CH2M HILL Engineers Planners Economists Scientists

July 31, 1995

117519.GW.03

Mr. Brian Oliva
Alameda County Department of Environmental Health
Division of Hazardous Materials
1131 Harbor Bay Parkway
Alameda, California 94502-6577

Mr. Sum Arigala
California Regional Water Quality Control Board
San Francisco Bay Region
2101 Webster Street, Suite 500
Oakland, California 94612

Subject: Deep Groundwater Sampling
Del Monte Plant 35, Emeryville, California

On June 21, 1995, CH2M HILL performed cone penetrometer testing and deep aquifer sampling at the Del Monte Plant 35 site in Emeryville, California. The purpose of this field program was to evaluate the presence or absence of chlorinated hydrocarbons within the second occurrence of groundwater. The objective was to identify the second occurrence of groundwater and then collect a groundwater sample from this deeper zone. The locations targeted for groundwater sampling are adjacent to two potential source areas at the site.

In order to identify the deeper aquifer, a cone penetrometer was hydraulically pushed to approximately 50 feet. This afforded CH2M HILL an opportunity to identify the stratigraphy at the site and determine the presence of an aquitard separating the uppermost occurrence of groundwater from the second occurrence of groundwater. Figure 1, attached, shows the locations of the CPT boreholes. Described below are the field procedures for obtaining the CPT data and extracting the groundwater sample and a discussion of the analytical results.

Cone Penetrometer Test Procedures

The cone penetrometer was pushed using a hydraulic ram to a total depth of 50 feet at location CPT-1-95 and to a total depth of 48 feet in CPT-2-95. The CPT was used to measure tip resistance and skin friction (friction on the outside of the CPT rods). The ratio between the tip resistance and the skin friction is the friction ratio. The friction ratio can be

CH2M HILL 1111 Broadway, P.O. Box 12681, Oakland, CA 94604-2681 510 251-2426 Fax 510 893-8205

compared to tip resistance (Figure 2) to arrive at an approximate lithology at a given depth. The CPT logs for the two respective holes are provided in Attachment A. The stratigraphy of both holes is characterized by interbedded clay, silt, and sand.

Once the CPT data retrieval had stopped, the rods were pulled out from the hole. The hole was reentered with hollow rods and a plastic hose was inserted into the rods. The rods and plastic hose were pushed down to the total depth of the hole. Once the total depth was reached, the rods were incrementally pulled back out of the hole while grout was pumped from the bottom of the hole to the top through the plastic pipe in the center of the rods.

Groundwater Sampling

In order to extract a groundwater sample, the CPT logs were analyzed and the depth to the uppermost aquifer and depth to the second aquifer were determined. In order to eliminate any possible cross-contamination at the site, the rig was moved away from the CPT location by approximately 5 feet and conductor casing was pushed into the uppermost aquitard (approximately 34 feet in CPT-1-95 and 28 feet in CPT-2-95). The conductor casing was outfitted with a wooden cone-shaped tip to prevent any of the contaminated soil from entering the conductor casing. After the conductor casing had reached its intended depth, the grab groundwater sampling device, push-in PVC piezometer (PIPP), was pushed through the wooden plug to the depth of the second aquifer. At this depth the rods were pulled up 5 feet to expose the PVC screen and groundwater was allowed to enter the rods. The groundwater was sampled by lowering a Teflon^R bailer into the rods. Groundwater was bailed from the rods and decanted from the bailer into 40 milliliter VOA sample bottles. This procedure was followed at both locations.

After the sample was collected, the PVC screen and the push pipes were extracted from the hole. The hole was then grouted using the procedures outlined above for the CPT holes. A bentonite slurry was pumped downhole until the bentonite reached the ground surface.

Decontamination

The CPT and PIPP equipment was decontaminated before and after each use at the site. The rods were washed in water mixed with Alconox. The rods were then rinsed with water and pressure washed followed by a final rinse with deionized water. The PVC screen and drive tip were replaced between each sample. An equipment blank was taken between the first and second sample by running deionized water through the decontaminated bailer into a sample container. Wastewater from the steam cleaning procedure was contained in a single 55-gallon drum. The drum was labeled and left at the site.

Sample Analysis

Groundwater samples were submitted to Chromalab for analysis of chlorinated hydrocarbons using EPA method 8010. Each sample consisted of 3- 40 ml VOA vials. The samples were collected and placed in a cooler and transported back to the CH2M HILL Oakland office. The samples were then picked up by Chromalab and transported to their facility for analysis. The samples were shipped under standard chain-of-custody procedures.

Hydrostratigraphic Interpretation

Based on the CPT logs the site is underlain by interbedded sand, silt, and clay. This interpretation is consistent with previous interpretations made by Woodward-Clyde for Kaiser and CH2M HILL. Using only CPT log data gathered during this investigation the stratigraphy is dominated by clayey units in the upper 30 feet of the subsurface. This upper 30 feet does contain some minor thickness of silty sand and sandy silt. The uppermost aquifer is primarily composed of these silty sands and sandy silts. Consequently the existing groundwater monitoring wells are screened across these silty sand intervals of this uppermost aquifer.

The CPT data show that the predominantly interbedded silt and clay subsurface stratigraphy continues to a depth of 32 to 35 feet. At approximately 32 feet the sand content of the stratigraphic units increases with depth. In CPT-1-95 a 2-foot thick sand occurs from 45 to 47 feet below ground surface. In CPT-2-95 a 3-foot thick sand occurs at 38 to 41 feet below ground surface. These units were considered the first significant occurrence of sand below the uppermost aquitard. These units are considered the B zone for the site.

Groundwater was sampled from each of these zones using the aforementioned PIPP method. Groundwater from this zone quickly rose to within 6 to 7 feet of the ground surface once the PIPP sampling device was opened. The rapid rise of groundwater to its static water level is reflective of a comparatively transmissive aquifer.

Sample Analysis and Results

Three samples (two groundwater and one equipment blank) were analyzed by Chromalab, Inc. for chlorinated hydrocarbons by EPA Method 8010. In sample CPT-1 (from the East Parcel) 2.0 μg/l of trichloroethene (TCE) were detected. No other compounds were detected in CPT-1. In sample CPT-2 (from the West Parcel) and the equipment blank no compounds were detected. The laboratory report is included as Attachment B.

Discussion of Analytical Results

TCE was detected in groundwater beneath the East Parcel in the vicinity of elevated chlorinated hydrocarbon levels in shallow groundwater. The TCE concentration measured, 2.0 μg/l, is below the Maximum Contaminant Level (MCL) of 5.0 μg/l for TCE in public drinking water supplies.

Based on the results of the groundwater sampling presented in this letter, we recommend that no further action be taken with respect to the B zone, and groundwater remediation at the Del Monte property continue to focus on the shallow groundwater.

Please contact me if you have any questions about the deep groundwater sampling. I can be reached at (510) 251-2888, extension 2189.

Sincerely,

CH2M HILL

Madeline Wall
Project Manager

c: Susan Hugo/ACDEH
Steve Ronzone/Del Monte
Soon Kim/Del Monte
Thomas Bender/ The Bender Partnership
Zachary Wasserman/Kennedy & Wasserman
Indrajit Obeysekere/Kaiser Permanente
David Harnish/ENVIRON

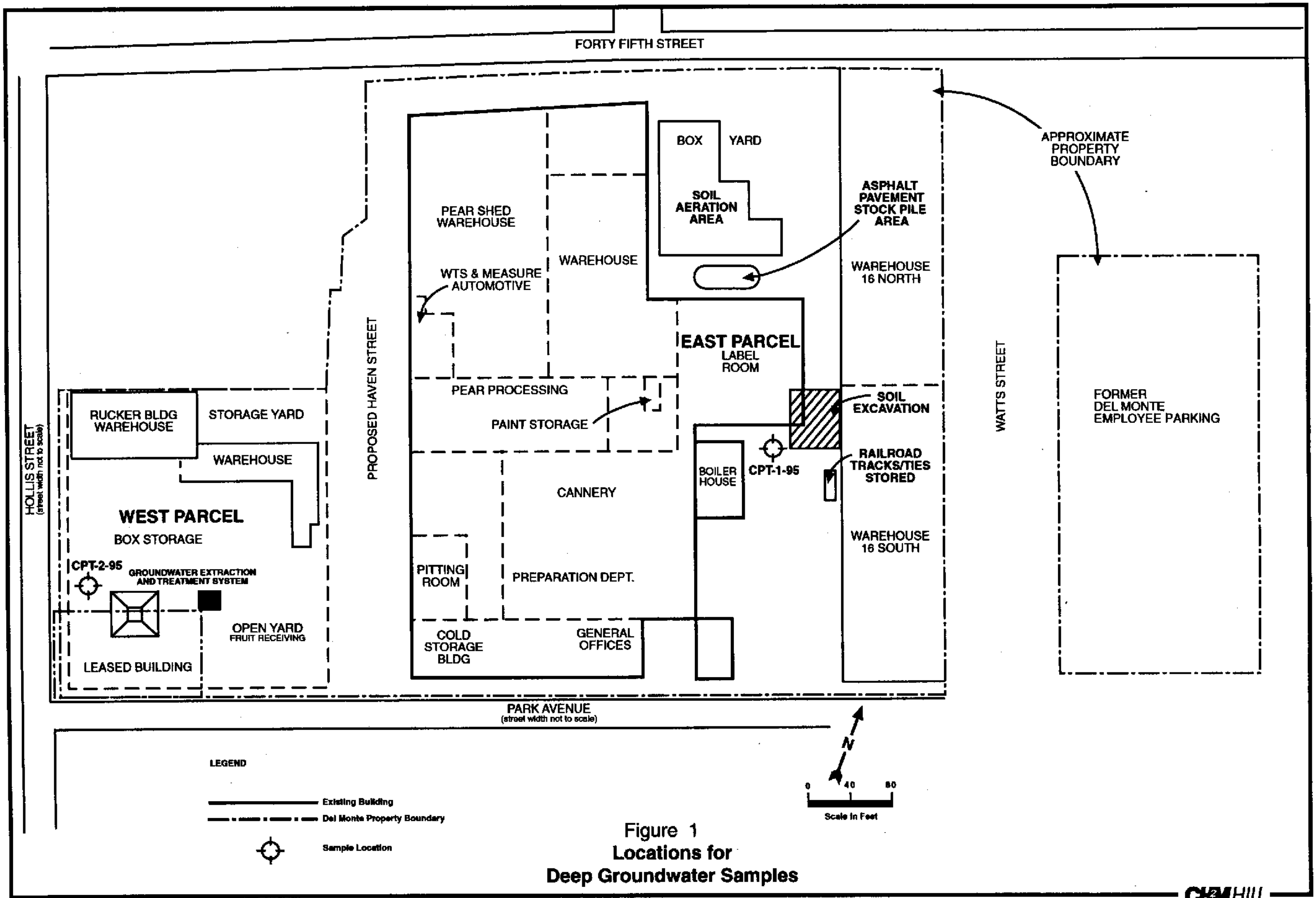


Figure 1
Locations for Deep Groundwater Samples

JOB # BAE28830.P5

Attachment A

Earth Tech Report

2121 Alton Parkway, Suite 100, Irvine, California 92714

June 29, 1995

CH2M Hill
1111 Broadway, Suite 1200
Oakland, CA 94607

Project Name: Del Monte #35, Emeryville, CA

Project No.: BAE 28830.P2.03

Attention: Ana Demorest

Enclosed please find copies of the cone penetration test (CPT) data and results for the above referenced project along with a copy of the corresponding invoice.

Telephone
714.724.1776
Facsimile
714.724.1557

The cone penetration tests conducted for this project consisted of pushing an instrumented cone-tipped probe into the ground while simultaneously recording the tip resistance and side friction resistance of the soil during penetration.

The cone penetration tests described in this report were conducted in general accordance with the current ASTM specifications (ASTM D3441-86) using an electronic cone penetrometer.

The CPT equipment operated by EARTH TECH (The Earth Technology Corporation) consists of a cone assembly mounted at the end of a series of hollow sounding rods. A set of hydraulic rams is used to continuously push the cone and rods into the soil at a rate of 20-mm per second (approximately 4 feet per minute) while the cone tip resistance and sleeve friction resistance are recorded every 25-mm (approximately 1-inch) and stored in digital form. A specially designed all wheel drive 23-ton truck provides the required reaction weight for pushing the cone assembly and is also used to transport and house the test equipment.

The cone penetrometer assembly used for this project consists of a conical tip and a cylindrical friction sleeve. The conical tip has a 60° apex angle and a diameter of 35.6-mm (1.40-inch) resulting in a projected cross-sectional area of 10 cm^2 (1.5 square inches). The cylindrical friction sleeve is 133-mm (5.25-inch) in length and has an outside diameter of 35.8-mm (1.41-inch), resulting in a surface area of 150 cm^2 (23 square inches).

The interior of the cone penetrometer is instrumented with strain gauges that allow simultaneous measurement of cone tip and friction sleeve resistance during penetration. Continuous electric signals from the strain gauges are transmitted by a shielded cable in the sounding rods to the PC-based data acquisition hardware in the CPT truck. The sounding log is also displayed on a monitor.

The CPT data processing is performed using the truck mounted computer based data acquisition and presentation system. The computer generated plots include cone resistance, friction resistance, friction ratio (and optional pore pressure ratio) versus depth at a user selectable scale.

Soil Behavior Type and other parameter interpretations are based on the following reference: Robertson, P.K. and Campanella, R.G., 1989 "Guidelines for Geotechnical Design using the Cone Penetrometer Test and CPT with Pore Pressure Measurement." Soil Mechanics series No. 120, Civil Engineering Department, University of British Columbia, Vancouver, B.C., V6T 1Z4, September 1989.

Soil Behavior Type and other parameter interpretations are done using EARTH TECH's proprietary data interpretation and presentation software. It is important to note that the data is not averaged. All interpretations are point interpretations at the corresponding depth listed.

It is also important to note that most of the correlative methods presented herein are based on a combination of theory, field research, research performed under laboratory conditions, and literature review. The tabulated and plotted information should, therefore, be viewed as a guideline rather than as precise measurements. However, an estimated equivalent relative density (D_r) of 20 to 40 percent, for example, having an estimated equivalent blow count (N_1) of less than 10, is clearly a loose granular soil, and cannot be confused with gravel or dense sand. Thus, for preliminary assessments of soil properties and expected site behavior, these interpretations are generally adequate.

Some care is recommended when using the Soil Behavior Type tabulations. If a tabulation depth happens to fall on a soil layer interface, or a seam of soil differing from the rest of the layer, the tabulated data can be misleading. The solution to this problem is the proper use of the CPT logs. The continuous penetration resistance is the primary source of profile description; the Soil Behavior Type tabulations are supplemental. The continuous logs should be examined and layer boundaries delineated in accordance with the project requirements. The Soil Behavior Type tabulations are only representative of the response of the soil to the large shear deformations imposed during cone penetration. This is not necessarily a prediction of grain size distribution. However, it has been found that Soil Behavior Types generally agree well with the soil types defined in accordance with the grain size distribution methods such as used in the Unified Soil Classification System.

Computer generated cone penetration test plots and the results of cone penetrometer test data are included at Attachment A to this letter report.

Limitations

EARTH TECH presents the attached data in accordance with ASTM Standard D3441-86 and generally accepted Cone Penetration Test practices and standards.

The attached data further relates only to the specific project location discussed in the data.

Judgement may be required to verify the CPT Soil Behavior Interpretations.

The "CLIENT" may distribute this data or excerpts therefrom provided the following statement is prominently displayed and included with the distribution:

> "Neither CLIENT nor EARTH TECH make any guarantee or warranty, express or implied, regarding this data. THE USE OF THIS INFORMATION SHALL BE AT THE USER'S SOLE RISK REGARDLESS OF ANY FAULT OR NEGLIGENCE OF THE CLIENT OR EARTH TECH."

Please feel free to call me if you have any questions.

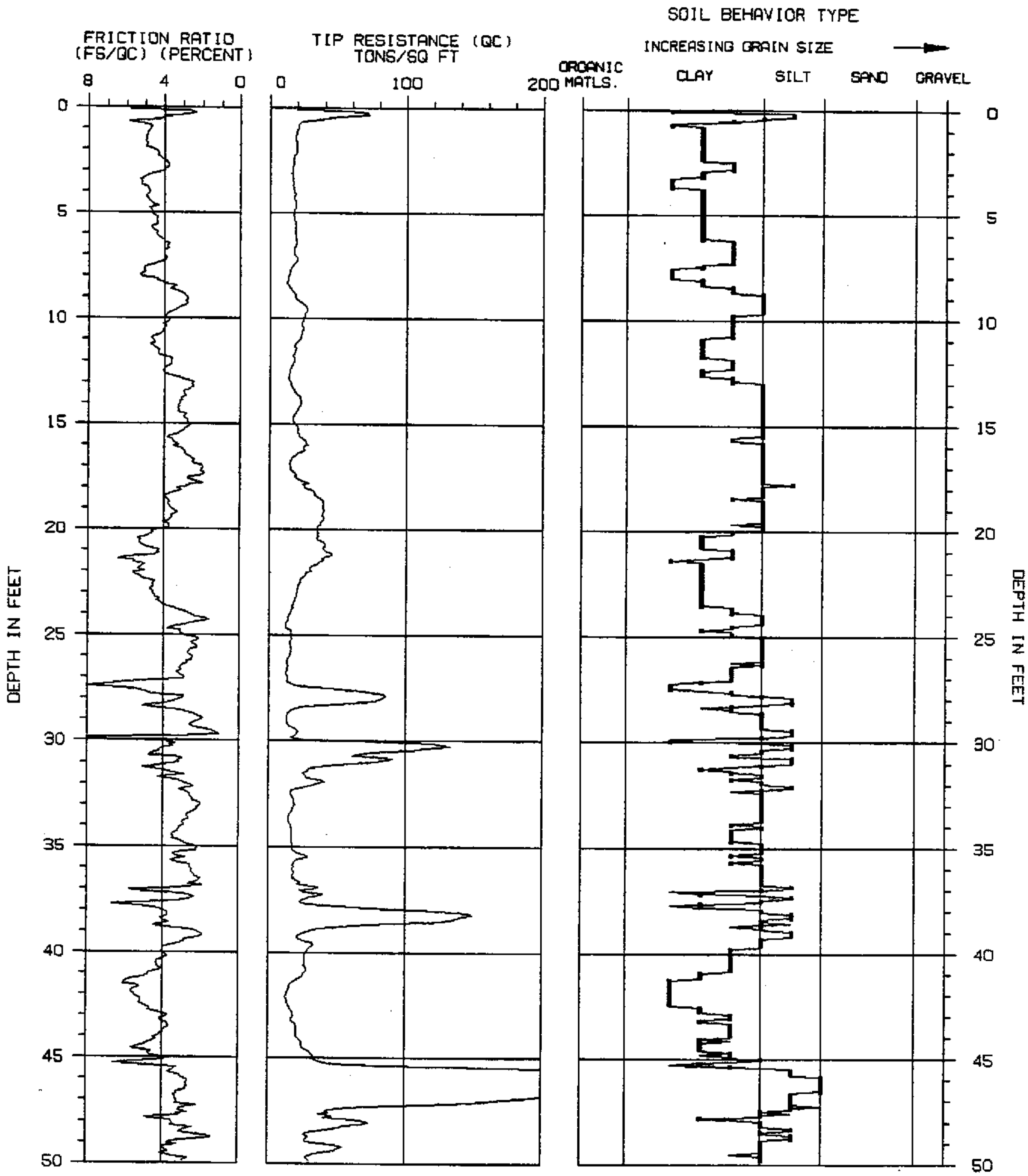
Very truly yours,

EARTH TECH
CPT Testing Services Group

Dick Carlton

Dick Carlton
Project Administrator

062995.DC2/CPT #2



TIP RESISTANCE NOT CORRECTED FOR END AREA EFFECT

ASSUMED TOTAL UNIT WT = 110 PCF

ASSUMED DEPTH OF WATER TABLE = 7.0 FT

SOIL BEHAVIOR TYPE INTERPRETATIONS BASED ON: GUIDELINES FOR GEOTECHNICAL DESIGN USING THE CPT AND CPTU. SOIL MECHANICS SERIES #120. UNIVERSITY OF BRITISH COLUMBIA, SEPTEMBER 1989. BY P.K. ROBERTSON AND R.G. CAMPANELLA.

CONE PENETRATION TEST

SOUNDING NUMBER: CPT-1

PROJECT NAME : DEL MONTE #35	CONE/RIG : 473/RIG #3
PROJECT NUMBER : 95-381-02202	DATE/TIME: 06-21-95 08:30

EARTH TECH

CONE PENETRATION TEST

SOUNDING : CPT-1 PROJECT No.: 95-381-02202
PROJECT : DEL MONTE #35 CONE/RIG : 473/RIG #3
DATE/TIME: 06-21-95 08:30

DEPTH (m)	DEPTH (ft)	TIP RESISTANCE (tsf)	FRICTION RATIO (%)	CONE PORE PRESSURE (tsf)	SOIL BEHAVIOR TYPE	N(60)
.150	.49	43.8	4.06	NA	CLAYEY SILT to SILTY CLAY	22
.300	.98	20.2	4.76	NA	CLAY	20
.450	1.48	18.3	4.98	NA	CLAY	18
.600	1.97	19.1	4.75	NA	CLAY	19
.750	2.46	16.7	4.14	NA	CLAY	17
.900	2.95	15.7	4.01	NA	CLAY	16
1.050	3.44	16.3	5.29	NA	CLAY	16
1.200	3.94	17.3	4.80	NA	CLAY	17
1.350	4.43	17.8	4.83	NA	CLAY	18
1.500	4.92	17.8	4.67	NA	CLAY	18
1.650	5.41	18.3	4.36	NA	CLAY	18
1.800	5.91	18.2	4.39	NA	CLAY	18
1.950	6.40	19.2	3.96	NA	CLAY to SILTY CLAY	13
2.100	6.89	17.3	3.99	NA	CLAY to SILTY CLAY	12
2.250	7.38	18.2	4.34	NA	CLAY	18
2.400	7.87	13.9	5.19	NA	CLAY	14
2.550	8.37	12.0	4.01	NA	CLAY	12
2.700	8.86	18.0	2.95	NA	CLAYEY SILT to SILTY CLAY	9
2.850	9.35	25.0	2.88	NA	CLAYEY SILT to SILTY CLAY	13
3.000	9.84	25.5	3.92	NA	CLAY to SILTY CLAY	17
3.150	10.33	23.6	3.94	NA	CLAY to SILTY CLAY	16
3.300	10.83	22.5	4.58	NA	CLAY	23
3.450	11.32	17.6	4.61	NA	CLAY	18
3.600	11.81	17.7	3.84	NA	CLAY to SILTY CLAY	12
3.750	12.30	15.4	3.89	NA	CLAY to SILTY CLAY	10
3.900	12.80	13.9	3.25	NA	CLAY to SILTY CLAY	9
4.050	13.29	16.6	2.65	NA	CLAYEY SILT to SILTY CLAY	8
4.200	13.78	22.0	3.09	NA	CLAYEY SILT to SILTY CLAY	11
4.350	14.27	20.5	3.32	NA	CLAYEY SILT to SILTY CLAY	10
4.500	14.76	16.5	2.90	NA	CLAYEY SILT to SILTY CLAY	8
4.650	15.26	20.2	2.97	NA	CLAYEY SILT to SILTY CLAY	10
4.800	15.75	24.2	3.63	NA	CLAY to SILTY CLAY	16
4.950	16.24	25.4	2.99	NA	CLAYEY SILT to SILTY CLAY	13
5.100	16.73	15.2	2.44	NA	CLAYEY SILT to SILTY CLAY	8
5.250	17.22	15.8	2.09	NA	CLAYEY SILT to SILTY CLAY	8
5.400	17.72	24.3	2.35	NA	CLAYEY SILT to SILTY CLAY	12
5.550	18.21	32.0	3.25	NA	CLAYEY SILT to SILTY CLAY	16
5.700	18.70	39.1	3.71	NA	CLAYEY SILT to SILTY CLAY	20
5.850	19.19	38.8	3.33	NA	CLAYEY SILT to SILTY CLAY	19
6.000	19.69	37.1	4.04	NA	CLAY to SILTY CLAY	25
6.150	20.18	35.9	4.57	NA	CLAY to SILTY CLAY	24

NA = NOT APPLICABLE
*INDICATES OVERCONSOLIDATED OR CEMENTED MATERIAL
ASSUMED TOTAL UNIT WT = 110 pcf
ASSUMED DEPTH OF WATER TABLE = 7.0 ft
N(60) = EQUIVALENT SPT VALUE (60% Energy)

EARTH TECH

Interpretations based on: Robertson and Campanella, 1989.

SOUNDING : CPT-1

DEPTH (m)	DEPTH (ft)	TIP RESISTANCE (tsf)	FRICTION RATIO (%)	CONE PORE PRESSURE (tsf)	SOIL BEHAVIOR TYPE	N(60)
6.300	20.67	40.0	5.27	NA	CLAY	40
6.450	21.16	45.7	4.29	NA	CLAY to SILTY CLAY	30
6.600	21.65	35.1	5.04	NA	CLAY	35
6.750	22.15	26.0	5.53	NA	CLAY	26
6.900	22.64	21.3	4.59	NA	CLAY	21
7.050	23.13	19.4	4.48	NA	CLAY	19
7.200	23.62	17.0	3.99	NA	CLAY to SILTY CLAY	11
7.350	24.11	13.9	2.38	NA	CLAYEY SILT to SILTY CLAY	7
7.500	24.61	12.2	3.53	NA	CLAY to SILTY CLAY	8
7.650	25.10	16.0	2.37	NA	CLAYEY SILT to SILTY CLAY	8
7.800	25.59	15.9	2.26	NA	CLAYEY SILT to SILTY CLAY	8
7.950	26.08	13.9	2.51	NA	CLAYEY SILT to SILTY CLAY	7
8.100	26.57	13.4	3.14	NA	CLAY to SILTY CLAY	9
8.250	27.07	13.8	2.97	NA	CLAY to SILTY CLAY	9
8.400	27.56	51.7	5.48	NA	CLAY	52
8.550	28.05	81.1	3.16	NA	SANDY SILT to CLAYEY SILT	32
8.700	28.54	16.0	3.13	NA	CLAY to SILTY CLAY	11
8.850	29.04	12.8	2.11	NA	CLAYEY SILT to SILTY CLAY	6
9.000	29.53	21.1	1.33	NA	SANDY SILT to CLAYEY SILT	8
9.150	30.02	86.1	3.95	NA	CLAYEY SILT to SILTY CLAY	43
9.300	30.51	85.9	4.24	NA	CLAYEY SILT to SILTY CLAY	43
9.450	31.00	72.3	3.14	NA	SANDY SILT to CLAYEY SILT	29
9.600	31.50	24.8	3.51	NA	CLAYEY SILT to SILTY CLAY	12
9.750	31.99	36.5	2.96	NA	CLAYEY SILT to SILTY CLAY	18
9.900	32.48	16.0	2.63	NA	CLAYEY SILT to SILTY CLAY	8
10.050	32.97	18.6	2.05	NA	CLAYEY SILT to SILTY CLAY	9
10.200	33.46	15.4	2.66	NA	CLAYEY SILT to SILTY CLAY	8
10.350	33.96	15.7	2.87	NA	CLAYEY SILT to SILTY CLAY	8
10.500	34.45	16.7	3.52	NA	CLAY to SILTY CLAY	11
10.650	34.94	17.3	2.48	NA	CLAYEY SILT to SILTY CLAY	9
10.800	35.43	28.4	3.38	NA	CLAYEY SILT to SILTY CLAY	14
10.950	35.93	17.9	2.57	NA	CLAYEY SILT to SILTY CLAY	9
11.100	36.42	17.9	2.29	NA	CLAYEY SILT to SILTY CLAY	9
11.250	36.91	36.8	2.67	NA	SANDY SILT to CLAYEY SILT	15
11.400	37.40	29.6	2.36	NA	SANDY SILT to CLAYEY SILT	12
11.550	37.89	71.9	4.51	NA	CLAYEY SILT to SILTY CLAY	36
11.700	38.39	137.8	4.11	NA	*VERY STIFF FINE GRAINED	138
11.850	38.88	36.5	3.18	NA	CLAYEY SILT to SILTY CLAY	18
12.000	39.37	23.1	2.90	NA	CLAYEY SILT to SILTY CLAY	12
12.150	39.86	28.4	4.02	NA	CLAY to SILTY CLAY	19
12.300	40.35	26.6	4.29	NA	CLAY to SILTY CLAY	18
12.450	40.85	27.5	4.14	NA	CLAY to SILTY CLAY	18
12.600	41.34	19.9	5.79	NA	CLAY	20
12.750	41.83	14.0	5.66	NA	CLAY	14
12.900	42.32	13.6	5.17	NA	CLAY	14
13.050	42.81	17.2	4.54	NA	CLAY	17
13.200	43.31	18.3	3.93	NA	CLAY to SILTY CLAY	12
13.350	43.80	20.3	3.95	NA	CLAY to SILTY CLAY	14
13.500	44.29	24.1	4.78	NA	CLAY	24
13.650	44.78	31.4	4.75	NA	CLAY	31

NA = NOT APPLICABLE
*INDICATES OVERCONSOLIDATED OR CEMENTED MATERIAL
ASSUMED TOTAL UNIT WT = 110 pcf
ASSUMED DEPTH OF WATER TABLE = 7.0 ft
N(60) = EQUIVALENT SPT VALUE (60% Energy)

EARTH TECH

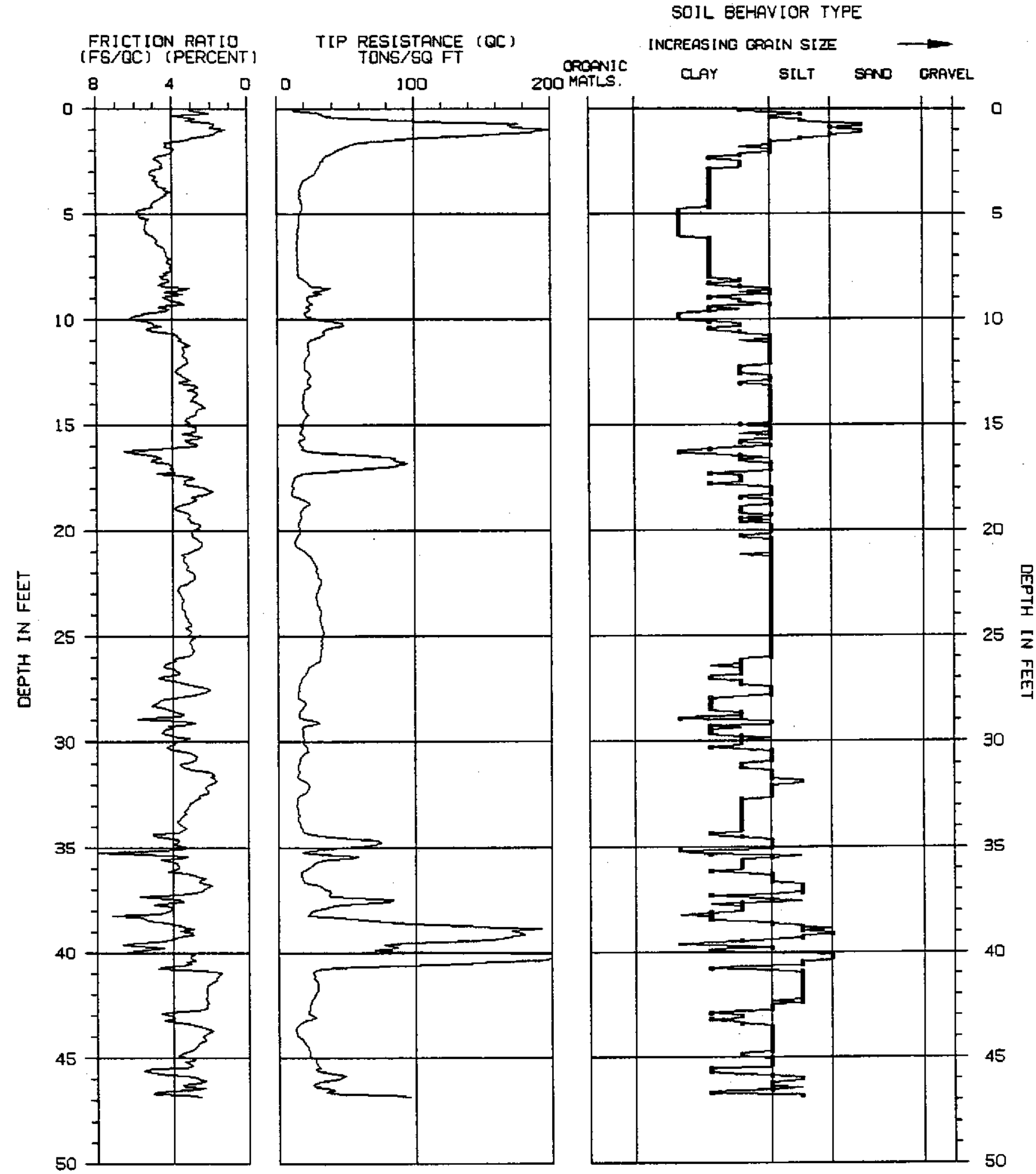
Interpretations based on: Robertson and Campanella, 1989.

SOUNDING : CPT-1

DEPTH (m)	DEPTH (ft)	TIP RESISTANCE (tsf)	FRICTION RATIO (%)	CONE PORE PRESSURE (tsf)	SOIL BEHAVIOR TYPE	N(60)
13.800	45.28	44.6	6.55	NA	CLAY	45
13.950	45.77	237.2	3.27	NA	*SAND to CLAYEY SAND	119
14.100	46.26	297.4	2.76	NA	SILTY SAND to SANDY SILT	99
14.250	46.75	209.6	3.36	NA	*SAND to CLAYEY SAND	105
14.400	47.24	92.1	2.21	NA	SILTY SAND to SANDY SILT	31
14.550	47.74	46.4	3.12	NA	CLAYEY SILT to SILTY CLAY	23
14.700	48.23	54.9	3.57	NA	CLAYEY SILT to SILTY CLAY	27
14.850	48.72	29.3	1.47	NA	SANDY SILT to CLAYEY SILT	12
15.000	49.21	54.0	3.98	NA	CLAYEY SILT to SILTY CLAY	27
15.150	49.70	27.6	3.48	NA	CLAYEY SILT to SILTY CLAY	14

NA = NOT APPLICABLE
*INDICATES OVERCONSOLIDATED OR CEMENTED MATERIAL
ASSUMED TOTAL UNIT WT = 110 pcf
ASSUMED DEPTH OF WATER TABLE = 7.0 ft
N(60) = EQUIVALENT SPT VALUE (60% Energy)

Interpretations based on: Robertson and Campanella, 1989.



TIP RESISTANCE NOT CORRECTED FOR END AREA EFFECT

ASSUMED TOTAL UNIT WT = 110 PCF

ASSUMED DEPTH OF WATER TABLE = 7.0 FT

SOIL BEHAVIOR TYPE INTERPRETATIONS BASED ON: GUIDELINES FOR GEOTECHNICAL DESIGN USING THE CPT AND CPTU. SOIL MECHANICS SERIES #120. UNIVERSITY OF BRITISH COLUMBIA. SEPTEMBER 1989. BY P.K. ROBERTSON AND R.G. CAMPANELLA.

CONE PENETRATION TEST

SOUNDING NUMBER: CPT-2

PROJECT NAME : DEL MONTE #35

CONE/RIG : 473/RIG #3

PROJECT NUMBER : 95-381-02202

DATE/TIME: 06-21-95 13:53

EARTH TECH

****

CONE PENETRATION TEST

SOUNDING : CPT-2 PROJECT No.: 95-381-02202
PROJECT : DEL MONTE #35 CONE/RIG : 473/RIG #3
DATE/TIME: 06-21-95 13:53

****

DEPTH (m)	DEPTH (ft)	TIP RESISTANCE (tsf)	FRICTION RATIO (%)	CONE PORE PRESSURE (tsf)	SOIL BEHAVIOR TYPE	N(60)
.150	.49	61.4	2.77	NA	SANDY SILT to CLAYEY SILT	25
.300	.98	207.5	1.20	NA	SAND to SILTY SAND	52
.450	1.48	90.6	3.16	NA	SANDY SILT to CLAYEY SILT	36
.600	1.97	45.1	3.90	NA	CLAYEY SILT to SILTY CLAY	23
.750	2.46	33.6	4.67	NA	CLAY to SILTY CLAY	22
.900	2.95	28.6	5.14	NA	CLAY	29
1.050	3.44	19.0	4.73	NA	CLAY	19
1.200	3.94	16.8	4.11	NA	CLAY	17
1.350	4.43	17.8	4.95	NA	CLAY	18
1.500	4.92	17.1	5.80	NA	CLAY	17
1.650	5.41	15.7	5.41	NA	CLAY	16
1.800	5.91	14.7	5.37	NA	CLAY	15
1.950	6.40	14.6	4.78	NA	CLAY	15
2.100	6.89	14.5	4.34	NA	CLAY	15
2.250	7.38	14.9	4.08	NA	CLAY	15
2.400	7.87	15.3	4.25	NA	CLAY	15
2.550	8.37	23.3	4.72	NA	CLAY	23
2.700	8.86	26.9	3.83	NA	CLAY to SILTY CLAY	18
2.850	9.35	22.1	4.65	NA	CLAY	22
3.000	9.84	20.8	6.07	NA	CLAY	21
3.150	10.33	48.0	4.59	NA	CLAY to SILTY CLAY	32
3.300	10.83	30.3	3.70	NA	CLAYEY SILT to SILTY CLAY	15
3.450	11.32	22.5	3.46	NA	CLAYEY SILT to SILTY CLAY	11
3.600	11.81	20.5	3.27	NA	CLAYEY SILT to SILTY CLAY	10
3.750	12.30	19.8	3.69	NA	CLAY to SILTY CLAY	13
3.900	12.80	22.8	3.33	NA	CLAYEY SILT to SILTY CLAY	11
4.050	13.29	21.4	2.89	NA	CLAYEY SILT to SILTY CLAY	11
4.200	13.78	18.9	2.97	NA	CLAYEY SILT to SILTY CLAY	9
4.350	14.27	18.6	2.63	NA	CLAYEY SILT to SILTY CLAY	9
4.500	14.76	19.3	3.32	NA	CLAYEY SILT to SILTY CLAY	10
4.650	15.26	17.3	2.78	NA	CLAYEY SILT to SILTY CLAY	9
4.800	15.75	15.6	3.34	NA	CLAY to SILTY CLAY	10
4.950	16.24	21.6	6.54	NA	CLAY	22
5.100	16.73	87.1	5.13	NA	*VERY STIFF FINE GRAINED	87
5.250	17.22	32.2	3.92	NA	CLAY to SILTY CLAY	21
5.400	17.72	10.9	3.31	NA	CLAY to SILTY CLAY	7
5.550	18.21	10.0	2.00	NA	CLAYEY SILT to SILTY CLAY	5
5.700	18.70	23.3	3.17	NA	CLAYEY SILT to SILTY CLAY	12
5.850	19.19	16.5	3.16	NA	CLAY to SILTY CLAY	11
6.000	19.69	15.0	2.73	NA	CLAYEY SILT to SILTY CLAY	8
6.150	20.18	15.3	2.95	NA	CLAYEY SILT to SILTY CLAY	8

NA = NOT APPLICABLE
*INDICATES OVERCONSOLIDATED OR CEMENTED MATERIAL
ASSUMED TOTAL UNIT WT = 110 pcf
ASSUMED DEPTH OF WATER TABLE = 7.0 ft
N(60) = EQUIVALENT SPT VALUE (60% Energy)

EARTH TECH

Interpretations based on: Robertson and Campanella, 1989.

SOUNDING : CPT-2

DEPTH (m)	DEPTH (ft)	TIP RESISTANCE (tsf)	FRICTION RATIO (%)	CONE PORE PRESSURE (tsf)	SOIL BEHAVIOR TYPE	N(60)
6.300	20.67	12.9	2.49	NA	CLAYEY SILT to SILTY CLAY	6
6.450	21.16	22.2	3.51	NA	CLAY to SILTY CLAY	15
6.600	21.65	27.6	3.22	NA	CLAYEY SILT to SILTY CLAY	14
6.750	22.15	29.5	2.85	NA	CLAYEY SILT to SILTY CLAY	15
6.900	22.64	30.3	3.60	NA	CLAYEY SILT to SILTY CLAY	15
7.050	23.13	27.5	3.53	NA	CLAYEY SILT to SILTY CLAY	14
7.200	23.62	29.6	3.51	NA	CLAYEY SILT to SILTY CLAY	15
7.350	24.11	30.6	3.27	NA	CLAYEY SILT to SILTY CLAY	15
7.500	24.61	32.2	3.30	NA	CLAYEY SILT to SILTY CLAY	16
7.650	25.10	32.4	2.81	NA	CLAYEY SILT to SILTY CLAY	16
7.800	25.59	31.6	2.95	NA	CLAYEY SILT to SILTY CLAY	16
7.950	26.08	30.8	3.97	NA	CLAY to SILTY CLAY	21
8.100	26.57	22.2	3.88	NA	CLAY to SILTY CLAY	15
8.250	27.07	16.9	4.39	NA	CLAY	17
8.400	27.56	15.0	2.07	NA	CLAYEY SILT to SILTY CLAY	8
8.550	28.05	17.0	4.66	NA	CLAY	17
8.700	28.54	16.2	4.00	NA	CLAY	16
8.850	29.04	27.0	3.48	NA	CLAYEY SILT to SILTY CLAY	13
9.000	29.53	18.0	4.55	NA	CLAY	18
9.150	30.02	18.2	3.90	NA	CLAY to SILTY CLAY	12
9.300	30.51	19.8	3.14	NA	CLAYEY SILT to SILTY CLAY	10
9.450	31.00	15.1	3.58	NA	CLAY to SILTY CLAY	10
9.600	31.50	14.3	1.89	NA	CLAYEY SILT to SILTY CLAY	7
9.750	31.99	21.9	2.01	NA	SANDY SILT to CLAYEY SILT	9
9.900	32.48	16.6	2.53	NA	CLAYEY SILT to SILTY CLAY	8
10.050	32.97	13.2	3.18	NA	CLAY to SILTY CLAY	9
10.200	33.46	14.9	3.43	NA	CLAY to SILTY CLAY	10
10.350	33.96	16.3	3.50	NA	CLAY to SILTY CLAY	11
10.500	34.45	30.3	5.04	NA	CLAY	30
10.650	34.94	59.7	3.53	NA	CLAYEY SILT to SILTY CLAY	30
10.800	35.43	57.9	3.26	NA	SANDY SILT to CLAYEY SILT	23
10.950	35.93	23.7	3.67	NA	CLAY to SILTY CLAY	16
11.100	36.42	17.3	2.55	NA	CLAYEY SILT to SILTY CLAY	9
11.250	36.91	31.9	2.20	NA	SANDY SILT to CLAYEY SILT	13
11.400	37.40	56.1	5.03	NA	CLAY to SILTY CLAY	37
11.550	37.89	33.1	4.10	NA	CLAY to SILTY CLAY	22
11.700	38.39	53.4	5.49	NA	CLAY	53
11.850	38.88	192.5	2.94	NA	SILTY SAND to SANDY SILT	64
12.000	39.37	155.8	4.16	NA	*VERY STIFF FINE GRAINED	156
12.150	39.86	69.9	5.42	NA	*VERY STIFF FINE GRAINED	70
12.300	40.35	190.1	2.84	NA	SILTY SAND to SANDY SILT	63
12.450	40.85	26.1	2.42	NA	CLAYEY SILT to SILTY CLAY	13
12.600	41.34	27.8	1.73	NA	SANDY SILT to CLAYEY SILT	11
12.750	41.83	27.8	2.27	NA	SANDY SILT to CLAYEY SILT	11
12.900	42.32	23.4	2.22	NA	CLAYEY SILT to SILTY CLAY	12
13.050	42.81	21.6	3.61	NA	CLAY to SILTY CLAY	14
13.200	43.31	16.9	3.72	NA	CLAY to SILTY CLAY	11
13.350	43.80	12.8	2.11	NA	CLAYEY SILT to SILTY CLAY	6
13.500	44.29	19.0	2.64	NA	CLAYEY SILT to SILTY CLAY	9
13.650	44.78	22.8	3.60	NA	CLAY to SILTY CLAY	15

NA = NOT APPLICABLE
*INDICATES OVERCONSOLIDATED OR CEMENTED MATERIAL
ASSUMED TOTAL UNIT WT = 110 pcf
ASSUMED DEPTH OF WATER TABLE = 7.0 ft
N(60) = EQUIVALENT SPT VALUE (60% Energy)

EARTH TECH

Interpretations based on: Robertson and Campanella, 1989.

SOUNDING : CPT-2

DEPTH (m)	DEPTH (ft)	TIP RESISTANCE (tsf)	FRICTION RATIO (%)	CONE PORE PRESSURE (tsf)	SOIL BEHAVIOR TYPE	N(60)
13.800	45.28	28.0	3.15	NA	CLAYEY SILT to SILTY CLAY	14
13.950	45.77	43.8	4.32	NA	CLAY to SILTY CLAY	29
14.100	46.26	24.7	3.52	NA	CLAYEY SILT to SILTY CLAY	12
14.250	46.75	82.4	3.29	NA	SANDY SILT to CLAYEY SILT	33

NA = NOT APPLICABLE
*INDICATES OVERCONSOLIDATED OR CEMENTED MATERIAL
ASSUMED TOTAL UNIT WT = 110 pcf
ASSUMED DEPTH OF WATER TABLE = 7.0 ft
N(60) = EQUIVALENT SPT VALUE (60% Energy)

EARTH TECH

Interpretations based on: Robertson and Campanella, 1989.

Attachment B

Laboratory Report

CHROMALAB, INC.

Environmental Services (SDB)

July 5, 1995 *Submission #:* 9506316

CH2M HILL OAKLAND

Atten: Madeline Wall

Project: DEL MONTE PLANT 35 *Project#:* BAE40768.GW.01
Received: June 22, 1995

re: One sample for Volatile Halogenated Organics analysis.
Method: EPA 8010

Client Sample ID: **CPT-1**
Sample #: 93577 *Matrix:* WATER
Sampled: June 21, 1995 *Run:* 7499-O *Analyzed:* July 2, 1995

Analyte	RESULT (ug/L)	REPORTING LIMIT (ug/L)	BLANK RESULT (ug/L)	BLANK SPIKE RESULT (%)
CHLOROMETHANE	N.D.	0.5	N.D.	--
VINYL CHLORIDE	N.D.	0.5	N.D.	--
BROMOMETHANE	N.D.	0.5	N.D.	--
CHLOROETHANE	N.D.	0.5	N.D.	--
TRICHLOROFLUOROMETHANE	N.D.	0.5	N.D.	--
1,1-DICHLOROETHENE	N.D.	0.5	N.D.	84
METHYLENE CHLORIDE	N.D.	0.5	N.D.	--
TRANS-1,2-DICHLOROETHENE	N.D.	0.5	N.D.	--
CIS-1,2-DICHLOROETHENE	N.D.	0.5	N.D.	--
1,1-DICHLOROETHANE	N.D.	0.5	N.D.	--
CHLOROFORM	N.D.	0.5	N.D.	--
1,1,1-TRICHLOROETHANE	N.D.	0.5	N.D.	--
CARBON TETRACHLORIDE	N.D.	0.5	N.D.	--
1,2-DICHLOROETHANE	N.D.	0.5	N.D.	--
TRICHLOROETHENE	2.0	0.5	N.D.	116
1,2-DICHLOROPROPANE	N.D.	0.5	N.D.	--
BROMODICHLOROMETHANE	N.D.	0.5	N.D.	--
2-CHLOROETHYLVINYL ETHER	N.D.	0.5	N.D.	--
TRANS-1,3-DICHLOROPROPENE	N.D.	0.5	N.D.	--
CIS-1,3-DICHLOROPROPENE	N.D.	0.5	N.D.	--
1,1,2-TRICHLOROETHANE	N.D.	0.5	N.D.	--
TETRACHLOROETHENE	N.D.	0.5	N.D.	--
DIBROMOCHLOROMETHANE	N.D.	0.5	N.D.	--
CHLOROBENZENE	N.D.	0.5	N.D.	115
BROMOFORM	N.D.	0.5	N.D.	--
1,1,2,2-TETRACHLOROETHANE	N.D.	0.5	N.D.	--
1,3-DICHLOROBENZENE	N.D.	0.5	N.D.	--
1,4-DICHLOROBENZENE	N.D.	0.5	N.D.	--
1,2-DICHLOROBENZENE	N.D.	0.5	N.D.	--
TRICHLOROTRIFLUOROETHANE	N.D.	0.5	N.D.	--

Oleg Nemtsov

Oleg Nemtsov
Chemist

Ali Kharrazi

Ali Kharrazi
Organic Manager

07/06 510-893-8205

1220 Quarry Lane • Pleasanton, California 94566-4756
(510) 484-1919 • Facsimile (510) 484-1096
Federal ID #68-0140157

CHROMALAB, INC.

Environmental Services (SDB)

July 5, 1995 *Submission #:* 9506316

CH2M HILL OAKLAND

Atten: Madeline Wall

Project: DEL MONTE PLANT 35 *Project#:* BAE40768.GW.01
Received: June 22, 1995

re: One sample for Volatile Halogenated Organics analysis.
Method: EPA 8010

Client Sample ID: **EB-1**
Sample #: 93578 *Matrix:* WATER
Sampled: June 21, 1995 *Run:* 7499-O *Analyzed:* July 2, 1995

Analyte	RESULT (ug/L)	REPORTING LIMIT (ug/L)	BLANK RESULT (ug/L)	BLANK SPIKE RESULT (%)
CHLOROMETHANE	N.D.	0.5	N.D.	--
VINYL CHLORIDE	N.D.	0.5	N.D.	--
BROMOMETHANE	N.D.	0.5	N.D.	--
CHLOROETHANE	N.D.	0.5	N.D.	--
TRICHLOROFLUOROMETHANE	N.D.	0.5	N.D.	--
1,1-DICHLOROETHENE	N.D.	0.5	N.D.	84
METHYLENE CHLORIDE	N.D.	0.5	N.D.	--
TRANS-1,2-DICHLOROETHENE	N.D.	0.5	N.D.	--
CIS-1,2-DICHLOROETHENE	N.D.	0.5	N.D.	--
1,1-DICHLOROETHANE	N.D.	0.5	N.D.	--
CHLOROFORM	N.D.	0.5	N.D.	--
1,1,1-TRICHLOROETHANE	N.D.	0.5	N.D.	--
CARBON TETRACHLORIDE	N.D.	0.5	N.D.	--
1,2-DICHLOROETHANE	N.D.	0.5	N.D.	--
TRICHLOROETHENE	N.D.	0.5	N.D.	116
1,2-DICHLOROPROPANE	N.D.	0.5	N.D.	--
BROMODICHLOROMETHANE	N.D.	0.5	N.D.	--
2-CHLOROETHYLVINYL ETHER	N.D.	0.5	N.D.	--
TRANS-1,3-DICHLOROPROPENE	N.D.	0.5	N.D.	--
CIS-1,3-DICHLOROPROPENE	N.D.	0.5	N.D.	--
1,1,2-TRICHLOROETHANE	N.D.	0.5	N.D.	--
TETRACHLOROETHENE	N.D.	0.5	N.D.	--
DIBROMOCHLOROMETHANE	N.D.	0.5	N.D.	--
CHLOROBENZENE	N.D.	0.5	N.D.	115
BROMOFORM	N.D.	0.5	N.D.	--
1,1,2,2-TETRACHLOROETHANE	N.D.	0.5	N.D.	--
1,3-DICHLOROBENZENE	N.D.	0.5	N.D.	--
1,4-DICHLOROBENZENE	N.D.	0.5	N.D.	--
1,2-DICHLOROBENZENE	N.D.	0.5	N.D.	--
TRICHLOROTRIFLUOROETHANE	N.D.	0.5	N.D.	--

Oleg Nemtsov
Oleg Nemtsov
Chemist

Ali Kharrazi
Ali Kharrazi
Organic Manager

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Federal ID #68-0140157

CHROMALAB, INC.

Environmental Services (SDB)

July 5, 1995

Submission #: 9506316

CH2M HILL OAKLAND

Atten: Madeline Wall

Project: DEL MONTE PLANT 35 *Project#:* BAE40768.GW.01
Received: June 22, 1995

re: One sample for Volatile Halogenated Organics analysis.
Method: EPA 8010

Client Sample ID: **CPT-2**
Sample #: 93579 *Matrix:* WATER
Sampled: June 21, 1995 *Run:* 7499-O *Analyzed:* July 2, 1995

Analyte	RESULT (ug/L)	REPORTING LIMIT (ug/L)	BLANK RESULT (ug/L)	BLANK SPIKE RESULT (%)
CHLOROMETHANE	N.D.	0.5	N.D.	--
VINYL CHLORIDE	N.D.	0.5	N.D.	--
BROMOMETHANE	N.D.	0.5	N.D.	--
CHLOROETHANE	N.D.	0.5	N.D.	--
TRICHLOROFLUOROMETHANE	N.D.	0.5	N.D.	--
1,1-DICHLOROETHENE	N.D.	0.5	N.D.	84
METHYLENE CHLORIDE	N.D.	0.5	N.D.	--
TRANS-1,2-DICHLOROETHENE	N.D.	0.5	N.D.	--
CIS-1,2-DICHLOROETHENE	N.D.	0.5	N.D.	--
1,1-DICHLOROETHANE	N.D.	0.5	N.D.	--
CHLOROFORM	N.D.	0.5	N.D.	--
1,1,1-TRICHLOROETHANE	N.D.	0.5	N.D.	--
CARBON TETRACHLORIDE	N.D.	0.5	N.D.	--
1,2-DICHLOROETHANE	N.D.	0.5	N.D.	--
TRICHLOROETHENE	N.D.	0.5	N.D.	116
1,2-DICHLOROPROPANE	N.D.	0.5	N.D.	--
BROMODICHLOROMETHANE	N.D.	0.5	N.D.	--
2-CHLOROETHYLVINYL ETHER	N.D.	0.5	N.D.	--
TRANS-1,3-DICHLOROPROPENE	N.D.	0.5	N.D.	--
CIS-1,3-DICHLOROPROPENE	N.D.	0.5	N.D.	--
1,1,2-TRICHLOROETHANE	N.D.	0.5	N.D.	--
TETRACHLOROETHENE	N.D.	0.5	N.D.	--
DIBROMOCHLOROMETHANE	N.D.	0.5	N.D.	--
CHLOROBENZENE	N.D.	0.5	N.D.	115
BROMOFORM	N.D.	0.5	N.D.	--
1,1,2,2-TETRACHLOROETHANE	N.D.	0.5	N.D.	--
1,3-DICHLOROBENZENE	N.D.	0.5	N.D.	--
1,4-DICHLOROBENZENE	N.D.	0.5	N.D.	--
1,2-DICHLOROBENZENE	N.D.	0.5	N.D.	--
TRICHLOROTRIFLUOROETHANE	N.D.	0.5	N.D.	--

Oleg Nemtsov
Chemist

Ali Kharrazi
Organic Manager

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Federal ID #68-0140157

CHROMALAB, INC.
SAMPLE RECEIPT CHECKLIST

Client Name CH2M Hill

Date/Time Received 6/22/95 / 1036 (Date / Time)

Received by B Morrow

Project ______

Carrier name ______

Reference/Subm # 22584/9506316

Logged in by RN / 6/23/95 (Initials / Date)

Checklist completed by: C Rowley / 6/26/95 (Signature / Date)

Matrix H2O

Shipping container in good condition?			NA___	Yes___	No___
Custody seals present on shipping container?	Intact___	Broken___		Yes___	No___
Custody seals on sample bottles?	Intact___	Broken___		Yes___	No___
Chain of custody present?				Yes ✓	No___
Chain of custody signed when relinquished and received?				Yes ✓	No___
Chain of custody agrees with sample labels?				Yes ✓	No___
Samples in proper container/bottle?				Yes ✓	No___
Samples intact?				Yes ✓	No___
Sufficient sample volume for indicated test?				Yes ✓	No___
VOA vials have zero headspace?			NA___	Yes ✓	No___
Trip Blank received?			NA___	Yes___	No ✓
All samples received within holding time?				Yes ✓	No___

Container temperature?______

pH upon receipt ______ pH adjusted ______ Check performed by: ______ NA ✓

Any NO response must be detailed in the comments section below. If items are not applicable, they should be marked NA.

Client contacted?______ Date contacted?______

Person contacted?______ Contacted by?______

Regarding?______

Comments: pH checked by Chemist

Corrective Action:______

[redacted] 3/ [redacted] 9 [redacted] 7 [redacted] 9867 [redacted] ... [redacted] 2 [redacted]

#: 9506316 REP: GC
CLIENT: CH2
DUE: 07/06/95
REF #:22584

CH2M HILL
QUALITY ANALYTICAL LABORATORIES

CHAIN OF CUSTODY RECORD AND AGREEMENT TO PERFORM SERVICES

CH2M HILL Project #	BAE40768.GW.01
Purchase Order #	
Project Name	Del Monte Plant 35
Company Name/CH2M HILL Office	CH2M HILL
Project Manager & Phone #	Mr. [ ] Ms. [X] Dr. [ ] Madeline Wall (510) 251-2888 x2187
Report Copy to:	Same
Requested Completion Date:	2 weeks
Sampling Requirements	SDWA ☐ NPDES ☐ RCRA ☐ OTHER ____
Sample Disposal:	Dispose ☐ Return ☐

LAB TEST CODES

ANALYSES REQUESTED: EPA 8010

Sampling Date	Sampling Time	Type COMP	Type GRAB	Matrix WATER	Matrix SOIL	CLIENT SAMPLE ID (9 CHARACTERS)	# OF CONTAINERS	EPA 8010	REMARKS	LAB 1 ID	LAB 2 ID
6-21	13:05		X	X		CPT-1	3	X			
6-21	14:54		X	X		EB-1	1	X			
6-21	16:59		X	X		CPT-2	3	X			

SHADED AREA – FOR LAB USE ONLY

Lab 1 #	Lab 2 #
Quote #	Kit Request #
Project #	
No. of Samples	Page ___ of ___
COC Rev / Login	LIMS Ver / Ack Gen

	(Please sign and print name)	Date/Time
Sampled By & Title	Thom Little Thom Little Hy-3	6-21-95/15:45
Received By	Michael B. Morrow	6-22-95/1036
Received By		
Received By		
Work Authorized By		

	(Please sign and print name)	Date/Time
Relinquished By	Thom Little Thom Little	6-22-95/10:36
Relinquished By		
Relinquished By		

HAZWRAP/NESSA: Y N
QC Level: 1 2 3 Other: ____

COC Rec	ICE
Ana Req	TEMP
Cust Seal	Ph

Shipped Via: UPS BUS Fed-Ex Hand Other ____
Shipping #

Remarks

Instructions and Agreement Provisions on Reverse Side

DISTRIBUTION: ORIGINAL - LAB, Yellow - LAB, Pink - Client
REV 11/92 FORM 340