	ND	ND	9.55	222	0.703 J	ND	46.2	17.1	33.9	11.1	ND	26.6	1.36	ND	76.4	62.9
POND1	25’	6/29/2007	1,200	ND	ND	8.0	8.0 J	ND	ND	ND	ND	ND	ND	ND	ND	ND	6.50	86.4	0.586 J	ND	20.7	9.00	18.4	6.70	ND	16.4	1.27	ND	54.2	45.8
POND2	0.5’	8/17/2007	ND	ND	ND	127	110	3.0 J	ND	12	ND	ND	ND	2.4 J	ND	ND	3.13	124	0.583 J	ND	19.2	8.96	22.4	5.29	ND	16.7	ND	0.954 J	45.3	50.9
POND2	5’	7/2/2007	ND	ND	ND	33	27	2.8 J	ND	ND	ND	ND	ND	2.7 J	ND	ND	3.20	148	0.642 J	ND	23.0	11.3	32.1	7.33	0.701 J	23.0	ND R	1.30	47.5	57.3
POND2	10’	7/2/2007	ND	ND	ND	31	29	ND	ND	ND	ND	ND	ND	2.2 J	ND	ND	2.80	147	0.556 J	ND	18.8	9.89	23.0	5.43	ND	16.9	0.667 J	1.13	43.8	48.9
POND2	30’	7/2/2007	ND	ND	ND	14	14	ND	ND	ND	ND	ND	ND	ND	ND	ND	4.40	159	0.656 J	ND	22.7	12.3	28.5	6.93	0.641 J	19.9	0.630 J	1.83	55.9	54.4
POND3	0.5’	8/17/2007	173	190	190 J	105	83	5.6 J	ND	12 J	ND	ND	ND	3.9 J	ND	ND	3.79	150	0.657 J	5.37	28.2	10.3	49.0	236	ND	21.5	ND	1.17	50.4	1,720
POND3	5’	6/29/2007	297	ND	ND	96	48	14	ND	18	ND	ND	ND	13	ND	3.0 J	4.25	142	0.590 J	1.71	23.7	10.5	31.9	60.2	ND	18.6	1.24	ND	48.5	424
POND3	10’	6/29/2007	68.2	ND	ND	25	22	ND	ND	ND	3.1 J	ND	ND	ND	ND	ND	6.09	171	0.638 J	ND	28.5	12.7	29.9	20.0	ND	21.4	1.22	ND	59.9	147
POND3	25’	6/29/2007	33.2	ND	ND	12.3	ND	ND	ND	ND	ND	ND	3.4 J	ND	ND	ND	5.51	70.2	0.596 J	ND	23.6	10.2	21.6	6.46	ND	19.2	1.12	ND	55.0	52.9
POND4	0.5’	8/17/2007	322	ND	ND	218	140	8.4	18	15	3.5 J	22	ND	8.7	ND	2.3 J	3.59	157	0.633 J	0.697 J	30.6	10.3	57.2	19.4	ND	19.2	ND	0.994 J	52.5	142
POND4	5’	6/29/2007	36.8	ND	ND	63	43	5.4 J	ND	8.2 J	ND	ND	ND	5.9	ND	ND	4.69	166	0.617 J	ND	27.6	11.9	28.7	8.63	ND	20.0	1.13	ND	55.1	57.2
POND4	10’	6/29/2007	155	ND	ND	32	21	5.1 J	ND	ND	ND	ND	ND	5.8	ND	ND	9.74	234	0.773 J	ND	34.3	17.0	40.9	11.7	ND	26.4	1.76	ND	82.1	79.6
POND4	25’	6/29/2007	13,400	ND	ND	13	7.7 J	ND	ND	ND	ND	ND	ND	ND	5.2	ND	5.60	138	0.484 J	ND	26.5	8.43	17.2	9.33	ND	12.3	ND	ND	35.3	31.3
POND5	0.5’	8/17/2007	ND	ND	ND	72	65	ND	ND	6.7 J	ND	ND	ND	ND	ND	ND	3.33	138	0.651 J	ND	21.3	9.93	25.8	9.44	ND	18.5	ND	1.00 J	48.4	58.0
POND5	5’	6/29/2007	ND	ND	ND	42	42	ND	ND	ND	ND	ND	ND	ND	ND	ND	2.53	93.5	0.427 J	ND	15.9	7.93	19.9	6.04	ND	13.9	0.556 J	ND	34.2	41.0
POND5	10’	6/29/2007	29.5	ND	ND	26	26	ND	ND	ND	ND	ND	ND	ND	ND	ND	3.06	135	0.562 J	ND	20.6	10.8	24.5	7.39	ND	18.3	1.20	ND	45.4	54.1
POND5	30’	6/29/2007	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	17.4	194	1.53	ND	47.3	24.8	66.3	27.6	ND	36.0	2.54	ND	103	137

Notes:

Only the analytes positively detected are shown. A complete list of analytes tested for is included in the laboratory data package in Appendix C.

-- - MDL not available

[1] - MDL range for samples. Note that MDL varies depending on moisture content, sample weight, and dilution factor.

µg/kg - microgram per kilogram (parts-per-billion)

mg/kg - milligram per kilogram (parts-per-million)

MDL - Method Detection Limit

ND - not detected at or above laboratory reporting limits

SVOC - semivolatile organic compound

VOC - volatile organic compound

B - The sample result is less than 5 times (10 times for common organic laboratory contaminants) the amount of blank contamination. The result is considered not to have originated from the environmental sample, because cross-contamination is suspected.

J - The analyte was positively identified and the result is usable; however, the analyte concentration is an estimated value.

R - The sample result is rejected and not usable for any purpose. The presence or absence of the analyte cannot be verified.

Total VOCs ranged from non-detectable concentrations to 218 µg/kg, and showed a decreasing trend with depth in all sampling locations. 10 VOCs were detected including acetone, benzene, bromomethane, 2–butanone, carbon disulfide, chloromethane, methylene chloride, toluene, trichloroethene (TCE), and meta- and para- isomers of xylene (m,p-xylenes). Acetone was detected in 18 samples from all five sampling locations at concentrations ranging from 7.7 J to 140 µg/kg, and 2–butanone was detected in eight samples ranging from 6.7 J to 18 µg/kg; however, it should be noted that the sodium bisulfate preservative used in EPA Method 5035 has been documented to react with carbonate and organic matter-containing soils, forming acetone (EPA, Method 5035A Draft Revision 1, July 2002), styrene, and other ketones including 2–butanone (Uhfelder, M.M., *Study of Acetone Production in SW-846 Method 5035 (Low Level) Associated with Various Preservation Techniques and Storage Conditions*, 2000). Fuel-related compounds benzene, toluene, and xylenes were reported in samples ranging from non-detectable concentrations to 14 µg/kg. Benzene was detected in eight samples ranging from 2.8 J to 14 µg/kg. Toluene was detected in nine samples from 2.2 J to 13 µg/kg, and m,p–xylenes were detected in two samples at 2.3 J and 3.0 J µg/kg. Bromomethane, a common soil fumigant, was detected in one sample at 18 µg/kg. Carbon disulfide, which is used as a laboratory solvent or forms from reactions of sulphur in soil and water, was detected in two samples at 3.1 J and 3.5 J. Chloromethane, a possible breakdown product of chlorinated hydrocarbons, was detected in one sample at 22 µg/kg. Methylene chloride, a common solvent residue and disinfectant, was detected in one sample at 3.4 J µg/kg. TCE, a chlorinated compound typically used as a solvent, was detected in one sample (POND4 at 25 feet bgs) at 5.2 µg/kg. No other VOCs were detected in samples collected at the Discharge Ponds.

With the exception of the single detection of the SVOC, bis(2-ethylhexyl)phthalate (a common laboratory and field contaminant) at 190 J µg/kg in sample POND3 at 0.5 feet bgs, all samples were reported as non-detect for SVOCs. CAM 17 Metals analyses showed that detected metals included arsenic at levels ranging from 2.53 to 17.4 milligrams per kilogram (mg/kg), barium ranging from 70.2 to 1,650 mg/kg, beryllium ranging from 0.427 J to 1.53 mg/kg, cadmium ranging from non-detectable concentrations to 5.37 mg/kg, chromium ranging from 15.9 to 47.3 mg/kg, cobalt ranging from 7.93 to 24.8 mg/kg, copper ranging from 17.2 to 66.3 mg/kg, lead ranging from 5.2 to 236 mg/kg, molybdenum ranging from non-detectable concentrations to 0.701 J mg/kg, nickel ranging from 12.3 to 36.0 mg/kg, selenium ranging from non-detectable

concentrations to 2.54 mg/kg, thallium ranging from non-detectable concentrations to 1.83 mg/kg, vanadium ranging from 34.2 to 103 mg/kg, and zinc ranging from 31.3 to 1,720 mg/kg. Background sampling for metals was not performed during this phase of investigation. The metals results will be statistically compared with site-specific background data as part of an on-going risk assessment program for Site 2.

A nested set of monitoring wells (MW9-S and D) is located in Laborde Canyon approximately 500 feet toward the southeast of the presumed discharge ponds. These wells are topographically downgradient of the possible discharge ponds and the four Operational Areas. Only perchlorate has been detected in these wells.

Data Quality Review

The results from batch QC samples were evaluated in accordance with EPA standards. These QC samples consisted of method blanks, laboratory control samples, continuing calibration verification samples, and MS/MSD samples. Holding times, sample preservation methods, field duplicates, and field blanks were also evaluated. The data review showed all samples were compliant with all QC control limit criteria. Field duplicates were used to monitor unbiased laboratory precision. Relative percent difference (RPD), the measure of duplicate precision, is calculated for results at or above the practical quantitation limit (PQL). A total of four field duplicates were collected and analyzed. All field duplicates were reported with RPDs ranging from 0.1% to 27.5%; therefore, acceptance criteria was met (less than 40%), and precision was within the control limits for this data set. In conclusion, the analytical results and data collected for this investigation can be used for their intended purpose. All data not qualified are of known precision and accuracy. All "B" qualified results are considered not to have originated from the environmental samples, as cross-contamination is suspected, and all "R" qualified results were qualified as rejected and the presence or absence of the analyte cannot be verified. All data qualified as estimated (flagged with a "J") are usable as estimated concentrations.

Investigation-Derived Waste Management and Disposal

Investigation-derived wastes (IDW) including soil cuttings and decontamination water were collected and stored on-site in 55-gallon drums. The 55-gallon drums were temporarily stored on the concrete pad at the staging area prior to sampling and disposal. After all drilling and sampling activities concluded, composite samples were collected from the 55-gallon drums on 02

July 2007 and hand-delivered to Centrum Analytical Laboratory, a State of California-certified laboratory for analysis of VOCs by EPA Method SW8260B, SVOCs by EPA Method 8270C, perchlorate by EPA Method 314.0, CAM17 metals by EPA Methods 6010B/7471A, and total petroleum hydrocarbons range C6-C40 by EPA Method 8015M. Copies of the IDW analysis data can be found in the laboratory analytical data package in Appendix C. The 55-gallon drums were subsequently removed on 09 August 2007 and disposed of as non-hazardous waste at Siemens Water Technology Corp., located in Vernon, California. IDW profiling, transportation, and disposal were performed by Haz Mat Trans, Inc. Copies of the IDW manifests are included in Appendix E.

Conclusions and Recommendations

The following discussion presents conclusions and recommendations for further work based upon the results and findings of the supplemental site soil investigation at the Site 2 Prism and Discharge Ponds. In addition to the recommendations below, the metals results presented herein will be statistically compared with site-specific background data.

Prism

The results of the environmental sampling at the Prism included low-level detections of VOCs including levels of acetone above the laboratory reporting limits; however, it should be noted that acetone was present throughout the site and in the equipment blank samples, resulting in several detections that were "B" qualified and the results are considered not to have originated from the environmental samples. Other detections of acetone and 2–butanone that are not "B" qualified are considered to be present from the reaction of the soil and the method prescribed preservative; and therefore, should not be interpreted as contamination in site soils. The Prism is used by illegal off-road motorcyclists. Gasoline-related constituents including benzene, toluene, and xylenes may be a result of the illegal off-road use.

The detection of perchlorate was variable. Perchlorate was detected in the samples collected at concentrations up to 2,950 µg/kg (PRISM7 at 0.5 feet into the Prism), but with the exception of the highest value detected at PRISM7 at 0.5 feet, the balance of the results ranged from non-detectable concentrations to 778 µg/kg. This is consistent with the idea that the Prism was constructed from the soils in the area in front of the test bays. It appears that a rather large area was excavated; this could result in the mixing of relatively clean and impacted soils resulting in a

varied distribution of impacted soil within the Prism, which may explain such heterogeneous perchlorate results. Soil impacted with perchlorate has been reported in a number of locations in and around the test bays (Tetra Tech, *Soil Investigation Report, Beaumont Site 2, Historical Operational Areas J, K, L, and M*, 2004). The highest concentrations of perchlorate detected in groundwater at Site 2 were detected in samples collected from monitoring wells adjacent to the Prism (Tetra Tech, *Fourth Quarter 2006 and First Quarter 2007 Semiannual Groundwater Monitoring Report*, 2007).

Although transite pipe has been observed in and around the Prism, no asbestos was detected in the soil samples collected from the Prism. Remnants of the pipe were collected and disposed of several years back. It is presumed that the pipe was used as conduit while the test bays were active and was excavated along with the soils from in front of the test bays to create the Prism, resulting in the destruction and distribution of the once buried conduit. Based on the test results it does not appear that friable asbestos has been spread around the area due to the construction of the Prism. Although the area was previously policed and shards of the transite pipe were removed, it appears additional shards are weathering out of the Prism and possible the valley floor. It is recommended that the area be policed routinely to ensure additional transite is removed as necessary.

The findings of this study are consistent with the conceptual model for Area K. Therefore, although studies of this Area are currently underway, no additional studies or geophysical surveys of the Prism are recommended at this time.

Discharge Ponds

The results of the sampling activities at the Discharge Ponds included detections of low levels of the VOCs: acetone, benzene, bromomethane, 2–butanone, carbon disulfide, chloromethane, methylene chloride, toluene, TCE, and m,p–xylenes. Acetone and 2–butanone may be present from reactions of the soil and the method prescribed preservative. The depressions are used by illegal off-road motorcyclists. Gasoline-related constituents including benzene, toluene, and xylenes may be a result of the illegal off-road use. All total VOCs in each sampling location showed decreasing trends with depth down to the total depth drilled of approximately 25 to 30 feet bgs with the exception of TCE, which was detected in one sample (POND4 at a depth of 25 feet bgs), but was non-detect in all other samples collected.

Perchlorate was detected throughout the soil column in sampling locations POND3 and 4, at depth in locations POND1 and 5, and not at all in location POND2. The highest concentration was 13,400 µg/kg in POND4 at a depth of 25 feet bgs, suggesting that the two depressions where POND3 and 4 are located may have been historically used as discharge ponds. The depression associated with sampling location POND3 is smaller then the other depressions and is downslope and south of the depression associated with sampling location POND4 (Figure 3). The absence of shallow perchlorate impacted soil in locations POND1 and 5 suggests these depressions were not used as discharge ponds but may have been impacted by the lateral migration at depth of perchlorate from the POND4 depression. Sampling location POND2 is located in a surface water runoff area to the east of the Discharge Ponds and had no detections of perchlorate; therefore, it would appear that this area has not been impacted by the direct discharge of perchlorate impacted water, the runoff of impacted sediment or surface water from the presumed discharge ponds in sampling locations POND3 and 4, or the lateral migration of perchlorate a depths above 30 feet bgs.

The vertical and lateral extent of perchlorate and VOC impacts to the vadose zone need to be better defined and it needs to be determined if the compounds detected have migrated to groundwater. Because of the terrain in the area of the ponds further delineation will be difficult. No access is available to the north or south, limited access is available to the west, and reasonable access is available to the east. Therefore, it is proposed that six additional borings be installed in this area to further evaluate impacts to the vadose zone. It is also proposed that four of these borings be converted to water table monitoring wells. The proposed location of each borehole and proposed monitoring well is summarized in Table 3 and graphically depicted in Figure 7.

Lithologic samples will be logged following the Unified Soil Classification System (USCS). Soil samples will be collected, with the exception of the bedrock contact, every 5 feet. Continuous samples will be collected across the presumed depth of the contact to ensure that the alluvium just above the contact is sampled. In addition, soil samples will be collected for laboratory analysis at near surface, 5 and 10 feet bgs, and every 10 feet there after until first groundwater is encountered in borings at depths not previously characterized (Table 3). If groundwater is observed in the two borings that will not be completed as wells, grab samples will be collected with a disposable bailer for testing. Soil and groundwater samples will be analyzed for VOCs, perchlorate, and CAM17 metals. All investigation activities will be done in accordance with the following

documents: *Groundwater Monitoring Well Installation Work Plan, Lockheed Martin Corporation, Beaumont Site 2, Beaumont California* (Tetra Tech, 2006); *Sampling and Analysis Plan Lockheed Martin Corporation, Beaumont Site 2, Beaumont California* (Tetra Tech, 2006); and *Letter Work Plan to Conduct Soil Investigations at the Prism Structure and Possible Liquid Waste Discharge Ponds at Lockheed Martin Beaumont Site 2* (Tetra Tech, 2007).

Table 3 Proposed Boreholes and Monitoring Wells, Discharge Ponds

Bore hole ID	Soil Boring Only	Soil Boring and Well	Comments
SB1		X	This boring will be located in the depression where POND4 was drilled and will be advanced to groundwater to better define the vertical limits of the soil impacts and evaluate groundwater quality and groundwater flow direction. A monitoring well will be constructed at first groundwater. Boring will be continuously cored near the contact of alluvium and weathered San Timoteo formation and samples will be collected directly overlying the contact and every 10 feet there after until first groundwater is encountered and analyzed for VOCs, perchlorate, and CAM17 metals.
SB2		X	This boring will be located in the depression where POND3 was drilled and will be advanced to groundwater to better define the vertical limits of the soil impacts and evaluate groundwater quality and groundwater flow direction. A monitoring well will be constructed at first groundwater. Boring will be continuously cored near the contact of alluvium and weathered San Timoteo formation and samples will be collected directly overlying the contact and every 10 feet there after until first groundwater is encountered and analyzed for VOCs, perchlorate, and CAM17 metals.
SB3		X	This boring will be located east of location POND5 as far up the canyon as is reasonable to confirm the western limit of the soil impacts and evaluate groundwater quality and groundwater flow direction. For purposes of background metals screening, samples should be collected in the alluvium at 0.5, 5, 10 feet bgs, every 10 feet there after until first groundwater is encountered, and directly overlying the weathered San Timoteo contact and analyzed for VOCs, perchlorate, and CAM17 metals. A monitoring well will be constructed at first groundwater.

Table 3 (continued) Proposed Boreholes and Monitoring Wells, Discharge Ponds			
Bore hole ID	**Soil Boring Only**	**Soil Boring and Well**	**Comments**
SB4	X		This boring will be located west of location POND3 and south-southwest of location POND4 to evaluate the lateral extent of impacts to the vadose zone. The boring will be advanced to first groundwater. Samples should be collected at 0.5, 5, 10 feet bgs, every 10 feet there after until first groundwater is encountered, and directly overlying the weathered San Timoteo contact and analyzed for VOCs, perchlorate, and CAM17 metals A groundwater grab sample will be collected if groundwater is encountered and analyzed for VOCs and perchlorate.
SB5	X		This boring will be located east of location POND3 and southeast of location POND4 to evaluate the lateral extent of impacts to the vadose zone. The boring will be advanced to first groundwater. Samples should be collected at 0.5, 5, 10 feet bgs, every 10 feet there after until first groundwater is encountered, and directly overlying the weathered San Timoteo contact and analyzed for VOCs, perchlorate, and CAM17 metals. A groundwater grab sample will be collected if groundwater is encountered and analyzed for VOCs and perchlorate.
SB6		X	This boring will be located at the mouth of the canyon near location POND2 to confirm the limits of the impacts to soil and evaluate groundwater quality and groundwater flow direction. A geophysical survey line will be performed at the mouth of the canyon in order to locate the lowest depth to alluvium. The monitoring well will be constructed at first groundwater in the location with the deepest alluvium. Boring will be continuously cored near the contact of alluvium and weathered San Timoteo formation and samples will be collected directly overlying the contact and every 10 feet there after until first groundwater is encountered and analyzed for VOCs, perchlorate, and CAM17 metals.

X:\GIS\LOCKHEED 19892-04\PROP_WELLS.MXD

0 50 100 Feet

Adapted from: February 2006 aerial photograph.

LEGEND

- Proposed Soil Boring Location
- Proposed Monitoring Well Location
- Historical Operational Area Boundary

Note: Coordinates are in UTM, NAD83, Zone 11, meters.

Beaumont Site 2

Figure 7

Possible Liquid Waste Discharge Ponds Proposed Monitoring Well Locations

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September 2007

TETRA TECH

If you have any questions or require additional information please feel free to contact Mr. Thomas Villeneuve at (909) 381-1674.

Sincerely,

Thomas J. Villeneuve, P.E. (C-53735)
Beaumont Program Manager

C: S. Sabater, LMC/Tt

APPENDIX A BORING LOGS

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BORING LOG

Boring ID: PRISM1

Project:	LMC Beaumont Site 2 Prism & Ponds	Borehole Depth:	5 feet (into structure)	Sampling Method: Split Spoon / EPA Method 5035 Pre-preserved VOAs	Page 1 of 1
Location:	Site 2 Prism	Borehole Diameter:	4 inches		
Project No.:	19892-03	Drilling Contractor:	None	Northing (UTM, NAD83, Zone 11, meters): 497047	
Logged By:	DCB			Easting (UTM, NAD83, Zone 11, meters): 3752019	
Date Boring Started:	3-Jul-2007	Drilling Method:	Hand-Auger,	Ground Surface Elevation (feet MSL): N/A	
Date Boring Completed:	3-Jul-2007	Angle boring into Prism structure		Top of Casing Elevation (feet MSL): N/A	

Depth (feet bgs)	Recovery	Blow Counts	Time	Sample No.	USCS	Graphic Log	Interval and Lithologic Description	OVA (ppm, BZ = breathing zone)
0	H				AF		0 to 5 feet: ARTIFICIAL FILL.	
1	A		935	PRISM1-0.5			(2.5 Y 7/3) pale yellow, dry, poorly graded, loose to dense,	
	N						90% subrounded, very fine to fine-grained sand, 10% non-	
2	D						plastic fines, trace gravel, no odor.	
3	A							
	U							
4	G							
	E							
5	R		950	PRISM1-5				
6								
7								
8								
9								
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17								
18								
19								
20								

TETRA TECH

BORING LOG

Boring ID: PRISM2

Project:	LMC Beaumont Site 2 Prism & Ponds	Borehole Depth:	5 feet (into structure)	Sampling Method: Split Spoon / EPA Method 5035 Pre-preserved VOAs	Page 1 of 1
Location:	Site 2 Prism	Borehole Diameter:	4 inches		
Project No.:	19892-03	Drilling Contractor:	None	Northing (UTM, NAD83, Zone 11, meters): 497060	
Logged By:	DCB			Easting (UTM, NAD83, Zone 11, meters): 3752014	
Date Boring Started:	3-Jul-2007	Drilling Method:	Hand-Auger,	Ground Surface Elevation (feet MSL): N/A	
Date Boring Completed:	3-Jul-2007	Angle boring into Prism structure		Top of Casing Elevation (feet MSL): N/A	

Depth (feet bgs)	Recovery	Blow Counts	Time	Sample No.	USCS	Graphic Log	Interval and Lithologic Description	OVA (ppm, BZ = breathing zone)
0							Surface: Grass	
	H				AF		0 to 5 feet bgs: ARTIFICIAL FILL.	
1	A		854	PRISM2-0.5			(2.5 Y 7/3) pale yellow, dry, poorly graded, loose to dense,	
	N						90% subrounded, very fine to fine-grained sand, 10% non-	
2	D						plastic fines, trace gravel, no odor.	
3	A							
	U							
4	G							
	E							
5	R		930	PRISM2-5				
6								
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TETRA TECH

BORING LOG

Boring ID: PRISM3

Project:	LMC Beaumont Site 2 Prism & Ponds	Borehole Depth:	5 feet (into structure)	Sampling Method: Split Spoon / EPA Method 5035 Pre-preserved VOAs	Page 1 of 1
Location:	Site 2 Prism	Borehole Diameter:	4 inches		
Project No.:	19892-03	Drilling Contractor:	None	Northing (UTM, NAD83, Zone 11, meters): 497073	
Logged By:	DCB			Easting (UTM, NAD83, Zone 11, meters): 3751992	
Date Boring Started:	3-Jul-2007	Drilling Method:	Hand-Auger,	Ground Surface Elevation (feet MSL): N/A	
Date Boring Completed:	3-Jul-2007	Angle boring into Prism structure		Top of Casing Elevation (feet MSL): N/A	

Depth (feet bgs)	Recovery	Blow Counts	Time	Sample No.	USCS	Graphic Log	Interval and Lithologic Description	OVA (ppm, BZ = breathing zone)
---- 0 ----							Surface: Grass	
	H				AF		0 to 5 feet bgs: ARTIFICIAL FILL.	
---- 1 ----	A		820	PRISM3-0.5			(2.5 Y 7/3) pale yellow, dry, poorly graded, loose to dense,	
	N						90% subrounded, very fine to fine-grained sand, 10% non-	
---- 2 ----	D						plastic fines, trace gravel, no odor.	
---- 3 ----	A							
	U							
---- 4 ----	G							
	E		840	PRISM3-5				
---- 5 ----	R		845	PRISM103-5				
				DUP				
---- 6 ----								
---- 7 ----								
---- 8 ----								
---- 9 ----								
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---- 16 ----								
---- 17 ----								
---- 18 ----								
---- 19 ----								
---- 20 ----								

TETRA TECH

BORING LOG

Boring ID: PRISM4

Project:	LMC Beaumont Site 2 Prism & Ponds	Borehole Depth:	5 feet (into structure)	Sampling Method: Split Spoon / EPA Method 5035 Pre-preserved VOAs	Page 1 of 1
Location:	Site 2 Prism	Borehole Diameter:	4 inches		
Project No.:	19892-03	Drilling Contractor:	None	Northing (UTM, NAD83, Zone 11, meters): 497070	
Logged By:	DCB			Easting (UTM, NAD83, Zone 11, meters): 3751978	
Date Boring Started:	2-Jul-2007	Drilling Method:	Hand-Auger,	Ground Surface Elevation (feet MSL): N/A	
Date Boring Completed:	2-Jul-2007	Angle boring into Prism structure		Top of Casing Elevation (feet MSL): N/A	

Depth (feet bgs)	Recovery	Blow Counts	Time	Sample No.	USCS	Graphic Log	Interval and Lithologic Description	OVA (ppm, BZ = breathing zone)
0							Surface: Grass	
	H				AF		0 to 5 feet bgs: ARTIFICIAL FILL.	
1	A		1315	PRISM4-0.5			(2.5 Y 7/3) pale yellow, dry, poorly graded, loose to dense,	
	N						90% subrounded, very fine to fine-grained sand, 10% non-	
2	D						plastic fines, trace gravel, no odor.	
3	A							
	U							
4	G							
	E							
5	R		1410	PRISM4-5				
6								
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TETRA TECH

BORING LOG

Boring ID: PRISM5

Project:	LMC Beaumont Site 2 Prism & Ponds	Borehole Depth:	5 feet (into structure)	Sampling Method: Split Spoon / EPA Method 5035 Pre-preserved VOAs	Page 1 of 1
Location:	Site 2 Prism	Borehole Diameter:	4 inches		
Project No.:	19892-03	Drilling Contractor:	None	Northing (UTM, NAD83, Zone 11, meters): 497053	
Logged By:	DCB			Easting (UTM, NAD83, Zone 11, meters): 3751969	
Date Boring Started:	2-Jul-2007	Drilling Method:	Hand-Auger,	Ground Surface Elevation (feet MSL): N/A	
Date Boring Completed:	2-Jul-2007	Angle boring into Prism structure		Top of Casing Elevation (feet MSL): N/A	

Depth (feet bgs)	Recovery	Blow Counts	Time	Sample No.	USCS	Graphic Log	Interval and Lithologic Description	OVA (ppm, BZ = breathing zone)
0							Surface: Grass	
	H				AF		0 to 5 feet bgs: ARTIFICIAL FILL.	
1	A		1205	PRISM5-0.5			(2.5 Y 7/3) pale yellow, dry, poorly graded, loose to dense,	
	N						90% subrounded, very fine to fine-grained sand, 10% non-	
2	D						plastic fines, trace gravel, no odor.	
3	A							
	U							
4	G							
	E							
5	R		1300	PRISM5-5				
6								
7								
8								
9								
10								
11								
12								
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14								
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19								
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TETRA TECH

BORING LOG

Boring ID: PRISM6

Project:	LMC Beaumont Site 2 Prism & Ponds	Borehole Depth:	5 feet (into structure)	Sampling Method: Split Spoon / EPA Method 5035 Pre-preserved VOAs	Page 1 of 1
Location:	Site 2 Prism	Borehole Diameter:	4 inches		
Project No.:	19892-03	Drilling Contractor:	None	Northing (UTM, NAD83, Zone 11, meters): 497039	
Logged By:	DCB			Easting (UTM, NAD83, Zone 11, meters): 3751974	
Date Boring Started:	2-Jul-2007	Drilling Method:	Hand-Auger,	Ground Surface Elevation (feet MSL): N/A	
Date Boring Completed:	2-Jul-2007	Angle boring into Prism structure		Top of Casing Elevation (feet MSL): N/A	

Depth (feet bgs)	Recovery	Blow Counts	Time	Sample No.	USCS	Graphic Log	Interval and Lithologic Description	OVA (ppm, BZ = breathing zone)
---- 0 ----							Surface: Grass	
	H				AF		0 to 5 feet bgs: ARTIFICIAL FILL.	
---- 1 ----	A		1320	PRISM6-0.5			(2.5 Y 7/3) pale yellow, dry, poorly graded, loose to dense,	
	N						90% subrounded, very fine to fine-grained sand, 10% non-	
---- 2 ----	D						plastic fines, trace gravel, no odor.	
---- 3 ----	A							
	U							
---- 4 ----	G							
	E							
---- 5 ----	R		1400	PRISM6-5				
---- 6 ----								
---- 7 ----								
---- 8 ----								
---- 9 ----								
---- 10 ----								
---- 11 ----								
---- 12 ----								
---- 13 ----								
---- 14 ----								
---- 15 ----								
---- 16 ----								
---- 17 ----								
---- 18 ----								
---- 19 ----								
---- 20 ----								

TETRA TECH

BORING LOG

Boring ID: PRISM7

Project:	LMC Beaumont Site 2 Prism & Ponds	Borehole Depth:	5 feet (into structure)	Sampling Method: Split Spoon / EPA Method 5035 Pre-preserved VOAs	Page 1 of 1
Location:	Site 2 Prism	Borehole Diameter:	4 inches		
Project No.:	19892-03	Drilling Contractor:	None	Northing (UTM, NAD83, Zone 11, meters): 497029	
Logged By:	DCB			Easting (UTM, NAD83, Zone 11, meters): 3751994	
Date Boring Started:	3-Jul-2007	Drilling Method:	Hand-Auger,	Ground Surface Elevation (feet MSL): N/A	
Date Boring Completed:	3-Jul-2007	Angle boring into Prism structure		Top of Casing Elevation (feet MSL): N/A	

Depth (feet bgs)	Recovery	Blow Counts	Time	Sample No.	USCS	Graphic Log	Interval and Lithologic Description	OVA (ppm, BZ = breathing zone)
---- 0 ----							Surface: Grass	
	H				AF		0 to 5 feet bgs: ARTIFICIAL FILL.	
---- 1 ----	A		1045	PRISM7-0.5			(2.5 Y 7/3) pale yellow, dry, poorly graded, loose to dense,	
	N		1050	PRISM107-0.5			90% subrounded, very fine to fine-grained sand, 10% non-	
---- 2 ----	D			DUP			plastic fines, trace gravel, no odor.	
---- 3 ----	A							
	U							
---- 4 ----	G						Increasing gravel with depth	
	E							
---- 5 ----	R		1100	PRISM7-5				
---- 6 ----								
---- 7 ----								
---- 8 ----								
---- 9 ----								
---- 10 ----								
---- 11 ----								
---- 12 ----								
---- 13 ----								
---- 14 ----								
---- 15 ----								
---- 16 ----								
---- 17 ----								
---- 18 ----								
---- 19 ----								
---- 20 ----								

TETRA TECH

BORING LOG

Boring ID: PRISM8

Project:	LMC Beaumont Site 2 Prism & Ponds	Borehole Depth:	5 feet (into structure)	Sampling Method: Split Spoon / EPA Method 5035 Pre-preserved VOAs	Page 1 of 1
Location:	Site 2 Prism	Borehole Diameter:	4 inches		
Project No.:	19892-03	Drilling Contractor:	None	Northing (UTM, NAD83, Zone 11, meters): 497030	
Logged By:	DCB			Easting (UTM, NAD83, Zone 11, meters): 3752009	
Date Boring Started:	3-Jul-2007	Drilling Method:	Hand-Auger,	Ground Surface Elevation (feet MSL): N/A	
Date Boring Completed:	3-Jul-2007	Angle boring into Prism structure		Top of Casing Elevation (feet MSL): N/A	

Depth (feet bgs)	Recovery	Blow Counts	Time	Sample No.	USCS	Graphic Log	Interval and Lithologic Description	OVA (ppm, BZ = breathing zone)
0							Surface: Grass	
	H				AF		0 to 5 feet bgs: ARTIFICIAL FILL.	
1	A		1000	PRISM8-0.5			(2.5 Y 7/3) pale yellow, dry, poorly graded, loose to dense,	
	N			+MS/MSD			40% subrounded, very fine to fine-grained sand, 10% non-	
2	D						plastic fines, 50% gravel, no odor.	
3	A							
	U							
4	G							
	E							
5	R		1030	PRISM8-5				
6								
7								
8								
9								
10								
11								
12								
13								
14								
15								
16								
17								
18								
19								
20								

TETRA TECH

BORING LOG

Boring ID: POND1

Project:	LMC Beaumont Site 2 Prism & Ponds	Borehole Depth:	30 feet bgs	Sampling Method: Split Spoon / EPA Method 5035 Pre-preserved VOAs	Page 1 of 2
Location:	Site 2 Ponds	Borehole Diameter:	8 inches		
Project No.:	19892-03	Drilling Contractor:	WDC	Northing (UTM, NAD83, Zone 11, meters): 4972262	
Logged By:	DCB			Easting (UTM, NAD83, Zone 11, meters): 3750881	
Date Boring Started:	29-Jun-2007	Drilling Method:	HSA	Ground Surface Elevation (feet MSL): N/A	
Date Boring Completed:	29-Jun-2007			Top of Casing Elevation (feet MSL): N/A	

Depth (feet bgs)	Recovery	Blow Counts	Time	Sample No.	USCS	Graphic Log	Interval and Lithologic Description	OVA (ppm, BZ = breathing zone)
0							Surface: Grass	
	H		950	POND1-0.5'	SP-SM		0 to 5 feet bgs: POORLY GRADED SAND WITH SILT.	
1	A	(08/17/2007)					(2.5 Y 7/3) pale yellow, dry, poorly graded, loose to dense,	
	N						90% subrounded, very fine to fine-grained sand, 10% non-	
2	D						plastic fines, no odor.	
3	A							
	U							
4	G							
	E							
5	R							
	0.5'	28	1345	POND1-5'	SM		5 to 5.5 feet bgs: SILTY SAND. (2.5 Y 7/3) pale yellow, dry,	0.7
6	33%	50					poorly graded, dense, 80% subrounded, very fine-grained sand,	BZ = 0.3
							20% non-plastic fines, no odor, strong HCl reaction.	
7								
8								
9								
10								
	0.5'	60/6"	1355	POND1-10'	SM		10 to 10.5 feet bgs: SILTY SAND. (2.5 Y 7/3) pale yellow, dry,	0.8
11	33%						poorly graded, dense to very dense, 80% subrounded, very fine-	BZ = 0.3
							grained sand, 20% non-plastic fines, no odor, strong HCl reaction.	
12							At 10.5 feet bgs, very gravelly pale yellow SILTY SANDSTONE	
							fragments/friable cobbles.	
13								
14								
15								
	0.75'	45	1400	--	SM		15 to 16 feet bgs: SILTY SAND. (10 YR 5/3) brown, dry,	0.9
16	50%	60					poorly graded, very dense, 60% subrounded, very fine-grained	BZ = 0.3
							sand, 40% non-plastic fines, trace fine-grained gravel, friable,	
17							maximum grain size = 1/4 inch, no odor, strong HCl reaction.	
18								
19								
20								

TETRA TECH

BORING LOG

Boring ID: POND1

Project:	LMC Beaumont Site 2 Prism & Ponds	Borehole Depth:	30 feet bgs	Sampling Method: Split Spoon / EPA Method 5035 Pre-preserved VOAs	Page 2 of 2
Location:	Site 2 Ponds	Borehole Diameter:	8 inches		
Project No.:	19892-03	Drilling Contractor:	WDC	Northing (UTM, NAD83, Zone 11, meters): 4972262	
Logged By:	DCB			Easting (UTM, NAD83, Zone 11, meters): 3750881	
Date Boring Started:	29-Jun-2007	Drilling Method:	HSA	Ground Surface Elevation (feet MSL): N/A	
Date Boring Completed:	29-Jun-2007			Top of Casing Elevation (feet MSL): N/A	

Depth (feet bgs)	Recovery	Blow Counts	Time	Sample No.	USCS	Graphic Log	Interval and Lithologic Description	OVA (ppm, BZ = breathing zone)
20	0.75'	32	1410	--	SM		20 to 21 feet bgs: SILTY SAND. (10 YR 6/4) light yellowish	1.1
21	50%	50					brown, dry, poorly graded, very dense, 60% subrounded, very	BZ = 0.3
							fine-grained sand, 40% non-plastic fines, no odor, very strong	
22							HCl reaction.	
23								
24								
25								
	0.75'	36	1415	POND1-25'	SM		25 to 26 feet bgs: SILTY SAND. (10 YR 6/4) light yellowish	0.7
26	50%	50	1425	POND101-25'			brown, dry to slightly damp, poorly graded, very dense, 60%	BZ = 0.3
				(DUP)			subrounded, very fine-grained sand, 40% non-plastic fines, no	
27							odor, very strong HCl reaction.	
28								
29								
							Alluvium/Weathered San Timoteo Formation Contact:	
30							First relect bedding at approximately 26 to 30 feet bgs.	
	0.5'	70/6"	1420	--	SP-SM		30 to 30.5 feet bgs: SILTY SAND. (10 YR 6/6) brownish yellow,	0.7
31	33%			Not enough			dry, poorly graded, very dense, 90% subrounded, very fine to	BZ = 0.3
				to sample			fine-grained sand, 10% non-plastic fines, no odor, very strong	
32							HCl reaction, moderate cementation, platy fragments of	
							weathered San Timoteo Formation.	
33			Total Depth = 30.5 feet bgs. Groundwater/bedrock were not encountered.					
34								
35								
36								
37								
38								
39								
40								

TETRA TECH

BORING LOG

Boring ID: POND2

Project:	LMC Beaumont Site 2 Prism & Ponds	Borehole Depth:	31 feet bgs	Sampling Method: Split Spoon / EPA Method 5035 Pre-preserved VOAs	Page 1 of 2
Location:	Site 2 Ponds	Borehole Diameter:	8 inches		
Project No.:	19892-03	Drilling Contractor:	WDC	Northing (UTM, NAD83, Zone 11, meters): 497302	
Logged By:	DCB			Easting (UTM, NAD83, Zone 11, meters): 3750855	
Date Boring Started:	2-Jul-2007	Drilling Method:	HSA	Ground Surface Elevation (feet MSL): N/A	
Date Boring Completed:	2-Jul-2007			Top of Casing Elevation (feet MSL): N/A	

Depth (feet bgs)	Recovery	Blow Counts	Time	Sample No.	USCS	Graphic Log	Interval and Lithologic Description	OVA (ppm, BZ = breathing zone)
0							Surface: Grass	
	H		1000	POND2-0.5'	SM		0 to 5 feet bgs: SILTY SAND. (10 YR 6/3) pale brown, dry,	
1	A	(08/17/2007)					poorly graded, loose, 75% subrounded, very fine to fine-grained	
	N						sand, 20% non-plastic fines, 5% hard, angular gravel, maximum	
2	D						size = 1 inch, no odor.	
3	A							
	U							
4	G							
	E							
5	R							
	1.5'	7	850	POND2-5'	SM		5 to 8 feet bgs: SILTY SAND. (10 YR 6/3) pale brown, dry,	0.2
6	100%	8					poorly graded, loose to dense, 75% subrounded, very fine to	BZ = 0.0
		8					fine-grained sand, 20% non-plastic fines, 5% hard, angular gravel,	
7	1.5'	13		+MS/MSD			maximum size = 1 inch, no odor, strong HCl reaction.	
	100%	36						
		38						
8								
9								
10								
	1.5'	17	900	POND2-10'	SM		10 to 12 feet bgs: SILTY SAND. (7.5 YR 5/4) brown,	0.3
11	100%	20					dry, poorly graded, medium dense to dense, 85% subrounded,	BZ = 0.0
		21					very fine to fine-grained sand, trace medium to coarse-grained	
12	0.75'	22	915	POND102-10'			sand, 15% non-plastic fines, trace friable, subrounded gravel,	
	50%	32		(DUP)			maximum size = 1/4 inch, no odor, strong HCl reaction.	
13		38						
14								
15								
	1'	31	925	--	SM		15 to 16 feet bgs: SILTY SAND. (7.5 YR 5/4) brown,	0.5
16	67%	50					dry, poorly graded, dense, 85% subrounded, very fine to	BZ = 0.2
							fine-grained sand, trace medium to coarse-grained sand, 15% non-	
17							plastic fines, trace friable, subrounded gravel, maximum size =	
							1/4 inch to 3/8 inch, no odor, weak HCl reaction.	
18								
19								
20								

TETRA TECH

BORING LOG

Boring ID: POND2

Project:	LMC Beaumont Site 2 Prism & Ponds	Borehole Depth:	31 feet bgs	Sampling Method: Split Spoon / EPA Method 5035 Pre-preserved VOAs	Page 2 of 2
Location:	Site 2 Ponds	Borehole Diameter:	8 inches		
Project No.:	19892-03	Drilling Contractor:	WDC	Northing (UTM, NAD83, Zone 11, meters): 497302	
Logged By:	DCB			Easting (UTM, NAD83, Zone 11, meters): 3750855	
Date Boring Started:	2-Jul-2007	Drilling Method:	HSA	Ground Surface Elevation (feet MSL): N/A	
Date Boring Completed:	2-Jul-2007			Top of Casing Elevation (feet MSL): N/A	

Depth (feet bgs)	Recovery	Blow Counts	Time	Sample No.	USCS	Graphic Log	Interval and Lithologic Description	OVA (ppm, BZ = breathing zone)
20	1.5'	22	930	--	SM		20 to 21.5 feet bgs: SILTY SAND. (7.5 YR 5/4) brown,	0.4
	100%	50					dry, poorly graded, dense, 85% subrounded, very fine to	BZ = 0.2
21							fine-grained sand, 15% non-plastic fines, trace friable, subrounded	
							gravel, maximum size = 1/2 inch, trace plastic fines (clay	
22							nodules), no odor, weak HCl reaction.	
23								
24								
25	1'	20	940	--	SM		25 to 26 feet bgs: SILTY SAND. (7.5 YR 5/4) brown,	0.5
	75%	25					dry, poorly graded, dense, 85% subrounded, very fine to	BZ = 0.2
26		28					fine-grained sand, 15% non-plastic fines, trace hard, subrounded	
							gravel, maximum size = 1/4 inch, trace plastic fines (clay	
27							nodules), no odor, strong HCl reaction, decreasing fines with	
							depth.	
28								
29								
30	1'	20	945	POND2-30'	SP-SM		30 to 31 feet bgs: POORLY GRADED SAND WITH SILT.	0.4
	75%	30					(10 YR 5/4) yellowish brown, dry, poorly graded, medium dense,	BZ = 0.2
31		35					90% subrounded, very fine to fine-grained sand, 10% non-	
							plastic fines, no odor, strong HCl reaction.	
32	Total Depth = 31 feet bgs. Groundwater/weathered San Timoteo Formation/bedrock were not encountered.							
33								
34								
35								
36								
37								
38								
39								
40								

TETRA TECH

BORING LOG

Boring ID: POND3

Project:	LMC Beaumont Site 2 Prism & Ponds	Borehole Depth:	30.5 feet bgs	Sampling Method: Split Spoon / EPA Method 5035 Pre-preserved VOAs	Page 1 of 2
Location:	Site 2 Ponds	Borehole Diameter:	8 inches		
Project No.:	19892-03	Drilling Contractor:	WDC	Northing (UTM, NAD83, Zone 11, meters): 497240	
Logged By:	DCB			Easting (UTM, NAD83, Zone 11, meters): 3750859	
Date Boring Started:	29-Jun-2007	Drilling Method:	HSA	Ground Surface Elevation (feet MSL): N/A	
Date Boring Completed:	29-Jun-2007			Top of Casing Elevation (feet MSL): N/A	

Depth (feet bgs)	Recovery	Blow Counts	Time	Sample No.	USCS	Graphic Log	Interval and Lithologic Description	OVA (ppm, BZ = breathing zone)
							Surface: Grass	
0	H		1010	POND3-0.5'	SP-SM		0 to 5 feet bgs: POORLY GRADED SAND WITH SILT.	
	A	(08/17/2007)					(10 YR 7/3) very pale brown, dry, poorly graded, very loose,	
1	N						90% subrounded, very fine to fine-grained sand, 10% non-	
	D						plastic fines, no odor.	
2								
	A							
3	U							
	G							
4	E							
	R							
5	1.5'	8	1120	POND3-5'	SM		5 to 6.5 feet bgs: SILTY SAND. (10 YR 5/6 to 4/4) yellowish	0.6
	100%	12					brown to dark yellowish brown, dry, poorly graded, loose, 80%	BZ = 0.3
6		13					subrounded, very fine to fine-grained sand, 20% non-plastic fines,	
							trace medium-grained sand, trace friable, subangular gravel,	
7							maximum size = 1/4 inch, no odor. Color change at 5.5 feet bgs.	
8								
9								
10								
	1.5'	7	1130	POND3-10'	SM		10 to 11.5 feet bgs: SILTY SAND. (10 YR 4/4) dark yellowish	0.7
	100%	13					brown, dry to damp, poorly graded, loose, 85% subrounded,	BZ = 0.3
11		17					very fine to coarse-grained sand, 15% non-plastic fines, trace	
							friable, subrounded gravel, maximum size = 1/4 inch to 1/2 inch,	
12							no odor, strong HCl reaction, micaceous, decomposed granitic	
							mineralogy.	
13								
14								
15								
	1.5'	16	1135	--	SM		10 to 11.5 feet bgs: SILTY SAND. (10 YR 4/4 to 6/4) dark	0.8
	100%	19					yellowish brown to light yellowish brown, dry to damp, poorly	BZ = 0.3
16		26					graded, loose, 85% subrounded, very fine to medium-grained	
							sand, 15% non-plastic fines, no odor, strong HCl reaction,	
17							color change to light yellowish brown noted at 16.5 feet bgs.	
18								
19								
20								

TETRA TECH

BORING LOG

Boring ID: POND3

Project:	LMC Beaumont Site 2 Prism & Ponds	Borehole Depth:	30.5 feet bgs	Sampling Method: Split Spoon / EPA Method 5035 Pre-preserved VOAs	Page 2 of 2
Location:	Site 2 Ponds	Borehole Diameter:	8 inches		
Project No.:	19892-03	Drilling Contractor:	WDC	Northing (UTM, NAD83, Zone 11, meters): 497240	
Logged By:	DCB			Easting (UTM, NAD83, Zone 11, meters): 3750859	
Date Boring Started:	29-Jun-2007	Drilling Method:	HSA	Ground Surface Elevation (feet MSL): N/A	
Date Boring Completed:	29-Jun-2007			Top of Casing Elevation (feet MSL): N/A	

Depth (feet bgs)	Recovery	Blow Counts	Time	Sample No.	USCS	Graphic Log	Interval and Lithologic Description	OVA (ppm, BZ = breathing zone)
20							Alluvium/Weathered SanTimoteo Formation Contact.	
	1'	28	1145	--	SM		20 to 20.5 feet bgs: SILTY SAND. As above, (2.5Y 7/2) light gray.	0.5
21	67%	50			SP-SM		20.5 to 21 feet bgs: POORLY GRADED SAND WITH SILT.	BZ = 0.3
							(10 YR 6/2) light brownish gray, dry to damp, poorly graded,	
22							dense, 90% subrounded, very fine-grained sand, trace medium-	
							grained sand, 10% non-plastic fines, no odor, strong HCl	
23							reaction. First relect bedding (weathered San Timoteo sandstone).	
24								
25								
	1'	42	1155	POND3-25'	SM		25 to 26 feet bgs: SILTY SAND. (2.5 Y 6/3) pale brown,	0.7
	67%	50					dry to damp, poorly graded, dense, 60% subrounded, very fine-	BZ = 0.3
26							grained sand, 40% non-plastic fines, trace friable, subrounded	
							gravel, maximum size = 1/2 inch, no odor, weak HCl reaction,	
27							micaceous.	
28								
29								
30								
	5"	50/5"	1205	POND3-30'	SM		30 to 30.5 feet bgs: SILTY SAND. (10 YR 6/4) light yellowish	1.0
	30%			Sample held-			brown, dry, poorly graded, very dense, 80% subrounded, very	BZ = 0.4
31			Not enough for all analyses.				fine to fine-grained sand, 20% non-plastic fines, friable, platy	
							fragments of weathered San Timoteo Formation, no odor,	
32							no HCl reaction, moderate cementation, micaceous.	
			Total depth = 30.5 feet bgs. Groundwater/bedrock were not encountered.					
33								
34								
35								
36								
37								
38								
39								
40								

TETRA TECH

BORING LOG

Boring ID: POND4

Project:	LMC Beaumont Site 2 Prism & Ponds	Borehole Depth:	30 feet bgs	Sampling Method: Split Spoon / EPA Method 5035 Pre-preserved VOAs	Page 1 of 2
Location:	Site 2 Ponds	Borehole Diameter:	8 inches		
Project No.:	19892-03	Drilling Contractor:	WDC	Northing (UTM, NAD83, Zone 11, meters): 497237	
Logged By:	DCB			Easting (UTM, NAD83, Zone 11, meters): 3750888	
Date Boring Started:	29-Jun-2007	Drilling Method:	HSA	Ground Surface Elevation (feet MSL): N/A	
Date Boring Completed:	29-Jun-2007			Top of Casing Elevation (feet MSL): N/A	

Depth (feet bgs)	Recovery	Blow Counts	Time	Sample No.	USCS	Graphic Log	Interval and Lithologic Description	OVA (ppm, BZ = breathing zone)
							Surface: Grass	
0	H		1020	POND4-0.5'	SP-SM		0 to 5 feet bgs: POORLY GRADED SAND WITH SILT.	
	A		1025	POND104-0.5'			(10 YR 5/4) pale yellow, dry, poorly graded, very loose,	
1	N	(08/17/2007)					90% subrounded, very fine to fine-grained sand, 10% non-	
	D						plastic fines, no odor.	
2								
	A							
3	U							
	G							
4	E							
	R							
5	1.5'	13	1000	POND4-5'	SM		5 to 6.5 feet bgs: SILTY SAND. (10 YR 6/4) light yellowish	0.4
	100%	15					brown, dry, poorly graded, loose to medium dense, 80%	BZ = 0.1
6		19					subrounded, very fine-grained and medium-grained sand,	
							20% non-plastic fines, trace friable, subrounded gravel,	
7							maximum size = 3/8 inch, no odor.	
8								
9								
10	1.5'	15	1005	POND4-10'	SM		10 to 11.5 feet bgs: SILTY SAND. (10 YR 5/4 to 8/2) yellowish	0.6
	100%	20					brown, dry, poorly graded, loose to medium dense, 70%	BZ = 0.1
11		23					subrounded, very fine to fine-grained sand, 30% non-plastic fines,	
							no odor, moderate HCl reaction, change to (10 YR 8/2) very pale	
12							brown, dense SILTY SAND at 11 feet bgs.	
13								
14								
15	0.5'	28	1015	--	SM		15 to 15.5 feet bgs: SILTY SAND. (10 YR 6/4) light yellowish	0.6
	33%	50					brown, dry, poorly graded, medium dense to dense, 60%	BZ = 0.2
16							subrounded, very fine-grained sand, trace medium-grained sand,	
							40% non-plastic fines, no odor, moderate HCl reaction.	
17								
18								
19								
20								

TETRA TECH

BORING LOG

Boring ID: POND4

Project:	LMC Beaumont Site 2 Prism & Ponds	Borehole Depth:	30 feet bgs	Sampling Method: Split Spoon / EPA Method 5035 Pre-preserved VOAs	Page 2 of 2
Location:	Site 2 Ponds	Borehole Diameter:	8 inches		
Project No.:	19892-03	Drilling Contractor:	WDC	Northing (UTM, NAD83, Zone 11, meters): 497237	
Logged By:	DCB			Easting (UTM, NAD83, Zone 11, meters): 3750888	
Date Boring Started:	29-Jun-2007	Drilling Method:	HSA	Ground Surface Elevation (feet MSL): N/A	
Date Boring Completed:	29-Jun-2007			Top of Casing Elevation (feet MSL): N/A	

Depth (feet bgs)	Recovery	Blow Counts	Time	Sample No.	USCS	Graphic Log	Interval and Lithologic Description	OVA (ppm, BZ = breathing zone)
20	0.5'	50/6"	1020	--	SM		20 to 20.5 feet bgs: SILTY SAND. (10 YR 5/4) yellowish	0.6
	33%						brown, dry, poorly graded, dense to very dense, 80%	BZ = 0.3
21							subrounded, very fine to fine-grained sand, 20% non-plastic	
							fines, no odor, moderate HCl reaction, trace iron oxide staining.	
22								
23								
24								
							Alluvium/Weathered SanTimoteo Formation Contact.	
							Color change and First relect weathered San Timoteo siltstone at 25 feet bgs.	
25	0.5'	50/6"	1025	POND4-25'	SM		25 to 25.5 feet bgs: SILTY SAND. (10 YR 8/3) very pale	0.6
	33%						brown, dry, poorly graded, dense to very dense, 70%	BZ = 0.2
26							subrounded, very fine-grained sand, 20% non-plastic fines,	
							10% friable, subrounded gravel, maximum size = 1/2 inch	
27							no odor, strong HCl reaction.	
28								
29								
30	3"	--	1030	POND4-30'	SM		30 feet bgs: SILTY SAND. (10 YR 8/3) very pale brown,	0.8
	17%		Not enough soil to sample.				dry, poorly graded, very dense, 60% subrounded, very fine-	BZ = 0.3
31							grained sand, 40% non-plastic fines, no odor, strong HCl reaction.	
			Total Depth = 30 feet bgs. Groundwater/bedrock were not encountered.					
32								
33								
34								
35								
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TETRA TECH

BORING LOG

Boring ID: POND5

Project:	LMC Beaumont Site 2 Prism & Ponds	Borehole Depth:	33 feet bgs	Sampling Method: Split Spoon / EPA Method 5035 Pre-preserved VOAs	Page 1 of 2
Location:	Site 2 Ponds	Borehole Diameter:	8 inches		
Project No.:	19892-03	Drilling Contractor:	WDC	Northing (UTM, NAD83, Zone 11, meters): 497203	
Logged By:	DCB			Easting (UTM, NAD83, Zone 11, meters): 3750883	
Date Boring Started:	29-Jun-2007	Drilling Method:	HSA	Ground Surface Elevation (feet MSL): N/A	
Date Boring Completed:	29-Jun-2007			Top of Casing Elevation (feet MSL): N/A	

Depth (feet bgs)	Recovery	Blow Counts	Time	Sample No.	USCS	Graphic Log	Interval and Lithologic Description	OVA (ppm, BZ = breathing zone)
							Surface: Grass	
---- 0 ----	H		1035	POND5-0.5'	SM		0 to 3.5 feet bgs: SILTY SAND (ARTIFICIAL FILL).	
	A	(08/17/2007)					(10 YR 6/4) light yellowish brown, dry, poorly graded, loose,	
---- 1 ----	N						80% subrounded, very fine to fine-grained sand, 20% non-	
	D						plastic fines, no odor.	
---- 2 ----								
	A							
---- 3 ----	U							
	G							
---- 4 ----	E							
	R						Note: Drilling on top of berm at edge of dry	
---- 5 ----							pond, adjusted sampling intervals +3.5 feet bgs.	
---- 6 ----								
---- 7 ----								
---- 8 ----								
---- 9 ----	1.5'	8	825	POND5-5'	SM		8.5 to 10 feet bgs: SILTY SAND. (10 YR 6/4) light yellowish	0.4
	100%	10					brown, dry, poorly graded, loose, 80% subrounded, very	BZ = 0.2
---- 10 ----		13					fine to fine-grained sand, 20% non-plastic fines, no odor.	
---- 11 ----								
---- 12 ----								
---- 13 ----								
---- 14 ----	1.5'	7	830	POND5-10'	SM		13.5 to 15 feet bgs: SILTY SAND. (10 YR 6/4) light yellowish	0.8
	100%	10					brown, dry, poorly graded, loose, 80% subrounded, very	BZ = 0.2
---- 15 ----		11					fine to fine-grained sand, 20% non-plastic fines, trace friable,	
							subrounded gravel, maximum grain size = 3/4 inch, trace fines	
---- 16 ----							with low plasticity (as clay nodules), no odor.	
---- 17 ----								
---- 18 ----								
---- 19 ----	1.5'	13	835	--	SM		18.5 to 20 feet bgs: SILTY SAND. (10 YR 6/4) light yellowish	0.7
	100%	15					brown, dry, medium dense, poorly graded, 80% subrounded,	BZ = 0.2
---- 20 ----		17					very fine to fine-grained sand, 20% non-plastic fines, trace friable,	
							subrounded gravel, maximum grain size = 2 inches, trace fines	
							with low plasticity (as clay nodules), no odor.	

TETRA TECH

BORING LOG

Boring ID: POND5

Project:	LMC Beaumont Site 2 Prism & Ponds	Borehole Depth:	33 feet bgs	Sampling Method: Split Spoon / EPA Method 5035 Pre-preserved VOAs	Page 2 of 2
Location:	Site 2 Ponds	Borehole Diameter:	8 inches		
Project No.:	19892-03	Drilling Contractor:	WDC	Northing (UTM, NAD83, Zone 11, meters): 497203	
Logged By:	DCB			Easting (UTM, NAD83, Zone 11, meters): 3750883	
Date Boring Started:	29-Jun-2007	Drilling Method:	HSA	Ground Surface Elevation (feet MSL): N/A	
Date Boring Completed:	29-Jun-2007			Top of Casing Elevation (feet MSL): N/A	

Depth (feet bgs)	Recovery	Blow Counts	Time	Sample No.	USCS	Graphic Log	Interval and Lithologic Description	OVA (ppm, BZ = breathing zone)
20								
21								
22								
23							Alluvium/Weathered SanTimoteo Formation Contact.	
24	0.75'	38	845	--	SM		23.5 to 24.5 feet bgs: SILTY SAND WITH GRAVEL.	
	50%	50					(10 YR 6/4 to 7/2) light yellowish brown to light gray, dry,	
25							poorly graded, dense, 70% subrounded, very fine to fine-grained	
							sand, 15% non-plastic fines, 15% friable, subrounded gravel,	
26							maximum grain size = 1/2 inch, no odor. First relect bedding.	
27								
28								
29	0.5'	50/6"	850	POND5-25'	ML		28.5 to 29 feet bgs: SANDY SILT. (10 YR 4/4) dark yellowish	
	33%	Jar collected from 25' interval for					brown, dry, poorly graded, very dense to very stiff, 60%	
30		Perchlorate, CAM17 metals, and SVOCs					stiff to very stiff, non-plastic fines, 40% subrounded, very fine	
							to fine-grained sand, no odor, some iron oxide staining, Weathered	
31							San Timoteo Siltstone.	
32								
33								
34	0.5'	60/5"	855	POND5-30'	ML		32.5 to 33 feet bgs: SANDY SILT. (10 YR 4/4) dark yellowish	
	33%	VOC samples collected from 30' interval;					brown, dry, poorly graded, very dense to very stiff, 60%	
35		Not enough to sample for other analyses.					stiff to very stiff, non-plastic fines, 40% subrounded, very fine	
							to fine-grained sand, no odor, some iron oxide staining, Weathered	
36							San Timoteo Siltstone.	
		Total Depth = 33 feet bgs. Groundwater/bedrock were not encountered.						
37								
38								
39								
40								