Phase II Site Characterization Report for the LEHR Environmental Restoration University of California at Davis

Volume II
Appendices A-E

February 1993

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APPENDIX A

FIELD PROCEDURES
PHASE II SITE CHARACTERIZATION
LEHR ENVIRONMENTAL RESTORATION

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FIELD PROCEDURES
PHASE II SITE CHARACTERIZATION
LEHR ENVIRONMENTAL RESTORATION

APPENDIX A

This appendix presents the field procedures and investigative methods used during the Phase II Site Characterization. The discussion is arranged by Work Breakdown Structure (WBS) task items as listed below.

- Groundwater monitoring well installation and sampling;
- Soil boring and sampling;
- Sediment sampling;
- Surface water study and sampling;
- Domestic septic tank investigation; and
- Aquifer analyses and modeling.

FIELD PROCEDURES
PHASE II SITE CHARACTERIZATION
LEHR ENVIRONMENTAL RESTORATION

A-1.0 INTRODUCTION

This appendix presents the field procedures used to complete tasks described in Chapter 5.0 of this report. Table A-1 identifies the original work element numbers as defined in Task Order 099217 between EMO and Dames & Moore. Additionally, this table identifies the more recent Work Breakdown Structure (WBS) Numbers defined in the Fiscal Year 1992 Statement of Work (SOW), dated October 24, 1991, and used in this report.

Table A-2 presents the approximate dates each WBS element was conducted.

This appendix is organized in the following manner:

Chapter A-2.0	Presents details of first- and second-HSU groundwater monitoring well installation and sampling procedures.
Chapter A-3.0	Presents details of soil boring drilling and sample collection.
Chapter A-4.0	Details methods used for sediment sample collection.
Chapter A-5.0	Provides details of the aquifer analysis and groundwater modeling tasks.
Chapter A-6.0	Presents the Domestic Septic Tank Investigation.
Chapter A-7.0	Presents the Waste Characterization for Stored Wastes at LEHR.

TABLE A-1
WBS COMPARISON BETWEEN
PHASE II WORK PLAN AND PHASE II REPORT
PHASE II SITE CHARACTERIZATION
LEHR ENVIRONMENTAL RESTORATION

WBS Task	WBS Number Phase II Work Plan	WBS Number Phase II Report
Groundwater Monitoring Well Installation and Sampling	0402	303A [a] 303C [b]
Soil Boring and Sampling	0403	302
Sediment Sampling	0404	304
Surface Water Sampling	0405	303A
Septic Tank Investigation	0406	305
Aquifer Analysis	0407	306
Waste Characterization	No Designation	308

Footnotes: [a] 303A — Quarterly Water Sampling
[b] 303C — Monitoring Well Installation

TABLE A-2
FIELD TASK SCHEDULE
PHASE II SITE CHARACTERIZATION
LEHR ENVIRONMENTAL RESTORATION

TASK		APPROXIMATE DATES COMPLETED
Shallow Soil Borings	Dog Pen Area LEHR	2/20/90 through 2/22/90
	North Chemical Dispensing Area	3/8/90 through 3/9/90
	Old AEC Project Site	2/20/91 through 2/21/91
Intermediate and Deep Borings	Southwest Chemical Dispensing Area	3/8/90 through 3/9/90
	Strontium-90 Leach Field	3/9/90 through 3/12/90
	Radium-226 Seepage Pits	3/13/90 through 3/14/90
Sediment Sampling		2/22/90
Monitoring Well Installation	Second-HSU Monitoring Wells	3/29/90 through 4/10/90
	Second-HSU Monitoring Wells	9/26/90 through 10/19/90
Quarterly Water Sampling	Fall 1990	10/29/90 through 11/9/90
	Winter 1991	2/5/91 through 2/12/91
	Spring 1991	5/13/91 through 5/21/91
	Summer 1991	8/5/91 through 8/14/91
	Fall 1991	11/18/91 through 11/26/91
Aquifer Analysis		12/9/91 through 3/30/92
Domestic Septic Tanks		Pending
Waste Characterization		Pending

A-2.0 GROUNDWATER MONITORING WELL INSTALLATION AND SAMPLING

Ten groundwater monitoring wells were installed during the Phase II investigation at locations shown on Figure A-1. Seven of the wells (UCD-18 through UCD-24) were installed in the upper 10 feet of the first hydrostratigraphic unit (HSU) (shallow wells, ±65 feet) and three wells (UCD-15 through UCD-17) were installed in the second HSU (deep wells, ±120 feet). During drilling, soil samples were collected for physical and chemical analysis as described in Section 2.4.1. Selected soil samples were sent to Controls for Environmental Pollution (CEP) Laboratories in Santa Fe, New Mexico for the chemical and radiological analyses listed in Table A-3.

A Dames & Moore geologist working under the direction of a California Registered Geologist supervised drilling of all wells. The on-site geologist was present during drilling to:

(1) Technically supervise the drilling subcontractor;

(2) Maintain a continuous log of materials penetrated in each borehole;

(3) Collect and document soil samples;

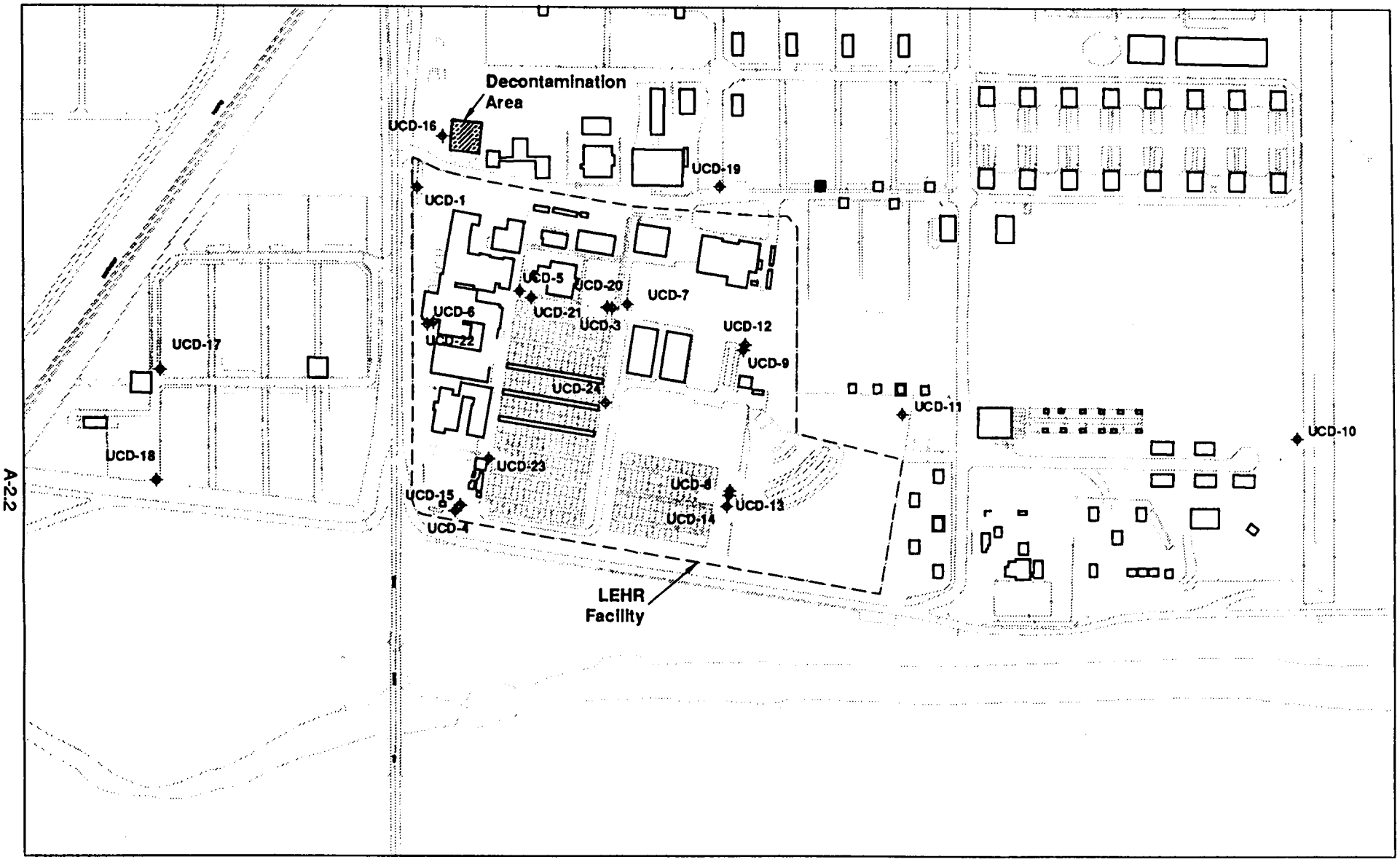
(4) Monitor soil samples, drill cuttings, and atmospheric conditions in the vicinity of the drilling location with an organic vapor analyzer (OVA);

(5) Design monitoring well completions; and

(6) Oversee implementation of Dames & Moore's Health and Safety Plan.

A-2.1 SAMPLE LOCATIONS AND FREQUENCIES

Locations of the 10 Phase II monitoring wells are shown on Figure A-1. Well design data are presented in Table A-4. Two monitoring wells (UCD-17 and UCD-18) were placed in locations upgradient of LEHR. The remaining eight monitoring wells (UCD-15, UCD-16 and UCD-19 through UCD-24) were placed to assess groundwater quality downgradient of potential source areas identified in previous investigations. The purpose for well locations is presented in Table A-4. Soil samples were collected during drilling at the surface, 12 to 18 inches below ground surface (bgs) and every five feet, or at significant changes in the lithology, to the water table (±50 feet below ground surface). Groundwater samples have been collected quarterly beginning in November 1990.



EXPLANATION

Monitoring Wells

0 300

Scale in Feet

N

GROUNDWATER MONITORING WELL LOCATION MAP

Phase II Site Characterization
LEHR Environmental Restoration
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10805-454-044 DOE-50

FIGURE A-1

TABLE A-3
SAMPLE COLLECTION SUMMARY
PHASE II SITE CHARACTERIZATION
LEHR ENVIRONMENTAL RESTORATION

Source	No. of Samples	Analysis List
WATER		
Groundwater	84	1
Surface Water	15	1
QA/QC	15	1
SOIL		
Well Installation Soil Borings	60	2
Deep Soil Borings	43	2
Intermediate Soil Borings	12	3
North Chemical Dispensing Area	6	3
Dog Pens	50	4
Old AEC	20	5
Sediment Sampling	2	2
Septic Tank	6[xx]	2
QA/QC	20	*

[xx] Proposed number of samples to be collected during this task

List 1 - Water
17 CAM Metals
Hexavalent Chromium
Nitrates (as Nitrogen)
Turbidity
Formaldehyde
Organochlorine Pesticides
Volatile Organic Compounds
Semivolatile Organic Compounds
Gross Alpha
Gross Beta
Tritium
Strontium 90
Gamma-Emitters
Carbon 14 (for selected wells)
Phosphate
Chloride
Alkalinity
TDS
COD
Calcium
Magnesium
Potassium
Sulfate
Sodium

List 2 - Soil
17 CAM Metals
Hexavalent Chromium
Nitrate (as Nitrogen)
Formaldehyde
Organochlorine Pesticides (EPA 8080)
Volatile Organic Compounds (EPA 8240)
Semivolatile Organic Compounds (EPA 8270)
Gross Alpha
Gross Beta
Tritium
Strontium 90
Gamma-Emitters
Carbon 14

List 3 - Soil
List 2 plus Diesel and Kerosene

List 4 - Soil
Chlordane
Nitrate
Radiologic Scan

List 5 - Soil
Chlordane

TABLE A-4
NEW MONITORING WELL INSTALLATION SUMMARY
PHASE II SITE CHARACTERIZATION
LEHR ENVIRONMENTAL RESTORATION

Well Site (Location)	Shallow or Deep	Planned Depth (feet)	Actual Depth Drilled (feet)	Purpose	Screened Interval (feet)	Date Completed
UCD-18	Shallow	60-70	70.0	Shallow well to establish background water quality data in this zone.	54-67	10/4/90
UCD-24	Shallow	60-70	73.0	Shallow well to replace well UCD-2 previously abandoned.	72.0-59.0	10/22/90
UCD-19	Shallow	60-70	74.5	Shallow well to assess water quality downgradient of the previous chemical dispensing area.	71.5-56.6	10/1/90
UCD-15	Deep	90-130	120.5	Deep well to assess groundwater quality in deeper zone in this area, interconnection, and creek interaction.	91-116	3/30/90
UCD-16	Deep	90-130	122	Deep well to enable triangulation of groundwater flow with other deep wells, and assess downgradient groundwater quality.	92-117	4/4/90
UCD-20	Shallow	60-70	73.0	Shallow well near UCD-3 to account for seasonal water-level fluctuations, and groundwater quality downgradient of potential source areas.	72-57	10/9/90
UCD-21	Shallow	60-70	73.0	Shallow well near UCD-5 to account for seasonal water-level fluctuations, and groundwater quality downgradient of animal hospitals, seepage pits, leach fields, and dry wells.	72-57	10/11/90
UCD-22	Shallow	60-70	73.0	Shallow well near UCD-6 to account for seasonal water-level fluctuations and groundwater quality in seepage pit, leach field, and dry well disposal areas.	72-57	10/25/90
UCD-23	Shallow	60-70	73.0	Shallow well immediately downgradient of southwest disposal area to assess groundwater quality in this area.	71.5-56.5	10/17/90

TABLE A-4
(Page 2 of 2)
PHASE II MONITORING WELL INSTALLATION SUMMARY
PHASE II SITE CHARACTERIZATION
LEHR ENVIRONMENTAL RESTORATION

Well Site (Location)	Shallow or Deep	Planned Depth (feet)	Actual Depth Drilled (feet)	Purpose	Screened Interval (feet)	Date Completed
UCD-17	Deep	90-130	143	Deep well to establish background water quality data in this zone.	88-113	4/10/90
UCD-25	Shallow	60-70		Shallow well along the Southern site border to assess groundwater quality and creek interaction.		
UCD-26	Deep	90-130		Deep well downgradient along the Southern site border.		
UCD-27	Shallow	60-70		Shallow well along the Southern site border to assess groundwater quality and creek interaction.		
UCD-28	Deep	90-130		Deep well downgradient along the Southern site border.		

Note: UCD-25 through UCD-28 were postponed pending findings of this Phase II Site Characterization Report. Locations of these monitoring wells may be changed to more accurately evaluate potential source areas.

A-2.2 SOIL SAMPLE IDENTIFICATION AND HANDLING

Phase II monitoring wells are identified in accordance with the system used for previous investigations at the LEHR facility. Phase II monitoring wells are identified as UCD-15 through UCD-24. Soil samples collected from these wells are identified by the respective well number and the depth at which the sample was obtained. Groundwater samples are identified only by the well location (UCD-24) and the date the sample was collected.

Three rings were retained from each soil sample interval. These samples were identified by depth collected and the postscripts "A, B, or C" depending on their position in the sampler (Figure A-4). For example, a soil sample designation of "UCD-24-35.0A" indicates this sample was collected from the boring for UCD-24 at a depth of 35.0 feet bgs, and was contained in the "A" ring, the ring closest to the cutting edge of the sampler. Sample "A" was retained for chemical or radiological testing, sample "B" was submitted as a duplicate or archived for possible future use, and the "C" sample was retained for physical testing. Table A-5 identifies soil samples collected from the first- and second-HSU monitoring wells and lists the analytical parameters requested for these samples.

Samples were labeled with Dames & Moore labels showing site name, well number, depth, matrix identification and classification, date collected, and initials of field personnel. Water samples were labeled with the same information, as applicable.

Sealed and labeled samples were placed in ice chests cooled with "blue" ice. Ice chests were used to ship samples to the analytical laboratory. The chain-of-custody record was routed to the analytical laboratory with the sealed ice chests containing samples. Chain-of-custody records (Figure A-2) were maintained using standard procedures described in the QAPP.

A-2.3 SAMPLING EQUIPMENT AND PROCEDURES

Borings for the seven first-HSU monitoring wells were drilled by Water Development Corporation of Woodland, California between September 26, 1990 and October 19, 1990. The borings were advanced using a CME 75 truck-mounted drilling rig equipped with 8- and 12-inch hollow-stem augers and continuous core capabilities. This drilling method was performed without drilling fluids and allowed for the collection of undisturbed soil samples and construction of the well through the hollow stem of the auger.

TABLE A-5
SUMMARY OF MONITORING WELL
SOIL SAMPLING DEPTHS[1]
AND ANALYTICAL REQUESTS

UCD 15	UCD 16	UCD 17	UCD 18	UCD 19	UCD 20	UCD 21	UCD 22	UCD 23	UCD 24
NS	1.5	NS	NS	0.0	0.0	0.0	0.0	0.0	0.0
5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0
10.0	10.0	10.0	10.0	10.0	10.0	10.0	10.0	10.0	10.0
15.0	15.0	15.0	15.0	15.0	15.0	15.0	15.0	15.0	15.0
20.0	20.0	20.0	20.0	20.0	20.0	20.0	20.0	20.0	20.0
25.0	25.0	25.0	25.0	25.0	25.0	25.0	25.0	25.0	25.0
30.0	30.0	30.0	30.0	30.0	30.0	30.0	30.0	30.0	30.0
35.0	35.0	35.0	35.0	35.0	35.0	35.0	35.0	35.0	35.0
	40.0	40.0	40.0	40.0	40.0	40.0	40.0	40.0	40.0
			45.0	45.0	45.0	45.0	45.0	45.0	45.0
			50.0	50.0	50.0	50.0	50.0	50.0	50.0
			55.0	55.0	55.0	55.0	55.0	55.0	55.0
			60.0	60.0	60.0	60.0	60.0	60.0	60.0
			65.*	65.0	65.*	65.0	65.0	65.0	65.0
				70.0	70.0	70.0	70.*	70.0	70.0
				73.*				75.*	

* Sample also submitted for physical testing.

Samples submitted for chemical and radiologic testing.

Analytical Requests

17 CAM Metals
Hexavalent Chromium
Nitrates (as Nitrogen)
Formaldehyde
Organochlorine Pesticides (EPA 8080)
Volatile Organic Compounds (EPA 8240)
Semivolatile Organic Compounds (EPA 8270)
Gross Alpha Gross Beta
Tritium
Strontium 90
Gamma-Emitters

[1] Depths in feet below ground surface.

! ! ! IMPORTANT ! ! !

Upon receipt of this form:
1. Inspect all samples.
2. Note any damaged containers.
3. Sign and date this form.
4. Send a FAX of this form to:
   RICK MOREN / DAMES & MOORE
   FAX # (916) 362-7987
5. Do not begin work until authorization is received from Dames & Moore by telephone.

LIST____ CHAIN OF CUSTODY

Project Name UCD/ LEHR
DOE Site Characterization

Project #

Clients Name;
Dames & Moore
9300 Tech Center Drive, Ste 100
Sacramento, California 95826
(916)364-8698
Attention: Mr. Joe Niland

Signatures
Dames & Moore _____ Date
UCD _____ Date
Battelle _____ Date

Sampler _____

Sample No.	S	W	Date	Time	# of Cont-ainers	Laboratory Number

Analyses Requested for All Samples Listed.

Additional Requests

Relinquished by; _____ Date ____ Time ____ Rec'd by; _____ Date ____ Time ____
Relinquished by; _____ Date ____ Time ____ Rec'd by; _____ Date ____ Time ____
Relinquished by; _____ Date ____ Time ____ Rec'd by; _____ Date ____ Time ____

DAMES & MOORE
CHAIN OF CUSTODY
Phase II Site Characterization
LEHR Environmental Restoration
FEBRUARY 1993

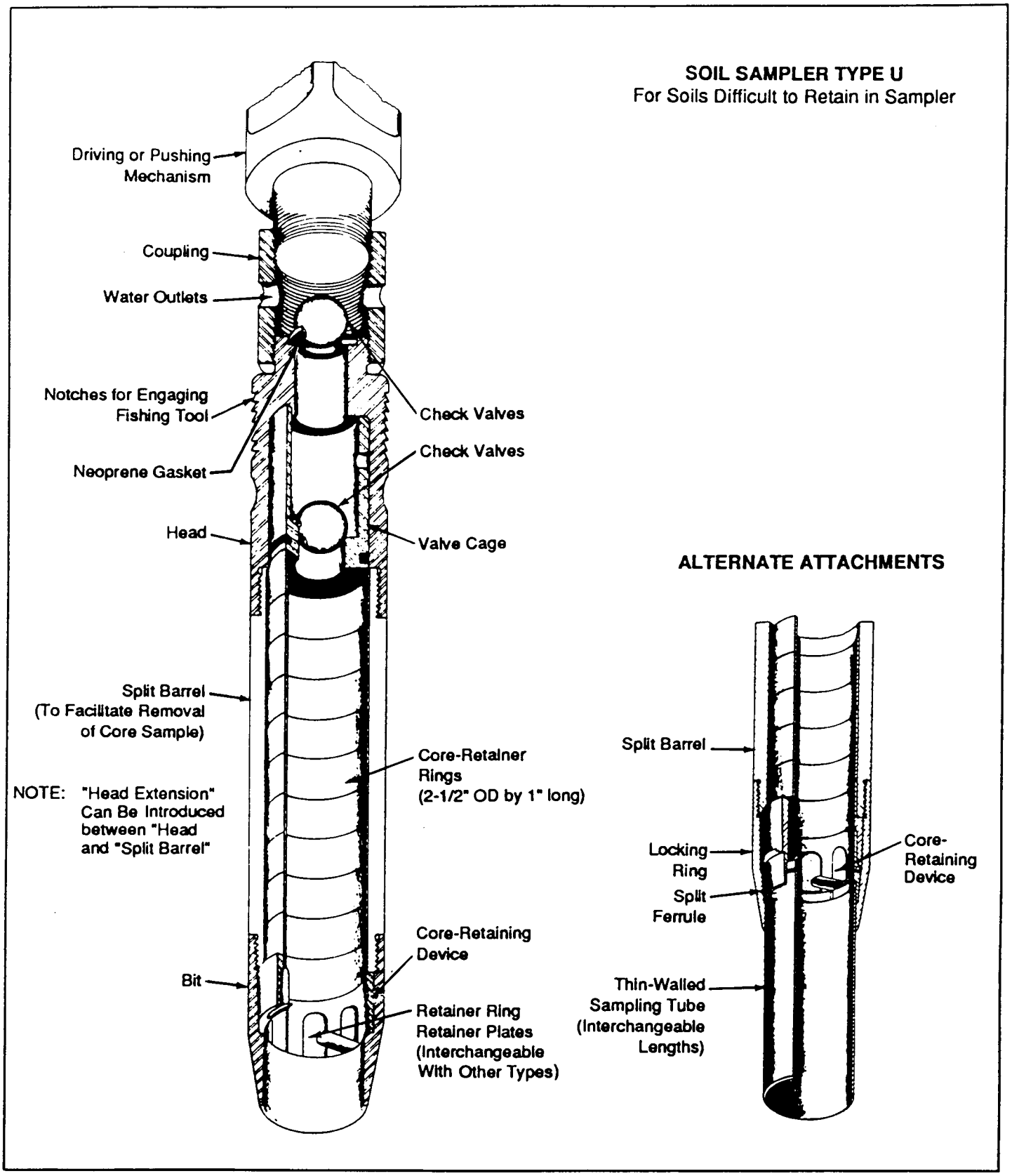
Cuttings generated during drilling were placed in Department of Transportation (DOT)-approved 55-gallon drums supplied by UC Davis. Filled drums were closed and placed in the Cobalt-60 Field. The disposition of each drum will be assessed upon completion of the Waste Characterization Study currently underway, and will remain the responsibility of UC Davis.

A-2.3.1 Soil Sampling - First-HSU Monitoring Well Borings

Undisturbed soil samples were obtained from seven first-HSU monitoring well borings with a Dames & Moore Type-U sampler fitted with new 2.5-inch-diameter, 3-inch-long stainless steel rings (Figure A-3). Soil samples from six depth intervals from each well boring were analyzed for chemical and radiological parameters. Soil samples were collected at the surface, 12 to 18 inches bgs, then every five feet to the water table, or at significant lithologic changes. A total of five soil samples collected from the seven first-HSU well borings were selected for physical testing, which included porosity, permeability, grain size analysis, and moisture/density. Additionally, grab samples collected from the saturated water-table zone in UCD-18 and UCD-19 were measured in the field for grain-size distribution by sieve analysis. Table A-5 lists soil samples collected from each first-HSU well boring and identifies those samples submitted for chemical and physical analyses. Appendix L presents the results of the field sieve analyses for UCD-18 and UCD-19. Additionally, the physical laboratory analyses results are presented in appendix L.

Soil samples were collected through the hollow stem augers in the shallow well borings and through the drive casing in the deep well borings. Samples were collected by driving the Type "U" Sampler 18 inches (or until refusal) into undisturbed soil below the lead auger or drive shoe. The drill rig is equipped with a 140-pound hammer to drive the sampler. Hammer blows required to drive the sampler in 6-inch increments were recorded on the Dames & Moore Boring Log (Figure A-4).

Upon retrieval from the borehole, the sampler was dismantled, and the sample rings removed and placed on clean plastic. Sample rings were separated with a clean steel knife then logged by the on-site geologist using the Unified Soil Classification System (Figure A-5). After logging, the exposed ends of the rings were covered with 2-mil Teflon sheets, plastic end caps, and silicone-based tape. Samples were labeled as described in Section A-2.3.



DAMES & MOORE TYPE U SAMPLER

Phase II Site Characterization
LEHR Environmental Restoration
FEBRUARY 1993

Dames & Moore

LOCATION OF BORING	JOB NO.	CLIENT	LOCATION
	DRILLING METHOD:		BORING NO
			SHEET OF
	SAMPLING METHOD:		DRILLING
			START TIME / FINISH TIME
	WATER LEVEL		
	TIME		
	DATE		DATE / DATE
	CASING DEPTH		

DATUM ELEVATION

SURFACE CONDITIONS:

SAMPLER TYPE	INCHES DRIVEN / INCHES RECOVERED	DEPTH OF CASING	SAMPLE NO / SAMPLE DEPTH	BLOWS/FT SAMPLER	NUMBER OF RINGS	DEPTH IN FEET	SOIL GRAPH
						0	
						1	
						2	
						3	
						4	
						5	
						6	
						7	
						8	
						9	
						0	
						1	
						2	
						3	
						4	
						5	
						6	
						7	
						8	
						9	
						0	

DRILLING CONTR _____

No.115460

BY _____ DATE _____ CHK D BY _____

628 1 (3) (REV 11-80)

DAMES & MOORE
BORING LOG
Phase II Site Characterization
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MAJOR DIVISIONS			GRAPHIC SYMBOL	LETTER SYMBOL	TYPICAL DESCRIPTIONS
COARSE GRAINED SOILS	GRAVEL AND GRAVELLY SOILS	CLEAN GRAVELS (LITTLE OR NO FINES)		GW	WELL-GRADED GRAVELS, GRAVEL-SAND MIXTURES, LITTLE OR NO FINES
				GP	POORLY-GRADED GRAVELS, GRAVEL-SAND MIXTURES, LITTLE OR NO FINES
	MORE THAN 50% OF COARSE FRACTION RETAINED ON NO. 4 SIEVE	GRAVELS WITH FINES (APPRECIABLE AMOUNT OF FINES)		GM	SILTY GRAVELS, GRAVEL-SAND-SILT MIXTURES
				GC	CLAYEY GRAVELS, GRAVEL-SAND-CLAY MIXTURES
MORE THAN 50% OF MATERIAL IS LARGER THAN NO. 200 SIEVE SIZE	SAND AND SANDY SOILS	CLEAN SAND (LITTLE OR NO FINES)		SW	WELL-GRADED SANDS, GRAVELLY SANDS, LITTLE OR NO FINES
				SP	POORLY-GRADED SANDS, GRAVELLY SANDS, LITTLE OR NO FINES
	MORE THAN 50% OF COARSE FRACTION PASSING NO. 4 SIEVE	SANDS WITH FINES (APPRECIABLE AMOUNT OF FINES)		SM	SILTY SANDS, SAND-SILT MIXTURES
				SC	CLAYEY SANDS, SAND-CLAY MIXTURES
FINE GRAINED SOILS	SILTS AND CLAYS	LIQUID LIMIT LESS THAN 50		ML	INORGANIC SILTS AND VERY FINE SANDS, ROCK FLOUR, SILTY OR CLAYEY FINE SANDS OR CLAYEY SILTS WITH SLIGHT PLASTICITY
				CL	INORGANIC CLAYS OF LOW TO MEDIUM PLASTICITY, GRAVELLY CLAYS, SANDY CLAYS, SILTY CLAYS, LEAN CLAYS
				OL	ORGANIC SILTS AND ORGANIC SILTY CLAYS OF LOW PLASTICITY
MORE THAN 50% OF MATERIAL IS SMALLER THAN NO. 200 SIEVE SIZE	SILTS AND CLAYS	LIQUID LIMIT GREATER THAN 50		MH	INORGANIC SILTS, MICACEOUS OR DIATOMACEOUS FINE SAND OR SILTY SOILS
				CH	INORGANIC CLAYS OF HIGH PLASTICITY, FAT CLAYS
				OH	ORGANIC CLAYS OF MEDIUM TO HIGH PLASTICITY, ORGANIC SILTS
HIGHLY ORGANIC SOILS				PT	PEAT, HUMUS, SWAMP SOILS WITH HIGH ORGANIC CONTENTS

NOTE: DUAL SYMBOLS ARE USED TO INDICATE BORDERLINE SOIL CLASSIFICATIONS

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UNIFIED SOIL CLASSIFICATION

Phase II Site Characterization
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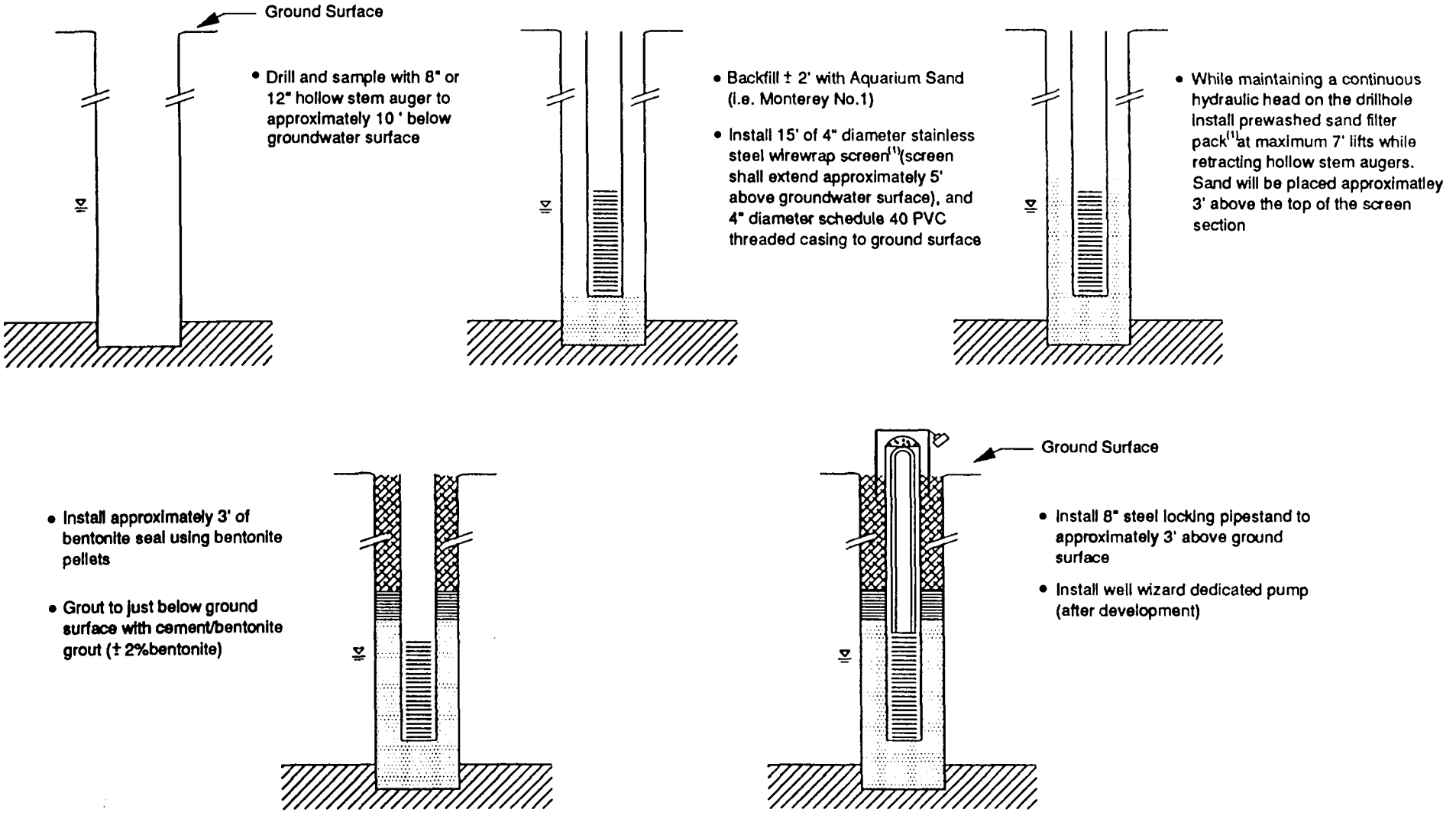
Detailed lithologic descriptions in the first-HSU wells were possible using soil cores obtained during drilling with a wire-line coring system. In the shallow well borings, soil cores were collected between each drive sample. Soil cores were collected by drilling with a four-foot-long split core barrel (Moss Barrel) in the lead auger that was lowered into position and retrieved using a cable or "wire-line" system. Soil cores are considered "disturbed" and therefore are not used for chemical or physical testing. Soil cores for UCD-18, and UCD-20 through UCD-24 (first-HSU wells) are stored in core boxes at the LEHR facility. Because of the drilling method used for the second-HSU monitoring wells, no continuous soil cores were collected from these well borings.

A-2.3.2 First-HSU Well Installation

Seven first-HSU monitoring wells (UCD-18 through UCD-24) were installed at the LEHR facility. Upon reaching the water table, each boring was advanced to a total depth of approximately 10 feet below the groundwater surface. The well casing was then installed through the hollow stem of the augers (Figure A-6). Construction details for Phase II monitoring wells are provided in Table A-6. Monitoring wells were constructed in accordance with guidance recommended in ASTM D-5092, which is referenced in SW-846.

Monitoring wells were constructed of 4-inch-diameter flush-threaded schedule 40 PVC casing and a 15-foot length of stainless-steel, continuous wirewrap well screen with 0.010-inch slots. Well casings were assembled without the use of chemical bonding. The 15-foot screen section was placed with approximately 5 feet of screened interval above the static water table to allow for variation of the water table elevation. As the augers were pulled from the boring, a filter pack of pre-washed sand was placed in the annulus between the borehole and the well screen, from the total depth of the boring to approximately 2 feet above the top of the screen section. After placement of the filter pack, a surge-block was placed into the well and lowered and raised past the screened interval in order to help settle the sand filter pack. After surging the well, additional filter pack material was added as necessary to replace sand that had settled. An approximately 3-foot-thick layer of bentonite was placed above the filter pack using 1/4-inch-diameter bentonite pellets. The bentonite pellets were hydrated with distilled water to produce an effective barrier before the annulus was grouted to the surface by tremmie methods with a 2 percent bentonite/cement grout mixture.

Well screen slot and filter pack size was selected based on sieve analysis of aquifer materials from the planned completion zones for the first two first-HSU wells (UCD-18 and UCD-19). The sieve analyses were conducted in the field by the on-site geologist. On subsequent completions, screen size and filter pack materials were assessed by comparing the lithology within the saturated zone with the lithology of the sieved wells. The seven first-HSU monitoring wells were completed using stainless-steel,



NOTES:

(1) Well screen slot size and filter pack size will be selected based on a sieve analysis of aquifer materials from the planned completion zone.

FIRST HSU WELL COMPLETION

Phase II Site Characterization
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10805-454-044 DOE2

FIGURE A-6

TABLE A-6
CONSTRUCTION DETAILS FOR PHASE II MONITORING WELLS
PHASE II SITE CHARACTERIZATION
LEHR ENVIRONMENTAL RESTORATION

	SECOND-HSU MONITORING WELLS			FIRST-HSU MONITORING WELLS						
	UCD-15	UCD-16	UCD-17	UCD-18	UCD-19	UCD-20	UCD-21	UCD-22	UCD-23	UCD-24
TD	120.5	122	143	70	74.5	73.5	73.5	73.0	76.5	73
Screen Interval	116-91	117-92	113-88	69-54	71.5-56.5	72-57	72-59	72-57	71.5-56.5	72-57
Filter Pack	120.5-86	122-89	118-81	70-51	74.5-53.5	73.5-54	73.5-54	73.0-54	73-54.5	73-54
Bentonite	86-65	89-71	81-78*	51-48	53.5-50.5	54-51	54-51	54-51	54.5-51.5	54-51
Cement	65-0	710	78-0	48-0	50.5-0	51-0	51-0	51-0	51.5-0	51.0

TD - TOTAL DEPTH DRILLED

* Volclay grout.

TABLE A-7
TYPICAL FILTER PACK GRADATIONS
PHASE II SITE CHARACTERIZATION
LEHR ENVIRONMENTAL RESTORATION

LONE STAR LAPIS LUSTRE KILN DRIED SANDS											
Lone Star LAPIS LUSTRE Designation	Aquarium		3	2/12	2-/16	1C	1/20	0/30	Pipe 30	60	LSI-30
	Coarse	Medium									
Nominal Sieve Sizes, Mesh	4×12	6×16	8×20	12×20	16×30	16×40	20×40	30×50	20×70	40×100	30×100
Cumulative Percent Passing U.S. Sieve Number											
No. 4	95-100	99-100									
No. 6	75-95	85-100	100								
No. 8	10-40	40-65	99-100	100							
No. 12	0-6	15-30	65-85	99-100	100	100					
No. 16		0-7	20-45	50-75	90-100	99-100	100				
No. 20			0-8	5-15	20-40	55-80	90-100	100	95-100		100
No. 30			0-3	0-5	0-5	10-30	14-40	90-100	80-90	100	85-95
No. 40						0-5	0-5	30-65	40-65	98-100	40-70
No. 50								0-15	0-20	40-60	15-40
No. 70								0-1	0-5	5-15	5-25
No. 100										0-5	0-10
No. 200											0-2

continuous wire wrap screen with 0.10 slot size and Lonestar 1c filter pack. Typical filter pack gradations are shown on Table A-3.

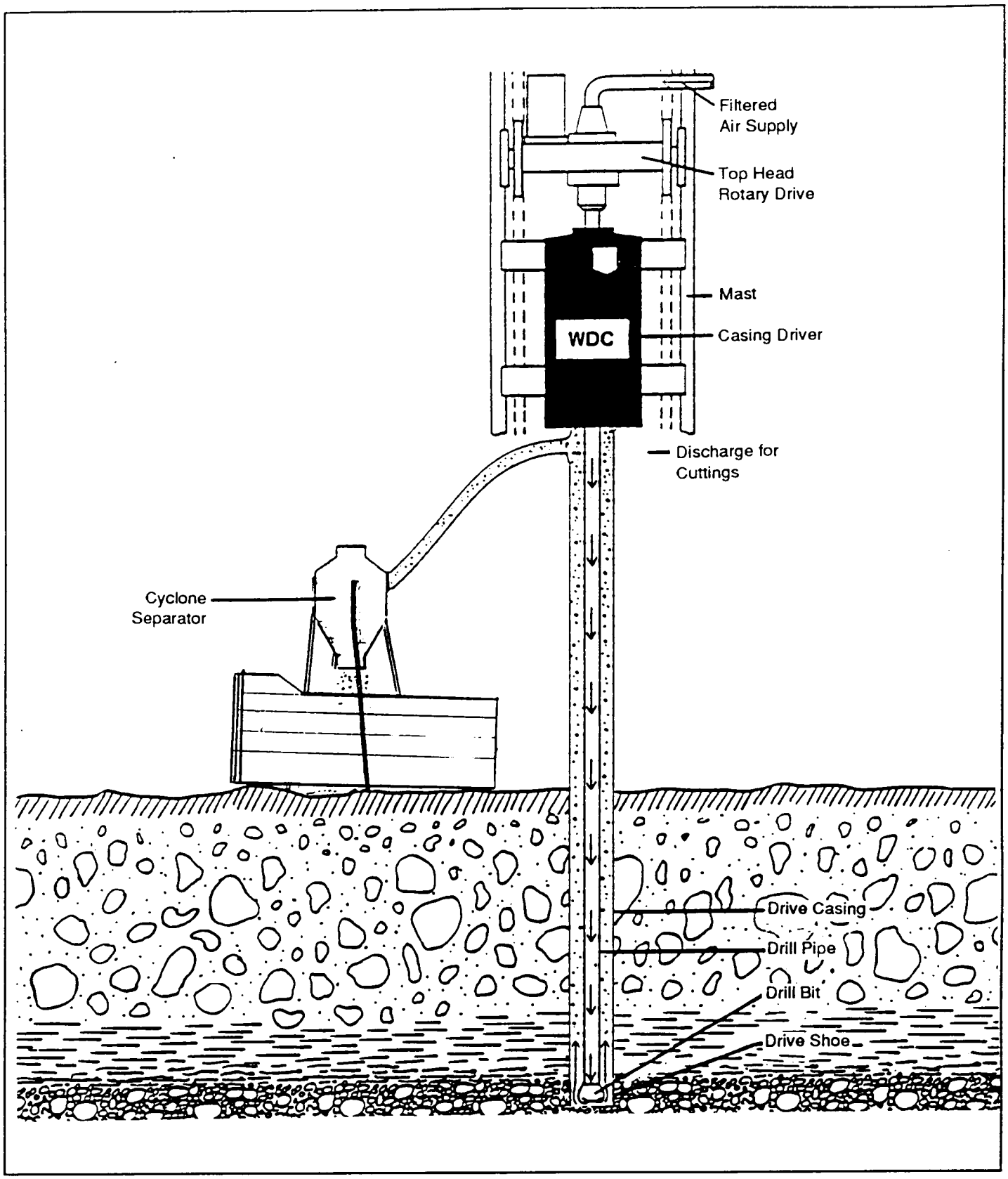
Well casings for monitoring wells UCD-15, UCD-16, UCD-17, UCD-18, UCD-19, and UCD-20, were cut off approximately 2½ feet above ground surface, fitted with a PVC cap, and enclosed in a steel surface casing with a locking lid extending approximately 3 feet above ground surface. The locking steel surface casing was grouted at the surface and a tapered concrete finish applied around the base to direct water away from the well. Wells completed in high vehicle traffic areas or roadways were completed using a flush-mount, water-tight, locking well box (Diversified or Homeco brand). The well box was placed slightly above the surrounding ground surface in a positive grout mound tapered to direct surface water away from the well. These construction methods are in accordance with guidance recommended in ASTM D-5092, which is referenced in SW-846. Wells were surveyed for vertical and horizontal control and tied into the Geodetic System by Valley CAD surveyors of Sacramento, California.

A-2.3.3 Second-HSU Well Installations

Three second-HSU well borings for monitoring wells UCD-15, UCD-16, and UCD-17 were installed by Water Development Corporation between March 28, 1990 and April 10, 1990. The monitoring wells were installed using a Speedstar TH15 air rotary/casing hammer drill rig. Each well boring was drilled and each well constructed under the supervision of a California Registered Geologist representing Dames & Moore, with oversight by technical representatives for UC Davis and The Earth Technology Corporation.

The air rotary/casing hammer method of drilling uses two types of flush-threaded drill pipe (Figure A-7). The outer, large-diameter drive casing is driven by a pneumatic hammer. The inner air rotary drill rod supplies air to and turns the drill bit. Pressurized air is forced downward through the center of the rotary pipe and out through the drill bit. Each string of casing can be moved independently of the other. The drill bit can extend in front of the drive casing or the drive casing can be driven ahead of the drill bit. During drilling for UCD-15 through UCD-17, the drive casing was kept ahead of the drill bit to prevent caving of the well bore and to prevent large "wash outs" in unconsolidated sand and gravel.

The air and drill cuttings return upward through the annulus between the drive casing and the drill rod. The air and cuttings are routed into a cyclone which separates air and cuttings. The cuttings were discharged into lined, 25-cubic-yard hazardous materials bins supplied by American Environmental Management.



AIR ROTARY CASING HAMMER

Phase II Site Characterization
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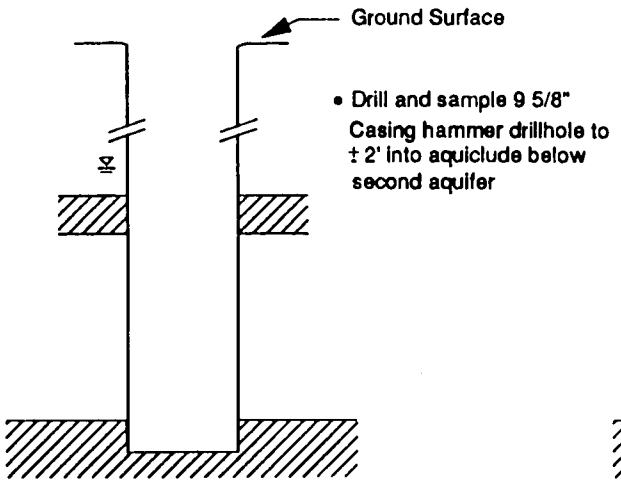
All samples and cuttings were logged by the site geologist. Undisturbed soil samples were collected at five-foot intervals from the ground surface to groundwater using the Dames & Moore Type-U Sampler by the procedures described in Section A-2.4.1. Because of caving problems encountered during installation of UCD-14 for the SWAT investigation, no drive samples were collected from below the groundwater table using this drilling method. Soil cuttings brought to the surface by circulating air were collected and observed from within each five-foot interval.

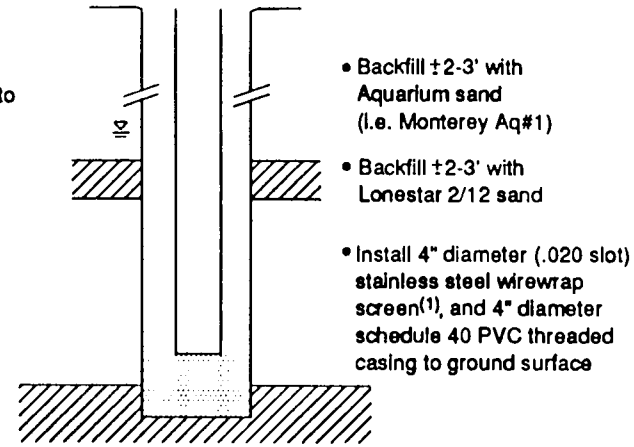
Second-HSU monitoring well installation procedures were similar to those used for the first-HSU wells (Section A-2.4.2), except that in the second-HSU wells, the screened interval was set to evaluate approximately 75 percent of the deep water-bearing zone. Second-HSU monitoring wells were completed with a 25-foot length of 4-inch-diameter, stainless-steel, wirewrap screen with 0.020-inch-wide openings. A No. 2/12 sand filter pack was used to surround the screened portions of the wells. A bentonite slurry was carefully tremmied to overlap the fine-grained sediments above the second HSU, to produce an effective barrier between the shallow and deep water bearing zones (Figure A-8).

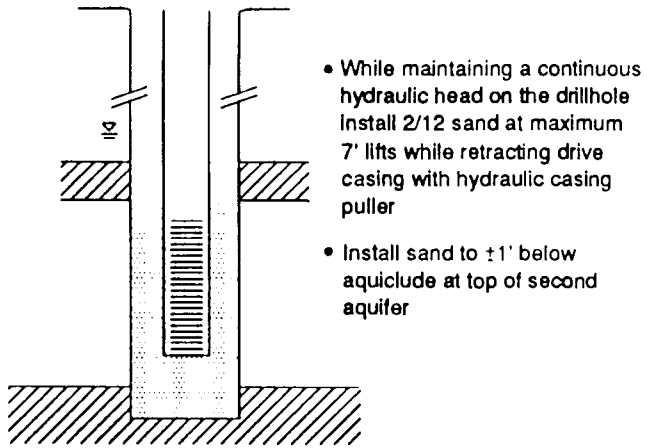
A-2.4.4 Well Development

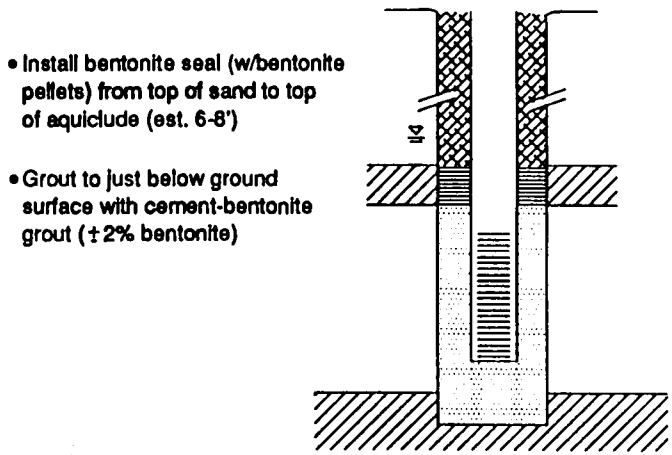
All Phase II monitoring wells were developed by Water Development Corporation using a well development truck equipped with a surge block, bailers and a submersible pump. Development of the monitoring wells was observed by a Dames & Moore geologist working under the supervision of a California State Registered Geologist. The general sequence for monitoring well development included the following steps:

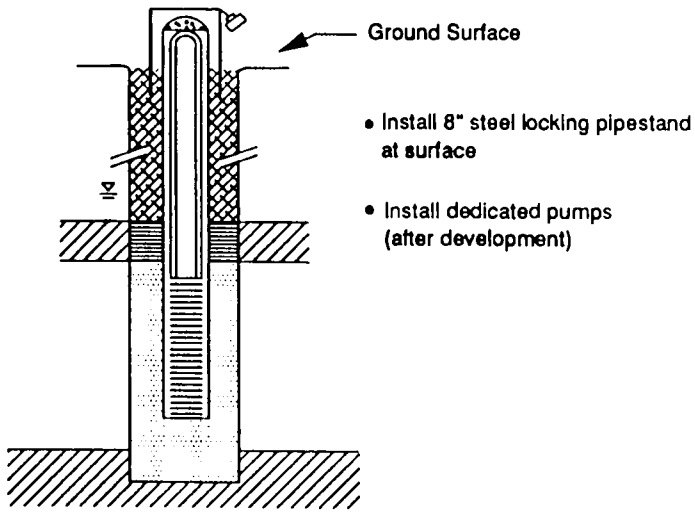
- Surging the well screened interval using the surge block;
- Bailing the well to remove coarse-grained sediments;
- Surging the screened interval a second time;
- Bailing the well to remove coarse-grained sediments; and
- Pumping the well using a submersible pump, varying the pumping rate and elevation of the pump in the well.











NOTES:
(1) Screen determined based on thickness of aquifer. Goal to complete 75% of interval of interest.

SECOND HSU WELL COMPLETION

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FEBRUARY 1993

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FIGURE A-8

During pumping, pH, electrical conductivity (EC), and temperature of the groundwater were measured at regular intervals using a HyDac pH/conductivity meter. Turbidity of the groundwater was measured using an HF Scientific turbidity meter. Development proceeded until consecutive measurements of pH, temperature, conductivity and turbidity measured within 10 percent of previous readings. Water produced during monitoring-well development was placed in DOT-approved drums supplied by UC Davis, closed and placed in the Cobalt-60 Field. The drums were labeled to indicate monitoring-well number and date. The disposition of each drum of development water will be evaluated during the waste characterization process currently underway and remain the responsibility of UC Davis. Monitoring well development data is presented in Appendix E.

A-2.3.5 Pump Installation

After development, monitoring wells were fitted with dedicated, Grundfos Rediflo submersible pumps (Model No. MP2) installed by EMO and Grundfos personnel. Pumps in the three second-HSU monitoring wells (UCD-15, UCD-16 and UCD-17) were installed on November 8, 1990. Pumps in the seven first-HSU monitoring wells (UCD-19 through UCD-24) were installed on January 22, 1991. These pumps are used for purging and sampling the Phase II monitoring wells. The purge/sample pumps are 1.82 inches in diameter, 13 inches long, and constructed of stainless steel. The variable-speed motor in these pumps allows a range of discharge volumes, from approximately 50 ml/minute to 25,000 ml/minute. Pumps were installed according to specifications of the manufacturer. Pump tubing and casing was assembled with flush threading or clips without glue or sealant.

A-2.4 DECONTAMINATION PROCEDURES

After each sample was collected, the Dames & Moore soil samplers were washed twice in a non-phosphate solution, rinsed with potable water and rinsed again with distilled water. Potable water was obtained from on-site sources approved by UC Davis personnel. Distilled water was supplied in 5-gallon containers by Alhambra Water.

Drilling equipment, including drill bits, casing, augers, and tools or other equipment that may have come in contact with potentially impacted soils or water, was steam cleaned between each well boring. The steam cleaner used to clean the equipment was supplied and operated by Water Development Corporation. The steam cleaner was capable of generating a working pressure of 2,000 pounds per square inch (psi), a discharge rate of 5 gallons per minute (gpm), and an operating temperature of 200°F.

At each well boring location, personnel and sampling equipment decontamination areas were established. Each well boring location was controlled using caution tape. Personnel decontamination areas were located at the designated exit point for each location. Before exiting the controlled area,

personnel scrubbed and rinsed their boots, removed their tyvek and gloves, and washed their hands with soapy water. All personnel leaving the controlled area were screened for radiologic activity (Beta particles) by UC Davis EH&S personnel using a geiger counter with a pancake probe. All tyvek and other disposable equipment was placed in lined 55-gallon drums, labeled and placed in the Cobalt-60 Field. After each use, soil sampling equipment was washed with a non-phosphate cleaning solution, rinsed with fresh water, and final rinsed with distilled water.

A parking area north of LEHR and east of MW-16 (Figure A-1) was designated as the decontamination area. The parking area was lined and bermed with two layers of 4 mil visqueen to contain rinsate from steam cleaning operations. The steam cleaning area was designed to allow drilling rig and support vehicles to drive onto the visqueen. After completion of each boring, drill casing or augers, drill bits and drill rods were transported by truck to the steam cleaning area. Because of their length (20 feet) drill casing from the second-HSU monitoring well drilling procedures was cleaned while on the support truck. Hollow-stem augers used for soil borings and first-HSU monitoring well installations were placed in a specially built self-contained trough for cleaning. Rinsate collected in the bermed area and the trough was pumped into 55-gallon drums and stored at the Cobalt-60 Field. The disposition of each drum will be evaluated during the waste characterization currently underway, and will remain the responsibility of UC Davis.

In addition to the drilling equipment, all monitoring-well PVC casing, stainless steel screen, and centralizers were steam cleaned prior to installation. Cleaned well materials were covered with 4 mil visqueen transported to the well site.

UC Davis EH&S personnel collected swipe samples from sampling equipment, drilling equipment, vehicles and well construction materials before they were removed from the steam cleaning area. The swipe samples were then measured for radiologic counts. Swipe samples were also used as a visual check on the efficiency of the steam cleaning to remove soil from the equipment. If the swipe sample was not visually clean, that piece of sampling or drilling equipment or well casing was re-cleaned and tested again. Cleaned equipment was not removed from the cleaning area until approval was given by UC Davis EH&S personnel.

No swipe samples collected from drilling or sampling equipment, the vehicles, or the well construction materials had any elevated radiologic counts.

A-3.0 QUARTERLY GROUNDWATER AND SURFACE WATER SAMPLING PROCEDURES

Dames & Moore sampled 18 groundwater monitoring wells on a quarterly schedule during the Phase II investigation. Groundwater sampling procedures are described in this section and include equipment inspection and calibration, well purging, measurement of field parameters, sample filtering and preservation, and labelling and shipment of sample containers.

A-3.1 PREPARATION AND MOBILIZATION

Prior to quarterly groundwater sampling, the Field Operations Lead gathered and inspected equipment and instruments to verify that they were in proper working condition. These activities included:

- Notifying CEP Laboratories 3 to 4 weeks in advance of sampling activities of the number of samples and types of analyses, and requesting the proper number of sample containers, ice chests, and blue ice. Upon receipt, inspecting sample containers, notifying the laboratory of any missing or broken bottles, and pre-labeling sample bottles;

- Notifying UC Davis and EMO staff of sampling schedule;

- Checking the combination HyDac pH/conductivity meter for accuracy by calibrating for pH with NIST traceable pH solution buffers, checking the electrical conductivity (EC) meter with 10 μmhos/cm, 100 μmho/cm, 1,000 μmho/cm NIST traceable EC solutions, and checking the temperature meter with a NIST traceable thermometer;

- Checking that the turbidity meter, water-level indicator, electrical generator, oil-less air compressor, and bladder pump control box were in proper working condition;

- Assembling a bound field notebook that includes groundwater sample tracking forms, field memos, field records of water sampling, and instrument calibration forms (Figures 9 through 12);

- Assembling additional forms including sample Chain of Custody (COC) (Figure A-2) and pre-addressed airbills for overnight shipment; and

- Reviewing proper sampling and health and safety protocol.

SAMPLE TRACKING FORM
(To be filled out from COC)

Project Name UCD/LEHR JOB # 10805-454-044

PHASE II SITE CHARACTERIZATION

SAMPLE NUMBER	Date	Time
1.		
2.		
3.		
4.		
5.		
6.		
7.		
8.		
9.		
10.		
11.		(REPLICATE)

NO. 11 is a replicate sample of _____

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SOIL SAMPLE TRACKING
Phase II Site Characterization
LEHR Environmental Restoration
FEBRUARY 1993

FIELD MEMORANDUM

ACTION	INFO	
To:		File:
		X-Ref:
		Date:

From: Reply Required By:

Subject:

Reference(s):

ROUTING

114.8 (REV. 5-68)

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FIELD MEMORANDUM

Phase II Site Characterization
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FEBRUARY 1993

FIELD RECORD OF WATER SAMPLE

WELL OR SAMPLE NO./ID _____ JOB NUMBER: _____

DEPTH OF WELL _____ CLIENT: _____

_____ DIAMETER CASING LOCATION: _____

WELL ELEVATION: _____ SAMPLED BY: _____

PERFORATED INTERVAL _____ TO _____

METHOD OF EVACUATION _____

DATE	TIME	WATER LEVEL BEFORE EVACUATION	GALLONS REMOVED DURING EVACUATION OR PRIOR TO SAMPLING

METHOD OF SAMPLING _____

DATE OF SAMPLE _____ TIME _____

DEPTH OF SAMPLE _____ DOMESTIC WELL TANK ____YES ____NO

CONTAINER TYPES	ANALYSIS

TEMP. _____

CONDUCTIVITY _____

pH _____

COMMENTS: _____

DAMES & MOORE
FIELD RECORD OF WATER SAMPLING
Phase II Site Characterization
LEHR Environmental Restoration
FEBRUARY 1993

EXHIBIT A

INSTRUMENT CALIBRATION LOG[a]

Page ____ of ____

INSTRUMENT NAME _____

MANUFACTURER _____

EQUIPMENT SERIAL NO. _____ D&M ASSET NO. _____

DATE ACQUIRED OR PLACED IN SERVICE _____

CALIBRATION RECORD

DATE _____ CALIBRATED BY: _____

CALIBRATION STANDARD: _____

CALIBRATION PROCEDURES: _____

ACCEPTANCE CRITERIA: _____

RESULTS: _____

COMMENTS: _____

NEXT CALIBRATION DUE: _____

_____

Laboratory Supervisor (signature)

==========

CALIBRATION RECORD

DATE _____ CALIBRATED BY: _____

CALIBRATION STANDARD: _____

CALIBRATION PROCEDURES: _____

ACCEPTANCE CRITERIA: _____

RESULTS: _____

COMMENTS: _____

_____

_____

NEXT CALIBRATION DUE: _____

_____

Laboratory Supervisor (signature)

==========

[a] Several pages will be required for each instrument

INSTRUMENTATION CALIBRATION FORM

Phase II Site Characterization
LEHR Environmental Restoration
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A-3.2 WELL PURGING

Prior to sampling each monitoring well, the static water level was measured with an electric water level indicator. Depth-to-water measurements were recorded to the nearest 0.01 foot on the Field Record of Water Sampling form. Each well was then purged to allow sample collection of fresh formation water. Monitoring wells UCD-1,-4,-7,-10,-11,-12,-13,and -14 were purged with dedicated bladder pumps. Monitoring wells UCD-15 through UCD-24 were purged using dedicated submersible electric pumps. If the static water levels dropped below the level of the pumps, the pumps were removed, placed in clean plastic bags, and the well was purged and sampled using a disposable bailer. Purging of each monitoring well continued until:

(1) Three to five casing volumes were removed from the well: and

(3) The field pH, specific conductivity, temperature, and turbidity measurements of the discharged water had stabilized.

Field instruments were calibrated once prior to beginning daily sampling activities, and then every four hours (pH meter), or before each well was sampled (turbidity meter). Calibration information was recorded on the Instrument Calibration Form and noted on Field Memos. All field groundwater measurements were recorded on Field Record of Water Sampling forms.

Wells that were pumped or bailed dry prior to removing three casing volumes of water were allowed to recover and then pumped or bailed dry a second time. Field measurements of temperature, pH, specific conductivity, and turbidity were then collected as the well filled the second time.

A-3.3 GROUNDWATER SAMPLING

Groundwater samples were collected from monitoring wells upon the completion of purging. Samples from wells UCD-1,-4,-7,-10,-11,-12,-13, and -14 were collected from dedicated, bladder-driven sampling pumps. Samples from wells UCD-15 through UCD-24 were collected from the dedicated submersible electric pumps. If static water levels dropped below the level of the bladder-driven sampling pumps, samples were collected from clean, disposable bailers.

"Dry" wells were confirmed by comparing field well depth measurements to well construction specifications and documented on Field Record of Water Sampling. When necessary, dedicated pumps were removed to make sure the pump did not interfere with groundwater-depth readings.

Groundwater samples were collected directly from the sampling pumps into sample containers supplied by CEP and preserved as indicated by CEP sampling instructions provided in Table A-8.

TABLE A-8
SAMPLING INSTRUCTIONS PROVIDED BY CEP LABORATORY
PHASE II SITE CHARACTERIZATION
LEHR ENVIRONMENTAL RESTORATION

PARAMETERS	CONTAINER	PRESERVATION METHOD
Metals, Sodium, Potassium, Magnesium, Calcium	One, 1-Liter Plastic	pH < 2, HNO_3
Hexavalent Chromium, Turbidity, Sulfate, Chloride, Alkalinity, TDS	One, 1-Liter Plastic	Cool to 4°C
Nitrates, COD, Phosphate	One, 1-Liter Glass	pH < 2, H_2SO_4
Formaldehyde	Two, 40 ml. Glass Vials	Cool to 4°C
Pesticides EPA-608, Semivolatiles EPA-625	One, 1-Gallon Amber Glass	Cool to 4°C
Volatiles EPA-624	Two, 40 ml. Glass Vials	Cool to 4°C
Gross Alpha, Gross Beta, Strontium-90, Gamma Spec.	One, 1-Gallon plastic	pH < 2 HNO_3
Tritium	One, 4-Ounce Glass	Cool to 4°C
Carbon-14	One, 1-Liter Plastic	Cool to 4°C

HNO_3 Nitric Acid
H_2SO_4 Sulfuric Acid
C Centigrade

Groundwater samples for metals analyses were filtered with in-line, 0.45-micron, Geotech disposable filters prior to preservation. Samples collected with a bailer were filtered using a portable peristaltic pump and disposable in-line filters. Sample containers were labelled with site name, well identification, date, time, requested analyses, and preservation method.

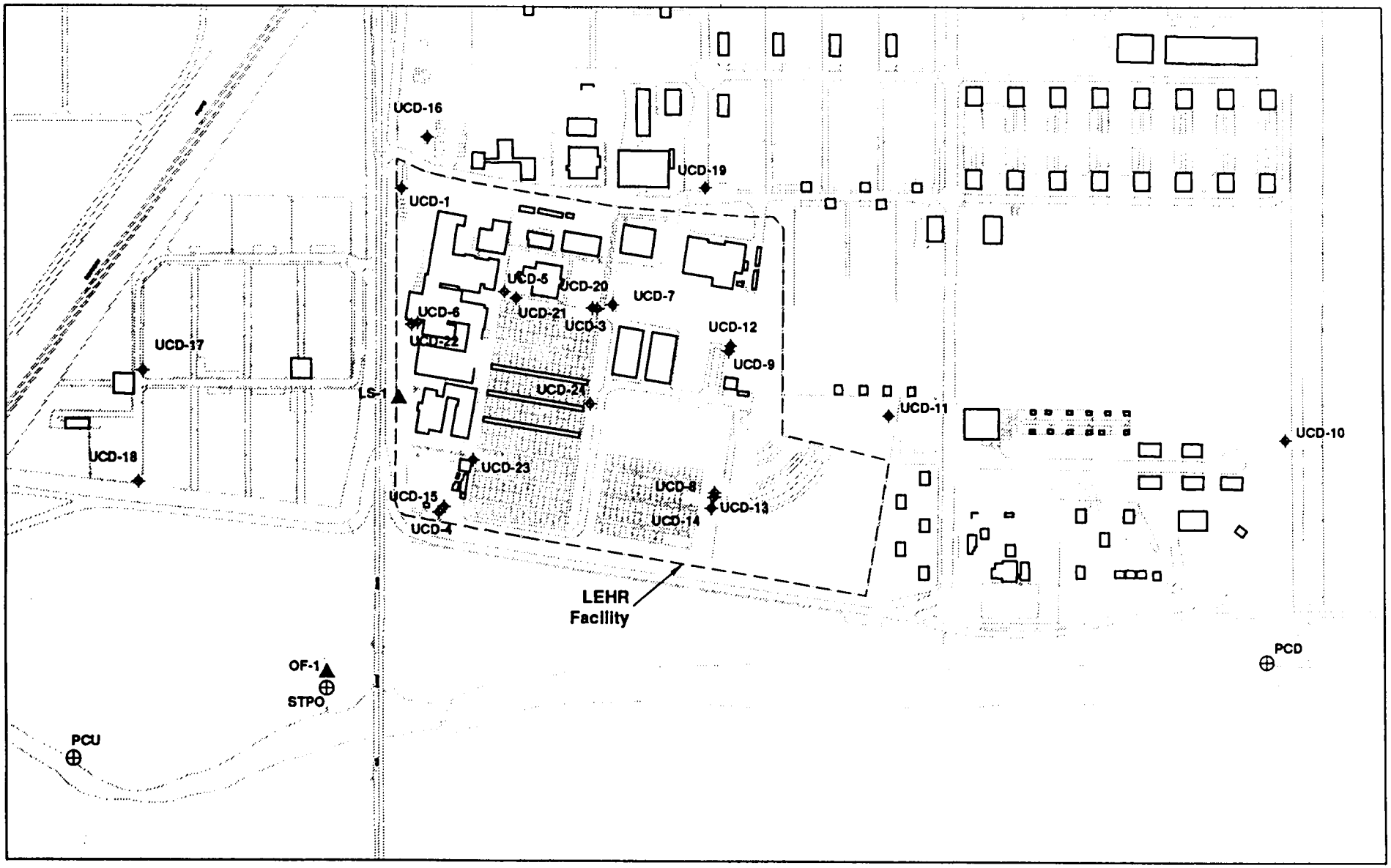
A "blind" replicate sample was collected from every tenth well by simultaneously filling a second, identical set of sample containers, and labelling the containers with a fictitious well identification. Replicate samples were collected from different wells each quarter and documented on the Sample Tracking Form and the Field Record of Water Sampling.

Sample and replicate containers were packed in ice chests containing sealed blue ice and a completed, signed, and dated COC. Ice chests were delivered daily to Federal Express for overnight delivery to CEP Laboratories in Santa Fe, New Mexico. Upon receipt of the sample shipment, CEP transmitted a copy of the completed COC (Figure A-2) by facsimile to Dames & Moore, noting any missing or damaged containers. When appropriate, sample water was taken from undamaged bottles from the same well. If sufficient sample water could not be extracted from remaining bottles, analyses for that sample were halted and the well was resampled. Dames & Moore then approved the samples for analysis. Samples were not collected or shipped on Fridays to avoid potential Saturday delivery and analysis problems.

A-3.4 QUARTERLY SURFACE WATER SAMPLING

During the Phase II investigation, Dames & Moore sampled surface water from Putah Creek on a quarterly basis in conjunction with the groundwater sampling. Preparation and mobilization procedures for surface water sampling are similar to those described for groundwater sampling and were completed at the same time. Surface water samples were collected from three locations (Figure A-13): the sewage treatment plant outfall tributary (designated STPO), upstream of the LEHR facility (designated PCU), and downstream of the LEHR facility (designated PCD).

Prior to sampling at each location, 2 to 3 field measurements of pH, electrical conductivity, temperature, and turbidity were recorded. Samples were then collected into interchangeable glass sample bottles using a model "DH-48" depth integrated water sampler (Figure A-14). Sample water was transferred to the appropriate laboratory-supplied sample containers, and labelled with the site name, sample location designation, time, date, requested analyses, and preservatives. One "blind" replicate was collected from one of the surface water sample locations each quarter. Samples and replicate samples were preserved and transferred to portable ice chests containing blue ice and a completed COC. Samples were delivered daily to Federal Express for overnight delivery to CEP Laboratories. Sample receipt inspection and notification procedures for surface water samples were the same as procedures described for groundwater samples.



EXPLANATION

- Monitoring Wells
- Sediment Samples
- Surface Water Samples

0 300
Scale in Feet

N

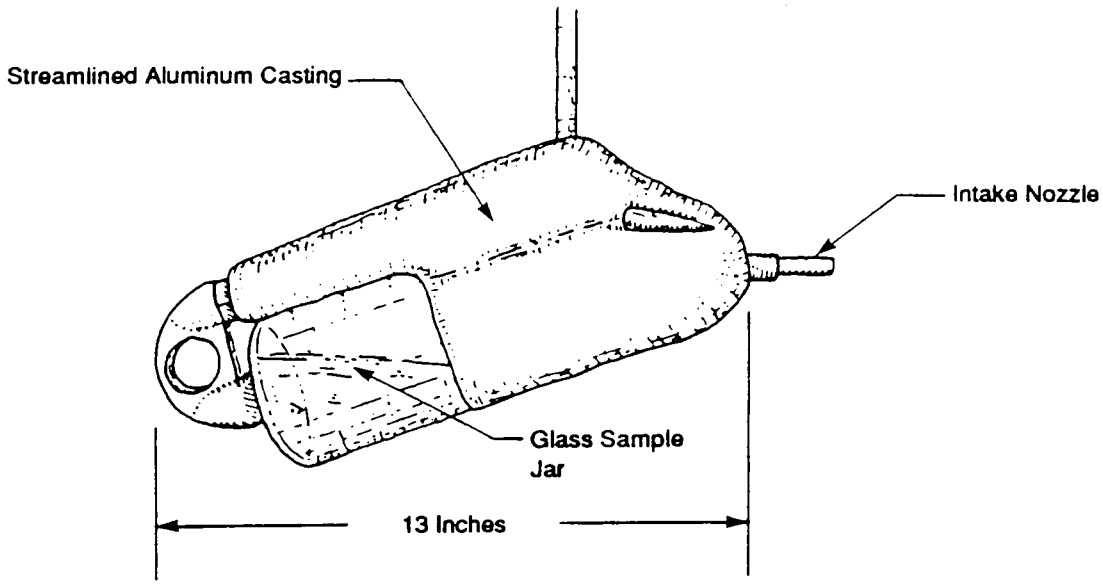
LOCATION MAP SURFACE WATER AND SEDIMENT SAMPLES

Phase II Site Characterization
LEHR Environmental Restoration
FEBRUARY 1993

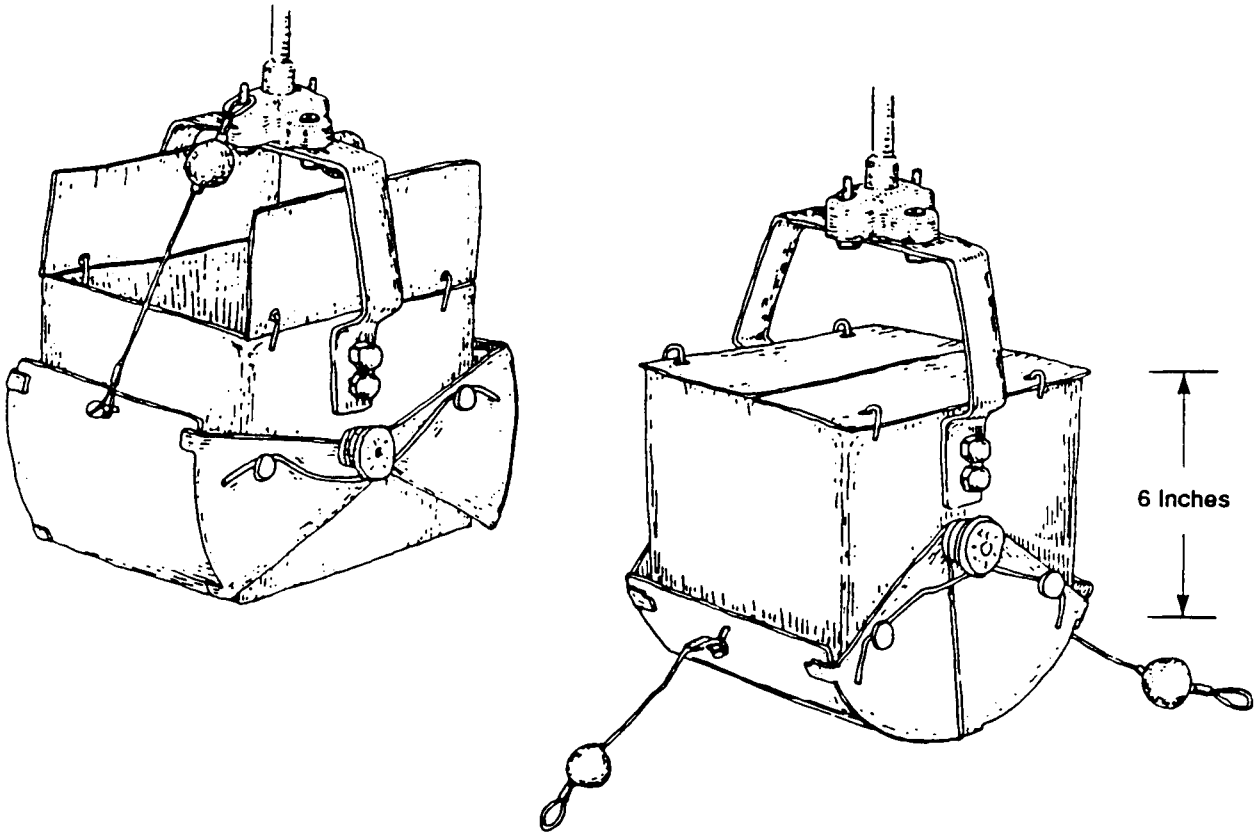
DAMES & MOORE

10805-454-044 DOE-134

FIGURE A-13



A) "USDH-48" Depth Integrated Water and Suspended Sediment Sampler



B) Clamshell-Type Bottom Sediment Sampler

SURFACE WATER AND SEDIMENT SAMPLERS

DOE Phase II Site Characterization
Davis, California
FEBRUARY 1993

A-4.0 SOIL BORING AND SAMPLING

Seven deep (25 to 30 feet bgs), three intermediate depth (10 feet bgs), and 38 shallow (18 inches to five feet bgs) soil borings were drilled as part of the Phase II Site Characterization. During drilling, soil samples were collected and analyzed for chemical constituents listed in Tables A-9 through A-11.

A-4.1 SAMPLE LOCATION AND FREQUENCIES

Location of the Phase II soil borings are shown in Figures A-15 and A-16. Borings at LEHR were located to evaluate areas of interest (Figure A-17) identified in previous investigations. The locations were approved by the UC Davis technical representative and cleared with UC Davis physical plant personnel. Six soil samples from each deep soil boring, four samples from each intermediate soil boring, and two samples from each shallow soil boring were submitted to the laboratory for chemical analysis. Soil samples were collected from these borings at the surface, at a depth of 12 to 18 inches, and at specific intervals (every five feet). Additionally, samples were obtained from specific zones of interest such as lithologic changes, as determined in the field by the UC Davis Technical Representative and the Dames & Moore on-site Geologist. Tables A-9 through A-11 list soil samples collected from each boring and identify those samples submitted for chemical analysis. Additionally, the tables list the analyses requested for soil samples.

TABLE A-9
SUMMARY OF SOIL BORING SAMPLE DEPTHS[1]
AND ANALYTICAL REQUESTS
PHASE II SITE CHARACTERIZATION
LEHR ENVIRONMENTAL RESTORATION

SB16	SB17	SB18	SB19	SB19A	SB20	SB21	SB22	SB23	SB24	SB25	SB26	SB27	SB28
0.8	0.8	0.8	0.0	NS	0.0	0.0	0.8	0.5	1.0	1.0	1.0	1.0	1.0
1.8	1.8	1.8	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS
			NS	NS	2.5	2.5	2.5	2.0	2.5	2.5	2.5	2.5	2.0
			NS	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	NS
			7.5		NS	7.5	NS	NS	NS	NS	NS	NS	6.5
			10.0		10.0	10.0	10.0	10.0	10.0	10.0	10.0	10.0	10.0
							NS	12.0	NS	NS	NS	NS	NS
							15.0	15.0	15.0	15.0	15.0	15.0	15.0
							20.0	20.0	20.0	20.0	20.0	20.0	20.0
							25.0	25.0	25.0	25.0	25.0	25.0	25.0
							30.0	30.0	30.0	30.0	30.0	30.0	30.0

Samples submitted for chemical and radiologic testing.

Analytical Requests

17 CAM Metals
Hexavalent Chromium
Nitrates (as Nitrogen)
Formaldehyde
Organochlorine Pesticides (EPA 8080)
Volatile Organic Compounds (EPA 8240)
Semivolatile Organic Compounds (EPA 8270)
Gross Alpha Gross Beta
Tritium
Strontium 90
Gamma-Emitters
*Diesel
*Kerosene

[1] Depths in feet below ground surface.
NS Depth not sampled.
* For SB-16 through SB-21 only.

TABLE A-10
SUMMARY OF LEHR DOG PEN SAMPLES AND
ANALYTICAL REQUESTS
PHASE II SITE CHARACTERIZATION
LEHR ENVIRONMENTAL RESTORATION

Cage #/Ring	Depths (inches)	Cage #/Ring	Depth (inches)
E6 A	0.0	M17 A*	0.0
E6 C	18.0	M17 C*	18.0
E24 A	0.0	M14 A	0.0
E24 C	18.0	M14 C	18.0
E10 A	0.0	M29 A	0.0
E10 C	18.0	M29 C	18.0
F26 A	0.0	C20 B	0.0
F26 C	18.0	C20 C	18.0
F21 A	0.0	D32 A	0.0
F21 C	18.0	D32 C	18.0
G25 A	0.0	D4 A	0.0
G25 C	18.0	D4 C	18.0
G22 A	0.0	D21 A	0.0
G22 C	18.0	D21 C	18.0
J25 A*	0.0	D13 A	0.0
J25 C*	18.0	D13 C	18.0
J9 A	0.0	H5 A	0.0
J9 C	18.0	H5 C	18.0
K27 A*	0.0	I3 A	0.0
K27 C*	18.0	I3 C	18.0
K23 A*	0.0	L2 A	0.0
K23 C*	18.0	L2 C	18.0
L19 A	0.0	L1 A*	0.0
L10 C	18.0	L1 C*	18.0
		J22 A	0.0
		J22 C	18.0

Samples submitted for chemical and radiologic testing.

Analysis Request for Pen Samples

Chloride
Nitrates
Radiologic Scan

*Includes Carbon-14

TABLE A-11
SUMMARY OF SOIL SAMPLE DEPTHS[1] AND
ANALYTICAL REQUESTS
OLD AEC PROJECT SITE, MAIN CAMPUS
PHASE II SITE CHARACTERIZATION
LEHR ENVIRONMENTAL RESTORATION

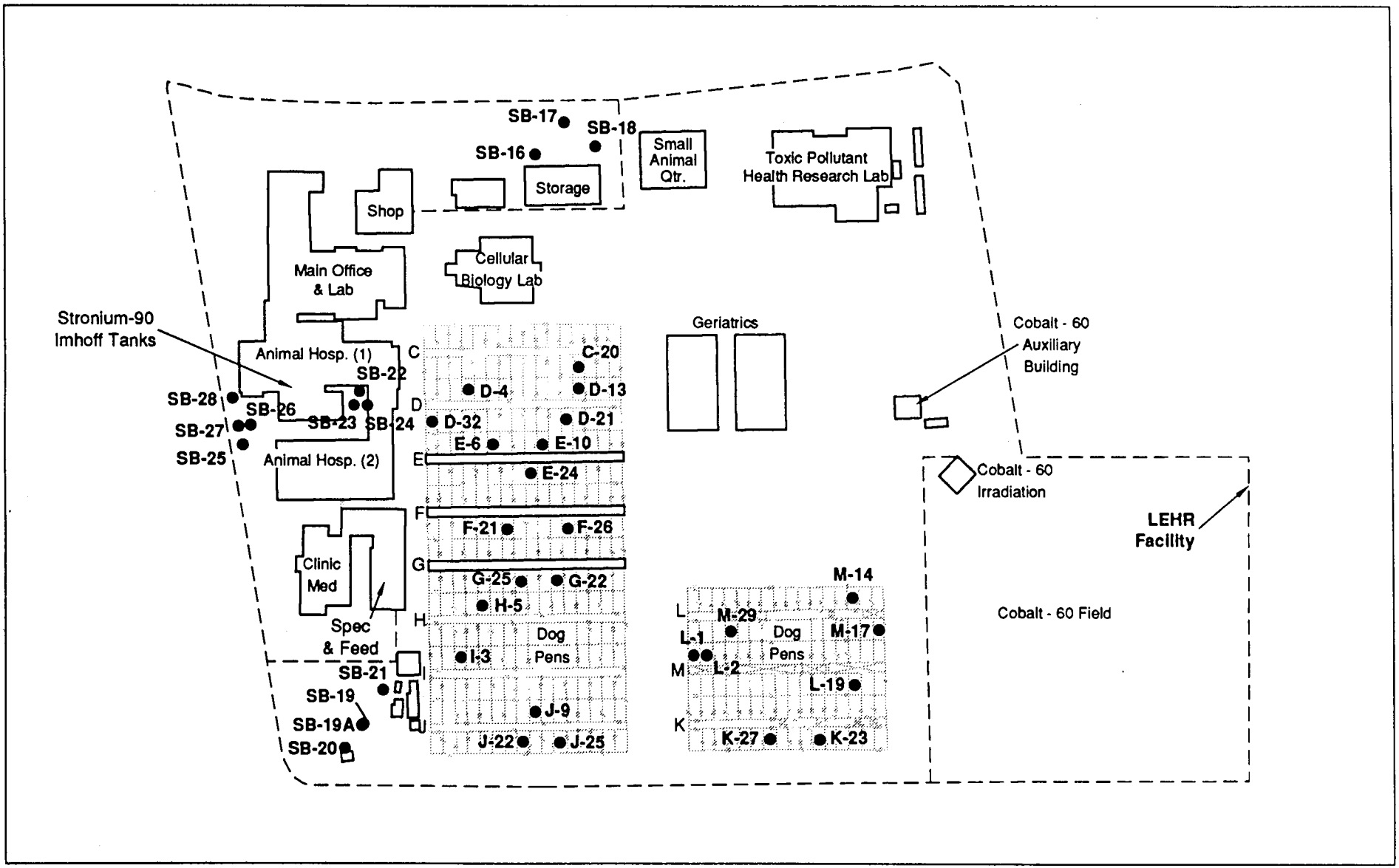
AEC-1	AEC-2	AEC-3	AEC-4	AEC-5	AEC-6	AEC-8	AEC-9	AEC-10	AEC-11
0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	24.0	24.0
12.0	12.0	12.0	12.0	12.0	12.0	12.0	12.0	60.0	60.0

Samples submitted for chemical and radiologic testing.

Analytical Requests

Chlordane
Tritium
Strontium 90
Carbon 14

[1] Depths in inches below ground surface.



EXPLANATION

● Soil Boring Locations

0 150
Scale in Feet

N

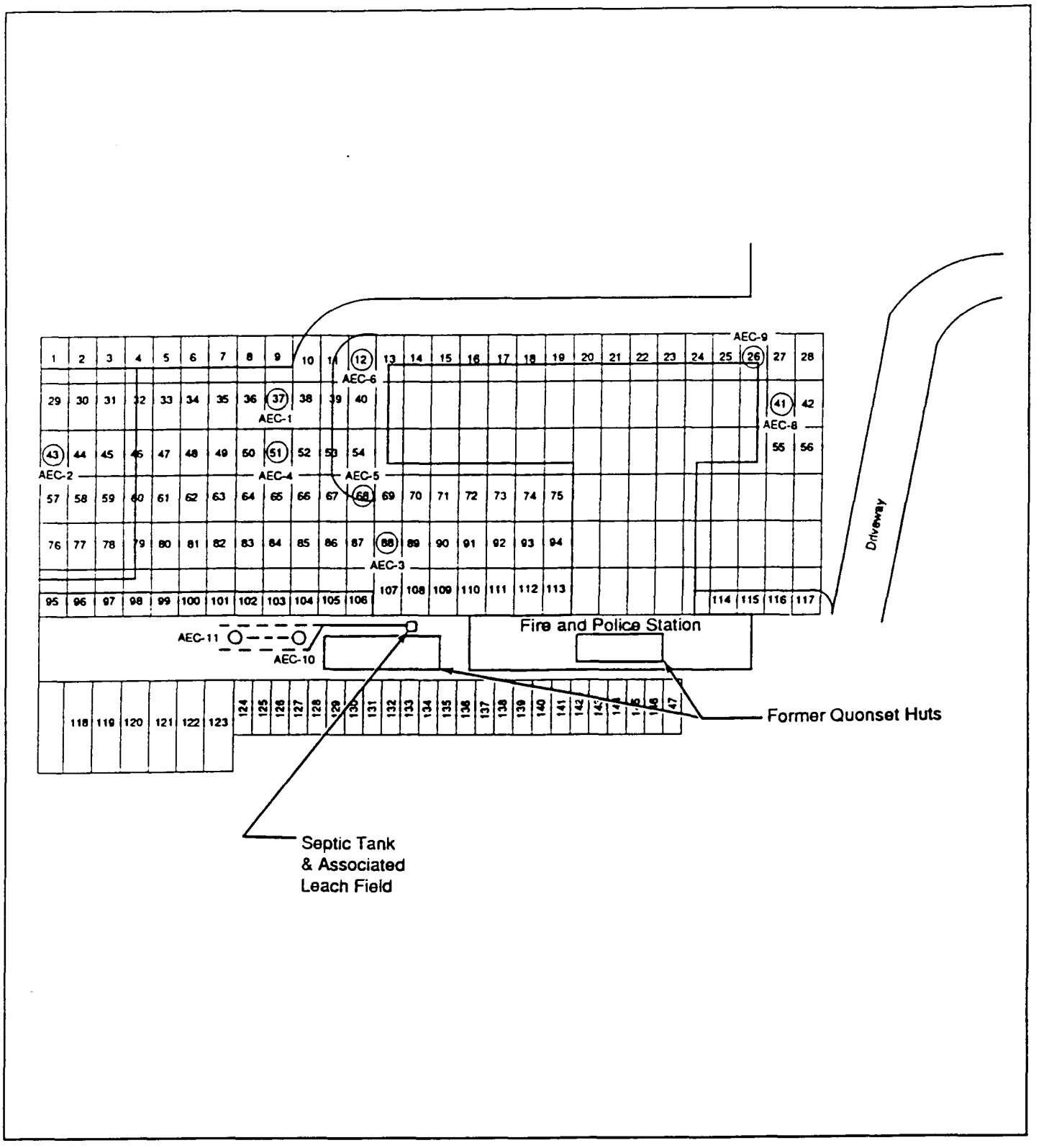
LOCATION MAP OF DEEP, INTERMEDIATE AND SHALLOW SOIL BORINGS AT LEHR

Phase II Site Characterization
LEHR Environmental Restoration
FEBRUARY 1993

DAMES & MOORE

10805-454-044 DOE-133

FIGURE A-15



EXPLANATION

(88) Boring Locations

N

0 60

Approximate Scale in Feet

LOCATION MAP OF SHALLOW SOIL BORINGS AT THE AEC PROJECT SITE

Phase II Site Characterization
LEHR Environmental Restoration
FEBRUARY 1993

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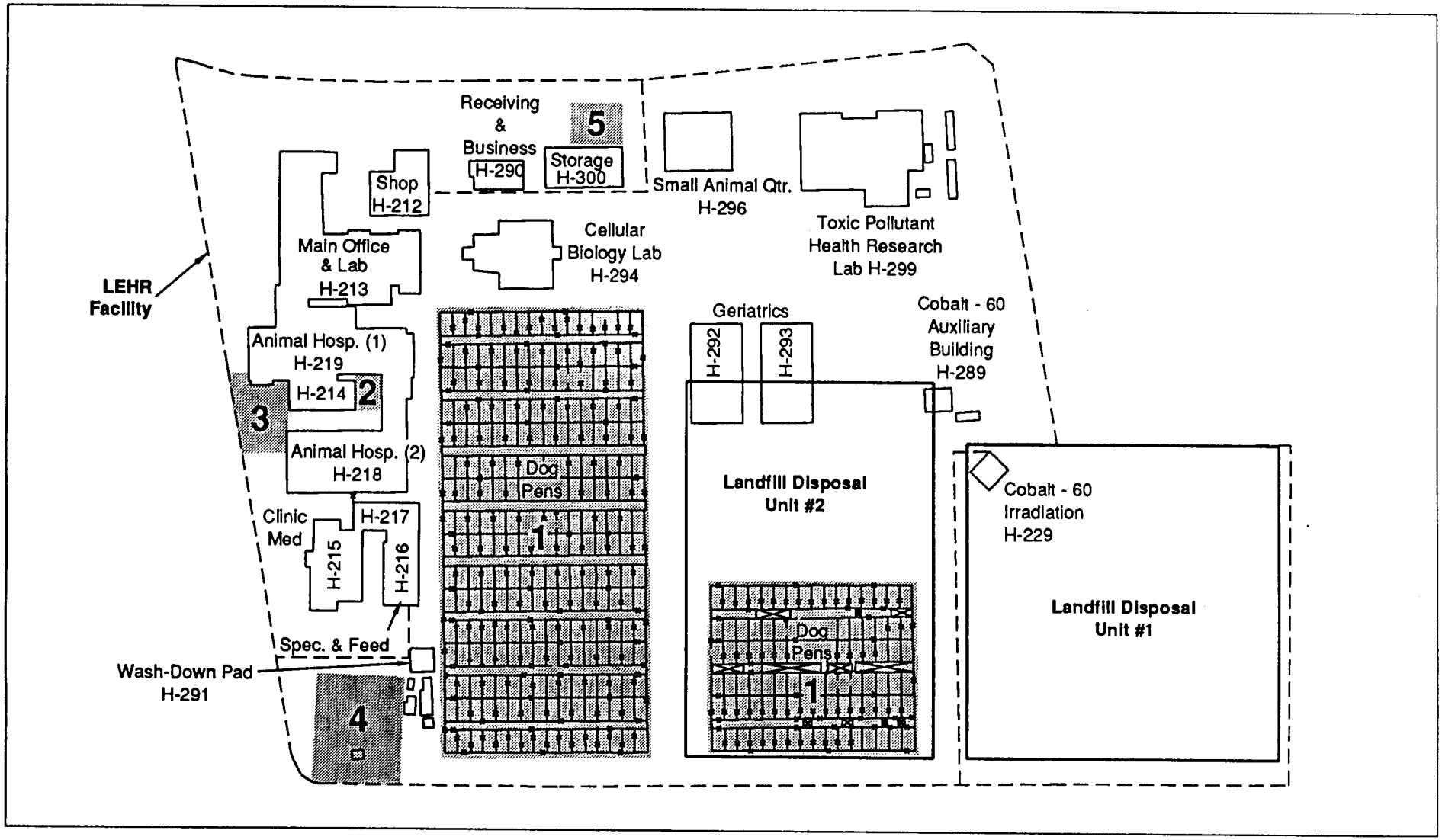


EXPLANATION

1	Dog Pens
2	Strontium-90 Leach Field
3	Radium-226 Seepage Pits
4	Southwest Chemical Dispensal Area
5	North Chemical Dispensing Area
——	Approximate Extent of Landfill Disposal Cells

0 150
Scale in Feet

N

AREAS OF INTEREST
Phase II Site Characterization
LEHR Environmental Restoration
FEBRUARY 1993

DAMES & MOORE

10805-454-044 DOE-125

FIGURE A-17

A-4.2 SAMPLE DESIGNATIONS

Soil borings are identified in accordance with a system used for previous investigations at the LEHR facility. The seven deep borings are designated SB-22 through SB-28. Intermediate depth borings are designated SB-19 through SB-21. Samples are further identified using the depth and sample ring modifiers as described previously in Section A-2.3 of this appendix. Twenty-five shallow borings located within the dog pen areas are designated by dog pen number such as E-24 (Figure A-15). Soil samples collected from the shallow borings in the dog pen areas are designated PS- for Pen Sample, followed by the row letter and dog pen number. For example, a soil sample collected from dog pen E-24 is designated as PS-E24. Three additional shallow borings are located at the northeast chemical dispensing area and are designated SB-16, SB-17 and SB-18. Ten shallow borings installed at the old AEC project site on the main UC Davis campus are identified as AEC-1 through AEC-6, and AEC-8 through AEC-11 (Figure A-16). These sample numbers are also modified using depths and sample ring designation.

Soil samples collected during drilling were labeled with Dames & Moore labels designating the name of the site, boring number, depth, matrix identification and classification, date collected and the sample collector's initials.

A-4.3 SAMPLING EQUIPMENT AND PROCEDURES

The following sections describe the sampling equipment and procedures used to drill and sample soil borings at the LEHR facility. Soil borings drilled for this investigation are summarized as follows:

- Seven deep borings to approximately 30 feet bgs;
- Three intermediate-depth borings to approximately 10 feet bgs;
- 35 shallow borings to approximately 18 inches bgs; and
- Three shallow borings to approximately five feet bgs.

All borings were advanced under the supervision of a Dames & Moore geologist working under the supervision of a California Registered Geologist. The on-site geologist was present at all times during drilling to:

(1) Technically supervise the drilling subcontractor;

(2) Maintain a continuous log of materials penetrated by the borehole;

(3) Obtain and document soil samples;

(4) Test soil samples, drilling cuttings, and atmospheric conditions within the work-place with an OVA; and

(5) Oversee implementation of Dames & Moore's Health and Safety Plan.

A-4.3.1 Intermediate and Deep Borings

The three intermediate depth and seven deep soil borings were drilled by Water Development Corporation in March 1990. The borings were drilled using a CME 55 truck-mounted 9⅝-inch-diameter, hollow-stem auger drilling rig. Drilling was performed without the introduction of drilling fluids, which allowed for the collection of undisturbed soil samples through the hollow stem of the augers.

Cuttings generated during drilling were placed in DOT-approved 55-gallon drums supplied by UC Davis. Filled drums were closed and placed in the Cobalt-60 Field. The disposition of drums will be evaluated based on the results of the waste characterization study currently underway and remain the responsibility of UC Davis. All drilling and sampling equipment was steam cleaned between borings at the dedicated steam cleaning area discussed in Section A-2.5.

A-4.3.1.1 Soil Sampling

Soil samples were collected using a Dames & Moore Type-U Sampler fitted with 2.5-inch-diameter, 3-inch long stainless steel rings. Sampling of the deep and intermediate soil borings was performed as described in Section A-2.3.1. A maximum of six soil-sample intervals from each deep boring and a maximum of four soil sample intervals in the intermediate borings were collected for chemical and radiologic analysis. Soil samples were collected at the surface, 12 to 18 inches bgs, and specific intervals.

Seventy-one soil samples were collected from the intermediate and deep soil borings. Table A-9 lists soil-sample depths from each boring and identifies samples submitted for chemical analysis.

A-4.3.2 Shallow Soil Borings

Surface soils and soils at a depth of 12 to 18 inches bgs were collected in the North Chemical Dispensing Area, the Dog Pen Area, and the Old AEC Project site. Additionally, soil samples from five feet bgs were collected from two borings at the Old AEC Project site near a previous septic system leach field (Figure A-17). Borings located within current and former dog pen areas were randomly chosen using a random number generating program. Seventeen locations are in the western block of dog pens

at LEHR, eight locations are in the eastern block of dog pens at LEHR (Figure A-15) and eight locations are in AEC dog pen sites (Figure A-16).

Due to access difficulties and shallow boring depths, soil samples were collected using a hand sampler. In the dog pen areas at LEHR, the dog pen gravels (four to eight inches thick) at the surface were cleared away using a clean shovel prior to sampling. The hand-held sampler was operated by a 10-pound hand-operated slide hammer that drives the sampler into subsurface soils. After the sampler was driven to the desired depth, it was removed by reverse hammering. A clean hand trowel was used to excavate soils from 6 to 12 inches bgs then additional samples were collected from 12 to 18 inches bgs. The five-foot-deep borings near the Old AEC Project site septic system leach field were drilled using hand-augering methods. Samples from the five-foot-deep borings were obtained using the hand-driven sampler.

Soil samples were obtained using a 6-inch-long steel sampler containing two 3-inch-long stainless steel rings. The assembled sampler was driven by hand using the slide hammer. The depth interval sampled was from the surface to six inches bgs (sample rings "A" and "B," with "A" at top), and from 12 to 18 inches bgs (sample rings "C" and "D," with "C" at the top). Two samples from each shallow boring were submitted for chemical analyses. Table A-10 identifies the dog pen samples submitted for chemical and radiologic testing. Generally the "A" and "C" rings were submitted for analytical testing; however, because of poor sample recovery from location C20, the "B" ring was submitted for analytical testing. The surface sample was collected at the interface of the natural soils and the dog pen gravels. Samples recovered in the sampler were separated, and stored as described in Section A-4.2.

Four of the eight sampling locations in the dog pen area at the Old AEC Project site were covered with an asphalt parking lot for the fire and police station. These sample locations required the removal of the asphalt to allow sample collection of the soils from beneath the asphalt. After the asphalt was removed, the road base was removed and soil samples were collected as described above. The asphalt was repaired immediately following collection of soil samples. Information obtained from UC Davis indicated that several feet of soil may have been removed during construction of the fire and police stations. No fill material/native material contact was noted in any of the Old AEC Project area borings.

A-4.4 SAMPLE HANDLING AND ANALYSIS

A geologist on-site maintained a boring log, and a field log for each intermediate and deep boring. Boring logs for the shallow borings were not prepared for this report; however, a summary of the materials encountered is presented with the geologic findings in Section 6.2 of the Phase II Report. Samples were placed on blue ice and kept in coolers until delivered to the laboratory for analysis. Quality control samples were collected as specified in the QAPP. Tables A-9 and A-11 identify samples

submitted for chemical and radiologic testing. Additionally, these tables list the chemical and radiologic analyses requested.

A-5.0 SEDIMENT SAMPLING

One sediment sample each was collected from the stormwater lift station at LEHR and from the Wastewater Treatment Plant outfall by Putah Creek on February 22, 1990. Sediment samples were collected and analyzed to evaluate possible impacts from previous waste disposal practices at the LEHR facility and stormwater runoff.

A-5.1 SAMPLE LOCATION AND FREQUENCIES

Sediment sample locations are shown in Figure A-13. Sampling frequency consisted of a single sampling event at each location. Sediment samples were submitted for chemical and radiological analyses listed in Table A-12.

A-5.2 SAMPLE DESIGNATIONS

The sediment sample collected at the lift station is designated LS-1, and the sediment sample at the outfall by Putah Creek, OF-1. The sediment samples collected were tagged with laboratory-supplied labels designating the name of the site, sample number and location, matrix, date collected and the sample collector's initials.

A-5.3 SAMPLING EQUIPMENT AND PROCEDURES

The following sections describe the sampling equipment and procedures used to collect the two sediment samples. Samples were collected under the supervision of UC Davis EH&S personnel.

A-5.3.1 Lift Station Sediment Sampling

An Eckman dredge (Figure A-14) was used to collect a sediment sample from the upper six inches of the sediment at the bottom of the holding tank at the LEHR stormwater lift station. The total thickness of the sediment in the lift station was not assessed. The sampling dredge was decontaminated before and after use with a mild detergent and water, and rinsed with clean water, followed by a distilled water rinse.

TABLE A-12
SUMMARY OF SEDIMENT SAMPLES AND
ANALYTICAL REQUESTS
PHASE II SITE CHARACTERIZATION
LEHR ENVIRONMENTAL RESTORATION

Sample ID	Date
LS 1	02/22/90
OF 1	02/22/90

LS: Lift Station
OF: Wastewater Treatment Plant Outfall

Samples submitted for chemical and radiologic testing.

Analytical Requests

17 CAM Metals
Hexavalent Chromium
Nitrates (as Nitrogen)
Formaldehyde
Organochlorine Pesticides (EPA 8080)
Volatile Organic Compounds (EPA 8240)
Semivolatile Organic Compounds (EPA 8270)
Gross Alpha Gross Beta
Tritium
Strontium-90
Gamma-Emitters

The dredge was lowered on a nylon rope through a manhole access into the underground holding tank at the lift station and placed on the bottom of the tank. A messenger weight was sent down the nylon rope to trigger the closing mechanism, enclosing sediment and water in the dredge. The dredge was then lifted out of the tank, and suspended over a clean glass sample container set on plastic sheeting. The sediments were then transferred into the glass sample container. The container was sealed with a screw-type lid, and labeled as described in Section A-4.3. Excess sediment and water were poured back into the holding tank.

A-5.3.2 Wastewater Treatment Plant Outfall Sediment Sampling

The UC Davis Wastewater Treatment Plant outfall sediment sample was collected using a clean hand-trowel to sample sediment from a mid-stream location approximately halfway between Putah Creek and the UC Davis Wastewater Treatment Plant outfall pipe (Figure A-13). The sediment from the outfall was placed into a clean glass container. The container was then sealed with a screw-type lid, and labeled as described in Section A-4.3.

A-5.4 SAMPLE HANDLING AND ANALYSIS

Sediment samples from the stormwater lift station and the outfall location were placed in an ice chest cooled with blue ice. The ice chest served as the container to ship the samples to the analytical laboratory. The chain-of-custody records specifying analytical requests were routed to the analytical laboratory with the sealed ice chests. Chain-of-custody records were maintained following standard procedures outlined in the QAPP and are presented in Appendix E.

The geologist on site maintained a field record while collecting sediment samples (Figure A-11). Samples for laboratory analyses were labeled and transported under chain-of-custody procedures described in the QAPP. Table A-12 identifies analyses requested for theses samples.

A-6.0 AQUIFER ANALYSIS

Slug tests were used to estimate hydraulic conductivity (K) in the immediate area around a monitoring wells. During the Phase II Investigation, slug tests were performed on monitoring wells UCD-10, UCD-11, and UCD-17 through UCD-24. During the Contaminant Pathway Analysis Study, slug tests were conducted on monitoring wells UCD-4 and UCD-12 through UCD-16. Results of the slug tests are presented in Appendix L. The principle behind the slug test is to quickly change the water level in a well, either by addition or removal of a known volume of water and measure the resulting fall or rise in the water level over a period of time as the water level equilibrates. Graphical procedures, based on groundwater flow equations, use plots of the measured changes in water level versus time to estimate hydraulic conductivity. The following sections describe procedural and analytical methods used to conduct slug tests at LEHR.

A-6.1 SLUG TEST PROCEDURE

Prior to conducting the slug test, dedicated sampling pumps were removed from the wells to be tested and the water levels are allowed to stabilize. The pumps were placed in clean plastic bags to minimize potential contamination. Pressure transducers, used to measure head in feet, were lowered into the well with the connecting cables secured to the well head to help hold them in place. Initial readings of the transducers were recorded in addition to initial water levels, using a water-level indicator, before the slug was introduced into the water column. Water displacement in the well was accomplished by introducing than removing a gravel- or water-filled slug constructed of PVC pipe.

Falling-head tests were conducted by quickly dropping the slug into the water column. Water-level changes over time were measured by the pressure transducer and recorded by a data logger. Measurements continued until water levels dropped to 90 percent of their original level.

The data logger was programmed in log time scale. The log time scale was used so that less frequent readings were taken when head changes occurred more slowly near the end of the test. This reduced the data that needed to be processed, but still maintained adequate readings when needed.

Once the falling head tests were completed, rising head tests were conducted by pulling the slug from the water column and measuring the change in water level over time. Again, measurements continued until recovery reached 90 percent of the original water level. Comparison of falling-head and rising-head test were used to estimate hydraulic conductivity.

The PVC slug, connecting rope, transducer, cable, and water-level indicator were washed after each test following standard decontamination procedures. First, the equipment was washed in tap water

containing trisodium phosphate (TSP), then rinsed with tap water, followed by a final rinse with distilled water.

A-6.2 METHOD OF ANALYSIS

Data have been analyzed using the Bouwer and Rice (1976) method for unconfined aquifers. This method is applicable to both fully or partially penetrating wells in an unconfined aquifer or water-bearing zone. Calculations were performed with the aid of interactive computer software. Water-level data were plotted on a log linear scale. A straight line was chosen to best fit the data. Hydraulic conductivity is then calculated based on the slope of the line and physical parameters of the well/aquifer system using the Bouwer and Rice equations.

The general formula for calculating hydraulic conductivity by the Bouwer and Rice method is:

$$K = \frac{r_c^2 \, ln\left(\frac{R_e}{r_w}\right)}{2L_e} \, \frac{l}{t} \, ln\left(\frac{y_o}{y_t}\right)$$

Where: K= hydraulic conductivity (length/time);

r_c= well radius (length);

r_w= boring radius, or radial distance between the undisturbed aquifer and the well center (length);

L_e= length of well screen, perforated zone, or uncased portion of the well (length);

R_e= equivalent radial distance over which the head loss y is dissipated in the flow system (length);

y_o= depth to water referenced to static level at time t = 0 (length);

y_t= depth to water referenced to static level at time t (length); and

t= time after start of test (time).

$ln =$ Natural log.

A best-fit straight line of a plot of log y versus t, the values for t, y_o and y_t were obtained to calculate $(1/t)$ ln (y_o/y_t).

For a partially penetrating well in unconfined or semi confined conditions, $ln\ (R_e/r_w)$ is calculated from:

$$ln\left(\frac{R_e}{r_w}\right) = \left[\frac{1.1}{ln\left(\frac{L_w}{r_w}\right)} + \frac{A + B\,ln\left(\frac{H-L_w}{r_w}\right)}{\frac{L_e}{r_w}}\right]^{-1}$$

Where $L_w =$ distance from static water level to bottom of well screen (length); and

$H =$ aquifer thickness (length).

The terms A and B are dimensionless coefficients that are functions of L_e/r_o and are obtained from nomograms.

It has been found empirically that when the term

$$ln\left(\frac{H-L_w}{r_w}\right) > 6$$

it has negligible effect on $ln(r_e/r_w)$ as H increases, so a maximum value of 6 should be used for this term. For fully penetrating wells, the term $(H-L_w)/r_w$ cannot be used. In this case,

$$ln\frac{R_e}{r_w} = \left[\frac{1.1}{ln\frac{L_w}{r_w}} + \frac{C}{\frac{L_e}{r_w}}\right]^{-1}$$

where C is a dimensionless coefficient which is a function of L_e/r_o and is obtained from a nomogram.

The following assumptions apply to the Bouwer and Rice solution:

1. The drawdown of the water table is negligible compared to the drawdown in the well, y;
2. Flow to and from the unsaturated zone is negligible;
3. Well head losses are negligible; and
4. The aquifer is homogeneous and isotropic in the area within R_e.

A-6.3 GROUNDWATER MODEL DESCRIPTION

This section discusses the input parameters and calibration results for the groundwater model, and expands on the results discussed in Section 6.6. To minimize boundary effects, the model developed covers an area much larger than the site and extends beyond the limit of the data collected. Therefore, the model is kept simple and properties are assumed constant over the model domain. A three-dimensional flow model was used that included two layers: Layer 1, representing the first HSU, and Layer 2, representing the second HSU. This system allowed evaluation of the hydraulic interaction between the two zones. The Modular Three-Dimensional Finite-Difference Groundwater Flow Model (MODFLOW) program was used to conduct modeling.

Input parameters are based on site information when available, but also rely on published empirical relations between material type and material properties, and model results during calibration. Sample input files for the models are included in Appendix M. Input parameters are discussed below.

Hydraulic conductivities input into the model are based on slug tests conducted across the site. Slug test results for the first HSU range from 1.9×10^{-5} ft/sec to 8×10^{-5} ft/sec, while results for the second HSU range from 2 to 6×10^{-4} ft/sec. The value of 2×10^{-5} ft/sec was used over the majority of Layer 1, while values of 1×10^{-6}, 3×10^{-6}, 7×10^{-6}, 3×10^{-5} and 4×10^{-5} ft/sec were used in areas surrounding specific wells on site, based on slug test results. For Layer 2, a value of 3×10^{-4} ft/sec was used initially, but responses in Layer 2 to pumping and recovery were too slow during initial simulations. Higher values were then input into the model to better simulate the recoveries seen in hydrographs discussed in Section 6.3. The final hydraulic conductivity value used for Layer 2 was 5×10^{-3} ft/sec.

Vertical hydraulic conductivity (K_v) used in the model to estimate leakance between Layers 1 and 2 were initially based on laboratory permeability results from samples collected from soil borings in the first HSU. These values range from 2.0×10^{-8} to 1.9×10^{-10} ft/sec. Recognizing that field permeability can be one to two orders of magnitude higher than those measured in the laboratory, a value of 2.0×10^{-7} ft/sec was used in the model for Layer 1, while a K_v of 0.0025 ft/sec, 50 percent of the horizontal hydraulic conductivity, was assumed for Layer 2.

Initial runs using the K_v values described above resulted in larger simulated head differences between the two layers than those measured in the field. Values of K_v for Layer 1 were then raised to reduce the simulated head differences between Layers 1 and 2. A value of K_v for Layer 1 of 2.5×10^{-6} ft/sec was obtained at the end of calibration.

Top and bottom elevations of the layers were based on boring log data and assumed to be constant over the entire modeled area. The top of Layer 2 (bottom of Layer 1) was set at -50 feet, and

Layer 2 was defined as 50 feet thick over the entire site. Storage coefficients and specific yield of the layers on site have not been measured; therefore, these parameters were estimated based on empirical relationships. Freeze and Cherry (1979) and Bouwer (1978) list ranges of storage coefficients and specific yields for various sediments. Based on this information, a value of 0.001 was used for Layer 2 and 0.2 for Layer 1.

The south fork of Putah Creek was simulated as a losing stream (where water infiltrates from the stream to the aquifer) within the model domain (see Section 6.4). Stream input parameters included stream stage, stream bottom elevation and stream bottom conductance. These three parameters are used by MODFLOW to estimate the infiltration rate from the creek to the aquifer. Infiltration from Putah Creek to the first HSU was based on observations of areas of no flow in the creek and stream flow measurements at Old Davis Road. Assumptions made in estimating stream recharge includes no flow west of the site, the rate of infiltration was constant over the entire reach, and evaporation was negligible (a conservative assumption to maximize infiltration). The rate of infiltration was also assumed constant over time and was based on observed groundwater levels occurring below the bottom of the creek, resulting in infiltration rates depending only on creek bottom conductance and creek stage.

Reconnaissance of Putah Creek showed that at flows of about 2 cfs at Old Davis Road, no flow occurred approximately 12,000 feet downstream. Assuming no evaporation and no changes in storage within the creek, the rate of infiltration between Old Davis Road and the point of no flow would equal the flow measured at Old Davis Road. Model parameters of stream stage, bottom elevation, and bottom conductance were then input to simulate the estimated infiltration rate of two cfs over a 12,000-foot length of stream. A stream stage of 24 feet and bottom elevation of 20 feet were assumed constant over the model domain. It was assumed that infiltration was constant over the entire reach, such that, if two cfs infiltrates over a 12,000-foot length, then about one cfs would infiltrate over a 6,000-foot length. Bottom conductance varied over the model, depending on cell size, to obtain a total infiltration rate (through all the stream cells) equal to a flow rate of one cfs. Table A-13 lists input parameters for steam recharge parameters.

Recharge due to precipitation was also included in the initial simulations assess how rainfall would affect modeled water levels. Recharge from precipitation was modeled by assuming 50 percent of the mean annual precipitation at Davis infiltrated to groundwater. Recharge from irrigation of off-site agricultural lands and evapotransportation were not included in the model.

TABLE A-13
ESTIMATION OF INPUT FOR RIVER RECHARGE PACKAGE
PHASE II SITE CHARACTERIZATION
LEHR ENVIRONMENTAL RESTORATION

LAYER	CELL LOCATION		CELL AREA (ft sq.)	PERCENT TOTAL AREA	WEIGHTED INFIL. RATE (cfs)	RIVER STAGE (ft)	BOTTOM ELEVATION (ft)	BOTTOM COND. (ft/sec)
	ROW	COLUMN						
1	21	7	20,000	0.050	0.050	24.0	20.0	0.0125
1	21	8	20,000	0.050	0.050	24.0	20.0	0.0125
1	22	9	5,000	0.013	0.013	24.0	20.0	0.0031
1	23	9	10,000	0.025	0.025	24.0	20.0	0.0063
1	24	9	5,000	0.013	0.013	24.0	20.0	0.0031
1	25	10	10,000	0.025	0.025	24.0	20.0	0.0063
1	26	10	10,000	0.025	0.025	24.0	20.0	0.0063
1	26	11	10,000	0.025	0.025	24.0	20.0	0.0063
1	25	12	5,000	0.013	0.013	24.0	20.0	0.0031
1	25	13	5,000	0.013	0.013	24.0	20.0	0.0031
1	25	14	5,000	0.013	0.013	24.0	20.0	0.0031
1	25	15	5,000	0.013	0.013	24.0	20.0	0.0031
1	25	16	5,000	0.013	0.013	24.0	20.0	0.0031
1	25	17	5,000	0.013	0.013	24.0	20.0	0.0031
1	25	18	5,000	0.013	0.013	24.0	20.0	0.0031
1	25	19	5,000	0.013	0.013	24.0	20.0	0.0031
1	25	20	5,000	0.013	0.013	24.0	20.0	0.0031

TABLE A-13 (Continued)
ESTIMATION OF INPUT FOR RIVER RECHARGE PACKAGE
PHASE II SITE CHARACTERIZATION
LEHR ENVIRONMENTAL RESTORATION

LAYER	CELL LOCATION		CELL AREA (ft sq.)	PERCENT TOTAL AREA	WEIGHTED INFIL. RATE (cfs)	RIVER STAGE (ft)	BOTTOM ELEVATION (ft)	BOTTOM COND. (ft/sec)
	ROW	COLUMN						
1	26	21	5,000	0.013	0.013	24.0	20.0	0.0031
1	26	22	5,000	0.013	0.013	24.0	20.0	0.0031
1	26	23	5,000	0.013	0.013	24.0	20.0	0.0031
1	27	24	5,000	0.013	0.013	24.0	20.0	0.0031
1	27	25	5,000	0.013	0.013	24.0	20.0	0.0031
1	27	26	5,000	0.013	0.013	24.0	20.0	0.0031
1	28	27	5,000	0.013	0.013	24.0	20.0	0.0031
1	28	28	5,000	0.013	0.013	24.0	20.0	0.0031
1	28	29	5,000	0.013	0.013	24.0	20.0	0.0031
1	29	30	5,000	0.013	0.013	24.0	20.0	0.0031
1	29	31	5,000	0.013	0.013	24.0	20.0	0.0031
1	29	32	5,000	0.013	0.013	24.0	20.0	0.0031
1	30	33	5,000	0.013	0.013	24.0	20.0	0.0031
1	30	34	5,000	0.013	0.013	24.0	20.0	0.0031
1	30	35	5,000	0.013	0.013	24.0	20.0	0.0031
1	31	36	5,000	0.013	0.013	24.0	20.0	0.0031
1	31	37	5,000	0.013	0.013	24.0	20.0	0.0031

TABLE A-13 (Continued)
ESTIMATION OF INPUT FOR RIVER RECHARGE PACKAGE
PHASE II SITE CHARACTERIZATION
LEHR ENVIRONMENTAL RESTORATION

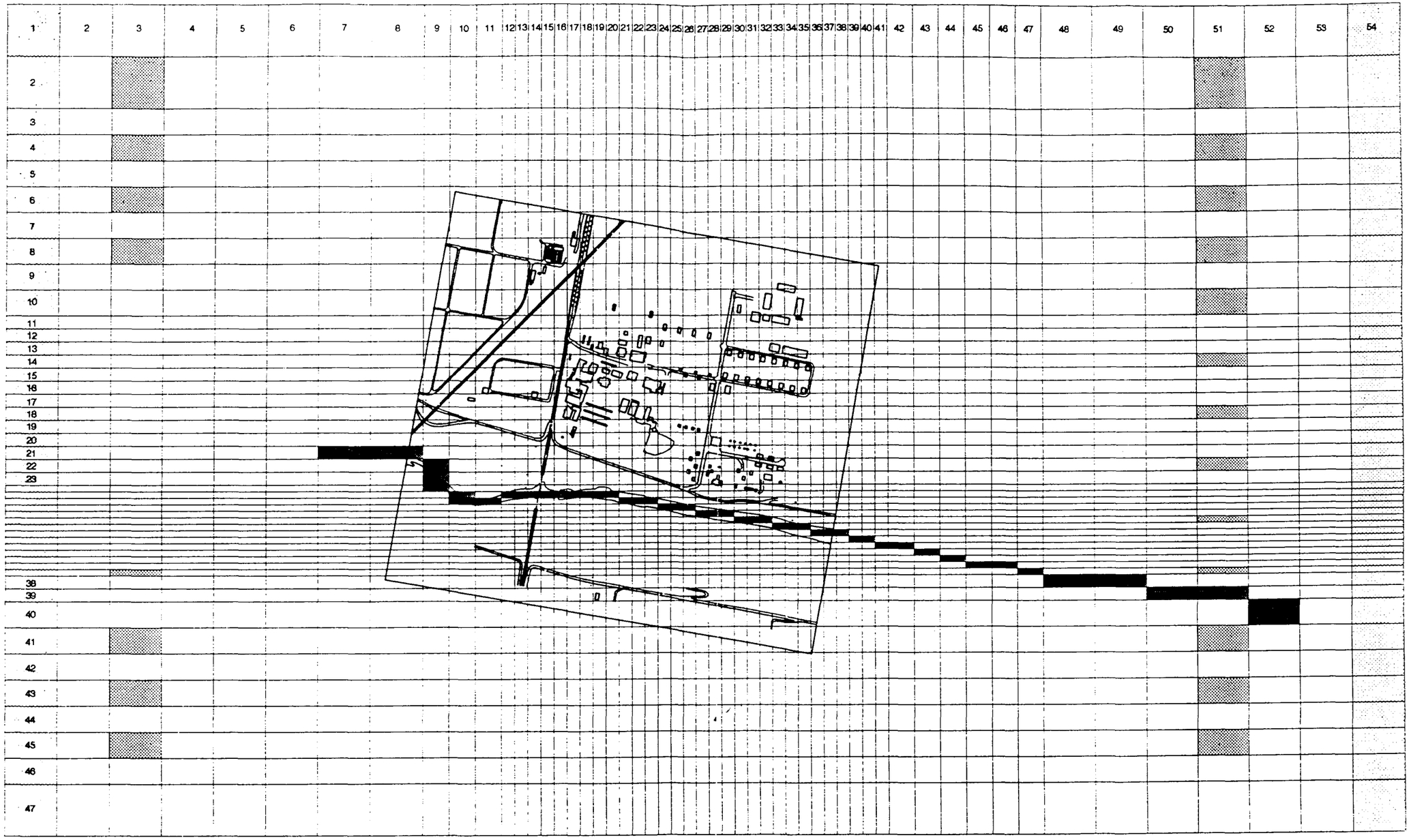
LAYER	CELL LOCATION		CELL AREA (ft sq.)	PERCENT TOTAL AREA	WEIGHTED INFIL. RATE (cfs)	RIVER STAGE (ft)	BOTTOM ELEVATION (ft)	BOTTOM COND. (ft/sec)
	ROW	COLUMN						
1	31	38	5,000	0.013	0.013	24.0	20.0	0.0031
1	32	39	5,000	0.013	0.013	24.0	20.0	0.0031
1	32	40	5,000	0.013	0.013	24.0	20.0	0.0031
1	33	41	5,000	0.013	0.013	24.0	20.0	0.0031
1	33	42	10,000	0.025	0.025	24.0	20.0	0.0063
1	34	43	10,000	0.025	0.025	24.0	20.0	0.0063
1	35	44	10,000	0.025	0.025	24.0	20.0	0.0063
1	36	45	10,000	0.025	0.025	24.0	20.0	0.0063
1	36	46	10,000	0.025	0.025	24.0	20.0	0.0063
1	37	47	10,000	0.025	0.025	24.0	20.0	0.0063
1	38	48	20,000	0.050	0.050	24.0	20.0	0.0125
1	38	49	20,000	0.050	0.050	24.0	20.0	0.0125
1	39	50	20,000	0.050	0.050	24.0	20.0	0.0125
1	39	51	20,000	0.050	0.050	24.0	20.0	0.0125
1	40	52	20,000	0.050	0.050	24.0	20.0	0.0125

Totals:	**400,000**	**100**	**1**

Boundary conditions were set to help define flow conditions monitored on site. General Head Boundaries for both layers were defined on the east and west ends of the model, while no flow boundaries were defined north, south and at the bottom. The bottom of Layer 2 was set as a no-flow boundary based on the clay layer found at the base of the second HSU. The amount of flow through the general head boundary depends on the parameters input by the user and heads predicted by the model. General heads of 16 feet AMSL on the west end and 2 feet AMSL on the east end were set for both layers (Figure A-18). These values were used so that during steady state, the gradient would be about 0.0013. Specific input parameters are provided in Appendix M. Groundwater extraction wells were located both up- and downgradient of the site to simulate the seasonal change in water levels seen over the region due to agricultural pumping (Figure A.18). These wells and their flow rates are not intended to represent actual well locations and flows, but were used only to simulate the regional drop in water levels observed during the summer months. Pumping well location and rates were chosen using an iterative process that started with known locations and assumed flow rates. Comparisons of simulated versus actual water levels over time resulted in the configuration used (see Appendix M).

A-6.3.1 Flow Model Description

Once model parameters were input, calibration simulations were conducted to (1) model observed drop and recovery of water levels over time; (2) model responses of both layers to regional pumping; and (3) model observed on-site gradient of Layer 2. Calibration compared hydrographs of simulated water levels with measured water levels monitored on site. Parameters evaluated during these simulations included leakance between layers, hydraulic conductivity of Layer 2, and location and pump rates of "regional" pumping wells. The model was calibrated to the parameters listed in Table A-14. As mentioned earlier, hydraulic conductivity of Layer 2 is higher than that estimated by slug tests, but is still within the range of expected values for hydraulic conductivity based on aquifer material (Bouwer, 1978), and leakance is higher than that estimated by using lab permeability test data.



EXPLANATION

General Head Boundaries (Layers 1 and 2)

"Regional" Pumping Wells (Layer 2 Only)

Stream Recharge

0 800
Scale in Feet

N

NUMERICAL MODEL SETUP, GRID ORIENTATION AND BOUNDARY CONDITIONS

Phase II Site Characterization
LEHR Environmental Restoration
FEBRUARY 1993
FIGURE A-18

DAMES & MOORE

TABLE A-14
MODEL INPUT PARAMETERS
. PHASE II SITE CHARACTERIZATION
LEHR ENVIRONMENTAL RESTORATION

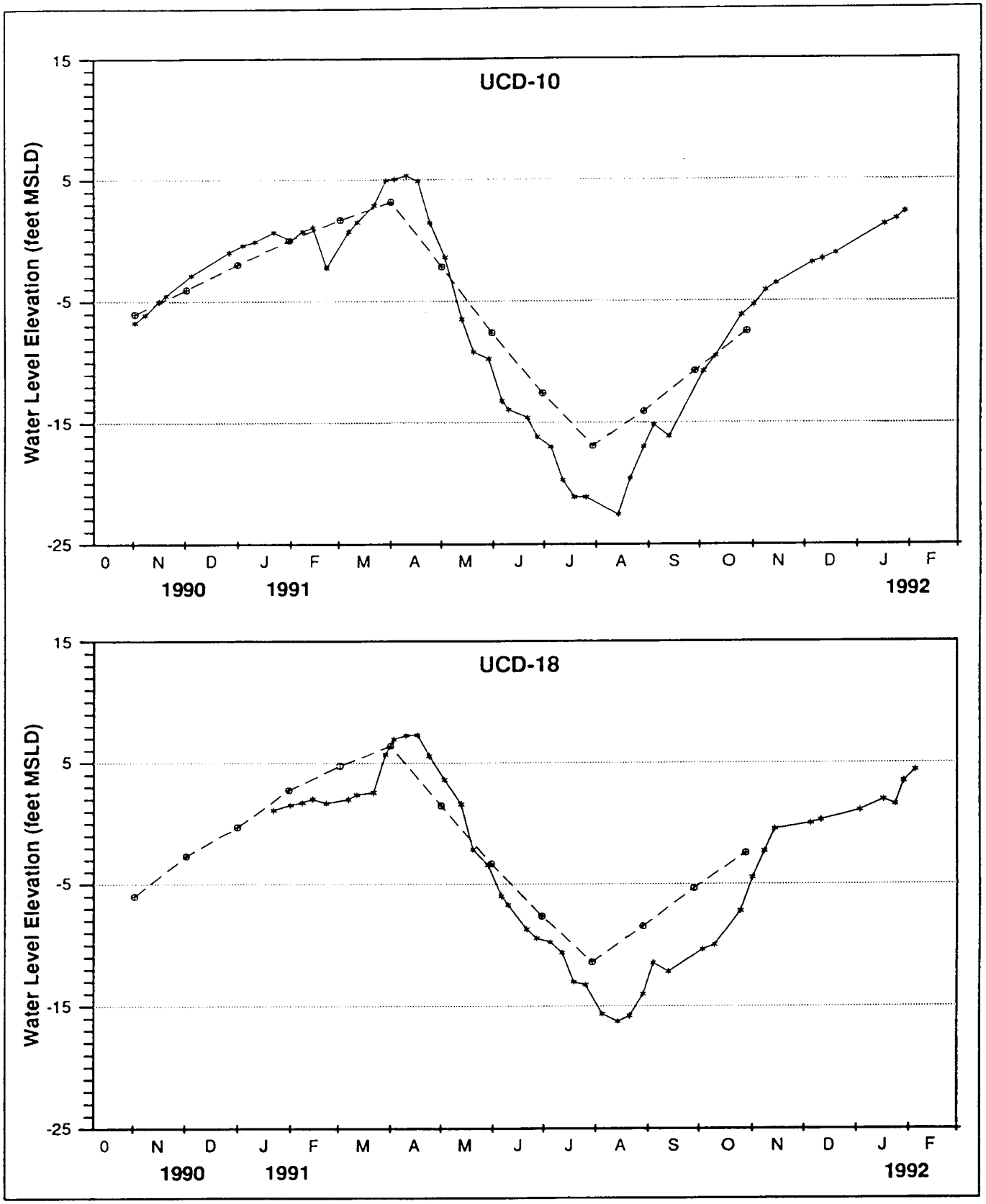
Parameter	Layer	
	1	2
Aquifer Type	Unconfined	Confined
Hydraulic Conductivity	7×10^{-6} to 4×10^{-5} ft/sec	0.005 ft/sec
Storage Coefficient (specific yield)	0.20	0.001
Vertical Hydraulic Conductivity	2.5×10^{-6} ft/sec	0.0025 ft/sec
Aquifer Top Elevation	Undefined	-50 feet
Aquifer Bottom Elevation	-50 feet	-100 feet
Porosity	0.35	0.20
Bulk Density	1.7 g/ml	1.7 g/ml

Calibration consisted of a one-year simulation that was broken into three separate periods. Period 1 (5 months) included recovery and recharge from November to March; Period 2 (4 months) included regional pumping from April to July (to decrease water levels); and Period 3 (3 months) included groundwater recovery and no pumping. Comparisons of simulated and actual water levels are shown in Figures A-19 and A-20 for wells UCD-10 and UCD-18 and UCD-16 and UCD-17. The simulated water levels mimic actual trends, though there are some slight differences. Actual recovery of water levels during January and February are slower than those modeled and may be due to pumping during that time period. Water levels in the first HSU rise quickly in March, probably due to recharge from precipitation. Though the model included precipitation, it was not set to vary precipitation from month to month, but instead, averaged precipitation over an entire stress period (see input, Appendix M). In addition, simulated water levels do not drop as much as actual water levels during Period 2, possibly due to insufficient pumping in the model.

Though there are differences between field data and simulated results, the model does mimic the general behavior of water level changes seen in both layers. Figure A-21 shows simulated water levels at the cell corresponding to the location of wells UCD-4 and UCD-15. The figure shows the differences in response time in the two different layers due to regional pumping, and also shows the changes in vertical gradient over time.

Figures A-22 through A-27 show modeled water levels across the site for the ends of periods 1, 2, and 3. As the figures show, gradients in the first and second HSUs are fairly consistent, and range from 0.0014 to 0.0025 ft/ft. The gradient simulated during recovery is close to that observed on-site for the second HSU; however, simulated gradients become steeper during and after pumping. Flow direction in the second HSU is consistently to the northeast; however, the variable water levels seen over time in the first HSU are not simulated. The variations in first-HSU water levels may be due to spatial variations in leakage between the two zones, variations in pumping in the lower zone, and the high degree of geologic variability in the first HSU, that are not addressed in the model.

Figures A-22 and A-24 also show the development of a groundwater mound beneath the creek. This would be expected, since the creek is modeled as a losing stream over the domain of the model and recharge is continually provided by discharge from the University of California Wastewater Treatment Plant. Figure A-23, which shows modeled water levels in the second HSU, also shows some influence from the creek recharging the upper zone, though the effects are much less pronounced.



EXPLANATION

Actual Water Levels

Simulated Water Levels

COMPARISON OF WATER LEVELS FIRST HYDROSTRATIGRAPHIC UNIT FOR UCD-10 AND UCD-18

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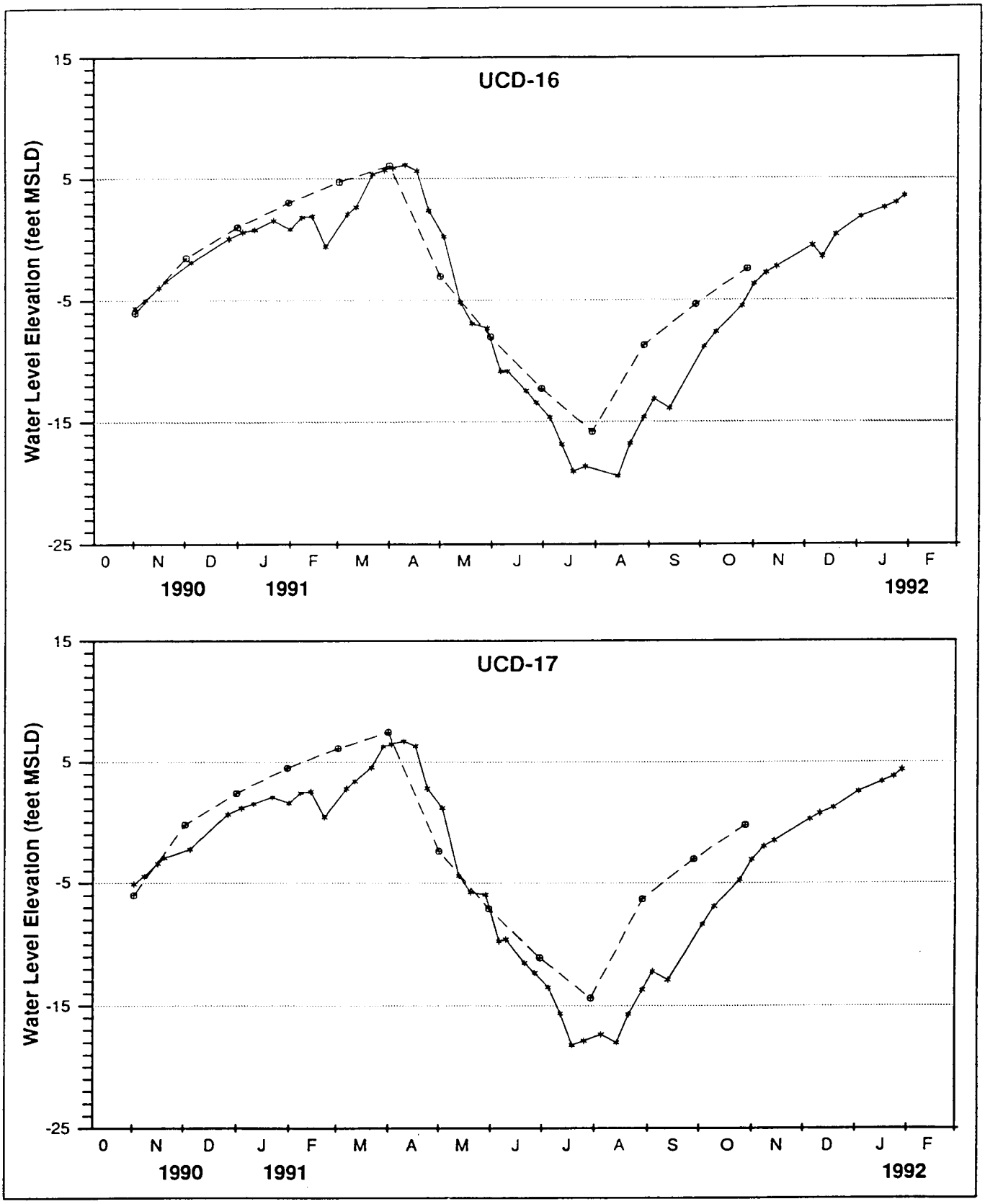

EXPLANATION

Actual Water Levels

Simulated Water Levels

COMPARISON OF WATER LEVELS SECOND HYDROSTRATIGRAPHIC UNIT FOR UCD-16 AND UCD-17

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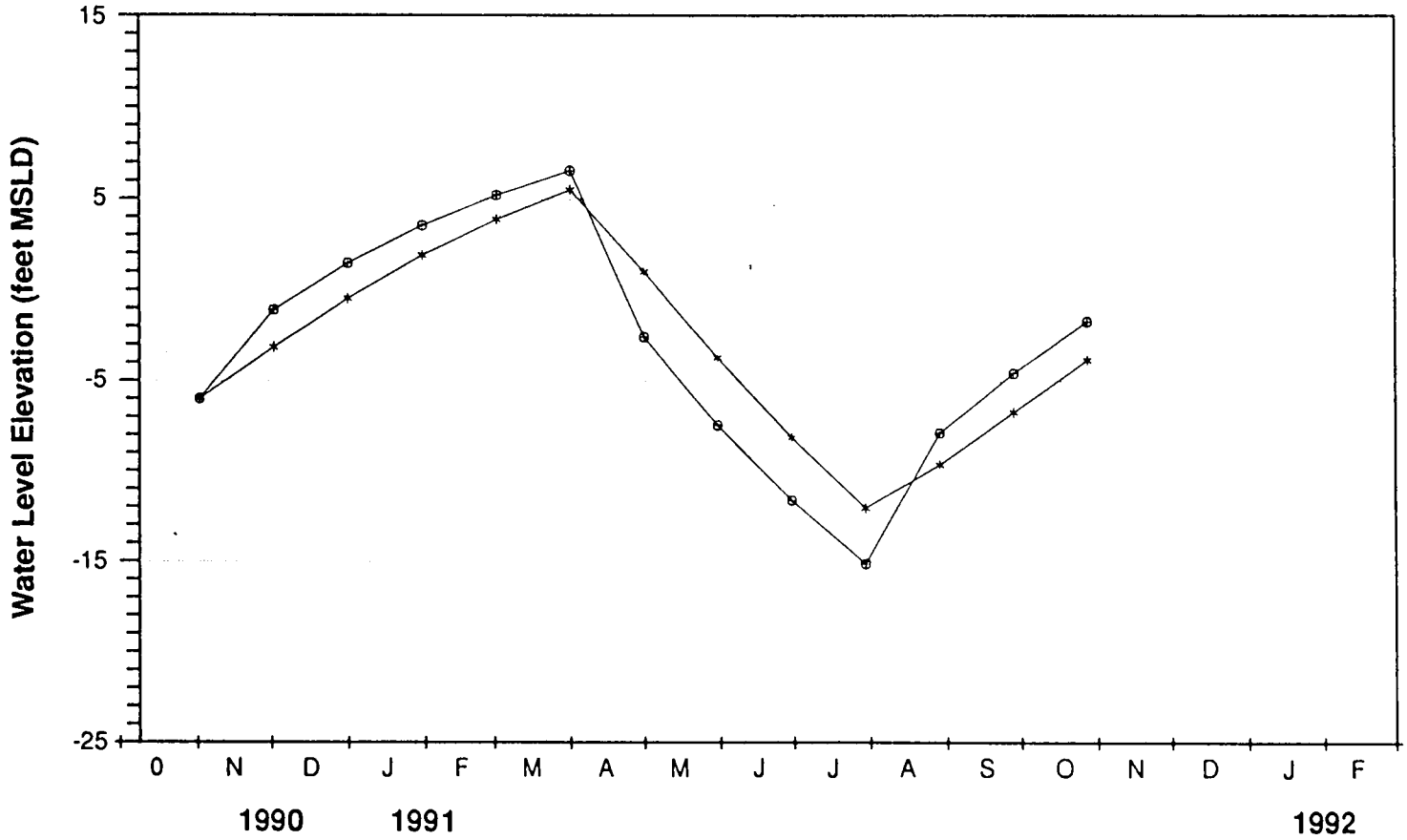

EXPLANATION

***** UCD-4

⊕⊕⊕⊕⊕ UCD-15

SIMULATED WATER LEVELS
FIRST & SECOND HYDROSTRATIGRAPHIC UNITS
FOR UCD-4 AND UCD-15

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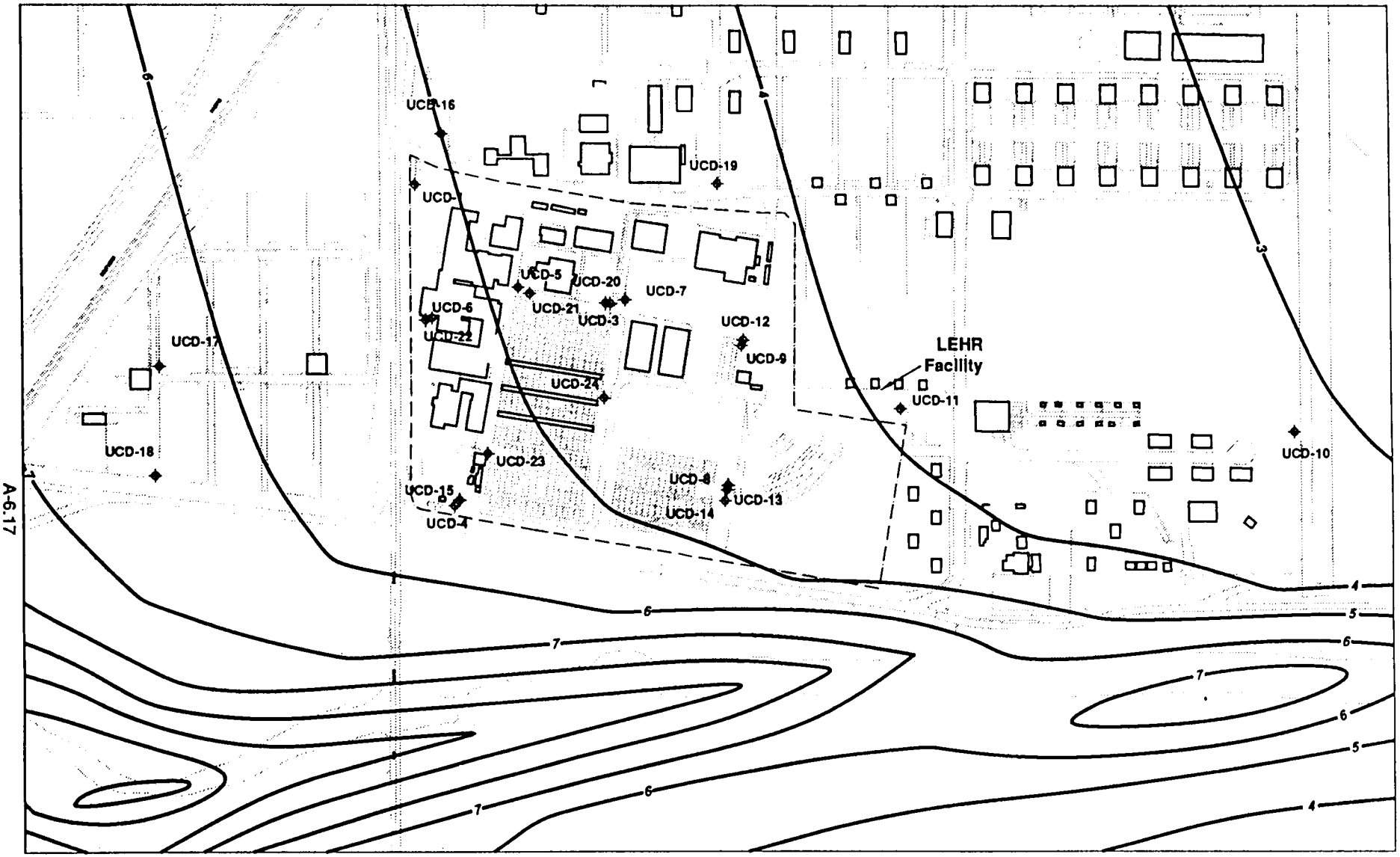
10805-454-044 DOE-68

FIGURE A-21



EXPLANATION

Monitoring Wells

Groundwater Contours

Interval = 1 Foot

0 300

Scale in Feet

N

SIMULATED WATER LEVELS FIRST HYDROSTRATIGRAPHIC UNIT LAYER 1, MARCH 1991

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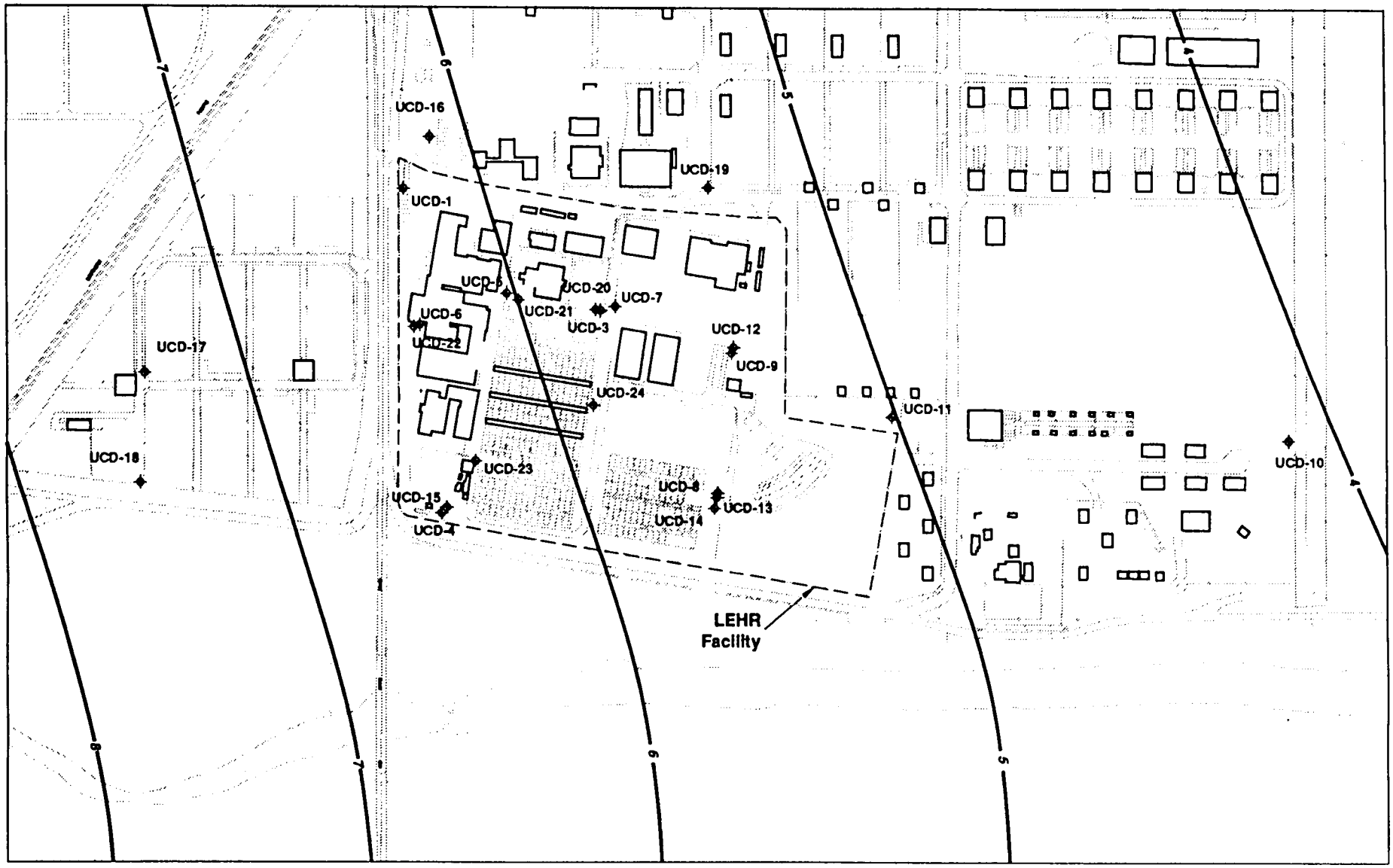
FIGURE A-22



EXPLANATION

Monitoring Wells

Groundwater Contour (1 ft. Interval)

0 300
Scale in Feet

N

SIMULATED WATER LEVELS SECOND HYDROSTRATIGRAPHIC UNIT LAYER 2, MARCH 1991

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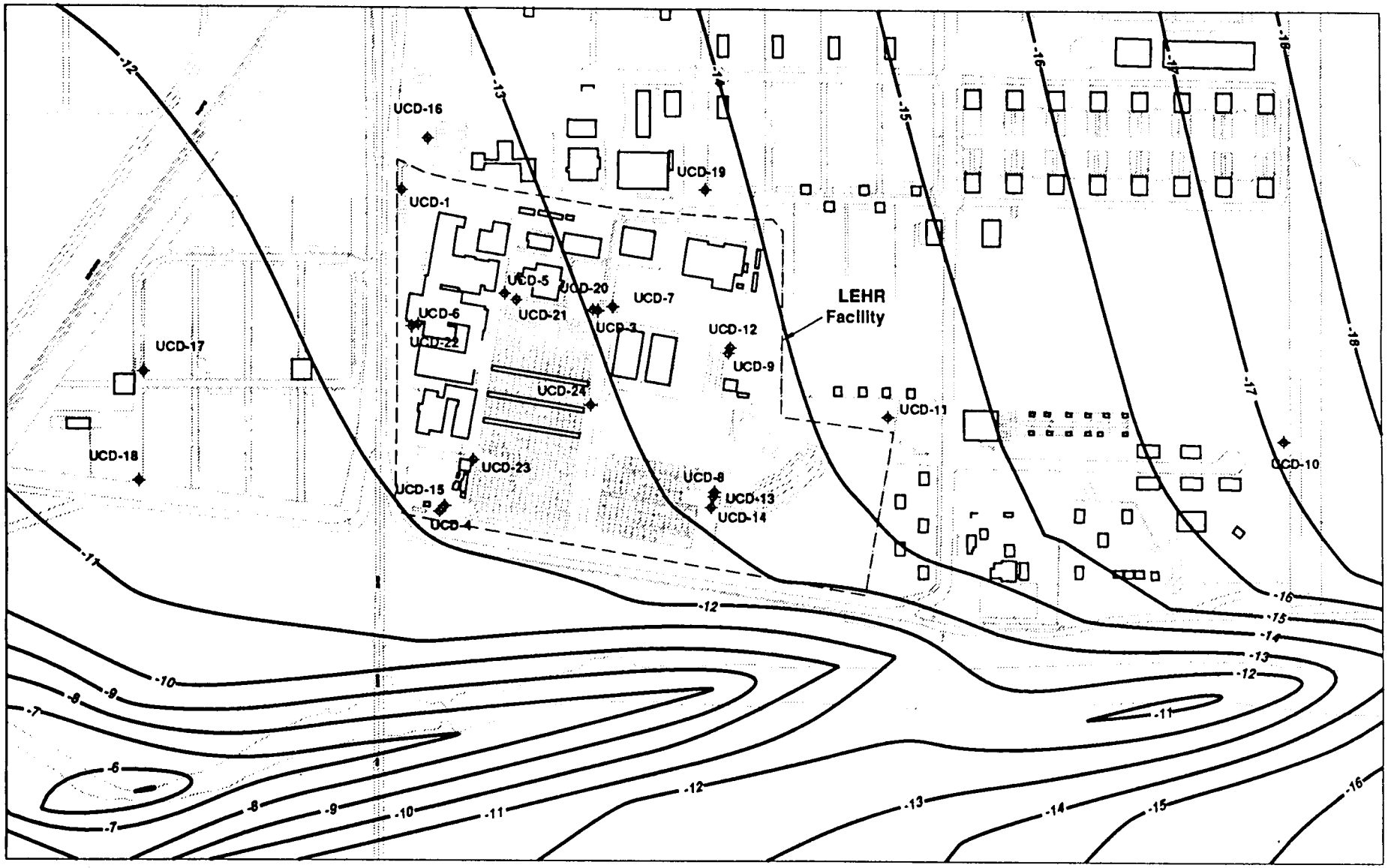
FIGURE A-23



EXPLANATION

Monitoring Wells

Groundwater Contours

Interval = 1 Foot

0 300

Scale in Feet

N

SIMULATED WATER LEVELS FIRST HYDROSTRATIGRAPHIC UNIT LAYER 1, JULT 1991

Phase II Site Characterization

LEHR Environmental Restoration

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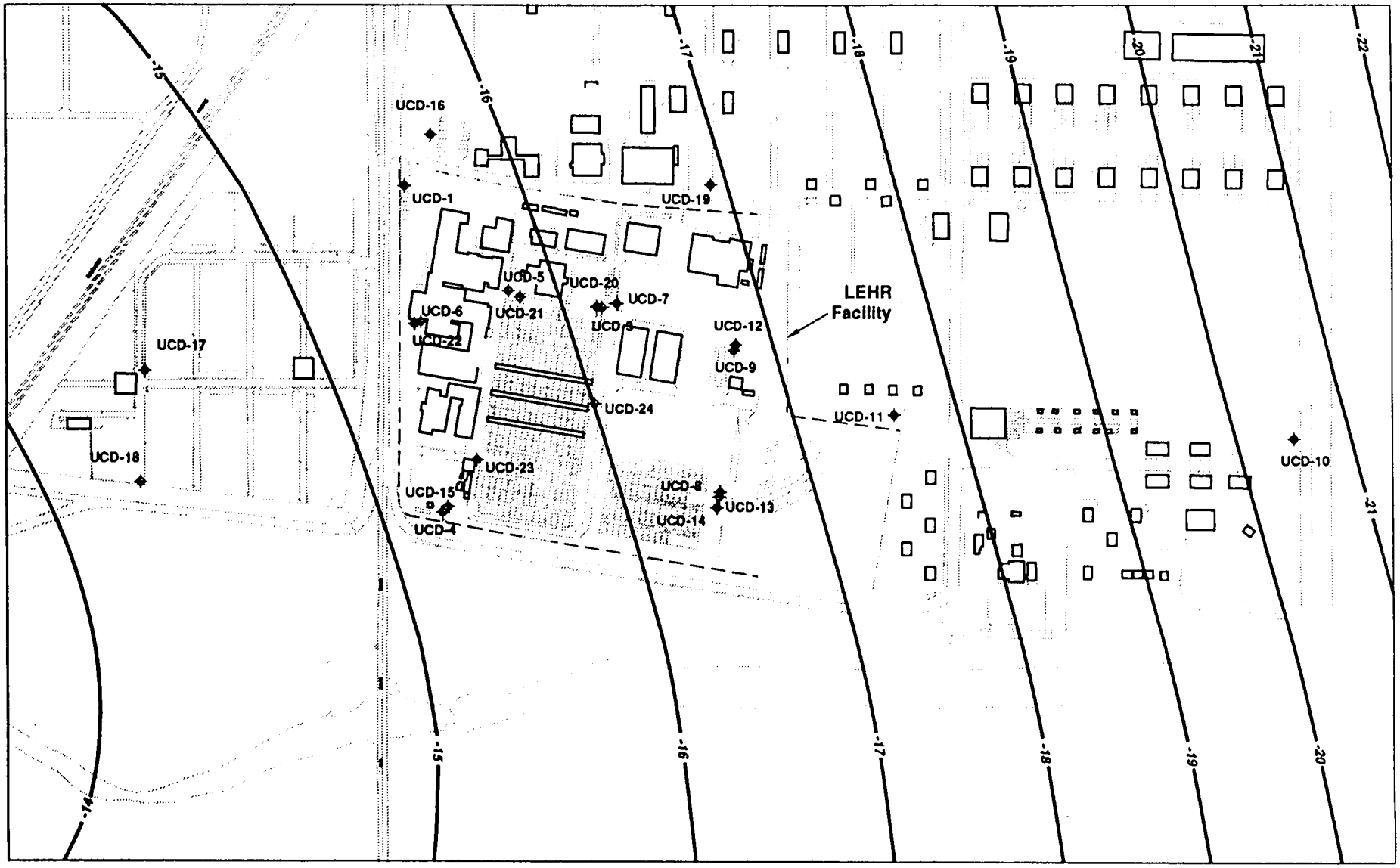
FIGURE A-24



EXPLANATION

Monitoring Wells

Groundwater Contours
Interval = 1 Foot

0 300
Scale in Feet

N

SIMULATED WATER LEVELS SECOND HYDROSTRATIGRAPHIC UNIT LAYER 1, JULY 1991

Phase II Site Characterization
LEHR Environmental Restoration
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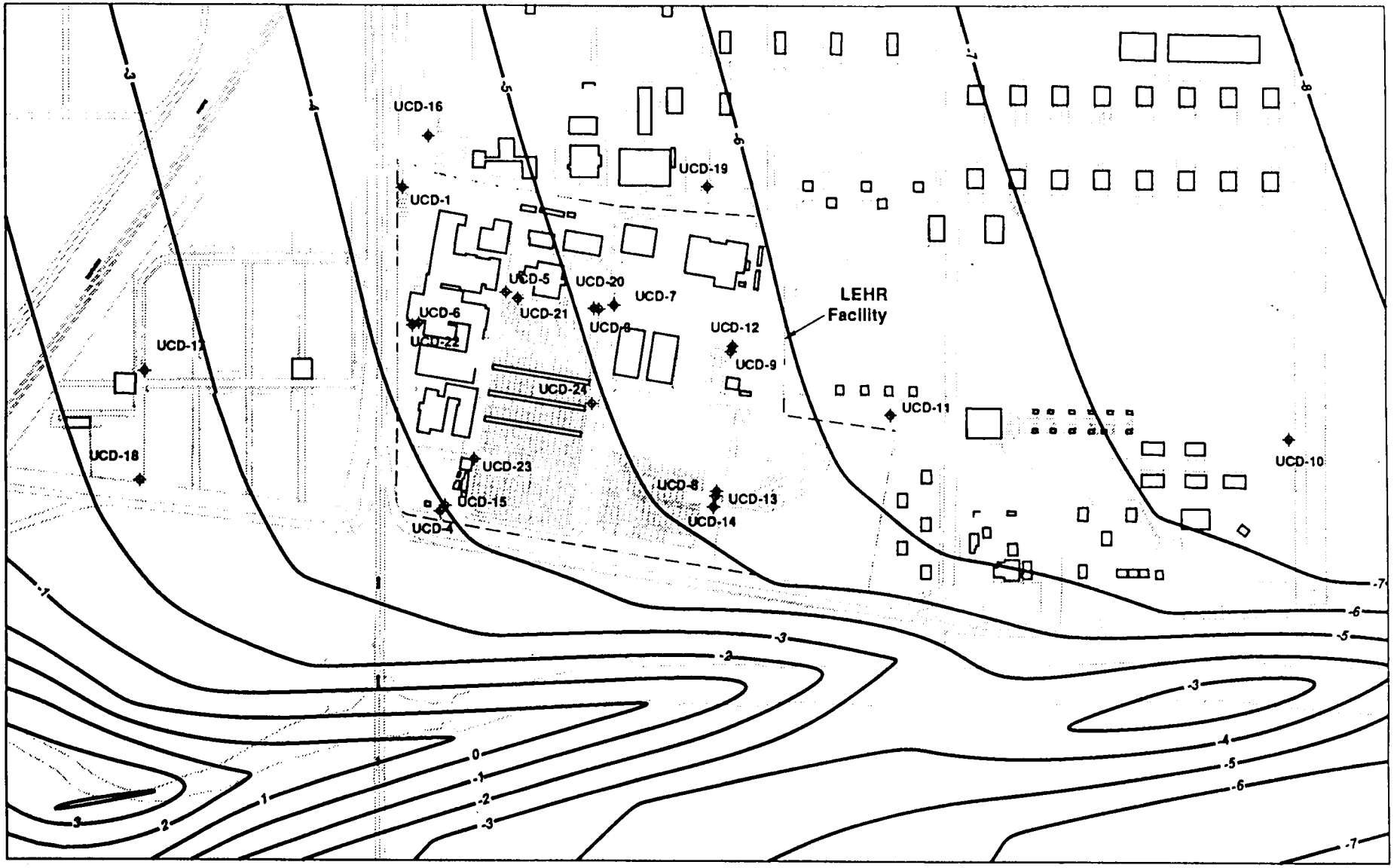
FIGURE A-25



EXPLANATION

Monitoring Wells

Groundwater Contour (1 ft. Interval)

0 300
Scale in Feet

N

SIMULATED WATER LEVELS FIRST HYDROSTRATIGRAPHIC UNIT LAYER 1, OCTOBER 1991

Phase II Site Characterization
LEHR Environmental Restoration
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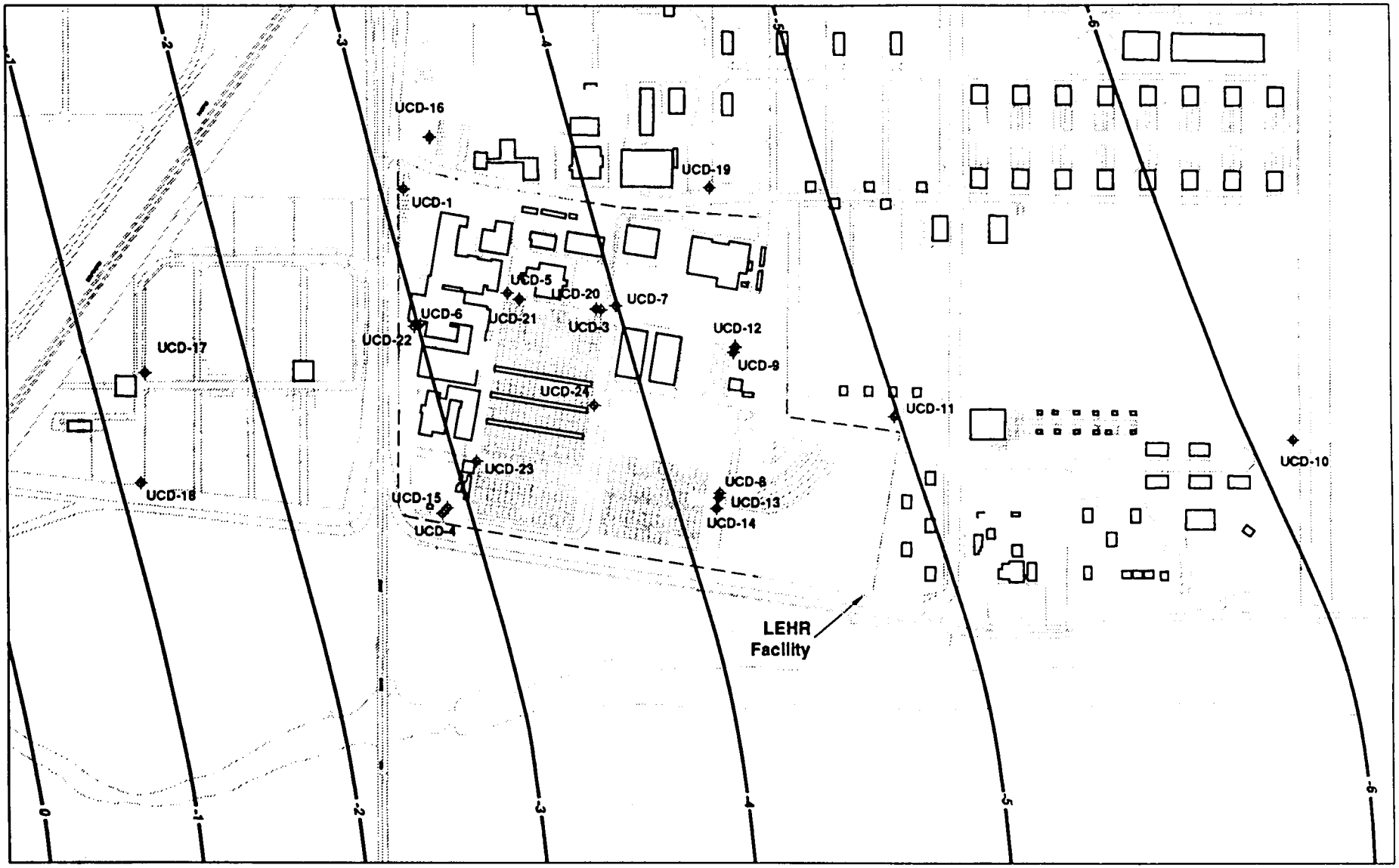
FIGURE A-26



EXPLANATION

Monitoring Wells

Groundwater Contours
Interval = 1 Foot

0 300
Scale in Feet

N

SIMULATED WATER LEVELS SECOND HYDROSTRATIGRAPHIC UNIT LAYER 2, OCTOBER 1991

Phase II Site Characterization
LEHR Environmental Restoration
FEBRUARY 1993

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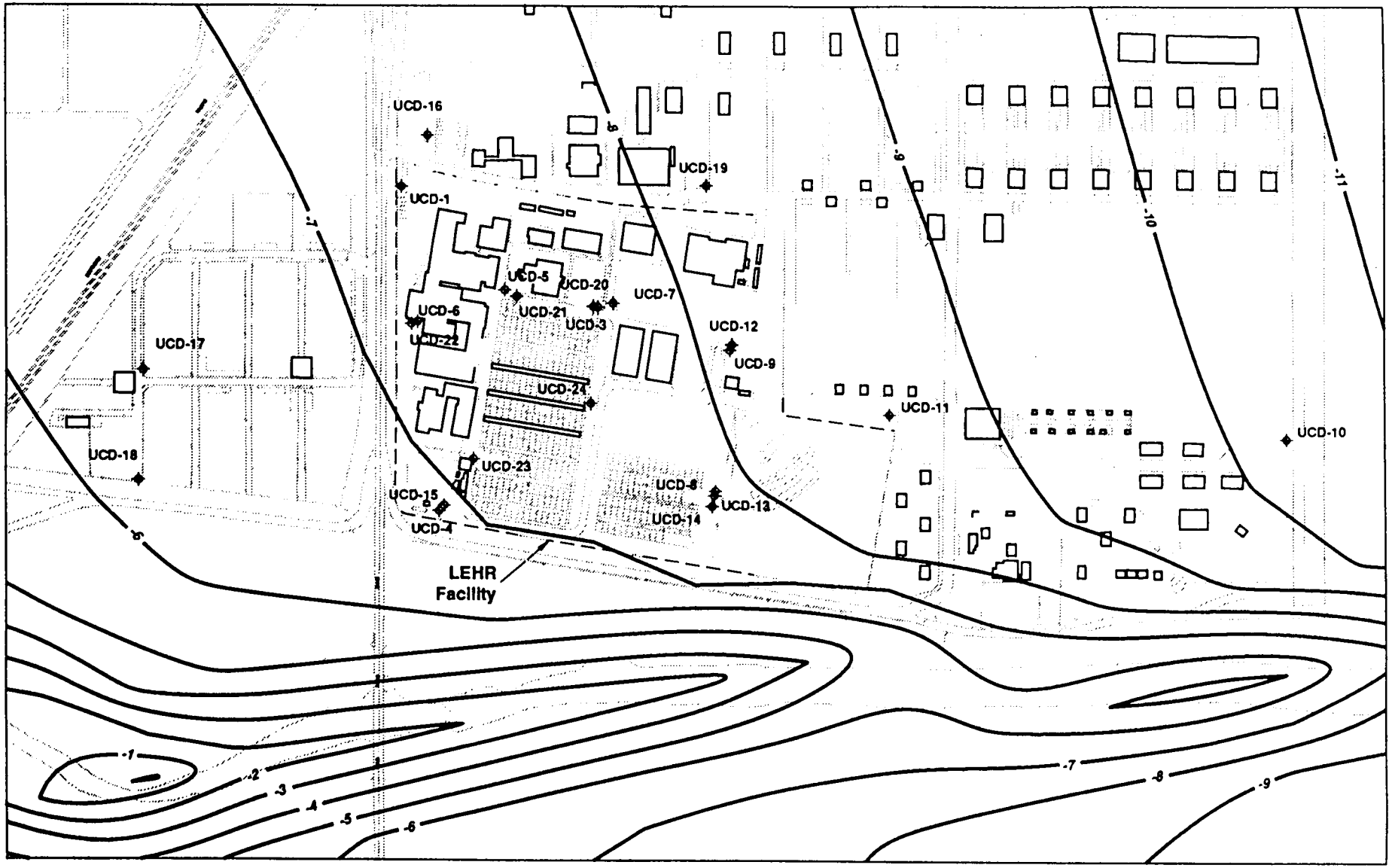
FIGURE A-27

Once the one-year simulation was completed, a longer simulation was conducted to simulate changes in water levels over time. Each year of the simulation was divided into a six-month period of recovery and a six-month period of pumping. The six-month period of recovery included recharge based on 50 percent of a mean annual precipitation of 18 inches (9 inches over six months). Both the gradient on the site and over-all water levels were reviewed after the simulation.

Figures A-28 and A-29 show simulated water levels in Layers 1 and 2 at the end of pumping for year 20. The plots show a consistent gradient and lower water levels in Layer 2 than in Layer 1 (as would be expected at the end of pumping).



EXPLANATION

Monitoring Wells

Groundwater Contours
Interval = 1 Foot

0 300
Scale In Feet

N

SIMULATED WATER LEVELS FIRST HYDROSTRATIGRAPHIC UNIT YEAR 20, END OF PUMPING

Phase II Site Characterization
LEHR Environmental Restoration
FEBRUARY 1993

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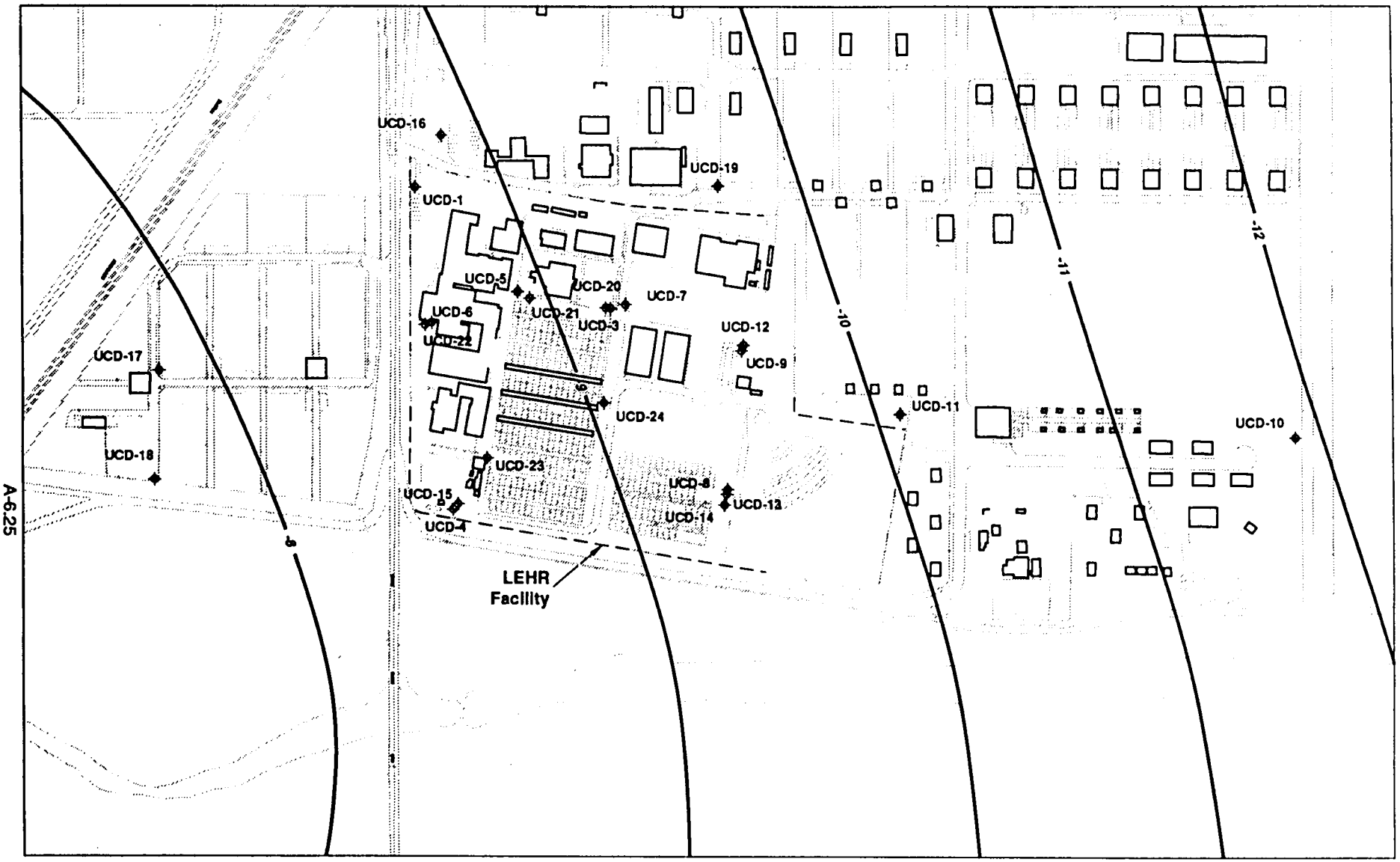
10805-454-044 DOE-110

FIGURE A-28



EXPLANATION

Monitoring Wells

Groundwater Contours
Interval = 1 Foot

0 300
Scale in Feet

N

SIMULATED WATER LEVELS
SECOND HYDROSTRATIGRAPHIC UNIT
YEAR 20, END OF PUMPING

Phase II Site Characterization
LEHR Environmental Restoration
FEBRUARY 1993

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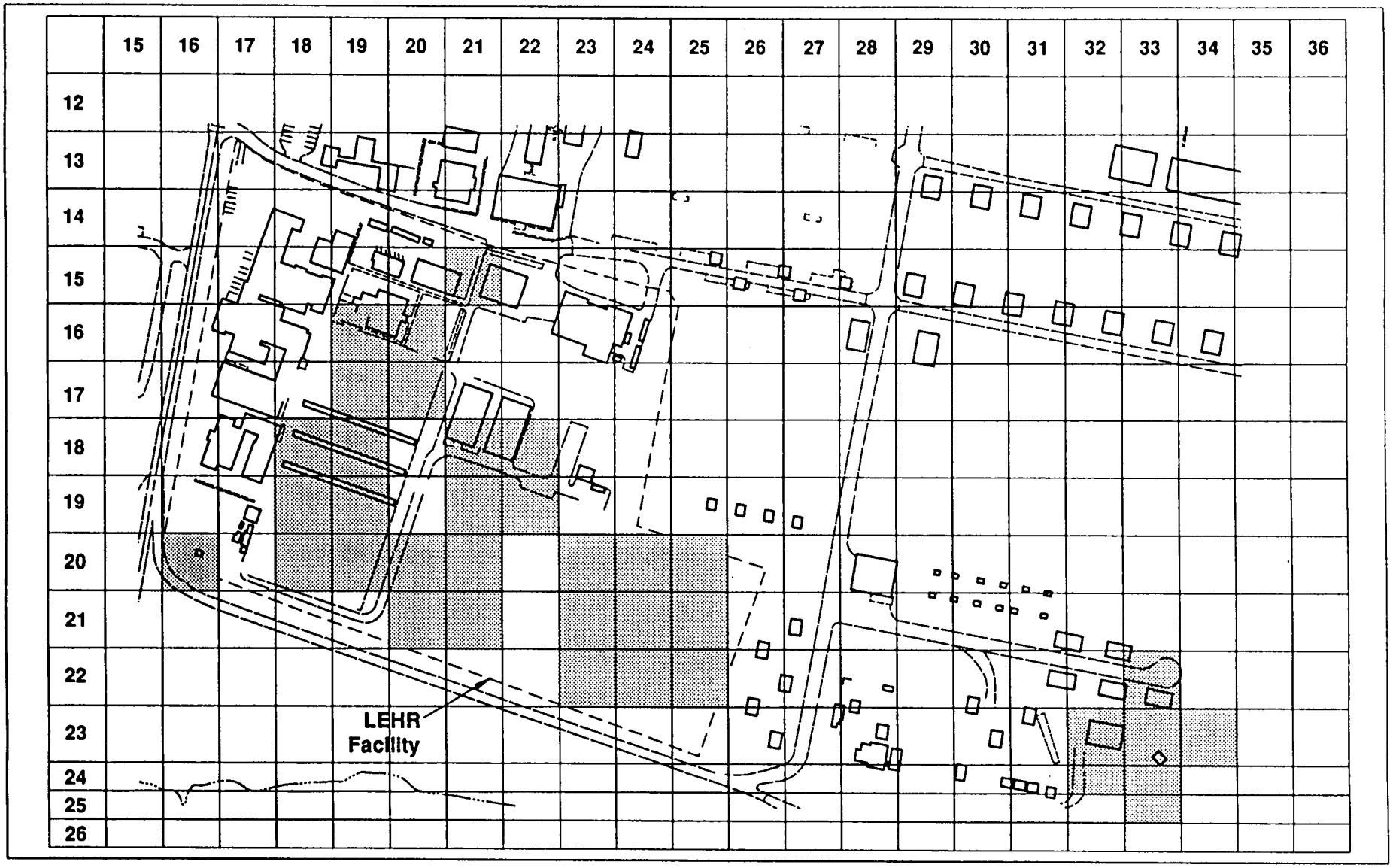
10805-454-044 DOE-114

FIGURE A-29



EXPLANATION

Contaminant Sources Through (100 units) Recharge

0 300
Scale in Feet

N

MODEL SOURCE LOCATIONS

Phase II Site Characterization
LEHR Environmental Restoration
FEBRUARY 1993

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10805-454-044 DOE-159

FIGURE A-30

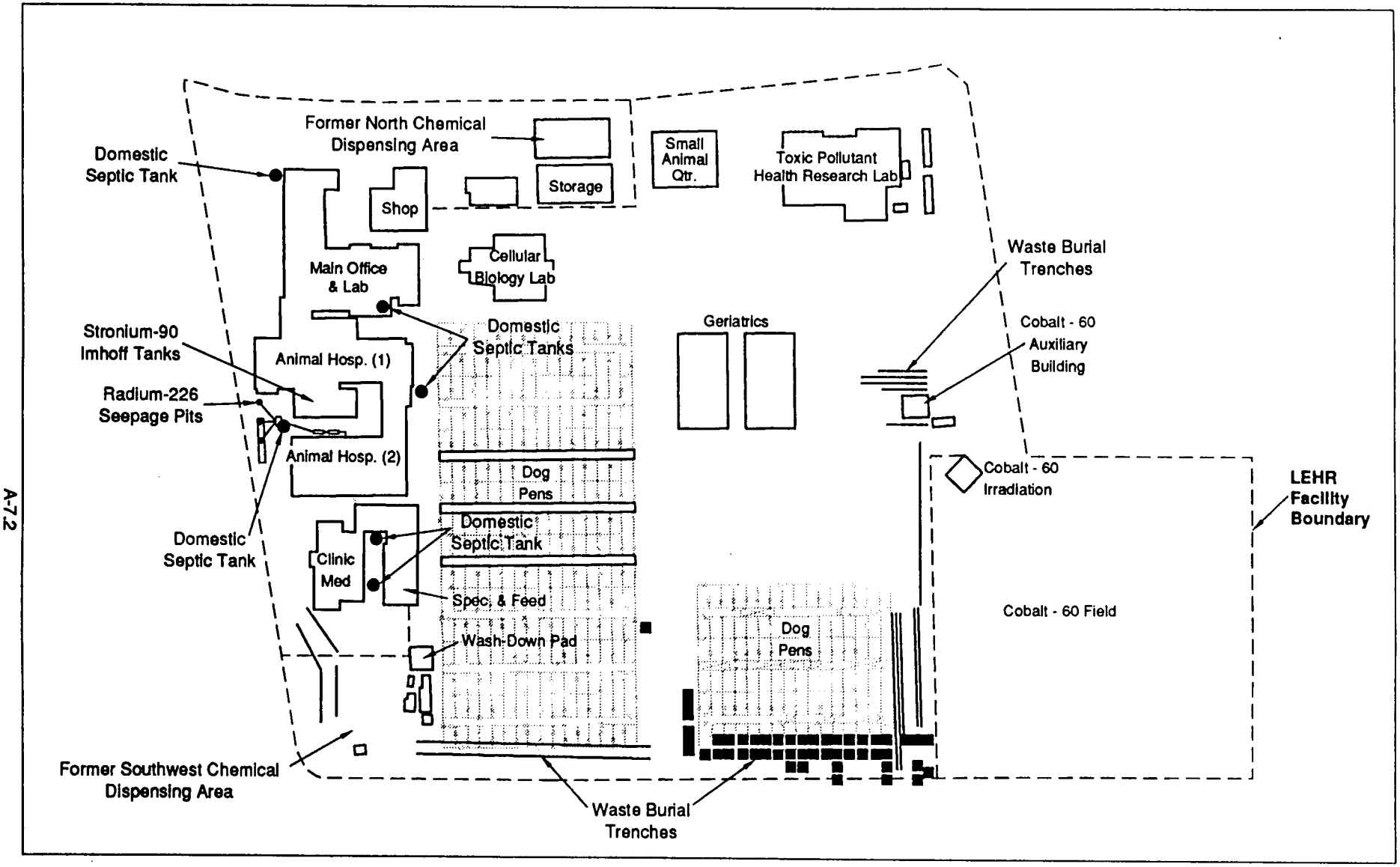
A-7.0 DOMESTIC SEPTIC TANK INVESTIGATION

At the time of this report, the Domestic Septic Tank Investigation Task has not been completed. Details on the investigative methods to be used are presented in the Phase II Site Characterization Work Plan (Dames & Moore, 1990). A preliminary investigation of the condition of the domestic septic tanks was conducted in March 1990.

UC Davis personnel approximately located six abandoned domestic septic tanks from construction plans at the LEHR facility. Approximate locations of the six septic tanks are shown in Figure A-31. The condition of the six tanks are listed below.

TANK NUMBER	LOCATION	CONDITION
1	Northwest corner of Main Office	Partially Destroyed
2	West of Imhoff Tanks	Good
3	Between the Clinical Pathology and Feed Mix and Specimen Storage Building	Good/ Filled with Gravel
4	Approximately 15 feet North of Tank #3	Overlain by Several Utilities
5	Under Main Office Building	Unknown
6	Under Sidewalk near Animal Hospital #1	Unknown

Three of the domestic septic tanks have been positively located using a combination of steel probes, shovels, and a backhoe. (Tanks 1, 2 and 3). Indication of a fourth domestic septic tank (Tank 4) was found in UC Davis utility installation records. Further delineation of the location of the tank estimated to be located under the LEHR office building (Tank 5), or the tank estimated to be under the sidewalk near Animal Hospital 1 (Tank 6) will be delayed until investigation of the four other tanks is completed.



EXPLANATION

■ Radioactive Trenches and Holes

● Domestic Septic Tanks

0 150
Scale in Feet

N

DOMESTIC SEPTIC TANKS

Phase II Site Characterization
LEHR Environmental Restoration
FEBRUARY 1993

DAMES & MOORE

10805-454-044 DOE-140

FIGURE A-31

A-8.0 WASTE CHARACTERIZATION

A work plan for the characterization of wastes generated during the previous Phase I and this Phase II investigation is currently being developed. This work plan will describe the methodologies that will be used to characterize wastes for disposal purposes. The wastes are currently stored in closed 55-gallon drums placed in the Cobalt-60 Field at LEHR, and remain the responsibility of UC Davis.

APPENDIX B

QUALITY ASSURANCE AND QUALITY CONTROL PROCEDURES PHASE II SITE CHARACTERIZATION LEHR ENVIRONMENTAL RESTORATION

APPENDIX B

QUALITY ASSURANCE/QUALITY CONTROL
PHASE II SITE CHARACTERIZATION
LEHR ENVIRONMENTAL RESTORATION

APPENDIX B

QUALITY ASSURANCE/QUALITY CONTROL
PHASE II SITE CHARACTERIZATION
LEHR ENVIRONMENTAL RESTORATION

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APPENDIX B

QUALITY ASSURANCE/QUALITY CONTROL
PHASE II SITE CHARACTERIZATION
LEHR ENVIRONMENTAL RESTORATION

B-1.0 INTRODUCTION

This appendix presents the Quality Assurance and Quality Control (QA/QC) activities conducted during the Phase II Site Characterization, LEHR Environmental Restoration. These activities were performed to comply with the requirements set forth in the Quality Assurance Program Plan (QAPP) and Quality Assurance Project Plan (QAPjP) included as Appendix B of the Phase II Site Characterization Work Plan. The Quality Assurance activities discussed in this appendix include:

- QA Staff and Project Personnel Training;
- Document Control;
- Drawing Preparation;
- Quality Control Checking;
- Measuring and Testing Equipment;
- Sample Handling;
- Surveillance Activities;
- Audits; and
- Record Control and Retention.

Dames & Moore began the Phase II Site Characterization work under contract to the University of California Davis. In early 1990, EMO was assigned prime contractor status to conduct the Phase II Site Characterization and retained Dames & Moore to continue the actual field investigation as a subcontractor. With this management change, Dames & Moore was required to develop a Work Plan and Quality Assurance Program Plan (QAPP). The approved Phase II Site Characterization Work Plan included a detailed description of the Phase II Site Characterization tasks; a field sampling plan (Appendix A); a Quality Assurance Project Plan (QAPjP) that referenced the QAPP (Appendix B); a Health and Safety Plan (Appendix C); and a Project Management Plan (Appendix D).

The QAPP was developed following the basic format of the Dames & Moore firm-wide QA Manual, and included the Battelle EMO Master Services Agreement quality assurance requirements. The project Work Plan, which contained the QAPjP, was developed at the same time. Following review and approval of the QAPP, the QAPjP was submitted for review. The QAPjP was prepared to address specific project QA requirements of the Phase II Site Characterization, and included thorough referencing

of the QAPP. The subcontract with CEP laboratories in Santa Fe, New Mexico also contains requirements that they comply with the Dames & Moore Battelle QAPP.

B-2.0 QA ACTIVITIES

The following sections discuss the QA activities conducted during the Phase II Site Characterization in compliance with the QAPP and the QAPjP.

B-2.1 QA Staff and Project Personnel Training

QAPP Procedures 1, 2, 3, and 4 detail the requirements for training the QA staff and project personnel.

An in-depth training program for quality assurance personnel was developed and conducted by the Dames & Moore Manager of Quality Assurance (MQA). The MQA has extensive training and auditing experience associated with the nuclear industry and is a Certified Lead Auditor. In October 1989, the MQA conducted training for the Dames & Moore Coordinator of Quality Assurance (CQA) and acting Program Coordinator of Quality Assurance (PCQA). This training was documented as required by QAPP Procedures 1 and 2. The acting PCQA has received additional training since that date. This included a one-week session with the MQA (May 1990) and a one-week training course at the U.S. Department of Energy, Richland Field Office and Quality Training Resource Center (January 1992). In February 1992, the acting PCQA became a Certified Lead Auditor. The project quality assurance files contain all training and experience records for the MQA, CQA, and acting PCQA.

The CQA and acting PCQA conducted QA training of the Dames & Moore technical, managerial, and support personnel assigned to this project. Course materials were developed by the CQA and acting PCQA according to QAPP Procedure 3. These materials were submitted to the MQA for approval, and training sessions were conducted in the Sacramento Dames & Moore office. Documentation of each training session has been prepared according to QAPP Procedure 3. Technical training of project personnel was limited to the field technicians. Documentation of training and experience for all project personnel is included in the QA/QC project files, according to QAPP Procedure 4.

B-2.2 Document Control

QAPP Procedure 5 describes the general requirements and responsibilities for development of program and project controlling documents. These documents include the Quality Assurance Program Plan, Work Plan, and Quality Assurance Project Plan. Requirements in Procedure 5 include project management responsibilities for document preparation, review, and approval, and the QA staff role for coordination of an independent technical review. QAPP Procedure 6 details the steps for review and controlled distribution of these documents. Both procedures include exhibits that provide guidance on document contents and format, signature cover sheets, and suggested considerations for technical review.

Procedure 5 also details the requirements for preparation of document revisions and interim change notices.

Technical review, approval, and release of reports have been conducted according to QAPP Procedure 20. The steps required in this process are similar to those described above for project controlling documents. These activities included management preparation of the document, QA coordination of technical review and approval, and documentation of the process for products submitted to EMO.

B-2.3 Drawing Preparation

QAPP Procedure 9 details the responsibilities and methods used to provide accountability for report drawings. The procedure covers receipt, distribution, control, checking, and approval of both internal and external drawings. Dames & Moore prepared drawings for this report that included maps, diagrams, cross sections, graphs, and other similar non-design-type illustrations. To control these drawings, a drawing control log has been used by the Dames & Moore Technical Illustration department. Guidelines for preparation and use of this log are detailed in QAPP Procedure 9.

B-2.4 Quality Control Checking

A variety of methods were utilized to meet the data quality objectives. These methods included collecting and analyzing field sample replicates, analyzing trip blanks, and reviewing data packages received from CEP Laboratories.

Replicate samples included two samples taken from the same location, submitted in separate containers, and analyzed separately. Replicates of water samples (monitoring well and surface water) were obtained by filling sample and replicate containers from the same sampling device. Replicate soil samples involved collecting two adjacent sample rings from the split-spoon sample. Frequency for collecting field replicates was one for every ten samples.

Trip blanks are 40 ml glass vials filled at the analytical laboratory with analyte-free water. They are used to identify potential sources of contamination during sample collection and transport. During the Phase II Site Characterization, one trip blank was included in each ice chest containing empty sample containers. The trip blank was not opened in the field during sampling and was returned to the laboratory in the same ice chest with the samples. Each trip blank was handled, transported, and analyzed for volatile organic compounds in the same manner as the actual field samples. Potential contaminants that may be introduced during transportation or from the laboratory include acetone, methylene chloride, and

chloroform. Trip blanks with these constituents may indicate inadequate sample bottle preparation, laboratory water of questionable quality, or inadequate laboratory practices.

Dames & Moore evaluated each analytical data package received from CEP laboratories. The review process included quality control checking of analyte data, sample holding times, chain-of-custody records, trip blank data, and sample replicates.

The data review process began with entry of electronic data from CEP into the Dames & Moore database. The data were printed out in table format and compared with the hardcopy record also sent by CEP. Data printouts and the CEP hardcopy records from the first two quarterly water sampling events were compared line by line for 100 percent of the entries. A minor number of entry errors were identified, and CEP was notified of the discrepancies. In subsequent sampling rounds, 25 percent of the data from each quarter sampling event was hand checked. Following the data output review, required sample holding times were compared with the sample chronology provided by CEP. If discrepancies were noted, CEP was notified immediately. The next review step included checking the database output for completeness against the sample chain-of-custody. This activity was conducted to establish a comparison of samples collected in the field with reported sample data. Any missing or erroneous information was immediately resolved.

CEP also provided a quality assurance (QA) data section with each analytical data package. This QA section included sample data from the field replicates, trip blanks, analyte detection limits, method blanks, surrogate recoveries, spikes, and matrix spikes. Trip blank data was reviewed for any analyte that would indicate contamination of a batch of samples either in transport or analyzed in the laboratory. If questionable detections were identified, the appropriate batch of samples would be noted and CEP immediately contacted for an explanation. Field replicates were reviewed in the database by comparing those analysis results to the primary sample results and calculating the relative percent difference (RPD). The final review step conducted on the analytical package involved tabulating all data from the entire quarterly sampling event and checking the results for comparability with past quarterly results.

B-2.5 Measuring and Test Equipment

All field sampling equipment, including the pH/conductivity/temperature meter, NIST standard thermometer, NIST traceable standards, and general supplies were purchased through scientific supply houses and equipment supply stores. No quality-related equipment (as defined by the QAPP) was used to conduct the field studies for the Phase II Site Characterization. Therefore, Dames & Moore QA personnel were not required to conduct supplier qualification for this equipment or prepare procurement packages as specified in QAPP Procedure 11. However, all equipment was subjected to receipt inspection

and documented according to QAPP Procedure 11. In addition, all NIST certifications and purchase orders were secured and attached to the appropriate receipt inspection forms.

QAPP Procedure 13 details requirements concerning measuring and test equipment calibration. Specific calibration procedures for the pH/conductivity/temperature meter (meter) are provided in the Phase II Work Plan. Dames & Moore purchased new NIST traceable standards for pH and conductivity in July 1991. Because they have a relatively short shelf life, new pH standards are also purchased before each quarterly sampling event. The standard for the turbidity meter was provided with the project dedicated meter.

Calibration of the field meters was conducted before the beginning of each quarterly sampling exercise, according to the manufacturer's specifications. NIST traceable standards were used to conduct the performance check on the pH, conductivity and turbidity meters. A NIST traceable thermometer was used to check temperature. Calibration for turbidity and pH was also performed every day during field sampling activities. Turbidity calibration was performed before each sampling location (surface water or groundwater) and pH calibration occurred once before sampling began and again every 4 hours throughout the day. No other equipment used on this project required calibration.

B-2.6 Sample Handling

All soil and water samples collected by Dames & Moore personnel were shipped and handled according to the requirements specified in QAPP Procedure 14. At the end of each sampling day, the field investigator completed a chain-of-custody record for all samples and included a copy in each ice chest containing samples. This individual also signed and dated the form indicating the samples were relinquished to the shipper. The samples were shipped the day of collection by Federal Express to CEP in Santa Fe, New Mexico. CEP notified Dames & Moore immediately upon receipt of the sample shipment and identified any missing or damaged containers. After any discrepancies were resolved, Dames & Moore then authorized CEP to conduct the specified laboratory analyses. CEP personnel were also required to sign and date the chain-of-custody form indicating receipt of the samples. Chain-of-custody forms were returned to Dames & Moore with the completed analytical data package. A copy of the form used for this record is in Appendix B of the Phase II Site Characterization Work Plan.

B-2.7 Surveillance Activities

Surveillances were conducted by the quality assurance staff to compare field activities and laboratory activities with requirements of the project controlling documents. Surveillances were performed at least once during each different field activity, and conducted according to QAPP Procedure 15.

Each surveillance was conducted using a checklist prepared from the appropriate document describing the activity to be observed. These documents included laboratory standard operating procedures (SOP), the field sampling plan, and approved technical procedures. The CQA or PCQA observed and checked compliance with the applicable procedures and guidelines.

Field surveillances focused on:

- appropriateness of personnel assignments and expertise;
- availability of field equipment;
- adherence to SOPs for sample collection and identification;
- sample handling and transport;
- use of QA/QC samples;
- chain-of-custody procedures;
- equipment decontamination; and
- documentation with respect to all QA/QC requirements.

Laboratory surveillances included review of:

- chain-of-custody;
- internal sample tracking;
- analytical data documentation;
- instrument calibration and QA/QC protocols; and
- data reporting.

Dames & Moore quality assurance staff conducted field surveillances of well development, groundwater and surface water sampling, and soil sampling. In addition, a surveillance/audit was conducted at CEP Laboratories. These activities are documented according to QAPP Procedure 15 and the records are included in the QA project files.

Surveillance activities were conducted on the following dates:

Surveillance Activity	Surveillance Date	Report Date
Field - Well Development	11-07-90	11-12-90
Field - Well Water Sample	11-08-90	11-12-90
Field - Shallow Soil Sample	02-21-91	03-08-91
Lab - Sample Processing	08-02-91	09-04-91
Field - Groundwater Sample	08-13-91	08-28-91
Field - Surface Water Sample	11-21-91	12-05-91
Field - Groundwater Sample	11-25-91	12-09-91
Field - Groundwater Slug Test	12-11-91	12-23-91
Field - Groundwater Sample	02-27-92	03-12-92

B-2.8 Audits

Audits were conducted to evaluate the effectiveness of the project quality assurance program and to verify compliance with applicable requirements. Internal audits of this Phase II Site Characterization were performed by Dames & Moore QA personnel. In addition, the QA personnel conducted audits of Dames & Moore suppliers and subcontractors. Audit responsibilities, requirements, and methods for scheduling, conducting, and documenting quality audits for this project are outlined in Procedure 16 of the QAPP. In general, quality audits were performed to:

- Evaluate if the quality assurance program was being implemented and documented according to EMO and Dames & Moore requirements and applicable regulatory requirements, codes, and standards.

- Verify by the evaluation of objective evidence that the documented program has been implemented.

- Provide project management with a means of assessing the effectiveness of the quality assurance program, including efforts of the CQA.

- Identify deficiencies or nonconformances in the program.

- Verify correction of identified deficiencies and nonconformances.

Dames & Moore quality assurance staff conducted two internal project audits of the Phase II Site Characterization LEHR Environmental Restoration project. Project personnel were notified of the audit findings and observations, and corrective actions were implemented. In addition, an audit was conducted at the subcontractor's laboratory (CEP) in Santa Fe, New Mexico to evaluate sample handling protocol, internal QA/QC procedures, and data reporting procedures. Audit activities were documented according to QAPP Procedure 16 and were conducted on the following dates:

Audit Activity	Audit Date	Report Date
Internal Program Audit	01-17-91	02-13-91
Laboratory Subcontractor (CEP)	08-02-91	09-04-91
Internal Program Audit	02-27-92	03-18-92

EMO QA personnel conducted a Program Audit of the Quality Assurance Program Plan and compliance with the D&M/EMO Master Services Agreement. The audit was conducted on May 22, 1991 at the Dames & Moore Sacramento office and the final audit report was submitted to Dames & Moore on June 6, 1991. Dames & Moore prepared a response, dated June 28, 1991, that specified corrective actions to be implemented. Corrective actions were completed and verified by EMO QA personnel on September 9, 1991. The audit was closed on October 21, 1991. Documents from this audit and Dames & Moore internal audits are contained in the QA project files, located at the Dames & Moore's Sacramento office.

B-2.9 Record Control and Retention

Quality assurance and project documentation is maintained in the Dames & Moore Sacramento office according to QAPP Procedure 19. This effort included development of a filing system, index, and file log. To prevent loss of the documentation and ensure a complete record, each document was assigned a sequential accession number which was entered in the file log. Once the documentation was entered into the filing system, a check-out system was used to retrieve documents. The project secretary and CQA hold keys to the files, which are locked at night and on weekends. QA records have been duplicated and stored in a secure, remote facility.

APPENDIX C

BORING AND CPT WELL LOGS
PHASE II SITE CHARACTERIZATION
LEHR ENVIRONMENTAL RESTORATION

APPENDIX C

BORING CPT WELL LOGS
PHASE II SITE CHARACTERIZATION
LEHR ENVIRONMENTAL RESTORATION

Presents in this appendix are boring logs for soil borings and monitoring wells installed at the LEHR facility. Additionally, Cone Penetrometer (CPT) logs, and water well driller logs for wells within one mile of LEHR are also presented.

Section 1 Wahler Associates, 1988, and 1989

Section 2 Dames & Moore, 1990, 1991a, 1991b SWAT investigation (includes CPT logs)

Section 3 Dames & Moore, 1992, DOE Phase II Site Characterization, LEHR Environmental Investigation

Section 4 Drillers logs of existing wells within one mile of LEHR

The boring and CPT logs are arranged by investigation in numerical order. Well completion diagrams are included on monitoring well boring logs. Additionally, monitoring well depths and screened intervals are presented in Table C-1. Survey coordinates for LEHR monitoring wells are presented in Table C-2. Drilling and well installation procedures for the Phase II Site Characterization borings (Section 3) are presented in Appendix A of this report. No logs were prepared for the shallow borings in the dog pens or the Old AEC Project Site.

Locations of borings, monitoring wells, CPTs and water well driller logs are shown in Figures C-1 through C-5.

TABLE C-1
SUMMARY OF MONITORING WELLS
PHASE II SITE CHARACTERIZATION
LEHR ENVIRONMENTAL RESTORATION

Well Name	Total Depth	Screened Interval	HSU	Investigation	Date Completed
UCD-1	56.5	46.5 - 56.5	First	Wahler Associates 1989	10/09/87
UCD-2	Abandoned			Wahler Associates 1989	N/A
UCD-3	49.0	39.0 - 49.0	First	Wahler Associates 1989	10/23/87
UCD-4	57.2	45 - 55	First	Wahler Associates 1989	10/14/87
UCD-5	48.0	38.0 - 48.0	First	Wahler Associates 1989	10/22/87
UCD-6	50.0	40 - 50	First	Wahler Associates 1989	10/21/87
UCD-7	90	80 - 90	Second	Wahler Associates 1989	11/05/87
UCD-8	53.5	43.5 - 53.5	First	Wahler Associates 1988	11/03/87
UCD-9	50.0	40.0 - 50.0	First	Wahler Associates 1988	11/04/87
UCD-10	70.0	54 - 69	First	Dames & Moore SWAT, 1990	10/11/89
UCD-11	66.5	50 - 65	First	Dames & Moore SWAT, 1990	10/17/89
UCD-12	65.0	49.5 - 64.5	First	Dames & Moore SWAT, 1990	10/19/89
UCD-13	65.0	50 - 65	First	Dames & Moore SWAT, 1990	10/26/89
UCD-14	85	75 - 85	Second	Dames & Moore SWAT, 1990	11/15/89
UCD-15	120.5	91 - 116	Second	Dames & Moore DOE Phase II	03/28/90
UCD-16	122	92 - 117	Second	Dames & Moore DOE Phase II	04/04/90
UCD-17	143	88 - 113	Second	Dames & Moore DOE Phase II	04/10/90
UCD-18	70	54 - 69	First	Dames & Moore DOE Phase II	10/04/90
UCD-19	74.5	71.5 - 56.5	First	Dames & Moore DOE Phase II	10/01/90

TABLE C-1 (CONTINUED)
SUMMARY OF MONITORING WELLS

Well Name	Total Depth	Screened Interval	HSU	Investigation	Date Completed
UCD-20	73	57 - 72	First	Dames & Moore DOE Phase II	10/09/90
UCD-21	73	57 - 72	First	Dames & Moore DOE Phase II	10/11/90
UCD-22	73	57 - 72	First	Dames & Moore DOE Phase II	10/25/90
UCD-23	73	56.5 - 71.5	First	Dames & Moore DOE Phase II	10/17/90
UCD-24	73	57 - 72	First	Dames & Moore DOE Phase II	10/22/90

NOTE: UCD-25 through UCD-28 were postponed pending findings of this Phase II Site Characterization Report. Locations of these monitoring wells may be changed to more accurately evaluate potential source areas.

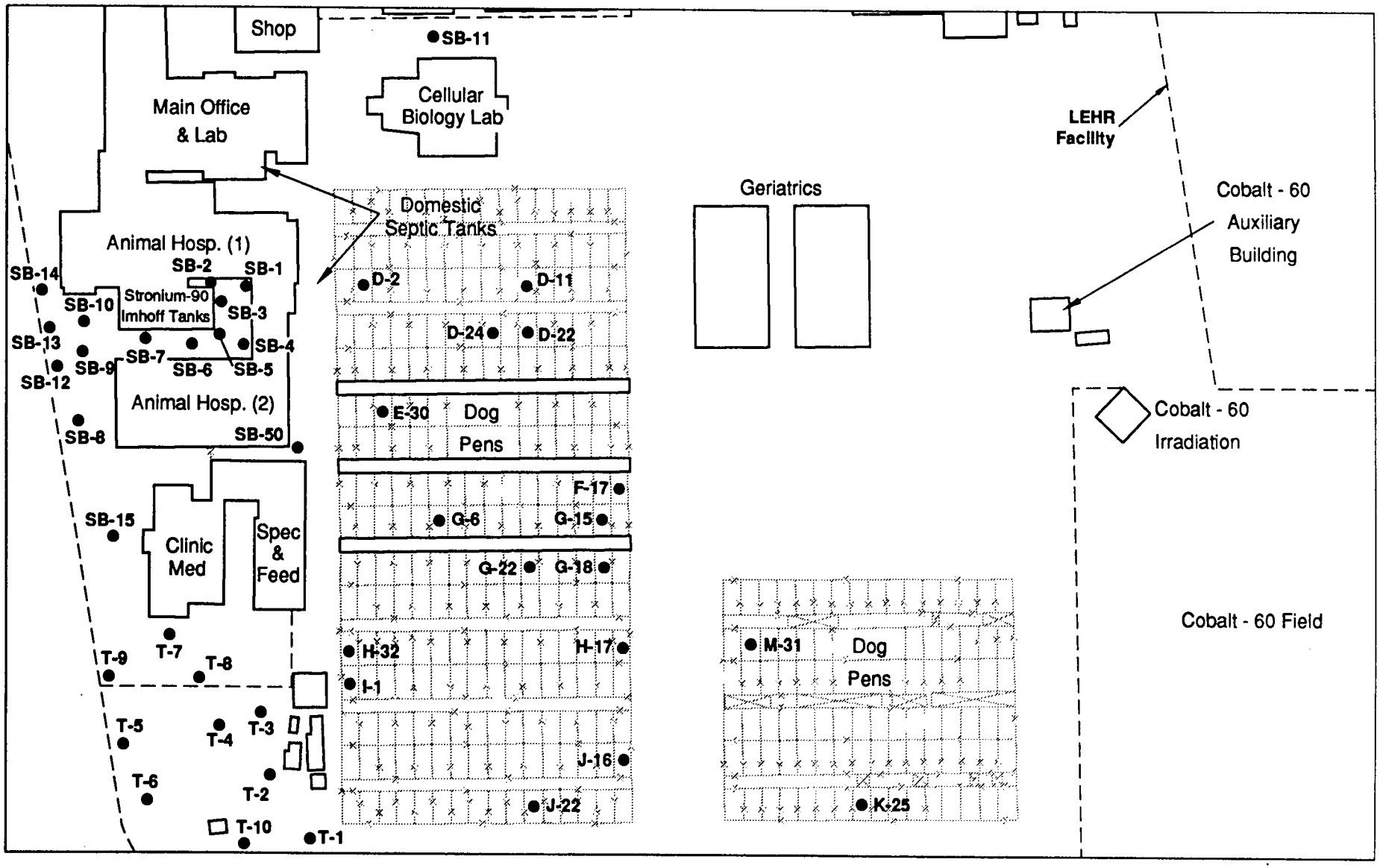
HSU = Hydrostratigraphic Unit

TABLE C-2

LEHR FACILITY MONITORING WELL COORDINATES AND ELEVATIONS
PHASE II SITE CHARACTERIZATION
LEHR ENVIRONMENTAL RESTORATION

UCD #	North	East	North	East	Ground	Top of Casing	Top of Pipe
1	-6736.12	-3762.26	1951329.71	6631236.04	47.9	50.05	49.53
2	Abandoned						
3	-7073.19	-3412.20	1951078.26	6631651.85	48.2	50.05	49.43
4	-7415.25	-3834.37	1950651.45	6631315.64	49.4	51.69	51.20
5	-6995.29	-3597.92	1951113.23	6631453.52	48.5	50.65	50.09
6	-7018.49	-3790.89	1951048.00	6631270.45	49.0	50.94	50.50
7	-7072.39	-3379.04	1951086.35	6631684.02	49.3	51.65	51.25
8	-7502.89	-3252.91	1950694.34	6631902.08	49.2	51.51	51.05
9	-7221.54	-3158.00	1950989.69	6631932.52	49.0	51.39	51.00
10	-7663.02	-2042.60	1950805.37	6633117.83	47.4	49.87	49.34
11	-7427.78	-2856.09	1950855.20	6632272.51	47.6	50.67	50.19
12	-7211.52	-3151.52	1951000.90	6631936.63	48.8	51.76	51.42
13	-7512.04	-3257.24	1950684.47	6631899.88	49.2	52.19	51.65
14	-7533.14	-3267.08	1950661.72	6631894.94	49.0	51.72	51.29
15	-7405.83	-3821.50	1950663.47	6631326.11	49.4	51.49	50.94
16	-6643.15	-3684.39	1951437.57	6631291.46	48.2	49.95	49.18
17	-6989.05	-4380.26	1950946.59	6630689.15	49.6	51.83	51.48
18	-7212.64	-4440.50	1950715.24	6630679.76	46.7	48.56	47.75
19	-6875.73	-3130.58	1951333.01	6631882.93	49.3	51.33	50.49
20	-7069.62	-3421.69	1951079.65	6631641.81	48.0	49.78	48.94
21	-7013.88	-3576.58	1951099.81	6631478.44	48.69	48.73	48.00
22	-7020.01	-3804.74	1951043.46	6631257.28	49.00	48.99	48.36
23	-7323.64	-3740.28	1950761.57	6631387.18	49.21	49.29	48.57
24	-7264.14	-3470.71	1950879.11	6631636.95	48.8	48.84	48.16

NOTE: Elevations are of north sides of monitoring wells. Ground elevations of wells in asphalt cement are to hundredth of a foot and are of asphalt on north side of well. All other ground elevations are to tenth of a foot and are on either soil or gravel north of well. Top of pipe elevation is to well cap if cap is flat or to rim if cap is rounded. A green marker was used to indicate points of measurement.



EXPLANATION

● Soil Boring Location

0 100
Scale in Feet

N

WAHLER ASSOCIATES SOIL BORINGS

Phase II Site Characterization
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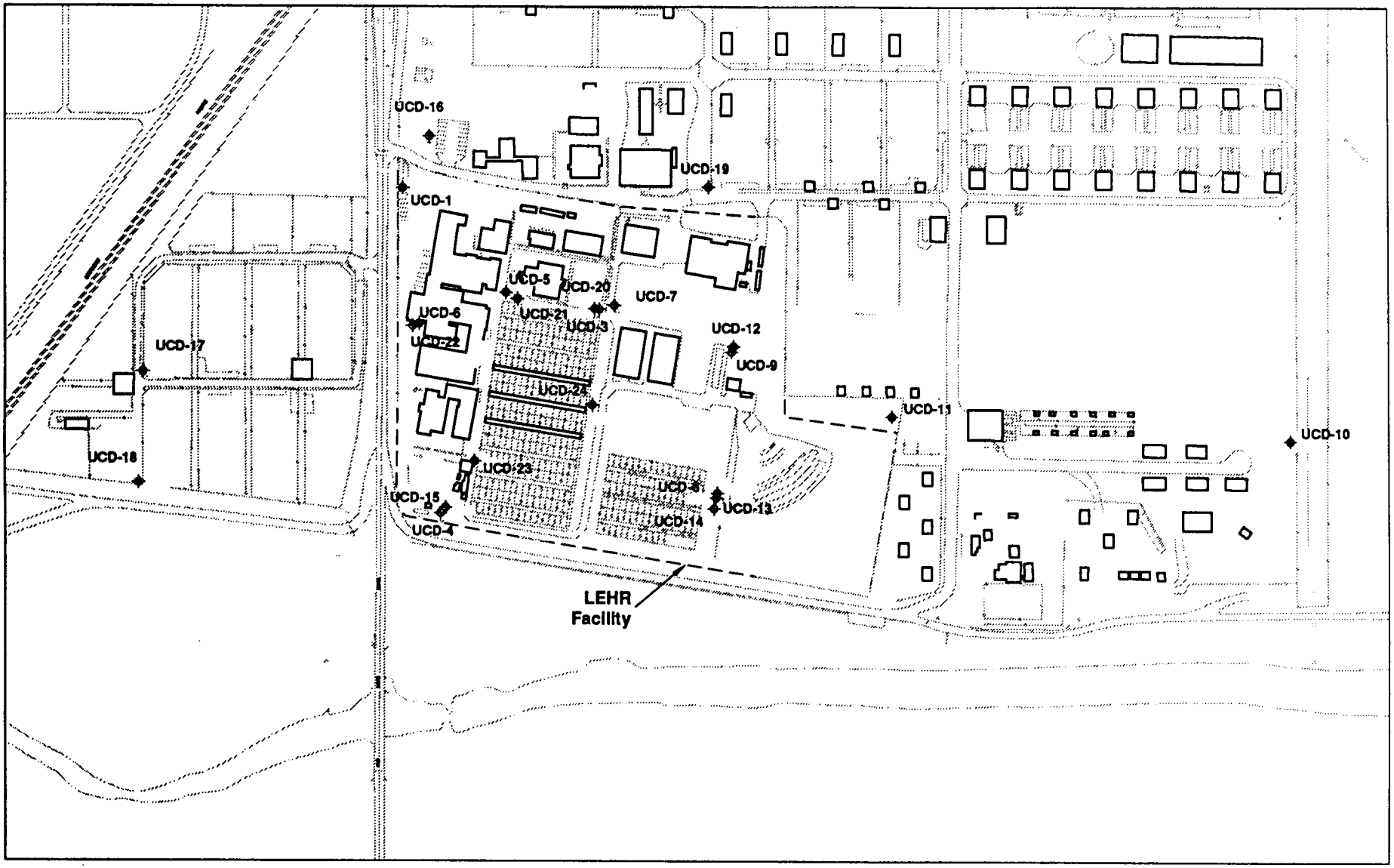
FIGURE C-1



EXPLANATION

Monitoring Wells

0 300
Scale in Feet

N

GROUNDWATER MONITORING WELL LOCATION MAP

Phase II Site Characterization
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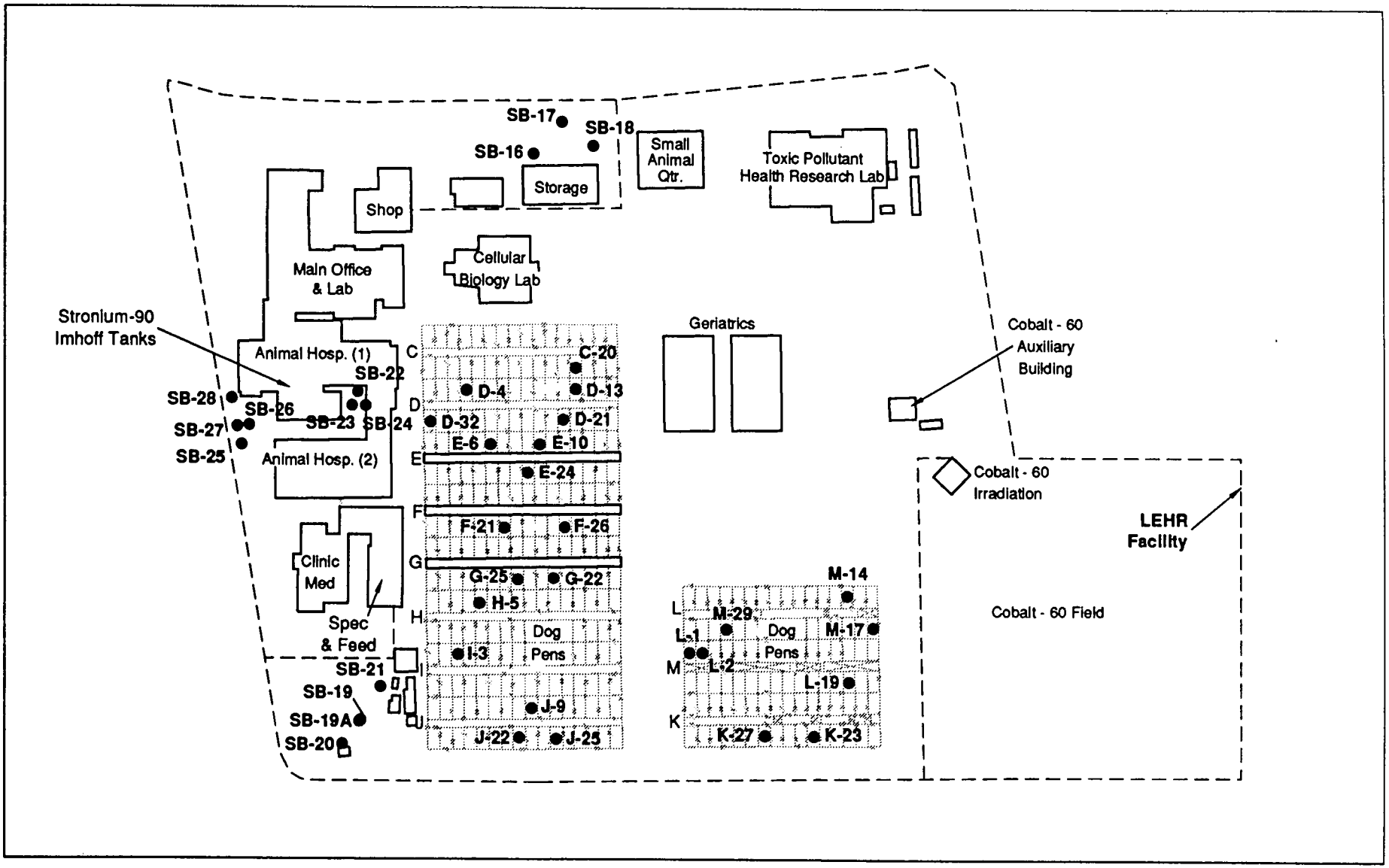
FIGURE C-2



EXPLANATION

● Soil Boring Locations

0 150
Scale in Feet

N

LOCATION MAP OF DEEP, INTERMEDIATE AND SHALLOW SOIL BORINGS AT LEHR

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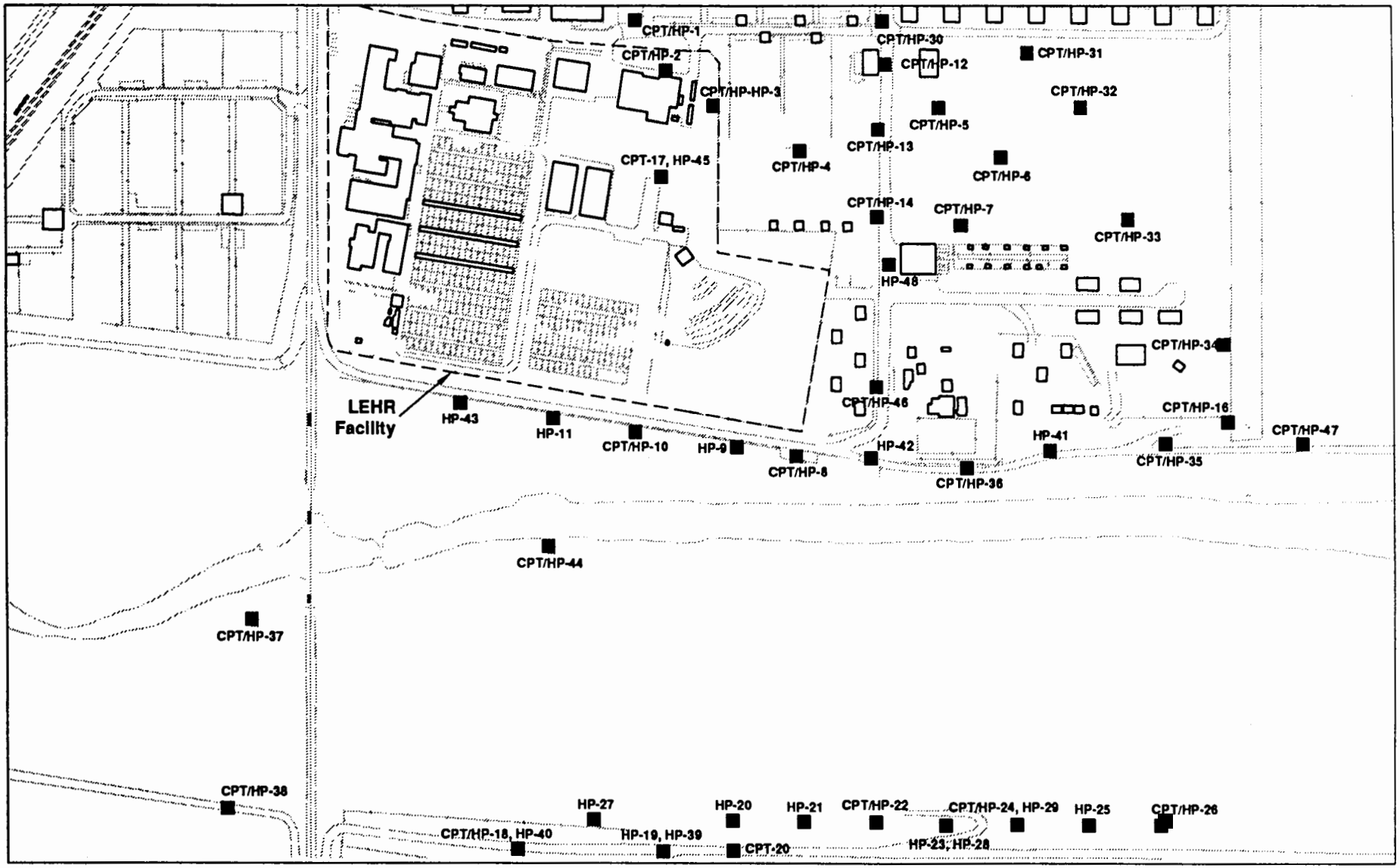
FIGURE C-3



EXPLANATION

■ CPT/Hydropunch Location

CPT/HP-1 Through 29 First Round

CPT/HP-30 Through 48 Second Round

0 300
Scale in Feet

N

PLOT PLAN SHOWING LOCATIONS OF CPT/HYDROPUNCH

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FIGURE C-4

APPENDIX C
SECTION 1

WAHLER ASSOCIATES
SOIL BORING LOGS AND
MONITORING WELL INSTALLATION LOGS

PHASE II SITE CHARACTERIZATION
LEHR ENVIRONMENTAL RESTORATION

BORING LOCATION			GROUND EL.
DEPTH/ELEV. WATER Not encountered	DRILL CONTRACTOR P.C. Exploration		TOTAL DEPTH 11.5
DRILL RIG Mobile B-53	BORING DIA. 8.0"	DATE DRILLED 10-14-87	LOGGED BY D.J.L.

SOIL CLASS.	DESCRIPTION	DEPTH	SAMPLE NO.	PR / ROD	REC.	MODE	REMARKS
GP	0.0-0.5 GRAVEL: coarse	0.0				HA	at site 12:40 Drilling 12:53 Advancing hole with 8.0" hollow stem augers. Sampling with a 2.0" I.D. split spoon (S.S.) sampler, driven by a 140 lb. wire-line hammer, free-falling ~30 in. per blow
SM	0.5-5.5 SILTY SAND: Dk yel. brn; ~40-50% fines, non plastic, ~40-50% sand; fine-grained; loose; slightly damp.	2.0	B-1	3, 3, 3	1.5, 1.5	DR	
		4.0				HA	
SP	5.5-8.0 SAND: Dk yel. brn; <10% fines; >90% sand, fine-grained; loose; slightly moist.	6.0	B-2	5, 5, 5	1.5, 1.5	DR	5.0-6.5 Drove S.S.
CL	~8.0-11.5 SILTY CLAY: Dk yel brn to blk brn; >90% fines, higher plastic; <10% sand, fine-grained; gray clay stringers; stiff; damp.	8.0				HA	
	Bottom hole 11.5	10.0	B-3	4, 4, 6	1.5, 1.5	DR	10.0-11.5 Drove S.S. 11.5' - Terminated boring. Back-filled with 20% bentonite
		12.0					
		14.0					
		16.0					
		18.0					
		20.0					

Wahler Associates	UC DAVIS - LEHR	EXPLORATION BORING LOG	BORING NO.
		PROJECT NO. UCD 101 H / SHEET NO. 1 OF 1	SB-1

BORING LOCATION			GROUND EL.
DEPTH/ELEV. WATER Not encountered	DRILL CONTRACTOR P.C. Exploration		TOTAL DEPTH 11.5
DRILL RIG Mobile B-53	BORING DIA. 8.0"	DATE DRILLED 10-14-87	LOGGED BY G.J.S.

SOIL CLASS.	DESCRIPTION	DEPTH	SAMPLE NO.	PR / RQD	REC.	MODE	REMARKS
GP	0.0 - 0.5 GRAVEL : Coarse some silt	0.0				HA	At site 2:25 Advancing hole and sampling as in SB-1
GP-SM	0.5 - 4.0 SILT & GRAVEL Abandoned hole at 4.0'	2.0	No sample retained	10 / 13	0.2 / 1.5	DR	2.0 - 3.5 Drove S.S. * shoe jammed with large stone. No sample retained.
		4.0				HA	* Auger refusal at ~4.0'. Abandoned hole, moved ~1.5' forward & drilled SB-2A
		6.0					
		8.0					
		10.0					
		12.0					
		14.0					
		16.0					
		18.0					
		20.0					

Wahler Associates	UC DAVIS - LEHR	EXPLORATION BORING LOG	BORING NO. SB-2
		PROJECT NO. UCD 101 H	SHEET NO. 1 OF 1

BORING LOCATION			GROUND EL.
DEPTH/ELEV. WATER: Not encountered	DRILL CONTRACTOR: P.C. Exploration		TOTAL DEPTH: 26.5
DRILL RIG: Mobile B-53	BORING DIA.: 8.0"	DATE DRILLED: 10-14-87	LOGGED BY: P.F.S.

SOIL CLASS.	DESCRIPTION	DEPTH	SAMPLE NO.	PR / RQD	REC.	MODE	REMARKS
GP-SM	0.0-8.0 SILT & GRAVEL: coarse gravel, rounded; some silt also, unable to tell % gravel vs silt.	0.0				HA	3:01 Hole being advanced and sampled as in SB-1.
		2.0	No sample retained	6 / 6 / 8	0.1 / 1.5	DR	2.0-3.5 Drove S.S. * shoe acquired jammed with large cobble. No sample retained. Drilling very difficult.
		4.0				HA	
		6.0	B-1	11 / 15 / 13	0.2 / 1.5	DR	5.0-6.5 Drove S.S. * Drove easier, but no real sample retained. Moisture on sampler. - still drilling very hard
CL	~8.0-11.5 SILTY CLAY: Dk brn.; >90% fines, higher plasticity; <10% sand; charcoal streaks; firm to stiff; slightly moist. Bottom hole 11.5'	8.0				HA	- Drilling gets easier ~8.0
		10.0	B-2	4 / 3 / 8	1.5 / 1.5	DR	10.0-11.5 Drove S.S. Terminated boring at 11.5'. Back Fill hole with ~20% bentonite and cuttings.
		12.0					
		14.0					
		16.0					
		18.0					
		20.0					

Wahler Associates	UC DAVIS - LEHR	EXPLORATION BORING LOG	BORING NO.
		PROJECT NO.: UCD 101 H	SHEET NO.: 1 OF 1	SB-2A

SOIL CLASS.	DESCRIPTION	DEPTH	SAMPLE NO.	PR / ROD	REC.	MODE	REMARKS
GP	0.0-0.5 GRAVEL: coarse	0.0					On hole 8:40, start drilling 9:01
ML	0.5-6.0 SANDY SILT: DK brn; ~60-70% fines, non plastic; ~30-40% sand, fine-grained (some clean sand lenses); slight roots; stiff; damp.					HA	Drilling and sampling as in SB-1
		2.0	B-1	7 / 8 / 12	1.2 / 1.5	DR	2.0-3.5
		4.0				HA	
	5.6-6.0 sand lens		B-2	5 / 8 / 11	1.5 / 1.5	DR	5.0-6.5
ML-CL	6.0-12.0 SANDY CLAYEY SILT: DK brn to DK yel. brn; ~80-90% fines, low to med. plastic; ~10-20% sand, fine-grained.; critter holes; slight roots; stiff; damp.	6.0					
		8.0				HA	
	10.0-11.5 grading more clayey.	10.0	B-3	6 / 10 / 16	1.5 / 1.5	DR	10.0-11.5
CL	~12.0-26.5 SILTY CLAY: DK yel brn; >90% fines, med plastic; <10% sand, fine-grained; critter holes; charcoal streaks; very stiff to hard; damp.	12.0				HA	
		14.0					
		16.0	B-4	10 / 16 / 38	1.5 / 1.5	DR	15.0-16.5
		18.0				HA	← sampler probably over driven producing a higher blow count.
		20.0					20.0-21.5

Wahler Associates

UC DAVIS - LEHR

EXPLORATION BORING LOG

PROJECT NO. UCD 101 H

SHEET NO. 1 OF 2

BORING NO. SB-3

BORING LOCATION			GROUND EL.
DEPTH/ELEV. WATER	DRILL CONTRACTOR		TOTAL DEPTH
DRILL RIG	BORING DIA.	DATE DRILLED	LOGGED BY

SOIL CLASS.	DESCRIPTION	DEPTH	SAMPLE NO.	PR / ROD	REC.	MODE	REMARKS
	12.0 - 26.5 SILTY CLAY: (cont.)	20.0					20.0 - 21.5
CL	20.0 - 21.5 continued, very stiff silty clay, slight wht ppt.		B-5	12 17 33	1.5 / 1.5	DR	
		22.0				HA	
		24.0					
	25.0 - 26.5 more clayey, wht ppt.		B-6	19 23 31	1.5 / 1.5	DR	25.0 - 26.5' 9:55 Terminated boring at 26.5' Filled hole with grout.
	Bottom hole 26.5	26.0					
		28.0					
		30.0					
		32.0					
		34.0					
		36.0					
		38.0					
		40.0					

Wahler Associates	UC DAVIS - LEHR	EXPLORATION BORING LOG	BORING NO.
		PROJECT NO. UCD 101 H / SHEET NO. 2 OF 2	SB-3

BORING LOCATION			GROUND EL.
DEPTH/ELEV. WATER Not encountered	DRILL CONTRACTOR P.C. Exploration		TOTAL DEPTH 11.5
DRILL RIG Mobile B-53	BORING DIA. 8.0"	DATE DRILLED 10-14-87	LOGGED BY P.T.S.

SOIL CLASS.	DESCRIPTION	DEPTH	SAMPLE NO.	PR / RQD	REC.	MODE	REMARKS
GP	0.0-0.5 GRAVEL: coarse	0.0				HA	At site 4:00, drilling 4:07
SM	0.5-5.2 SILTY SAND: Dk yel brn; ~40-60% fines; ~40-60% sand, very fine-grained; some lenses of cleaner sand; medium dense; damp						Drilling and sampling as in SB-1.
		2.0	B-1	8 / 8 / 9	1.5 / 1.5	DR	2.0-3.5 Drove S.S.
		4.0				HA	
CL	5.2-11.5 SANDY SILTY CLAY: Dk brn; >90% fines; medium to higher plastic; <10% sand, fine-grained; some roots; stiff to very stiff; damp.	6.0	B-2	4 / 6 / 9	1.5 / 1.5	DR	5.0-6.5 Drove S.S.
		8.0				HA	
		10.0	B-3	8 / 10 / 13	1.5 / 1.5	DR	10.0-11.5 Drove S.S.
	Bottom hole 11.5'						Terminated boring at 11.5' Backfilled hole with ~20% bentonite and cuttings.
		12.0					
		14.0					
		16.0					
		18.0					
		20.0					

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Wahler Associates

UC DAVIS - LEHR

EXPLORATION BORING LOG

PROJECT NO. UCD 101 H

SHEET NO. 1 OF 1

BORING NO. SB-4

BORING LOCATION			GROUND EL.
DEPTH/ELEV. WATER Not encountered	DRILL CONTRACTOR PC Exploration		TOTAL DEPTH 11.5
DRILL RIG Mobile B-53	BORING DIA. 8.0"	DATE DRILLED 10-15-87	LOGGED BY G.J.S.

SOIL CLASS.	DESCRIPTION	DEPTH	SAMPLE NO.	PR / ROD	REC.	MODE	REMARKS
GP	0.0 - 0.5 GRAVEL: coarse	0.0				HA	8:07 Drilling and sampling as in SB-1.
SM	0.5 - 8.0 SILTY SAND: DK yel. brn; ~40% fines, non plastic; ~60% sand, fine- to medium-grained; slight roots; medium dense; damp.	2.0	No Sample	10 / 7 / 10	0.0 / 1.5	DR	2.0-3.5 Drove S.S.
		4.0	B-1	10 / 7 / 9	0.4 / 1.5	DR	3.5-5.0 Drove S.S.
	6.2 grading more clayey	6.0	B-2	3 / 4 / 3	1.5 / 1.5	DR	5.0-6.5 Drove S.S.
CL	~8.0 - 11.5 SILTY CLAY: DK brn; >90% fines, medium plastic; <10% sand, fine-grained; roots; charcoal; firm to stiff; damp to moist.	8.0				HA	
	Bottom hole 11.5'	10.0	B-3	7 / 6 / 5	1.5 / 1.5	DR	10.0-11.5 Drove S.S.
		12.0					8:32 Terminated boring at 11.5. Backfilled hole w/ ~20% bentonite powder and cuttings.
		14.0					
		16.0					
		18.0					
		20.0					

Wahler Associates	UC DAVIS — LEHR	EXPLORATION BORING LOG	BORING NO.
		PROJECT NO. UCD 101 H / SHEET NO. 1 of 1	SB-5

BORING LOCATION			GROUND EL.
DEPTH/ELEV. WATER Not encountered	DRILL CONTRACTOR P.C. Exploration		TOTAL DEPTH 11.5
DRILL RIG Mobile B-53	BORING DIA. 8.0"	DATE DRILLED 10-15-87	LOGGED BY G.J.S.

SOIL CLASS.	DESCRIPTION	DEPTH	SAMPLE NO.	PR / ROD	REC.	MODE	REMARKS
GP	0.0-0.5 GRAVEL: coarse	0.0					On hole 12:08, drilling 0:0
SM-ML	0.5-5.5 SANDY SILT: DK yel. brn.; ~60% fines, non to slightly plastic; ~40% sand, fine-grained; slight roots; firm; slightly damp to damp.					HA	Advancing hole and sampling as in SB-1
		2.0	B-1	5 / 5 / 5	1.3 / 1.5	DR	2.0-3.5 Drove S.S.
		4.0				HA	
ML-CL	5.5-11.5 CLAYEY SILT: DK. brn; ~90% fines; slight to medium plastic; ~10% sand, fine-grained; slight roots; firm to stiff; damp.		B-2	3 / 5 / 6	1.5 / 1.5	DR	5.0-6.5 Drove S.S.
		6.0					
		8.0				HA	
	10.0-11.5 grading to more clayey	10.0	B-3	6 / 9 / 12	1.5 / 1.5	DR	10.0-11.5 Drove S.S.
	Bottom hole 11.5'						Terminated boring at 11.5'. 12:50 Back filled hole with ~20% bentonite powder and cuttings
		12.0					
		14.0					
		16.0					
		18.0					
		20.0					

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Wahler Associates	UC DAVIS - LEHR	EXPLORATION BORING LOG	BORING NO.
		PROJECT NO. UCD 101 H / SHEET NO. 1 OF 1	SB-6

BORING LOCATION			GROUND EL.
DEPTH/ELEV. WATER Not encountered	DRILL CONTRACTOR P.L. Exploration		TOTAL DEPTH 11.5
DRILL RIG Mobile B-53	BORING DIA. 8.0"	DATE DRILLED 10-15-87	LOGGED BY G.J.S.

SOIL CLASS.	DESCRIPTION	DEPTH	SAMPLE NO.	PR / ROD	REC.	MODE	REMARKS
GP	0.0-1.0 GRAVEL: coarse, rounded, some silt too.	0.0				HA	1:20 Drilling and sampling as in SB-1
GW	1.0-11.1 SANDY SILT / PEA GRAVEL: (Gravel-sand-silt mixture) back fill material(?)	2.0	No Sample	4 / 10 / 7	0.0 / 1.5	DR	2.0-3.5 Drove S.S. No recovery, tried sampling 3 times with no luck.
		4.0	B-1	4 / 8 / 11	1.5 / 1.5	DR	3.5-5.0 Drove S.S. w/ luck
			B-2	5 / 5 / 6	1.3 / 1.5	DR	5.0-6.5 Drove S.S.
		8.0				HA	
ML	11.1-11.5 CLAYEY SILT: Yel. brn; ~90% fines, slightly plastic 10% fine-grained sand; slight roots; stiff; damp. Bottom hole 11.5'	10.0	B-3	9 / 13 / 13	1.1 / 1.5	DR	10.0-11.5 Drove S.S. 1:50 Terminated boring at 11.5'. Backfilled hole with ~20% bentonite powder and cuttings.
		12.0					
		14.0					
		16.0					
		18.0					
		20.0					

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Wahler Associates	UC DAVIS - LEHR	EXPLORATION BORING LOG	BORING NO. SB-7
		PROJECT NO. UCD 101 H	SHEET NO. 1 OF 1

BORING LOCATION			GROUND EL.
DEPTH/ELEV. WATER Not encountered	DRILL CONTRACTOR P.C. Exploration		TOTAL DEPTH 11.5
DRILL RIG Mobile B-53	BORING DIA. 8.0"	DATE DRILLED 10-15-87	LOGGED BY G.J.S.

SOIL CLASS.	DESCRIPTION	DEPTH	SAMPLE NO.	PR / RQD	REC.	MODE	REMARKS
AC	0.0-0.3 ASPHALT	0.0					On hole 3:00, Drilling 3:10
GW	0.3-1.0 SANDY GRAVEL: base material					HA	Advancing hole and sampling as in SB-1
SM	1.0-7.5 SILTY SAND: Yel. brn; ~40% fines, non plastic; ~60% sand, very fine-grained; some roots; loose to medium dense; slightly damp	2.0	B-1	5 / 6 / 6	1.5 / 1.5	DR	2.0-3.5 Drove S.S.
		4.0				HA	
	5.0-6.5 slightly more fines 6.4' large root		B-2	3 / 4 / 4	1.5 / 1.5	DR	5.0-6.5 Drove S.S.
ML-CL	~7.5-11.5 CLAYEY SILT: DK brn; >90% fines, low plastic; <10% sand, fine-grained; slight roots; stiff to very stiff; damp	8.0				HA	
		10.0	B-3	7 / 18 / 24	1.5 / 1.5	DR	10.0-11.5 Drove S.S. 3:40
	Bottom hole 11.5'	12.0					Terminated doring at 11.5'. Back filled hole with ~20% bentonite powder and the cuttings.
		14.0					
		16.0					
		18.0					
		20.0					

Wahler Associates	UC DAVIS - LEHR	EXPLORATION BORING LOG		BORING NO.
		PROJECT NO. UCD 101 H	SHEET NO. 1 OF 1	SB-8

BORING LOCATION			GROUND EL.
DEPTH/ELEV. WATER Not encountered	DRILL CONTRACTOR P.C. Exploration		TOTAL DEPTH 11.5'
DRILL RIG Mobile B-53	BORING DIA. 8.0"	DATE DRILLED 10-15-87	LOGGED BY P.J.S.

SOIL CLASS.	DESCRIPTION	DEPTH	SAMPLE NO.	PR / RQD	REC.	MODE	REMARKS
AC	0.0 - 0.3 ASPHALT:	0.0				HA	On hole 8:10, drilling 8:20 Drilling and sampling as in SB-1.
GW	0.3 - 1.0 SANDY GRAVEL: base material						
SM	1.0 - SILTY SAND: DK yel. brn; ~40-60% fines, nonplastic; ~40-60% sand, fine- to medium-grained, lenses of cleaner sand locally; slight roots; loose; slightly damp.	2.0	B-1	3 / 4 / 5	1.5 / 1.5	DR	2.0 - 2.5 Drove S.S.
		4.0				HA	
			B-2	4 / 5 / 7	1.5 / 1.5	DR	5.0 - 6.5 Drove S.S.
ML	5.9 - 11.5 CLAYEY SILT DK brn; >90% fines; slight to medium plastic; <10% sand, very fine-grained; bioturbation; very stiff; damp.	6.0					
		8.0				HA	
	10.0 - 11.5 grading more clayey	10.0	B-3	9 / 10 / 17	1.2 / 1.5	DR	10.0 - 11.5 Drove S.S.
	Bottom hole 11.5'	12.0					Terminated boring at 11.5'. Back filled hole with ~20% bentonite powder and cuttings. 8:50
		14.0					
		16.0					
		18.0					
		20.0					

Wahler Associates

UC DAVIS - LEHR

EXPLORATION BORING LOG

PROJECT NO. UCD 101 H

SHEET NO. 1 OF 1

BORING NO. SB-9

BORING LOCATION			GROUND EL.
DEPTH/ELEV. WATER Not encountered	DRILL CONTRACTOR P.C. Exploration		TOTAL DEPTH 20.0
DRILL RIG Mobile B-53	BORING DIA. 8.0"	DATE DRILLED 10-16-87	LOGGED BY P.J.S.

SOIL CLASS.	DESCRIPTION	DEPTH	SAMPLE NO.	PR / RQD	REC.	MODE	REMARKS
AC	0.0 - 0.3 ASPHALT	0.0				HA	On hole 9:08, drilling 9:17
SM	0.3 - 5.6 SANDY SILT with GRAVEL: Dk. yel. brn; ~60% fines, non plastic; ~30% sand, fine- to coarse-grained; ~10% fine gravel; slight roots; loose; slightly damp.						Advancing hole and sampling as in SB-1
		2.0	B-1	4 / 3 / 4	1.5 / 1.5	DR	2.0 - 3.5 Drove S.S.
		4.0				HA	
			B-2	2 / 3 / 4	1.3 / 1.5	DR	5.0 - 6.5 Drove S.S.
GM	5.6 - 10.7 SANDY GRAVEL: Pea gravel backfill	6.0					
		8.0				HA	
		10.0	B-3	3 / 7 / 11	1.5 / 1.5	DR	10.0 - 11.5 Drove S.S. 9:40 1:35
ML-CL	10.7 - 20.0 CLAYEY SILT: Dk brn; >90% fines, med. plastic; <10% sand, fine-grained; critter holes (pin holes) slight Fe staining; very stiff; damp.	12.0				HA	[redacted]
	15.0 - grading more clayey	14.0					15.0 - 16.5 Drove S.S.
		16.0	B-4	4 / 8 / 10	1.5 / 1.5	DR	[redacted]
		18.0				HA	
	18.5' slightly sandy		B-5	11 / 18 / 23	1.5 / 1.5	DR	18.5 - 20.0 Drove S.S. Terminated boring at 20.0'. Backfilled hole with grout.
	Bottom hole 20.0'	20.0					

Wahler Associates	UC DAVIS - LEHR	EXPLORATION BORING LOG	BORING NO. SB-10
		PROJECT NO. UCD 101 H	SHEET NO. 1 OF 1

BORING LOCATION			
DEPTH/ELEV. WATER Not encountered	DRILL CONTRACTOR P.C. Exploration		GROUND EL.
DRILL RIG Mobile B-53	BORING DIA. 8.0"	DATE DRILLED 10-16-87	TOTAL DEPTH 11.5
			LOGGED BY P.J.S.

SOIL CLASS.	DESCRIPTION	DEPTH	SAMPLE NO.	PR / ROD	REC.	MODE	REMARKS
SM	0.0 - 5.2 SILTY SAND: DK yel brn; ~40-50 % fines, non plastic; ~40-50 % sand, fine-grained, lenses of clean sand locally; roots; critter holes; loose; damp.	0.0				HA	On hole 10:05, drilling 10:20 Advancing hole and sampling as in SB-1.
		2.0	B-1	4 / 5 / 5	1.5 / 1.5	DR	2.0 - 3.5 Drove S.S. * NOTE: Dog pan row A.
		4.0				HA	
ML	5.2 - 8.0 CLAYEY SILT: DK yel brn to dk. brn.; ~90% fines, slight to med. plastic; ~10 % sand, very fine grained, roots; soft to firm; damp.	6.0	B-2	2 / 2 / 2	1.5 / 1.5	DR	5.0 - 6.5 Drove S.S.
CL	~8.0 - 11.5 SANDY SILTY CLAY: DK brn; ~85 % fines, med plastic; ~15 % sand, very fine-grained; roots; very stiff to hard; damp.	8.0				HA	
	Bottom hole 11.5'	10.0	B-3	10 / 15 / 20	1.5 / 1.5	DR	10.0 - 11.5 Drove S.S. 10:40 Terminated boring at 11.5'. Backfilled hole with ~20 % bentonite powder and cuttings.
		12.0					
		14.0					
		16.0					
		18.0					
		20.0					

[redacted]

Wahler Associates	UC DAVIS - LEHR	EXPLORATION BORING LOG	BORING NO.
		PROJECT NO. / SHEET NO.	SB-11

BORING LOCATION			GROUND EL.
DEPTH/ELEV. WATER Not encountered	DRILL CONTRACTOR P.C. Exploration		TOTAL DEPTH 20.0
DRILL RIG Mobile B-53	BORING DIA. 8.0"	DATE DRILLED 10-16-87	LOGGED BY P.J.S.

SOIL CLASS.	DESCRIPTION	DEPTH	SAMPLE NO.	PR / ROD	REC.	MODE	REMARKS
AC	0.0 - 0.3 ASPHALT:	0.0				HA	On hole 11:50 Drilling 12:06 Advancing hole and sampling as in SB-1.
GW	0.3 - 0.8 SANDY GRAVEL: base material						
SM	0.8 - 6.0 SILTY SAND: Dk. yel. brn.; ~50% fines, non plastic; ~50% sand; fine-grained; bioturbation; roots; loose; damp.	2.0	B-1	4 / 5 / 6	1.5 / 1.5	DR	2.0-3.5 Drove S.S.
		4.0				HA	
		6.0	B-2	3 / 4 / 5	1.5 / 1.5	DR	5.0-6.5 Drove S.S.
CL	~8.0 - 13.0 SILTY CLAY: Dk yel. brn.; >90% fines, medium plastic; <10% sand, fine-grained (sporadic coarse); some wht ppt; abundant decomposing roots; very stiff;	8.0				HA	
		10.0	B-3	8 / 12 / 17	1.5 / 1.5	DR	10.0-11.5 Drove S.S.
CH	~13.0 - 20.0 CLAY: Greyish olive green; >95% fines, higher plastic; <5% sand, very fine-grained; heavily mottled with black decomposing organics; rotting smell; firm to hard; damp to moist.	12.0				HA	
		14.0					15.0-16.5 Drove S.S.
		16.0	B-4	2 / 3 / 5	1.5 / 1.5	DR	~16.0' rotting smell from cuttings.
		18.0				HA	12:45
	18.5' less organics, slight Fe staining.		B-5	5 / 18 / 31	1.5 / 1.5	DR	18.5-20.0 Drove S.S. Terminated boring at 20.0'. Backfilled hole with grout to surface
	Bottom hole 20.0'	20.0					

Wahler Associates	UC DAVIS - LEHR	EXPLORATION BORING LOG	BORING NO.
		PROJECT NO. UCD 101 H / SHEET NO. 1 OF 1	SB-12

BORING LOCATION			GROUND EL.
DEPTH/ELEV. WATER Not encountered	DRILL CONTRACTOR P.C. Exploration		TOTAL DEPTH 20.0
DRILL RIG Mobile B-53	BORING DIA. 8.0"	DATE DRILLED 10-19-87	LOGGED BY P.J.S.

SOIL CLASS.	DESCRIPTION	DEPTH	SAMPLE NO.	PR / ROD	REC.	MODE	REMARKS
AC	0.0-0.3 ASPHALT:	0.0					start drilling 1:16
GW	0.3-1.0 SANDY GRAVEL: Base material					HA	
SM	1.0-8.0 SILTY SAND: Dk brn; ~40% fines, non plastic; 60% sand, fine-grained; roots; loose; damp.	2.0	B-1	4	1.5 / 1.5	DR	2.0-3.5 Drove S.S.
			B-2	3			
			B-3	7			
	~5.0' grading ~60-70% fines, silty.	4.0				HA	
			B-4	4	1.5 / 1.5	DR	5.0-6.5 Drove S.S.
		6.0	B-5	3			
			B-6	7			
		8.0				HA	~7.0' Loss of cuttings for ~1.5' (some void at depth?)
CL	~8.0-20.0 SILTY CLAY: Dk yel. brn; ~90% fines, med. to higher plastic; ~10% sand, fine-grained; abundant roots (decomposing & charroaled); stiff to very stiff; damp to very moist.	10.0	B-7	4	1.5 / 1.5	DR	10.0-11.5 Drove S.S.
			B-8	12			
			B-9	13			
		12.0				HA	
		14.0					
	~15.0' moisture to moist to very moist.		B-10	5	1.5 / 1.5	DR	15.0-16.5 Drove S.S.
		16.0	B-11	5			
			B-12	6			
						HA	
		18.0					
CH	18.5-20.0 graded more clayey, olive gray (0% sand); damp		B-13	13	1.3 / 1.5	DR	18.5-20.0 Drove S.S. Terminated boring at 20.0'. Backfilled hole with grout. 2:15
			B-14	25			
	Bottom hole 20.0'	20.0	B-15	35			

Wahler Associates

UC DAVIS - LEHR

EXPLORATION BORING LOG		BORING NO.
PROJECT NO. UCD 101 H	SHEET NO. 1 OF 1	SB-13

BORING LOCATION			GROUND EL.
DEPTH/ELEV. WATER Not encountered	DRILL CONTRACTOR P.C. Exploration		TOTAL DEPTH 20.0
DRILL RIG Mobile B-53	BORING DIA. 8.0"	DATE DRILLED 10-20-87	LOGGED BY P.J.S.

SOIL CLASS.	DESCRIPTION	DEPTH	SAMPLE NO.	PR / RQD	REC.	MODE	REMARKS
AC	0.0-0.3 ASPHALT	0.0				HA	Start 8:40 Advancing hole and sampling as in SB-1
GW	0.3-0.8 SANDY GRAVEL						
SM	0.8-3.0 SILTY SAND: Dk brn; ~30% fines, non plastic; ~70% sand, fine-grained, poorly graded (some clean sand lenses); slight roots; loose; slightly damp.	2.0	B-1	4	1.4	DR	2.0-3.5 Drove S.S.
			B-2	2	1.5		
			B-3	7			
CL	3.0-15.0 SILTY CLAY: Dk yel brn; ~90% fines, med plastic; ~10% sand, very fine-grained; abundant organics (rotting and charcoaled roots); slight wht ppt.; stiff; damp to moist.	4.0				HA	
			B-4	3	0.9	DR	5.0-6.5 Drove S.S.
			B-5	6	1.5		
		6.0		8			~7.0' hit something very hard, possibly large cobble.
		8.0				HA	
	10.0-11.5', firm, more clayey, moist	10.0	B-6	7	1.5	DR	10.0-11.5 Drove S.S.
			B-7	8	1.5		
			B-8	9			
		12.0				HA	
	~14.0 grading more clayey, decrease in H_2O%.	14.0					
CL-CH	15.0-20.0 CLAY: Dk. yel. brn to olive gray; > 95% fines, higher plastic, high toughness. < 5% sand, very fine-grained; abundant organics; decomposing smell; slight caliche; very stiff to hard; slightly damp to damp.		B-9	5	1.5	DR	15.0-16.5 Drove S.S.
		16.0	B-10	5	1.5		
			B-11	11			~17.0' cutting now smell like nothing organics.
		18.0				HA	
			B-12	17	1.5	DR	18.5-20.0 Drove S.S. 9:55
			B-13	24	1.5		Terminated boring at 18.5'. Backfilled hole with grout.
	Bottom hole 20.0	20.0	B-14	40			

Wahler Associates	UC DAVIS - LEHR	EXPLORATION BORING LOG	BORING NO.
		PROJECT NO. UCD 101 H / SHEET NO. 1 OF 1	SB-14

BORING LOCATION			
DEPTH/ELEV. WATER: Not encountered	DRILL CONTRACTOR: P.C. Exploration		GROUND EL.
DRILL RIG: Mobile B-53	BORING DIA.: 8.0"	DATE DRILLED: 10-19-87	TOTAL DEPTH: 11.5'
			LOGGED BY: P.T.S.

SOIL CLASS.	DESCRIPTION
AC	0.0-0.3 ASPHALT
GW	0.3-1.0 SANDY GRAVEL: base material.
SM	1.0-4.0 SILTY SAND: DK yel brn.; ~40% fines, non plastic; ~60% sand, fine-grained; slight roots; loose to med dense; slightly damp.
SP	~4.0-8.0 SAND: Brownish to salt & pepper; <10% fines; >90% sand, fine-to coarse-grained, poorly graded, rounded to sub-angular; loose; dry.
CL	~8.0-11.5 SILTY CLAY: DK yel. brn.; >90% fines, med. plastic; <10% sand, fine grained; slight roots; very stiff to hard; bio turbation; slightly damp. Bottom hole 11.5'

DEPTH	SAMPLE NO.	PR/RQD	REC.	MODE	REMARKS
0.0				NA	On hole 11:55, drilling 12:10. Advancing hole and sampling as
2.0	B-1	5	1.5/1.5	DR	2.0-3.5 Drove S.S.
	B-2	6			
	B-3	10			
4.0				NA	
	B-4	5	1.5/1.5	DR	5.0-6.5 Drove S.S.
6.0	B-5	6			
	B-6	7			
8.0				NA	
10.0	B-7	11	1.3/1.5	DR	10.0-11.5 Drove S.S. 12:43
	B-8	18			
	B-9	25			
12.0					Terminated boring at 11.5' Backfilled hole with ~20% bentonite powder and cuttings.
14.0					
16.0					
18.0					
20.0					

Wahler Associates	UC DAVIS - LEHR	EXPLORATION BORING LOG	BORING NO.
		PROJECT NO.: UCD 101 H	SHEET NO.: 1 of 1
			SB-15

BORING LOCATION			GROUND EL.
DEPTH/ELEV. WATER	DRILL CONTRACTOR P.C. Exploration		TOTAL DEPTH 51.5
DRILL RIG Mobile B-53	BORING DIA. 8.0"	DATE DRILLED 10-21-87	LOGGED BY P.J.S.

SOIL CLASS.	DESCRIPTION	DEPTH	SAMPLE NO.	PR / ROD	REC.	MODE	REMARKS
AC	0.0-0.3 ASPHALT:	0.0				HA	start drilling 11:40 Advancing hole with 8.0" hollow stem augers. Sampling with a 2.0" ID split spoon (S.S.) sampler, driven by a 140 lb wire-line hammer, free-falling 30 in per blow.
GW	0.3-1.0 SANDY GRAVEL: Base material						
ML	1.0-5.5 SANDY SILT: Dk brn; ~60% fines, slightly plastic; ~40% sand, fine-grained; slightly organic; firm; damp.	2.0	B-1	4 / 8 / 6	1.0 / 1.5	DR	
		4.0				HA	2.0-3.5 Drove S.S.
SP	5.5-8.0 SAND: salt & pepper; <5% fines; >95% sand; fine-to coarse-grained, mostly fine; no organics; loose; damp. Probably back fill.	6.0	B-2	5 / 5 / 7	1.5 / 1.5	DR	5.0-6.5 Drove S.S. Bob Wharff - Driller Kevin Holt - Helper
ML-CL	8.0-17.5 SANDY CLAYEY SILT: Dk yel. brn; ~80-90% fines, med. plastic, mod. toughness; ~10-20% sand, very fine-grained; slight charcoal, bioturbation; stiff to very stiff; damp.	8.0				HA	
		10.0	B-3	5 / 7 / 10	1.5 / 1.5	DR	10.0-11.5 Drove S.S.
		12.0				HA	
		14.0					
	15.0-16.5 grading more clayey		B-4	6 / 12 / 15	1.5 / 1.5	DR	15.0-16.5 Drove S.S.
CL-CH	~17.5-28.0 SILTY CLAY: Mod. yel. brn. to orangish; >95% fines, med. to higher plastic, higher toughness; <5% sand, fine-grained; charcoal streaks;	18.0				HA	~17.0' Drilling action slightly harder, cuttings coming up in chunks
		20.0					20.0-21.5 Drove S.S.

Wahler Associates	UC DAVIS - LEHR	EXPLORATION BORING LOG		BORING NO.
		PROJECT NO. UCD 101 H	SHEET NO. 1 OF 3	SB-50

BORING LOCATION			GROUND EL.
DEPTH/ELEV. WATER	DRILL CONTRACTOR		TOTAL DEPTH
DRILL RIG	BORING DIA.	DATE DRILLED	LOGGED BY

SOIL CLASS.	DESCRIPTION	DEPTH	SAMPLE NO.	PR / RQD	REC.	MODE	REMARKS
CL-CH	17.5 - 28.0 SILTY CLAY: (cont.) hard; slightly damp.	20.0	B-5	14 / 20 / 22	1.5 / 1.5	DR	20.0 - 21.5 Drove S.S.
		22.0				HA	
		24.0					
	25.0 - 26.5 occational sand grains; Fe staining.	26.0	B-6	14 / 17 / 30	1.5 / 1.5	DR	25.0 - 26.5 Drove S.S. 12137
CL-SC	~28.0 - 45.5 SANDY CLAY / CLAYEY SAND: Mod. yel. brn. to mod. yel. orange; ~50% fines, low to medium plastic; ~50% sand, very fine- to fine-grained; lacks organics; very stiff to hard; slightly damp	28.0				HA	
		30.0	B-7	B / 14 / 25	1.5 / 1.5	DR	30.0 - 31.5 Drove S.S.
		32.0				HA	
		34.0					
	35.0 - 36.5 less sandy, more Fe staining; some olive gray stringers.	36.0	B-8	14 / 20 / 30	1.5 / 1.5	DR	35.0 - 36.5 Drove S.S. 1:00
		38.0				HA	
		40.0					40.0 - 41.5 Drove S.S.

Wahler Associates	UC DAVIS - LEHR	EXPLORATION BORING LOG	BORING NO.
		PROJECT NO. UCD 101 H / SHEET NO. 2 OF 3	SB-50

BORING LOCATION			GROUND EL.
DEPTH/ELEV. WATER	DRILL CONTRACTOR		TOTAL DEPTH
DRILL RIG	BORING DIA.	DATE DRILLED	LOGGED BY

SOIL CLASS.	DESCRIPTION	DEPTH	SAMPLE NO.	PR / RQD	REC.	MODE	REMARKS
SC-CL	28.0-45.5 SANDY CLAY - CLAYEY SAND: (cont.)	40.0					
	40.0-41.5 more sandy, abundant olive coloring, moist.		B-9	6 / 18 / 25	1.5 / 1.5	DR	40.0-41.5 Drove SS
		42.0				HA	* H2O @ ~43.0 when plug pulled from 45.0
	45.0-45.0 caliche, Fe banding	44.0					
SM	45.5-48.5 SILTY SAND: DK yel. brn with olive; ~10-20% fines, non plastic; ~80-90% sand, fine-grained, lenses of cleaner sand; medium to very dense; wet.	46.0	B-10	13 / 17 / 27	1.5 / 1.5	DR	45.0-46.5 Drove SS
	46.0-46.5 some Fe cemented nodules.	48.0				HA	~48.5' Driller says action getting hard
CL-CH	~49.5'-51.5 SILTY CLAY: Mod yel brn.; >95% fines, high plastic, high toughness; <5% sand, fine-grained; Fe staining hard; slightly damp.	50.0	B-11	14 / 26 / 34	1.5 / 1.5	DR	50.0-51.5 Drove SS
		52.0					
		54.0					
		56.0					
		58.0					
		60.0					

Wahler Associates

UC DAVIS - LEHR

EXPLORATION BORING LOG

PROJECT NO.	SHEET NO.	BORING NO.
UCD 101 H	3 of 3	USB-507

BORING LOCATION drill front of cage			GROUND EL.
DEPTH/ELEV. WATER not encountered	DRILL CONTRACTOR PC Exploration		TOTAL DEPTH 11.5
DRILL RIG portable	BORING DIA. 3½"	DATE DRILLED 10/15/87	LOGGED BY CW

SOIL CLASS	DESCRIPTION	DEPTH	SAMPLE NO.	PR / ROD	REC.	MODE	REMARKS
GP	0-1.0 GRAVEL: gray; dry; ¼-½" angular rill.	0.0				AD	0-11.5 drill w/ solid 3½" augers.
SP	1.0-4.0 SAND: tan; damp; very fine to med. grained; well sorted.	2.0	B-363	7	1.2	DR	2-3.5 - 2" cal. mod
			B-364	8			
			/	9	1.5		
CL	4.0-10.0 SILTY CLAY: brown; damp; med. plasticity; 70-80% fines, 20-30% sand.	4.0				AD	
			B-365	9	1.2	DR	5-6.5 - 2" cal. mod.
			B-366	10			
		6.0	/	11	1.5		
		8.0				AD	
SM	10.0-11.5 SANDY SILT: brown; damp; low plasticity; 70-80% fines, 20-30% fine sand.	10.0	B-367	6	1.2	DR	10-11.5 - 2" cal. mod
			B-368	8			
			/	10	1.5		
		12.0					BOH = 11.5'
		14.0					
		16.0					
		18.0					
		20.0					

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Wahler Associates	UC DAVIS - LEHR	EXPLORATION BORING LOG		BORING NO. D-2
		PROJECT NO. UCD 101 H	SHEET NO. 1 OF 1	

BORING LOCATION Front of CAGE

DEPTH/ELEV. WATER not encountered | DRILL CONTRACTOR PC Exploration | GROUND EL.

DRILL RIG Portable | BORING DIA. 3 1/2 | DATE DRILLED 10/14/87 | TOTAL DEPTH 11.5

LOGGED BY CW

SOIL CLASS.	DESCRIPTION	DEPTH	SAMPLE NO.	PR / RQD	REC.	MODE	REMARKS
GP	0-1.0 GRAVEL; gray; dry 1/4-1/2" angular, fill.	0.0					0-11.5 - drill w/ portable rig.
SP	1.0-5.5 SAND; tan; damp; very clean.					AD	
		2.0	B-345	5	1.1 / 1.5	DR	2-3.5 - 2" cal. mod.
			B-346	6			
			—	8			
		4.0				AD	
CL	5.5-11.0 SILTY CLAY; brown; damp; med. plasticity; abundant bioturbation holes.		B-347	6	1.2 / 1.5	DR	5-6.5 - 2" cal mod.
		6.0	B-348	8			
			—	10			
		8.0				AD	
		10.0	B-349	8	1.2 / 1.5	DR	10-11.5 - 2" cal mod.
			B-350	10			
			—	12			
SM	11.0-11.5 SILTY SAND; tan; moist; 40% fines, 60% fine sand.	12.0					BOH = 11.5
		14.0					
		16.0					
		18.0					
		20.0					

Wahler Associates

UC DAVIS - LEHR

EXPLORATION BORING LOG

PROJECT NO. UCD 101 H

SHEET NO. 1 OF 1

BORING NO. D-11

BORING LOCATION drill FRONT of CAGE			GROUND EL.
DEPTH/ELEV. WATER not encountered	DRILL CONTRACTOR PC Exploration		TOTAL DEPTH 11.5
DRILL RIG Portable	BORING DIA. 3/2	DATE DRILLED 10/14/87	LOGGED BY CW

SOIL CLASS.	DESCRIPTION	DEPTH	NO.	PR / RQD	REC.	MODE	REMARKS
GP	0-1.0 GRAVEL; gray; dry; 1/4-1/2" angular fill.	0.0					0-11.5 drill w/ solid 3½" auger w/ portable rig. Start 10-14-87 stop 4:30 " 10-15-87
SP	1.0-4.0 SAND; tan, dry; well sorted (clean).					AD	
		2.0	B-351	4	1.1		2-3.5 2" cal mod
			B-352	7		DR	
			—	9	1.5		
CL	4.0-11.0 SILTY CLAY; brown; damp; med. plasticity; abundant bioturbation.	4.0				AD	
			B-353	6	1.5		5-6.5 2" cal mod
		6.0	B-354	8	1.5	DR	
			—	10			
		8.0				AD	
		10.0	B-355	7			10-11.5 2" cal mod
			B-356	10		DR	
SM	11.0-11.5 SANDY SILT; brown; damp; 60-80% fines.		—	12	1.5		
		12.0					BOH 11.5
		14.0					
		16.0					
		18.0					
		20.0					

Wahler Associates

UC DAVIS - LEHR

EXPLORATION BORING LOG

PROJECT NO. UCD 101 H

SHEET NO. 1 of 1

BORING NO. D-22

BORING LOCATION drill front of CAGE			GROUND EL.
DEPTH/ELEV. WATER not encountered	DRILL CONTRACTOR PC Exploration		TOTAL DEPTH 11.5
DRILL RIG Portable	BORING DIA. 3½	DATE DRILLED 10/15/87	LOGGED BY CW

SOIL CLASS.	DESCRIPTION	DEPTH	SAMPLE NO.	PR / RQD	REC.	MODE	REMARKS
GP	0-1.0 GRAVEL: gray; dry; fill.	0.0				AD	0-11.5 drill w/ solid 3½" augers.
SP	1.0-5.5 SAND: brown; dry; medium grained; well sorted.	2.0	B-357	5	1.1	DR	2-3.5 - 2" cal. mod
			B-358	6	1.5		
			—	7			
		4.0				AD	
CL	5.5-10.5 SILTY CLAY: med. brown; damp; med. plasticity; 60-80% fines, 20-40% fine to med. sand.		B-359	6	1.1	DR	5-6.5 - 2" cal. mod.
		6.0	B-360	8	1.5		
			—	10			
		8.0				AD	
SM	10.5-11.5 SANDY SILT: tan; damp; 70% nonplastic fines, 30% fine sand	10.0	B-361	7	1.2	DR	10-11.5 - 2" cal mod
			B-362	8	1.5		
			—	9			
		12.0					BOH = 11.5'
		14.0					
		16.0					
		18.0					
		20.0					

Wahler Associates	UC DAVIS - LEHR	EXPLORATION BORING LOG	BORING NO.
		PROJECT NO. UCD 101 H / SHEET NO. 1 OF 1	D-24

BORING LOCATION drill front of cage			GROUND EL.
DEPTH/ELEV. WATER not encountered	DRILL CONTRACTOR PC Exploration		TOTAL DEPTH 11.5
DRILL RIG Portable	BORING DIA. 3½	DATE DRILLED 8/15/87	LOGGED BY CW

SOIL CLASS.	DESCRIPTION	DEPTH	SAMPLE NO.	PR / ROD	REC.	MODE	REMARKS
GP	0-1.0 GRAVEL; gray; dry; ¼-½" angular ci.	0.0				AD	0-11.5 drill w/ solid 3½" augers.
SP	1.0-6.0 SAND; brown; dry; 90% fine sand, 10% fines.	2.0	B-369	4	1.0 / 1.5	DR	2-3.5 - 2" cal. mod.
			B-370	4			
			/	5			
	well sorted sand	4.0				AD	
	Minor ¼" gravel - 3%		B-371	5	1.1 / 1.5	DR	5-6.5 - 2" cal. mod
			B-372	6			
			/	7			
CL	6.0-11.0 SILTY CLAY; brown; damp; med. plasticity; bioturbation.	8.0				AD	
		10.0	B-373	7	1.1 / 1.5	DR	10-11.5 - 2" cal. mod
			B-374	8			
			/	9			
SM	11.0-11.5 SANDY SILT; brown; damp; 70-80% fines, 20-30% fine sand.	12.0					BOH = 11.5'
		14.0					
		16.0					
		18.0					
		20.0					

Wahler Associates	UC DAVIS - LEHR	EXPLORATION BORING LOG		BORING NO.
		PROJECT NO. UCD 101 H	SHEET NO. 1 OF 1	E-30

BORING LOCATION drill front of CASE			GROUND EL.
DEPTH/ELEV. WATER not encountered	DRILL CONTRACTOR PE Exploration		TOTAL DEPTH 11.5
DRILL RIG Portable	BORING DIA. 3 1/2"	DATE DRILLED 10/16/87	LOGGED BY CWJ

SOIL CLASS.	DESCRIPTION	DEPTH	SAMPLE NO.	PR / ROD	REC.	MODE	REMARKS
GP	0-1.0 GRAVEL: gray; dry 1/4-1/2" fill.	0.0				AD	0-11.5 - drill w/ 50 " AUGERS
SP	1.0-4.0 SAND: tan; dry; well sorted; medium grained.	2.0	B-399	6	1.1 / 1.5	DR	2-3.5 - 2" cal. mod
			B-400	6			
			—	7			
CL	4.0-10.0 SILTY CLAY: brown; damp; med. plasticity;	4.0				AD	
			B-401	7	1.1 / 1.5	DR	5-6.5 - 2" cal. mod.
		6.0	B-402	7			
			—	8			
		8.0				AD	
SM	10-11.5 SANDY SILT: tan; damp; 80% fines, 20% sand	10.0	B-403	8	1.2 / 1.5	DR	10-11.5 - 2" cal. mod
			B-404	9			
			—	10			
		12.0					BOH = 11.5'
		14.0					
		16.0					
		18.0					
		20.0					

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EXPLORATION BORING LOG

PROJECT NO. UCD 101 H

SHEET NO. 1 OF 1

BORING NO. F-17

BORING LOCATION drill front of dog cage			GROUND EL.
DEPTH/ELEV. WATER not encountered	DRILL CONTRACTOR PC Exploration		TOTAL DEPTH 11.5
DRILL RIG Portable	BORING DIA. 3½	DATE DRILLED 10/16/87	LOGGED BY CW

SOIL CLASS.	DESCRIPTION	DEPTH	SAMPLE NO.	PR/RQD	REC.	MODE	REMARKS
GP	0-1.0 GRAVEL; gray; dry; ¼-½" fill.	0.0				AD	0-11.5 - drill w/ solid 3½" augers.
SP	1.0-6.0 SAND; brown; dry; 90% fine sand, 10% fines.	2.0	B-375	5	1.2		2-3.5 - 2" cal. mod.
			B-376	6	1.5	DR	
			—	7			
		4.0				AD	
			B-377	7	1.1		5-6.5 - 2" cal. mod.
			B-378	7	1.5	DR	
Cl	6.0-10.5 SILTY CLAY: brown; damp; med. plasticity; bioturbation.	6.0	—	9			
		8.0				AD	
		10.0	B-379	10	1.1		10-11.5 - 2" cal. mod.
			B-380	11	1.5	DR	
SM	10.5-11.5 SANDY SILT: brown; damp; 70-80% fines, 20-30% fine sand.		—	12			
		12.0					BOH = 11.5'
		14.0					
		16.0					
		18.0					
		20.0					

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Wahler Associates

UC DAVIS - LEHR

EXPLORATION BORING LOG

PROJECT NO.	SHEET NO.	BORING NO.
UCD 101 H	1 OF 1	G-6

BORING LOCATION drill front of cage			GROUND EL.
DEPTH/ELEV. WATER not encountered	DRILL CONTRACTOR PC Exploration		TOTAL DEPTH 11.5
DRILL RIG Portable	BORING DIA. 3½"	DATE DRILLED 10/6/87	LOGGED BY CW

SOIL CLASS.	DESCRIPTION	DEPTH	SAMPLE NO.	PR / RQD	REC.	MODE	REMARKS
GP	0-10 GRAVEL; gray; dry; ¼-½" fill.	0.0				AD	0-11.5 drill w/solid 3½" augers.
SP	10-60 SAND; tan; damp; 2% fines; well sorted.	2.0	B-393	5	1.1 / 1.5	DR	2-3.5 - 2" cal. mod.
			B-394	6			
			✓	7			
		4.0				AD	
			B-395	5	1.2 / 1.5	DR	5-6.5 - 2" cal. mod
			B-396	6			
			✓	8			
CL	6.0-10.0 SILTY CLAY; brown; damp; med. plasticity; bioturbation.	6.0					
		8.0				AD	
SM	10.0-11.5 SANDY SILT; brown; damp; 70-80% fines, 20-30% fine sand	10.0	B-397	8	1.1 / 1.5	DR	10-11.5 - 2" cal. mod
			B-398	10			
			✓	11			
		12.0					BOH = 11.5'
		14.0					
		16.0					
		18.0					
		20.0					

DATA ON THIS LOG ARE AN APPROXIMATION OF THE GEOLOGIC AND SUBSURFACE CONDITIONS INFERRED FROM THE INFORMATION THAT WAS OBTAINED FROM SUBSURFACE EXPLORATIONS, AND PARTIALLY INFERRED SUBSURFACE CONDITIONS RECONSTRUCTED BY USE OF SMALL-DIAMETER HOLES. INFERRED AND MORE GENERAL HOLES HAVE FURNISHED SUPPLICATIONS IN THIS BORING DEPENDENT OF THE BIAS TO THE DRILLING FLUID AND/OR CASING IN SMALLER HOLES.

THIS LOG DESCRIBES CONDITIONS IN THIS HOLE ONLY ON THE DATE DESCRIBED AND MAY NOT REPRESENT CONDITIONS AT OTHER LOCATIONS AND ON OTHER DATES. AND WATER LEVELS SHOWN ARE SUBJECT TO VARIATION.

THIS HOLE WAS DRILLED IN SUCH A WAY AS TO PROVIDE DATA PRIMARILY FOR DESIGN PURPOSES AND NOT NECESSARILY FOR THE PURPOSES OF GEOLOGIC CHARACTERIZATION.

THE STRATIFICATION LINES OR DEPTH INTERVALS REPRESENT THE APPROXIMATE BOUNDARIES BETWEEN MATERIAL TYPES, AND THE TRANSITIONS MAY BE GRADUAL.

SOIL CLASSIFICATIONS SHOWN ON LOGS ARE FIELD CLASSIFICATIONS BASED ON THE UNIFIED SOILS CLASSIFICATION SYSTEM.

Wahler Associates	UC DAVIS - LEHR	EXPLORATION BORING LOG		BORING NO.
		PROJECT NO. UCD 101 H	SHEET NO. 1 OF 1	G-15

BORING LOCATION drill FRONT of CAGE			GROUND EL.
DEPTH/ELEV. WATER not encountered	DRILL CONTRACTOR PC Exploration		TOTAL DEPTH 11.5
DRILL RIG Portable	BORING DIA. 3½	DATE DRILLED 10/16/87	LOGGED BY CW

SOIL CLASS.	DESCRIPTION	DEPTH	SAMPLE NO.	PR / ROD	REC.	MODE	REMARKS
GP	0-1.0 GRAVEL: tan; dry; ¼-½" fill.	0.0					0-11.5 - drill w/ solid 3½" augers
SP	1.0-8.0 SAND: tan; damp; very well sorted fine to med. grained sand.					AD	
		2.0	B-387	5	1.2		2-3.5 - 2" cal. mod.
			B-388	6			
			—	6	1.5	DR	
		4.0				AD	
			B-389	5	1.3		5-6.5 - 2" cal. mod.
			B-390	6			
		6.0	—	7	1.5	DR	
CL	8.0-10.0 SILTY CLAY: brown; damp; med. plasticity:	8.0				AD	
SM	10-11.5 SANDY SILT: yellow brown; damp; 70-80% fines, 20-30% sand	10.0	B-391	8	1.1		10-11.5 - 2" cal. mod
			B-392	9			
			—	10	1.5	DR	
		12.0					BOH = 11.5'
		14.0					
		16.0					
		18.0					
		20.0					

[redacted]

Wahler Associates

UC DAVIS - LEHR

EXPLORATION BORING LOG

PROJECT NO. UCD 101 H

SHEET NO. 1 OF 1

BORING NO. G-18

BORING LOCATION drill front of CAGE			GROUND EL.
DEPTH/ELEV. WATER not encountered	DRILL CONTRACTOR PC Exploration		TOTAL DEPTH 11.5
DRILL RIG Portable	BORING DIA. 3 1/2	DATE DRILLED 10/16/87	LOGGED BY CW

SOIL CLASS.	DESCRIPTION	DEPTH	SAMPLE NO.	PR / RQD	REC.	MODE	REMARKS
GP	0-1.0 GRAVEL: gray; dry; 1/4-1/2" fill.	0.0				AD	0-11.5 - drill w/ solid 3 1/2" augers.
SP	1.0-8.0 SAND: tan to brown; damp; well sorted.	2.0	B-381	5	1.2 / 1.5	DR	2-3.5 - 2" cal. mon.
			B-382	6			
			—	6			
		4.0				AD	
	WELL SORTED SAND		B-383	7	1.1 / 1.5	DR	5-6.5 - 2" cal. mon.
			B-384	9			
		6.0	—	10			
	GRAVEL.						
CL	8.0-10.0 SILTY CLAY: brown; damp; med. plasticity; bioturbation.	8.0				AD	
SM	10.0-11.5 SANDY SILT: yellow brown; damp; 70-80% fines; 20-30% fine sand.	10.0	B-385	10	1.2 / 1.5	DR	10-11.5 - 2" cal. mon.
			B-386	11			
			—	12			
		12.0					BOH = 11.5'
		14.0					
		16.0					
		18.0					
		20.0					

[redacted]

Wahler Associates	UC DAVIS - LEHR	EXPLORATION BORING LOG		BORING NO.
		PROJECT NO. UCD 101 H	SHEET NO. 1 OF 1	G-22

BORING LOCATION Drill back of Cage near leach ditch			GROUND EL.
DEPTH/ELEV. WATER not encountered	DRILL CONTRACTOR PC Exploration		TOTAL DEPTH 11.5
DRILL RIG Portable	BORING DIA. 8 1/2"	DATE DRILLED 10/13/87	LOGGED BY OW

SOIL CLASS.	DESCRIPTION	DEPTH	SAMPLE NO.	PR / RQD	REC	MODE	REMARKS
GP	0-1.5 GRAVEL: gray; dry; 1/4 to 1/2" crushed rock	0.0				AD	0-1.5 drill w/ 8 1/2" solid stem augers on a portable rig
SP	1.5-4.0 FINE SAND: med. brown; dry; very little fines.	2.0	B-321	8	1.0	DR	2-3.5 - 2" cal. mod.
			B-322	10			
			—	12	1.5		
CL	4.0-8.0 SILTY CLAY: med. brown; damp; med. plasticity; 60-70% fines 30-40% fine sand; worm or root holes.	4.0				AD	
			B-323	6	1.1	DR	5-6.5 - 2" cal. mod.
		6.0	B-324	8			
			—	10	1.5		
SM	8.0-11.5 SANDY SILT: med. brn.; damp; low plasticity; 70% fines, 30% fine sand.	8.0				AD	
		10.0	B-325	6	1.0	DR	10.0-11.5 2" Cal Mod
			B-326	8			
			—	9	1.5		
		12.0					BOH = 11.5'
		14.0					
		16.0					
		18.0					
		20.0					

[redacted]

Wahler Associates	UC DAVIS - LEHR	EXPLORATION BORING LOG		BORING NO.
		PROJECT NO. UCD 101 H	SHEET NO. 1 OF 1	H-17

BORING LOCATION Drill back of cage near beach ditch			GROUND EL.
DEPTH/ELEV. WATER not encountered	DRILL CONTRACTOR P.C. Exploration		TOTAL DEPTH 11.5
DRILL RIG Portable	BORING DIA. 3 1/2	DATE DRILLED 6/14/87	LOGGED BY CW

SOIL CLASS.	DESCRIPTION	DEPTH	SAMPLE NO.	PR / ROD	REC.	MODE	REMARKS
GP	0-1.0 GRAVEL; gray; dry; 1/4-1/2" angular fill.	0.0				AD	0-11.5 drill w/ portable rig.
SP	1.0-4.0 SAND; tan; damp; fine grained; clean.	2.0	B-339	6	1.1 / 1.5	DR	2-3.5 - Cal Mod 2" Sampler
			B-340	7			
			—	8			
CL	4.0-10.0 SILTY CLAY; brown; damp; med. plasticity 70% fines, 30% sand.	4.0				AD	
			B-341	7	1.1 / 1.5	DR	5.0-6.5 Cal mod.
			B-342	9			
		6.0	—	12			
		8.0				AD	
MS	10.0-11.5 SILTY SAND; brown; damp; 30-40% fines	10.0	B-343	8	1.1 / 1.5	DR	10.0-11.5 cal mod
			B-344	10			
			—	12			
		12.0					BOH = 11.5
		14.0					
		16.0					
		18.0					
		20.0					

Wahler Associates	UC DAVIS - LEHR	EXPLORATION BORING LOG	BORING NO.
		PROJECT NO. UCD 101 H / SHEET NO. 1 OF 1	H-32

BORING LOCATION: Drill back of CAGE NEAR Leach ditch			GROUND EL.
DEPTH/ELEV. WATER: not encountered	DRILL CONTRACTOR: PC Exploration		TOTAL DEPTH: 11.5
DRILL RIG: Portable	BORING DIA.: 3 1/2	DATE DRILLED: 10/13/87	LOGGED BY: dw

SOIL CLASS.	DESCRIPTION	DEPTH	SAMPLE NO.	PR / RQD	REC.	MODE	REMARKS
GP	0-1 GRAVEL: gray; dry; 1/2-3/4".	0.0				AD	
SP	1-4.0 SAND: tan; dry; very few fines.	2.0	B-333	6	1.0		VERY hard drilling 2.0-3.5 Cal Mod.
			B-334	8	1.5	DR	
			—	16			
CL	4.0-8.0 SILTY CLAY: brown; damp; med. plasticity;	4.0				AD	5.0-6.5 Cal Mod
			B-335	10	1.5		
			B-336	15	1.5	DR	
		6.0	—	21			
SM	8.0-11.5 SILTY SAND: tan; damp; 70% fines, 30-50% fine sand.	8.0				AD	stiff drilling
		10.0	B-337	5	1.5		10.0-11.5 Cal mod
			B-338	7	1.5	DR	
			—	10			
		12.0					BOH = 11.5'
		14.0					
		16.0					
		18.0					
		20.0					

Wahler Associates

UC DAVIS - LEHR

EXPLORATION BORING LOG

PROJECT NO.: UCD 101 H

SHEET NO.: 1 OF 1

BORING NO.: I-1

BORING LOCATION Drill back of cage near leaching ditch			GROUND EL.
DEPTH/ELEV. WATER not encountered	DRILL CONTRACTOR PC Exploration		TOTAL DEPTH 11.5
DRILL RIG Portable	BORING DIA. 3½"	DATE DRILLED 10-13-87	LOGGED BY CW

SOIL CLASS.	DESCRIPTION	DEPTH	SAMPLE NO.	PR / ROD	REC.	MODE	REMARKS
	0-1 GRAVEL: GRAY; dry ¼ to ½" base drain	0.0					
SM	1.0-4.0 SANDY SILT: MED. brown; damp; low plasticity 30% FINE SAND, 70% FINES					AD	
		2.0	B-315	4	1.0		2-3.5 - CAL MOD 2"
			B-316	6		DR	
			—	12	1.5		
CL	4.0-8.0 SILTY CLAY: MED. brown; damp; MED. plasticity; 60-70% FINES, 30-40% FINE SAND; abundant worm or root holes.	4.0				AD	
			B-317	8	1.1		5-6.5 - 2" CAL MOD
		6.0	B-318	9		DR	
			—	12	1.5		
SM	8.0-11.5 SANDY SILT: MED. brown; damp; low plasticity; 70% FINES, 30% FINE SAND.	8.0				AD	
		10.0	B-319	8	1.2		10-11.5 - 2" CAL MOD
			B-320	10		DR	
			—	12	1.5		
		12.0					Bottom of hole 11.5'
		14.0					
		16.0					
		18.0					
		20.0					

Wahler Associates

UC DAVIS - LEHR

EXPLORATION BORING LOG

PROJECT NO. UCD 101 H

SHEET NO. 1 OF 1

BORING NO. J-16

BORING LOCATION Front of dog pen			GROUND EL.
DEPTH/ELEV. WATER not encountered	DRILL CONTRACTOR PC Exploration		TOTAL DEPTH 11.5
DRILL RIG Portable	BORING DIA. 3 1/2"	DATE DRILLED 10-13-87	LOGGED BY CW

SOIL CLASS.	DESCRIPTION	DEPTH	SAMPLE NO.	PR / RQD	REC.	MODE	REMARKS
GP	0-1 GRAVEL; gray; dry; 1/4 to 1/2"	0.0					0-11.5 drill w/ portable 3 1/2" solid auger
SP	1.0-2.5 FINE SAND; med. brown; dry; clean.					AD	
		2.0	B-327	6	1.1		2-3.5 2" CAL. mod
			B-328	8		DR	
			—	10	1.5		
Ch	2.5-10.0 SILTY CLAY; med-dark brn; damp; med. plasticity; 70% fines 30% fine sand.	4.0				AD	
			B-329	6	1.2		5-6.5 2" CAL mod
			B-330	9		DR	
		6.0	—	12	1.5		
		8.0				AD	
ML	10.0-11.5 CLAYEY SILT; brown; very damp; med. plasticity, 80% fines.	10.0	B-331	5	1.5		10.0-11.5 Cal Mod
			B-332	6		DR	
			—	7	1.5		
		12.0					BOH 11.5'
		14.0					
		16.0					
		18.0					
		20.0					

Wahler Associates

- UC DAVIS - LEHR -

EXPLORATION BORING LOG

PROJECT NO. UCD 101 H

SHEET NO. 1 OF 1

BORING NO. J-22

BORING LOCATION: Dog Cages			GROUND EL.
DEPTH/ELEV. WATER: not encountered	DRILL CONTRACTOR: PC Exploration		TOTAL DEPTH: 11.5
DRILL RIG: Portable	BORING DIA.: 3 1/2"	DATE DRILLED: 10-12-87	LOGGED BY: [illegible]

SOIL CLASS.	DESCRIPTION	DEPTH	SAMPLE NO.	PR / RQD	REC.	MODE	REMARKS
GP	0-2.5 SANDY GRAVEL: med. brn; dry; 30% very fine sand, 70% gravel.	0.0				AD	0 - Pattern portable [illegible]
SM	0.5-11.5 FINE SANDY SILT: brown; damp; 30% fine sand, 70% silt.	2.0	B-300	9	1.5	DR	2-3.5 - [illegible]
			B-301	9	1.5		
			B-302	8			
		4.0				AD	
			B-303	6	1.0	DR	5-6.5 - [illegible]
			B-304	9	1.5		
		6.0		15			
	increasing clayey fines	8.0				AD	
		10.0	B-305	6	1.5	DR	10.0 - 11.5 [illegible]
			B-306	12	1.5		
			B-307	18			
		12.0					Bottom - Plate at 11.5'
		14.0					
		16.0					
		18.0					
		20.0					

Wahler Associates

UC DAVIS - LEHR

EXPLORATION BORING LOG

PROJECT NO.: UCD 101 H

SHEET NO.: 1 OF 1

K-25

BORING LOCATION	Dog Cages		GROUND EL.
DEPTH/ELEV. WATER	not encountered	DRILL CONTRACTOR P.C. Exploration	TOTAL DEPTH 115
DRILL RIG Portable	BORING DIA. 3½"	DATE DRILLED 10-12-87	LOGGED BY CW

SOIL CLASS.	DESCRIPTION	DEPTH	SAMPLE NO.	PR/RQD	REC.	MODE	REMARKS
GP	0-1.0 GRAVEL; brn.; dry; very little fines.	0.0				AD	0 - Drill w/ portable drilling
SM	1.0 - SANDY SILT; med. brown; damp; 30% fine sand, 70% fines.	2.0	B-308	5	1.0	DR	2-3.5 - Cal Mod 2" sampler
			B-309	7			
			—	9	1.5		
		4.0				AD	
			B-310	7	1.0	DR	5.0-6.5 Cal Mod
			B-311	8			
		6.0	—	10	1.5		
	increasing fines	8.0				AD	
		10.0	B-312	7	1.5	DR	10.0-11.5 Cal Mod
			B-313	8			
			B-314	9	1.5		
		12.0					Bottom of hole 11.5
		14.0					
		16.0					
		18.0					
		20.0					

Wahler Associates

UC DAVIS - LEHR

EXPLORATION BORING LOG

PROJECT NO. UCD 101 H

SHEET NO. 1 of 1

BORING NO. M-31

BORING LOCATION DOE Trench Area

DEPTH/ELEV. WATER not encountered | DRILL CONTRACTOR HEW | GROUND EL.

DRILL RIG CME 75 | BORING DIA. 8" | BASE DRILLED 9/05/88 | TOTAL DEPTH 20' | LOGGED BY [illegible]

SOIL CLASS.	DESCRIPTION	DEPTH	SAMPLE NO.	PR/BLOW	REC.	MODE	REMARKS
SC	0-20.0 CLAYEY SAND; brown, damp; 20-30% slightly plastic FINES; 70-80% FINE SAND, medium dense	0				HA	[illegible]
		2	TR-1	2 2 4	1.5/1.5	DR	[illegible]
	4-5 FINE SAND well sorted						
		4				HA	
		6	TR-2	2 5 6	1.5/1.5	DR	
		8				HA	
	10-12 VERY FINE SAND, color changed to yellow brown.	10	TR-3	2 3 5	1.5/1.5	DR	
		12				HA	
		14					
	occasional worm hole.	16	TR-4	2 4 5	1.5/1.5	DR	
		18				HA	[illegible]
		20	TR-5	2 3 11	1.5/1.5	DR	

Boring Terminated at 20'

Wahler Associates

UC DAVIS - LEHR

EXPLORATION BORING LOG

PROJECT NO. UCD 101 H | SHEET NO. 1 OF 1 | BORING NO. T-1

BORING LOCATION: LEHR			GROUND EL.
DEPTH/ELEV. WATER: not encountered	DRILL CONTRACTOR: HEW		TOTAL DEPTH: 20
DRILL RIG: CME 75	BORING DIA.: 8"	DATE DRILLED: 9/25/88	LOGGED BY: [illegible]

SOIL CLASS.	DESCRIPTION	DEPTH	SAMPLE NO.	BR/MOD	REC	MODE	REMARKS
SC	0-20.0 CLAYEY SAND; tan, damp; 20-30% slightly plastic FINES; medium dense	0				HA	0-20 SEE REMARKS [illegible]
		2	TR-6	2 3 4	15/15	DR	
	3-4.5 well sorted fine SAND	4				HA	
		6	TR-7	2 4 10	15/15	DR	
		7				HA	
	Occational worm tube	10	TR-8	1 5 7	15/15	DR	
		12				HA	
		14					
	[illegible]	16	TR-9	1 2 4	15/15	DR	
		18				HA	
		20	TR-10	3 8 12	15/15	DR	

BOH 20'

Walter Associates | UC DAVIS - LEHR | EXPLORATION BORING LOG | PROJECT NO. UCD 101 H | SHEET NO. 1 OF 1 | T-2

BORING LOCATION LEHR			GROUND EL.
DEPTH/ELEV. WATER not encountered	DRILL CONTRACTOR HEW		TOTAL DEPTH 20
DRILL RIG CME 75	BORING DIA. 8"	DATE DRILLED 4-25-88	LOGGED BY CW

SOIL CLASS.	DESCRIPTION	DEPTH	SAMPLE NO.	PR / ROD	REC.	MODE	REMARKS
SC	0-2.5 CLAYEY SAND: brown; damp; 20-30% slightly plastic fines, 70-80% fine sand, medium dense.	0				HA	0-20 SEE REMARKS T-1
		2	TR-11	6 7 8	1.5 / 1.5	DR	
SP	2.5-7.0 SAND; tan; dry; fine grained; medium dense; well sorted.	4				HA	
		6	TR-12	6 7 8	1.5 / 1.5	DR	
SC	7.0-20.0 CLAYEY SAND: brown; damp; 20-30% slightly plastic fines; medium dense; 70-80% fine sand.	8				HA	
		10	TR-13	3 6 9	1.5 / 1.5	DR	
	occational worm holes	12				HA	
		14					
		16	TR-14	3 4 6	1.5 / 1.5	DR	
		18				HA	
		20	TR-15	3 6 9	1.5 / 1.5	DR	BOH - 20'

Wahler Associates

UC DAVIS - LEHR

EXPLORATION BORING LOG

PROJECT NO. UCD 101 H

SHEET NO. 1 of 1

BORING NO. T-3

BORING LOCATION LEHR			GROUND EL. —
DEPTH/ELEV. WATER not encountered	DRILL CONTRACTOR HEW		TOTAL DEPTH 20
DRILL RIG CME75	BORING DIA. 8"	DATE DRILLED 4-25-88	LOGGED BY CW

SOIL CLASS.	DESCRIPTION	DEPTH	SAMPLE NO.	PR / ROD	REC.	MODE	REMARKS
SC	0-20.0 CLAYEY SAND; brown; damp; 20-30% slightly plastic FINES, 70-80% FINE SAND; loose to medium dense.	0				HA	0-20 SEE REMARKS T-1
		2	TR-16	4 4 4	1.5 / 1.5	DR	
	4-4.5 FINE SAND, well sorted	4				HA	
	6-6.5 CLEAN FINE SAND	6	TR-17	2 2 4	1.5 / 1.5	DR	
		8				HA	
		10	TR-18	3 6 10	1.5 / 1.5	DR	
SC	INCREASING FINES	12				HA	
	OCCASIONAL WORM HOLES	14					
	1/8" diameter worm hole	16	TR-19	6 10 12	1.5 / 1.5	DR	
		18				HA	
		20	TR-20	6 12 14	1.5 / 1.5	DR	BOH 20'

Wahler Associates

UC DAVIS - LEHR

EXPLORATION BORING LOG

PROJECT NO. UCD 101 H

SHEET NO.

BORING NO. T-4

BORING LOCATION LEHR			GROUND EL. —
DEPTH/ELEV. WATER not encountered	DRILL CONTRACTOR HEW		TOTAL DEPTH 20'
DRILL RIG CME-75	BORING DIA. 8"	DATE DRILLED 4-25-88	LOGGED BY CW

SOIL CLASS.	DESCRIPTION	DEPTH	SAMPLE NO.	PR / ROD	REC.	MODE	REMARKS
GP	0—1.0 GRAVEL; gray; dry; dense; 1/4-1" base.	0				HA	0-20 SEE REMARKS T-1
SP	1.0-12.0 SAND; tan; dry loose; well sorted.	2	TR-21	3 4 5	1.5 / 1.5	DR	
	3.0 color changed to yellowbrown						
		4				HA	
	Clean fine to very fine sand layers with frequent biturbation	6	TR-22	2 3 5	1.5 / 1.5	DR	
		8				HA	
	1-2% 1/8" gravel	10	TR-23	5 12 14	1.5 / 1.5	DR	
SC	12.0 -20.0 CLAYEY SAND; tan; damp; 20-30% plastic fines, 70-80% fine sand; medium dense	12				HA	
		14					
		16	TR-24	3 6 12	1.5 / 1.5	DR	
		18				HA	
	increasing fines						
	biturbation pervasive	20	TR-25	6 10 12	1.5 / 1.5	DR	BOH 20'

Wahler Associates	UC DAVIS - LEHR	EXPLORATION BORING LOG		BORING NO.
		PROJECT NO. UCD 101 H	SHEET NO. 1 OF 1	T-5

BORING LOCATION LEHR			GROUND EL.
DEPTH/ELEV. WATER not encountered	DRILL CONTRACTOR HEW		TOTAL DEPTH 20
DRILL RIG CME 75	BORING DIA. 8"	DATE DRILLED 4-25-88	LOGGED BY EW

SOIL CLASS.	DESCRIPTION	DEPTH	SAMPLE NO.	PR / RQD	REC.	MODE	REMARKS
SC	0-20.0 CLAYEY SAND; brown; damp; 20-30% plastic fines, 70-80% fine sand; loose.	0				HA	0-20 SEE T-1 REMARKS
		2	TR-26	1 2 4	1.5 / 1.5	DR	
		4				HA	
	5-5.5 CLEAN FINE SAND 6.5-7 CLEAN FINE SAND	6	TR-27	3 4 5	1.5 / 1.5	DR	
		8				HA	
	~~Abundant~~ worm holes	10	TR-28	3 10 12	1.5 / 1.5	DR	
		12				HA	
		14					
	increasing fines	16	TR-29	2 5 9	1.5 / 1.5	DR	
		18				HA	
		20	TR-30	6 10 12	1.5	DR	

Wahler Associates	UC DAVIS - LEHR	EXPLORATION BORING LOG		BORING NO.
		PROJECT NO. UCD 101 H	SHEET NO. 1 OF 1	T-6

BORING LOCATION LEHR			GROUND EL.
DEPTH/ELEV. WATER not encountered	DRILL CONTRACTOR HEW		TOTAL DEPTH 20'
DRILL RIG CME 75	BORING DIA. 8"	DATE DRILLED 4-26-88	LOGGED BY CW

SOIL CLASS.	DESCRIPTION	DEPTH	SAMPLE NO.	PR / ROD	REC.	MODE	REMARKS
AC	0-0.2 - ASPHALT	0				HA	0-20 SEE REMARKS T-1
BASE	0.2-0.6 - BASE ROCK						
SP	0.6-9.0 SAND: tan to brown; damp; loose; well sorted.	2	TR-31	3 6 8	1.5 / 1.5	DR	
		4				HA	
	loose well sorted sand	6	TR-32	3 4 4	1.5 / 1.5	DR	
		8				HA	
SC	9.0- CLAYEY SAND: tan; damp; loose; 20-30% plastic to slightly plastic fines, 70-80% fine sand, minor silt; abundant worm holes.	10	TR-33	3 5 8	1.5 / 1.5	DR	
		12				HA	
		14					
		16	TR-34	3 7 10	1.5 / 1.5	DR	
		18				HA	
		20	TR-35	6 14 19	1.5 / 1.5	DR	BOH 20'

Wahler Associates	UC DAVIS - LEHR	EXPLORATION BORING LOG	BORING NO. T-7
		PROJECT NO. UCD 101 H	SHEET NO. 1 of 1

BORING LOCATION LEHR			GROUND EL.
DEPTH/ELEV. WATER not encountered	DRILL CONTRACTOR HEW		TOTAL DEPTH 20'
DRILL RIG CME-75	BORING DIA. 8"	DATE DRILLED 4-26-88	LOGGED BY ew

SOIL CLASS.	DESCRIPTION	DEPTH	SAMPLE NO.	PR / RQD	REC.	MODE	REMARKS
SP	0-8.0 SAND; tan; damp; loose; well sorted.	0				HA	0-20 SEE REMARKS T-1
		2	TR-36	1 1 2	1.5 / 1.5	DR	
		4				HA	
	well sorted fine sand	6	TR-37	3 3 3	1.5 / 1.5	DR	
SC	8.0-20.0 CLAYEY SAND; tan; damp; medium dense; 20-30% plastic fines, 70-80% fine sand, minor silt; worm holes.	8				HA	
		10	TR-38	5 8 12	1.5 / 1.5	DR	
		12				HA	
		14					
		16	TR-39	6 10 12	1.5 / 1.5	DR	
		18				HA	
	Dense.	20	TR-40	6 14 23	1.5 / 1.5	DR	BOH 20'

Wahler Associates	UC DAVIS - LEHR	EXPLORATION BORING LOG	BORING NO. T-8
		PROJECT NO. UCD 101 H	SHEET NO. 1 OF 1

BORING LOCATION LEHR			GROUND EL. —
DEPTH/ELEV. WATER not encountered	DRILL CONTRACTOR HEW		TOTAL DEPTH 20
DRILL RIG CME75	BORING DIA. 8"	DATE DRILLED 9-26-88	LOGGED BY aw

SOIL CLASS.	DESCRIPTION	DEPTH	SAMPLE NO.	PR / RQD	REC.	MODE	REMARKS
AC	0-0.2 - ASPHALT	0				HA	0-20 SEE REMARKS T-1
CP	0.2-0.6 - BASE ROCK						
SP	0.6-10.0 SAND: TAN; damp; loose; well sorted, fine grained.	2	TR-41	2 3 3	1.5 / 1.5	DR	
		4				HA	
		6	TR-42	1 1 2	1.5 / 1.5	DR	
		8				HA	
SC	10.0-20.0 CLAYEY SAND: TAN; damp; loose; 20-30% plastic fines, 70-80% fine sand, minor silt; occasional worm holes.	10	TR-43	3 5 6	1.5 / 1.5	DR	
		12				HA	
		14					
		16	TR-44	3 6 7	1.5 / 1.5	DR	
	Increasing plastic fines	18				HA	
		20	TR-45	8 12 18	1.5 / 1.5	DR	EOH 20

Wahler Associates	UC DAVIS - LEHR	EXPLORATION BORING LOG	BORING NO. T-9
		PROJECT NO. UCD 101 H	SHEET NO. 1 OF 1

BORING LOCATION LEHR			GROUND EL.
DEPTH/ELEV. WATER not encountered	DRILL CONTRACTOR HEW		TOTAL DEPTH 20
DRILL RIG CME75	BORING DIA. 8"	DATE DRILLED 4-26-88	LOGGED BY CW

SOIL CLASS.	DESCRIPTION	DEPTH	SAMPLE NO.	PR / RQD	REC.	MODE	REMARKS
SC	0-1.0 CLAYEY SAND: TAN; damp; loose; 40% plastic fines.	0				HA	0-20 SEE REMARKS T-1
SP	1.0-3.0 SAND: orangish tan; damp; loose; fine grained, well sorted	2	TR-46	2 4 4	1.5 / 1.5	DR	
CL	3.0-10.0 SILTY CLAY; dark brown; damp; medium plasticity stiff.	4				HA	
		6	TR-47	4 4 8	1.5 / 1.5	DR	
		8				HA	
SC	10.0-20.0 CLAYEY SAND: TAN; damp; medium dense; 30-40% plastic fines, 60-70% fine sand, minor silt; abundant worm holes	10	TR-48	4 8 10	1.5 / 1.5	DR	
		12				HA	
		14					
		16	TR-49	3 7 8	1.5 / 1.5	DR	
		18				HA	
		20	TR-50	5 9 14	1.5 / 1.5	DR	BOH 20'

Wahler Associates	UC DAVIS - LEHR	EXPLORATION BORING LOG		BORING NO.
		PROJECT NO. UCD 101 H	SHEET NO. 1 OF 1	T-10

KEY FOR SOIL EXPLORATION LOGS

UNIFIED SOIL CLASSIFICATION SYSTEM (ASTM D-2487)

PRIMARY DIVISIONS			GROUP SYMBOL	SECONDARY DIVISIONS
COARSE GRAINED SOILS MORE THAN HALF OF MATERIALS IS LARGER THAN #200 SIEVE SIZE	GRAVELS MORE THAN HALF OF COARSE FRACTION IS LARGER THAN #4 SIEVE	CLEAN GRAVELS (LESS THAN 5% FINES)	GW	WELL GRADED GRAVELS, GRAVEL-SAND MIXTURES, LITTLE OR NO FINES.
			GP	POORLY GRADED GRAVELS OR GRAVEL-SAND MIXTURES, LITTLE OR NO FINES.
		GRAVEL WITH FINES	GM	SILTY GRAVELS, GRAVEL-SAND-SILT MIXTURE. NON PLASTIC FINES.
			GC	CLAYEY GRAVELS, GRAVEL-SAND-CLAY MIXTURES. PLASTIC FINES.
	SANDS MORE THAN HALF OF COARSE FRACTION IS SMALLER THAN #4 SIEVE	CLEAN SANDS (LESS THAN 5% FINES)	SW	WELL GRADED SANDS, GRAVELLY SANDS, LITTLE OR NO FINES.
			SP	POORLY GRADED SANDS OR GRAVELLY SANDS, LITTLE OR NO FINES.
		SANDS WITH FINES	SM	SILTY SANDS, SAND-SILT MIXTURES. NON-PLASTIC FINES.
			SC	CLAYEY SANDS, SAND-CLAY MIXTURES. PLASTIC FINES.
FINE GRAINED SOILS MORE THAN HALF OF MATERIAL IS SMALLER THAN #200 SIEVE SIZE	SILTS & CLAYS LIQUID LIMIT IS LESS THAN 50		ML	INORGANIC SILTS AND VERY FINE SANDS, ROCK FLOUR, SILTY OR CLAYEY FINE SANDS OR CLAYEY SILTS WITH SLIGHT PLASTICITY.
			CL	INORGANIC CLAYS OF LOW TO MEDIUM PLASTICITY, GRAVELLY CLAYS, SANDY CLAYS, SILTY CLAYS, LEAN CLAYS.
			OL	ORGANIC SILTS AND ORGANIC SILTY CLAYS OF LOW PLASTICITY.
	SILTS & CLAYS LIQUID LIMIT IS GREATER THAN 50		MH	INORGANIC SILTS, MICACEOUS OR DIATOMACEOUS FINE SANDY OR SILTY SOILS, ELASTIC SILTS.
			CH	INORGANIC CLAYS OF HIGH PLASTICITY, FAT CLAYS.
			OH	ORGANIC CLAYS OF MEDIUM TO HIGH PLASTICITY, ORGANIC SILTS.
HIGHLY ORGANIC SOILS			PT	PEAT AND OTHER HIGHLY ORGANIC SOILS.

DEFINITION OF TERMS

GRAIN SIZES

U.S. STANDARD SERIES SIEVE

200 .50 16 4 3/4" 3" 6"

SILTS & CLAYS DISTINGUISHED ON BASIS OF PLASTICITY	SAND			GRAVEL		COBBLES	BOULDERS
	FINE	MEDIUM	COARSE	FINE	COARSE		

MOISTURE CONDITION (INCREASING MOISTURE ⟶)

DRY — SLIGHTLY DAMP — DAMP — MOIST — VERY MOIST — WET (SATURATED)

(PL) (LL)

KEY

SAMPLE NUMBER

SAMPLE CONTAINER:

- BAG ..... B
- JAR ..... J
- SHELBY TUBE ... S
- DRIVE SAMPLER RINGS ..... R

MODE

METHOD OF ADVANCING HOLE:

DRILL

- FLIGHT AUGER ..... AD
- BUCKET AUGER ..... BA
- SPIN AUGER ..... SD
- HOLLOW STEM AUGER ... HA
- ROTARY DRILL ..... RD
- CABLE TOOL ..... CT

SAMPLER

- DRIVE ..... DR
- PITCHER BARREL ..... PB
- CORE C
- PUSH ..... P

RECOVERY

RECOVERY RATIO INDICATED BY A FRACTION:

$$\frac{1.2}{1.5} = \frac{\text{FOOTAGE RECOVERED}}{\text{FOOTAGE SAMPLED}}$$

REMARKS

INCLUDES DRILLING INFORMATION, E.G. WATER LEVEL, DATES.

REFUSAL: STOPPED BY MATERIAL TOO HARD FOR EQUIPMENT.

TERMINATED: SUFFICIENT INFORMATION OBTAINED.

ABANDONED: STOPPED BECAUSE OF DIFFICULTIES EXPLAINED ON LOG.

PENETRATION RESISTANCE (PR)

(RECORDED AS BLOWS/0.5 FOOT)

SANDS & GRAVELS

RELATIVE DENSITY	BLOWS/FOOT*
VERY LOOSE	0–4
LOOSE	4–10
MEDIUM DENSE	10–30
DENSE	30–50
VERY DENSE	OVER 50

CLAYS & SILTS

CONSISTENCY	BLOWS/FOOT*	STRENGTH †
VERY SOFT	0–2	0–¼
SOFT	2–4	¼–½
FIRM	4–8	½–1
STIFF	8–15	1–2
VERY STIFF	15–30	2–4
HARD	OVER 30	OVER 4

* Number of blows of 140 pound hammer falling 30 inches to drive a 2 inch O.D. (1-3/8 inch I.D.) Split-Barrel sampler (ASTM-1586 standard penetration test).

† Unconfined compressive strength in tons/sq ft. Read from a pocket penetrometer.

Wahler Associates	U.C. DAVIS	KEY FOR SOIL EXPLORATION LOGS	
		PROJECT NO.	FIGURE NO.
		UCD-101H	

MONITORING WELL LOGS

BORING LOCATION L.E.H.R (NW corner)			GROUND EL.
DEPTH/ELEV. WATER 41.3 (10-9-87)	DRILL CONTRACTOR P.C. Exploration		TOTAL DEPTH 56.5
DRILL RIG Mobile B-53	BORING DIA. 8.0"	DATE DRILLED 7 Oct. '87	LOGGED BY P.S.L

SOIL CLASS.	DESCRIPTION	DEPTH	SAMPLE NO.	PR / RQD	REC.	MODE	REMARKS
AC	0.0-0.3 ASPHALT	0.0				HA	Begin set-up 2:35 pm Bob Wharff - Driller Clayton Sheehan - Helper Advancing hole with 8.0" hollow stem augers. Sampling with a 2.0" I.D. split spoon sampler (S.S.), driven by a 140 lb. wire-line hammer Free-falling 30" per blow.
GW	0.3-1.3 SANDY GRAVEL: sub-base gravel; rounded; dry						
ML	1.3-15.0 SANDY SILT: Dk. yel. brn (10YR 4/2) to Mod. brn (5YR 3/4); ~60% fines, non plastic; ~40% sand, very fine- to fine-grained; non cemented; moderate organics (roots & rootlets); stiff to very stiff; dry to slightly moist.	2.0	B-1 B-2 B-3	5 7 11	1.5 / 1.5	DR	2.0-3.5' Drove SS. Drilling 3:05
		4.0				HA	5.0-6.5 Drove S.S.
			B-4 B-5 B-6	5 7 9	1.5 / 1.5	DR	
		6.0					* Cuttings being placed in lined 55gal drums. Sampler is washed with TSP and rinsed with clean H_2O between each sample.
		8.0				HA	
	10.0 grading slightly plastic. 10.0-11.0 abundant critter holes	10.0	B-7 B-8 No sample	9 15 17	1.0 / 1.5	DR	10.0-11.5 Drove SS
		12.0				HA	~15.0 Drilling action getting harder.
		14.0					
CL	15.0-41.0 SILTY CLAY: Mod yel. brn (10YR 5/4); ~90% fines, slight to medium plastic; ~10% sand, very fine-grained; slight rootlets; very stiff; slightly moist.		B-9 B-10 B-11	7 10 21	1.5 / 1.5	DR	15.0-16.5 Drove SS.
		16.0					
		18.0				HA	
		20.0					20.0-21.5 Drove SS

Wahler Associates	UC DAVIS - LEHR	EXPLORATION BORING LOG		BORING NO. UCD-1
		PROJECT NO. UCD 101 H	SHEET NO. 1 OF 3	

BORING LOCATION			GROUND EL.
DEPTH/ELEV. WATER	DRILL CONTRACTOR		TOTAL DEPTH
DRILL RIG	BORING DIA.	DATE DRILLED	LOGGED BY

SOIL CLASS.	DESCRIPTION	DEPTH	SAMPLE NO.	PR / RQD	REC.	MODE	REMARKS
CL	15.0 - 41.0 SILTY CLAY: (cont.)	20.0					
	20.0' grading more fat clay		B-12	8	1.5 / 1.5	DR	20.0 - 21.5 Drove S.S.
			B-13	14			
			B-14	24			10-7 4:30 PM 21.5 10-8 9:50 AM
		22.0				HA	
	21.5 - 25.0' stiffer						~21.5' Drilling action hard
		24.0					
	25.0' Fe staining, wht. ppt., abundant bioturbation, slightly moister and siltier		B-15	11	1.5 / 1.5	DR	25.0 - 26.5 Drove SS
		26.0	B-16	20			
			B-17	32			
		28.0				HA	
	30.0' back to more clayey	30.0	B-18	9	1.5 / 1.5	DR	30.0 - 31.5 Drove SS
			B-19	18			
			B-20	28			
		32.0				HA	
		34.0					
	35.0' slightly sandy, some grayish zones (clay).		B-21	7	1.2 / 1.5	DR	35.0 - 36.5 Drove S.S.
		36.0	B-22	7			
			B-23	22			
		38.0				HA	
		40.0					40.0 - 41.5 Drove S.S.

Wahler Associates	UC DAVIS - LEHR	EXPLORATION BORING LOG	BORING NO.
		PROJECT NO. UCD 101 H	SHEET NO. 2 OF 3	UCD-1

BORING LOCATION			GROUND EL.
DEPTH/ELEV. WATER	DRILL CONTRACTOR		TOTAL DEPTH
DRILL RIG	BORING DIA.	DATE DRILLED	LOGGED BY

SOIL CLASS.	DESCRIPTION	DEPTH	SAMPLE NO.	PR / RQD	REC.	MODE	REMARKS
L	15.0-41.0' SILTY CLAY: (cont)	40.0	B-24	3	1.3 / 1.5	DR	40.0-41.5 Drove S.S.
			B-25	7			
	41.0-56.5 CLAYEY SAND:		B-26	12			
SC	Mod. yel. brn.; ~40-50% fines, non to slightly plastic; ~50-60% sand, very fine-grained; fe staining; firm to very stiff; damp to wet.	42.0				HA	Drilling action getting easier.
		44.0					* Plug wet ~45.0
	45.0-46.5 silty		B-27	8	1.5 / 1.5	DR	45.0-46.5 Drove S.S.
		46.0	B-28	13			Well Construction
			B-29	17			0.0-46.5' solid (2.0" SCH 40 PVC, flush thread) 46.5-56.5' slotted (0.020 slots)
		48.0				HA	SEAL & SAND 0.0-38.0 grout 38.0-41.0 bentonite 41.0-56.5 #3 sand
	50.0-51.5 more clayey, moist.	50.0	B-30	5	1.5 / 1.5	DR	50.0-51.5' Drove S.S.
			B-31	18			
			B-32	31			
		52.0				HA	
		54.0					* H_2O to ~40.0' standing
	55.0-56.5 sandy, wet		B-33	6	1.5 / 1.5	DR	55.0-56.5 Drove S.S.
		56.0	B-34	11			Terminated boring at 56.5'. Augered to 56.5'. Installed Well
	Bottom hole 56.5'		B-35	21			
		58.0					
		60.0					

[illegible]

[illegible]

[illegible]

[illegible]

[illegible]

Wahler Associates	UC DAVIS - LEHR	EXPLORATION BORING LOG		BORING NO.
		PROJECT NO. UCD 101 H	SHEET NO. 3 OF 3	UCD-1

BORING LOCATION			GROUND EL.
DEPTH/ELEV. WATER 41.5 10-12-87	DRILL CONTRACTOR P.C Exploration		TOTAL DEPTH 60.0
DRILL RIG Mobile B-53	BORING DIA. 8.0"	DATE DRILLED 10-9-87	LOGGED BY G.S.Q.

SOIL CLASS.	DESCRIPTION	DEPTH	SAMPLE NO.	PR / RQD	REC.	MODE	REMARKS
SM-CL	0.0-10.0 CLAYEY SILTY SAND / SANDY CLAY: Dk brn.; ~40-60% fines, mod. plastic; ~40-60% sand, fine- to coarse-grained (mostly fine), angular to subangular; abundant wood, glass, metal, wire, chain, etc. (refuse ~10-15%); firm; dry to slightly moist.	0.0				HA	Begin drilling 1:05 Boring is advanced using 8.0" hollow stem augers. Sampling with a 2.0" ID split spoon sampler (S.S.) driven by a 140 lb. wire-line hammer, free-falling 30" per blow
		2.0	B-1	5	1.5 / 1.5	DR	
			B-2	5			
			B-3	10			
		4.0				HA	2.0-3.5 Drove S.S.
				5	0.0 / 0.7	DR	5.0-6.5 Drove S.S. hammering atop of rock, probably. No recovery. Augered to 7.0'
		6.0		50/.2			
						HA	
				50/.2	0.0 / 0.2	DR	7.0-7.2' Drove S.S. refusal. (again on some sort of refuse.) Refuse is ≈10% of total.
		8.0				HA	
CL	~10.0-45.0 SILTY CLAY: Mod yel. brn, ~90% fines, med to high plastic; ~10% sand, very fine-grained; some Fe staining and charcoal; some bioturbation and gray clay stringers; slight wht. ppt.; very stiff to hard; moist.	10.0	B-4	8	0.9 / 1.5	DR	10.0-11.5 Drove S.S.
			B-5	14			
				20			
		12.0				HA	~10.0' Drilling action gets harder, and stiffer
		14.0					
			B-6	4	1.1 / 1.5	DR	15.0-16.5 Drove S.S.
				4			
		16.0		5			
		18.0				HA	
		20.0					20.0-21.5' Drove S.S.

Wahler Associates	UC DAVIS - LEHR	EXPLORATION BORING LOG		BORING NO.
		PROJECT NO. UCD 101 H	SHEET NO. 1 OF 3	UCD-2

BORING LOCATION			GROUND EL.
DEPTH/ELEV. WATER	DRILL CONTRACTOR		TOTAL DEPTH
DRILL RIG	BORING DIA.	DATE DRILLED	LOGGED BY

SOIL CLASS.	DESCRIPTION	DEPTH	SAMPLE NO.	PR / BOD	REC.	MODE	REMARKS
CL	0.0-45.0 SILTY CLAY: (cont.)	20.0	B-7	12 / 20 / 34	1.5 / 1.5	DR	20.0-21.5 Drove S.S.
		22.0				HA	22.0' cuttings coming up in large pieces * - 24.0' Drilling action getting harder
	25.0-26.5 stiffer clay	24.0	B-8	9 / 18 / 30	1.5 / 1.5	DR	25.0-26.5' Drove S.S.
		26.0				HA	
	30.0-31.5 getting sandy	28.0	B-9	3 / 7 / 17	1.5 / 1.5	DR	30.0-31.5' Drove S.S. Driller - Bob W 10-9-87 2:50 PM
		30.0				HA	10-12 10:35 AM Driller - Mike Ybarra
	35.0-36.5 continued clayey, slight increase in H_2O % (moist)) soft.	32.0	B-10	4 / 4 / 7	1.1 / 1.5	DR	35.0-36.5 Drove S.S.
		34.0				HA	
		36.0					
		38.0					40.0-41.5 Drove S.S.
		40.0					

Wahler Associates

UC DAVIS - LEHR

EXPLORATION BORING LOG

PROJECT NO. UCD 101 H

SHEET NO. 2 OF 3

BORING NO. UCD-2

BORING LOCATION			GROUND EL.
DEPTH/ELEV. WATER	DRILL CONTRACTOR		TOTAL DEPTH
DRILL RIG	BORING DIA.	DATE DRILLED	LOGGED BY

SOIL CLASS.	DESCRIPTION	DEPTH	SAMPLE NO.	PR / RQD	REC.	MODE	REMARKS
	10.0-45.0 SILTY CLAY: (cont) 40.0-40.3 Sand, clean, fine- to med.-grained, loose, damp. 40.3-41.5 silty clay.	40.0	B-11	5 / 16 / 22	1.3 / 1.5	DR	40.0-41.5 Drove S.S. [redacted]
		42.0				HA	* H_2O on plug @ 45
		44.0					
CL-CH	45.0-60.0 SANDY CLAY: Mod yel brn.; ~80-95% fines, med plastic; ~5-20% sand, fine- to med.-grained (mostly fine), Fe staining; some grayish clayey stringers; soft, wet.		B-12	4 / 10 / 14	1.5 / 1.5	DR	45.0-46.5 Drove S.S. * H_2O to 42.0 after sample @ 45 [redacted]
		46.0					
		48.0				HA	[redacted]
	50.0-50.4 clean fine sand 50.4-51.1 clayey SAND 51.1-51.5 sandy clay, very st ft.	50.0	B-13	10 / 14 / 15	1.5 / 1.5	DR	50.0-51.5 Drove S.S. WELL CONSTRUCTION 0.0-44.0 solid (2.0" sch 40 PVC, flush thread) 44.0-59.0 slotted (0.020 slots) SEAL & SAND 0.0-36.0 cement 36.0-39.0 bentonite 39.0-59.0 #3 Sand
		52.2				HA	
		54.0					
	55.0-55.5 sandy clay 55.5-56.5 silty sand; dense, moist	56.0	B-14	6 / 16 / 20	1.4 / 1.5	DR	55.0-56.5 Drove S.S. 56.5 'cutting now coming up like soup
		58.0				HA	
CL-CH	59.0-60.0 hard silty clay, slightly moist. Bottom hole 60.0	60.0	B-15	15 / 46 / 50	1.3 / 1.5	DR	58.5-60.0 Drove S.S. Terminated boring at 60.0'. Installed well.

Wahler Associates	UC DAVIS - LEHR	EXPLORATION BORING LOG	BORING NO.
		PROJECT NO. UCD 101 H / SHEET NO. 3 OF 3	UCD-2

BORING LOCATION			GROUND EL.
DEPTH/ELEV. WATER 41.0 (10-23-87)	DRILL CONTRACTOR P.C. Exploration		TOTAL DEPTH 51.5
DRILL RIG Mobile B-53	BORING DIA. 8.0"	DATE DRILLED 10-23-87	LOGGED BY G.J.S.

SOIL CLASS.	DESCRIPTION	DEPTH	SAMPLE NO.	PR / RQD	REC.	MODE	REMARKS
ML	0.0-3.3 SANDY SILT: Dk brn; ~60-70% fines, slight to non plastic; ~30-40% sand, fine-grained; organic like top soil; stiff; damp.	0.0				HA	On hole 8:50, drilling 9:08. Advancing hole with 8.0" hollow stem augers. Sampling with a 2.0" ID split spoon (S.S.) sampler, driven by a 140 lb. wire-line hammer, free-falling 30 in per blow.
		2.0	B-1	6, 8, 10	1.5 / 1.5	DR	2.0-3.5 Drove S.S.
SM-SP	3.3-8.0 SILTY SAND / SAND: Dk yel brn & Salt-pepper; 0-30% fines, non plastic; 70-100% sand, fine- to coarse-grained, poorly graded, mostly fine, subangular to rounded; loose; damp.	4.0				HA	5.0-6.5 Drove S.S.
		6.0	B-2	6, 6, 6	1.5 / 1.5	DR	Driller: Bob Wharff Helper: Kevin Holt
CL	~8.0-36.0 SILTY CLAY: Mod. yel-brn; ~90% fines, med. to higher plastic; ~10% sand, fine-grained, sporadic coarse, rounded; some critter holes; slight charcoal; stiff to very stiff; moist.	8.0				HA	
		10.0	B-3	5, 8, 13	1.5 / 1.5	DR	10.0-11.5 Drove S.S.
		12.0				HA	
	15.0-16.5 slight bio-turbation; more clayey	14.0					15.0-16.5 Drove S.S.
		16.0	B-4	12, 15, 18	1.5 / 1.5	DR	
		18.0				HA	~18.0 Drilling action getting harder and cutting coming up in chunks
	20.0 getting hard	20.0					20.0-21.5 Drove S.S.

Wahler Associates	UC DAVIS - LEHR	EXPLORATION BORING LOG	BORING NO.
		PROJECT NO. UCD 101 H / SHEET NO. 1 OF 3	UCD-3

BORING LOCATION			GROUND EL.
DEPTH/ELEV. WATER	DRILL CONTRACTOR		TOTAL DEPTH
DRILL RIG	BORING DIA.	DATE DRILLED	LOGGED BY

SOIL CLASS.	DESCRIPTION	DEPTH	SAMPLE NO.	PR / ROD	REC.	MODE	REMARKS
CL	8.0 - 36.0 SILTY CLAY: (cont.)	20.0					20.0-21.5 Drove S.S.
	20.0-21.5 more silty, crumbles, more orangish		B-5	11 / 18 / 30	1.5 / 1.5	DR	9:55
		22.0				HA	
		24.0					
	25.0-26.5 more silty, color to yel brn, Fe coatings		B-6	10 / 14 / 21	1.5 / 1.5	DR	25.0-26.5 Drove S.S.
		26.0					
		28.0				HA	
	30.0-31.5 Fe coatings heavy, slight caliche.	30.0	B-7	14 / 21 / 40	1.5 / 1.5	DR	30.0-31.5 Drove S.S. 10:18
		32.0				HA	
	~34.0 grading sandy, damp.	34.0					~34.0' Drilling action gets easier.
			B-8	7 / 9 / 17	1.5 / 1.5	DR	35.0-36.5 Drove S.S.
CL-SC	36.0 - 40.0 SANDY CLAY/ CLAYEY SAND: Mod. yel. brn with olive gray; ~40-60% fine, med. plastic, lower toughness; ~40-60% sand, fine-grained, mostly fine; Fe staining; charcoal; sl. FF; damp	36.0					
		38.0				HA	
		40.0					40.0-41.5 Drove S.S.

Wahler Associates	UC DAVIS - LEHR	EXPLORATION BORING LOG	BORING NO.
		PROJECT NO. UCD 101 H / SHEET NO. 2 OF 3	UCD-3

BORING LOCATION			GROUND EL.
DEPTH/ELEV. WATER	DRILL CONTRACTOR		TOTAL DEPTH
DRILL RIG	BORING DIA.	DATE DRILLED	LOGGED BY

SOIL CLASS.	DESCRIPTION	DEPTH	SAMPLE NO.	PR / RQD	REC.	MODE	REMARKS
CL-SC	36.0-49.0 SANDY CLAY / CLAYEY SAND: (cont.)	40.0	B-9	10 / 20 / 30	1.5 / 1.5	DR	10:45 40.0-41.5 Drove S.S.
		42.0				HA	~43.0 Drilling action gets easier. * H_2O @ 43.0' when plug pulled from 45'
	45.0-46.5 sandy, medium dense, wet.	44.0	B-10	9 / 11 / 18	1.5 / 1.5	DR	45.0-46.5 Drove S.S.
		46.0					
		48.0				HA	~49.0 Drilling action gets hard
CL-CH	~49.0-51.5 SILTY CLAY: Med yel. brn.; >95% fines; med. to higher plastic; <5% sand, fine-grained; gray clay stringers; Fe staining; hard; damp.	50.0	B-11	14 / 28 / 54	1.5 / 1.5	DR	50.0-51.5 Drove S.S. 11:30
	Bottom hole 51.5'	52.0					Terminated boring at 51.5'. Installed well
		54.0					WELL CONSTRUCTION 0.0-39.0 Solid (2.0" SCH 40 PVC flush thread) 39.0-49.0 Slotted (0.020 slots) SEAL & SAND 0.0-34.0 grout 34.0-51.5 #3 sand
		56.0					
		58.0					
		60.0					

[redacted]

Wahler Associates	UC DAVIS - LEHR	EXPLORATION BORING LOG		BORING NO.
		PROJECT NO. UCD 101 H	SHEET NO. 3 OF 3	UCD-3

BORING LOCATION			GROUND EL.
DEPTH/ELEV. WATER 40.5 10-14-87	DRILL CONTRACTOR P.C. Exploration		TOTAL DEPTH 56.5
DRILL RIG Mobile B-53	BORING DIA. 8.0"	DATE DRILLED 10-14-87	LOGGED BY P.J.L.

SOIL CLASS.	DESCRIPTION	DEPTH	SAMPLE NO.	PR / RQD	REC.	MODE	REMARKS
GW	0.0 - 1.0 SANDY GRAVEL: Base material	0.0				HA	Start drilling 10:45 Mike Ybarra - Driller Kevin Holt - helper Advancing hole with 8.0" hollow stem augers. Sampling with a 2.0" I.D. split spoon sampler (S.S), driven by a 140 lb. wire-line hammer, free-falling 30 in per blow.
CL	1.0 - 5.8 SANDY CLAY: Mod. yel. brn.; ~60-70% fines, med plastic; ~10-40% sand, fine-to med.-grained; roots; stiff to very stiff; dry to damp.	2.0	B-1	12 / 14 / 18	1.3 / 1.5	DR	
		4.0				HA	2.0-3.5 Drove S.S.
	5.0 - 5.6 same 5.6 - 5.8 sand lens		B-2	8 / 11 / 15	1.4 / 1.5	DR	5.0 - 6.5 Drove S.S.
CL	5.8 - 15.0 SILTY SANDY CLAY: Dk. to light yel. brn.; ~70-90% fines, med plastic; ~10-30% sand, fine-grained; abundant bioturbation; rootlets; stiff to very stiff; damp.	6.0					
		8.0				HA	
		10.0	B-3	8 / 13 / 16	1.3 / 1.5	DR	10.0 - 11.5 Drove S.S.
		12.0				HA	
	~15.0 - 40.0 SILTY CLAY:	14.0					
CL	15.0' now grading more to SILTY CLAY, same as above without sand; decrease in roots and bioturbation.	16.0	B-4	7 / 13 / 16	1.4 / 1.5	DR	15.0 - 16.5 Drove S.S.
		18.0				HA	
		20.0					20.0 - 21.5 Drove S.S.

Wahler Associates	UC DAVIS - LEHR	EXPLORATION BORING LOG		BORING NO.
		PROJECT NO. UCD 101 H	SHEET NO. 1 OF 3	UCD-4

BORING LOCATION			GROUND EL.
DEPTH/ELEV. WATER	DRILL CONTRACTOR		TOTAL DEPTH
DRILL RIG	BORING DIA.	DATE DRILLED	LOGGED BY

SOIL CLASS.	DESCRIPTION	DEPTH	SAMPLE NO.	PR / ROD	REC.	MODE	REMARKS
CL	15.0 - 40.0 SILTY CLAY: (cont.) 20.0-21.5 slightly sandy (<10%), slight increase in H_2O %, almost moist	20.0	B-5	10 / 16 / 23	1.5 / 1.5	DR	20.0 - 21.5 Drove S.S.
		22.0				HA	
		24.0					
	25.0' grading to SANDY CLAY. (~10-25% fine-grained sand); Fe oxide	26.0	B-6	5 / 19 / 22	1.5 / 1.5	DR	25.0 - 26.5 Drove S.S.
		28.0				HA	
	30.0 - 31.5 back to silty clay (higher plastic); soft; moist to almost wet.	30.0	B-7	6 / 8 / 14	1.5 / 1.5	DR	30.0 - 31.5 Drove S.S. 12:25 / 12:35 / loach
		32.0				HA	
		34.0					
CL-SC	35.0 - 36.5 graded SANDY CLAY; ~60% fines; ~40% fine-grained sand; Fe staining; charcoal streaks; wht. ppt.; firm; moist	36.0	B-8	9 / 15 / 18	1.0 / 1.5	DR	35.0 - 36.5 Drove S.S.
		38.0				HA	
	40.0 - 45.0' SANDY SILT / SILTY SAND:	40.0					40.0 - 41.5 Drove S.S.

Wahler Associates	UC DAVIS - LEHR	EXPLORATION BORING LOG		BORING NO.
		PROJECT NO. UCD 101 H	SHEET NO. 2 OF 3	UCD-4

BORING LOCATION			GROUND EL.
DEPTH/ELEV. WATER	DRILL CONTRACTOR		TOTAL DEPTH
DRILL RIG	BORING DIA.	DATE DRILLED	LOGGED BY

SOIL CLASS.	DESCRIPTION	DEPTH	SAMPLE NO.	PR / RQD	REC.	MODE	REMARKS
SM-ML	40.0-45.0 SANDY SILT/SILTY SAND: Mod. yel. brn; ~40-60% fines, non to slightly plastic; ~40-60% sand, very fine- to med.-grained; Fe staining; loose to very stiff; damp to wet. 40.0-40.5 loose fine sand with ~10% fines.	40.0	B-9	3 / 4 / 7	0.7 / 1.5	DR	40.0-41.5 Drove S.S. * 40.0' sampler wet.
		42.0				HA	40.0-45.0 Drilling action very easy
		44.0					
SP	45.0-55.8 SAND: Dk brn; <5% fines; >95% sand, fine-grained; medium dense; wet.	46.0	B-10	4 / 19 / 36	1.5 / 1.5	DR	45.0-46.5 Drove S.S. * Note: high blow counts probably due to sampler (over full) being over driven (probably loose sand)
		48.0				HA	* H_2O up to ~43.0 after plug pulled at 50ft.
	50.0-51.5 fine sand, loose; wet.	50.0	B-11	4 / 7 / 10	1.5 / 1.5	DR	50.0-51.5 Drove S.S.
		52.0				HA	WELL CONSTRUCTION 0.0-45.0 solid (2.0" sch 40 PVC) 45.0-55.0 slotted (0.020 slots)
		54.0					SEAL & SAND 0.0-37.0 grout 37.0-40.0 bentonite 40.0-55.0 #3 sand
CL	55.8-56.5 SILTY CLAY: Dk yel brn; >90% fines, med to high plastic; <10% sand, fine-grained; Fe mottled; very stiff; slightly damp. Bottom hole 56.5'	56.0	B-12	9 / 13 / 27	1.5 / 1.5	DR	55.0-56.5 Drove S.S. Terminated boring at 56.5'. Installed well.
		58.0					
		60.0					

Wahler Associates	UC DAVIS - LEHR	EXPLORATION BORING LOG		BORING NO.
		PROJECT NO. UCD 101 H	SHEET NO. 3 OF 3	UC D-4

BORING LOCATION			GROUND EL.
DEPTH/ELEV. WATER 42.5 10/22	DRILL CONTRACTOR P.C. Exploration		TOTAL DEPTH 48.5
DRILL RIG Mobile B-53	BORING DIA. 8.0"	DATE DRILLED 10-22-87	LOGGED BY B.F.S.

SOIL CLASS.	DESCRIPTION	DEPTH	SAMPLE NO.	PR / ROD	REC.	MODE	REMARKS
GP	0.0-0.2 GRAVEL: pea gravel.	0.0				HA	On hole 9:20, drilling 9:40 Advancing hole with 8.0" hollow stem augers. Sampling with a 2.0" ID split spoon (S.S.) sampler, driven by a 140 lb wire-line hammer, free-falling 30 in per blow
SM	0.2-8.0 SILTY SAND: Dk brn; ~40% fines, non plastic; ~60% sand, fine-grained, lenses of clean sand; roots; loose; moist.	2.0	B-1	4 / 5 / 6	1.5 / 1.5	DR	
		4.0				HA	2.0-3.5 Drove S.S.
	5.0-6.5 grading more silty and plastic		B-2	3 / 4 / 7	1.5 / 1.5	DR	5.0-6.5 Drove S.S. Bob Wharff - Driller Kevin Holt - Helper
		6.0					
ML-CL	~8.0-18.0 SANDY CLAYEY SILT: Dk brn; ~80% fines, medium plastic; ~20% sand, fine-grained; slight wht ppt. slight charcoal streaks; stiff to very stiff; damp	8.0				HA	
		10.0	B-3	5 / 12 / 20	1.5 / 1.5	DR	10.0-11.5 Drove S.S.
		12.0				HA	
		14.0					
	15.0-16.5 grading more clayey, 0% sand, firm clay, more orangish.		B-4	6 / 10 / 10	1.5 / 1.5	DR	15.0-16.5 Drove S.S. 10:10
		16.0					
CL	~18.0-35.0 SILTY CLAY: Orangish brown; >95% fines, med. to high plastic, mod toughness;	18.0				HA	
		20.0					20.0-21.5 Drove S.S.

Wahler Associates	UC DAVIS - LEHR	EXPLORATION BORING LOG	BORING NO.
		PROJECT NO. UCD 101 H / SHEET NO. 1 OF 3	UCD-5

BORING LOCATION			GROUND EL.
DEPTH/ELEV. WATER	DRILL CONTRACTOR		TOTAL DEPTH
DRILL RIG	BORING DIA.	DATE DRILLED	LOGGED BY

SOIL CLASS.	DESCRIPTION	DEPTH	SAMPLE NO.	PR / ROD	REC.	MODE	REMARKS
CL	18.0-35.0 SILTY CLAY: (cont.); <5% sand, fine-grained; lacks organics; very stiff; damp. 20.0-21.5 Fe staining	20.0	B-5	12 / 15 / 22	1.5 / 1.5	DR	20.0-21.5 Drove S.S.
		22.0				HA	
		24.0					
	25.0-26.5 more silty, abundant cementation, (caliche like nodules), Fe staining. (crumbles)	26.0	B-6	6 / 12 / 21	1.5 / 1.5	DR	10:31 25.0-26.5 Drove S.S.
		28.0				HA	
	30.0-30.4 sandy lens 30.4-31.5 some gray stringers.	30.0	B-7	16 / 27 / 40	1.5 / 1.5	DR	30.0-31.5 Drove S.S.
		32.0				HA	30.0-35.0 Drilling action gets hard.
		34.0					
SC-CL	~35.0-48.0 CLAYEY SAND / SANDY CLAY: Mod yel brn to orangish brn with olive gray; ~50% fines, slight plastic, low toughness; ~50% sand, fine-grained; Fe mottling; gray stringers; stiff to medium dense; moist.	36.0	B-8	4 / 6 / 17	1.5 / 1.5	DR	35.0-36.5 Drove S.S.
		38.0				HA	
		40.0					40.0-41.5 Drove S.S.

Wahler Associates	UC DAVIS - LEHR	EXPLORATION BORING LOG	BORING NO.
		PROJECT NO. UCD 101 H / SHEET NO. 2 OF 3	UCD-5

BORING LOCATION			GROUND EL.
DEPTH/ELEV. WATER	DRILL CONTRACTOR		TOTAL DEPTH
DRILL RIG	BORING DIA.	DATE DRILLED	LOGGED BY

SOIL CLASS.	DESCRIPTION	DEPTH	SAMPLE NO.	PR / ROD	REC.	MODE	REMARKS
SC-CL	35.0-48.0 CLAYEY SAND/ SANDY CLAY: (cont.)	40.0	B-9	6 / 9 / 18	1.2 / 1.5	DR	40.0-41.5 Drove S.S.
		42.0				HA	* H_2O @ ~42.5' when plug pulled from 45.0'.
		44.0					
	45.0-48.0 sandy; dense; wet.	46.0	B-10	7 / 10 / 31	1.5 / 1.5	DR	45.0-46.5 Drove SS
						HA	
		48.0	B-11	7 / 13 / 56	1.5 / 1.5	DR	47.0-48.5 Drove S.S.
CL-CH	48.0-48.5 SILTY CLAY: Mod. yel. brn; >90% fines, higher plastic; <10% sand, very fine-grained; hard; slightly damp. Bottom hole 48.5'	50.0					Terminated boring at 48.5'. Advanced augers to 48.0', installed well
		52.0					WELL CONSTRUCTION: 0.0-38.0 solid (2.0" SCH 40 PVC, flush thread) 38.0-48.0 slotted (0.020 slots)
		54.0					SEAL & SAND: 0.0-33.0 grout 33.0-48.0 #3 sand
		56.0					[redacted]
		58.0					
		60.0					

Wahler Associates	UC DAVIS - LEHR	EXPLORATION BORING LOG	BORING NO.
		PROJECT NO. UCD 101 H / SHEET NO. 3 of 3	UCD-5

BORING LOCATION			GROUND EL.
DEPTH/ELEV. WATER 39.5 10-21-87	DRILL CONTRACTOR P.C. Exploration		TOTAL DEPTH 52.5
DRILL RIG Mobile B-53	BORING DIA. 8.0"	DATE DRILLED 10-20-87	LOGGED BY P.J.S.

SOIL CLASS.	DESCRIPTION	DEPTH	SAMPLE NO.	PR / RQD	REC.	MODE	REMARKS
AC	0.0 - 0.3 ASPHALT:	0.0				HA	On hole 11:35, drilling 11:50
GW	0.3 - 0.9 SANDY GRAVEL: Base material						Advancing hole with 8.0" hollow stem augers; Sampling with a 2.0" ID. split spoon (S.S.) sampler, which is driven by a 140 lb. wire-line hammer, free-falling 30 in. per blow.
SM	0.9 - 6.2 SILTY SAND: DK. brown; ~30-40% fines, non plastic; ~60-70% sand, fine-grained, poorly graded, leases of clean sand; high perviousness; loose; damp.	2.0	B-1	2, 3, 6	1.5 / 1.5	DR	
		4.0				HA	Driller - Bob Wharff; Helper - Kevin Holt. 2.0-3.5 Drove S.S.
		6.0	B-2	3, 4, 7	1.3 / 1.5	DR	5.0 - 6.5 Drove S.S. * We had refusal @ 3.0' & had to move hole 1.5' forward (hit something like concrete).
MH-CL	6.2 - 20.4 CLAYEY SILT: DK. yel. brn.; ~90% fines, low to medium plastic, mod. toughness; ~10% sand, fine-grained; moderate decomposing roots; slight caliche; stiff; damp.	8.0				HA	
	10.0 - 11.5 grading more clayey to SILTY CLAY:	10.0	B-3	5, 7, 12	1.5 / 1.5	DR	10.0 - 11.5 Drove S.S.
		12.0				HA	
	15.0 - 16.5 slightly sandy, more crumbly	14.0					15.0 - 16.5 Drove S.S. 12:35 1:—
		16.0	B-4	5, 5, 5	1.5 / 1.5	DR	
		18.0				HA	
	~19.0 grading sandy	20.0					20.0 - 21.5 Drove S.S.

Wahler Associates	UC DAVIS - LEHR	EXPLORATION BORING LOG		BORING NO.
		PROJECT NO. UCD 101 H	SHEET NO. 1 OF 3	UCD-6

BORING LOCATION			GROUND EL.
DEPTH/ELEV. WATER	DRILL CONTRACTOR		TOTAL DEPTH
DRILL RIG	BORING DIA.	DATE DRILLED	LOGGED BY

SOIL CLASS.	DESCRIPTION	DEPTH	SAMPLE NO.	PR / BOD	REC.	MODE	REMARKS
MH	6.2-20.4 CLAYEY SILT: (cont.)	20.0					20.0-21.5 Drove SS
SC	20.4-25.0 CLAYEY SAND: DK. yel. orange; ~30% fines, slightly plastic; ~70% sand; fine-grained; medium dense to dense; damp. ~24.0 grading more clayey.		B-5	15 / 22 / 30	1.5 / 1.5	DR	
		22.0				HA	
		24.0					
CL	25.0-31.0 SANDY CLAY: As above with ~60-70% fines; ~30-40% sand.		B-6	10 / 15 / 22	1.5 / 1.5	DR	25.0-26.5 Drove SS
		26.0					
		28.0				HA	
	30.0-30.8 abundant bio-turbation.	30.0					30.0-31.5 Drove SS
SC	31.0-51.0 SILTY SAND: DK. yel. orange to olive brown; ~10-30% fines, slightly to non plastic; ~70-90% sand, fine-grained, poorly graded; Fe staining; highly pervious; loose; damp to		B-7	4 / 8 / 11	1.5 / 1.5	DR	
		32.0				HA	
		34.0					
			B-8	5 / 5 / 5	1.0 / 1.0	DR	35.0-36.5 Drove SS
		36.0					
		38.0				HA	
		40.0					40.0-41.5 Drove SS

Wahler Associates	UC DAVIS - LEHR	EXPLORATION BORING LOG	BORING NO.
		PROJECT NO. UCD 101 H / SHEET NO. 2 of 3	UCD-6

BORING LOCATION			GROUND EL.
DEPTH/ELEV. WATER	DRILL CONTRACTOR		TOTAL DEPTH
DRILL RIG	BORING DIA.	DATE DRILLED	LOGGED BY

SOIL CLASS.	DESCRIPTION	DEPTH	SAMPLE NO.	PR / ROD	REC.	MODE	REMARKS
-C	31.0 - 51.0 CLAYEY SAND: (cont.) 40.0 - 41.5, very fine-grained sand (~50%) with clayey fines, moist.	40.0	B-9	3, 4, 7	1.1 / 1.5	DR	40.0 - 41.5 Drove S.S. * H_2O while drilling at ~ 42 - 43'
		42.0				HA	* Plug has a 2' water mark at 45'.
	45.0 - 45.8 clayey sand 45.8 - 46.5 clean SAND, fine-grained.	44.0	B-10	6, 5, 12	1.2 / 1.5	DR	2:15 45.0 - 46.5 Drove S.S.
		46.0				HA	
		48.0					
		50.0	B-11	5, 6, 8	0.8 / 1.5	DR	50.0 - 51.5 Drove S.S.
-F	51.0 - 52.5' SILTY CLAY: Dk yel brn to olive brn, >95% fines, high plastic, high toughness, <5% sand, fine-grained, gray clay stringers, very stiff to hard; dry to slightly damp. Bottom hole 52.5'	52.0	B-12	16, 30	1.0 / 1.0	DR	51.5 - 52.5 Drove S.S. Terminated boring at 52.5' 3:05 Installed Well.
		54.0					
		56.0					
		58.0					
		60.0					

WELL CONSTRUCTION
0.0 - 40.0 solid (2.0" SCH 40 PVC, flush thread)
40.0 - 50.0 Slotted (0.020 slots)

SEAL & SAND
0.0 - 35.0 grout
35.0 - 50.0 #3 Sand

DATA ON THIS LOG ARE AN APPROXIMATION OF THE GEOLOGIC AND SUBSURFACE CONDITIONS BECAUSE THE INFORMATION HAS OBTAINED FROM INTERMITT, DISCONTINUOUS, AND POSSIBLY DISTURBED SAMPLES RECONSTRUCTED BY USE OF SMALL-DIAMETER DRILL. DRILLING AND SAMPLING DRILL HAVE FURTHER COMPLICATIONS IN THIS CASE BECAUSE OF THE NEED TO USE DRILLING FLUID ABOVE CAUSED BY ARTESIAN WATER.

THIS LOG DESCRIBES CONDITIONS IN THIS DRILL HOLE ON THE DATE INDICATED AND MAY NOT REPRESENT CONDITIONS AT OTHER LOCATIONS AND AT OTHER DATES. ANY OTHER DETAILS FOUND ARE SUBJECT TO VARIATIONS.

THIS DRILL HAS BEEN DONE AS ONE A SET AS TO PROVIDE DATA PRIMARILY FOR DESIGN PURPOSES AND NOT NECESSARILY FOR THE PURPOSES OF SPECIFIC CONTRACTORS.

THE STRATIFICATION LINES OR DEPTH INTERVALS REPRESENT THE APPROXIMATE BOUNDARIES BETWEEN MATERIAL TYPES, AND THE TRANSITIONS MAY BE GRADUAL.

SOIL CLASSIFICATIONS BASED ON LAB AND FIELD CLASSIFICATIONS BASED ON THE UNIFIED SOILS CLASSIFICATION SYSTEM.

Wahler Associates	UC DAVIS - LEHR	EXPLORATION BORING LOG	BORING NO.
		PROJECT NO. UCD 101 H / SHEET NO. 3 OF 3	UCD-6

BORING LOCATION			GROUND EL.
DEPTH/ELEV. WATER 49.0 (11-5-87)	DRILL CONTRACTOR HEW Drilling		TOTAL DEPTH 40.0
DRILL RIG CME 75	BORING DIA. 8.0"	DATE DRILLED 11-4/5-87	LOGGED BY R.J.S.

SOIL CLASS.	DESCRIPTION	DEPTH	SAMPLE NO.	PR / ROD	REC.	MODE	REMARKS
SM	0.0 - 4.0 SILTY SAND: DK yel. brn.; ~40-60 % fines, non plastic; ~40-60% sand, fine-grained, poorly graded; slight roots; organic rich like; loose; slightly damp.	0.0				HA	On hole 2:50, Drilling 3:30. Advancing hole with 8.0" hollow-stem augers. Sampling with a 2.5" ID. split-spoon (S.S.) sampler, driven by a 140 lb. pneumatic hammer, free-falling 30 in per blow.
		2.0	B-1	3 / 6 / 8	1.5 / 1.5	DR	2.0-3.5' Drove S.S.
SP	4.0 - 8.0' SAND: Salt & pepper with brown; <5% fines, non plastic; >95% sand, fine-to coarse-grained, poorly graded (mostly fine), rounded to sub angular; very loose; dry.	4.0				HA	CASTO - Driller SAL - Helper
		6.0	B-2	1 / 1 / 1	1.5 / 1.5	DR	5.0-6.5 Drove S.S.
							Sampler is washed with a TSP solution and rinsed with clean water between each sample.
CL	8.0 - 15.1 SILTY CLAY: Dk. yel. brn.; >90% fines, medium to higher plastic, high toughness; <10% sand, very fine-grained; critter holes; slight charcoal streaks; very stiff; slightly damp.	8.0				HA	
		10.0	B-3	6 / 11 / 13	1.5 / 1.5	DR	10.0 - 11.5 Drove S.S.
		12.0				HA	
		14.0					
CL-CH	15.1 - 39.5 CLAY / SANDY SILTY CLAY: Mod. yel. brn.; ~85-100% fines; med. to high plastic, higher toughness; ~0-15% sand, very fine-grained; Fe coatings and staining; charcoal streaks; slight wht ppt.; very stiff to hard; damp						15.0 - 16.5 Drove S.S.
		16.0	B-4	4 / 9 / 13	1.5 / 1.5	DR	4:30 11-4-87 8:00 11-5-87
		18.0				HA	
		20.0					20.0 - 21.5 Drove S.S.

Wahler Associates	UC DAVIS - LEHR	EXPLORATION BORING LOG		BORING NO.
		PROJECT NO. UCD 101 H	SHEET NO. 1 of 5	UCD-7

BORING LOCATION			GROUND EL.
DEPTH/ELEV. WATER	DRILL CONTRACTOR		TOTAL DEPTH
DRILL RIG	BORING DIA.	DATE DRILLED	LOGGED BY

SOIL CLASS.	DESCRIPTION	DEPTH	SAMPLE NO.	PR / RQD	REC.	MODE	REMARKS
CL-CH	15.1-39.5 CLAY / SANDY SILTY CLAY: (cont.)	20.0	B-5	6 / 13 / 19	1.5 / 1.5	DR	20.0 - 21.5 Drove S.S.
		22.0				HA	
		24.0					
	25.0 - 26.5 more sandy, crumbles easily	26.0	B-6	6 / 13 / 17	1.5 / 1.5	DR	25.0 - 26.5 Drove S.S.
		28.0				HA	
	30.0 - 30.4 clayey SAND lens (~60% sand) 30.4 - 31.5 more clayey, heavy Fe staining	30.0	B-7	5 / 9 / 17	1.5 / 1.5	DR	30.0 - 31.5 Drove S.S. 9:15
		32.0				HA	
		34.0					
	35.0 - 36.5 start of olive gray stringers, zones of cemented nodgules	36.0	B-8	6 / 9 / 13	1.5 / 1.5	DR	35.0 - 36.5 Drove S.S.
		38.0				HA	
CL	39.5 - 50.5 SANDY CLAY:	40.0					40.0 - 41.5 Drove S.S.

Wahler Associates	UC DAVIS - LEHR	EXPLORATION BORING LOG	BORING NO.
		PROJECT NO. UCD 101 H / SHEET NO. 2 OF 5	UCD-7

BORING LOCATION			GROUND EL.
DEPTH/ELEV. WATER	DRILL CONTRACTOR		TOTAL DEPTH
DRILL RIG	BORING DIA.	DATE DRILLED	LOGGED BY

SOIL CLASS.	DESCRIPTION	DEPTH	SAMPLE NO.	PR / ROD	REC.	MODE	REMARKS
CL	39.5 - 50.5 SANDY CLAY: Mod. yel. brn.; ~70-90% fines, med. plastic, med toughness; ~10-30% sand, fine-grained, poorly graded; zones of olive gray clay (mottling); Fe coatings; stiff to very stiff; moist to wet.	40.0	B-9	7 / 13 / 20	1.5 / 1.5	DR	40.0-41.5 Drove S.S.
		42.0				HA	* H_2O on plug when pulled from 40.0'. 42.0-44.0' Drilling action very easy.
		44.0					
	45.0-46.5' softer and stickier.	46.0	B-10	4 / 8 / 11	1.5 / 1.5	DR	45.0-46.5 Drove S.S.
		48.0				HA	* H_2O measured at 49.3 (inside augers) before sampling at 65' (and again at 70')
	50.5 - 75.8 SILTY CLAY: Mod. yel. brn.; >95% fines, high plastic, high toughness; <5% sand, fine-grained; Fe coatings; gray stringers; hard; slightly damp.	50.0	B-11	7 / 16 / 25	1.5 / 1.5	DR	50.0-51.5 Drove S.S.
CL		52.0				HA	50.5 - Drilling action is uniformly stiff
		54.0					
	55.0-56.5, hard, dry reduction in gray stringers.	56.0	B-12	11 / 18 / 25	1.5 / 1.5	DR	55.0-56.5 Drove S.S.
		58.0				HA	
		60.0					60.0-61.5 Drove S.S.

Wahler Associates	UC DAVIS - LEHR	EXPLORATION BORING LOG		BORING NO.
		PROJECT NO. UCD 101 H	SHEET NO. 3 OF 5	UCD-7

BORING LOCATION			GROUND EL.
DEPTH/ELEV. WATER	DRILL CONTRACTOR		TOTAL DEPTH
DRILL RIG	BORING DIA.	DATE DRILLED	LOGGED BY

SOIL CLASS.	DESCRIPTION	DEPTH	SAMPLE NO.	PR / ROD	REC.	MODE	REMARKS
CL	50.5 - 75.8 SILTY CLAY: (cont.) 60.0 - 60.5 slightly sandy, slight gray stringers.	60.0	B-13	7 / 19 / 22	1.5 / 1.5	DR	60.0 - 61.5 Drove S.S.
		62.0				HA	60.0' Drilling action is slightly illregular, hard + harder - hard, etc. (thin zones of sandy clay are harder. ~64.0' Action is very hard. (whole rig is lifted)
	65.0 - 66.5 continued clayey and hard, slightly damp!	64.0	B-14	11 / 18 / 19	1.5 / 1.5	DR	65.0 - 66.5 Drove S.S. 12:00
		66.0					
		68.0				HA	~68 - 70' Drilling easies slightly
	70.0 - 71.5 CLAY, firm to stiff (but soft when rolled) no change in H_2O %.	70.0	B-15	5 / 8 / 11	1.5 / 1.5	DR	70.0 - 71.5 Drove S.S.
		72.0				HA	70 - 75' Drilling easier
		74.0					1:40
SM	75.8 - 78.0 CLAYEY SILTY SAND: DK. to moderate yel. brn.; ~45% fines, non to slightly plastic, no toughness; ~65% sand, fine-grained, poorly graded (sporadic med to coarse, rounded); med. to highly pervious; slight banding; medium dense; wet.	76.0	B-16	6 / 8 / 11	1.5 / 1.5	DR	75.0 - 76.5 Drove S.S.
SW	~78.0 - 90.0' GRAVELLY SAND:	78.0				HA	~78.0 Drilling slightly to much harder
		80.0					80.0 - 81.5

Wahler Associates	UC DAVIS - LEHR	EXPLORATION BORING LOG	BORING NO.
		PROJECT NO. UCD 101 H / SHEET NO. 4 OF 5	UCD-7

BORING LOCATION			GROUND EL.
DEPTH/ELEV. WATER	DRILL CONTRACTOR		TOTAL DEPTH
DRILL RIG	BORING DIA.	DATE DRILLED	LOGGED BY

SOIL CLASS.	DESCRIPTION	DEPTH	SAMPLE NO.	PR / RQD	REC.	MODE	REMARKS
SW	78.0 - 90.0 GRAVELLY SAND: Salt & pepper; <5% fines; ~70% sand, fine- to coarse-grained, well graded, rounded, abundant qtz; highly pervious; loose to very dense; saturated.	80.0	No sample retained	1 / 2 / 3	0.0 / 1.5	DR	80.0 - 81.5 Drove S.S.
	- 82.0 - 84.0' gravel (gravel jones are very dense).	82.0				HA	82.0 - 84.0 Drilling action jumpy, suspect gravel (coarse).
		84.0					84.0' smoother, Casto thinks still gravelly (fines).
	85.0 - 86.5 gravelly sand, well graded, rounded.		B-17	9 / 25 / 39	1.2 / 1.5	DR	85.0 - 86.5 Drove S.S.
		86.0					S.S. 11-5-87
							8:00 11-6-87
		88.0	B-18			HA	* B-18 contains the stuff that accumulated in the augers between 85 - 90.0'. Obtained when sampling attempted at 90.0'.
	Bottom hole 90.0'	90.0					90.0' Attempted to drive S.S. - 3' of stuff (flowing sands) in hollow-stems. Dislodged sand and installed well.
		92.0					WELL CONSTRUCTION: 0.0 - 80.0 Solid (2.0" SCH 40 PVC, Flush thread) 80.0 - 90.0 Slotted (0.020 slots) SEAL & SAND 0.0 - 75.0 Grout 75.0 - 90.0 #3 Sand

[illegible]

Wahler Associates	UC DAVIS - LEHR	EXPLORATION BORING LOG	BORING NO.
		PROJECT NO. UCD 101 H / SHEET NO. 5 OF 5	UCD-7

BORING LOCATION			GROUND EL.
DEPTH/ELEV. WATER 39.0 (11-3-87)	DRILL CONTRACTOR HEW Drilling		TOTAL DEPTH 56.0
DRILL RIG CME 75	BORING DIA. 8.0"	DATE DRILLED 11-2-87	LOGGED BY P.J.L.

SOIL CLASS.	DESCRIPTION	DEPTH	SAMPLE NO.	PR / ROD	REC.	MODE	REMARKS
SM	0.0-5.8 SILTY SAND: Dk yel. brn.; ~40% fines, non plastic; ~60% sand, fine-grained (very sporadic medium-grained); roots; non cemented; loose; dry to slightly damp.	0.0				HA	On hole 11:20, drilling 12:00. Advancing hole with 8.0" hollow-stem augers. Sampling with a 2.5" ID split spoon sampler (S.S.) driven by a 140 lb. pneumatic hammer, free-falling 30 in per blow.
		2.0	B-1	4 / 5 / 6	1.5 / 1.5	DR	
		4.0				HA	2.0-3.5 Drove S.S.
							5.0-6.5 Drove S.S.
CL	5.8-18.0 SILTY CLAY: Dk brn. to mod. yel. brn.; ~95% fines, med. plastic, med toughness; ~5% sand, very fine-grained; bioturbation (critter holes) some gray clay stringers; stiff to very stiff; damp.	6.0	B-2	4 / 5 / 9	1.5 / 1.5	DR	CASTO - Driller SAL - Helper
		8.0				HA	
	10.0' no more dk brn.	10.0					10.0-11.5 Drove S.S.
			B-3	5 / 10 / 14	1.5 / 1.5	DR	
		12.0				HA	
		14.0					
							15.0-16.5 Drove S.S.
	~16.0 grading more sandy	16.0	B-4	2 / 6 / 9	1.5 / 1.5	DR	
ML-CL	18.0-31.5 SANDY CLAYEY SILT: Mod yel. brn with orangish tinge; ~50-70% fines, low plasticity, low toughness; ~30-50% sand, very fine-grained;	18.0				HA	
		20.0					20.0-21.5 Drove S.S.

Wahler Associates	UC DAVIS - LEHR	EXPLORATION BORING LOG	BORING NO.
		PROJECT NO. UCD 201 H / SHEET NO. 1 of 3	UCD-8

DEPTH/ELEV. WATER	DRILL CONTRACTOR		GROUND EL.
DRILL RIG	BORING DIA.	DATE DRILLED	TOTAL DEPTH
			LOGGED BY

SOIL CLASS.	DESCRIPTION	DEPTH	SAMPLE NO.	PR / ROD	REC.	MODE	REMARKS
ML-CL	18.0-31.5 SANDY CLAYEY SILT: (cont.) grading % of sand, slight charcoal streaks; Fe coatings; very stiff; damp to slightly moist.	20.0	B-5	3 / 7 / 10	1.5 / 1.5	DR	20.0-21.5 Drove S.S.
		22.0				HA	
		24.0					
	25.0' slightly more plastic fines		B-6	5 / 12 / 16	1.5 / 1.5	DR	25.0-26.5 Drove S.S.
		26.0				HA	
	30.0'-30.5 Sandy 30.5-31.5 more clayey	30.0	B-7	5 / 8 / 10	1.5 / 1.5	DR	30.0-31.5 Drove S.S. 2:04
CL-CH	~31.5-42.5 SILTY CLAY: Mod. yel. brn.; ~95% fines, med. plastic; mod toughness; ~5% sand, very fine-grained; charcoal streaks; Fe staining; stiff to very stiff; moist.	32.0				HA	
		34.0					
			B-8	4 / 7 / 9	1.5 / 1.5	DR	35.0-36.5 Drove S.S.
		36.0					
		38.0				HA	+ H_2O to 38.5 when sampler pulled from 51.5'.
		40.0					40.0-41.5 Drove S.S.

Wahler Associates	UC DAVIS - LEHR	EXPLORATION BORING LOG		BORING NO.
		PROJECT NO. UCD 201 H	SHEET NO. 2 OF 3	UCD-8

BORING LOCATION			GROUND EL.
DEPTH/ELEV. WATER	DRILL CONTRACTOR		TOTAL DEPTH
DRILL RIG	BORING DIA.	DATE DRILLED	LOGGED BY

SOIL CLASS.	DESCRIPTION	DEPTH	SAMPLE NO.	PR / RQD	REC.	MODE	REMARKS
CL-CH	31.5-42.5 SILTY CLAY: (cont.) 40.0' abundant wht. ppt.; some gray clay; hard; damp.	40.0	B-9	9 / 16 / 20	1.5 / 1.5	DR	40.0-41.5 Drove S.S.
CL-SC	42.5-54.0 SANDY CLAY: Olive brn with Fe mottling; ~70-80% fines, slightly plastic, med to lower toughness; ~20-30% sand, very fine-grained; sporadic cementation; stiff to very stiff; wet.	42.0				HA	* H_2O at 42.5 when plug pulled from 45.0'.
		44.0					
		46.0	B-10	4 / 5 / 9	1.5 / 1.5	DR	45.0-46.5 Drove S.S. WELL CONSTRUCTION 0.0-43.5 Solid (2.0" SCH 40 PVC, flush thread) 43.5-53.5 Slotted (0.020 slots) SEAL & SAND 0.0-39.0 Grout 39.0-53.5 #3 Sand 53.5-56.0 Bentonite 11-2-87 4:30
		48.0				HA	
	50.0-50.3 sand 50.3-51.5 sandy clay, heavy Fe mottling	50.0	B-11	4 / 9 / 22	1.5 / 1.5	DR	50.0-51.5 Drove S.S.
		52.0				HA	11-3-87 8:15 AM DATA ON THIS LOG ARE AN APPROXIMATION OF THE GEOLOGIC AND SUBSURFACE CONDITIONS BECAUSE THE INFORMATION WAS OBTAINED FROM INDIRECT, DISCONTINUOUS, AND POSSIBLY DISTURBED SAMPLING NECESSITATED BY USE OF SMALL-DIAMETER HOLES. ROTARY AND WASH BORING HOLES HAVE FURTHER COMPLICATIONS IN THIS REGARD BECAUSE OF THE NEED TO USE DRILLING FLUID AND/OR CASING IN ADVANCING HOLES. * Drilling action gets hard ~54'.
CH	54.0-56.0 SILTY CLAY: Mod. yel.brn.; >95% fines, high plastic, high toughness; <5% sand, fine-grained; some gray stringers; slight charcoal; hard; slightly damp. Bottom hole 56.0'	54.0					
		56.0	B-12	11 / 21	1.0 / 1.0	DR	55.0-56.0 Drove S.S. Terminated boring at 56.0'. Installed well.
		58.0					
		60.0					

THIS LOG INDICATES CONDITIONS IN THIS HOLE ONLY ON THE DATE INDICATED AND MAY NOT REPRESENT CONDITIONS AT OTHER LOCATIONS AND ON OTHER DATES. ANY WATER LEVELS SHOWN ARE SUBJECT TO VARIATION.

THIS HOLE WAS LOGGED IN SUCH A WAY AS TO PROVIDE DATA PRIMARILY FOR DESIGN PURPOSES AND NOT NECESSARILY FOR THE PURPOSES OF SPECIFIC CONTRACTORS.

THE STRATIFICATION LINES OR DEPTH INTERVALS REPRESENT THE APPROXIMATE BOUNDARIES BETWEEN MATERIAL TYPES, AND THE TRANSITIONS MAY BE GRADUAL.

SOIL CLASSIFICATIONS SHOWN ON LOGS ARE FIELD CLASSIFICATIONS BASED ON THE UNIFIED SOILS CLASSIFICATION SYSTEM.

Wahler Associates	UC DAVIS - LEHR	EXPLORATION BORING LOG	BORING NO.
		PROJECT NO. UCD 201 H / SHEET NO. 3 OF 3	UCD-8

BORING LOCATION

DEPTH/ELEV. WATER [illegible] | DRILL CONTRACTOR H&W Drilling | GROUND EL.

DRILL RIG CME 75 | BORING DIA. 8.0" | DATE DRILLED 11-3/4-87 | TOTAL DEPTH 51.5 | LOGGED BY D.J.S.

SOIL CLASS.	DESCRIPTION	DEPTH	SAMPLE NO.	PR / RQD	REC.	MODE	REMARKS
SM	0.0-4.5 SILTY SAND: Dk yel. brn.; ~30% fines, non plastic; ~70% sand, fine-grained, poorly graded; slight roots; lenses of clean sand; loose; dry to slightly damp.	0.0			--	HA	On hole 3:00, drilling 3:25. Advancing hole with 8.0" hollow-stem augers. Sampling with a 2.5" ID split spoon (S.S.) sampler, driven by a 140 lb. pneumatic hammer, free-falling 30 in per blow.
		2.0	B-1	2 / 2 / 3	1.5 / 1.5	DR	2.0-3.5 Drove S.S.
CL-CH	4.5-10.3 SILTY CLAY: Dk brn.; >90% fines, medium to higher plastic, higher toughness; <10% sand, fine-grained, organic like; critter holes; very stiff; slightly damp.	4.0				HA	5.0-6.5 Drove S.S.
		6.0	B-2	7 / 11 / 19	1.5 / 1.5	DR	CASTO Pineda-Driller SAL Tejada-Helper
		8.0				HA	
CL	10.3-19.0 SANDY CLAY: Mod. yel. brn.; ~70-90% fines, med. plastic, med toughness; ~10-30% sand, fine-grained, slight critter holes; stiff to very stiff; damp.	10.0	B-3	4 / 6 / 8	1.5 / 1.5	DR	10.0-11.5 Drove S.S.
		12.0				HA	
	15.0-16.5 grading more clayey (plastic); less sandy.	14.0					15.0-16.5 Drove S.S.
		16.0	B-4	4 / 6 / 10	1.5 / 1.5	DR	
		18.0				HA	~18-19' Drilling action getting harder.
CL	19.0-39.5 SILTY CLAY: As above with ~95% fines; ~5% sand.	20.0					20.0-21.5 Drove S.S.

Wahler Associates

UC DAVIS - LEHR

EXPLORATION BORING LOG

PROJECT NO. UCD 201 H | SHEET NO. 1 of 3 | BORING NO. UCD-9

BORING LOCATION				GROUND EL.
DEPTH/ELEV. WATER		DRILL CONTRACTOR		TOTAL DEPTH
DRILL RIG	BORING DIA.		DATE DRILLED	LOGGED BY

SOIL CLASS.	DESCRIPTION	DEPTH	SAMPLE NO.	PR / ROD	REC.	MODE	REMARKS
CL	19.0 - 39.5 SILTY CLAY: (cont.) 20.0-21.5 charcoal streaks, hard.	20.0	B-5	8 / 14 / 22	1.5 / 1.5	DR	20.0 - 21.5 Drove S.S.
		22.0				HA	
		24.0					
	25.0-26.5 slightly more sandy, crumbles	26.0	B-6	6 / 11 / 15	1.5 / 1.5	DR	25.0-26.5 Drove S.S. 4:30 PM 11-3-87 6:00 AM 11-4-87
		28.0				HA	
	30.0' again sandy (~20%)	30.0	B-7	4 / 6 / 11	1.5 / 1.5	DR	30.0-31.5 Drove S.S.
		32.0				HA	
		34.0					
	35.0' more clayey; abundant Fe coatings; some olive gray clay stringers; wht. ppt.	36.0	B-8	8 / 15 / 19	1.5 / 1.5	DR	35.0 - 36.5 Drove S.S.
		38.0				HA	~37.5' Drilling action getting hard.
CL. SC	39.5' - 50.8 - SANDY CLAY: Mod. yel. brn with olive gray and Fe mottling.	40.0					~39.5 Drilling gets easier. 40.0 - 41.5 Drove S.S.

Wahler Associates	UC DAVIS - LEHR	EXPLORATION BORING LOG	BORING NO.
		PROJECT NO. UCD 201 H / SHEET NO. 2 OF 3	UCD-9

BORING LOCATION			GROUND EL.
DEPTH/ELEV. WATER	DRILL CONTRACTOR		TOTAL DEPTH
DRILL RIG	BORING DIA.	DATE DRILLED	LOGGED BY

SOIL CLASS.	DESCRIPTION	DEPTH	SAMPLE NO.	PR / ROD	REC.	MODE	REMARKS
CL-SC	39.5 - 50.6 SANDY CLAY: (cont.) ~60-70 % fines, slightly plastic, low toughness; ~30-40 % sand, fine-grained, poorly graded; abundant Fe mottling; some cemented nodgules; olive gray streaks; charcoal streaks; stiff to very stiff; moist to wet.	40.0	B-9	5 / 7 / 10	1.5 / 1.5	DR	40.0 - 41.5 Drove S.S.
		42.0				HA	≈ H_2O at 42.5' on rods when pulled from 45.0'.
		44.0					
			B-10	6 / 9 / 11	1.5 / 1.5	DR	45.0 - 46.5 Drove
		46.0					
		48.0				HA	
		50.0	B-11	6 / 14 / 22	1.5 / 1.5	DR	50.0 - 51.5 Drove S.S.
CH	50.6 - 51.5 SILTY CLAY: Mod. yel. brn.; >95% fines, higher plastic; <5% sand, fine-grained; Fe mottling; hard; slightly damp. Bottom hole 51.5'	52.0					Terminated boring at 51.5'. Installed well.
		54.0					
		56.0					
		58.0					
		60.0					

WELL CONSTRUCTION

0.0 - 40.0 solid (2.0" SCH 40 PVC flush thread)

40.0 - 50.0 slotted (0.020 slots)

SEAL & SAND

0.0 - 35.0 grout

35.0 - 50.0 #3 sand

50.0 - 51.5 bentonite pellets

DATA ON THIS LOG ARE AN APPROXIMATION OF THE GEOLOGIC AND SUBSURFACE CONDITIONS BECAUSE THE INFORMATION WAS OBTAINED FROM INDIRECT, DISCONTINUOUS, AND POSSIBLY DISTURBED SAMPLING DESCRIBED BY USE OF SMALL-DIAMETER HOLES. ROTARY AND WASH BORING HOLES HAVE FURTHER COMPLICATIONS IN THIS REGARD BECAUSE OF THE NEED TO USE DRILLING FLUID AND/OR CASING IN ADVANCING HOLES.

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Wahler Associates	UC DAVIS - LEHR	EXPLORATION BORING LOG		BORING NO.
		PROJECT NO. UCD 201 H	SHEET NO. 3 OF 3	UCD-9

APPENDIX C
SECTION 2

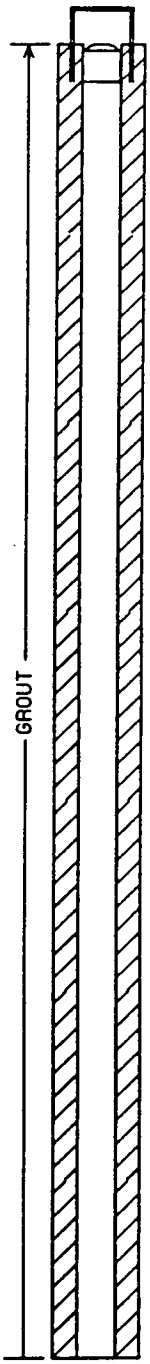
DAMES & MOORE
OLD UCD LANDFILL SWAT MONITORING WELLS

PHASE II SITE CHARACTERIZATION
LEHR ENVIRONMENTAL RESTORATION

MONITORING WELL UCD-10

JOB NAME:	UCD LEHR SWAT
JOB NUMBER:	00234-213-044
DATE COMPLETED:	10/11/89
DRILLING METHOD:	HOLLOW STEM AUGER
SURFACE ELEVATION:	FT. MSLD
TOP OF METAL CASING:	50.84FT. MSLD

DEPTH IN FEET	SAMPLING: SAMPLER TYPE	SAMPLING: BLOWS PER FOOT	SAMPLING: OVM (ppm)	SAMPLES	SYMBOLS	DESCRIPTION
0	U	14			ML / ML / SM	BROWN TO DARK BROWN SILT with some fine sand, dry. Grades to yellow brown fine sandy silt, moist.
5	U	11			SM	BROWNISH YELLOW TO BROWN FINE SAND, with some silt, moist.
10	U	56			CL / ML	DARK BROWN SILTY CLAY, moist, hard. Some light mottling. Dark brown, stiff to hard. Lower silt content.
15	U	39				
20	U	41				Yellow brown with black coating and white vein fillings, moderate reaction with HCL. Clay content decreasing, minor very fine grained sand.
25	U	40				Some sand, very fine grained. Clay content.
30	U	52				Orange brown, olive gray and dark brown mottled with whitish gray concretions, reacts with HCL.
35						

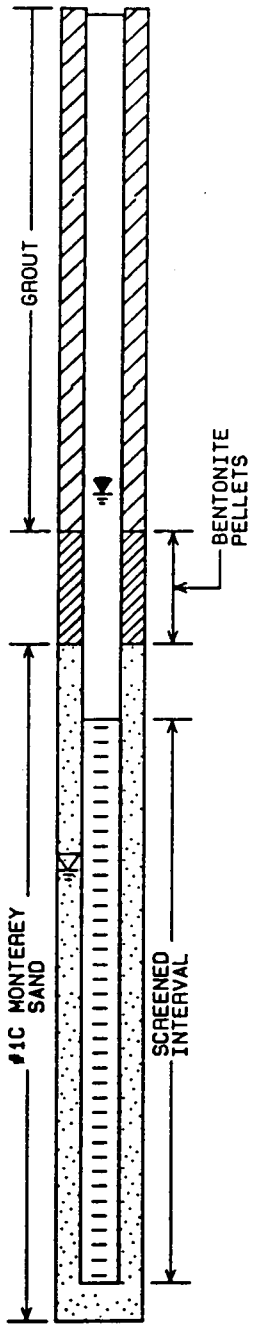


WELL LOG

Dames & Moore

MONITORING WELL UCD-10

DEPTH IN FEET	SAMPLING: SAMPLER TYPE	SAMPLING: BLOWS PER FOOT	SAMPLING: OVM (ppm)	SAMPLES	SYMBOLS	DESCRIPTION
35	U	73			CL/ML	
40	U	55				Higher amount of mottling.
45	U	81				Olive gray color becoming more prevalent. Static water level after 1.5 hours recovery.
50	U	50			CL	Grading to clay. Contains some concretions to 3 cm.
55	U				CL/ML	Yellow brown silty clay, moist, stiff. 8" thick silt layer. Water first encountered during drilling.
60	U	56				Orange brown fine sandy silt, with clay lenses.
65	U	56				Yellow brown silty clay, moist, stiff. Interbedded yellow brown clayey silt and orange brown very fine sandy silt.
70						



WELL LOG

Dames & Moore

MONITORING WELL UCD-10

DEPTH IN FEET	SAMPLING: SAMPLER TYPE	SAMPLING: BLOWS PER FOOT	SAMPLING: OVM (ppm)	SAMPLES	SYMBOLS	DESCRIPTION
70						
75						
80						
85						
90						
95						
100						
105						

NOTES:
1) 12 INCH PILOT HOLE COMPLETED TO A DEPTH OF 70 FEET BELOW GROUND SURFACE ON 10/11/89.
2) 4 INCH SCHEDUAL 40 PVC CASING INSTALLED TO 54 FEET. SCREEN (.010 SLOT) INTERVAL FROM 54 FEET TO 69 FEET.

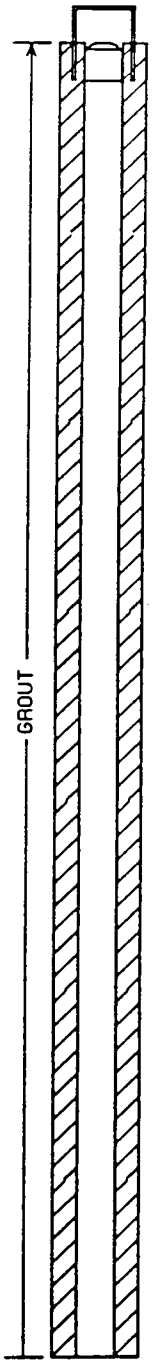
WELL LOG

Dames & Moore

MONITORING WELL UCD-11

JOB NAME:	UCD LEHR SWAT
JOB NUMBER:	00234-213-044
DATE COMPLETED:	10/17/89
DRILLING METHOD:	HOLLOW STEM AUGER
SURFACE ELEVATION:	FT. MSLD
TOP OF METAL CASING:	51.67FT. MSLD

DEPTH IN FEET	SAMPLING: SAMPLER TYPE	SAMPLING: BLOWS PER FOOT	SAMPLING: OVM (ppm)	SAMPLES	SYMBOLS	DESCRIPTION
0	U	7		■	ML/SM	BROWN SILT, TO VERY FINE GRAINED SANDY SILT, dry, roots and root casts.
5	U	15		■	CL/ML	DARK BROWN SILTY CLAY, dry, hard, some pores.
10	U	28		■	ML/CL	YELLOW BROWN CLAYEY SILT, moist, stiff to very stiff.
						Some interbedded silty sand layers.
15	U	14		■		Dark yellow brown. Higher clay content, pores.
20	U	19		■	ML	YELLOW BROWN SILT, medium stiff, moist.
						Interbedded silty sand layers, some gravel lenses, some black mottling.
25	U	35		■	SM/SC	YELLOW BROWN SILTY CLAYEY SAND, with minor gravel.
30	U	33		■	ML/CL	YELLOW BROWN, ORANGE BROWN, OLIVE GRAY, MOTTLED SILTY CLAY, some black specks, white $CaCO_3$ fillings, moist, stiff.
						Moist, very stiff.
35						[No recovery, lost core barrel]

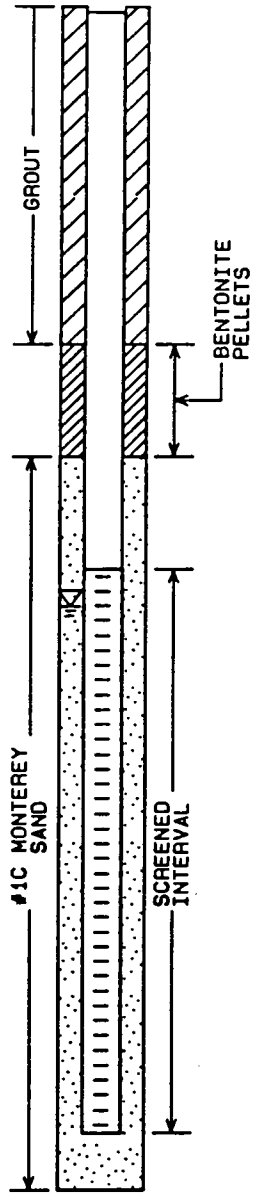


WELL LOG

Dames & Moore

MONITORING WELL UCD-11

DEPTH IN FEET	SAMPLING: SAMPLER TYPE	SAMPLING: BLOWS PER FOOT	SAMPLING: OVM (ppm)	SAMPLES	SYMBOLS	DESCRIPTION
35						
40	U	21		■	ML/CL	YELLOW BROWN, ORANGE BROWN, OLIVE GRAY, CLAYEY SILT, mottled with black specks, white CaCO3, vein fillings, moist, medium stiff.
						Higher silt and very fine sand content.
						Interbedded gray green very fine grained sand.
45	U	34		■		
50	U	24		■		Wet. First water encountered during drilling.
55	U	21		■	ML/SC	YELLOW BROWN CLAYEY SILT, wet, soft.
						Higher sand content occurring as thin laminations, some mottling, and root casts.
					CL/ML	YELLOW BROWN SILTY CLAY, moist, very stiff.
60	U	29		■		
65	U	20		■		White CaCO3.
70						



NOTES:
1) 12 INCH PILOT HOLE COMPLETED TO A DEPTH OF 66.5 FEET BELOW GROUND SURFACE ON 10/18/89.
2) 4 INCH SCHEDUAL 40 PVC CASING INSTALLED TO 65 FEET. SCREEN (.010 SLOT) INTERVAL FROM 50 FEET TO 65 FEET.

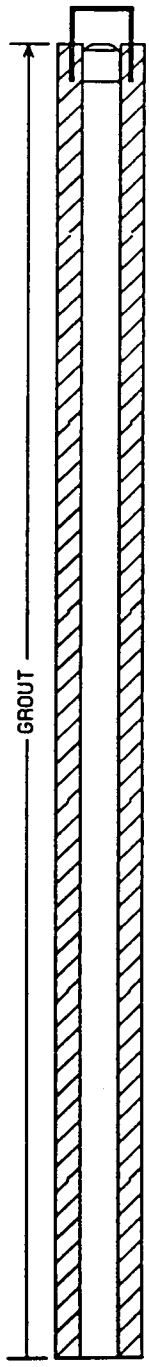
WELL LOG

Dames & Moore

MONITORING WELL UCD-12

JOB NAME:	UCD LEHR SWAT
JOB NUMBER:	00234-213-044
DATE COMPLETED:	10/19/89
DRILLING METHOD:	HOLLOW STEM AUGER
SURFACE ELEVATION:	FT. MSLD
TOP OF PVC WELL:	52.73FT. MSLD

DEPTH IN FEET	SAMPLING: SAMPLER TYPE	SAMPLING: BLOWS PER FOOT	SAMPLING: OVM (ppm)	SAMPLES	SYMBOLS	DESCRIPTION
0	U	21		■	ML	YELLOW BROWN SILT, dry, roots and root casts.
					ML/CL	
5	U	49		■		DARK BROWN CLAYEY SILT, dry, very stiff.
10	U	18		■		Grades to yellow brown, lower clay content, medium stiff, moist, pores.
15	U	33		■		
					ML/SC	
20	U	40		■		ORANGE BROWN CLAYEY VERY FINE GRAINED SANDY SILT, soft to medium stiff.
25	U	30		■	SM	YELLOW BROWN SILTY CLAYEY VERY FINE TO MEDIUM GRAINED SAND, moist, some staining.
					ML/SM	Higher silt content.
					SM	Lower silt content.
					ML/SC	YELLOW BROWN VERY FINE GRAINED SANDY CLAYEY SILT, moist, medium stiff.
30	U	32		■		
35					ML/CL	

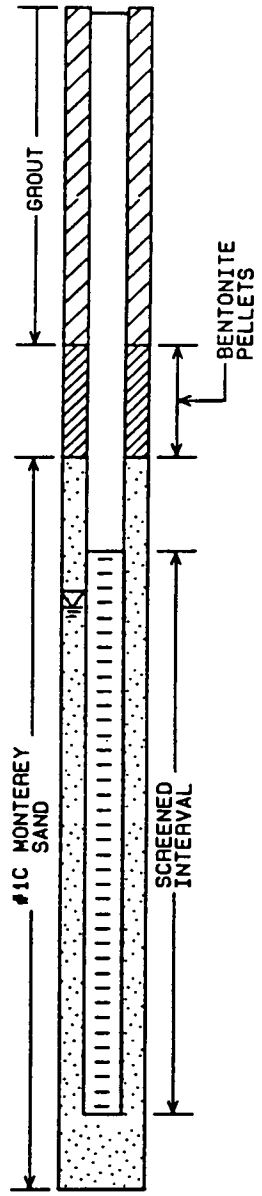


WELL LOG

Dames & Moore

MONITORING WELL UCD-12

DEPTH IN FEET	SAMPLING: SAMPLER TYPE	SAMPLING: BLOWS PER FOOT	SAMPLING: OVM (ppm)	SAMPLES	SYMBOLS	DESCRIPTION
35	U	33		■	ML / CL	YELLOW BROWN SILTY CLAY, moist, very stiff.
40	U	32		■		Higher silt content. Contains CaCO3 vein fillings, moist, soft to medium stiff.
45	U	36		■		Green gray mottling, lower clay content.
					SM / ML / SM / ML	INTERBEDDED SILTY SAND, SANDY SILT Beds approximately 3-6" thick.
50	U	37		■	SM / ML / CL	YELLOW BROWN CLAYEY SILT, wet, medium stiff. First water encountered during drilling.
55	U	21		■		
60	U	30		■		Yellow brown clayey silt, wet, medium stiff.
65	U	48		■	CL / ML	YELLOW BROWN SILTY CLAY, moist, stiff to very stiff.
70						



NOTES:
1) 12 INCH PILOT HOLE COMPLETED TO A DEPTH OF 65.0 FEET BELOW GROUND SURFACE ON 10/19/89.
2) 4 INCH SCHEDUAL 40 PVC CASING INSTALLED TO 64.5 FEET. SCREEN (.010 SLOT) INTERVAL FROM 49.5 TO 64.5 FEET.

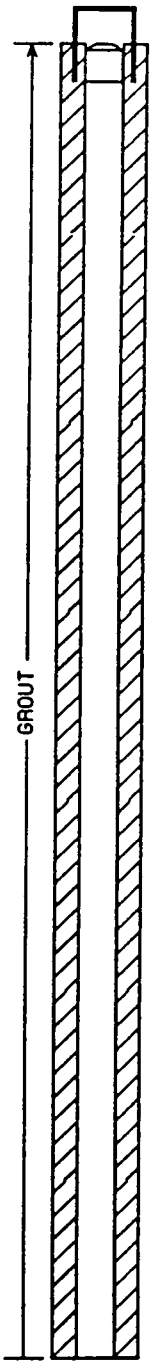
WELL LOG

Dames & Moore

MONITORING WELL UCD-13

JOB NAME:	UCD LEHR SWAT
JOB NUMBER:	00234-213-044
DATE COMPLETED:	10/26/89
DRILLING METHOD:	HOLLOW STEM AUGER
SURFACE ELEVATION:	FT. MSLD
TOP OF PVC WELL:	53.16FT. MSLD

DEPTH IN FEET	SAMPLING: SAMPLER TYPE	SAMPLING: BLOWS PER FOOT	SAMPLING: OVM (ppm)	SAMPLES	SYMBOLS	DESCRIPTION
0	U	18		■	SM	BROWN TO YELLOW BROWN SILTY VERY FINE GRAINED SAND WITH MINOR CLAY, few pebbles, <5%, moist.
5	U	33		■	CL	DARK BROWN SILTY CLAY, moist, stiff. Higher clay content, few root casts.
10	U	79		■	CL/ML	DARK BROWN SILTY CLAY, CLAYEY SILT. Higher sand content.
15	U	30		■	ML	BROWN TO YELLOW BROWN SILT WITH MINOR CLAY, moist, few root casts.
20	U	40		■	ML/CL	BROWN TO YELLOW BROWN CLAYEY SILT, SILTY CLAY, minor sand, some gray green mottling, thin clay laminations, moist. Higher silt content, mottling and root casts.
25	U	63		■	SM	GRADATIONAL CHANGE TO YELLOW BROWN SILTY VERY FINE GRAINED SAND, moist, some mottling, pores. Higher silt and clay content.
30	U	73		■	ML/CL	
35						

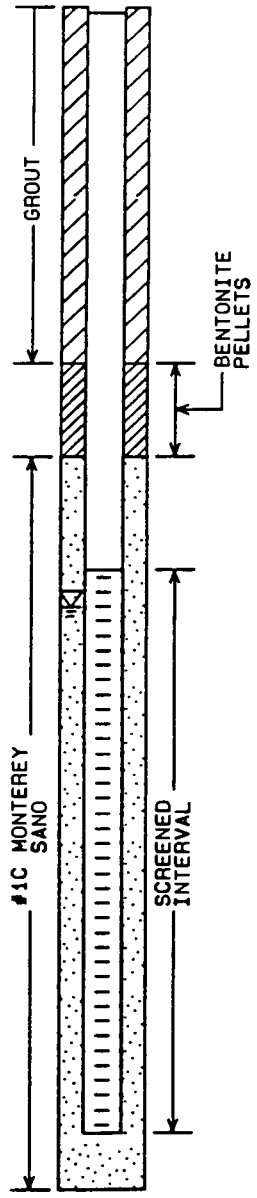


WELL LOG

Dames & Moore

MONITORING WELL UCD-13

DEPTH IN FEET	SAMPLING: SAMPLER TYPE	SAMPLING: BLONS PER FOOT	SAMPLING: OVM (ppm)	SAMPLES	SYMBOLS	DESCRIPTION
35	U	57			ML/CL	YELLOW BROWN VERY FINE GRAINED SANDY CLAYEY SILT, moist, medium stiff, few pores. Silty layer at 38' to 39'.
40	U	69				YELLOW BROWN CLAYEY SILT TO SILTY CLAY, with gray mottling, few pores, moist, stiff. Higher sand content at 42.5' to 43'.
45	U	63			ML	YELLOW BROWN CLAYEY SILT, sandier at 45.5', decreasing sand and clay at 46'. Higher sand content.
50	U	77			ML/SM	YELLOW BROWN VERY FINE GRAINED SANDY CLAYEY SILT, SILTY CLAY, wet, soft. First water encountered during drilling.
					ML/CL	YELLOW BROWN CLAYEY SILT TO SILTY CLAY, minor sand, root casts.
55						
60	U	49				As above Moist, stiff, decreasing root casts, some black specks.
65	U	89				
70						



NOTES:
1) 12 INCH PILOT HOLE COMPLETED TO A DEPTH OF 65 FEET BELOW GROUND SURFACE ON 10/26/89.
2) 4 INCH SCHEDUAL 40 PVC CASING INSTALLED TO 64.5 FEET. SCREEN (.010 SLOT) INTERVAL FROM 50 FEET TO 65 FEET.

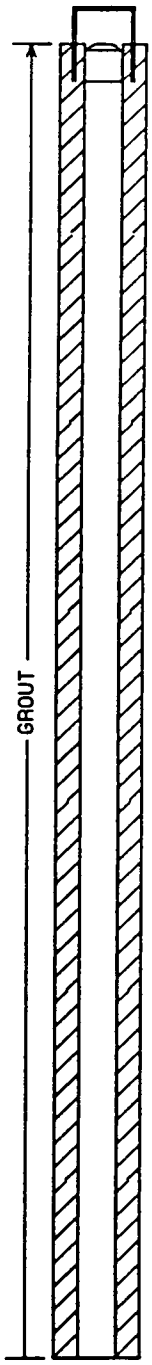
WELL LOG

Dames & Moore

MONITORING WELL UCD-14

JOB NAME:	UCD LEHRSWAT
JOB NUMBER:	00234-213-044
DATE COMPLETED:	11/15/89
DRILLING METHOD:	CASING HAMMER
SURFACE ELEVATION:	FT. MSLD
TOP OF PVC WELL:	52.70FT. MSLD

DEPTH IN FEET	SAMPLING: SAMPLER TYPE	SAMPLING: BLOWS PER FOOT	SAMPLING: OVM (ppm)	SAMPLES	SYMBOLS	DESCRIPTION
0	G				ML/CL	DARK BROWN CLAYEY SILT, moist, hard.
5	G					
10	U				ML/SM	YELLOW BROWN FINE SANDY SILT, dry.
	G					
15	G				ML	YELLOW BROWN SILT WITH MINOR SAND AND CLAY, moist.
					CL/ML	BROWN SILTY CLAY, CLAYEY SILT, moist.
20	G					Grading yellow brown, hard.
25	G					Becoming stiff to very stiff, decreasing clay.
30	G					Some thin sand lenses at 30' to 31'.
35						

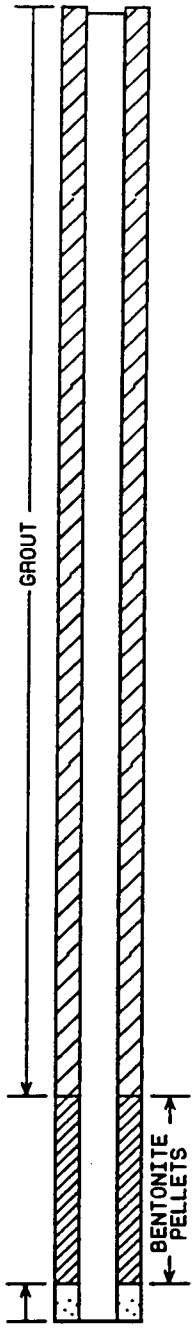


WELL LOG

Dames & Moore

MONITORING WELL UCD-14

DEPTH IN FEET	SAMPLING: SAMPLER TYPE	SAMPLING: BLOWS PER FOOT	SAMPLING: OVM (ppm)	SAMPLES	SYMBOLS	DESCRIPTION
35	G				CL/ML	
40	G					Some white concretions.
45	G					
50	G					Lower clay content.
55	G				ML/SC	YELLOW BROWN CLAYEY SILT, with minor coarse sand and gravel.
60	G					Lower sand and gravel content.
65	G				CL/SC	YELLOW BROWN SANDY SILTY CLAY.
70						

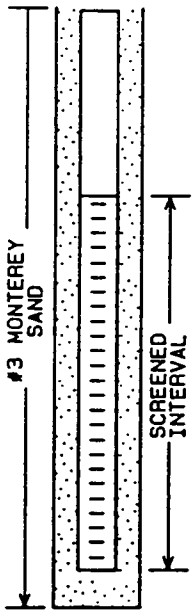


WELL LOG

Dames & Moore

MONITORING WELL UCD-14

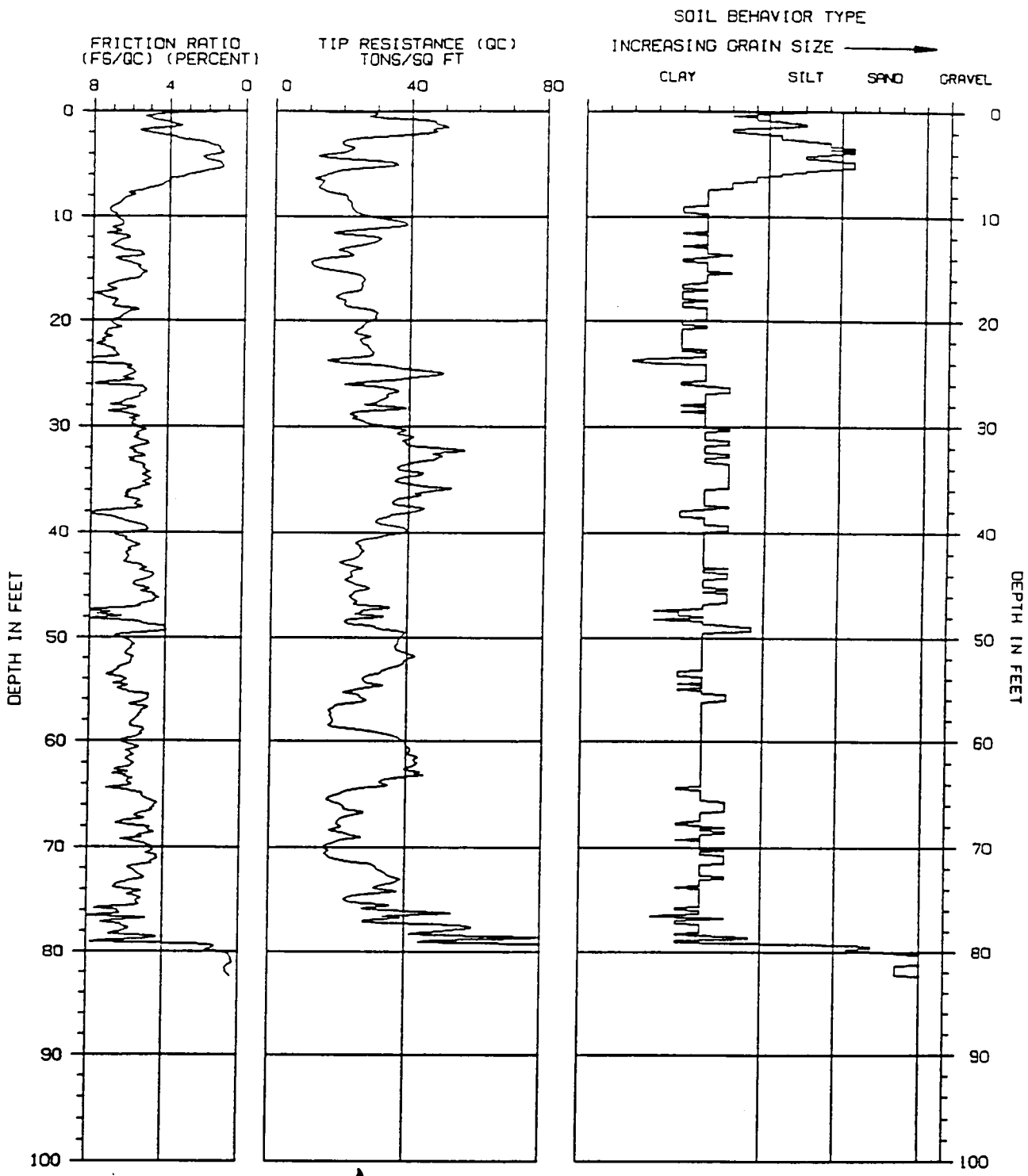
DEPTH IN FEET	SAMPLING: SAMPLER TYPE	SAMPLING: BLOWS PER FOOT	SAMPLING: OVM (ppm)	SAMPLES	SYMBOLS	DESCRIPTION
70					CL/SC	
	G					
75						
	G					
80	G				GP	BLACK GRAVEL 1/4" TO 3/4", medium well rounded.
					GW	COARSE SAND TO 1" GRAVEL, metamorphic/ volcanic (?) <10% quartz.
	G					
85						
90						
95						
100						
105						



NOTES:
1) 10 INCH PILOT HOLE COMPLETED TO A DEPTH OF 86 FEET BELOW GROUND SURFACE ON 11/15/89.
2) 4 INCH SCHEDUAL 40 PVC CASING INSTALLED TO 75 FEET. SCREEN INTERVAL FROM 75 FEET TO 85 FEET.

WELL LOG

Dames & Moore



Different scale than rest of the printouts.

ASSUMED TOTAL UNIT WT = 125 PCF

ASSUMED DEPTH OF WATER TABLE = 60.0 FT

CONE PENETRATION TEST

SOUNDING NUMBER: CPT-~~2~~ 1

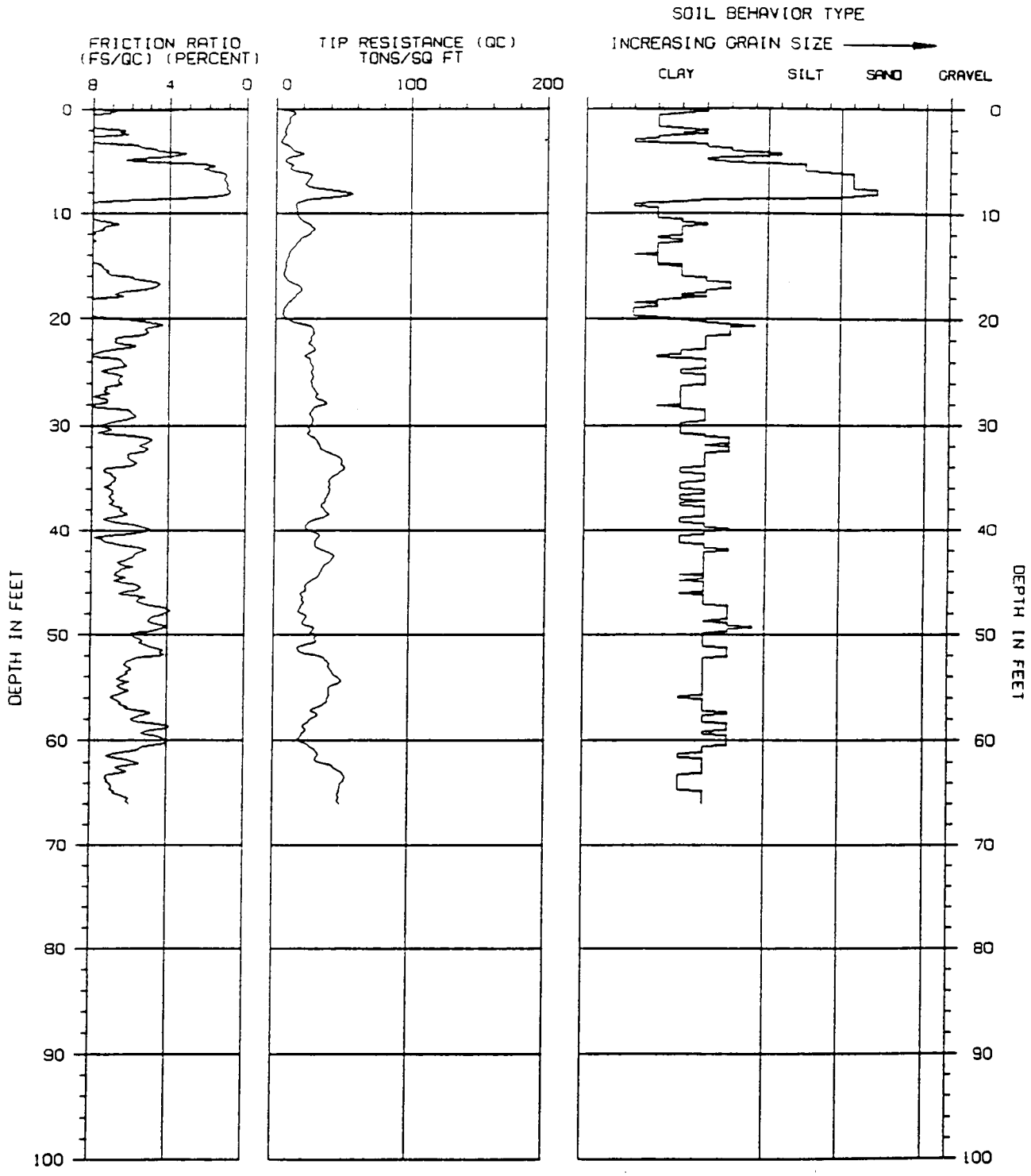
PROJECT NAME : D&M/UCD-LEHR

PROJECT NUMBER : 9111-01108

LOCATION : DAVIS CA

DATE : 01-10-1991

THE EARTH TECHNOLOGY CORPORATION



ASSUMED TOTAL UNIT WT = 110 PCF

ASSUMED DEPTH OF WATER TABLE = 65.0 FT

CONE PENETRATION TEST

SOUNDING NUMBER: CPT-2

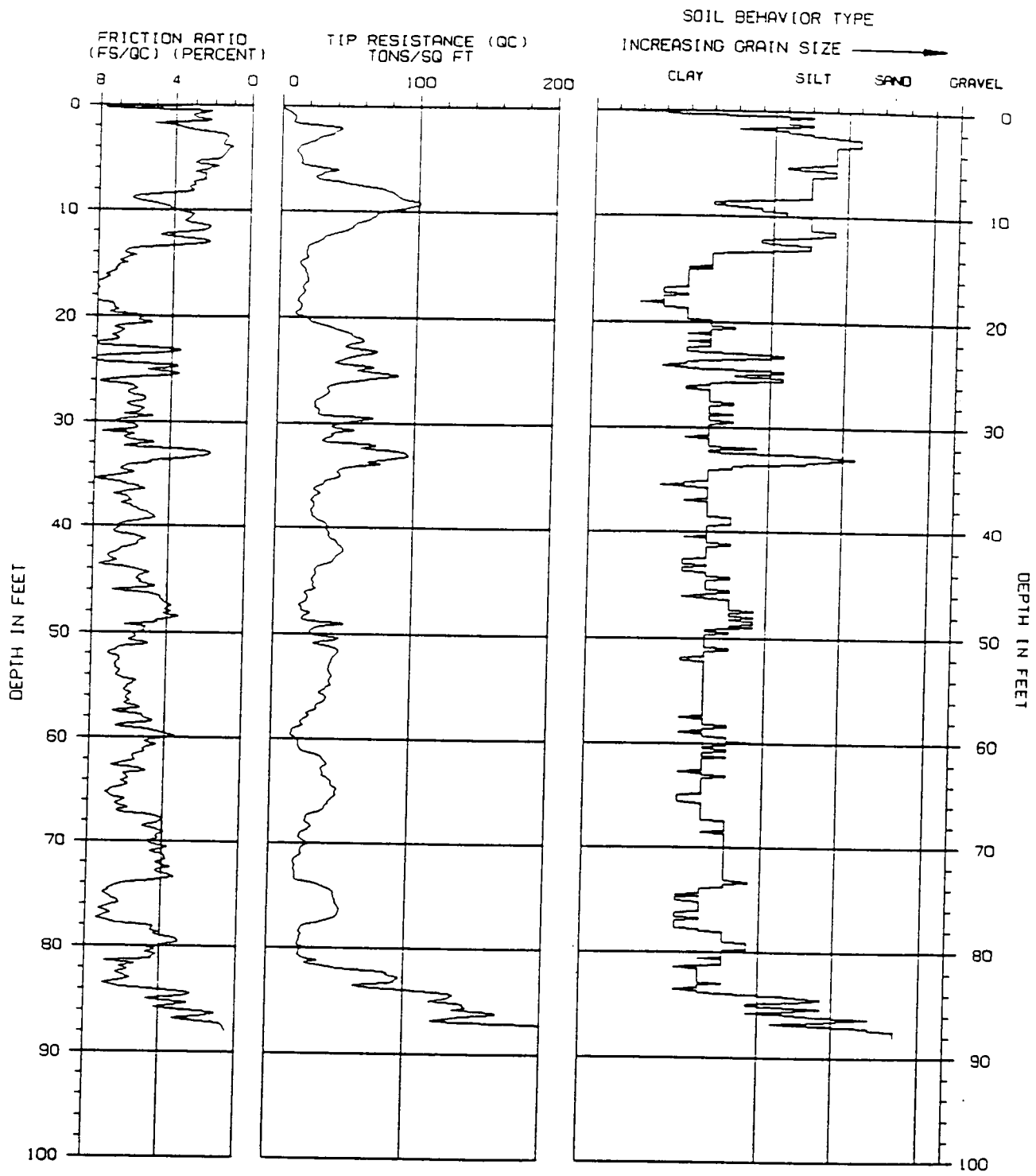
PROJECT NAME : O&M/U.C.DAVIS

LOCATION : DAVIS CA

PROJECT NUMBER : 9111-01112

DATE : 04-21-1991

THE EARTH TECHNOLOGY CORPORATION



ASSUMED TOTAL UNIT WT = 110 PCF

ASSUMED DEPTH OF WATER TABLE = 65.0 FT

CONE PENETRATION TEST

SOUNDING NUMBER: CPT-3

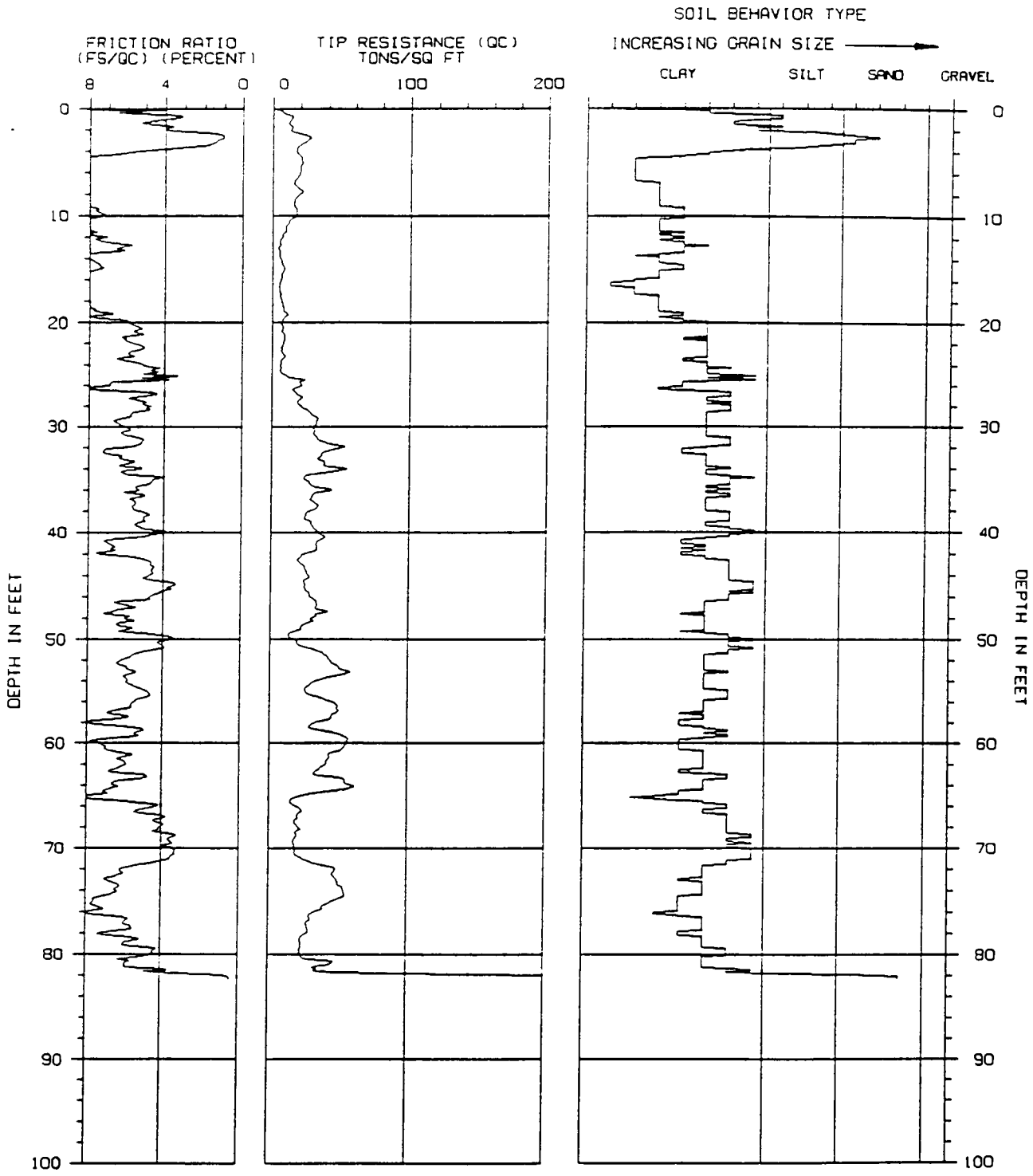
PROJECT NAME : O&M/U.C.DAVIS

PROJECT NUMBER : 9111-01112

LOCATION : DAVIS CA

DATE : 04-21-1991

THE EARTH TECHNOLOGY CORPORATION



ASSUMED TOTAL UNIT WT = 110 PCF

ASSUMED DEPTH OF WATER TABLE = 65.0 FT

CONE PENETRATION TEST

SOUNDING NUMBER: CPT-4

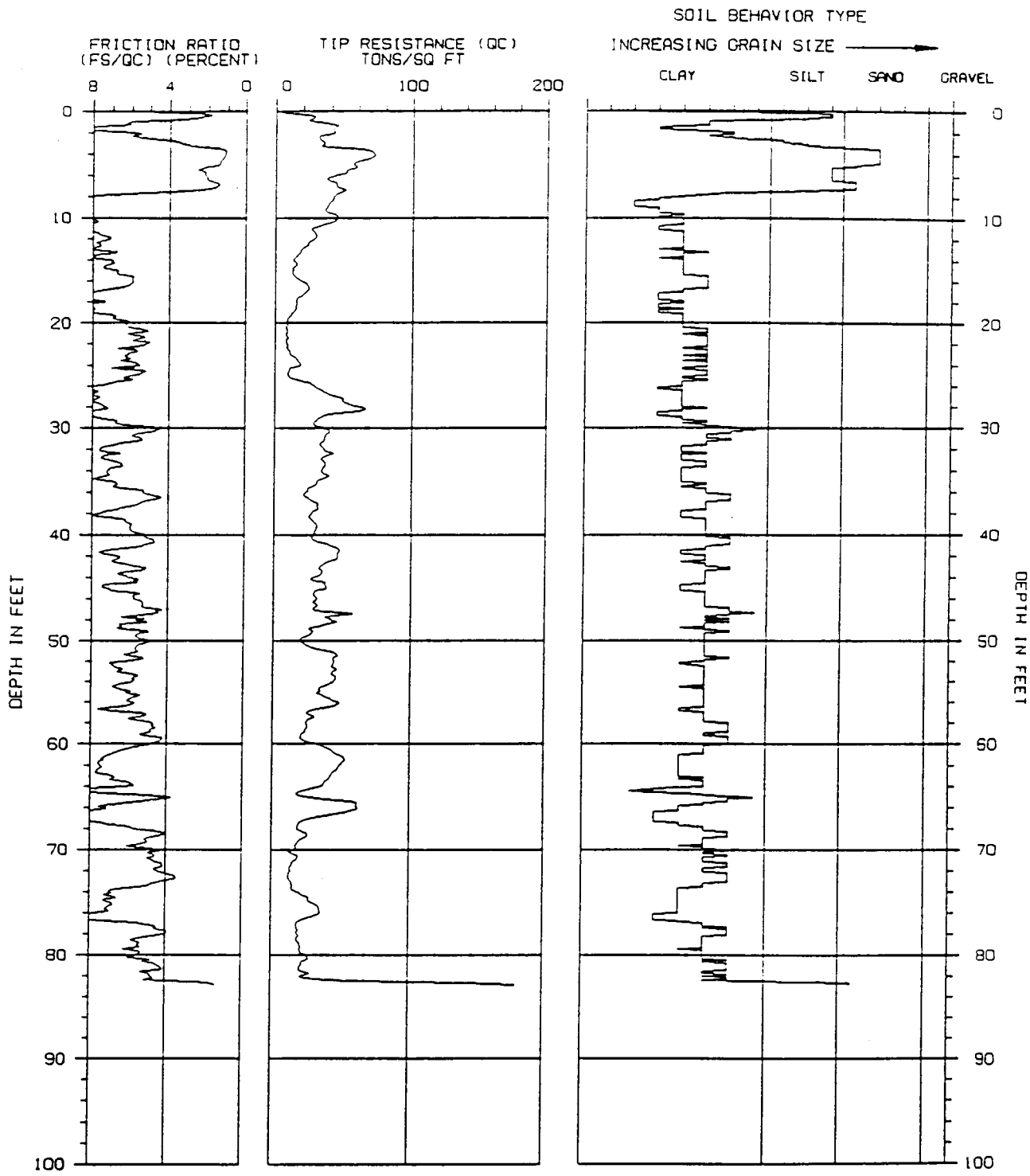
PROJECT NAME : D&M/U.C.DAVIS

LOCATION : DAVIS CA

PROJECT NUMBER : 9111-01112

DATE : 04-22-1991

THE EARTH TECHNOLOGY CORPORATION



ASSUMED TOTAL UNIT WT = 110 PCF

ASSUMED DEPTH OF WATER TABLE = 65.0 FT

CONE PENETRATION TEST

SOUNDING NUMBER: CPT-5

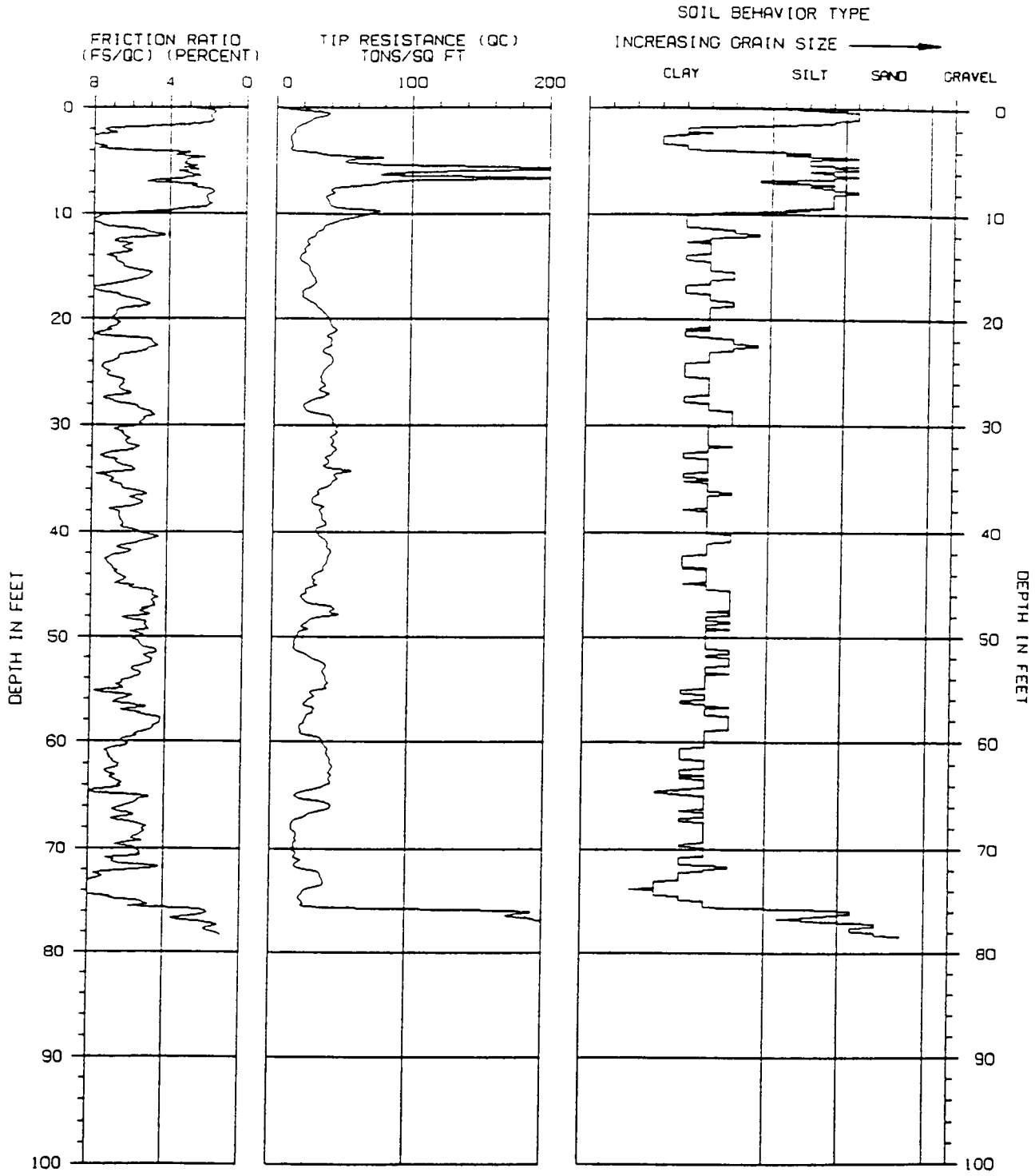
PROJECT NAME : O&M/U.C.DAVIS

PROJECT NUMBER : 9111-01112

LOCATION : DAVIS CA

DATE : 04-24-1991

THE EARTH TECHNOLOGY CORPORATION



ASSUMED TOTAL UNIT WT = 110 PCF

ASSUMED DEPTH OF WATER TABLE = 65.0 FT

CONE PENETRATION TEST

SOUNDING NUMBER: CPT-6A

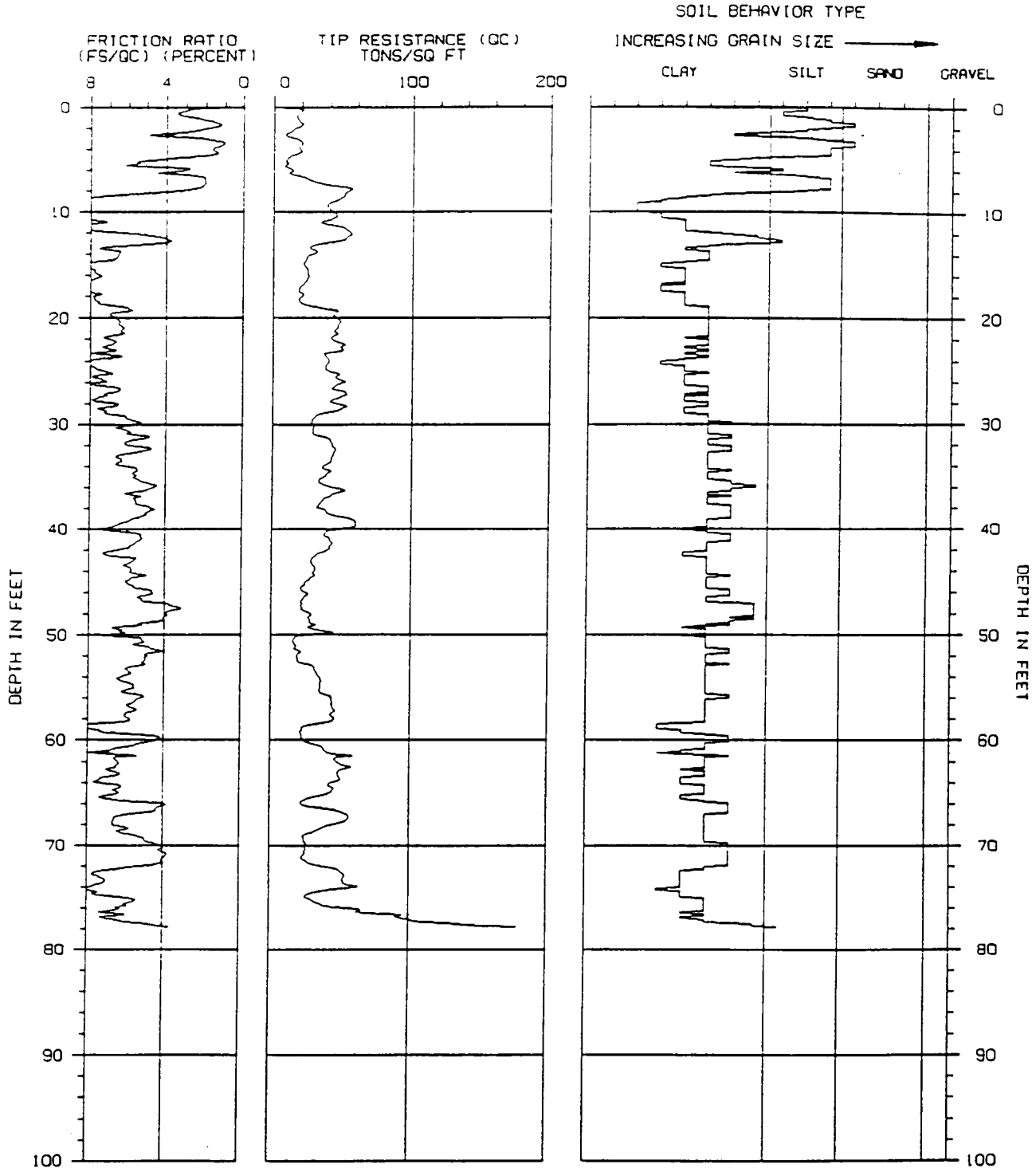
PROJECT NAME : D&M/U.C.DAVIS

LOCATION : DAVIS CA

PROJECT NUMBER : 9111-01112

DATE : 04-24-1991

THE EARTH TECHNOLOGY CORPORATION



ASSUMED TOTAL UNIT WT = 110 PCF

ASSUMED DEPTH OF WATER TABLE = 65.0 FT

CONE PENETRATION TEST

SOUNDING NUMBER: CPT-7

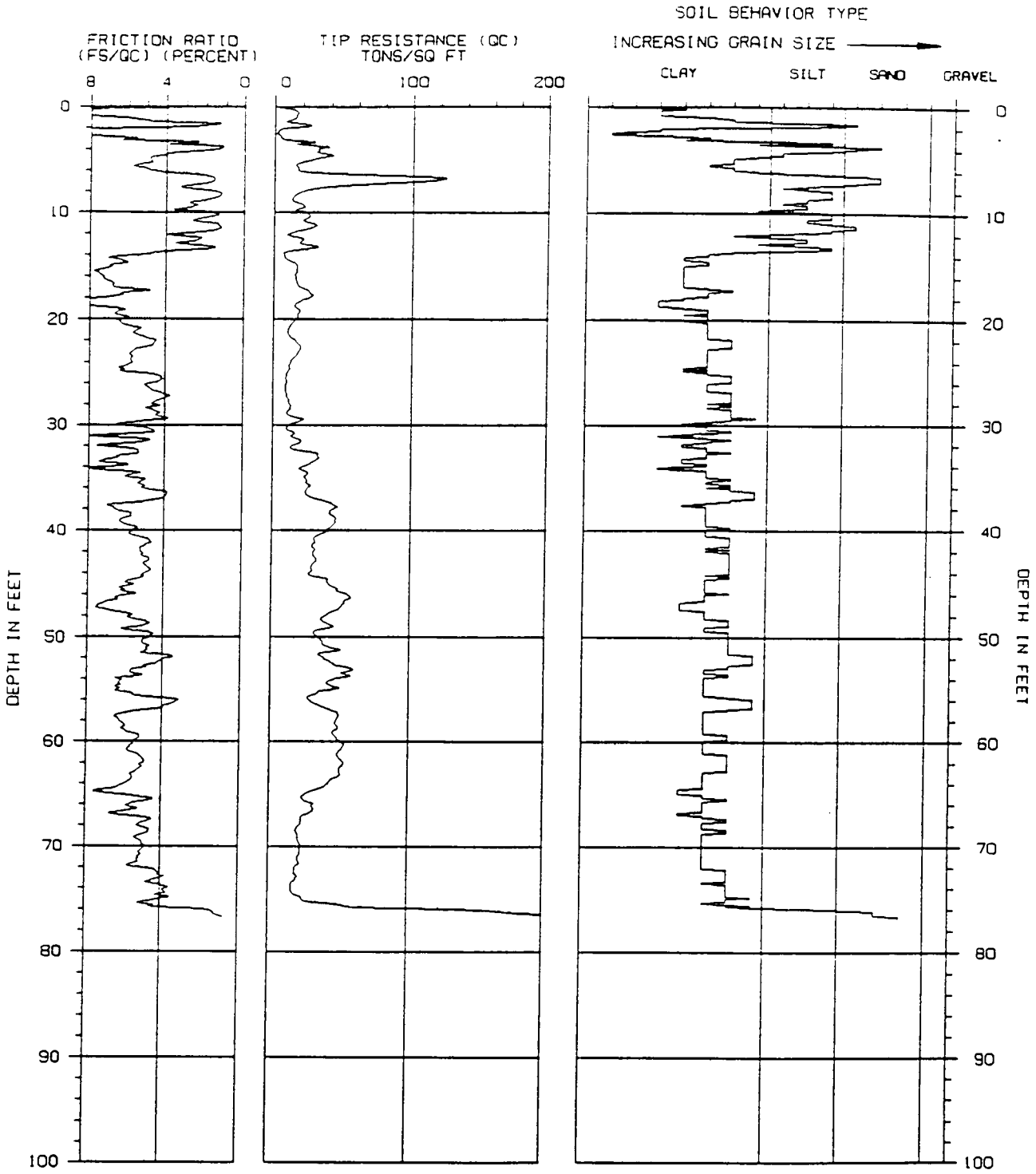
PROJECT NAME : O&M/U.C.DAVIS

LOCATION : DAVIS CA

PROJECT NUMBER : 9111-01112

DATE : 04-24-1991

THE EARTH TECHNOLOGY CORPORATION



ASSUMED TOTAL UNIT WT = 110 PCF

ASSUMED DEPTH OF WATER TABLE = 65.0 FT

CONE PENETRATION TEST

SOUNDING NUMBER: CPT-8

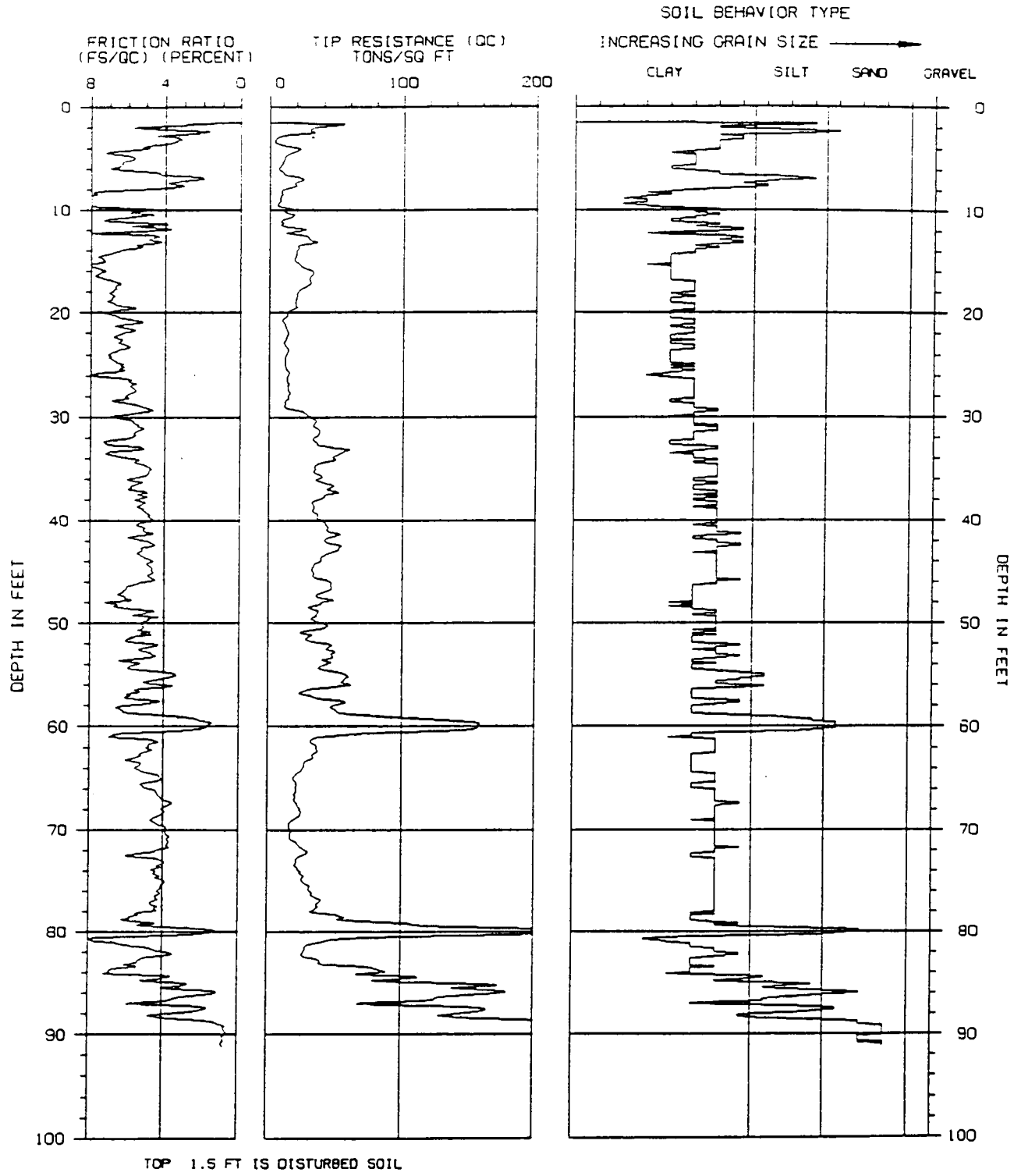
PROJECT NAME : D&M/U.C.DAVIS

PROJECT NUMBER : 9111-01112

LOCATION : DAVIS CA

DATE : 04-25-1991

THE EARTH TECHNOLOGY CORPORATION



ASSUMED TOTAL UNIT WT = 110 PCF

ASSUMED DEPTH OF WATER TABLE = 66.0 FT

CONE PENETRATION TEST

SOUNDING NUMBER: CPT-9

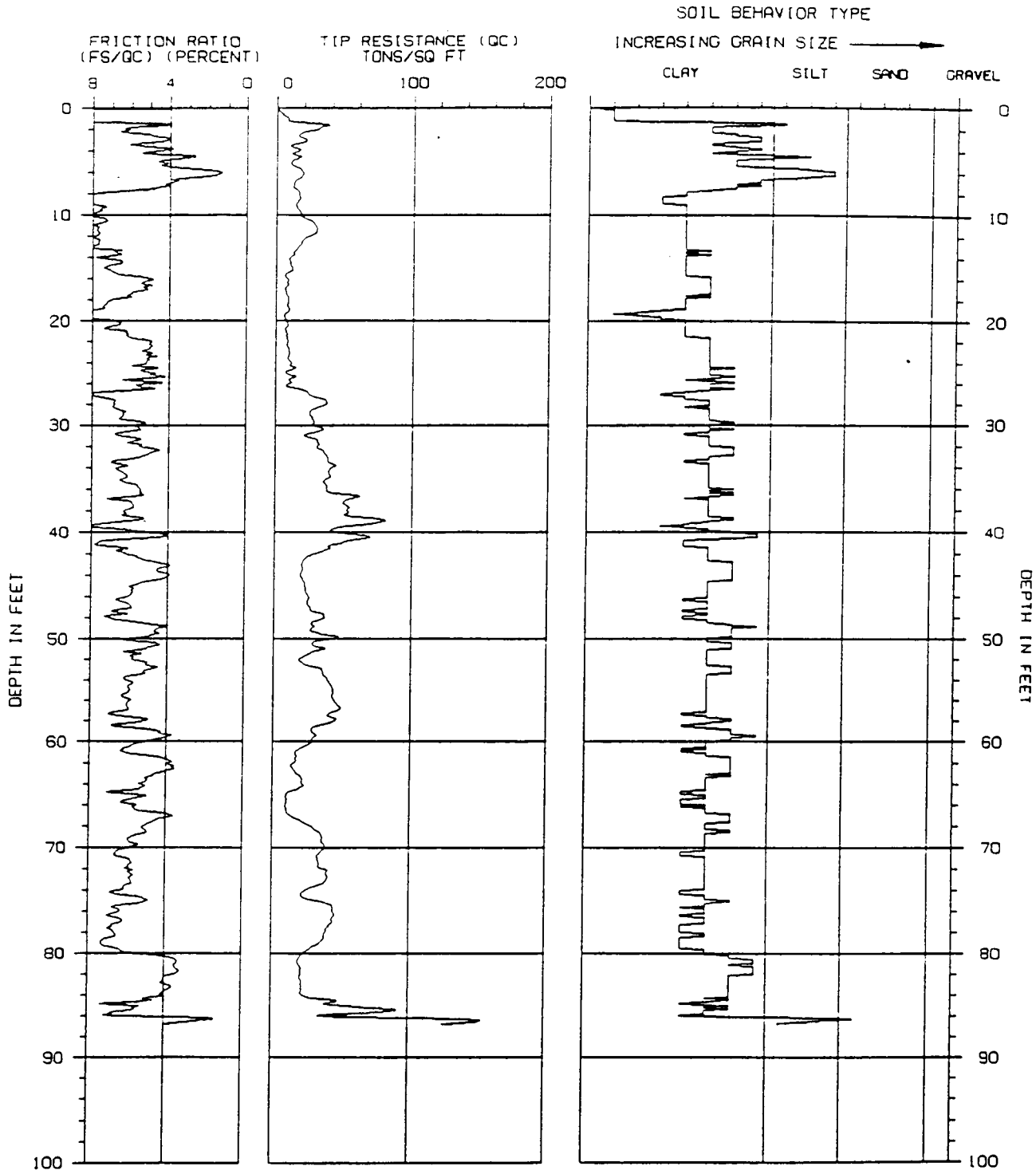
PROJECT NAME : O&M/U.C.DAVIS

PROJECT NUMBER : 9111-01112

LOCATION : DAVIS CA

DATE : 04-25-1991

THE EARTH TECHNOLOGY CORPORATION



ASSUMED TOTAL UNIT WT = 110 PCF

ASSUMED DEPTH OF WATER TABLE = 65.0 FT

CONE PENETRATION TEST

SOUNDING NUMBER: CPT-12

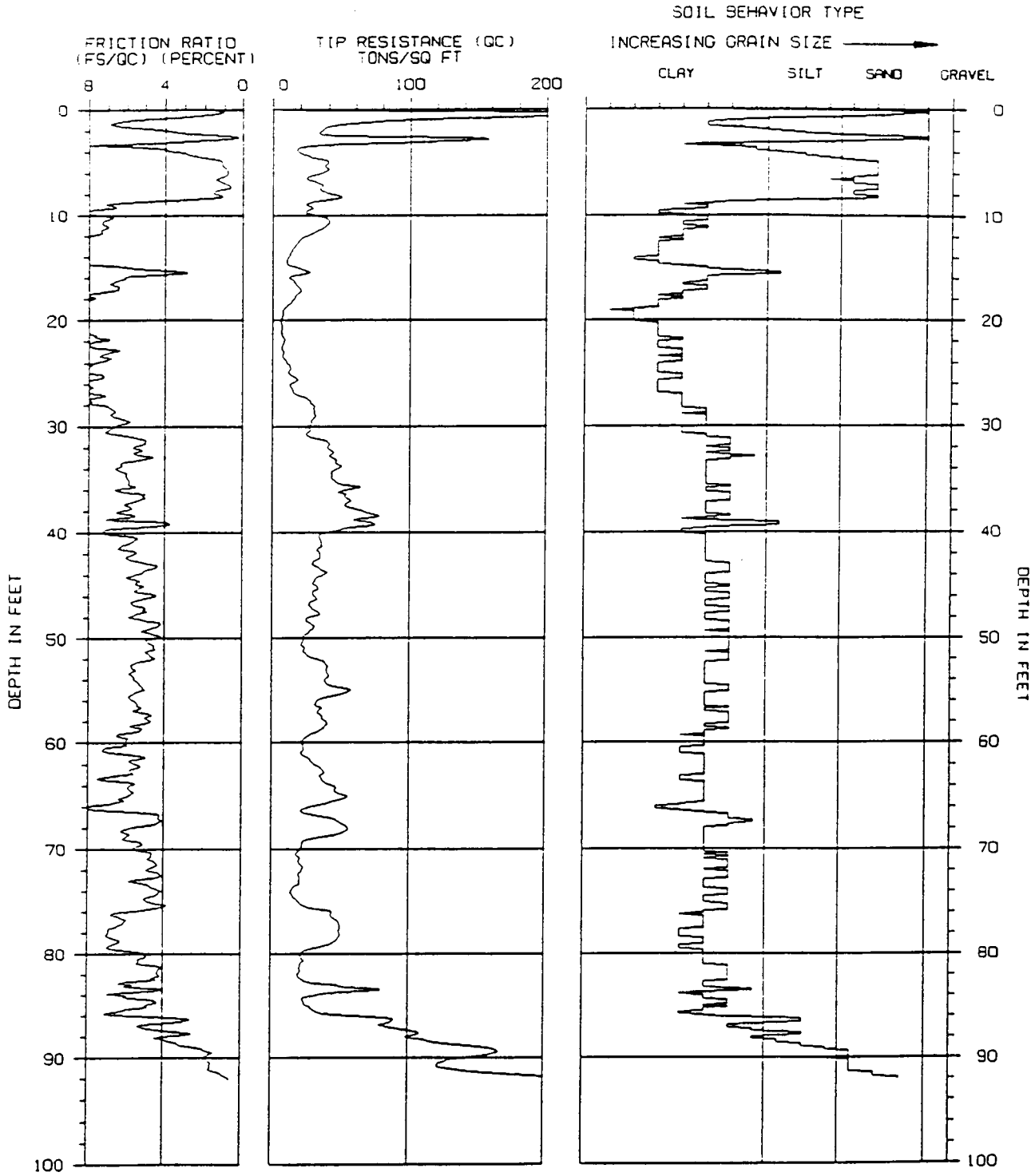
PROJECT NAME : O&M/U.C.DAVIS

PROJECT NUMBER : 9111-01112

LOCATION : DAVIS CA

DATE : 04-30-1991

THE EARTH TECHNOLOGY CORPORATION



ASSUMED TOTAL UNIT WT = 110 PCF

ASSUMED DEPTH OF WATER TABLE = 66.0 FT

CONE PENETRATION TEST

SOUNDING NUMBER: CPT-13

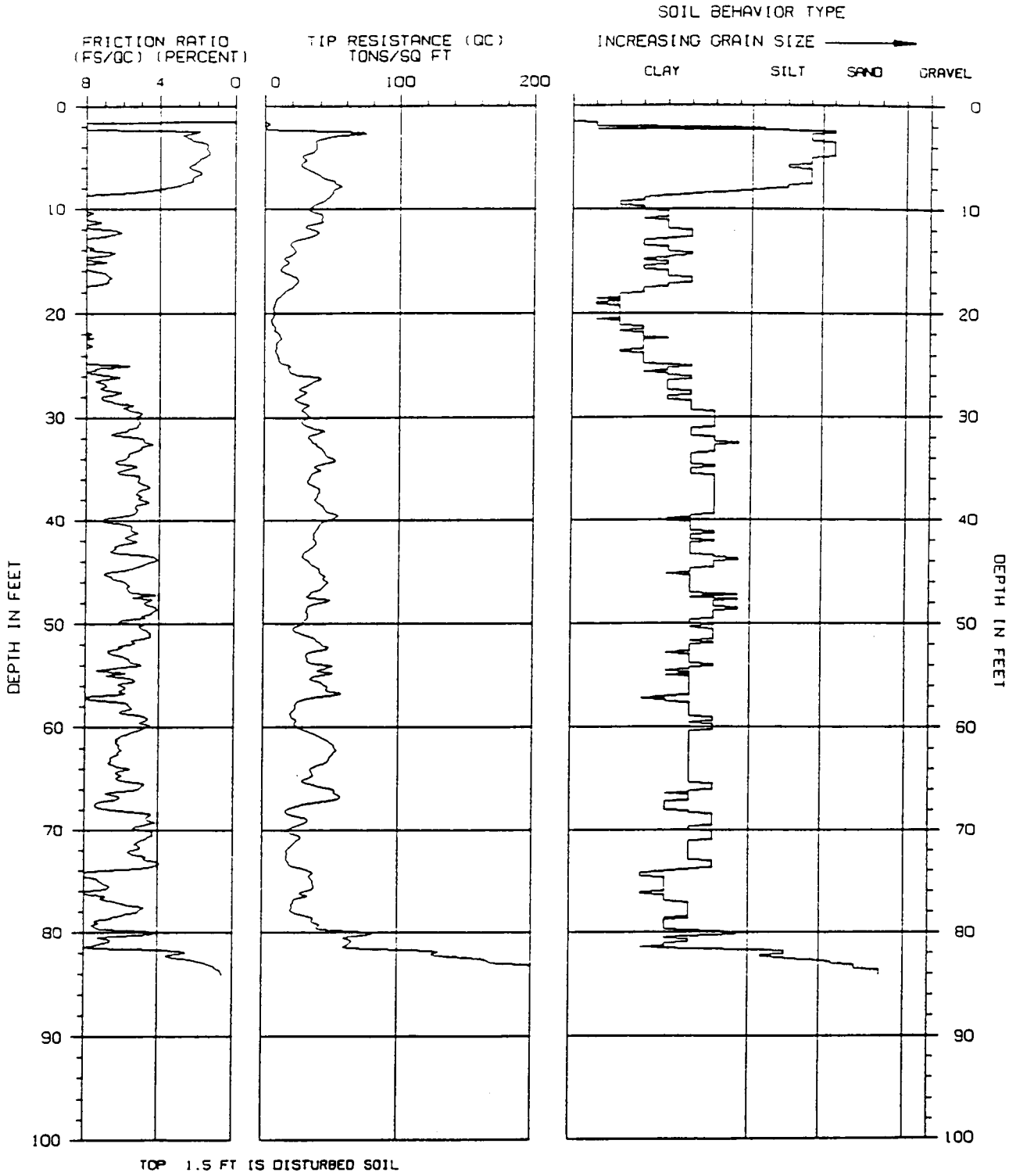
PROJECT NAME : O&M/U.C.DAVIS

PROJECT NUMBER : 9111-01112

LOCATION : DAVIS CA

DATE : 04-30-1991

THE EARTH TECHNOLOGY CORPORATION



ASSUMED TOTAL UNIT WT = 110 PCF

ASSUMED DEPTH OF WATER TABLE = 65.0 FT

CONE PENETRATION TEST

SOUNDING NUMBER: CPT-14

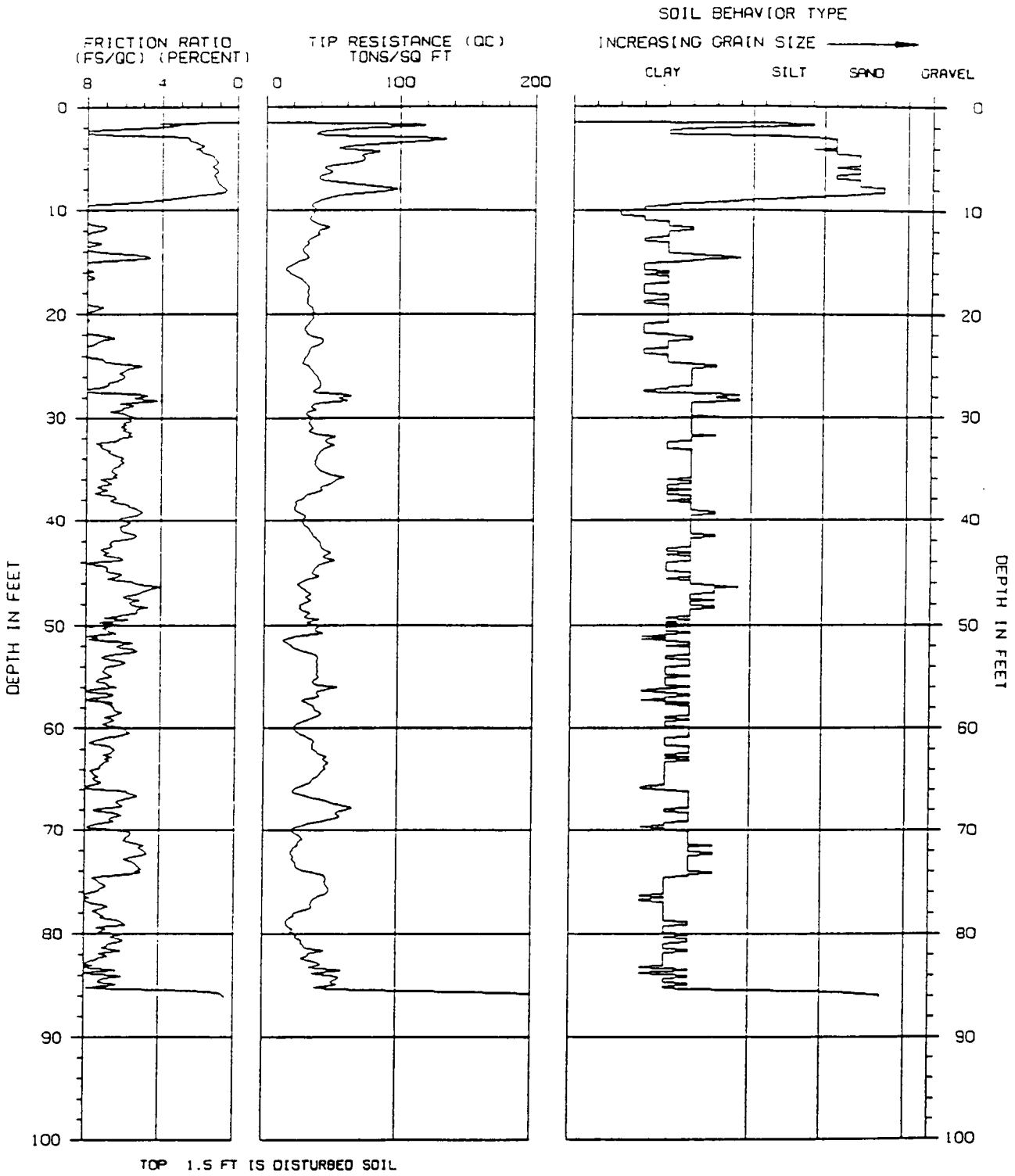
PROJECT NAME : O&M/U.C.DAVIS

PROJECT NUMBER : 9111-01112

LOCATION : DAVIS CA

DATE : 04-30-1991

THE EARTH TECHNOLOGY CORPORATION



ASSUMED TOTAL UNIT WT = 110 PCF

ASSUMED DEPTH OF WATER TABLE = 66.0 FT

CONE PENETRATION TEST

SOUNDING NUMBER: CPT-15

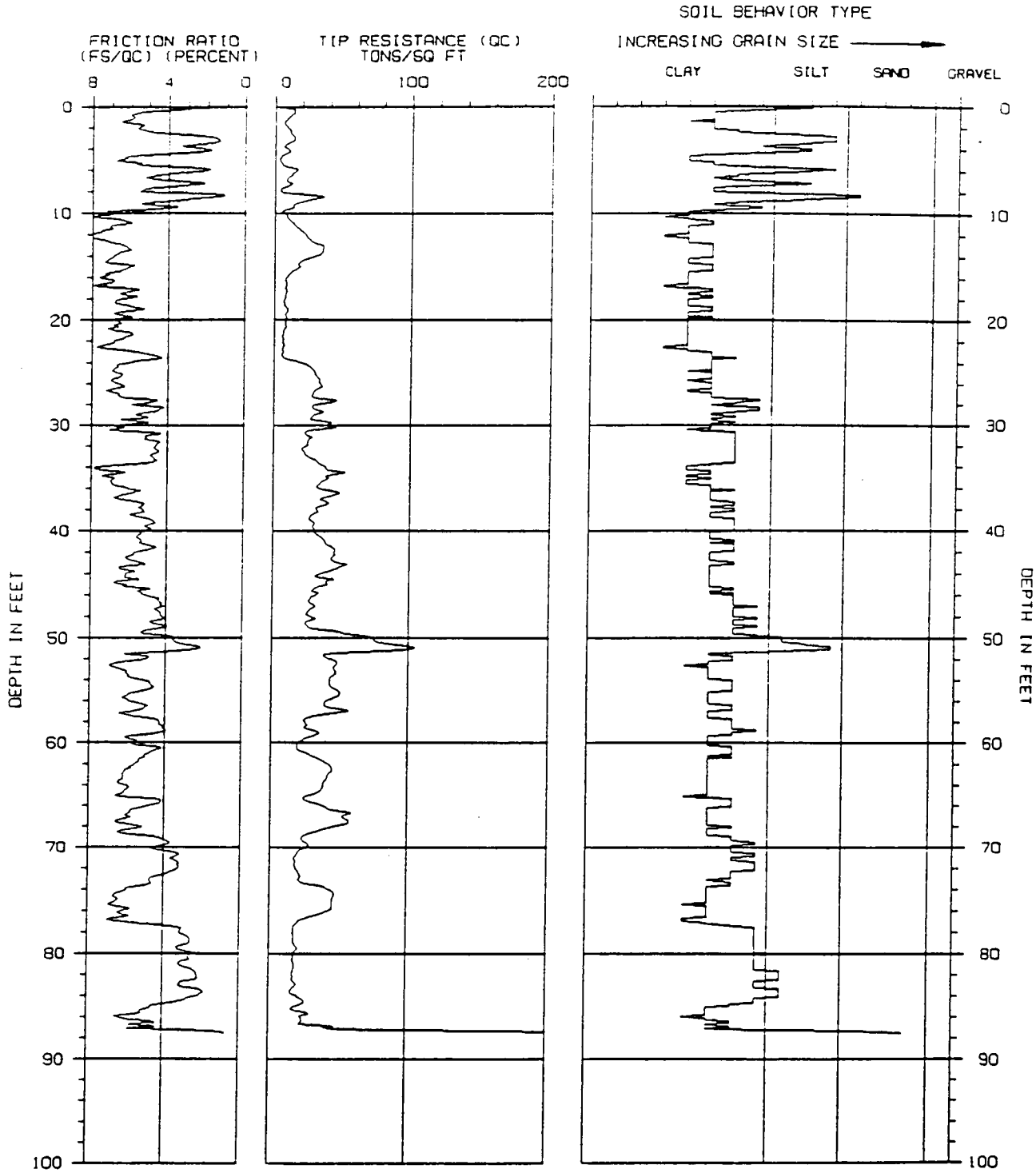
PROJECT NAME : O&M/U.C.DAVIS

LOCATION : DAVIS CA

PROJECT NUMBER : 9111-01112

DATE : 04-30-1991

THE EARTH TECHNOLOGY CORPORATION



ASSUMED TOTAL UNIT WT = 110 PCF

ASSUMED DEPTH OF WATER TABLE = 65.0 FT

CONE PENETRATION TEST

SOUNDING NUMBER: CPT-16

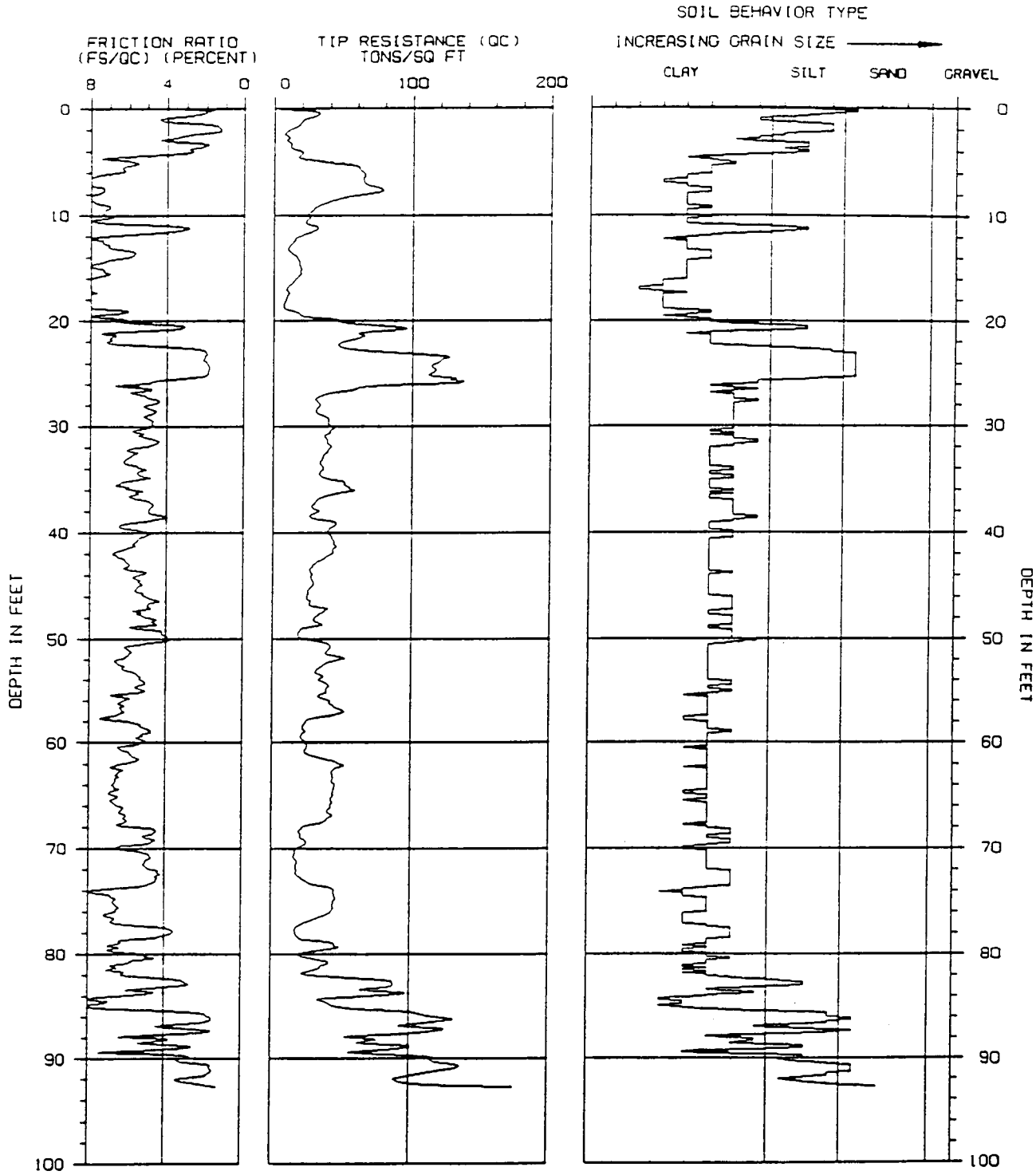
PROJECT NAME : D&M/U.C.DAVIS

PROJECT NUMBER : 9111-01112

LOCATION : DAVIS CA

DATE : 05-01-1991

THE EARTH TECHNOLOGY CORPORATION



ASSUMED TOTAL UNIT WT = 110 PCF

ASSUMED DEPTH OF WATER TABLE = 65.0 FT

CONE PENETRATION TEST

SOUNDING NUMBER: CPT-17

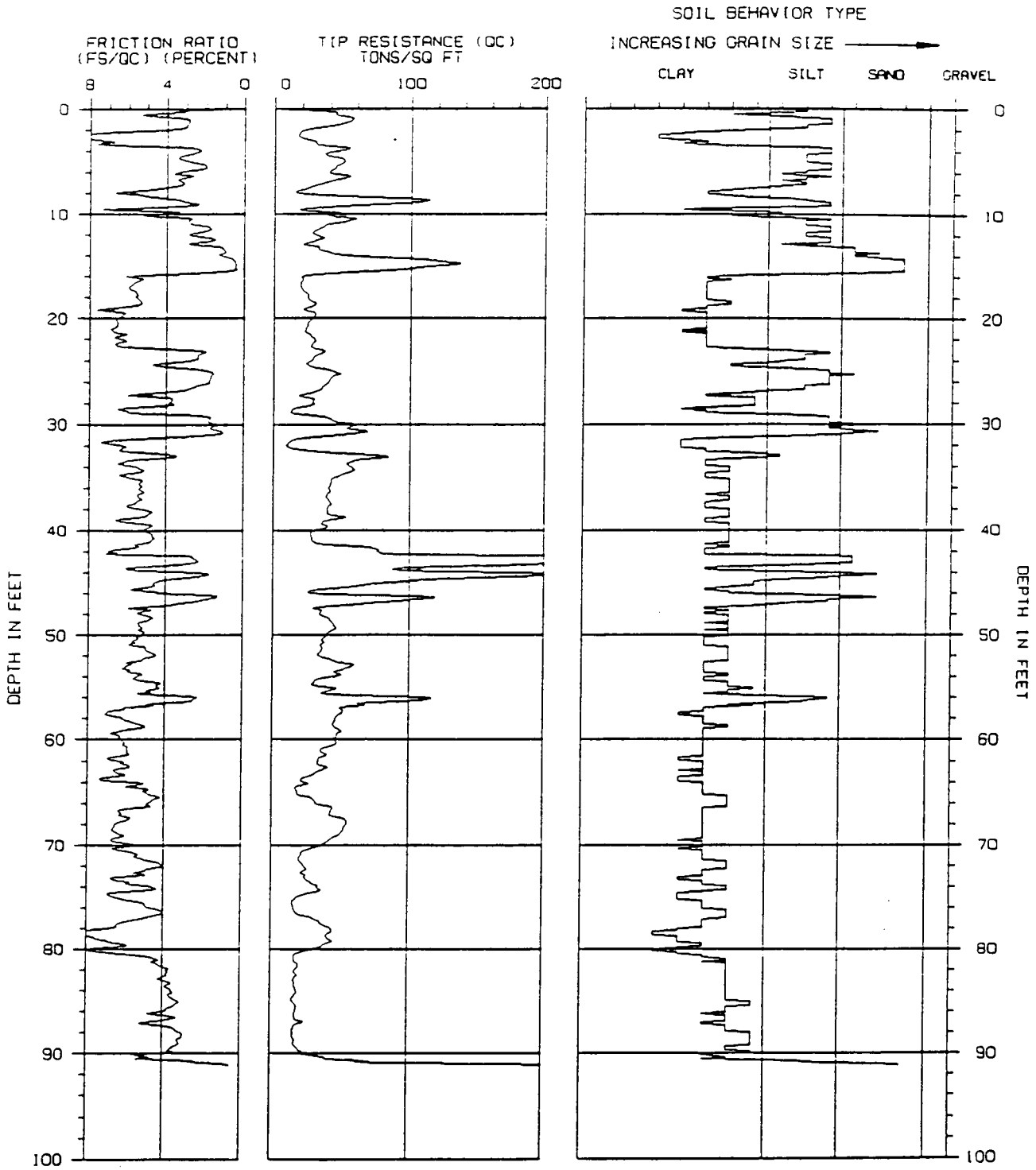
PROJECT NAME : O&M/U.C.DAVIS

PROJECT NUMBER : 9111-01112

LOCATION : DAVIS CA

DATE : 05-01-1991

THE EARTH TECHNOLOGY CORPORATION



ASSUMED TOTAL UNIT WT = 110 PCF

ASSUMED DEPTH OF WATER TABLE = 65.0 FT

CONE PENETRATION TEST

SOUNDING NUMBER: CPT-18

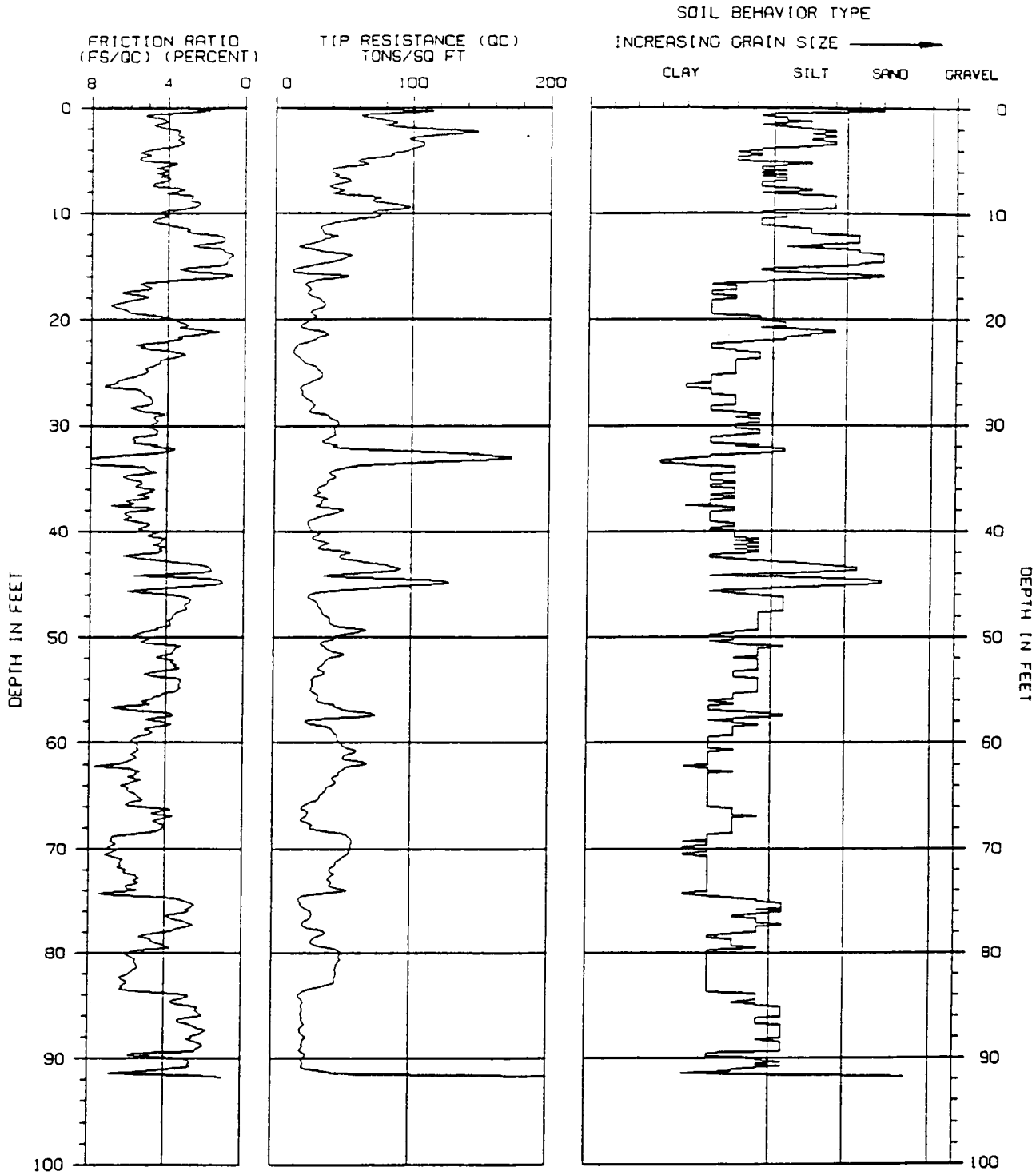
PROJECT NAME : O&M/U.C.DAVIS

PROJECT NUMBER : 9111-01112

LOCATION : DAVIS CA

DATE : 05-01-1991

THE EARTH TECHNOLOGY CORPORATION



ASSUMED TOTAL UNIT WT = 110 PCF

ASSUMED DEPTH OF WATER TABLE = 65.0 FT

CONE PENETRATION TEST

SOUNDING NUMBER: CPT-20

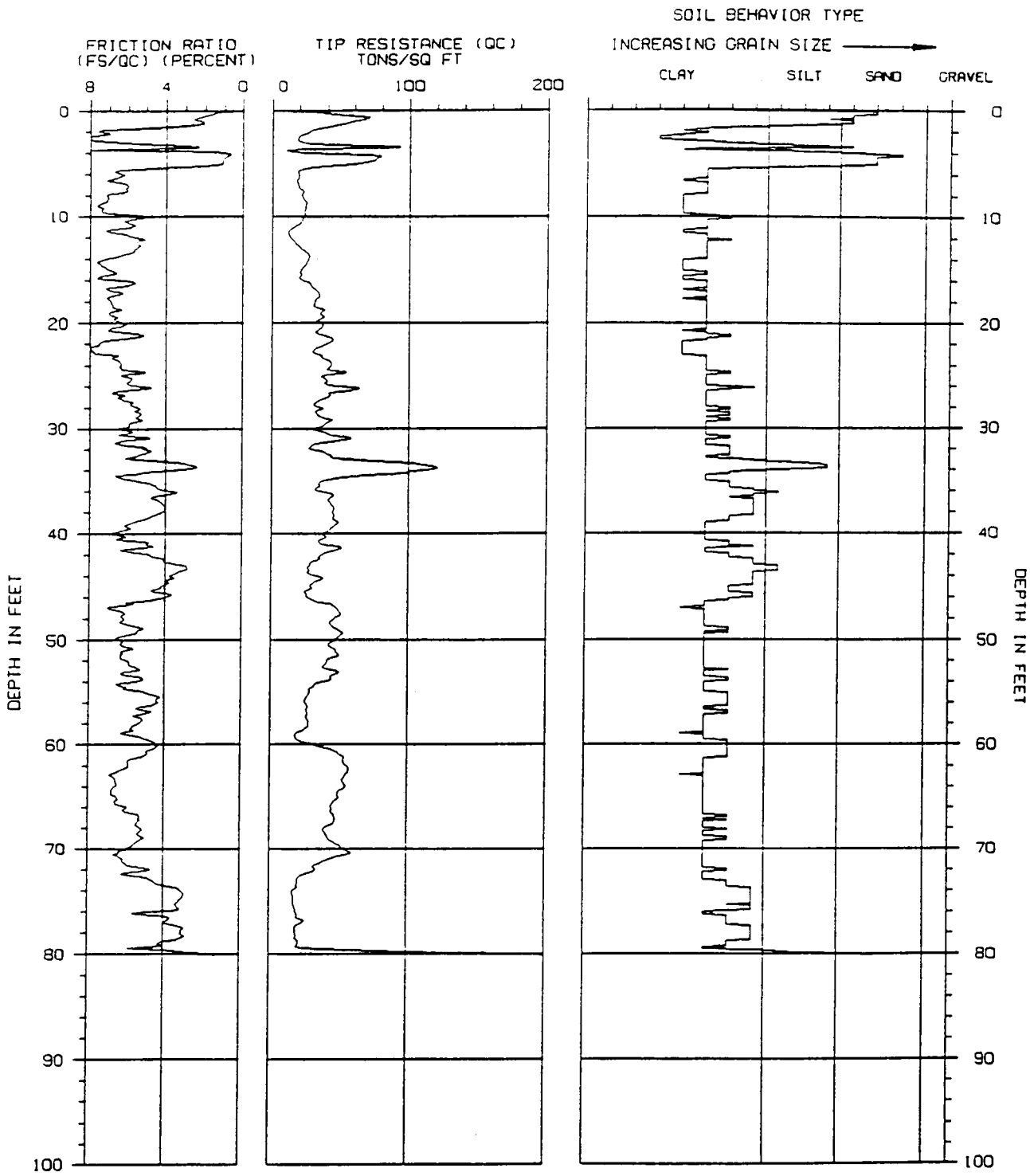
PROJECT NAME : O&M/U.C.DAVIS

LOCATION : DAVIS CA

PROJECT NUMBER : 9111-01112

DATE : 05-03-1991

THE EARTH TECHNOLOGY CORPORATION



ASSUMED TOTAL UNIT WT = 110 PCF

ASSUMED DEPTH OF WATER TABLE = 65.0 FT

CONE PENETRATION TEST

SOUNDING NUMBER: CPT-22

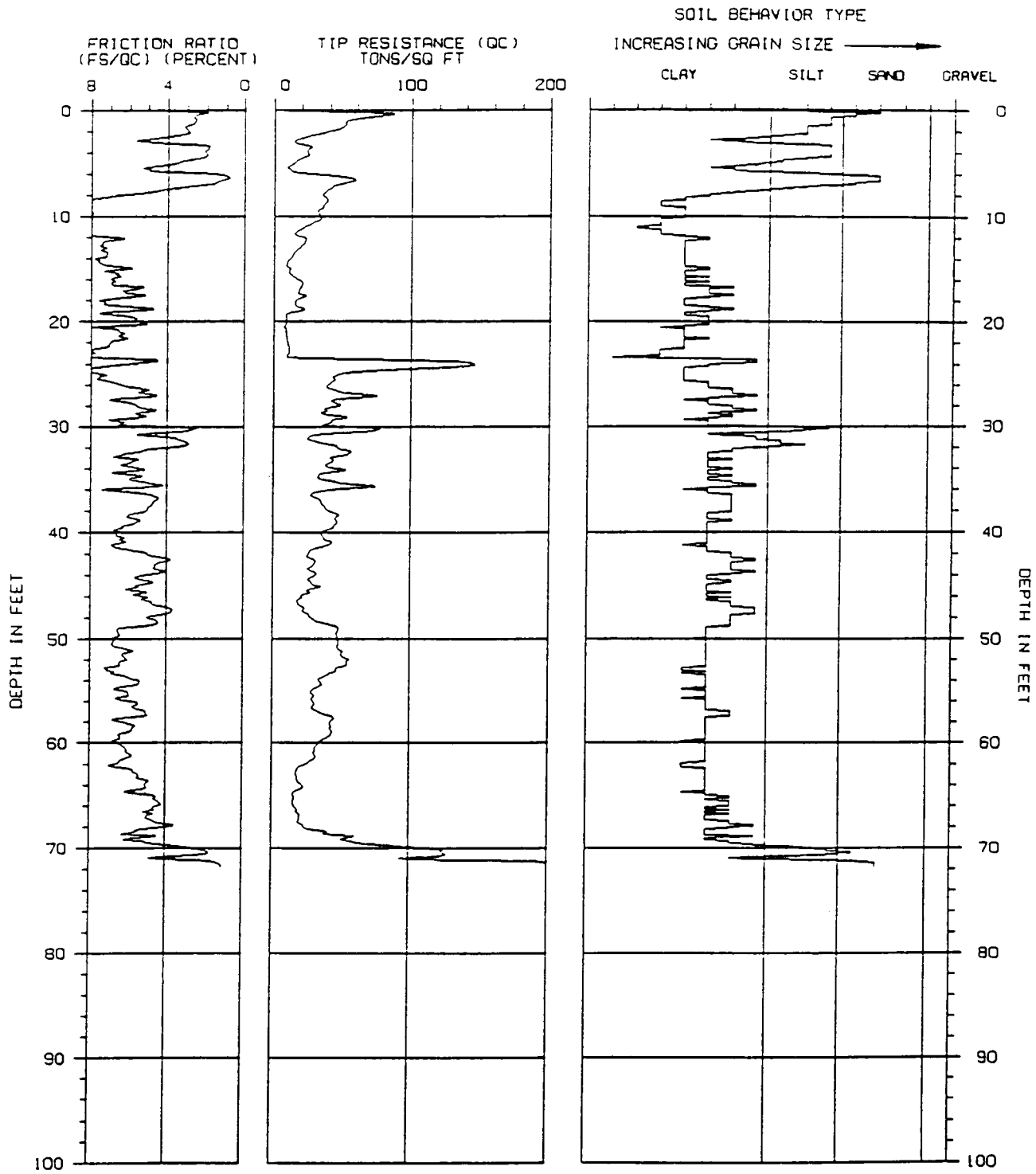
PROJECT NAME : D&M/U.C.DAVIS

PROJECT NUMBER : 9111-01112

LOCATION : DAVIS CA

DATE : 05-03-1991

THE EARTH TECHNOLOGY CORPORATION



ASSUMED TOTAL UNIT WT = 110 PCF

ASSUMED DEPTH OF WATER TABLE = 65.0 FT

CONE PENETRATION TEST

SOUNDING NUMBER: CPT-24

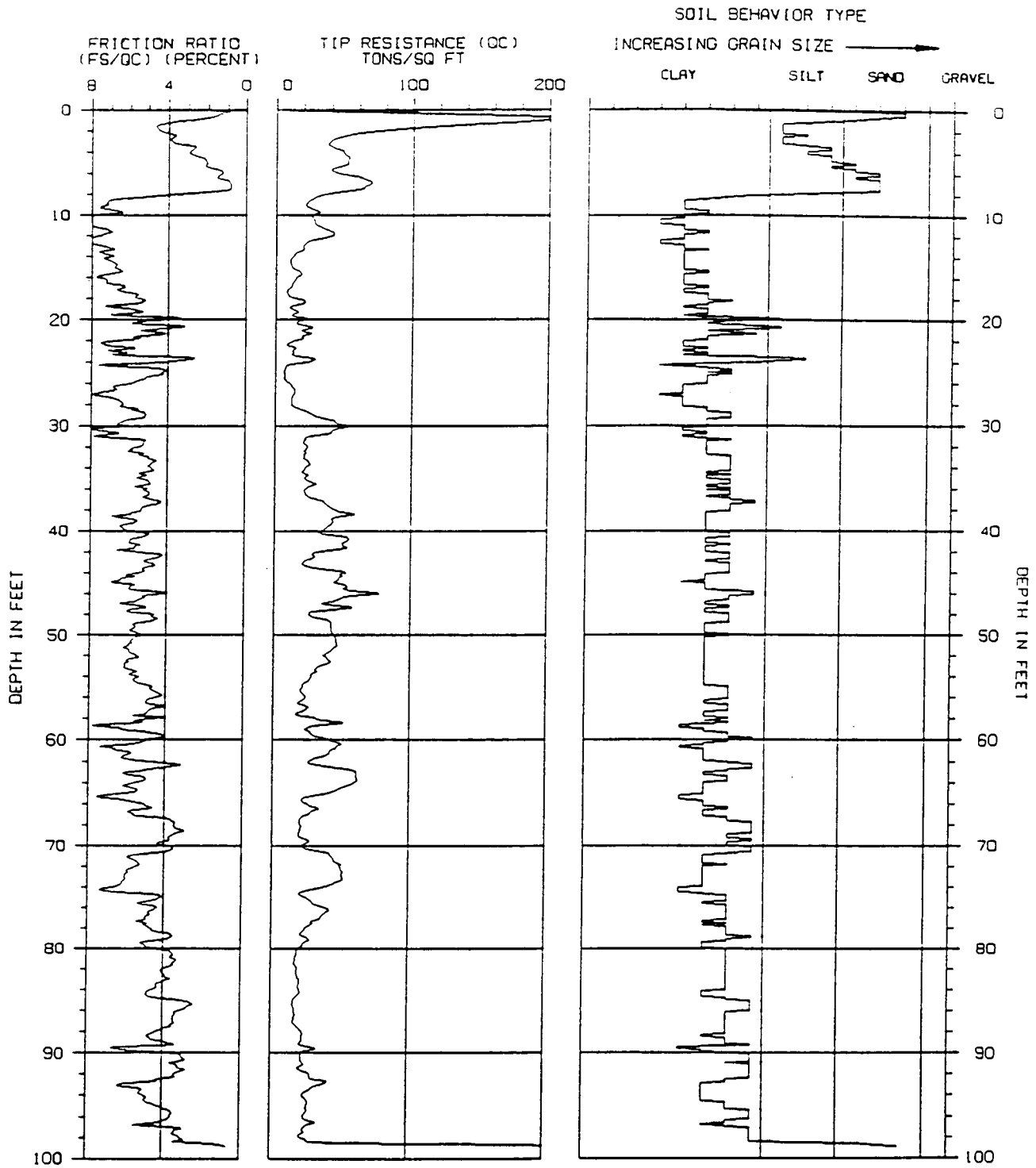
PROJECT NAME : D&M/U.C.DAVIS

PROJECT NUMBER : 9111-01112

LOCATION : DAVIS CA

DATE : 05-03-1991

THE EARTH TECHNOLOGY CORPORATION



ASSUMED TOTAL UNIT WT = 110 PCF

ASSUMED DEPTH OF WATER TABLE = 66.0 FT

CONE PENETRATION TEST

SOUNDING NUMBER: CPT-26

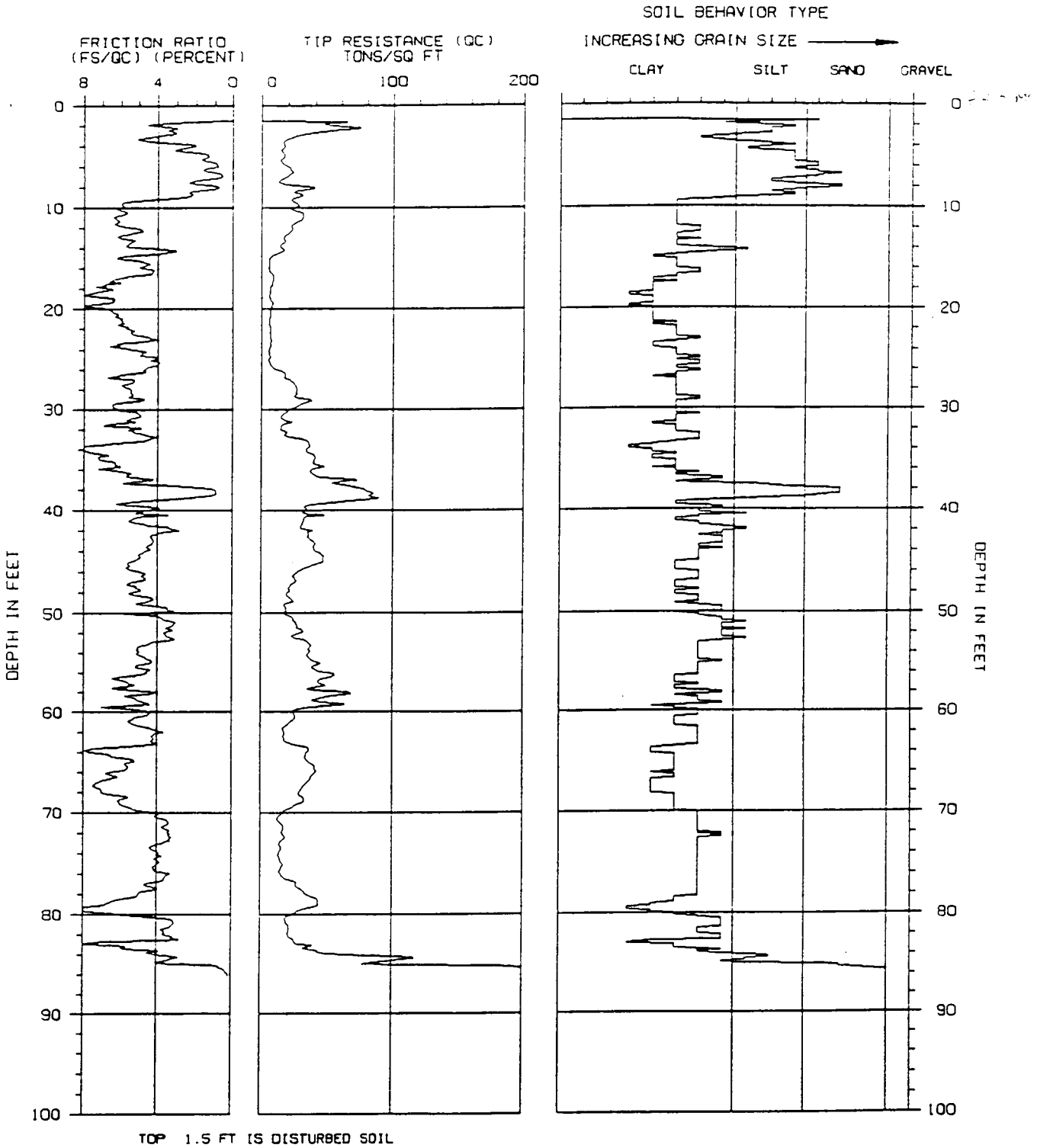
PROJECT NAME : O&M/U.C.DAVIS

LOCATION : DAVIS CA

PROJECT NUMBER : 9111-01112

DATE : 05-13-1991

THE EARTH TECHNOLOGY CORPORATION



ASSUMED TOTAL UNIT WT = 110 PCF

ASSUMED DEPTH OF WATER TABLE = 65.0 FT

CONE PENETRATION TEST

SOUNDING NUMBER: CPT-30

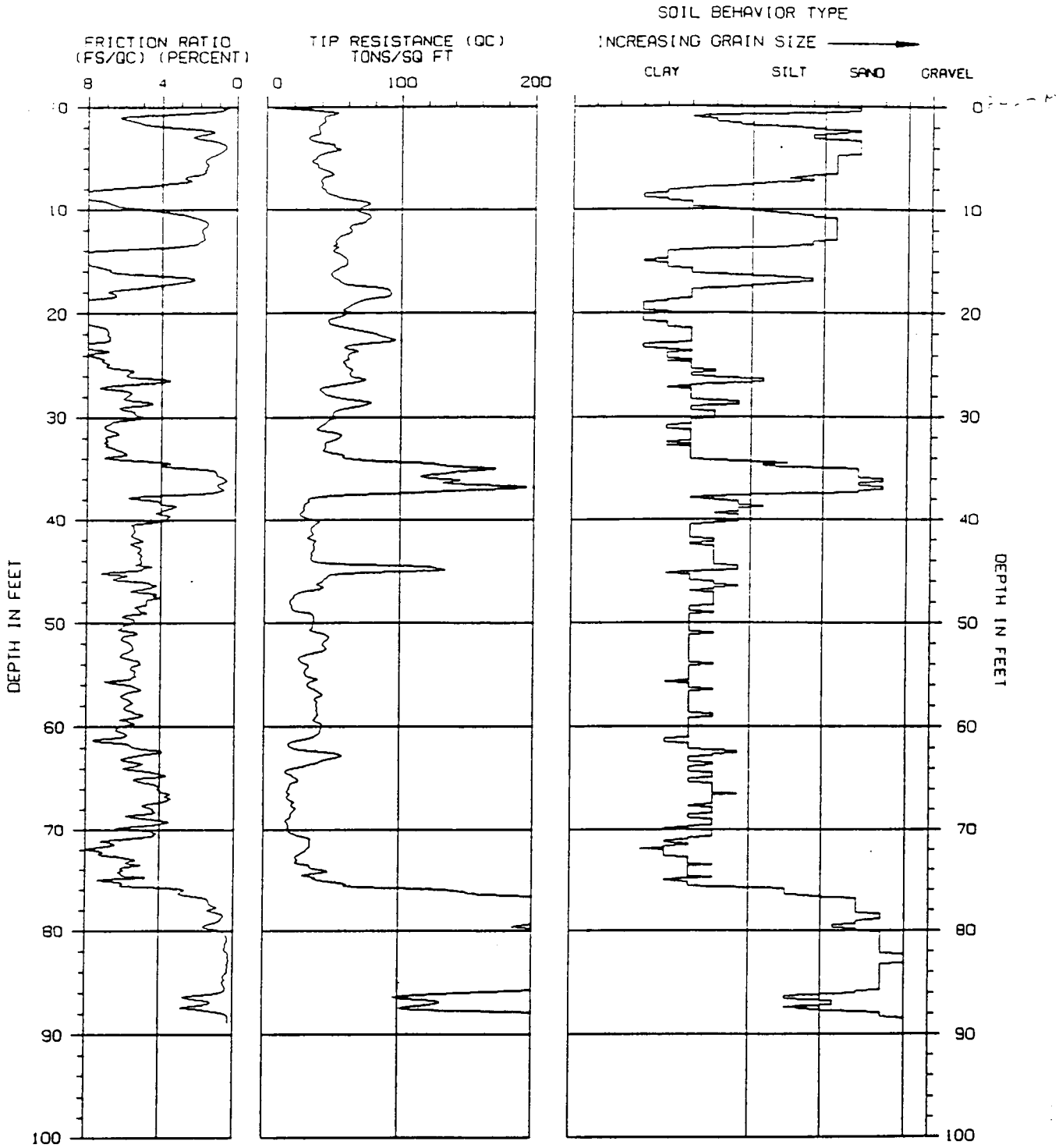
PROJECT NAME : D&M/U.C.DAVIS-II

LOCATION : DAVIS CA

PROJECT NUMBER : 92-381-01101

DATE : 09-25-1991

THE EARTH TECHNOLOGY CORPORATION



ASSUMED TOTAL UNIT WT = 110 PCF

ASSUMED DEPTH OF WATER TABLE = 65.0 FT

CONE PENETRATION TEST

SOUNDING NUMBER: CPT-31

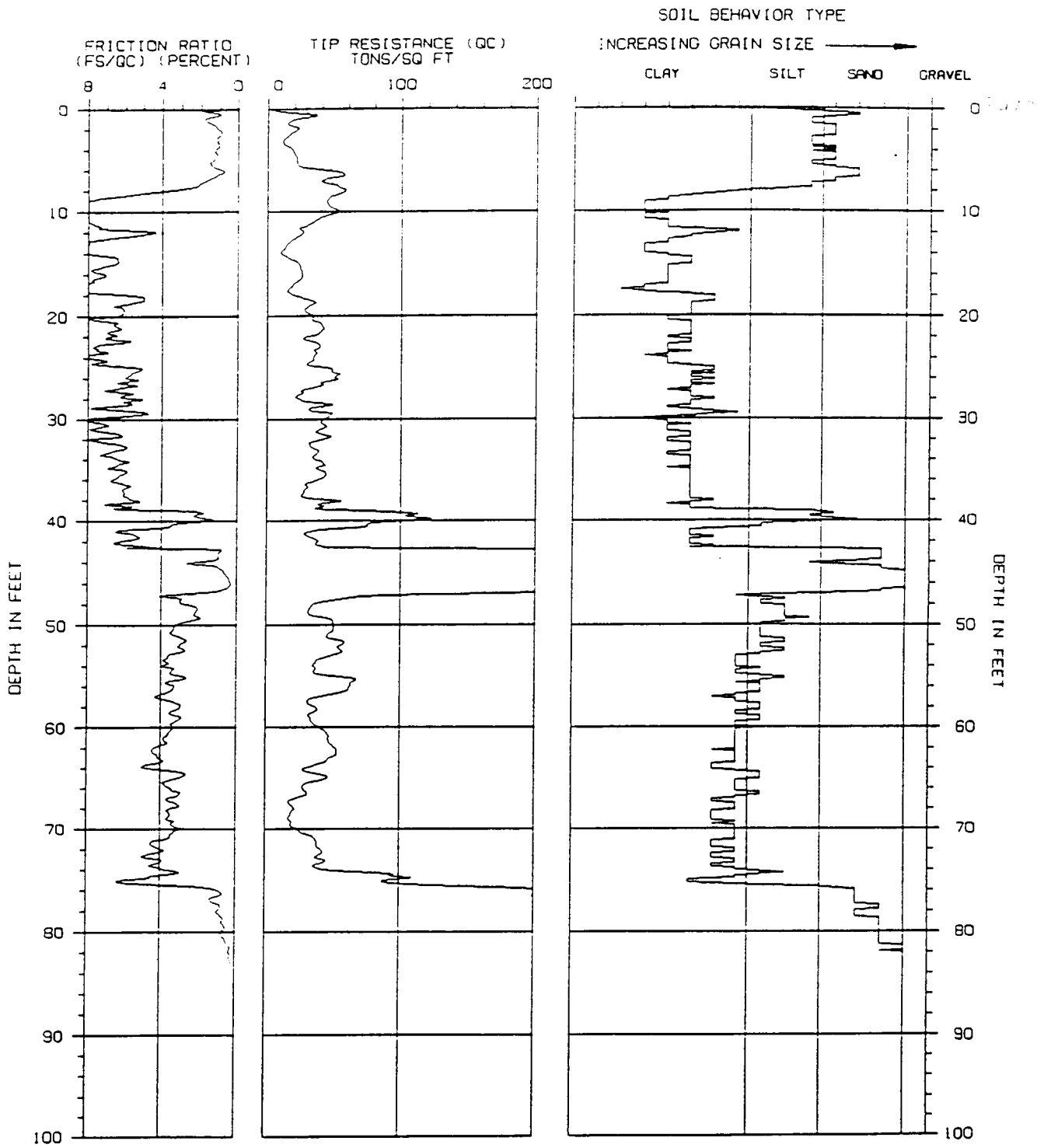
PROJECT NAME : D&M/U.C.DAVIS-II

LOCATION : DAVIS CA

PROJECT NUMBER : 92-381-01101

DATE : 09-25-1991

THE EARTH TECHNOLOGY CORPORATION



ASSUMED TOTAL UNIT WT = 110 PCF

ASSUMED DEPTH OF WATER TABLE = 65.0 FT

CONE PENETRATION TEST

SOUNDING NUMBER: CPT-32

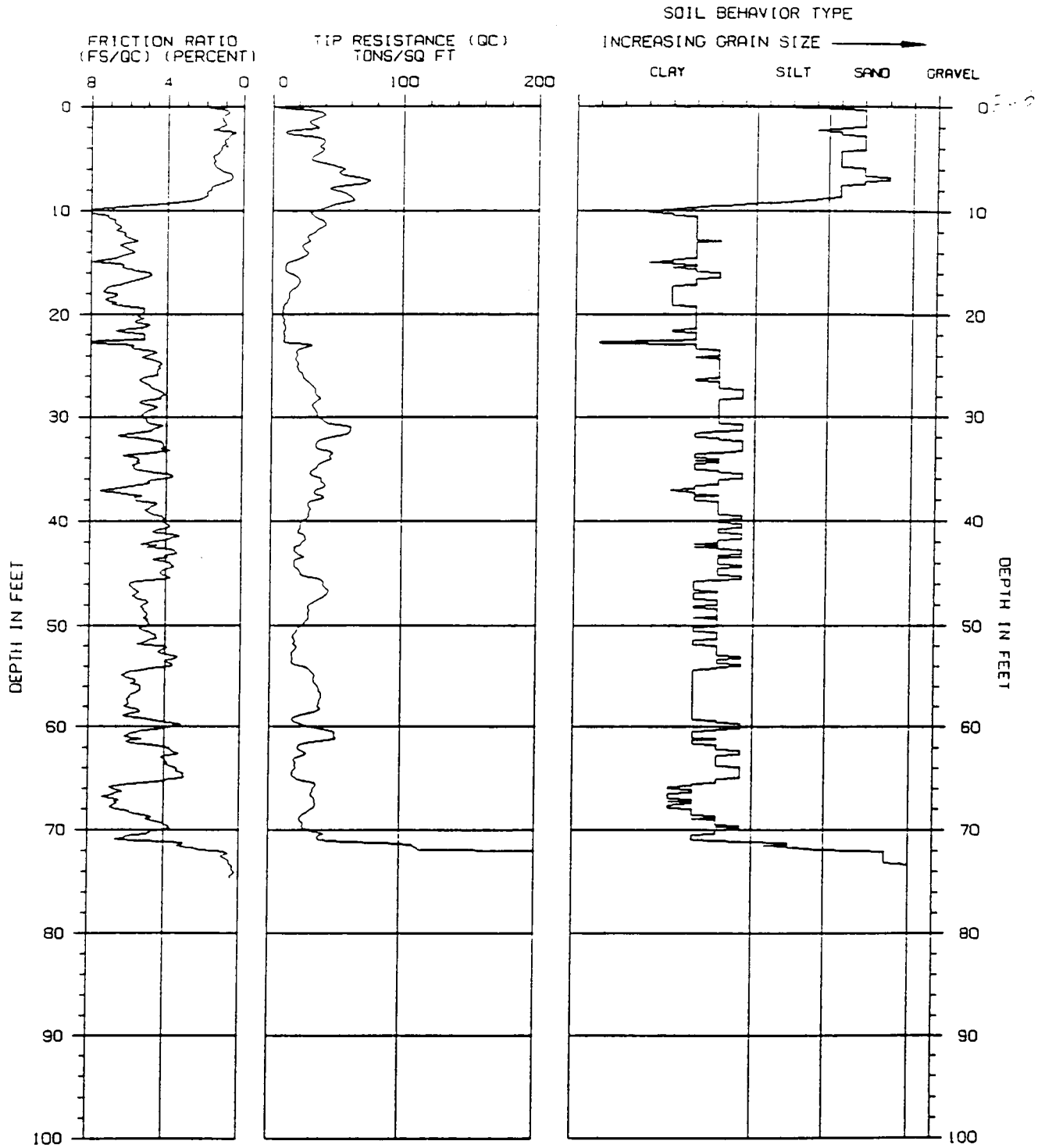
PROJECT NAME : D&M/U.C.DAVIS-II

PROJECT NUMBER : 92-381-01101

LOCATION : DAVIS CA

DATE : 09-25-1991

THE EARTH TECHNOLOGY CORPORATION



ASSUMED TOTAL UNIT WT = 110 PCF

ASSUMED DEPTH OF WATER TABLE = 65.0 FT

CONE PENETRATION TEST

SOUNDING NUMBER: CPT-33

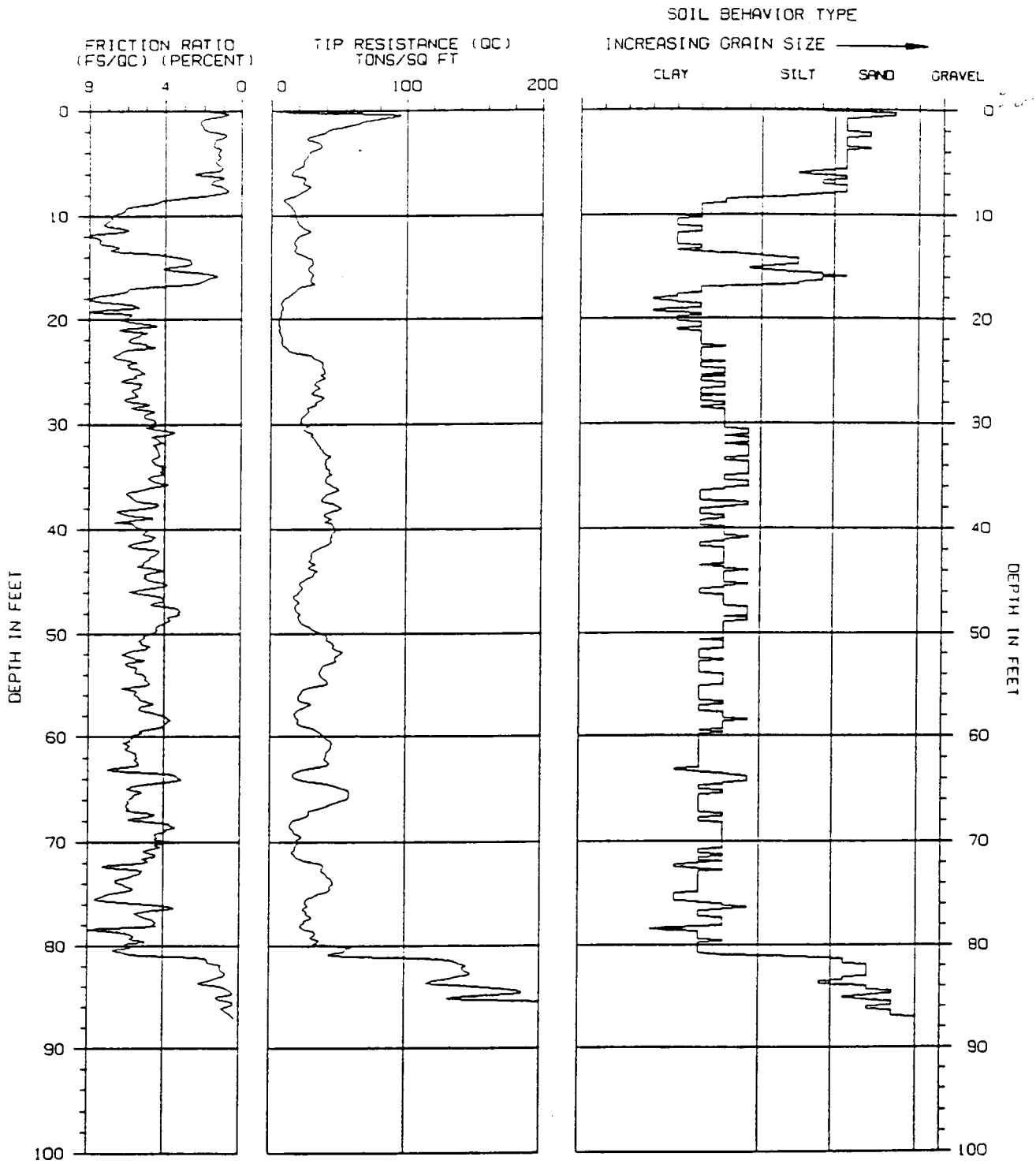
PROJECT NAME : O&M/U.C.DAVIS-II

LOCATION : DAVIS CA

PROJECT NUMBER : 92-381-01101

DATE : 09-26-1991

THE EARTH TECHNOLOGY CORPORATION



ASSUMED TOTAL UNIT WT = 110 PCF

ASSUMED DEPTH OF WATER TABLE = 65.0 FT

CONE PENETRATION TEST

SOUNDING NUMBER: CPT-34

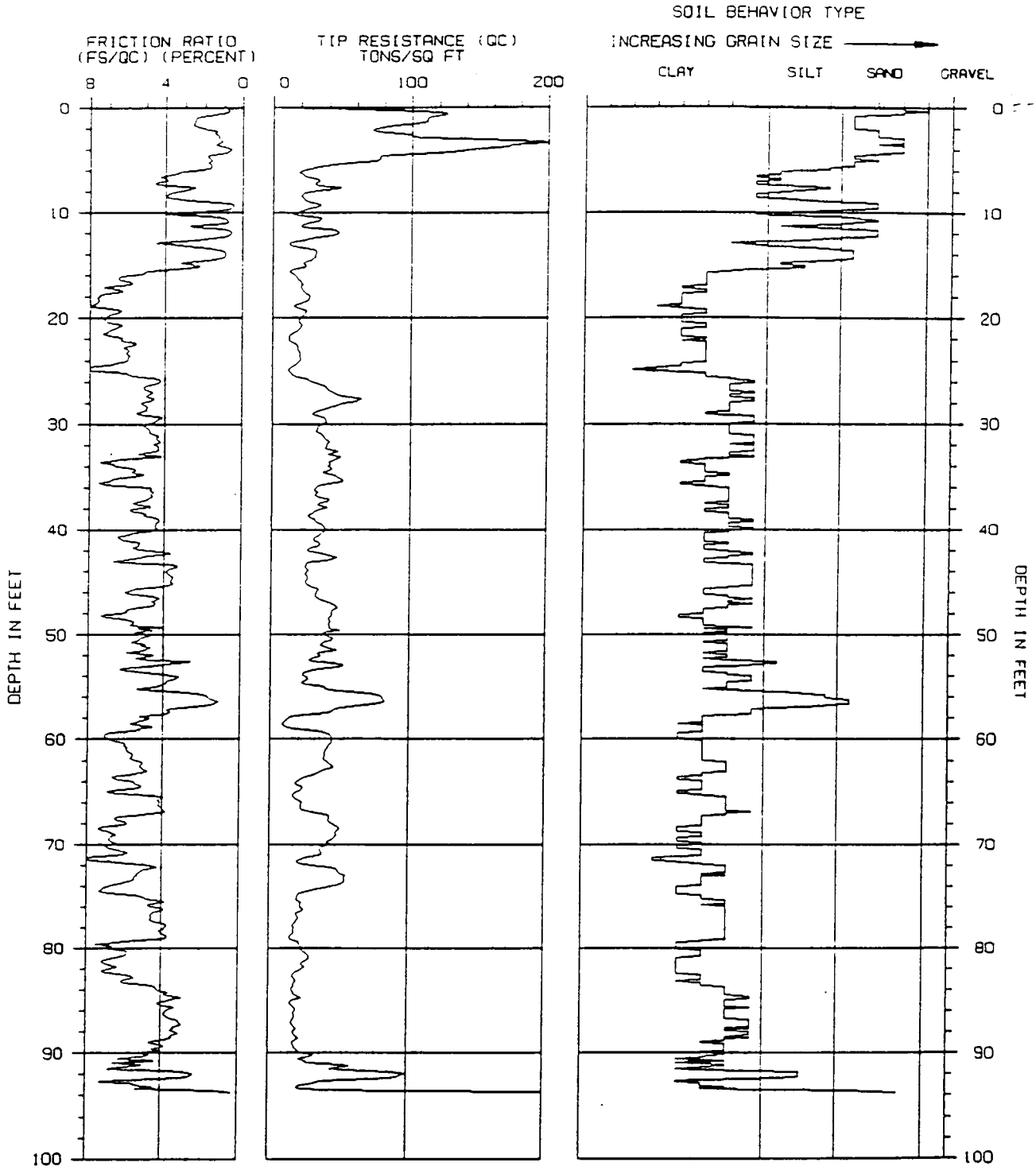
PROJECT NAME : O&M/U.C.DAVIS-II

LOCATION : DAVIS CA

PROJECT NUMBER : 92-381-01101

DATE : 09-26-1991

THE EARTH TECHNOLOGY CORPORATION



ASSUMED TOTAL UNIT WT = 110 PCF

ASSUMED DEPTH OF WATER TABLE = 65.0 FT

CONE PENETRATION TEST

SOUNDING NUMBER: CPT-35

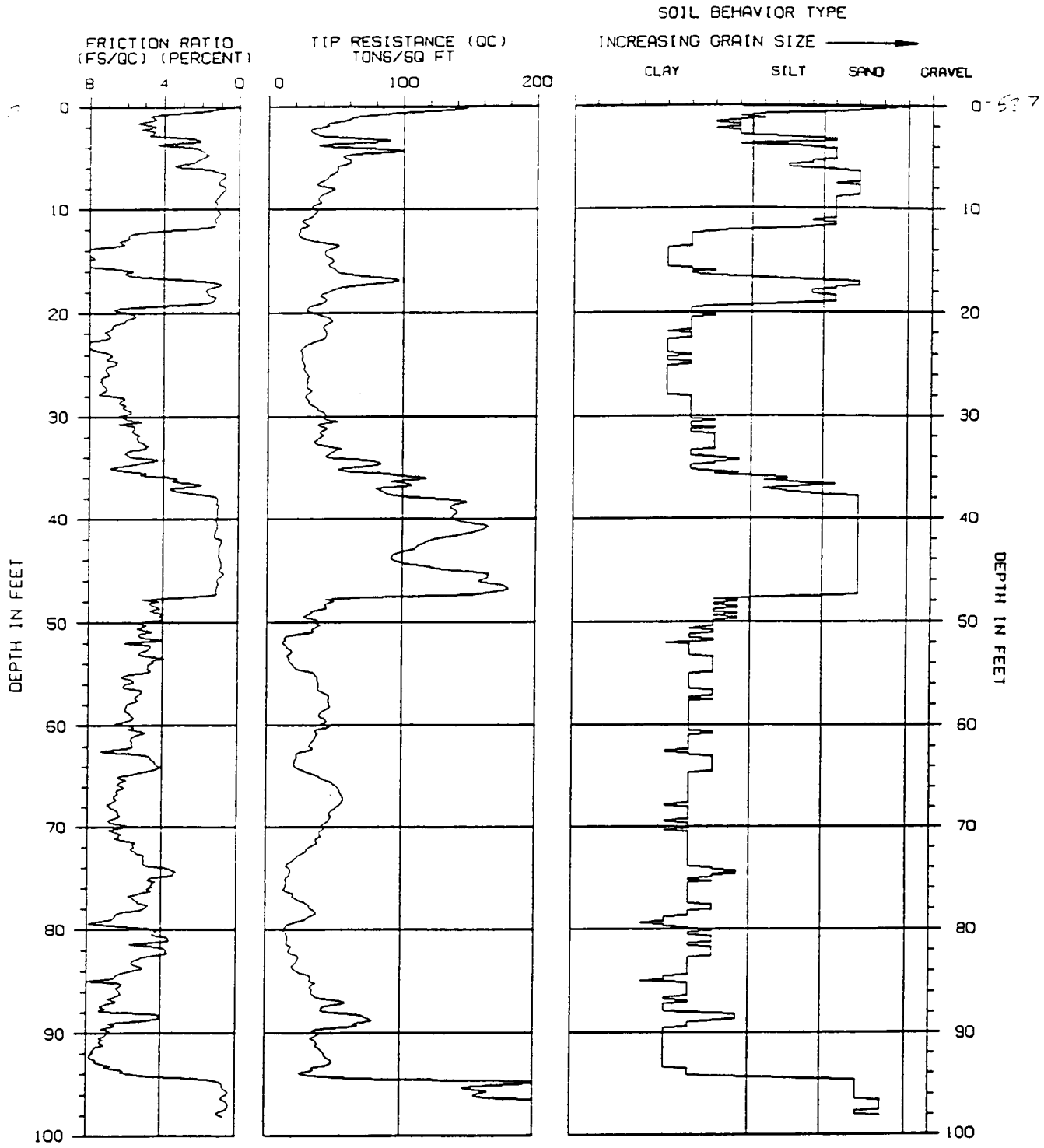
PROJECT NAME : D&M/U.C.DAVIS-II

LOCATION : DAVIS CA

PROJECT NUMBER : 92-381-01101

DATE : 09-27-1991

THE EARTH TECHNOLOGY CORPORATION



ASSUMED TOTAL UNIT WT = 110 PCF

ASSUMED DEPTH OF WATER TABLE = 65.0 FT

CONE PENETRATION TEST

SOUNDING NUMBER: CPT-36

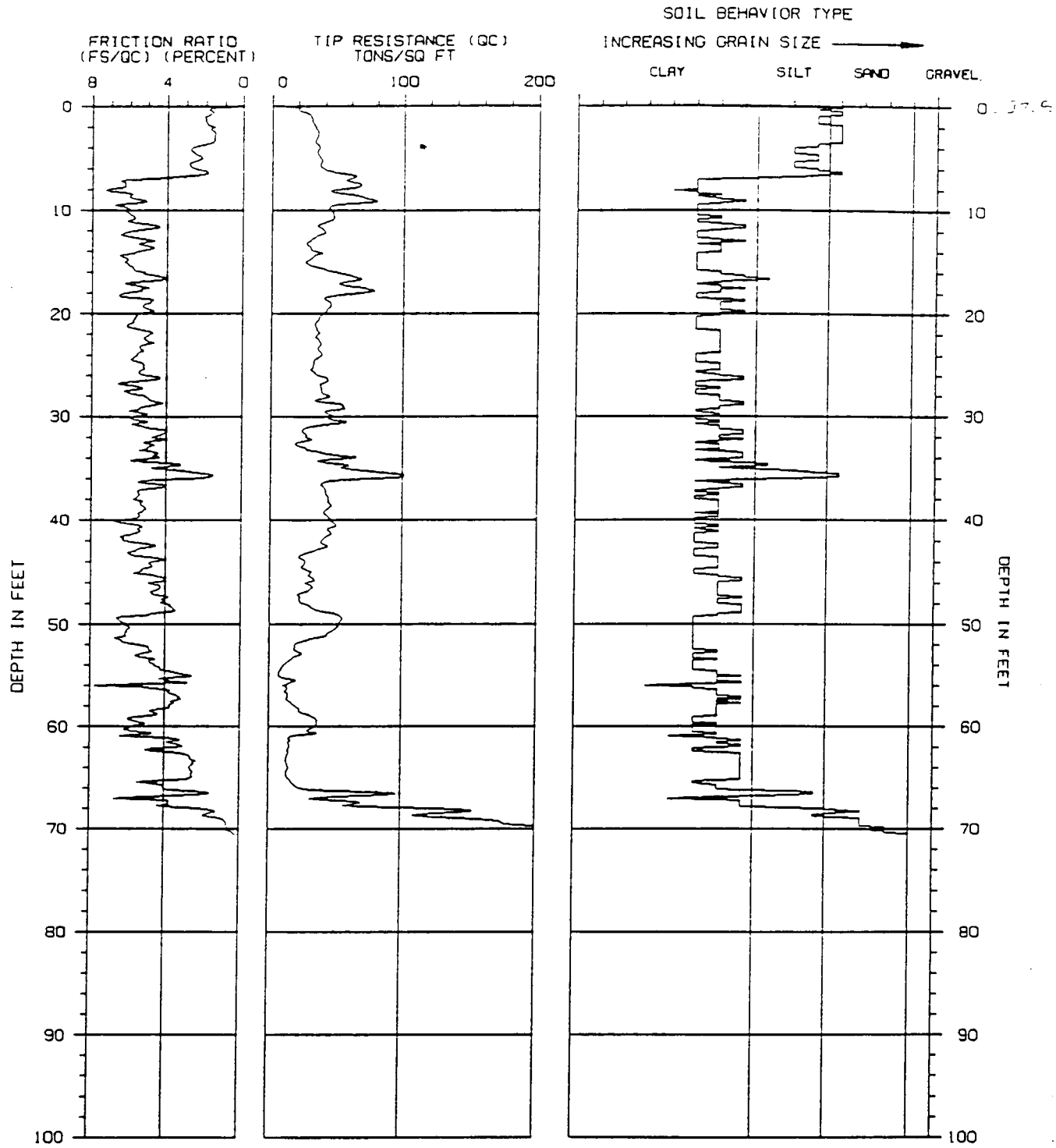
PROJECT NAME : D&M/U.C.DAVIS-II

LOCATION : DAVIS CA

PROJECT NUMBER : 92-381-01101

DATE : 09-27-1991

THE EARTH TECHNOLOGY CORPORATION



ASSUMED TOTAL UNIT WT = 110 PCF

ASSUMED DEPTH OF WATER TABLE = 65.0 FT

CONE PENETRATION TEST

SOUNDING NUMBER: CPT-37

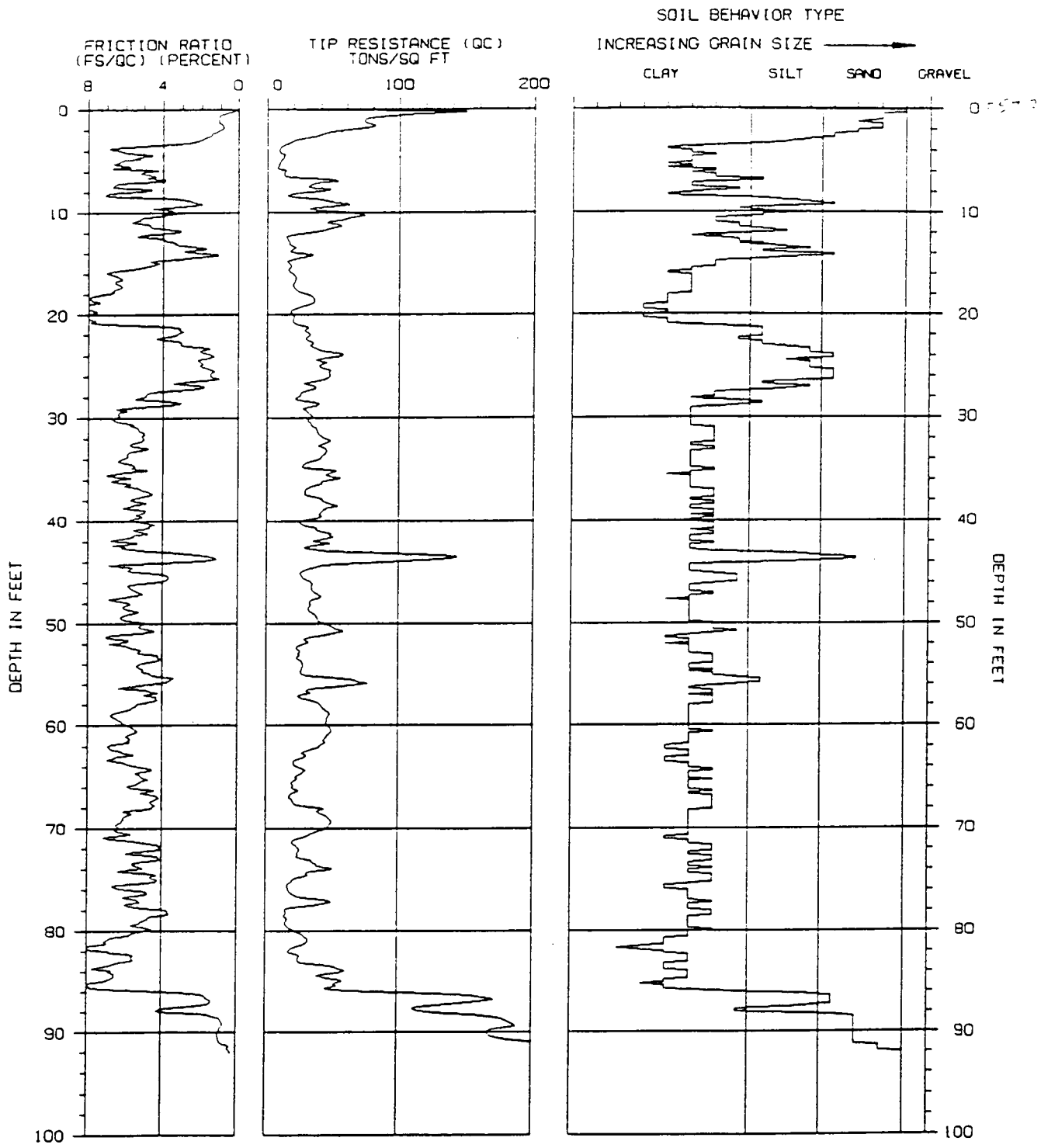
PROJECT NAME : O&M/U.C.DAVIS-II

LOCATION : DAVIS CA

PROJECT NUMBER : 92-381-01101

DATE : 09-27-1991

THE EARTH TECHNOLOGY CORPORATION



ASSUMED TOTAL UNIT WT = 110 PCF

ASSUMED DEPTH OF WATER TABLE = 65.0 FT

CONE PENETRATION TEST

SOUNDING NUMBER: CPT-38

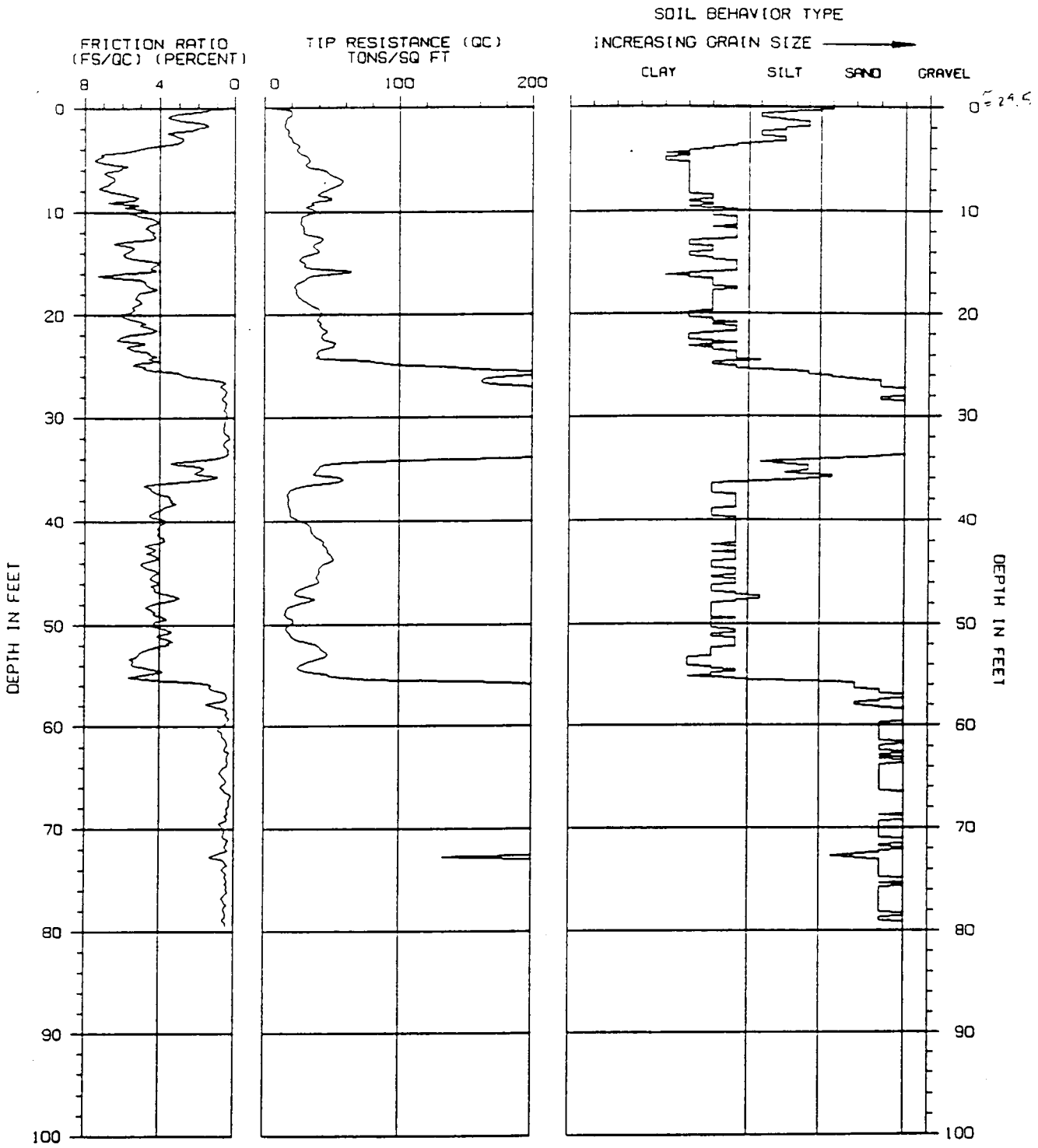
PROJECT NAME : D&M/U.C.DAVIS-II

LOCATION : DAVIS CA

PROJECT NUMBER : 92-381-01101

DATE : 09-27-1991

THE EARTH TECHNOLOGY CORPORATION



ASSUMED TOTAL UNIT WT = 110 PCF

ASSUMED DEPTH OF WATER TABLE = 65.0 FT

CONE PENETRATION TEST

SOUNDING NUMBER: CPT-44

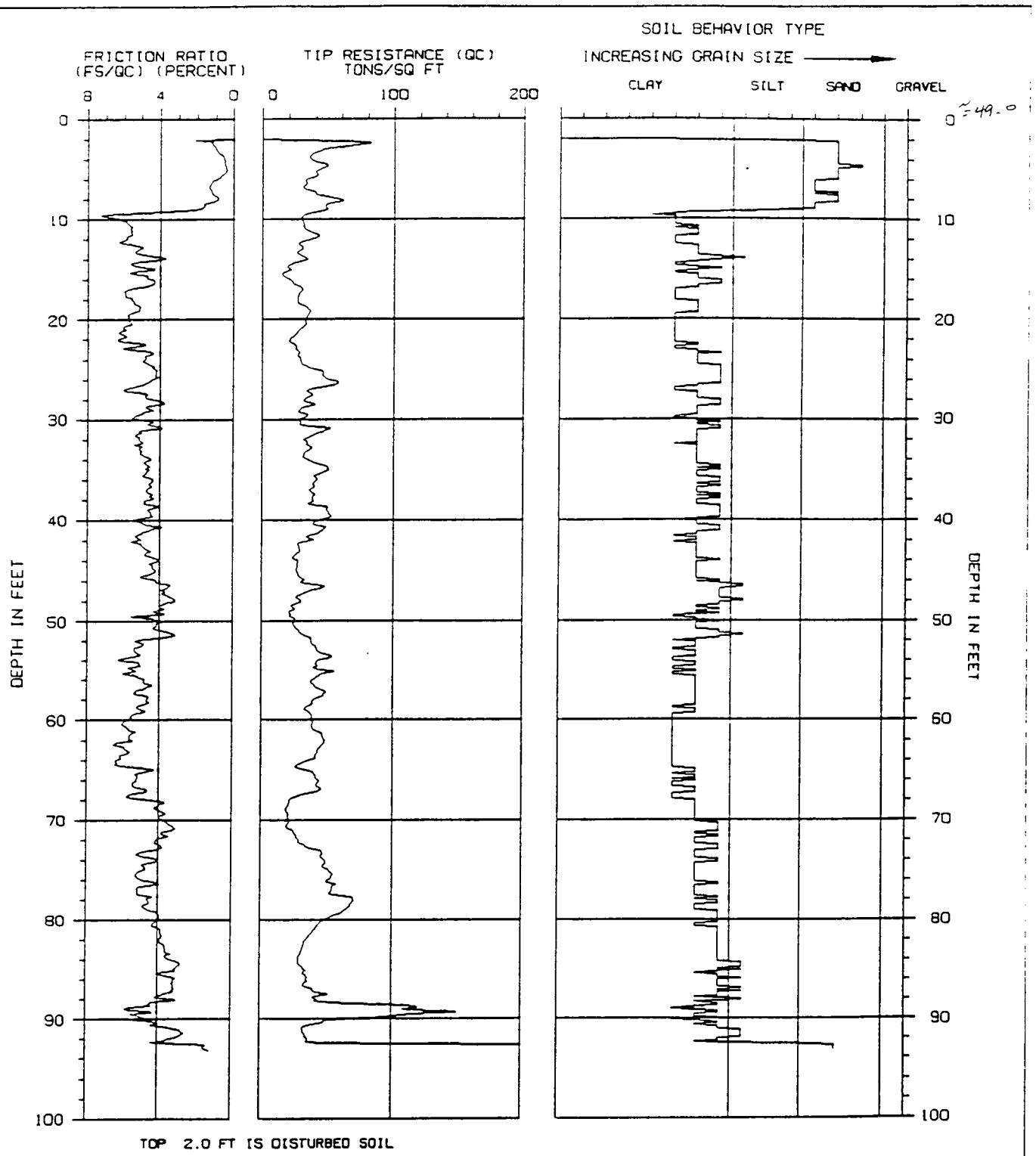
PROJECT NAME : O&M/U.C.DAVIS-II

LOCATION : DAVIS CA

PROJECT NUMBER : 92-381-01101

DATE : 10-02-1991

THE EARTH TECHNOLOGY CORPORATION



ASSUMED TOTAL UNIT WT = 110 PCF

ASSUMED DEPTH OF WATER TABLE = 65.0 FT

CONE PENETRATION TEST

SOUNDING NUMBER: CPT-46

PROJECT NAME : D&M/U.C.DAVIS-II

LOCATION : DAVIS CA

PROJECT NUMBER : 92-381-01101

DATE : 10-03-1991

THE EARTH TECHNOLOGY CORPORATION

APPENDIX C
SECTION 3

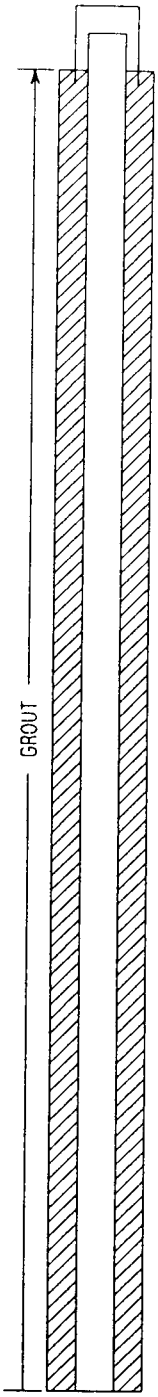
PHASE II SITE CHARACTERIZATION
SOIL BORING LOGS AND
MONITORING WELL INSTALLATION LOGS

MONITORING WELL

DRILLING METHOD: TH15/Casing Hammer
SAMPLING METHOD: D & M "U" Type
DATE COMPLETED: 3/28/90

UCD-15

DEPTH IN FEET	SAMPLING: Sample Type	SAMPLING: Blows Per Foot	SAMPLING: OVM (ppm)	SAMPLES	SYMBOLS	DESCRIPTION
0					SP	LIGHT BROWN TO BROWN SILTY VERY FINE TO FINE SAND, loose, dry.
5	U		0			Content with dark brown silty clay in shoe.
					CL	DARK BROWN SILTY CLAY, hard, slightly moist.
10	U		0			CLAY, as above.
						Some light tan mottling.
						Becomes very stiff.
					SM	Driller felt he hit sand at 13 feet.
					CL	SILTY CLAYEY SAND/ (Cuttings).
15	U		0			BROWNISH YELLOW SILTY CLAY, hard, moist, some buff fissure like filling, reacts with hydrochloric acid.
20	U		0			
25	U		0			As above.
						Increased fine grain to very fine grain sand in shoe, some black specks, white fissure filling reacts with hydrochloric acid.
30	U		1-2			BROWNISH YELLOW SILTY CLAY, hard, moist, some black specks, verticle macro pores - no visible filling but reacts with hydrochloric acid.
						Drilling easier at 31.5 feet.
						Slight increase in silt content.
35						MOTTLED BROWNISH YELLOW, GREENISH GRAY, DARK BROWN SILTY CLAY, hard, moist.



DOE PHASE II SITE CHARACTERIZATION
LEHR Environmental Restoration
Davis, California
FEBRUARY 1993

MONITORING WELL

DRILLING METHOD: THI5/Casing Hammer
SAMPLING METHOD: D & M "U" Type
DATE COMPLETED: 3/28/90

UCD-15

SAMPLING			SAMPLES	SYMBOLS	DESCRIPTION
Sample Type	Blows Per Foot	OVM (ppm)			
U		0		CL	Buff fissure fillings react with hydrochloric acid. at 39.0 feet.
					First water - water coming in slowly from casing at 36 feet.
				SC SM	Driller felt he hit sand at 40.5. BROWN SILTY CLAYEY SAND.
				GW	GRAVEL (up to 3/4 inch), with some silt and clay. Some thin sandy clay stringers.
				CL	SILTY SANDY CLAY - harder drilling, poor returns.
				CL	BROWN SILTY CLAY, with minor very fine grain sand, very stiff, moist. Drilling faster at 63 feet. Increased sand and silt.

DEPTH IN FEET: 35, 40, 45, 50, 55, 60, 65, 70

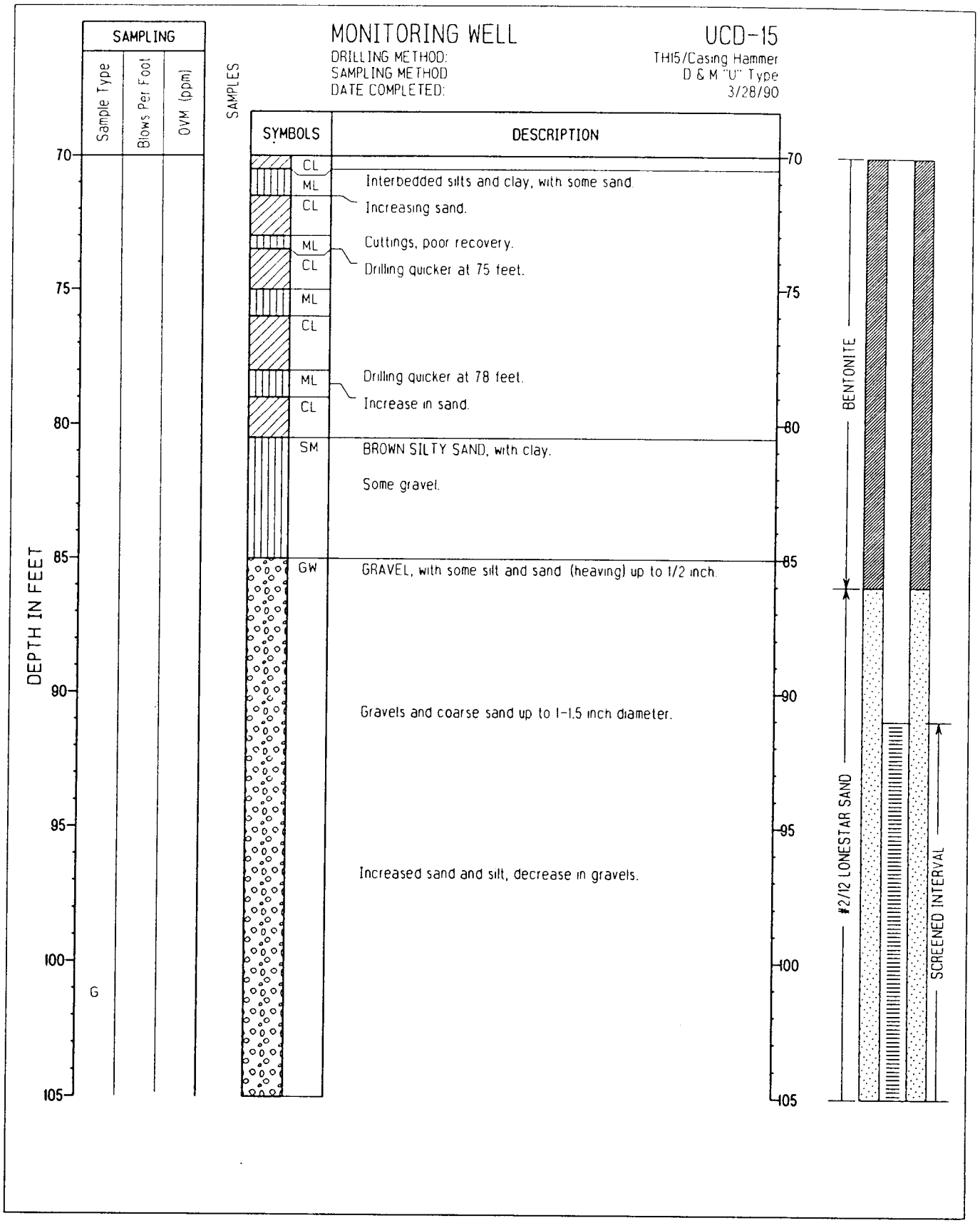
GROUT

BENTONITE

DOE PHASE II SITE CHARACTERIZATION
LEHR Environmental Restoration
Davis, California
FEBRUARY 1993

Dames & Moore

10805-454-044



DOE PHASE II SITE CHARACTERIZATION
LEHR Environmental Restoration
Davis, California
FEBRUARY 1993

MONITORING WELL

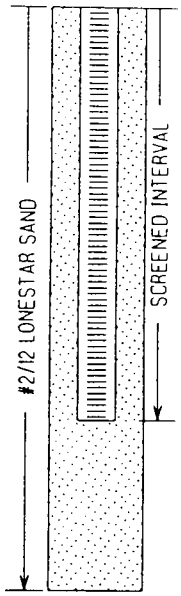
UCD-15

DRILLING METHOD: TH15/Casing Hammer
SAMPLING METHOD: D & M "U" Type
DATE COMPLETED: 3/28/90

SAMPLING			SAMPLES	SYMBOLS		DESCRIPTION
Sample Type	Blows Per Foot	OVM (ppm)				
105						
G					GW	
110						
G						
115						As above.
G						
					SC	BROWN SANDY CLAY, with minor gravel.
120					CL	BROWN SILTY CLAY, with minor sand, medium stiff.
125						
130						
135						
140						

DEPTH IN FEET

NOTES:
1) BORING COMPLETED AT A DEPTH OF 120.5 FT BELOW GROUND SURFACE (BGS) ON
2) PVC WELL INSTALLED TO A DEPTH OF 91 FT BGS; SCREENED INTERVAL FROM 91 FT TO 116 FT.



DOE PHASE II SITE CHARACTERIZATION

LEHR Environmental Restoration
Davis, California
FEBRUARY 1993

MONITORING WELL

DRILLING METHOD: TH15/Casing Hammer
SAMPLING METHOD: D & M "U" Type
DATE COMPLETED: 4/3/90

UCD-16

DEPTH IN FEET	SAMPLING: Sample Type	SAMPLING: Blows Per Foot	SAMPLING: OVM (ppm)	SAMPLES	SYMBOLS	DESCRIPTION
0					CL	DARK BROWN CLAYEY SILT, hard, moist.
5	U		0		ML	BROWN CLAYEY SILT, with minor fine sand, hard, dry.
						Some gravel at 9 feet.
10	U				CL	Becomes more clayey at 9.5 feet. DARK BROWN SILTY CLAY, with minor sand, moist, hard. Some light tan mottling in horizontal surfaces that react with hydrochloric acid. Increased silt.
15	U		0			DARK BROWNISH YELLOW SILTY CLAY, hard, moist, some fissure filling reacts with hydrochloric acid.
20	U		0			As above.
						Drilling faster - clay cuttings soft in cuttings discharge at 23 feet.
25	U		0			Color change to brown at 25 feet. Increasing fissure filling material reacts with hydrochloric acid, hard, moist, some mottling with greenish gray and dark brown.
30	U		0			As above.
						Drilling quicker at 34 feet.
35					CL	Color change from light brown to dark brown, increase > moisture.

GROUT

DOE PHASE II SITE CHARACTERIZATION

LEHR Environmental Restoration
Davis, California
FEBRUARY 1993

MONITORING WELL

DRILLING METHOD: THI5/Casing Hammer
SAMPLING METHOD D & M "U" Type
DATE COMPLETED: 4/3/90

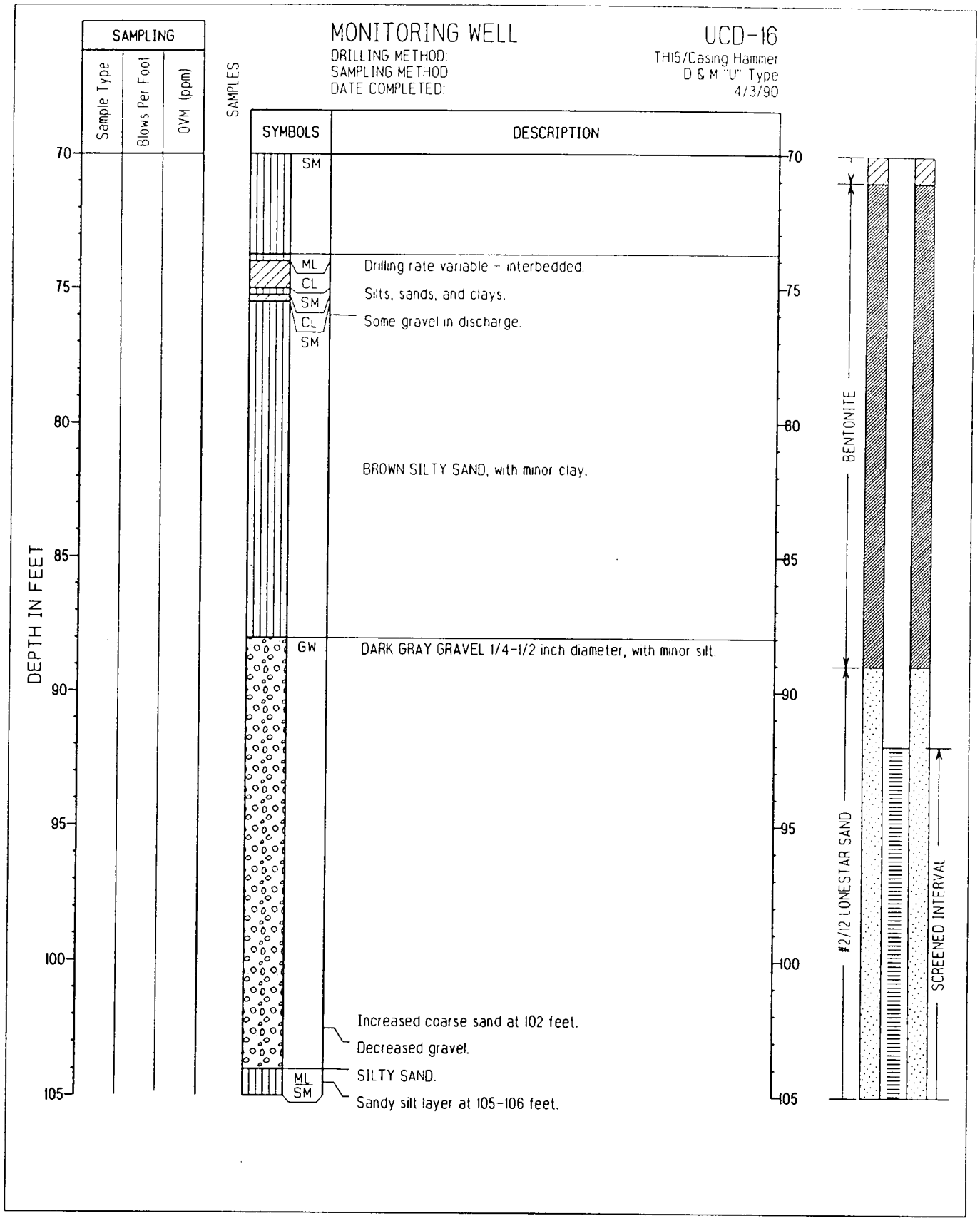
UCD-16

SAMPLING			SAMPLES	SYMBOLS	DESCRIPTION
Sample Type	Blows Per Foot	OVM (ppm)			
U		0	■	CL	MOTTLED BROWNISH YELLOW AND DARK BROWN SILTY CLAY, hard, moist. 1 cm wide vertical zone of buff concretion.
U				ML SM	BROWN/BROWNISH YELLOW CLAYEY SILTY, very stiff, moist, Contact with silty sand. BROWN SILTY SAND/SANDY SILT, soft, wet, medium dense.
				SM/ML	Increased silt.
				SM/ML	Decreased sand. DARK BROWN VERY FINE SANDY SILT. Occasional gravel in cuttings. Drilling faster at 59 feet.
				SM	Increased sand. BROWN SILTY VERY FINE SAND, with minor clay. As above. Sand fine to medium grained.

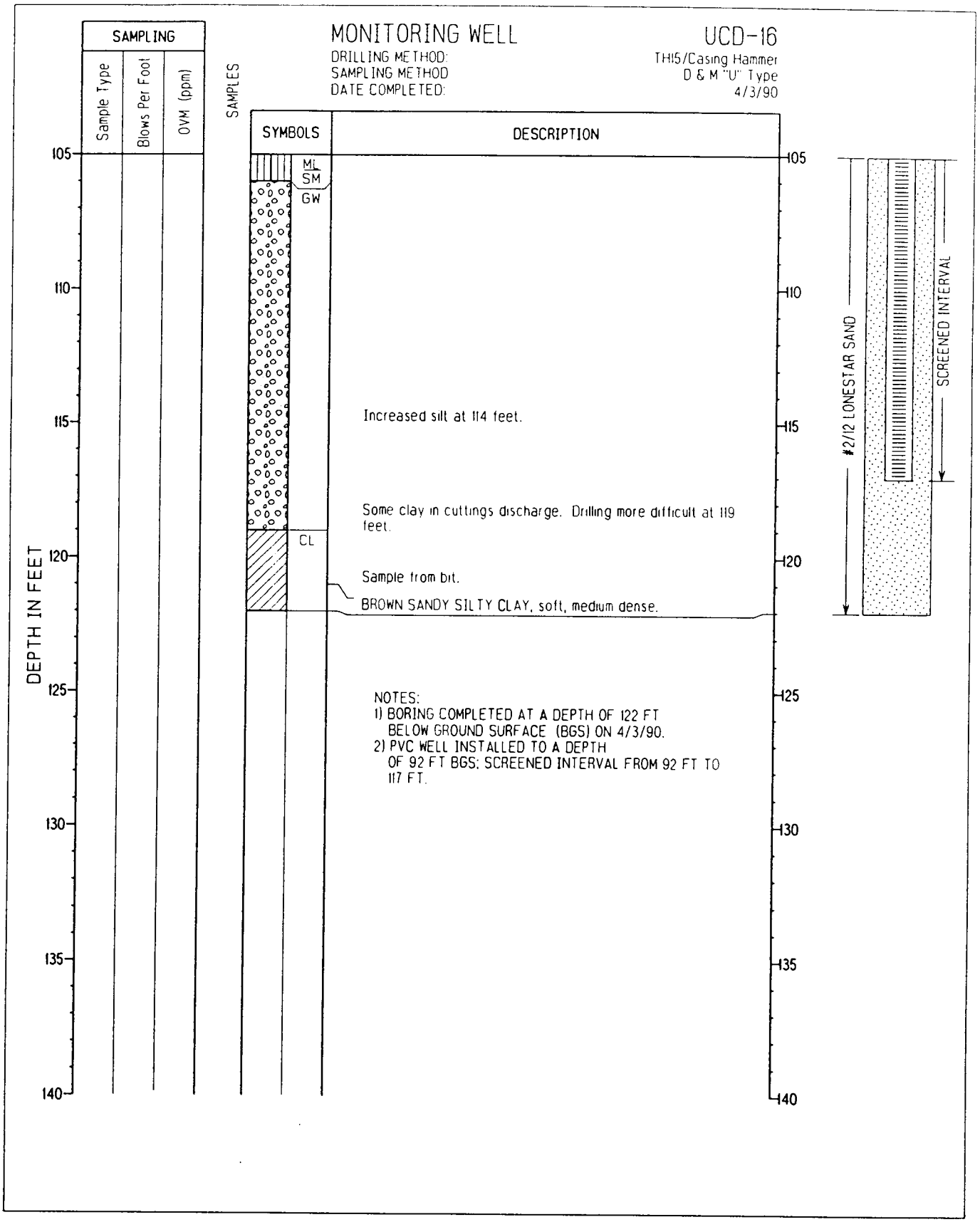
DEPTH IN FEET: 35, 40, 45, 50, 55, 60, 65, 70

GROUT

DOE PHASE II SITE CHARACTERIZATION
LEHR Environmental Restoration
Davis, California
FEBRUARY 1993



DOE PHASE II SITE CHARACTERIZATION
LEHR Environmental Restoration
Davis, California
FEBRUARY 1993



DOE PHASE II SITE CHARACTERIZATION
LEHR Environmental Restoration
Davis, California
JUNE 1992

Dames & Moore

10805-454-044

FEBRUARY 1993

MONITORING WELL

DRILLING METHOD: THI5/Casing Hammer
SAMPLING METHOD: D & M "U" Type
DATE COMPLETED: 4/10/90

UCD-17

SAMPLING			SAMPLES	SYMBOLS	DESCRIPTION
Sample Type	Blows Per Foot	OVM (ppm)			
				ML/SM	DARK BROWN SILTY SAND/SANDY SILT.
				ML	Increasing clay at 3 feet. DARK BROWN CLAYEY SILT, minor gravel, hard, slightly moist, contains roots.
U				CL/ML	LIGHT BROWN SILTY CLAY/CLAYEY SILT in shoe, very hard. Some gravel discharge at 6.5 feet. Increased silt, some clay, very hard.
U				CL	BROWN SILTY CLAY, hard, slightly moist, some light brown concretion like material, reacts with hydrochloric acid.
U					As above.
U		3-5			Decreased silt at 19 feet, increased clay, drilling more difficult. DARK BROWNISH YELLOW SILTY CLAY, hard, moist, some black specks, some light gray fissure filling, reacts with hydrochloric acid.
U		2-3		ML/SC	BROWNISH YELLOW CLAYEY FINE SANDY SILT, hard, slightly moist, (nearly dry).
U		3-4		CL	BROWN/BROWNISH YELLOW CLAY, with minor silt, hard, slightly moist.
				SM	

DEPTH IN FEET: 0, 5, 10, 15, 20, 25, 30, 35

GROUT

DOE PHASE II SITE CHARACTERIZATION

LEHR Environmental Restoration
Davis, California
FEBRUARY 1993

MONITORING WELL UCD-17

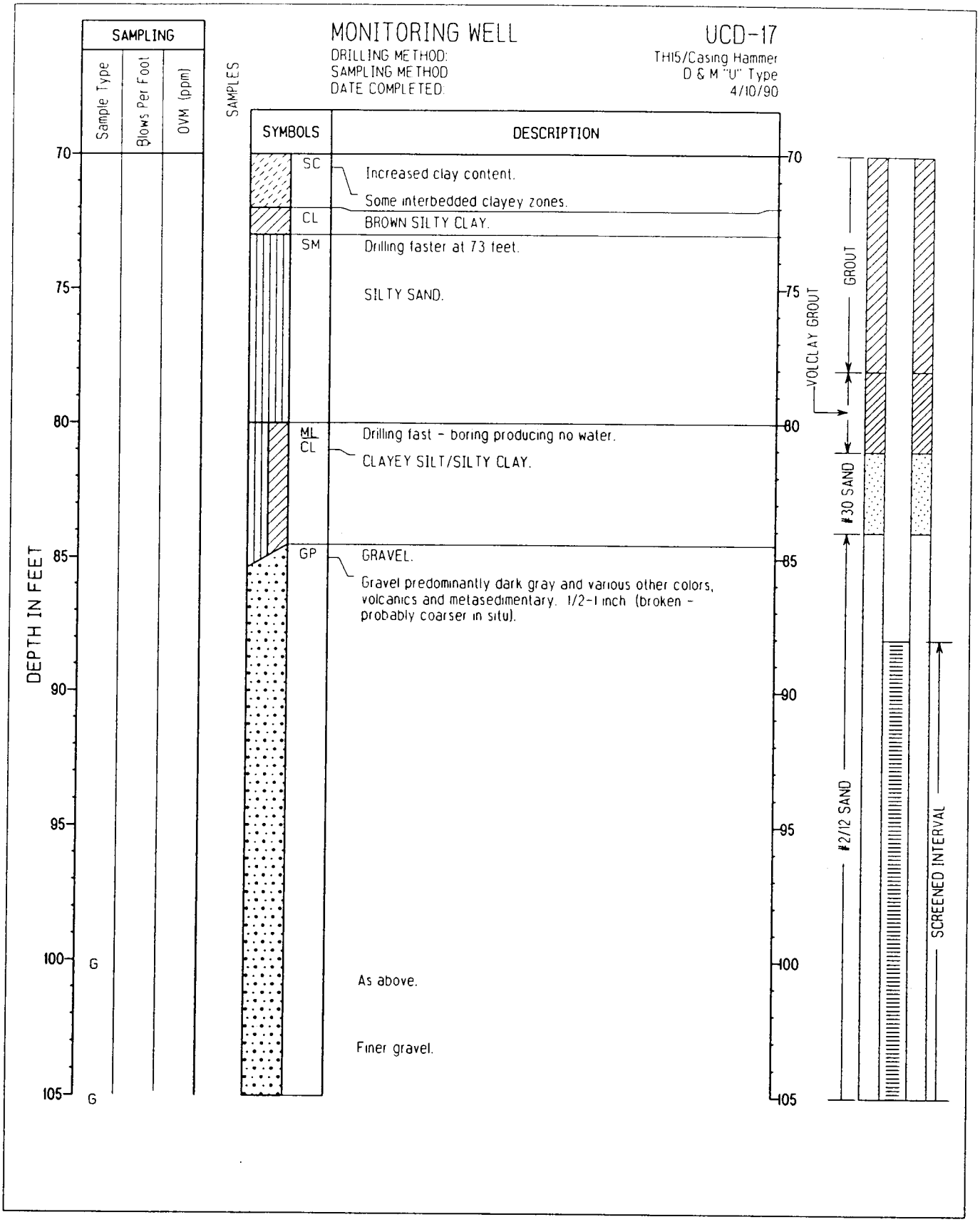
DRILLING METHOD: THI5/Casing Hammer
SAMPLING METHOD: D & M "U" Type
DATE COMPLETED: 4/10/90

Depth (feet)	Sample Type	Blows Per Foot	OVM (ppm)	Samples	Symbols	Description
35	U		0.5 -1.0	■	SM	BROWNISH YELLOW SILTY FINE TO MEDIUM GRAINED SAND, with minor clay.
					ML/CL	BROWNISH YELLOW SILTY CLAY/CLAYEY SILT, in shoe, soft to very stiff, moist.
						Driller felt of drilling faster at 36 feet.
40	U		1-3	■		MOTTLED BROWNISH YELLOW, GREENISH GRAY AND BROWN CLAYEY SILT, some black specks, hard, moist.
						Drilling becomes easier, penetration faster at 45 feet.
45					SM/ML	SILTY SAND/SANDY SILT, minor coarse sand, soft, moist.
50					ML	Decreasing sand, clayey silt.
						Increased sand.
55						
						Penetration faster at 58 feet.
					SM	Increased sand.
60						BROWN SILTY SAND.
						(Cuttings wetter).
						Increased silt content.
					CL	Drilling difficult at 63 feet.
						Started adding water at 10 gallons per minute.
65					SM	BROWN SILT, fine to medium sand, with minor clay.
					SC	
70						

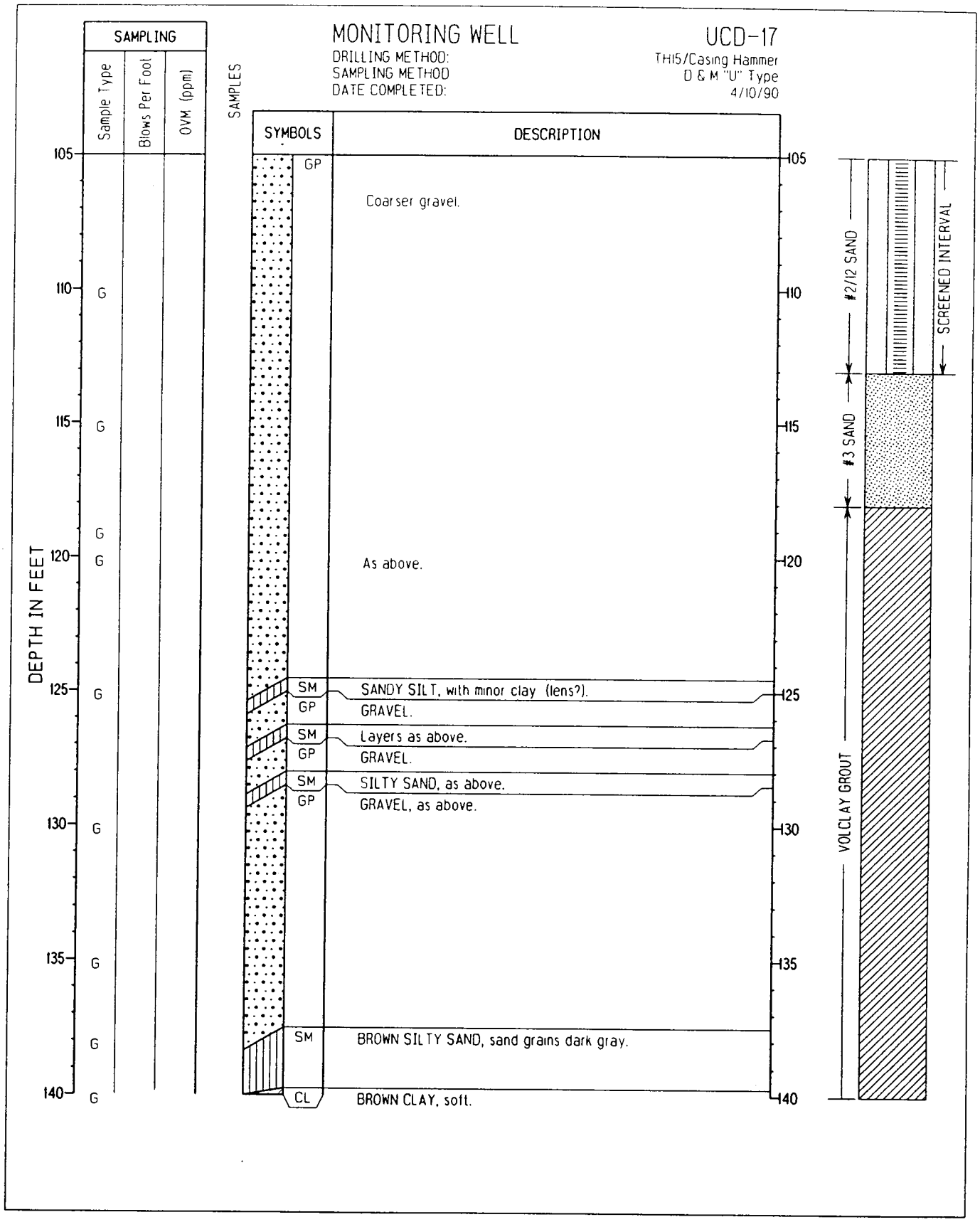
DEPTH IN FEET

GROUT

DOE PHASE II SITE CHARACTERIZATION
LEHR Environmental Restoration
Davis, California
FEBRUARY 1993



DOE PHASE II SITE CHARACTERIZATION
LEHR Environmental Restoration
Davis, California
FEBRUARY 1993



DOE PHASE II SITE CHARACTERIZATION
LEHR Environmental Restoration
Davis, California
FEBRUARY 1993

MONITORING WELL

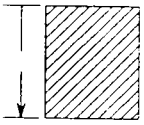
DRILLING METHOD: THIS/Casing Hammer
SAMPLING METHOD: D & M "U" Type
DATE COMPLETED: 4/10/90

UCD-17

SAMPLING			SAMPLES	SYMBOLS		DESCRIPTION
Sample Type	Blows Per Foot	OVM (ppm)				
					CL	BROWN CLAY, soft.
G						

DEPTH IN FEET: 140, 145, 150, 155, 160, 165, 170, 175

NOTES:
1) BORING COMPLETED AT A DEPTH OF 143 FT. BELOW GROUND SURFACE (BGS) ON 4/10/90.
2) PVC WELL INSTALLED TO A DEPTH OF 113 FT. BGS, SCREENED INTERVAL FROM 88 FT. TO 113 FT.



MONITORING WELL

UCD-18

DRILLING METHOD: Hollow Stem Auger
SAMPLING METHOD: Continuous Core, California Mod
DATE COMPLETED: 10/2/90

SAMPLING			SAMPLES	SYMBOLS	DESCRIPTION
Sample Type	Blows Per Foot	OVM (ppm)			
				CL ML	DARK BROWN SILTY CLAY/CLAYEY SILT, hard, slightly moist, some roots.
					Some sandy zones.
CM	37		■		As above.
					Whiter vein fillings, reacts with hydrochloric acid, decreasing roots.
CM	20		■		Becomes BROWNISH YELLOW SILTY CLAY, very stiff, moist, common pores.
					Increased clay.
CM	20		■		Very stiff to hard, moist.
					With minor sand, some greenish gray mottling at 19 feet, moist, some black specks.
CM	37		■		Mottled brownish yellow and dark brown/ black, hard, slightly moist, slight increase in silt content.
				CL ML	BROWNISH YELLOW SILTY CLAY/CLAYEY SILT, very stiff to hard, moist, some black coating on parting surfaces.
CM			■		As above.
					Increased silt.
CM	62		■		Some concretions to 3 mm, hard, moist, reacts with hydrochloric acid.
					Increased buff concretions and mottling at bottom of sample.
					Minor sand and silt.

DEPTH IN FEET: 0, 5, 10, 15, 20, 25, 30, 35

GROUT

DOE PHASE II SITE CHARACTERIZATION
LEHR Environmental Restoration
Davis, California
FEBRUARY 1993

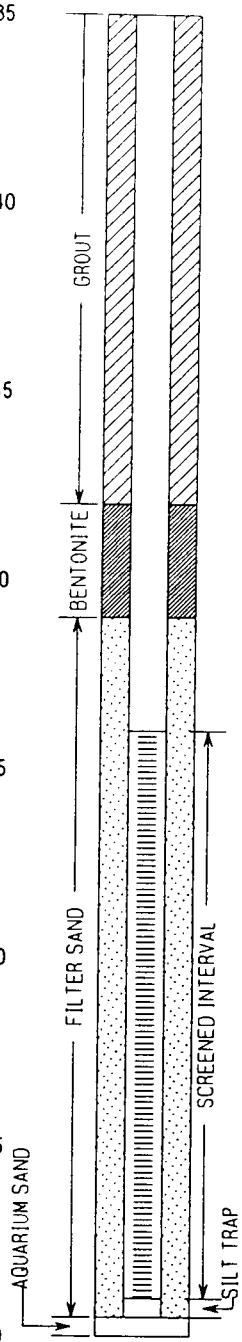
Dames & Moore

10805-454-044

MONITORING WELL UCD-18

DRILLING METHOD: Hollow Stem Auger
SAMPLING METHOD: Continuous Core, California Mod
DATE COMPLETED: 10/2/90

DEPTH IN FEET	SAMPLING: Sample Type	SAMPLING: Blows Per Foot	SAMPLING: OVM (ppm)	SAMPLES	SYMBOLS	DESCRIPTION
35	CM	41		■	CL/ML	As above.
40	CM	35		■	CL/SM	BROWNISH YELLOW SILTY FINE SANDY CLAY, mottled colors, brown, greenish gray, brownish yellow. Common buff colored concretions, reacts with hydrochloric acid. Increased silt content. Hard, moist, minor greenish gray and dark brown mottling.
					SM	BROWN SILTY FINE TO VERY FINE GRAIN SAND, moist, some greenish gray mottling.
45	CM	37			SP	BROWN FINE GRAIN SAND, loose, moist, some silty zones.
50	CM	45		■	CL	BROWNISH YELLOW SILTY CLAY, hard, moist, some interbedded gray laminations. As above. Increased sand content.
55	CM	49		■	ML/SC	BROWNISH YELLOW FINE SANDY CLAYEY SILT, very stiff to hard, moist.
					SP	BROWN SAND, with minor silt and clay, loose, moist, some greenish gray mottling.
60	CM	50		■	CL/ML	DARK BROWNISH YELLOW SILTY CLAY/CLAYEY SILT, hard, moist, buff vein fillings, reacts with hydrochloric acid. Moist to wet.
65	CM	16		■	SM/SC	BROWNISH YELLOW SILTY CLAYEY SAND, interbedded with sandy clayey silts, wet, medium stiff, some thin lamination of fine sand.
70					ML/CL	BROWNISH YELLOW CLAYEY SILT, stiff, moist.



DOE PHASE II SITE CHARACTERIZATION

LEHR Environmental Restoration
Davis, California
FEBRUARY 1993

MONITORING WELL

UCD-19

DRILLING METHOD: Hollow Stem Auger
SAMPLING METHOD: Continuous Core, Split Spoon
DATE COMPLETED: 9/26/90

SAMPLING			SAMPLES	SYMBOLS	DESCRIPTION
Sample Type	Blows Per Foot	OVM (ppm)			
CM	31		■	ML/CL	DARK BROWN TO BROWNISH YELLOW CLAYEY SILT/SILTY CLAY, (FILL TO NATIVE?), hard, dry, minor fine gravel.
					No recovery in core.
CM	16		■	SM	BROWNISH YELLOW FINE SANDY SILT TO BROWN SILTY MEDIUM GRAINED SAND, loose to medium dense, dry
					No recovery. Core barrel.
CM	53		■	CL	DARK BROWN CLAY, with minor silt, hard, moist, common pores to 1 mm. NATIVE SOIL.
					Grades softer.
CM	14		■	ML/CL	BROWNISH YELLOW CLAYEY SILT/SILTY CLAY, stiff to very stiff, moist.
					Grades stiffer.
CM	50		■	CL/ML	Becomes hard, moist.
CM	60		■		As above. Some buff colored concretions filling veins and/or fractures, reacts with hydrochloric acid.
CM	54		■	ML/CL	As above. moist.
					Faint mottling of color - brownish yellow and greenish gray.

DEPTH IN FEET: 0, 5, 10, 15, 20, 25, 30, 35

GROUT

DOE PHASE II SITE CHARACTERIZATION
LEHR Environmental Restoration
Davis, California
FEBRUARY 1993

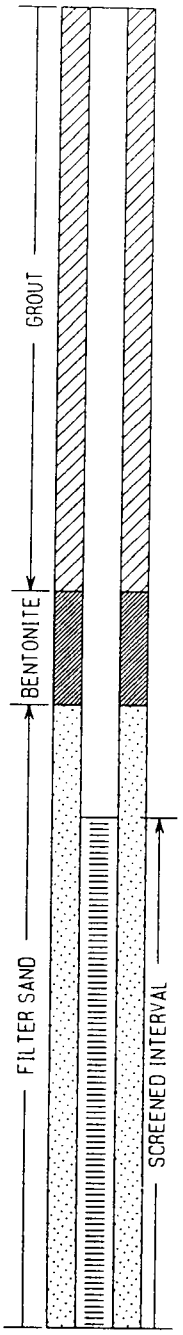
Dames & Moore

10805-454-044

MONITORING WELL UCD-19

DRILLING METHOD: Hollow Stem Auger
SAMPLING METHOD: Continuous Core, Split Spoon
DATE COMPLETED: 9/26/90

DEPTH IN FEET	SAMPLING: Sample Type	SAMPLING: Blows Per Foot	SAMPLING: OVM (ppm)	SAMPLES	SYMBOLS	DESCRIPTION
35					ML/CL	As above. Buff colored vein fillings.
					CL	Grades clayier.
40	CM	40				MOTTLED ORANGE BROWN, BROWNISH YELLOW, GREENISH GRAY WITH BLACK SPECKS, SILTY CLAY, hard, moist.
45	CM	28				Decreased clay, very stiff.
					ML/CL, SM	As above to BROWNISH YELLOW SILTY FINE GRAINED SAND, in uneven, thin layers. Layered with clayey silt or silt. Some wet zones in rings (perched water). Medium dense.
50	CM	29			ML/CL	DARK BROWNISH YELLOW SILTY FINE SAND, dense, very moist.
					SM, SM	MOTTLED BROWNISH YELLOW, ORANGE BROWN AND GREENISH GRAY CLAYEY SILT, stiff, moist.
					ML/CL	SILTY SAND ZONE, moist.
					SM, CL	CLAY, as above, very stiff, moist.
55	CM	45				MOTTLED ORANGE BROWN, BROWNISH YELLOW, GREENISH GRAY WITH BLACK SPECKS, SILTY CLAY, hard, moist.
60	CM	32				BROWNISH YELLOW SILTY CLAY, very stiff, moist.
65	CM	65				As above, very stiff.
					ML/CL	Increased silt content, stiff to very stiff, wet.
					ML	
70					ML/SM	



DOE PHASE II SITE CHARACTERIZATION

LEHR Environmental Restoration
Davis, California
FEBRUARY 1993

MONITORING WELL

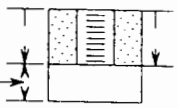
DRILLING METHOD: Hollow Stem Auger
SAMPLING METHOD: Continuous Core, Split Spoon
DATE COMPLETED: 9/26/90

UCD-19

SAMPLING			SAMPLES	SYMBOLS	DESCRIPTION
Sample Type	Blows Per Foot	OVM (ppm)			
CM			■	ML SM	YELLOW BROWN CLAYEY SILT/SILTY SAND, medium stiff, moist.
				ML CL	YELLOW BROWN CLAYEY SILT/SILTY CLAY, medium stiff, moist.
CM			■	CL	MOTTLED ORANGE BROWN, BROWNISH YELLOW, DARK BROWN, AND GREENISH GRAY CLAY, hard, moist.

DEPTH IN FEET: 70, 75, 80, 85, 90, 95, 100, 105

AQUARIUM SAND



NOTES:
1) BORING COMPLETED AT A DEPTH OF 74.5 FT, REAMED TO 72.5 FT FOR WELL INSTALLATION, BELOW GROUND SURFACE (BGS) ON 9/26/90.
2) PVC WELL INSTALLED TO A DEPTH OF 56.5 FT BGS; SCREENED INTERVAL FROM 56.5 TO 71.5 FT.

DOE PHASE II SITE CHARACTERIZATION
LEHR Environmental Restoration
Davis, California
FEBRUARY 1993

MONITORING WELL

DRILLING METHOD: Hollow Stem Auger
SAMPLING METHOD: California Mod
DATE COMPLETED: 10/5/90

UCD-20

SAMPLING		
Sample Type	Blows Per Foot	OVM (ppm)
CM	44	
CM	12	
CM	28	
CM	38	
CM	43	
CM	25	
CM	39	

SAMPLES

DEPTH IN FEET: 0, 5, 10, 15, 20, 25, 30, 35

SYMBOLS	DESCRIPTION
SM / SC	DARK BROWN SILTY SAND, CLAYEY SILT, with minor gravel, dry, loose, (FILL).
ML / CL	BROWN CLAYEY SILT/SILTY CLAY, with minor gravel, very stiff, dry.
SP	DARK GRAY BROWN FINE TO MEDIUM GRAINED SAND, loose, damp, with dark brownish yellow clayey silt lens, stiff to very stiff, moist.
	As above, with minor gravel, increased clay at 7.8 feet.
CL / ML	BROWNISH YELLOW SILTY CLAY/CLAYEY SILT, hard, moist, white mottling, reacts with hydrochloric acid on parting surface.
	Lighter brownish yellow, decreased stiffness.
	Becomes DARK BROWNISH YELLOW, hard, moist, white concretions, reacts with hydrochloric acid.
	As above, with black and white mottling on parting surfaces, white matrix reacts with hydrochloric acid.
	Decreased silt.
	Becomes BROWNISH YELLOW, hard, moist.
	Increased white and black mottling on parting surfaces.
	Interbedded siltier zones.
	Increased silt content. Slight decrease in stiffness (still hard).
	Becoming lighter. Increased silt content, some sand, decreased stiffness.
SM	Thin sandy zone at 29 feet, very fine grain.
CL / ML	As above, abundant buff concretion material, strong reaction with hydrochloric acid.
ML / SM	BROWNISH YELLOW SANDY SILT, some silty sand zones, abundant white concretions - very stiff, black coating on parting surfaces.
SM	BROWNISH YELLOW SILTY FINE SAND, loose, moist.
CL / ML	MOTTLED BROWNISH YELL, GREENISH GRAY AND DARK BROWN/ BLACK SILTY CLAY/CLAYEY SILT, dark brown/black coating on parting surfaces.

GROUT

DOE PHASE II SITE CHARACTERIZATION

LEHR Environmental Restoration
Davis, California
FEBRUARY 1993

MONITORING WELL

DRILLING METHOD: Hollow Stem Auger
SAMPLING METHOD: California Mod
DATE COMPLETED: 10/5/90

UCD-20

DEPTH IN FEET	SAMPLING: Sample Type	SAMPLING: Blows Per Foot	SAMPLING: OVM (ppm)	SYMBOLS	DESCRIPTION
35	CM			CL/ML	
					Grading to BROWNISH YELLOW SILT TO SANDY SILT, thin very fine grain sandy zone at 38 feet, dense, moist.
				CL/ML	Grades back to SILTY CLAY, hard, moist.
40	CM	38			MOTTLED BROWNISH YELLOW, GREENISH GRAY, DARK BROWN SILTY CLAY/CLAYEY SILT, some siltier zones, buff concretions, hard, moist.
					Increased greenish gray mottling. Grading to:
				CL/ML	CLAYEY SILT/SILTY CLAY, very stiff, moist.
45	CM	36			
					Increased clay content and stiffness, very stiff to hard, moist.
					Decreased clay content.
				SM	
				ML/CL	1.5 foot zone of interbedded SILTY SAND, SILT, AND SILTY CLAY.
50	CM	32		SM	BROWNISH YELLOW WITH MINOR GREENISH GRAY AND DARK BROWN MOTTLING SILTY CLAY, hard, moist.
				CL	
					Abundant white concretion material, reacts with hydrochloric acid.
55	CM	87			BROWN/BROWNISH YELLOW CLAY, with minor silt, hard, moist, common buff concretions.
					Grades to SILTY CLAY/CLAYEY SILT, stiffness varies with silt and clay content.
				ML/CL	
				CL	
60	CM	53			BROWNISH YELLOW SILTY CLAY, hard, moist, some greenish gray mottling.
					As above, becoming hard, damp.
65	CM	37		ML/CL	BROWNISH YELLOW CLAYEY SILT, some clayier zones, stiff to very stiff, moist to wet.
70					

SAMPLES

GROUT
BENTONITE
LONESTAR SAND
SCREENED INTERVAL

DOE PHASE II SITE CHARACTERIZATION

LEHR Environmental Restoration
Davis, California
FEBRUARY 1993

MONITORING WELL

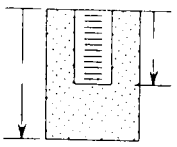
DRILLING METHOD: Hollow Stem Auger
SAMPLING METHOD: California Mod
DATE COMPLETED: 10/5/90

UCD-20

SAMPLING			SAMPLES	SYMBOLS	DESCRIPTION
Sample Type	Blows Per Foot	OVM (ppm)			
CM	49		■	ML/CL	As above, wet.

DEPTH IN FEET: 70, 75, 80, 85, 90, 95, 100, 105

NOTES:
1) BORING COMPLETED AT A DEPTH OF 71.5 FT, REAMED AT 73.5 FT FOR WELL INSTALLATION, BELOW GROUND SURFACE (BGS) ON 10/5/90.
2) PVC WELL INSTALLED TO A DEPTH OF 57 FT BGS; SCREENED INTERVAL FROM 57 TO 72 FT.



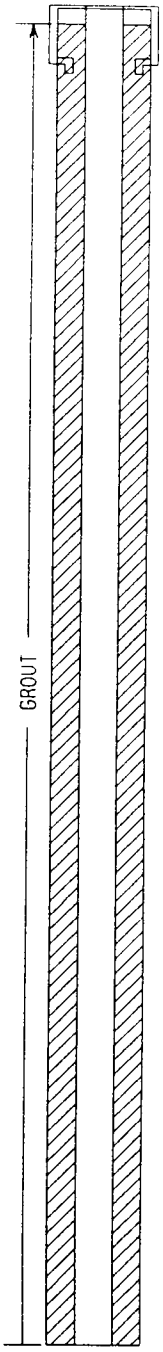
MONITORING WELL

DRILLING METHOD: Hollow Stem Auger
SAMPLING METHOD: California Mod
DATE COMPLETED: 10/10/90

UCD-21

SAMPLING			SAMPLES	SYMBOLS	DESCRIPTION
Sample Type	Blows Per Foot	OVM (ppm)			
CM	67			GM	GRAVEL, with silt and clay, loose, damp. (Road base).
CM	18			CL ML	DARK BROWN SILTY CLAY/CLAYEY SILT, stiff, moist. Grading to dark brownish yellow, very stiff.
CM	85				Contains white calcareous material, very stiff, damp.
CM	18			CL	BROWNISH YELLOW SILTY CLAY, very stiff, moist. Grades to BROWN SILTY CLAY, medium stiff, damp, some black specks, white coatings - reacts with hydrochloric acid, becomes very stiff at 18 feet.
CM	46			CL ML	BROWN SILTY CLAY/CLAYEY SILT, with sand, becoming hard.
CM	29				Becomes very stiff, moist, white concretions, black specks.
CM	22			ML SC	BROWN/BROWNISH YELLOW VERY FINE CLAYEY SANDY SILT, medium stiff to stiff, slightly moist.
				SM	BROWN SILTY VERY FINE GRAIN SAND, moist.
				ML CL	Decreased silt content.
CM	21			ML SC	BROWNISH YELLOW WITH SOME GRAY GREEN MOTTLING, CLAYEY SAND/SILT, very stiff, moist.

DEPTH IN FEET: 0, 5, 10, 15, 20, 25, 30, 35



DOE PHASE II SITE CHARACTERIZATION

LEHR Environmental Restoration
Davis, California
FEBRUARY 1993

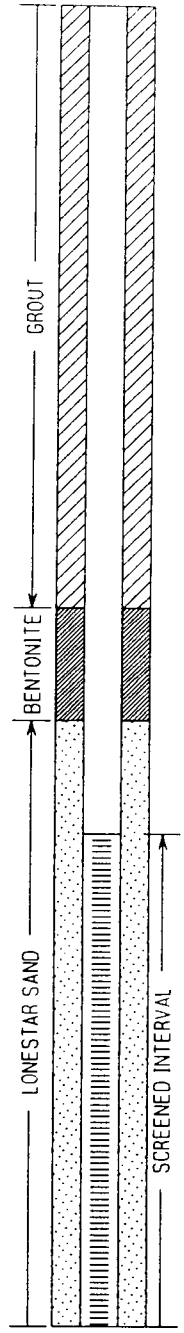
MONITORING WELL

DRILLING METHOD: Hollow Stem Auger
SAMPLING METHOD: California Mod
DATE COMPLETED: 10/10/90

UCD-21

Depth (feet)	Sample Type	Blows Per Foot	OVM (ppm)	Symbols	Description
35				ML SC	
				ML CL	Grades to SILTY CLAY/CLAYEY SILT, damp, very stiff to hard.
40	CM	31		CL ML	BROWNISH YELLOW WITH GREENISH GRAY MOTTLING SILTY CLAY, very stiff to hard, moist, some buff nodules to 1 cm, black specks.
				ML CL	BROWN WITH LIGHT GRAY MOTTLING CLAYEY SILT/SILTY CLAY, white concretions react with hydrochloric acid.
45	CM	23			Increased greenish gray mottling.
					Decreased clay, graded from very stiff to stiff.
				ML	1 foot zone interbedded BROWN SILTY SAND AND SILTS, with clay, soft, damp.
				SM	
				ML	Thin wet zone at 50.5 feet, brown silt ~2 inches thick.
50	CM	35			BROWNISH YELLOW WITH GREENISH GRAY AND BUFF MOTTLING CLAYEY SILT, stiff to very stiff, moist, black specks.
55				SP	Thin sand laminate at 54.8 feet, moist.
	CM	40		ML CL	STRONG BROWNISH YELLOW SILTY CLAY/CLAYEY SILT, hard, moist, decreased mottling.
				ML CL	Increased silt.
60	CM	57			Increased clay, very stiff.
					Becomes hard, damp, white concretions react with hydrochloric acid, fissure filling, some greenish gray mottling.
65	CM	30			BROWN CLAYEY SILT, very little sand, wet, clayey zones, moist.
70					Increasing clay at 69 feet.

DEPTH IN FEET



DOE PHASE II SITE CHARACTERIZATION

LEHR Environmental Restoration
Davis, California
FEBRUARY 1993

MONITORING WELL

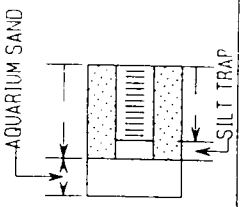
DRILLING METHOD: Hollow Stem Auger
SAMPLING METHOD: California Mod
DATE COMPLETED: 10/10/90

UCD-21

SAMPLING			SAMPLES	SYMBOLS	DESCRIPTION
Sample Type	Blows Per Foot	OVM (ppm)			
CM	27		■	ML CL	BROWNISH YELLOW CLAYEY VERY FINE SANDY SILT, stiff to very stiff, moist to wet, clay content varies from minimal to predominant.
				CL	BROWNISH YELLOW SILTY CLAY, very stiff to hard, very moist.

DEPTH IN FEET: 70, 75, 80, 85, 90, 95, 100, 105

NOTES:
1) BORING COMPLETED AT A DEPTH OF 73.5 FT BELOW GROUND SURFACE (BGS) ON 10/10/90.
2) PVC WELL INSTALLED TO A DEPTH OF 57 FT BGS; SCREENED INTERVAL FROM 57 TO 72 FT.



DOE PHASE II SITE CHARACTERIZATION
LEHR Environmental Restoration
Davis, California
FEBRUARY 1993

MONITORING WELL

DRILLING METHOD: Hollow Stem Auger
SAMPLING METHOD: California Mod
DATE COMPLETED: 10/23/90

UCD-22

Depth in Feet	Sample Type	Blows Per Foot	OVM (ppm)	Symbols	Description
0	CM	18	0	ML	DARK BROWN/BROWNISH YELLOW VERY FINE SANDY SILT, with minor clay, dense, slightly moist, unconsolidated, some pea gravels.
5	CM	9	0	ML/CL	DARK BROWN CLAYEY SILT/SILTY CLAY, very stiff, moist.
			2.7	CL	DARK BROWNISH YELLOW SILTY CLAY, very stiff, moist.
10	CM	27	0		Increased stiffness - hard.
			0	ML/CL	DARK BROWN CLAYEY SILT/SILTY CLAY, very stiff, some buff mottling.
15	CM	16	0		Becomes BROWNISH YELLOW SILTY CLAY, stiff to very stiff, moist.
					Decreased stiffness.
20	CM	38	0		STRONG BROWNISH YELLOW SILTY CLAY, with minor very fine sand, hard, moist, white vein fillings react with hydrochloric acid.
				ML/SM	Grades to BROWNISH YELLOW SANDY SILT/SILTY SAND, with clay, medium stiff, damp.
25	CM	54	0	CL/ML	BROWNISH YELLOW SILTY CLAY, hard, slightly moist.
					Increasing sand.
30	CM	35	0	SM	BROWN/BROWNISH YELLOW SANDY SILT, with minor clay, dense, slightly moist.
				ML/CL	Grades to BROWN SILTY CLAY/CLAYEY SILT, with sand, very fine gravels, thinly bedded, some black coatings on parting surfaces.
35				ML/SC	MOTTLED GREENISH GRAY, BROWNISH YELLOW, AND BUFF CLAYEY SAND/SILT, very stiff to hard, slightly moist.

SAMPLES

GROUT

DOE PHASE II SITE CHARACTERIZATION
LEHR Environmental Restoration
Davis, California
FEBRUARY 1993

Dames & Moore

10805-454-044

MONITORING WELL

DRILLING METHOD: Hollow Stem Auger
SAMPLING METHOD: California Mod
DATE COMPLETED: 10/23/90

UCD-22

Depth (Feet)	Sample Type	Blows Per Foot	OVM (ppm)	Symbols	Description
35	CM	35	0	ML SC	
				SM SC	Increased sand.
				SP	Decreased clay.
				CL	Sharp contact with BROWN SILTY CLAY, hard, moist.
40	CM	35		ML CL	BROWNISH YELLOW, WITH MINOR GREENISH GRAY AND DARK BROWN MOTTLING CLAYEY SILT, very stiff to hard.
				ML CL	BROWN SILTY CLAY/CLAYEY SILT, with gray mottling, some sandy zones, some white concretions, hard, reacts with hydrochloric acid.
45	CM	23		SM ML	Interbedded SILTY SAND AND SANDY SILT, with minor clay, very fine to fine gravel, minor greenish gray mottling. Grading to clayey silt, very stiff, slightly moist.
				ML CL	
				SM	BROWN SILTY SAND, interbedded with sandy silt lenses 2 inches thick, sand fine to very fine grain.
				ML	
50	CM	55	0	SM ML SM	DARK BROWNISH YELLOW SILTY SAND, loose, slightly moist.
				SC CL	BROWNISH YELLOW SANDY CLAY, very stiff, moist, contact uneven, not horizontal.
				CL	BROWNISH YELLOW SILTY CLAY, with gray mottling, white concretions, hard, slightly moist.
55	CM	32	0		Some sandy lenses.
					BROWNISH YELLOW SILTY CLAY, hard, slightly moist.
					Decreased sand, increased moisture, inferred silt content, stiff to very stiff.
60	CM	24			
					BROWNISH YELLOW SILTY CLAY, hard, moist, some vertical fissures, wet.
65	CM	53			As above.
				ML CL	BROWNISH YELLOW SILTY CLAY, wet, some gray mottling.
70					

SAMPLES

GROUT

BENTONITE

LONESTAR SAND

SCREENED INTERVAL

DEPTH IN FEET

DOE PHASE II SITE CHARACTERIZATION

LEHR Environmental Restoration
Davis, California
FEBRUARY 1993

MONITORING WELL

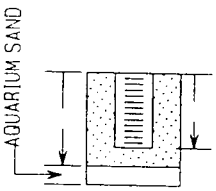
UCD-22

DRILLING METHOD: Hollow Stem Auger
SAMPLING METHOD: California Mod
DATE COMPLETED: 10/23/90

SAMPLING			SAMPLES	SYMBOLS		DESCRIPTION
Sample Type	Blows Per Foot	OVM (ppm)				
			■		ML CL	GREENISH GRAY AND BROWNISH YELLOW MOTTLED SILTY CLAY, very stiff, moist to wet.

DEPTH IN FEET: 70, 75, 80, 85, 90, 95, 100, 105

NOTES:
1) BORING COMPLETED AT A DEPTH OF 71.5 FT. REAMED TO 73.0 FT FOR WELL INSTALLATION, BELOW GROUND SURFACE (BGS) ON 10/23/90.
2) PVC WELL INSTALLED TO A DEPTH OF 57 FT BGS; SCREENED INTERVAL FROM 57 TO 72 FT.



DOE PHASE II SITE CHARACTERIZATION
LEHR Environmental Restoration
Davis, California
FEBRUARY 1993

MONITORING WELL

DRILLING METHOD: Hollow Stem Auger
SAMPLING METHOD: California Mod
DATE COMPLETED: 10/15/90

UCD-23

DEPTH IN FEET	SAMPLING: Sample Type	Blows Per Foot	OVM (ppm)	SYMBOLS	DESCRIPTION
0	CM	26		SM / ML	DARK BROWN SANDY CLAYEY SILT, hard, slightly moist, interbedded with clay. Grades to DARK BROWNISH YELLOW SILTY FINE SAND, dense, slightly moist.
5	CM	15		SP	DARK BROWN FINE SAND, with minor silt, loose, dry.
				CL / SP	DARK BROWN SILTY CLAY, hard, slightly moist.
				SC / CL	DARK BROWN CLAYEY SAND/SANDY CLAY. Grades clayier, desication cracks filled with sand at contact.
10	CM	34		CL	BROWNISH YELLOW SILTY CLAY, hard, moist, hard, moist, some tan mottling that reacts with hydrochloric acid. Grades to slightly less stiff.
15	CM	29			As above, very stiff, common pores to 2 mm diameter.
20	CM	63			Becomes BROWNISH YELLOW, COLOR BRIGHTER (STRONGER), with black specks, hard.
25	CM	41			As above with buff colored concretions, reacts with hydrochloric acid.
				ML / CL	Grades to BROWNISH YELLOW CLAYEY SILT, with some very fine grain sand, stiff, moist.
30	CM	26		ML / SC	As above grades to VERY FINE SANDY CLAYEY SILT/SILTY SAND, hard, moist.
				CL	BROWNISH YELLOW SILTY CLAY, very stiff, moist, buff concretions react with hydrochloric acid, thinly bedded with greenish gray mottling.
35	CM	32			

SAMPLES

GROUT

DOE PHASE II SITE CHARACTERIZATION

LEHR Environmental Restoration
Davis, California
FEBRUARY 1993

MONITORING WELL

DRILLING METHOD: Hollow Stem Auger
SAMPLING METHOD: California Mod
DATE COMPLETED: 10/15/90

UCD-23

DEPTH IN FEET	SAMPLING: Sample Type	SAMPLING: Blows Per Foot	SAMPLING: OVM (ppm)	SYMBOLS	DESCRIPTION
35				CL	As above. Buff concretions common.
40	CM	25		ML/SC	As above, BROWNISH YELLOW CLAYEY FINE SANDY SILT/SILTY SAND, very stiff, moist.
					As above, increasing silt, thinly bedded grayish green clay, some thin sand laminates.
45	CM	35		SM	BROWNISH YELLOW SILTY VERY FINE GRAINED SAND, dense, moist.
					Some brittle clay interbeds.
					Concretions (CaCo3) common.
50	CM	44			As above.
				SC	Color grades to greenish gray tint on more common brownish yellow color.
				CL	BROWN CLAYEY SAND, moist.
					BROWN SILTY CLAY, hard, damp, some white mottling, black specks.
55	CM	37		CL	BROWNISH YELLOW SILTY CLAY, hard, moist, increasing buff concretions.
					Increasing sand with clay, becomes moist.
60	CM	61			
				CL	BROWNISH YELLOW SILTY CLAY, hard, damp, thinly bedded with greenish gray clay, white concretions react with hydrochloric acid.
65	CM				As above, few, if any concretions.
				ML/CL	BROWNISH YELLOW SILTY CLAY/CLAYEY SILT, stiff to very stiff, wet.
70					

SAMPLES

GROUT
BENTONITE
LONESTAR SAND
SCREENED INTERVAL

DOE PHASE II SITE CHARACTERIZATION
LEHR Environmental Restoration
Davis, California
FEBRUARY 1993

MONITORING WELL

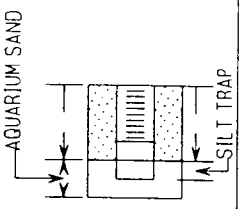
DRILLING METHOD: Hollow Stem Auger
SAMPLING METHOD: California Mod
DATE COMPLETED: 10/15/90

UCD-23

SAMPLING			SAMPLES	SYMBOLS	DESCRIPTION
Sample Type	Blows Per Foot	OVM (ppm)			
				ML CL	As above.
CM	47			CL	BROWNISH YELLOW SILTY CLAY, very stiff, wet, black specks.
CM	54				Becomes hard, moist, buff concretions common.

DEPTH IN FEET: 70, 75, 80, 85, 90, 95, 100, 105

NOTES:
1) BORING COMPLETED AT A DEPTH OF 76.5 FT, REAMED TO 73.0 FT FOR WELL INSTALLATION, BELOW GROUND SURFACE (BGS) ON 10/15/90.
2) PVC WELL INSTALLED TO A DEPTH OF 56.5 FT BGS; SCREENED INTERVAL FROM 56.5 TO 71.5 FT.



DOE PHASE II SITE CHARACTERIZATION
LEHR Environmental Restoration
Davis, California
FEBRUARY 1993

MONITORING WELL

DRILLING METHOD: Hollow Stem Auger
SAMPLING METHOD: California Mod
DATE COMPLETED: 10/18/90

UCD-24

SAMPLING			SAMPLES	SYMBOLS	DESCRIPTION
Sample Type	Blows Per Foot	OVM (ppm)			
CM	29			ML	BROWN TO DARK BROWN (MOIST COLOR) FINE SANDY SILT, with minor clay and gravel, hard, dry, some macro pores, occasional root.
CM	18			CL	DARK BROWN SILTY CLAY, stiff to very stiff, moist, some zone of silty sand, (disturbed).
				SM	BROWN SILTY SAND, with clay.
CM	22			CL	DARK BROWN SILTY CLAY, stiff, to very stiff, damp, some sand.
				ML/CL	MOTTLED BROWN AND BROWNISH YELLOW SILTY CLAY, hard, moist, some white mottling react with hydrochloric acid, some black specks and vertical macro pores.
					BROWNISH YELLOW SILTY CLAY/CLAYEY SILT, stiff, moist.
					Increased silt, decreased white mottling.
CM	19				Decreasd silt.
CM	47				As above, increased white concretions and vertical macro pores.
					Less vertical pores, increased stiffness.
CM	56				Increasing buff calcareous vein fillings, reacts with hydrochloric acid.
				ML	BROWNISH YELLOW CLAYEY SANDY SILT, with clay, stiff, moist.
CM	43			ML/CL	BROWNISH YELLOW FINE SANDY CLAYEY SILT, very stiff, some greenish gray and orange mottling.
					Decreased sand – clayey silt very stiff, moist, buff colored concretions react with hydrochloric acid.
					Decreased clay, increased sand, stiffness increases with silt and sand content, thinly bedded.
CM	50			SP	

DEPTH IN FEET: 0, 5, 10, 15, 20, 25, 30, 35

GROUT

DOE PHASE II SITE CHARACTERIZATION

LEHR Environmental Restoration
Davis, California
FEBRUARY 1993

MONITORING WELL

DRILLING METHOD: Hollow Stem Auger
SAMPLING METHOD: California Mod
DATE COMPLETED: 10/18/90

UCD-24

DEPTH IN FEET	SAMPLING: Sample Type	Blows Per Foot	OVM (ppm)	SYMBOLS	DESCRIPTION
35				SP	DARK BROWN SAND, fine to coarse grain, loose, moist.
				CL	BROWNISH YELLOW SILTY CLAY, hard, moist, black specks.
40	CM	47			As above, mottled greenish gray, brownish yellow and dark brown, white vein fillings, black specks.
				SC	BROWNISH YELLOW CLAYEY SAND, with gravel ~1 inch.
				CL	BROWNISH YELLOW SILTY VERY FINE SANDY CLAY, vein fillings and concretions, some grayish green mottling.
45	CM	27		ML	BROWNISH YELLOW CLAYEY FINE SANDY SILT, very stiff, moist, vertical macro pores with clay coatings.
				SM, ML, SM	BROWNISH YELLOW INTERBEDDED CLAYEY SILT/SILTY FINE GRAIN SAND.
50	CM	38		ML, SM, ML	MOTTLED GREENISH GRAY AND BROWNISH YELLOW SILTY CLAY, very stiff to hard, moist, white concretions.
				CL, SC	BROWNISH YELLOW CLAYEY SAND, soft, moist, (perched water).
				CL	BROWNISH YELLOW SILTY CLAY, zones of increased silt, very, moist.
55	CM	41			Abundant black stain on fissures and parting surface, some vertical macro pores (piping features).
					As above, with 1 foot zones of increased silt at 59 feet.
				ML, CL	
60	CM	30		CL	Increased silt, increased moisture.
					BROWNISH YELLOW SILTY CLAY, very stiff, moist.
					Increased clay content and stiffness.
65	CM	56			Thinly bedded, greenish gray laminations, black specks.
				CL, ML	BROWNISH YELLOW SILTY CLAY/CLAYEY SILT, hard, moist.
					Increased silt content.
70					Moist, stiff to very stiff, thinly bedded.

SAMPLES

GROUT
BENTONITE
LONESTAR SAND
SCREENED INTERVAL

DOE PHASE II SITE CHARACTERIZATION

LEHR Environmental Restoration
Davis, California
FEBRUARY 1993

MONITORING WELL

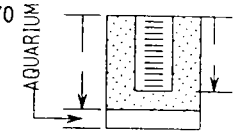
DRILLING METHOD: Hollow Stem Auger
SAMPLING METHOD: California Mod
DATE COMPLETED: 10/18/90

UCD-24

SAMPLING			SAMPLES	SYMBOLS	DESCRIPTION
Sample Type	Blows Per Foot	OVM (ppm)			
CM	32		■	CL ML	As above, wet.
				ML SC	Incresed silt content. BROWNISH YELLOW CLAYEY SANDY SILT, medium stiff to stiff, wet.

DEPTH IN FEET: 70, 75, 80, 85, 90, 95, 100, 105

AQUARIUM SAND



NOTES:
1) BORING COMPLETED AT A DEPTH OF 71.5 FT, REAMED TO 73 FT FOR WELL INSTALLATION, BELOW GROUND SURFACE (BGS) ON 10/18/90.
2) PVC WELL INSTALLED TO A DEPTH OF 57 FT BGS; SCREENED INTERVAL FROM 57 TO 72 FT.

SOIL BORING

DRILLING METHOD: Hand Auger
SAMPLING METHOD Hand Driven
DATE COMPLETED: 3/6/90

SB-16

SAMPLING			SAMPLES	SYMBOLS	DESCRIPTION
Sample Type	Blows Per Foot	OVM (ppm)			
				SM	DARK BROWN SILTY CLAY changing to SILTY SAND, with depth.
					DARK BROWN SILTY SAND.

DEPTH IN FEET: 0, 5, 10, 15, 20, 25, 30, 35

DOE PHASE II SITE CHARACTERIZATION
LEHR Environmental Restoration
Davis, California
FEBRUARY 1993

SOIL BORING

DRILLING METHOD:
SAMPLING METHOD
DATE COMPLETED:

SB-17

Hand Auger
Hand Driven
3/8/90

SAMPLING			SAMPLES	SYMBOLS	DESCRIPTION
Sample Type	Blows Per Foot	OVM (ppm)			
				SM	DARK BROWN SILTY SAND.
					DARK BROWN COARSE SILTY SAND.

DEPTH IN FEET: 0, 5, 10, 15, 20, 25, 30, 35

DOE PHASE II SITE CHARACTERIZATION
LEHR Environmental Restoration
Davis, California
FEBRUARY 1993

Dames & Moore

10805-454-044

SOIL BORING

DRILLING METHOD: Hand Auger
SAMPLING METHOD: Hand Driven
DATE COMPLETED: 3/8/90

SB-18

SAMPLING			SAMPLES	SYMBOLS	DESCRIPTION
Sample Type	Blows Per Foot	OVM (ppm)			
				SM	DARK BROWN SILTY SAND.
					DARK BROWN COARSE SILTY SAND.

DEPTH IN FEET: 0, 5, 10, 15, 20, 25, 30, 35

DOE PHASE II SITE CHARACTERIZATION
LEHR Environmental Restoration
Davis, California
FEBRUARY 1993

Dames & Moore

10805-454-044

SOIL BORING

DRILLING METHOD: Hollow Stem Auger
SAMPLING METHOD Dames & Moore "U" Type
DATE COMPLETED: 3/8/90

SB-19

SAMPLING			SAMPLES	SYMBOLS	DESCRIPTION
Sample Type	Blows Per Foot	OVM (ppm)			
U	46			ML/CL	BROWN SILTY CLAY, very stiff, dry.
U	22			CL	No recovery.
U	44			CL	DARK BROWN CLAY, with fine sand seam (1/4"), hard, slightly moist.
U	35			ML/CL	DARK BROWN SILTY CLAY/CLAYEY SILT, with few fine to coarse grained sand, some black plastic peices (fill soil), hard, slightly moist.

DEPTH IN FEET: 0, 5, 10, 15, 20, 25, 30, 35

DOE PHASE II SITE CHARACTERIZATION
LEHR Environmental Restoration
Davis, California
FEBRUARY 1993

SOIL BORING

DRILLING METHOD: Hollow Stem Auger
SAMPLING METHOD: Dames & Moore "U" Type
DATE COMPLETED: 3/9/90

SB-19A

SAMPLING			SAMPLES	SYMBOLS	DESCRIPTION
Sample Type	Blows Per Foot	OVM (ppm)			
U	17		■	SM	BROWN SILTY FINE TO VERY FINE GRAINED SAND, with minor clay, loose, dry.
				CL	Contact with DARK BROWN SILTY CLAY, hard, slightly moist.

DEPTH IN FEET: 0, 5, 10, 15, 20, 25, 30, 35

DOE PHASE II SITE CHARACTERIZATION
LEHR Environmental Restoration
Davis, California
FEBRUARY 1993

Dames & Moore

10805-454-044

SOIL BORING

DRILLING METHOD: Hollow Stem Auger
SAMPLING METHOD Dames & Moore "U" Type
DATE COMPLETED: 3/9/90

SB-19A

SAMPLING			SAMPLES	SYMBOLS		DESCRIPTION
Sample Type	Blows Per Foot	OVM (ppm)				
					SM	BROWN SILTY FINE TO VERY FINE GRAINED SAND, with minor clay, loose, dry.
U	17		■			
					CL	Contact with DARK BROWN SILTY CLAY, hard, slightly moist.

DEPTH IN FEET: 0, 5, 10, 15, 20, 25, 30

SOIL BORING

DRILLING METHOD: Hollow Stem Auger
SAMPLING METHOD: Dames & Moore "U" Type
DATE COMPLETED: 3/9/90

SB-20

SAMPLING			SAMPLES	SYMBOLS	DESCRIPTION
Sample Type	Blows Per Foot	OVM (ppm)			
U	14	0	■	ML / ML/SC	MOTTLED DARK BROWN AND BROWNISH YELLOW CLAYEY SILT, very stiff, slightly moist, some coarse sand grains, increasing sand at 1.0 feet, very fine to fine grained.
U	7	0	■		DARK BROWNISH YELLOW FINE TO COARSE GRAINED SANDY CLAYEY SILT, with minor clay, stiff, moist.
					Increased silt and sand, fine to very fine, medium dense, moist, some rooting.
U	10	0	■		As above, with clasts of clayey silt.
				CL	DARK BROWN SILTY CLAY, very stiff, minor rooting.
					Wood fragments in cuttings at 8-9 feet.
U	19	0	■		LIGHT BROWNISH YELLOW SILTY CLAY, some mottling - vertical macro pores, <0.1 inch diameter, some cemented nodules, hard, dry to slightly moist, native soil.

DEPTH IN FEET: 0, 5, 10, 15, 20, 25, 30, 35

DOE PHASE II SITE CHARACTERIZATION
LEHR Environmental Restoration
Davis, California
FEBRUARY 1993

SOIL BORING

DRILLING METHOD: Hollow Stem Auger
SAMPLING METHOD: Dames & Moore "U" Type
DATE COMPLETED: 3/9/90

SB-21

SAMPLING			SAMPLES	SYMBOLS	DESCRIPTION
Sample Type	Blows Per Foot	OVM (ppm)			
				GM	GRAVEL on surface 1/2 inch, slightly silty.
U	6	0		ML / SM	DARK BROWNISH YELLOW SILT, with minor clay, stiff, slightly moist, contains some organic material (charcoal?), increasing sand.
					SILTY SAND at 3 feet, very fine to fine grained, moist, increasing silt to base.
U	18	0			DARK BROWNISH YELLOW CLAYEY SANDY SILT, very stiff, slightly moist.
U	65	0		CL	DARK BROWN SILTY CLAY, hard, some vertical macro pores.
U	33	0		CL	Color change to LIGHT BROWNISH YELLOW, with many large (<3 mm), vertical macro pores, hard, dry to slightly moist.

DEPTH IN FEET: 0, 5, 10, 15, 20, 25, 30, 35

DOE PHASE II SITE CHARACTERIZATION
LEHR Environmental Restoration
Davis, California
FEBRUARY 1993

SOIL BORING

DRILLING METHOD: Hollow Stem Auger
SAMPLING METHOD: Dames & Moore "U" Type
DATE COMPLETED: 3/9/90

SB-22

SAMPLING			SAMPLES	SYMBOLS	DESCRIPTION
Sample Type	Blows Per Foot	OVM (ppm)			
U	8	0		ML/SC	DARK BROWN SANDY CLAYEY SILT/CLAYEY SAND, with minor fine gravel, stiff, moist.
U	8	0			As above, increased clay, decreased sand.
U	17	0		GM	GRAVEL, <2 inch diameter, with brownish yellow sandy silt matrix, loose, dry.
					Driller felt he was out of gravel at 7.8.
				CL	
					No recovery drilled to 11.5 feet.
U	29	0			DARK BROWNISH YELLOW SILTY CLAY, some sand, hard, moist, some buff colored nodules/concretions to 2 cm diameter.
U	36	0			BROWNISH YELLOW CLAY, with minor silt, very stiff, moist.
U		0			As above, with black specks (<1 mm) and buff material in pores or fissures.
U	91	1000			As above with many buff nodules, colored subdued, less yellowish hue.
U	54	500 800			DARK BROWNISH YELLOW SILTY SAND/ SANDY SILT, soft, moist.
				SM	Increased sand.
					Grades to SILTY SAND at 31 feet, moist, fine grained, some clay.

DEPTH IN FEET: 0, 5, 10, 15, 20, 25, 30, 35

DOE PHASE II SITE CHARACTERIZATION

LEHR Environmental Restoration
Davis, California
FEBRUARY 1993

SOIL BORING

SB-23

DRILLING METHOD: Hollow Stem Auger
SAMPLING METHOD Dames & Moore "U" Type
DATE COMPLETED: 3/12/90

Depth in Feet	Sample Type	Blows Per Foot	OVM (ppm)	Symbols	Description
0	U	22	>5000	ML/SC	DARK BROWN SANDY CLAYEY SILT/CLAYEY SAND, very stiff, moist, some black organic material (charcoal?).
	U	18	119		As above, increased sand, stiff.
5	U	17	1113	SM	DARK BROWN SILTY FINE TO MEDIUM GRAINED SAND, medium dense, moist, trench fill, some pebbles, wet.
				CL	DARK BROWN CLAY, medium stiff, moist.
10	U	32			No recovery.
	U	26	182		LIGHT BROWNISH YELLOW SILTY CLAY, very stiff, moist, native soil.
15	U	20	200-250		BROWNISH YELLOW SILTY CLAY, stiff to very stiff, moist.
					Increased clay, very stiff.
20	U	47	225		As above, increased clay, very stiff to hard.
					LIGHT BROWNISH YELLOW SILTY CLAY, hard, moist, many buff concretions.
25	U	63	166		
30	U	49	56	ML/SM	BROWNISH YELLOW FINE SANDY SILT/SILTY SAND, with minor clay, medium stiff to stiff, moist.
35					

DOE PHASE II SITE CHARACTERIZATION

LEHR Environmental Restoration
Davis, California
FEBRUARY 1993

SOIL BORING

DRILLING METHOD: Hollow Stem Auger
SAMPLING METHOD: Dames & Moore "U" Type
DATE COMPLETED: 3/12/90

SB-24

Sample Type	Blows Per Foot	OVM (ppm)	Symbols	Description
U	16	53	ML SM	DARK BROWN TO DARK BROWNISH YELLOW FINE SANDY SILT, with minor clay, very dense, moist.
U	9	57	ML CL	Layer of DARK BROWN CLAYEY SILT, with minor gravel, stiff to very stiff, moist, some clean sand stringers.
U	12	68	ML SM	DARK BROWN TO DARK BROWNISH YELLOW FINE SANDY SILT/SILTY SAND, with minor clay, very dense, moist.
			SM	As above, increased fine sand content.
U	52	132 220	CL	DARK BROWN SILTY CLAY, hard, moist, some buff vein.
				Color grades to dark brownish yellow.
				Color grades to brownish yellow.
U	13	50		Increased silt.
				BROWNISH YELLOW SILTY CLAY/CLAYEY SILT, stiff to very stiff, moist.
				Increased clay, stiffness (very stiff).
U	54	24		As above, abundant buff vein fillings, reacts with hydrochloric acid.
U	59	17		As above, with abundant buff concretions.
			ML CL	LIGHT BROWNISH YELLOW CLAYEY SILT, few buff concretions, grades to SILTY FINE TO VERY FINE GRAINED SAND, soft, moist.
U	39	102	ML SM	

SAMPLES

DEPTH IN FEET: 0, 5, 10, 15, 20, 25, 30, 35

DOE PHASE II SITE CHARACTERIZATION
LEHR Environmental Restoration
Davis, California
FEBRUARY 1993

SOIL BORING

DRILLING METHOD:
SAMPLING METHOD
DATE COMPLETED:

SB-25

Hollow Stem Auger
Dames & Moore "U" Type
3/13/90

SAMPLING			SAMPLES	SYMBOLS	DESCRIPTION
Sample Type	Blows Per Foot	OVM (ppm)			
U	17	0		SW	DARK BROWN/GRAY MEDIUM TO COARSE GRAINED SAND, loose, moist.
U	16	0		ML/SM	Contact with DARK BROWNISH YELLOW FINE SANDY SILT, dense, moist.
U	20	0			As above with minor gravel.
				GW	COARSE GRAVEL in sample.
				CL	BROWN/BROWNISH YELLOW SILTY CLAY, with minor sand, very stiff, moist.
U	48	0.5			
U	22	0			As above, very stiff, moist.
					Drill cuttings greenish gray from 17.5-18.5 feet back to brownish yellow at 18.5 feet.
U	90	3.2			BROWNISH YELLOW SILTY CLAY, hard, slightly moist, some vertical pores with black coating.
U	61	1.2			MOTTLED BROWNISH YELLOW GREENISH SILTY CLAY, hard, moist, vein like dark gray fissures, some fissures with white coating, reacts with hydrochloric acid.
U	47	4.5		ML/SC	OLIVE/BROWNISH YELLOW FINE SANDY CLAYEY SAND.

DEPTH IN FEET: 0, 5, 10, 15, 20, 25, 30, 35

DOE PHASE II SITE CHARACTERIZATION

LEHR Environmental Restoration
Davis, California
FEBRUARY 1993

SOIL BORING

DRILLING METHOD: Hollow Stem Auger
SAMPLING METHOD: Dames & Moore "U" Type
DATE COMPLETED: 3/13/90

SB-26

SAMPLING			SAMPLES	SYMBOLS	DESCRIPTION
Sample Type	Blows Per Foot	OVM (ppm)			
U	10	0		ML SM	DARK BROWNISH YELLOW FINE SANDY SILT, loose, moist, minor coarse sand.
U	9	0.5		ML CL	Decreased sand, minor clay, grades to BROWNISH YELLOW CLAYEY SILT, stiff, moist.
				ML SM	BROWNISH YELLOW GRAVELLY SANDY SILT, loose, slightly moist.
U	16	0		ML	BROWNISH YELLOW SILTY, with minor clay, very stiff, slightly moist.
				CL	DARK BROWN SILTY CLAY, hard, moist.
U	59				DARK BROWNISHY YELLOW SILTY CLAY, hard, moist, common pores, some buff veinlike filling.
U	30	0			
U	34	0			BROWNISH YELLOW SILTY CLAY, hard, moist, some black specks, decreased stiffness (very stiffness).
U	88	0			BROWNISH YELLOW SILTY CLAY, very stiff, moist, abundant buff coating on fissures, reacts with hydrochloric acid.
U	33	1.0		ML SC	DARK BROWNISH YELLOW FINE SANDY CLAYEY SILT, very stiff, moist, some buff specks.

DEPTH IN FEET: 0, 5, 10, 15, 20, 25, 30, 35

DOE PHASE II SITE CHARACTERIZATION
LEHR Environmental Restoration
Davis, California
FEBRUARY 1993

Dames & Moore

10805-454-044

SOIL BORING

DRILLING METHOD: Hollow Stem Auger
SAMPLING METHOD: Dames & Moore "U" Type
DATE COMPLETED: 3/13/90

SB-27

Depth in Feet	Sample Type	Blows Per Foot	OVM (ppm)	Symbols	Description
0	U	10	0	SM	DARK BROWNISH YELLOW SILTY CLAYEY FINE SAND, medium dense, moist.
	U	10	0	ML/SC	BROWNISH YELLOW FINE SANDY CLAYEY SILT, stiff to very stiff, moist.
				ML/CL	Grading to BROWNISH YELLOW CLAYEY SILT/CLAYEY SAND, stiff, moist. loose, slightly moist.
5	U	16	0		Inhomogeneous mix of DARK BROWN SILTY CLAY AND BROWNISH YELLOW FINE SANDY SILT.
				CL	Some wood fragments (roots).
					DARK BROWN SILTY CLAY, hard, moist, common pores and buff vertical filling. Native soil.
10	U	44	1.0		
15	U	11	1.0		BROWNISH YELLOW SILTY CLAY, medium stiff to stiff, moist, some black specks.
20	U	61	0.5		DARK BROWNISH YELLOW SILTY CLAY, very stiff to hard, moist, abundant pores.
25	U	75			As above, mottled greenish gray dark brown/black veinlike discoloration.
30	U	50	1.9	SM	DARK OLIVE/BROWNISH YELLOW SILTY FINE SAND, some dark brown mottling, dense, moist.
35					

DOE PHASE II SITE CHARACTERIZATION

LEHR Environmental Restoration
Davis, California
FEBRUARY 1993

SOIL BORING

DRILLING METHOD: Hollow Stem Auger
SAMPLING METHOD: Dames & Moore "U" Type
DATE COMPLETED: 3/14/90

SB-28

SAMPLING			SAMPLES	SYMBOLS	DESCRIPTION
Sample Type	Blows Per Foot	OVM (ppm)			
U	22	0		CL	DARK BROWNISH YELLOW SILTY CLAY, with minor fine sand and gravel, very stiff to hard, moist.
U	22	1.0			As above, contact with gravel in shoe of sampler.
				GW	Layer of what appear to be felt paper at interface between CL/CL and GW.
U	18				No recovery, shoe plugged with gravel.
U	20	1.0		CL	BROWNISH YELLOW SILTY CLAY, gravel in shoe, clay squeezed into sampler around gravel.
U	28				BROWNISH YELLOW SILTY CLAY, very stiff, moist.
U	10	1.6			STRONG BROWNISH YELLOW SILTY CLAY, with black specks, medium stiff, moist.
U	51	1.2			MOTTLE GREENISH GRAY BROWNISH YELLOW SILTY CLAY, pores with black cuttings.
U	63	17.1			BROWNISH YELLOW SILTY CLAY, very stiff to hard, moist, abundant buff and dark brown /black concretions and linings on parting surfaces.
U	41	1.5		SM	BROWNISH YELLOW SILTY FINE SAND, dense, moist.

DEPTH IN FEET: 0, 5, 10, 15, 20, 25, 30, 35

DOE PHASE II SITE CHARACTERIZATION
LEHR Environmental Restoration
Davis, California
FEBRUARY 1993

APPENDIX C
SECTION 4

LOGS OF EXISTING WELLS WITHIN ONE MILE OF LEHR

USGS-CAL-T1
May 1948

UNITED STATES
DEPARTMENT OF THE INTERIOR
GEOLOGICAL SURVEY
WATER RESOURCES BRANCH

No. S/23-15M1

Other Nos. ~~[illegible]~~

WELL LOG

Farm Well 11

State California County Solano Subarea 220

Owner UC Henle Tract

Location 2100 ft. N., 4400 ft. W. of SE cor. Sec. 15

Drilled by F. M. Eaton Address

Date Apr. 1941 Casing diam. 14" Land-surf. alt. 54

Source of data UC (file 605.1)

(Enter type of well, perforations, yield, and drawdown at end of log)

Correlation	Material	Thickness (feet)	Depth (feet)
	Top soil	18	18
	Sand, fine	6	24
	Clay, brown	11	35
	Sand, blue	23	58
	Gravel	14	72
	Clay, yellow	30	102
	Gravel	25	127
	Clay, yellow	112	239
	Gravel	84	323
	Clay, blue	2	325
	Perf: 101-129; 162-171; 248-325		
	Gravel packed, rotary		
	Static w/1 X 20'		
	Well samples in basement of old kitchen		

Record by Date Sheet of

USGS-CAL-T1
May 1948

UNITED STATES
DEPARTMENT OF THE INTERIOR
GEOLOGICAL SURVEY
WATER RESOURCES BRANCH

No. 8/2S-1EM2

Other Nos. Farm well 1 (new)

WELL LOG

State California County Solano Subarea 271

Owner U of C

Location 1800 ft. N. 1950 ft. W. of SE cor. Sec. 15

Drilled by J. Rowe Address

Date 9-23-29 or May 1929 Casing diam. 14" screw type Land-surf. alt. 54

Source of data UC

(Enter type of well, perforations, yield, and drawdown at end of log)

Correlation	Material	Thickness (feet)	Depth (feet)
	Sandy loam	18	18
	Loam, heavy clay	3	21
	Clay, stiff brown	12	33
	Sand, fine; and some clay	9	42
	Sand with small pebbles	1	43
	Clay, yellow, streaked with blue clay	39	82
	Clay, sandy, fine	22	104
	Sand and gravel (up to 2")	13	117
	Gravel, apparently water-bearing	9	126
	Clay, yellow	5	131
	Sand, fine	2	133
	Joint clay, sand and fine gravel mixed	3	136
	Clay, stiff yellow	7	143
	Sand and joint clay	11	154
	Clay, stiff yellow	87	241
	Gravel	27	268
	Fine sand with little gravel	6	274
	Sand and gravel	11	285

Record by Date

UGGS-CAL-T1
May 1948

UNITED STATES
DEPARTMENT OF THE INTERIOR
GEOLOGICAL SURVEY
WATER RESOURCES BRANCH

No. 8/22-15M2, continued

Other Nos. _____

WELL LOG

State California County Solano Subarea _____

Owner U of C

Location _____

Drilled by _____ Address _____

Date _____ Casing diam. _____ Land-surf. alt. _____

Source of data _____

(Enter type of well, perforations, yield, and drawdown at end of log)

Correlation	Material	Thickness (feet)	Depth (feet)
	Clean gravel with little sand(area to be perf.)	25	310
	Clay, yellow	¼	310¼
	Sand and gravel	11	321¼
	Clay, blue	1	322¼
	Casing shoes 1 foot into blue clay		

Record by _____ Date _____ Sheet 2 of 2

USGS-CAL-T1
May 1948

UNITED STATES
DEPARTMENT OF THE INTERIOR
GEOLOGICAL SURVEY
WATER RESOURCES BRANCH

No. 8/2E-15M3

Other Nos. 24

WELL LOG

Farm Well I (old)

State California County Solano Subarea 222

Owner U. of C.

Location 1800 ft. N., 1950 ft. W. of SE cor. sec. 15

Drilled by - Address

Date Spring 1909 Casing diam. 12" stove pipe Land-surf. alt. 54

Source of data U of C. file 605.1

(Enter type of well, perforations, yield, and drawdown at end of log)

Correlation	Material	Thickness (feet)	Depth (feet)
	Sandy loam	14	14
	Sand, fine	2	16
	Clay	63	79
	Clay, loam	3	82
	Clay	4	86
	Clay loam	13	99
	Clay, blue	3	102
	Sand	1	103
	Gravel, water-bearing	11	114
	Clay	3	117

Record by Date Sheet of

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EATON DRILLING CO., INC.

P.O. BOX 975 – PHONE (916) 662-6795

CONVENTIONAL & REVERSE CIRCULATION WATER WELL DRILLING
DOMESTIC AND AGRICULTURAL
TEST HOLES • GRAVEL ENVELOPE WELLS
WOODLAND, CALIFORNIA 95695

08N02E 21F01M

University of California
Davis, California
Order # D 546010

Billed August 20; 1962 UDW #2 PLANT PATHOLOGY

0 - 6	top soil
6 - 29	sandy soil
29 - 53	soft clay
53 - 81	soft clay
81 - 98	fine gravel
98 - 116	gravel
116 - 120	clay
120 - 142	hard clay
142 - 165	hard clay
165 - 187	soft clay
187 - 222	soft clay
222 - 231	sand
231 - 244	clay
244 - 263	rough gravel

Casing installed:
0 - 40 18" X 3/16
0 - 263 8"

Perforations:
243 - 263

Cement grouted to 40"

USGS-CAL-T1
May 1948

UNITED STATES
DEPARTMENT OF THE INTERIOR
GEOLOGICAL SURVEY
WATER RESOURCES BRANCH

No. 8/2S-2E02

Other Nos.

WELL LOG

Farm Well #7

278

State California County Solano Subarea

Owner University of California, Agronomy Tract, Armstrong lease

Location 3300 ft. N., 2000 ft. W. of SE cor. Sec. 21

Drilled by Address

Date Apr. 1918 Casing diam. 12" Land-surf. alt. 52

Source of data U. of C. (File 605.1)

(Enter type of well, perforations, yield, and drawdown at end of log)

Correlation	Material	Thickness (feet)	Depth (feet)
	Fine sandy loam	10	10
	Clay and sand, soft	4	14
	Clay, heavy dark	1	15
	Clay, heavy reddish	9	24
	Clay and sand, soft	12	36
	Sand, coarse	1	37
	Clay, yellow and blue	9	46
	Clay, stiff yellow	9	55
	Clay and sand, soft	11	66
	Clay, stiff yellow	25	91
	Sand, reddish	7	98
	Sand, black	2	100
	Coarse sand and gravel	7	107
	Gravel, coarse, water-bearing	13	120
	Clay, yellow	3	123
	Perf: 107-120		
	Water level = 17 ft.		

Record by Date Sheet of

USGS-CAL-T1
May 1948

UNITED STATES
DEPARTMENT OF THE INTERIOR
GEOLOGICAL SURVEY
WATER RESOURCES BRANCH

No. ~~[illegible]~~

Other Nos. ~~[illegible]~~

WELL LOG

State California County ~~Yolo~~ Solano Subarea 279

Owner Ida Armstrong #1, S. of Putah, near Davis

Location 4000 ft. north 2000 ft. west of SE corner of section 21

Drilled by Eaton Address

Date 19[illegible] Casing diam. 10 & 12" Land-surf. alt. 53'

Source of data U.C. (Folder for well 17, file 605.1)

(Enter type of well, perforations, yield, and drawdown at end of log)

Correlation	Material	Thickness (feet)	Depth (feet)
	Top soil		3
	Clay, yellow		26
	Clay, sandy		44
	Gravel, blue		51
	Clay, yellow		82
	Gravel		97
	Clay, yellow		170
	Sand		176
	Gravel		201
	Sand, black		208
	Gravel		224

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Well No.1 (Hamel Ranch).

#1

LOG OF WELL DRILLED FOR

Carl Becker

1	to	9	Soil.
9	to	13	Sand.
13	to	45	Yellow clay.
45	to	59	Fine gravel.
59	to	95	Soft yellow clay.
95	to	121	Fine gravel.
121	to	128	Yellow clay.
128	to	139	Gravel.
139	to	183	Yellow clay.
183	to	223	Brittle yellow.
223	to	269	Soft yellow clay.
269	to	312	Gravel.
312	to	320	Soft sandy blue.
320	to	355	Hard blue clay.

Well completed at 321 feet.
102 feet of 16" casing.
219 feet of 12" casing.
Perforated from 102 feet to bottom.
Well completed Aug. 1948.

C. D. COOPER & SON
Woodland, California

By Carl D. Cooper Jr.

USGS-CAL-T1
May 1948

UNITED STATES
DEPARTMENT OF THE INTERIOR
GEOLOGICAL SURVEY
WATER RESOURCES BRANCH

No. 2/25 - [illegible]

Other Nos. [illegible]

WELL LOG

State California County Solano Subarea 281

Owner Forden & Becker #4

Location 1450 ft. north 2050 ft. west of SE corner of section 22

Drilled by Cooper & Son Address

Date Oct. 1948 Casing diam. 16 & 12" Land-surf. alt. 44'

Source of data Driller

(Enter type of well, perforations, yield, and drawdown at end of log)

Correlation	Material	Thickness (feet)	Depth (feet)
	Soil		9
	Sand		12
	Clay, yellow		89
	Gravel		113
	Clay, soft sandy yellow		134
	Gravel		148
	Clay, yellow		181
	Brittle		189
	Clay, yellow		246
	Gravel		248
	Clay, yellow		266
	Gravel		293
	Clay, blue		309
	Cased 98' - 16"		
	133' - 12"		
	Perf. 98' to bottom		
	Gravel packed		

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STATE OF CALIFORNIA
DEPARTMENT OF WATER RESOURCES

WELL LOG

REGION
COUNTY
NEAR

BASIN
DWR No. 8N/2E-22L1
OTHER Nos.

LOCATION

OWNER ADDRESS

DRILLED BY ADDRESS

DRILLING METHOD GRAVEL PACKED DATE COMPLETED

SIZE OF CASING DEPTH STRUCK WATER AT

PERFORATIONS SIZE No.

WATER LEVEL BEFORE PERFORATING AFTER

TEST DATA: DISCHARGE G. P. M. DRAWDOWN FT. HOURS RUN

OTHER DATA AVAILABLE: WATER LEVEL RECORD ANALYSIS

SURFACE ELEV. DATUM SOURCE OF INFORMATION

DEPTH	ELEV. OF BOTTOM OF STRATUM	MATERIAL	THICKNESS	SP. YIELD %
185- 195		gravel, sandstone, fine sand with particles of grit, rounded to sub-angular grains, hard, indurated, highly quartzose silicic cement, possibly calcareous cement, fossil borings are hard, circular in cross-section, silicic or calcareous, possibly water bearing		
230		clay, yellow brown		
249		gravel, sandstone, with hard white clay granules, fossil borings possibly water bearing		
265		clay, yellow brown		
293		gravel, sub-rounded to sub-angular, 1 cm average grain size & medium grained sand, clean, water bearing		
314		clay, blue gray, coarse sand and granules increasing to 15 percent of total in lower part of section		
403		clay, blue gray, slightly gritty, contains 20 percent coarse sand grains and granules, which are sub-angular to subrounded, dark minerals predominate		

FOR FIELD COPIES USE ALTERNATE LINES

LOG OBTAINED BY DATE SHEET 1 OF

FORM 263

USGS-CAL-T1
May 1948

UNITED STATES
DEPARTMENT OF THE INTERIOR
GEOLOGICAL SURVEY
WATER RESOURCES BRANCH

No. 8/2E - 28A1

Other Nos. 292

WELL LOG

State California County Solano Subarea

Owner Ida Armstrong

Location 4000 ft. north 1300 ft. west of SE corner of section 28

Drilled by Aulman Address

Date 1934 Casing diam. 13" Land-surf. alt. 48'

Source of data Driller

(Enter type of well, perforations, yield, and drawdown at end of log)

Correlation	Material	Thickness (feet)	Depth (feet)
	Surface		15
	Clay		96
	Gravel		112
	Clay		150
	Gravel		158
	Perf. 90' to bottom		
	Gravel type		
	Rotary		

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REGION 5

COUNTY Solano

NEAR Davis

DIVISION OF WATER RESOURCES
DEPARTMENT OF PUBLIC WORKS
STATE OF CALIFORNIA

WELL LOG

BASIN Putah Creek Fan

DWR NO. T6N, R2E, S27A1 B &

OTHER NOS. DWR test hole No.

LOCATION Approx. two miles south of Davis; in channel of Putah Creek approx. 9600 feet west of Solano-Yolo County line road and 5250 ft. north of road between Sections 27, 34

OWNER Div. of Water Resources ADDRESS 401 Public Wks. Bldg., Sacramento

DRILLED BY Div. of Water Resources ADDRESS 401 Public Wks. Bldg., Sacramento

DRILLING METHOD Power auger GRAVEL PACKED DATE COMPLETED Oct. 5, 1953

SIZE OF CASING DEPTH no casing STRUCK WATER AT 21.1

PERFORATIONS none SIZE NO.

WATER LEVEL BEFORE PERFORATING AFTER

TEST DATA: DISCHARGE G. P. M. DRAWDOWN FT. HOURS RUN

OTHER DATA AVAILABLE: WATER LEVEL RECORD 21.1' 11:00 A.M. 10-8-53 ANALYSIS

SURFACE ELEV. 35 DATUM USGS SOURCE OF INFORMATION 1/24,000 topo map

DEPTH	ELEV. OF BOTTOM OF STRATUM	MATERIAL	THICKNESS	SP. YIELD %
0-19		Clay		
19-20		Fine sandy silt		
20-21		Silty clay		
21-22		Fine sandy silt		
22-26		Clay		
		Struck water at 21.6 feet 10:20 A.M. 10-8-53 R.P. land surface.		
		Final water level 21.1' 11:00 A.M. 10-8-53		

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LOG OBTAINED BY R. Richter and P. J. Lorens DATE 10-1-53 SHEET 1 OF 1

FORM 263. 47899 7-51 3M (3) SPO

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APPENDIX D

GROUNDWATER LEVEL DATA
AND
HYDROGRAPHS FOR LEHR MONITORING WELLS
PHASE II SITE CHARACTERIZATION
LEHR ENVIRONMENTAL RESTORATION

APPENDIX D

GROUNDWATER LEVEL DATA AND HYDROGRAPHS
FOR LEHR MONITORING WELLS
PHASE II SITE CHARACTERIZATION
LEHR ENVIRONMENTAL RESTORATION

This appendix presents tabulated groundwater level data (Section 1) and hydrographs (Section 2) for the groundwater monitoring wells on and near the LEHR facility. The hydrographs were constructed using groundwater level data collected weekly from November 1990 through Mid-February 1992. UCD-18 through UCD-24 were not included in this study until February 1991. Because several of the wells installed during previous investigations are screened at relatively shallow depths, the wells are dry during the summer months and no water level measurements can be obtained. Hydrographs for wells included in Table D-1 are presented in Section 2 of this appendix. Additionally, Table D-1 lists the screened interval and identifies which hydrostratigraphic unit the well is screened. Locations of the monitoring wells are shown on Figure D-1. Hydrographs for the first HSU wells are labeled as "shallow" and second HSU wells are labeled as "deep".

TABLE D-1
SUMMARY OF MONITORING WELLS
PHASE II SITE CHARACTERIZATION
LEHR ENVIRONMENTAL RESTORATION

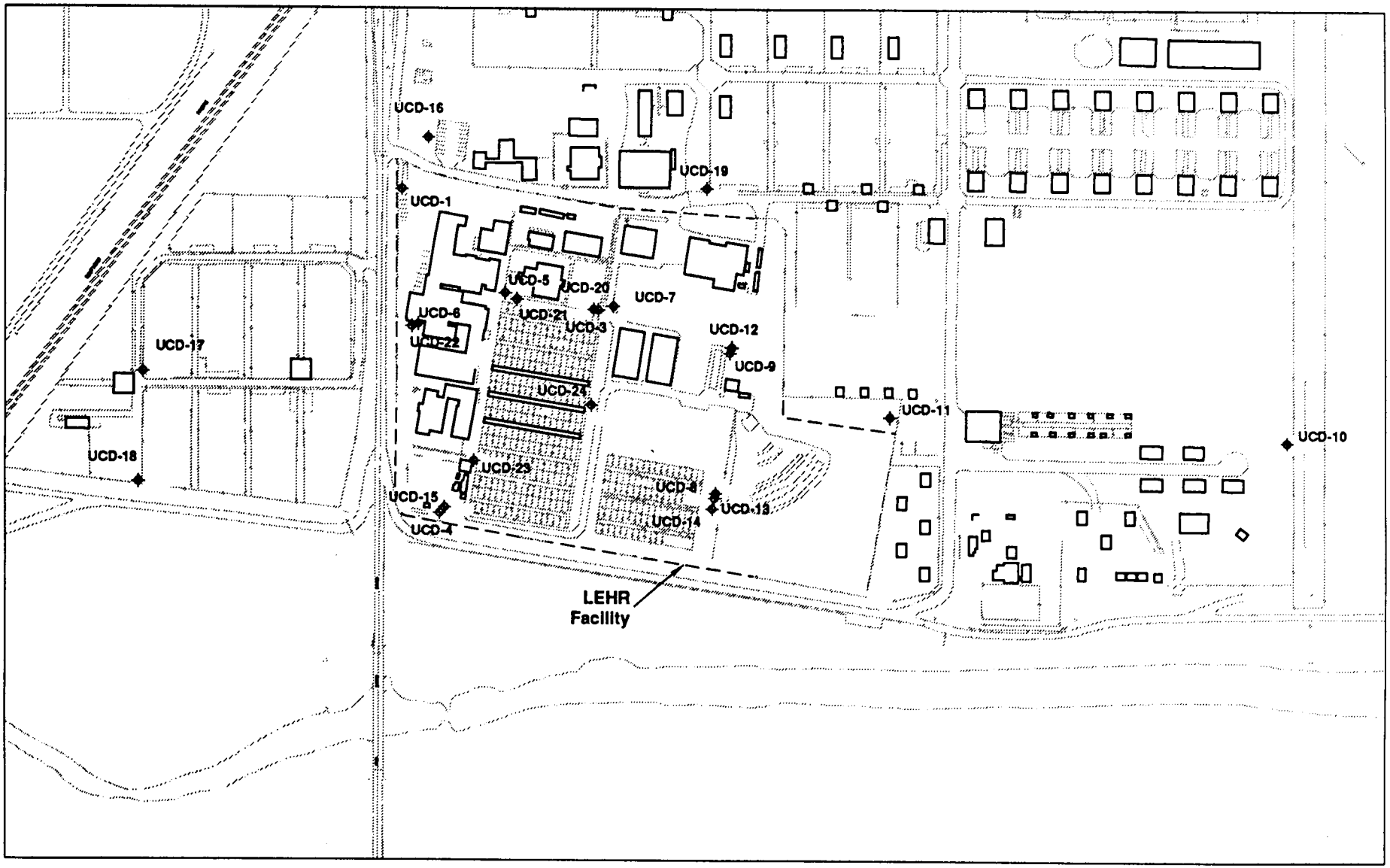
Well Name	Total Depth	Screened Interval	HSU	Investigation	Date Completed
UCD-1	56.5	46.5 - 56.5	First	Wahler Associates 1989	10/09/87
UCD-2	Abandoned			Wahler Associates 1989	N/A
UCD-3	49.0	39.0 - 49.0	First	Wahler Associates 1989	10/23/87
UCD-4	57.2	45 - 55	First	Wahler Associates 1989	10/14/87
UCD-5	48.0	38.0 - 48.0	First	Wahler Associates 1989	10/22/87
UCD-6	50.0	40 - 50	First	Wahler Associates 1989	10/21/87
UCD-7	90	80 - 90	Second	Wahler Associates 1989	11/05/87
UCD-8	53.5	43.5 - 53.5	First	Wahler Associates 1988	11/03/87
UCD-9	50.0	40.0 - 50.0	First	Wahler Associates 1988	11/04/87
UCD-10	70.0	54 - 69	First	Dames & Moore SWAT, 1990	10/11/89

TABLE D-1 (CONTINUED)
SUMMARY OF MONITORING WELLS

Well Name	Total Depth	Screened Interval	HSU	Investigation	Date Completed
UCD-11	66.5	50 - 65	First	Dames & Moore SWAT, 1990	10/17/89
UCD-12	65.0	49.5 - 64.5	First	Dames & Moore SWAT, 1990	10/19/89
UCD-13	65.0	50 - 65	First	Dames & Moore SWAT, 1990	10/26/89
UCD-14	85	75 - 85	Second	Dames & Moore SWAT, 1990	11/15/89
UCD-15	120.5	91 - 116	Second	Dames & Moore DOE Phase II	03/28/90
UCD-16	122	92 - 117	Second	Dames & Moore DOE Phase II	04/04/90
UCD-17	143	88 - 113	Second	Dames & Moore DOE Phase II	04/10/90
UCD-18	70	54 - 69	First	Dames & Moore DOE Phase II	10/04/90
UCD-19	74.5	71.5 - 56.5	First	Dames & Moore DOE Phase II	10/01/90
UCD-20	73	57 - 72	First	Dames & Moore DOE Phase II	10/09/90
UCD-21	73	57 - 72	First	Dames & Moore DOE Phase II	10/11/90
UCD-22	73	57 - 72	First	Dames & Moore DOE Phase II	10/25/90
UCD-23	73	56.5 - 71.5	First	Dames & Moore DOE Phase II	10/17/90
UCD-24	73	57 - 72	First	Dames & Moore DOE Phase II	10/22/90

NOTE: UCD-25 through UCD-28 were postponed pending findings of this Phase II Site Characterization Report. Locations of these monitoring wells may be changed to more accurately evaluate potential source areas.

HSU = Hydrostratigraphic Unit



EXPLANATION

Monitoring Wells

0 300

Scale in Feet

N

GROUNDWATER MONITORING WELL LOCATION MAP

Phase II Site Characterization
LEHR Environmental Restoration
FEBRUARY 1993

DAMES & MOORE

10805-454-044 DOE-167

FIGURE D-1

APPENDIX D
SECTION 1

GROUNDWATER LEVEL DATA FOR LEHR MONITORING WELLS

PHASE II SITE CHARACTERIZATION
LEHR ENVIRONMENTAL RESTORATION

D.O.E. PHASE II LEHR
GROUNDWATER MONITORING SUMMARY
NOVEMBER 1990 - FEBRUARY 1992
WATER TABLE ELEVATIONS (MSL)

WELL	DATE	REFERENCE POINT ELEVATION (feet)	DEPTH TO WATER (feet)	GROUNDWATER ELEVATION (feet)	COMMENTS
UCD-01	11/02/90	50.05	56.03	-5.98	
	11/08/90	50.05	54.08	-4.03	
	11/16/90	50.05	54.56	-4.51	
	11/20/90	50.05	53.60	-3.55	
	12/05/90	50.05	52.04	-1.99	
	12/27/90	50.05	50.30	-0.25	
	01/04/91	50.05	49.77	0.28	
	01/11/91	50.05	49.45	0.60	
	01/22/91	50.05	48.77	1.28	
	02/01/91	50.05	48.85	1.20	
	02/08/91	50.05	48.42	1.63	
	02/14/91	50.05	48.10	1.95	
	02/22/91	50.05	49.84	0.21	
	03/07/91	50.05	48.44	1.61	
	03/12/91	50.05	47.77	2.28	
	03/29/91	50.05	44.67	5.38	
	04/03/91	50.05	44.33	5.72	
	04/10/91	50.05	43.91	6.14	
	04/17/91	50.05	44.24	5.81	
	04/24/91	50.05	46.83	3.22	
	05/03/91	50.05	49.41	0.64	
	05/13/91	50.05	52.79	-2.74	
	08/14/91	50.05	58.59	-8.54	dry
	08/21/91	50.05	58.59	-8.54	dry
	08/29/91	50.05	58.61	-8.56	dry
	09/04/91	50.05	58.60	-8.55	dry
	09/13/91	50.05	58.61	-8.56	dry
	10/03/91	50.05	58.63	-8.58	dry
	10/10/91	50.05	57.02	-6.97	
	10/25/91	50.05	55.93	-5.88	
	11/01/91	50.05	53.85	-3.80	
	11/08/91	50.05	52.79	-2.74	
	11/14/91	50.05	52.39	-2.34	
	12/05/91	50.05	50.81	-0.76	
	12/11/91	50.05	50.38	-0.33	
	12/19/91	50.05	49.95	0.10	
	01/03/92	50.05	48.70	1.35	
	01/17/92	50.05	47.80	2.25	
	01/24/92	50.05	47.32	2.73	
	01/29/92	50.05	46.73	3.32	
	02/05/92	50.05	46.09	3.96	
UCD-03	11/08/90	50.05	50.34	-0.29	

(cont.)

D.O.E. PHASE II LEHR
GROUNDWATER MONITORING SUMMARY
NOVEMBER 1990 - FEBRUARY 1992
WATER TABLE ELEVATIONS (MSL)

WELL	DATE	REFERENCE POINT ELEVATION (feet)	DEPTH TO WATER (feet)	GROUNDWATER ELEVATION (feet)	COMMENTS
UCD-03	11/16/90	50.05	55.43	-5.38	
	11/20/90	50.05	50.39	-0.34	
	12/05/90	50.05	50.44	-0.39	
	12/27/90	50.05	50.43	-0.38	
	01/04/91	50.05	50.44	-0.39	
	01/11/91	50.05	50.20	-0.15	
	01/22/91	50.05	49.41	0.64	
	02/01/91	50.05	49.10	0.95	
	02/08/91	50.05	48.81	1.24	
	02/14/91	50.05	48.49	1.56	
	02/22/91	50.05	49.55	0.50	
	03/07/91	50.05	48.58	1.47	
	03/12/91	50.05	48.22	1.83	
	03/22/91	50.05	46.58	3.47	
	03/29/91	50.05	43.93	6.12	
	04/03/91	50.05	43.93	6.12	
	04/10/91	50.05	43.58	6.47	
	04/17/91	50.05	43.84	6.21	
	04/24/91	50.05	46.05	4.00	
	05/13/91	50.05	50.32	-0.27	dry
	05/20/91	50.05	51.32	-1.27	dry
	05/29/91	50.05	50.42	-0.37	dry
	06/06/91	50.05	50.35	-0.30	dry
	06/10/91	50.05	50.34	-0.29	dry
	06/21/91	50.05	50.34	-0.29	dry
	06/27/91	50.05	50.34	-0.29	dry
	07/05/91	50.05	50.35	-0.30	dry
	07/12/91	50.05	50.35	-0.30	dry
	07/19/91	50.05	50.34	-0.29	dry
	07/26/91	50.05	50.36	-0.31	dry
	08/05/91	50.05	50.38	-0.33	dry
	08/14/91	50.05	50.37	-0.32	dry
	08/21/91	50.05	50.37	-0.32	dry
	08/29/91	50.05	50.00	0.05	dry
	09/04/91	50.05	50.39	-0.34	dry
	09/13/91	50.05	50.88	-0.83	dry
	10/03/91	50.05	50.40	-0.35	dry
	10/10/91	50.05	50.39	-0.34	dry
	10/25/91	50.05	50.40	-0.35	dry
	11/01/91	50.05	50.41	-0.36	dry
	11/08/91	50.05	51.47	-1.42	dry
	11/14/91	50.05	50.42	-0.37	dry
	12/05/91	50.05	50.44	-0.39	dry
	12/11/91	50.05	50.42	-0.37	dry

(cont.)

D.O.E. PHASE II LEHR
GROUNDWATER MONITORING SUMMARY
NOVEMBER 1990 - FEBRUARY 1992
WATER TABLE ELEVATIONS (MSL)

WELL	DATE	REFERENCE POINT ELEVATION (feet)	DEPTH TO WATER (feet)	GROUNDWATER ELEVATION (feet)	COMMENTS
UCD-03	12/19/91	50.05	50.43	-0.38	dry
	01/03/92	50.05	49.23	0.82	
	01/17/92	50.05	51.33	-1.28	
	01/24/92	50.05	47.92	2.13	
	01/29/92	50.05	47.26	2.79	
	02/05/92	50.05	46.52	3.53	
UCD-04	11/08/90	51.69	56.68	-4.99	
	11/16/90	51.69	55.88	-4.19	
	11/20/90	51.69	55.56	-3.87	
	12/05/90	51.69	54.60	-2.91	
	12/27/90	51.69	52.95	-1.26	
	01/04/91	51.69	52.42	-0.73	
	01/11/91	51.69	52.01	-0.32	
	01/22/91	51.69	51.10	0.59	
	02/01/91	51.69	50.69	1.00	
	02/08/91	51.69	50.41	1.28	
	02/14/91	51.69	50.14	1.55	
	02/22/91	51.69	50.29	1.40	
	03/07/91	51.69	49.97	1.72	
	03/12/91	51.69	49.31	2.38	
	03/22/91	51.69	47.22	4.47	
	03/29/91	51.69	45.13	6.56	
	04/03/91	51.69	43.90	7.79	
	04/10/91	51.69	43.36	8.33	
	04/17/91	51.69	43.49	8.20	
	04/24/91	51.69	45.30	6.39	
	05/03/91	51.69	47.69	4.00	
	05/13/91	51.69	49.19	2.50	
	05/20/91	51.69	50.93	0.76	
	08/14/91	51.69	57.12	-5.43	dry
	08/21/91	51.69	57.17	-5.48	dry
	08/29/91	51.69	57.39	-5.70	dry
	09/04/91	51.69	57.20	-5.51	dry
	09/13/91	51.69	57.21	-5.52	dry
	10/03/91	51.69	57.26	-5.57	dry
	10/10/91	51.69	57.27	-5.58	dry
	10/25/91	51.69	57.27	-5.58	dry
	11/01/91	51.69	55.89	-4.20	
	11/08/91	51.69	55.17	-3.48	
	11/14/91	51.69	54.95	-3.26	
	12/05/91	51.69	53.21	-1.52	
	12/11/91	51.69	52.84	-1.15	

(cont.)

D.O.E. PHASE II LEHR
GROUNDWATER MONITORING SUMMARY
NOVEMBER 1990 - FEBRUARY 1992
WATER TABLE ELEVATIONS (MSL)

WELL	DATE	REFERENCE POINT ELEVATION (feet)	DEPTH TO WATER (feet)	GROUNDWATER ELEVATION (feet)	COMMENTS
UCD-04	12/19/91	51.69	52.35	-0.66	
	01/03/92	51.69	51.31	0.38	
	01/17/92	51.69	50.39	1.30	
	01/24/92	51.69	49.77	1.92	
	01/29/92	51.69	49.06	2.63	
	02/05/92	51.69	48.33	3.36	
UCD-05	11/02/90	50.65	50.33	0.32	dry
	11/08/90	50.65	50.34	0.31	dry
	11/16/90	50.65	50.35	0.30	dry
	11/20/90	50.65	50.34	0.31	dry
	12/05/90	50.65	50.35	0.30	dry
	12/27/90	50.65	50.38	0.27	dry
	01/04/91	50.65	50.38	0.27	dry
	01/11/91	50.65	50.27	0.38	dry
	01/22/91	50.65	50.08	0.57	
	02/01/91	50.65	49.64	1.01	
	02/08/91	50.65	49.42	1.23	
	02/14/91	50.65	49.10	1.55	
	02/22/91	50.65	49.97	0.68	
	03/07/91	50.65	49.69	0.96	
	03/12/91	50.65	48.98	1.67	
	03/22/91	50.65	47.45	3.20	
	03/29/91	50.65	45.42	5.23	
	04/03/91	50.65	43.91	6.74	
	04/10/91	50.65	44.39	6.26	
	04/17/91	50.65	44.46	6.19	
	04/24/91	50.65	46.67	3.98	
	05/03/91	50.65	49.38	1.27	
	05/13/91	50.65	50.27	0.38	dry
	05/20/91	50.65	50.28	0.37	dry
	05/29/91	50.65	50.33	0.32	dry
	06/06/91	50.65	50.34	0.31	dry
	06/10/91	50.65	50.33	0.32	dry
	06/21/91	50.65	50.33	0.32	dry
	06/27/91	50.65	50.36	0.29	dry
	07/05/91	50.65	50.37	0.28	dry
	07/12/91	50.65	50.37	0.28	dry
	07/19/91	50.65	50.29	0.36	dry
	07/26/91	50.65	50.39	0.26	dry
	08/05/91	50.65	50.39	0.26	dry
	08/14/91	50.65	50.41	0.24	dry
	08/21/91	50.65	50.41	0.24	dry

(cont.)

D.O.E. PHASE II LEHR
GROUNDWATER MONITORING SUMMARY
NOVEMBER 1990 - FEBRUARY 1992
WATER TABLE ELEVATIONS (MSL)

WELL	DATE	REFERENCE POINT ELEVATION (feet)	DEPTH TO WATER (feet)	GROUNDWATER ELEVATION (feet)	COMMENTS
UCD-05	08/29/91	50.65	50.37	0.28	dry
	09/04/91	50.65	50.41	0.24	dry
	09/13/91	50.65	50.37	0.28	dry
	10/25/91	50.65	50.00	0.65	dry
	11/08/91	50.65	50.00	0.65	dry
	12/05/91	50.65	50.00	0.65	dry
	12/11/91	50.65	50.00	0.65	dry
UCD-06	02/01/91	50.94	49.75	1.19	
	02/08/91	50.94	49.48	1.46	
	02/14/91	50.94	49.18	1.76	
	03/07/91	50.94	49.51	1.43	
	03/12/91	50.94	48.94	2.00	
	03/22/91	50.94	47.43	3.51	
	03/29/91	50.94	47.54	3.40	
	04/03/91	50.94	44.99	5.95	
	04/10/91	50.94	44.47	6.47	
	04/17/91	50.94	44.70	6.24	
	04/24/91	50.94	47.02	3.92	
	05/03/91	50.94	49.42	1.52	
UCD-07	11/02/90	51.65	57.33	-5.68	
	11/08/90	51.65	56.93	-5.28	
	11/16/90	51.65	55.76	-4.11	
	11/20/90	51.65	55.30	-3.65	
	12/05/90	51.65	53.69	-2.04	
	12/27/90	51.65	51.77	-0.12	
	01/04/91	51.65	51.21	0.44	
	01/11/91	51.65	50.88	0.77	
	01/22/91	51.65	50.22	1.43	
	02/01/91	51.65	51.02	0.63	
	02/08/91	51.65	50.01	1.64	
	02/14/91	51.65	50.94	0.71	
	02/22/91	51.65	52.60	-0.95	
	03/07/91	51.65	49.77	1.88	
	03/12/91	51.65	49.11	2.54	
	03/22/91	51.65	47.93	3.72	
	03/29/91	51.65	48.10	3.55	
	04/03/91	51.65	45.88	5.77	
	04/10/91	51.65	45.64	6.01	
	04/17/91	51.65	46.13	5.52	
	04/24/91	51.65	49.68	1.97	

(cont.)

D.O.E. PHASE II LEHR
GROUNDWATER MONITORING SUMMARY
NOVEMBER 1990 - FEBRUARY 1992
WATER TABLE ELEVATIONS (MSL)

WELL	DATE	REFERENCE POINT ELEVATION (feet)	DEPTH TO WATER (feet)	GROUNDWATER ELEVATION (feet)	COMMENTS
UCD-07	05/03/91	51.65	52.93	-1.28	
	05/13/91	51.65	57.56	-5.91	
	05/20/91	51.65	59.04	-7.39	
	05/29/91	51.65	59.44	-7.79	
	06/06/91	51.65	63.32	-11.67	
	06/10/91	51.65	63.27	-11.62	
	06/21/91	51.65	64.46	-12.81	
	06/27/91	51.65	65.52	-13.87	
	07/05/91	51.65	66.27	-14.62	
	07/12/91	51.65	69.16	-17.51	
	07/19/91	51.65	71.41	-19.76	
	07/26/91	51.65	70.68	-19.03	
	08/05/91	51.65	71.08	-19.43	
	08/14/91	51.65	71.73	-20.08	
	08/21/91	51.65	69.14	-17.49	
	08/29/91	51.65	66.70	-15.05	
	09/04/91	51.65	65.18	-13.53	
	09/13/91	51.65	66.09	-14.44	
	10/03/91	51.65	60.79	-9.14	
	10/10/91	51.65	59.53	-7.88	
	10/25/91	51.65	58.63	-6.98	
	11/01/91	51.65	55.65	-4.00	
	11/08/91	51.65	54.48	-2.83	
	11/14/91	51.65	54.14	-2.49	
	12/05/91	51.65	52.44	-0.79	
	12/11/91	51.65	52.00	-0.35	
	12/19/91	51.65	51.54	0.11	
	01/17/92	51.65	50.23	1.42	
	01/24/92	51.65	48.89	2.76	
	01/29/92	51.65	48.27	3.38	
	02/05/92	51.65	47.74	3.91	
UCD-08	02/08/91	51.51	50.63	0.88	
	02/14/91	51.51	50.30	1.21	
	03/07/91	51.51	50.89	0.62	
	03/12/91	51.51	50.23	1.28	
	03/22/91	51.51	49.00	2.51	
	03/29/91	51.51	47.14	4.37	
	04/03/91	51.51	46.03	5.48	
	04/10/91	51.51	45.38	6.13	
	04/17/91	51.51	45.53	5.98	
	04/24/91	51.51	47.71	3.80	
	05/03/91	51.51	50.16	1.35	

(cont.)

D.O.E. PHASE II LEHR
GROUNDWATER MONITORING SUMMARY
NOVEMBER 1990 - FEBRUARY 1992
WATER TABLE ELEVATIONS (MSL)

WELL	DATE	REFERENCE POINT ELEVATION (feet)	DEPTH TO WATER (feet)	GROUNDWATER ELEVATION (feet)	COMMENTS
UCD-09	03/29/91	51.38	46.87	4.51	
	04/03/91	51.38	46.13	5.25	
	04/10/91	51.38	45.52	5.86	
	04/17/91	51.38	45.74	5.64	
UCD-10	11/02/90	49.87	56.58	-6.71	
	11/08/90	49.87	55.93	-6.06	
	11/16/90	49.87	54.86	-4.99	
	11/20/90	49.87	54.38	-4.51	
	12/05/90	49.87	52.71	-2.84	
	12/27/90	49.87	50.82	-0.95	
	01/04/91	49.87	50.27	-0.40	
	01/11/91	49.87	49.97	-0.10	
	01/22/91	49.87	49.20	0.67	
	02/01/91	49.87	49.85	0.02	
	02/08/91	49.87	49.10	0.77	
	02/14/91	49.87	48.78	1.09	
	02/22/91	49.87	52.10	-2.23	
	03/07/91	49.87	49.13	0.74	
	03/12/91	49.87	48.35	1.52	
	03/22/91	49.87	46.96	2.91	
	03/29/91	49.87	44.92	4.95	
	04/03/91	49.87	44.81	5.06	
	04/10/91	49.87	44.51	5.36	
	04/17/91	49.87	44.99	4.88	
	04/24/91	49.87	48.39	1.48	
	05/03/91	49.87	51.26	-1.39	
	05/13/91	49.87	56.32	-6.45	
	05/20/91	49.87	59.01	-9.14	
	05/29/91	49.87	59.58	-9.71	
	06/06/91	49.87	63.06	-13.19	
	06/10/91	49.87	63.76	-13.89	
	06/21/91	49.87	64.43	-14.56	
	06/27/91	49.87	66.03	-16.16	
	07/05/91	49.87	66.83	-16.96	
	07/12/91	49.87	69.59	-19.72	
	07/19/91	49.87	71.00	-21.13	
	07/26/91	49.87	71.00	-21.13	
	08/14/91	49.87	72.41	-22.54	
	08/21/91	49.87	69.45	-19.58	
	08/29/91	49.87	66.85	-16.98	
	09/04/91	49.87	65.04	-15.17	
	09/13/91	49.87	66.00	-16.13	

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D.O.E. PHASE II LEHR
GROUNDWATER MONITORING SUMMARY
NOVEMBER 1990 - FEBRUARY 1992
WATER TABLE ELEVATIONS (MSL)

WELL	DATE	REFERENCE POINT ELEVATION (feet)	DEPTH TO WATER (feet)	GROUNDWATER ELEVATION (feet)	COMMENTS
UCD-10	10/03/91	49.87	60.63	-10.76	
	10/10/91	49.87	59.36	-9.49	
	10/25/91	49.87	56.00	-6.13	
	11/01/91	49.87	55.17	-5.30	
	11/08/91	49.87	54.00	-4.13	
	11/14/91	49.87	53.42	-3.55	
	12/05/91	49.87	51.71	-1.84	
	12/11/91	49.87	51.41	-1.54	
	12/19/91	49.87	50.93	-1.06	
	01/17/92	49.87	48.55	1.32	
	01/24/92	49.87	48.08	1.79	
	01/29/92	49.87	47.49	2.38	
	02/05/92	49.87	46.81	3.06	
UCD-11	11/02/90	50.67	66.92	-16.25	
	11/08/90	50.67	53.11	-2.44	
	11/16/90	50.67	55.23	-4.56	
	11/20/90	50.67	54.74	-4.07	
	12/05/90	50.67	53.16	-2.49	
	12/27/90	50.67	51.56	-0.89	
	01/04/91	50.67	51.07	-0.40	
	01/11/91	50.67	50.65	0.02	
	01/22/91	50.67	49.24	1.43	
	02/01/91	50.67	50.03	0.64	
	02/08/91	50.67	49.61	1.06	
	02/14/91	50.67	49.22	1.45	
	02/22/91	50.67	51.57	-0.90	
	03/07/91	50.67	49.99	0.68	
	03/12/91	50.67	48.97	1.70	
	03/22/91	50.67	47.60	3.07	
	03/29/91	50.67	47.81	2.86	
	04/03/91	50.67	45.41	5.26	
	04/10/91	50.67	44.98	5.69	
	04/17/91	50.67	45.39	5.28	
	04/24/91	50.67	48.03	2.64	
	05/03/91	50.67	50.89	-0.22	
	05/13/91	50.67	50.08	0.59	
	05/20/91	50.67	58.15	-7.48	
	05/29/91	50.67	58.78	-8.11	
	06/06/91	50.67	62.27	-11.60	
	06/10/91	50.67	62.73	-12.06	
	06/21/91	50.67	64.16	-13.49	
	06/27/91	50.67	65.46	-14.79	

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D.O.E. PHASE II LEHR
GROUNDWATER MONITORING SUMMARY
NOVEMBER 1990 - FEBRUARY 1992
WATER TABLE ELEVATIONS (MSL)

WELL	DATE	REFERENCE POINT ELEVATION (feet)	DEPTH TO WATER (feet)	GROUNDWATER ELEVATION (feet)	COMMENTS
UCD-11	07/05/91	50.67	66.08	-15.41	
	07/12/91	50.67	68.29	-17.62	dry
	07/19/91	50.67	68.28	-17.61	dry
	07/26/91	50.67	68.33	-17.66	dry
	08/05/91	50.67	68.28	-17.61	dry
	08/14/91	50.67	68.26	-17.59	dry
	08/29/91	50.67	67.10	-16.43	
	09/04/91	50.67	64.85	-14.18	
	09/13/91	50.67	65.68	-15.01	
	10/03/91	50.67	60.69	-10.02	
	10/10/91	50.67	59.43	-8.76	
	10/25/91	50.67	57.15	-6.48	
	11/01/91	50.67	55.40	-4.73	
	11/08/91	50.67	54.27	-3.60	
	11/14/91	50.67	53.69	-3.02	
	12/05/91	50.67	52.21	-1.54	
	12/11/91	50.67	51.88	-1.21	
	12/19/91	50.67	51.49	-0.82	
	01/17/92	50.67	49.03	1.64	
	01/24/92	50.67	48.47	2.20	
	01/29/92	50.67	47.97	2.70	
	02/05/92	50.67	47.31	3.36	
UCD-12	11/02/90	51.76	64.05	-12.29	
	11/08/90	51.76	57.59	-5.83	
	11/16/90	51.76	56.34	-4.58	
	11/20/90	51.76	55.67	-3.91	
	12/05/90	51.76	54.15	-2.39	
	12/27/90	51.76	52.63	-0.87	
	01/11/91	51.76	51.85	-0.09	
	01/22/91	51.76	51.01	0.75	
	02/01/91	51.76	50.88	0.88	
	02/08/91	51.76	50.67	1.09	
	02/14/91	51.76	50.26	1.50	
	02/22/91	51.76	51.92	-0.16	
	03/07/91	51.76	50.38	1.38	
	03/12/91	51.76	47.46	4.30	
	03/22/91	51.76	48.85	2.91	
	03/29/91	51.76	47.15	4.61	
	04/03/91	51.76	44.55	7.21	
	04/10/91	51.76	45.35	6.41	
	04/17/91	51.76	42.63	9.13	
	04/24/91	51.76	44.37	7.39	

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D.O.E. PHASE II LEHR
GROUNDWATER MONITORING SUMMARY
NOVEMBER 1990 - FEBRUARY 1992
WATER TABLE ELEVATIONS (MSL)

WELL	DATE	REFERENCE POINT ELEVATION (feet)	DEPTH TO WATER (feet)	GROUNDWATER ELEVATION (feet)	COMMENTS
UCD-12	05/03/91	51.76	45.94	5.82	
	05/13/91	51.76	51.44	0.32	
	05/20/91	51.76	58.15	-6.39	
	05/29/91	51.76	58.52	-6.76	
	06/06/91	51.76	61.96	-10.20	
	06/10/91	51.76	62.52	-10.76	
	06/21/91	51.76	64.41	-12.65	
	06/27/91	51.76	65.67	-13.91	
	07/05/91	51.76	65.00	-13.24	
	07/12/91	51.76	65.13	-13.37	
	07/19/91	51.76	67.08	-15.32	dry
	07/26/91	51.76	67.10	-15.34	dry
	08/05/91	51.76	67.36	-15.60	dry
	08/14/91	51.76	67.40	-15.64	dry
	08/21/91	51.76	67.45	-15.69	dry
	08/29/91	51.76	67.40	-15.64	
	09/04/91	51.76	66.38	-14.62	
	09/13/91	51.76	65.77	-14.01	
	10/03/91	51.76	61.73	-9.97	
	10/10/91	51.76	60.55	-8.79	
	10/25/91	51.76	57.96	-6.20	
	11/01/91	51.76	56.46	-4.70	
	11/08/91	51.76	55.08	-3.32	
	11/14/91	51.76	54.50	-2.74	
	12/05/91	51.76	54.36	-2.60	
	12/11/91	51.76	54.41	-2.65	
	12/19/91	51.76	52.40	-0.64	
	01/03/92	51.76	51.25	0.51	
	01/17/92	51.76	50.28	1.48	
	01/24/92	51.76	49.73	2.03	
	01/29/92	51.76	49.07	2.69	
	02/05/92	51.76	48.38	3.38	
UCD-13	11/02/90	52.19	58.44	-6.25	
	11/08/90	52.19	57.56	-5.37	
	11/16/90	52.19	56.61	-4.42	
	11/20/90	52.19	56.12	-3.93	
	12/05/90	52.19	54.68	-2.49	
	12/27/90	52.19	53.28	-1.09	
	01/04/91	52.19	52.83	-0.64	
	01/11/91	52.19	52.51	-0.32	
	01/22/91	52.19	51.70	0.49	
	02/01/91	52.19	51.50	0.69	

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D.O.E. PHASE II LEHR
GROUNDWATER MONITORING SUMMARY
NOVEMBER 1990 - FEBRUARY 1992
WATER TABLE ELEVATIONS (MSL)

WELL	DATE	REFERENCE POINT ELEVATION (feet)	DEPTH TO WATER (feet)	GROUNDWATER ELEVATION (feet)	COMMENTS
UCD-13	02/08/91	52.19	51.28	0.91	
	02/14/91	52.19	50.96	1.23	
	02/22/91	52.19	52.04	0.15	
	03/07/91	52.19	51.53	0.66	
	03/12/91	52.19	50.89	1.30	
	03/22/91	52.19	49.69	2.50	
	03/29/91	52.19	47.79	4.40	
	04/03/91	52.19	46.67	5.52	
	04/10/91	52.19	46.00	6.19	
	04/17/91	52.19	46.16	6.03	
	04/24/91	52.19	48.23	3.96	
	05/03/91	52.19	51.27	0.92	
	05/13/91	52.19	53.14	-0.95	
	05/20/91	52.19	56.89	-4.70	
	05/29/91	52.19	58.52	-6.33	
	06/06/91	52.19	61.72	-9.53	
	06/10/91	52.19	62.34	-10.15	
	06/21/91	52.19	64.58	-12.39	
	06/27/91	52.19	65.92	-13.73	
	07/05/91	52.19	66.29	-14.10	
	07/12/91	52.19	67.56	-15.37	dry
	07/19/91	52.19	67.61	-15.42	dry
	07/26/91	52.19	67.24	-15.05	dry
	08/05/91	52.19	67.26	-15.07	dry
	08/14/91	52.19	67.24	-15.05	dry
	08/21/91	52.19	67.25	-15.06	dry
	08/29/91	52.19	67.25	-15.06	dry
	09/04/91	52.19	66.45	-14.26	
	09/13/91	52.19	66.09	-13.90	
	10/03/91	52.19	62.31	-10.12	
	10/10/91	52.19	61.24	-9.05	
	10/25/91	52.19	58.65	-6.46	
	11/01/91	52.19	56.88	-4.69	
	11/08/91	52.19	55.56	-3.37	
	11/14/91	52.19	55.13	-2.94	
	12/05/91	52.19	53.78	-1.59	
	12/11/91	52.19	53.44	-1.25	
	12/19/91	52.19	52.93	-0.74	
	01/03/92	52.19	52.00	0.19	
	01/17/92	52.19	51.12	1.07	
	01/24/92	52.19	50.66	1.53	
	01/29/92	52.19	50.08	2.11	
	02/05/92	52.19	49.38	2.81	

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GROUNDWATER MONITORING SUMMARY
NOVEMBER 1990 - FEBRUARY 1992
WATER TABLE ELEVATIONS (MSL)

WELL	DATE	REFERENCE POINT ELEVATION (feet)	DEPTH TO WATER (feet)	GROUNDWATER ELEVATION (feet)	COMMENTS
UCD-14	11/02/90	51.72	58.60	-6.88	
	11/08/90	51.72	57.19	-5.47	
	11/16/90	51.72	56.00	-4.28	
	11/20/90	51.72	55.41	-3.69	
	12/05/90	51.72	53.81	-2.09	
	12/27/90	51.72	51.90	-0.18	
	01/04/91	51.72	51.37	0.35	
	01/11/91	51.72	51.01	0.71	
	01/22/91	51.72	50.34	1.38	
	02/01/91	51.72	51.11	0.61	
	02/08/91	51.72	50.13	1.59	
	02/14/91	51.72	50.12	1.60	
	02/22/91	51.72	52.79	-1.07	
	03/07/91	51.72	49.94	1.78	
	03/12/91	51.72	49.26	2.46	
	03/22/91	51.72	48.04	3.68	
	03/29/91	51.72	48.21	3.51	
	04/03/91	51.72	46.01	5.71	
	04/10/91	51.72	45.75	5.97	
	04/17/91	51.72	46.23	5.49	
	04/24/91	51.72	49.84	1.88	
	05/03/91	51.72	53.49	-1.77	
	05/13/91	51.72	58.11	-6.39	
	05/20/91	51.72	59.40	-7.68	
	05/29/91	51.72	60.19	-8.47	
	06/06/91	51.72	63.93	-12.21	
	06/10/91	51.72	63.92	-12.20	
	06/21/91	51.72	64.84	-13.12	
	06/27/91	51.72	65.95	-14.23	
	07/05/91	51.72	66.68	-14.96	
	07/12/91	51.72	69.61	-17.89	
	07/19/91	51.72	71.93	-20.21	
	07/26/91	51.72	71.10	-19.38	
	08/05/91	51.72	71.67	-19.95	
	08/14/91	51.72	72.75	-21.03	
	08/21/91	51.72	69.65	-17.93	
	08/29/91	51.72	67.02	-15.30	
	09/04/91	51.72	65.44	-13.72	
	09/13/91	51.72	66.51	-14.79	
	10/03/91	51.72	61.04	-9.32	
	10/10/91	51.72	59.79	-8.07	
	10/25/91	51.72	57.65	-5.93	
	11/01/91	51.72	55.92	-4.20	
	11/08/91	51.72	54.85	-3.13	

(cont.)

D.O.E. PHASE II LEHR
GROUNDWATER MONITORING SUMMARY
NOVEMBER 1990 - FEBRUARY 1992
WATER TABLE ELEVATIONS (MSL)

WELL	DATE	REFERENCE POINT ELEVATION (feet)	DEPTH TO WATER (feet)	GROUNDWATER ELEVATION (feet)	COMMENTS
UCD-14	11/14/91	51.72	55.31	-3.59	
	12/05/91	51.72	52.62	-0.90	
	12/11/91	51.72	52.44	-0.72	
	12/19/91	51.72	51.72	MD	
	01/03/92	51.72	53.01	-1.29	
	01/17/92	51.72	49.41	2.31	
	01/24/92	51.72	49.00	2.72	
	01/29/92	51.72	48.46	3.26	
	02/05/92	51.72	47.84	3.88	
UCD-15	11/02/90	51.49	57.00	-5.51	
	11/08/90	51.49	56.65	-5.16	
	11/16/90	51.49	55.29	-3.80	
	11/20/90	51.49	54.80	-3.31	
	12/05/90	51.49	53.18	-1.69	
	12/27/90	51.49	51.26	0.23	
	01/04/91	51.49	50.73	0.76	
	01/11/91	51.49	50.42	1.07	
	01/22/91	51.49	49.67	1.82	
	02/01/91	51.49	50.31	1.18	
	02/08/91	51.49	49.48	2.01	
	02/14/91	51.49	49.40	2.09	
	02/22/91	51.49	51.80	-0.31	
	03/07/91	51.49	49.20	2.29	
	03/12/91	51.49	48.51	2.98	
	03/22/91	51.49	47.32	4.17	
	03/29/91	51.49	45.51	5.98	
	04/03/91	51.49	45.07	6.42	
	04/10/91	51.49	45.88	5.61	
	04/17/91	51.49	45.59	5.90	
	04/24/91	51.49	49.03	2.46	
	05/03/91	51.49	52.33	-0.84	
	05/13/91	51.49	57.23	-5.74	
	05/20/91	51.49	58.14	-6.65	
	05/29/91	51.49	58.67	-7.18	
	06/06/91	51.49	62.50	-11.01	
	06/10/91	51.49	62.47	-10.98	
	06/21/91	51.49	63.69	-12.20	
	06/27/91	51.49	64.41	-12.92	
	07/05/91	51.49	65.35	-13.86	
	07/12/91	51.49	68.23	-16.74	
	07/19/91	51.49	70.74	-19.25	
	07/26/91	51.49	70.02	-18.53	

(cont.)

D.O.E. PHASE II LEHR
GROUNDWATER MONITORING SUMMARY
NOVEMBER 1990 - FEBRUARY 1992
WATER TABLE ELEVATIONS (MSL)

WELL	DATE	REFERENCE POINT ELEVATION (feet)	DEPTH TO WATER (feet)	GROUNDWATER ELEVATION (feet)	COMMENTS
UCD-15	08/05/91	51.49	70.16	-18.67	
	08/14/91	51.49	70.92	-19.43	
	08/21/91	51.49	68.39	-16.90	
	08/29/91	51.49	66.00	-14.51	
	09/04/91	51.49	64.48	-12.99	
	09/13/91	51.49	65.35	-13.86	
	10/03/91	51.49	60.13	-8.64	
	10/10/91	51.49	58.00	-6.51	
	10/25/91	51.49	57.96	-6.47	
	11/01/91	51.49	55.08	-3.59	
	11/08/91	51.49	53.92	-2.43	
	11/14/91	51.49	53.54	-2.05	
	12/05/91	51.49	52.45	-0.96	
	12/11/91	51.49	51.43	0.06	
	12/19/91	51.49	50.93	0.56	
	01/03/92	51.49	49.44	2.05	
	01/17/92	51.49	48.63	2.86	
	01/24/92	51.49	48.22	3.27	
	01/29/92	51.49	47.69	3.80	
	02/05/92	51.49	47.06	4.43	
UCD-16	11/02/90	49.95	55.52	-5.57	
	11/08/90	49.95	54.88	-4.93	
	11/16/90	49.95	53.88	-3.93	
	11/20/90	49.95	53.38	-3.43	
	12/05/90	49.95	51.79	-1.84	
	12/27/90	49.95	49.85	0.10	
	01/04/91	49.95	49.34	0.61	
	01/11/91	49.95	49.13	0.82	
	01/22/91	49.95	48.37	1.58	
	02/01/91	49.95	49.10	0.85	
	02/08/91	49.95	48.10	1.85	
	02/14/91	49.95	48.01	1.94	
	02/22/91	49.95	50.51	-0.56	
	03/07/91	49.95	47.83	2.12	
	03/12/91	49.95	47.27	2.68	
	03/22/91	49.95	44.60	5.35	
	03/29/91	49.95	44.25	5.70	
	04/03/91	49.95	44.07	5.88	
	04/10/91	49.95	43.81	6.14	
	04/17/91	49.95	44.33	5.62	
	04/24/91	49.95	47.54	2.41	
	05/03/91	49.95	49.68	0.27	

(cont.)

D.O.E. PHASE II LEHR
GROUNDWATER MONITORING SUMMARY
NOVEMBER 1990 - FEBRUARY 1992
WATER TABLE ELEVATIONS (MSL)

WELL	DATE	REFERENCE POINT ELEVATION (feet)	DEPTH TO WATER (feet)	GROUNDWATER ELEVATION (feet)	COMMENTS
UCD-16	05/13/91	49.95	55.10	-5.15	
	05/20/91	49.95	56.84	-6.89	
	05/29/91	49.95	57.23	-7.28	
	06/06/91	49.95	60.76	-10.81	
	06/10/91	49.95	60.73	-10.78	
	06/21/91	49.95	62.36	-12.41	
	06/27/91	49.95	63.32	-13.37	
	07/05/91	49.95	64.54	-14.59	
	07/12/91	49.95	66.78	-16.83	
	07/19/91	49.95	69.00	-19.05	
	07/26/91	49.95	68.58	-18.63	
	08/14/91	49.95	69.38	-19.43	
	08/21/91	49.95	66.71	-16.76	
	08/29/91	49.95	64.54	-14.59	
	09/04/91	49.95	63.02	-13.07	
	09/13/91	49.95	63.80	-13.85	
	10/03/91	49.95	58.74	-8.79	
	10/10/91	49.95	57.55	-7.60	
	10/25/91	49.95	55.40	-5.45	
	11/01/91	49.95	53.61	-3.66	
	11/08/91	49.95	52.69	-2.74	
	11/14/91	49.95	52.17	-2.22	
	12/05/91	49.95	50.45	-0.50	
	12/11/91	49.95	51.37	-1.42	
	12/19/91	49.95	49.56	0.39	
	01/03/92	49.95	48.09	1.86	
	01/17/92	49.95	47.32	2.63	
	01/24/92	49.95	46.90	3.05	
	01/29/92	49.95	46.35	3.60	
	02/05/92	49.95	45.73	4.22	
UCD-17	11/02/90	51.83	56.93	-5.10	
	11/08/90	51.83	56.29	-4.46	
	11/16/90	51.83	55.23	-3.40	
	11/20/90	51.83	54.76	-2.93	
	12/05/90	51.83	54.04	-2.21	
	12/27/90	51.83	51.17	0.66	
	01/04/91	51.83	50.64	1.19	
	01/11/91	51.83	50.28	1.55	
	01/22/91	51.83	49.73	2.10	
	02/01/91	51.83	50.23	1.60	
	02/08/91	51.83	49.39	2.44	
	02/14/91	51.83	49.27	2.56	

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D.O.E. PHASE II LEHR
GROUNDWATER MONITORING SUMMARY
NOVEMBER 1990 - FEBRUARY 1992
WATER TABLE ELEVATIONS (MSL)

WELL	DATE	REFERENCE POINT ELEVATION (feet)	DEPTH TO WATER (feet)	GROUNDWATER ELEVATION (feet)	COMMENTS
UCD-17	02/22/91	51.83	51.41	0.42	
	03/07/91	51.83	49.04	2.79	
	03/12/91	51.83	48.44	3.39	
	03/22/91	51.83	47.28	4.55	
	03/29/91	51.83	45.54	6.29	
	04/03/91	51.83	45.34	6.49	
	04/10/91	51.83	45.09	6.74	
	04/17/91	51.83	45.50	6.33	
	04/24/91	51.83	49.00	2.83	
	05/03/91	51.83	50.63	1.20	
	05/13/91	51.83	56.25	-4.42	
	05/20/91	51.83	57.59	-5.76	
	05/29/91	51.83	57.79	-5.96	
	06/06/91	51.83	61.57	-9.74	
	06/10/91	51.83	61.41	-9.58	
	06/21/91	51.83	63.33	-11.50	
	06/27/91	51.83	64.16	-12.33	
	07/05/91	51.83	65.33	-13.50	
	07/12/91	51.83	67.48	-15.65	
	07/19/91	51.83	70.06	-18.23	
	07/26/91	51.83	69.70	-17.87	
	08/05/91	51.83	69.20	-17.37	
	08/14/91	51.83	69.84	-18.01	
	08/21/91	51.83	67.54	-15.71	
	08/29/91	51.83	65.53	-13.70	
	09/04/91	51.83	64.03	-12.20	
	09/13/91	51.83	64.74	-12.91	
	10/03/91	51.83	60.21	-8.38	
	10/10/91	51.83	58.74	-6.91	
	10/25/91	51.83	56.58	-4.75	
	11/01/91	51.83	54.90	-3.07	
	11/08/91	51.83	53.82	-1.99	
	11/14/91	51.83	53.34	-1.51	
	12/05/91	51.83	51.58	0.25	
	12/11/91	51.83	51.09	0.74	
	12/19/91	51.83	50.61	1.22	
	01/03/92	51.83	49.26	2.57	
	01/17/92	51.83	48.47	3.36	
	01/24/92	51.83	48.04	3.79	
	01/29/92	51.83	47.49	4.34	
	02/05/92	51.83	46.91	4.92	
UCD-18	01/22/91	48.56	47.43	1.13	

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D.O.E. PHASE II LEHR
GROUNDWATER MONITORING SUMMARY
NOVEMBER 1990 - FEBRUARY 1992
WATER TABLE ELEVATIONS (MSL)

WELL	DATE	REFERENCE POINT ELEVATION (feet)	DEPTH TO WATER (feet)	GROUNDWATER ELEVATION (feet)	COMMENTS
UCD-18	02/01/91	48.56	47.01	1.55	
	02/08/91	48.56	46.80	1.76	
	02/14/91	48.56	46.52	2.04	
	02/22/91	48.56	46.89	1.67	
	03/07/91	48.56	46.54	2.02	
	03/12/91	48.56	46.19	2.37	
	03/22/91	48.56	46.00	2.56	
	03/29/91	48.56	42.88	5.68	
	04/03/91	48.56	41.66	6.90	
	04/10/91	48.56	41.32	7.24	
	04/17/91	48.56	41.29	7.27	
	04/24/91	48.56	42.99	5.57	
	05/03/91	48.56	44.95	3.61	
	05/13/91	48.56	46.96	1.60	
	05/20/91	48.56	50.68	-2.12	
	05/29/91	48.56	51.99	-3.43	
	06/06/91	48.56	54.54	-5.98	
	06/10/91	48.56	55.27	-6.71	
	06/21/91	48.56	57.28	-8.72	
	06/27/91	48.56	58.02	-9.46	
	07/05/91	48.56	58.35	-9.79	
	07/12/91	48.56	59.19	-10.63	
	07/19/91	48.56	61.60	-13.04	
	07/26/91	48.56	61.85	-13.29	
	08/05/91	48.56	64.22	-15.66	
	08/14/91	48.56	64.83	-16.27	
	08/21/91	48.56	64.37	-15.81	
	08/29/91	48.56	62.60	-14.04	
	09/04/91	48.56	60.02	-11.46	
	09/13/91	48.56	60.74	-12.18	
	10/03/91	48.56	58.92	-10.36	
	10/10/91	48.56	58.54	-9.98	
	10/25/91	48.56	55.77	-7.21	
	11/01/91	48.56	53.02	-4.46	
	11/08/91	48.56	50.81	-2.25	
	11/14/91	48.56	49.00	-0.44	
	12/05/91	48.56	48.52	0.04	
	12/11/91	48.56	48.25	0.31	
	12/19/91	48.56	58.06	-9.50	
	01/03/92	48.56	47.45	1.11	
	01/17/92	48.56	46.60	1.96	
	01/24/92	48.56	46.98	1.58	
	01/29/92	48.56	45.10	3.46	
	02/05/92	48.56	44.18	4.38	

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D.O.E. PHASE II LEHR
GROUNDWATER MONITORING SUMMARY
NOVEMBER 1990 - FEBRUARY 1992
WATER TABLE ELEVATIONS (MSL)

WELL	DATE	REFERENCE POINT ELEVATION (feet)	DEPTH TO WATER (feet)	GROUNDWATER ELEVATION (feet)	COMMENTS
UCD-19	01/22/91	51.33	50.73	0.60	
	02/01/91	51.33	50.66	0.67	
	02/08/91	51.33	50.38	0.95	
	02/14/91	51.33	50.10	1.23	
	02/22/91	51.33	51.48	-0.15	
	03/07/91	51.33	50.58	0.75	
	03/12/91	51.33	50.26	1.07	
	03/22/91	51.33	48.68	2.65	
	03/29/91	51.33	47.02	4.31	
	04/03/91	51.33	46.32	5.01	
	04/10/91	51.33	45.77	5.56	
	04/17/91	51.33	45.95	5.38	
	04/24/91	51.33	48.02	3.31	
	05/03/91	51.33	50.47	0.86	
	05/13/91	51.33	53.08	-1.75	
	05/20/91	51.33	57.74	-6.41	
	05/29/91	51.33	58.54	-7.21	
	06/06/91	51.33	61.23	-9.90	
	06/10/91	51.33	61.93	-10.60	
	06/21/91	51.33	63.89	-12.56	
	06/27/91	51.33	64.23	-12.90	
	07/05/91	51.33	65.76	-14.43	
	07/12/91	51.33	68.68	-17.35	
	07/19/91	51.33	69.71	-18.38	
	07/26/91	51.33	70.08	-18.75	
	08/05/91	51.33	70.42	-19.09	
	08/14/91	51.33	70.93	-19.60	
	08/21/91	51.33	69.68	-18.35	
	08/29/91	51.33	67.10	-15.77	
	09/04/91	51.33	65.12	-13.79	
	09/13/91	51.33	65.52	-14.19	
	10/03/91	51.33	61.26	-9.93	
	10/10/91	51.33	60.29	-8.96	
	10/25/91	51.33	57.75	-6.42	
	11/01/91	51.33	55.96	-4.63	
	11/08/91	51.33	54.75	-3.42	
	11/14/91	51.33	54.19	-2.86	
	12/05/91	51.33	52.82	-1.49	
	12/11/91	51.33	52.46	-1.13	
	12/19/91	51.33	52.10	-0.77	
	01/03/92	51.33	50.96	0.37	
	01/17/92	51.33	50.11	1.22	
	01/24/92	51.33	49.55	1.78	
	01/29/92	51.33	48.87	2.46	

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D.O.E. PHASE II LEHR
GROUNDWATER MONITORING SUMMARY
NOVEMBER 1990 - FEBRUARY 1992
WATER TABLE ELEVATIONS (MSL)

WELL	DATE	REFERENCE POINT ELEVATION (feet)	DEPTH TO WATER (feet)	GROUNDWATER ELEVATION (feet)	COMMENTS
UCD-19	02/05/92	51.33	48.11	3.22	
UCD-20	01/22/91	49.78	49.11	0.67	
	02/01/91	49.78	48.81	0.97	
	02/08/91	49.78	48.48	1.30	
	02/14/91	49.78	48.16	1.62	
	02/22/91	49.78	49.30	0.48	
	03/07/91	49.78	48.34	1.44	
	03/12/91	49.78	47.95	1.83	
	03/22/91	49.78	46.30	3.48	
	03/29/91	49.78	43.71	6.07	
	04/03/91	49.78	43.64	6.14	
	04/10/91	49.78	43.30	6.48	
	04/17/91	49.78	43.61	6.17	
	04/24/91	49.78	45.83	3.95	
	05/03/91	49.78	48.70	1.08	
	05/13/91	49.78	50.50	-0.72	
	05/20/91	49.78	54.78	-5.00	
	05/29/91	49.78	55.85	-6.07	
	06/06/91	49.78	59.22	-9.44	
	06/10/91	49.78	59.82	-10.04	
	06/21/91	49.78	61.73	-11.95	
	06/27/91	49.78	62.91	-13.13	
	07/05/91	49.78	63.32	-13.54	
	07/12/91	49.78	62.40	-12.62	
	07/19/91	49.78	68.73	-18.95	
	07/26/91	49.78	68.05	-18.27	
	08/05/91	49.78	67.30	-17.52	
	08/14/91	49.78	68.90	-19.12	
	08/21/91	49.78	67.34	-17.56	
	08/29/91	49.78	64.91	-15.13	
	09/04/91	49.78	63.19	-13.41	
	09/13/91	49.78	63.61	-13.83	
	10/03/91	49.78	59.40	-9.62	
	10/10/91	49.78	58.13	-8.35	
	10/25/91	49.78	55.68	-5.90	
	11/01/91	49.78	53.96	-4.18	
	11/08/91	49.78	52.75	-2.97	
	11/14/91	49.78	52.35	-2.57	
	12/05/91	49.78	51.04	-1.26	
	12/11/91	49.78	50.72	-0.94	
	12/19/91	49.78	50.13	-0.35	
	01/03/92	49.78	49.28	0.50	

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D.O.E. PHASE II LEHR
GROUNDWATER MONITORING SUMMARY
NOVEMBER 1990 - FEBRUARY 1992
WATER TABLE ELEVATIONS (MSL)

WELL	DATE	REFERENCE POINT ELEVATION (feet)	DEPTH TO WATER (feet)	GROUNDWATER ELEVATION (feet)	COMMENTS
UCD-20	01/17/92	49.78	49.17	0.61	
	01/24/92	49.78	47.61	2.17	
	01/29/92	49.78	46.94	2.84	
	02/05/92	49.78	46.22	3.56	
UCD-21	01/22/91	48.73	48.16	0.57	
	02/01/91	48.73	47.79	0.94	
	02/08/91	48.73	47.56	1.17	
	02/14/91	48.73	47.12	1.61	
	02/22/91	48.73	48.13	0.60	
	03/07/91	48.73	47.79	0.94	
	03/12/91	48.73	47.10	1.63	
	03/22/91	48.73	43.46	5.27	
	03/29/91	48.73	43.33	5.40	
	04/03/91	48.73	42.93	5.80	
	04/10/91	48.73	42.36	6.37	
	04/17/91	48.73	42.52	6.21	
	04/24/91	48.73	44.77	3.96	
	05/03/91	48.73	47.44	1.29	
	05/13/91	48.73	49.25	-0.52	
	05/20/91	48.73	53.30	-4.57	
	05/29/91	48.73	54.44	-5.71	
	06/06/91	48.73	57.97	-9.24	
	06/10/91	48.73	58.55	-9.82	
	06/21/91	48.73	60.00	-11.27	
	06/27/91	48.73	61.56	-12.83	
	07/05/91	48.73	61.67	-12.94	
	07/12/91	48.73	64.71	-15.98	
	07/19/91	48.73	66.21	-17.48	
	07/26/91	48.73	66.59	-17.86	
	08/05/91	48.73	66.00	-17.27	
	08/14/91	48.73	67.43	-18.70	
	08/21/91	48.73	65.92	-17.19	
	08/29/91	48.73	64.10	-15.37	
	09/04/91	48.73	62.23	-13.50	
	09/13/91	48.73	62.35	-13.62	
	10/03/91	48.73	58.13	-9.40	
	10/10/91	48.73	58.99	-10.26	
	10/25/91	48.73	54.51	-5.78	
	11/01/91	48.73	52.71	-3.98	
	11/08/91	48.73	51.63	-2.90	
	11/14/91	48.73	51.23	-2.50	
	12/05/91	48.73	50.12	-1.39	

(cont.)

D.O.E. PHASE II LEHR
GROUNDWATER MONITORING SUMMARY
NOVEMBER 1990 - FEBRUARY 1992
WATER TABLE ELEVATIONS (MSL)

WELL	DATE	REFERENCE POINT ELEVATION (feet)	DEPTH TO WATER (feet)	GROUNDWATER ELEVATION (feet)	COMMENTS
UCD-21	12/11/91	48.73	50.34	-1.61	
	01/17/92	48.73	47.25	1.48	
	01/24/92	48.73	46.62	2.11	
	01/29/92	48.73	45.85	2.88	
	02/05/92	48.73	45.20	3.53	
UCD-22	01/22/91	48.99	48.04	0.95	
	02/01/91	48.99	47.85	1.14	
	02/08/91	48.99	47.64	1.35	
	02/14/91	48.99	47.21	1.78	
	02/22/91	48.99	48.36	0.63	
	03/07/91	48.99	47.59	1.40	
	03/12/91	48.99	46.96	2.03	
	03/22/91	48.99	43.44	5.55	
	03/29/91	48.99	43.54	5.45	
	04/03/91	48.99	43.14	5.85	
	04/10/91	48.99	42.63	6.36	
	04/17/91	48.99	42.85	6.14	
	04/24/91	48.99	45.28	3.71	
	05/03/91	48.99	47.61	1.38	
	05/13/91	48.99	49.73	-0.74	
	05/20/91	48.99	53.47	-4.48	
	05/29/91	48.99	54.52	-5.53	
	06/06/91	48.99	59.88	-10.89	
	06/10/91	48.99	58.53	-9.54	
	06/21/91	48.99	60.88	-11.89	
	06/27/91	48.99	61.85	-12.86	
	07/05/91	48.99	62.36	-13.37	
	08/05/91	48.99	66.99	-18.00	
	08/14/91	48.99	67.73	-18.74	
	08/21/91	48.99	65.73	-16.74	
	08/29/91	48.99	63.79	-14.80	
	09/04/91	48.99	62.13	-13.14	
	09/13/91	48.99	62.59	-13.60	
	10/03/91	48.99	58.11	-9.12	
	10/10/91	48.99	58.17	-9.18	
	10/25/91	48.99	56.83	-7.84	
	11/01/91	48.99	53.00	-4.01	
	11/08/91	48.99	54.86	-5.87	
	11/14/91	48.99	55.83	-6.84	
	12/05/91	48.99	54.70	-5.71	
	12/11/91	48.99	55.67	-6.68	

(cont.)

D.O.E. PHASE II LEHR
GROUNDWATER MONITORING SUMMARY
NOVEMBER 1990 - FEBRUARY 1992
WATER TABLE ELEVATIONS (MSL)

WELL	DATE	REFERENCE POINT ELEVATION (feet)	DEPTH TO WATER (feet)	GROUNDWATER ELEVATION (feet)	COMMENTS
UCD-23	01/22/91	49.29	49.19	0.10	
	02/01/91	49.29	48.59	0.70	
	02/08/91	49.29	48.38	0.91	
	02/14/91	49.29	47.94	1.35	
	02/22/91	49.29	48.24	1.05	
	03/07/91	49.29	48.08	1.21	
	03/12/91	49.29	47.56	1.73	
	03/29/91	49.29	44.31	4.98	
	04/03/91	49.29	42.39	6.90	
	04/10/91	49.29	41.74	7.55	
	04/17/91	49.29	41.98	7.31	
	04/24/91	49.29	43.76	5.53	
	05/03/91	49.29	46.10	3.19	
	05/13/91	49.29	47.64	1.65	
	05/29/91	49.29	50.96	-1.67	
	06/06/91	49.29	53.31	-4.02	
	06/10/91	49.29	54.71	-5.42	
	06/21/91	49.29	60.10	-10.81	
	06/27/91	49.29	61.66	-12.37	
	07/05/91	49.29	62.00	-12.71	
	07/12/91	49.29	65.10	-15.81	
	07/19/91	49.29	66.48	-17.19	
	07/26/91	49.29	67.00	-17.71	
	08/05/91	49.29	67.04	-17.75	
	08/14/91	49.29	67.96	-18.67	
	08/21/91	49.29	67.64	-18.35	
	08/29/91	49.29	64.10	-14.81	
	09/04/91	49.29	62.33	-13.04	
	09/13/91	49.29	62.71	-13.42	
	10/03/91	49.29	58.38	-9.09	
	10/10/91	49.29	57.46	-8.17	
	10/25/91	49.29	57.19	-7.90	
	11/01/91	49.29	53.77	-4.48	
	11/08/91	49.29	52.88	-3.59	
	11/14/91	49.29	52.63	-3.34	
	12/11/91	49.29	51.23	-1.94	
	01/17/92	49.29	48.30	0.99	
	01/24/92	49.29	47.71	1.58	
	01/29/92	49.29	47.10	2.19	
	02/05/92	49.29	46.30	2.99	
	12/05/95	49.29	51.00	-1.71	
UCD-24	01/22/91	48.84	47.78	1.06	

(cont.)

D.O.E. PHASE II LEHR
GROUNDWATER MONITORING SUMMARY
NOVEMBER 1990 - FEBRUARY 1992
WATER TABLE ELEVATIONS (MSL)

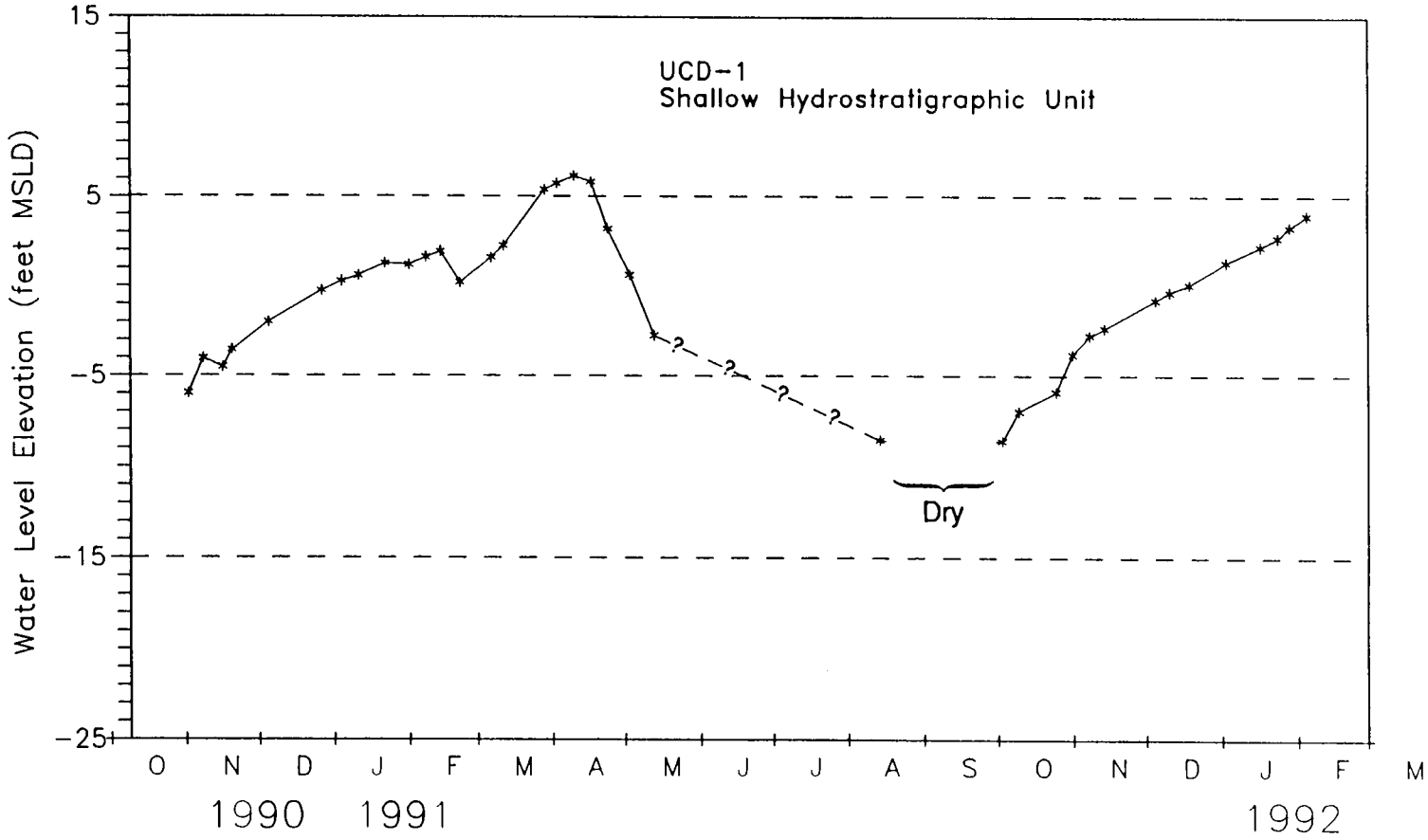
WELL	DATE	REFERENCE POINT ELEVATION (feet)	DEPTH TO WATER (feet)	GROUNDWATER ELEVATION (feet)	COMMENTS
UCD-24	02/01/91	48.84	47.13	1.71	
	02/08/91	48.84	47.69	1.15	
	02/14/91	48.84	47.39	1.45	
	02/22/91	48.84	48.96	-0.12	
	03/07/91	48.84	47.79	1.05	
	03/12/91	48.84	46.96	1.88	
	04/03/91	48.84	42.88	5.96	
	04/10/91	48.84	42.34	6.50	
	04/17/91	48.84	42.79	6.05	
	04/24/91	48.84	45.44	3.40	
	05/03/91	48.84	47.64	1.20	
	05/13/91	48.84	51.27	-2.43	
	05/20/91	48.84	54.53	-5.69	
	05/29/91	48.84	55.38	-6.54	
	06/06/91	48.84	58.76	-9.92	
	06/10/91	48.84	59.21	-10.37	
	06/21/91	48.84	61.10	-12.26	
	06/27/91	48.84	62.01	-13.17	
	07/05/91	48.84	62.78	-13.94	
	07/12/91	48.84	65.10	-16.26	
	07/19/91	48.84	67.56	-18.72	
	07/26/91	48.84	67.35	-18.51	
	08/05/91	48.84	67.60	-18.76	
	08/14/91	48.84	68.46	-19.62	
	08/21/91	48.84	66.21	-17.37	
	08/29/91	48.84	65.88	-17.04	
	09/04/91	48.84	62.38	-13.54	
	09/13/91	48.84	63.00	-14.16	
	10/03/91	48.84	58.11	-9.27	
	10/10/91	48.84	56.92	-8.08	
	10/25/91	48.84	55.84	-7.00	
	11/01/91	48.84	52.88	-4.04	
	11/08/91	48.84	51.81	-2.97	
	11/14/91	48.84	51.42	-2.58	
	12/05/91	48.84	49.95	-1.11	
	12/11/91	48.84	50.19	-1.35	
	01/17/92	48.84	47.04	1.80	
	01/24/92	48.84	46.47	2.37	
	01/29/92	48.84	45.86	2.98	
	02/05/92	48.84	45.17	3.67	

APPENDIX D
SECTION 2

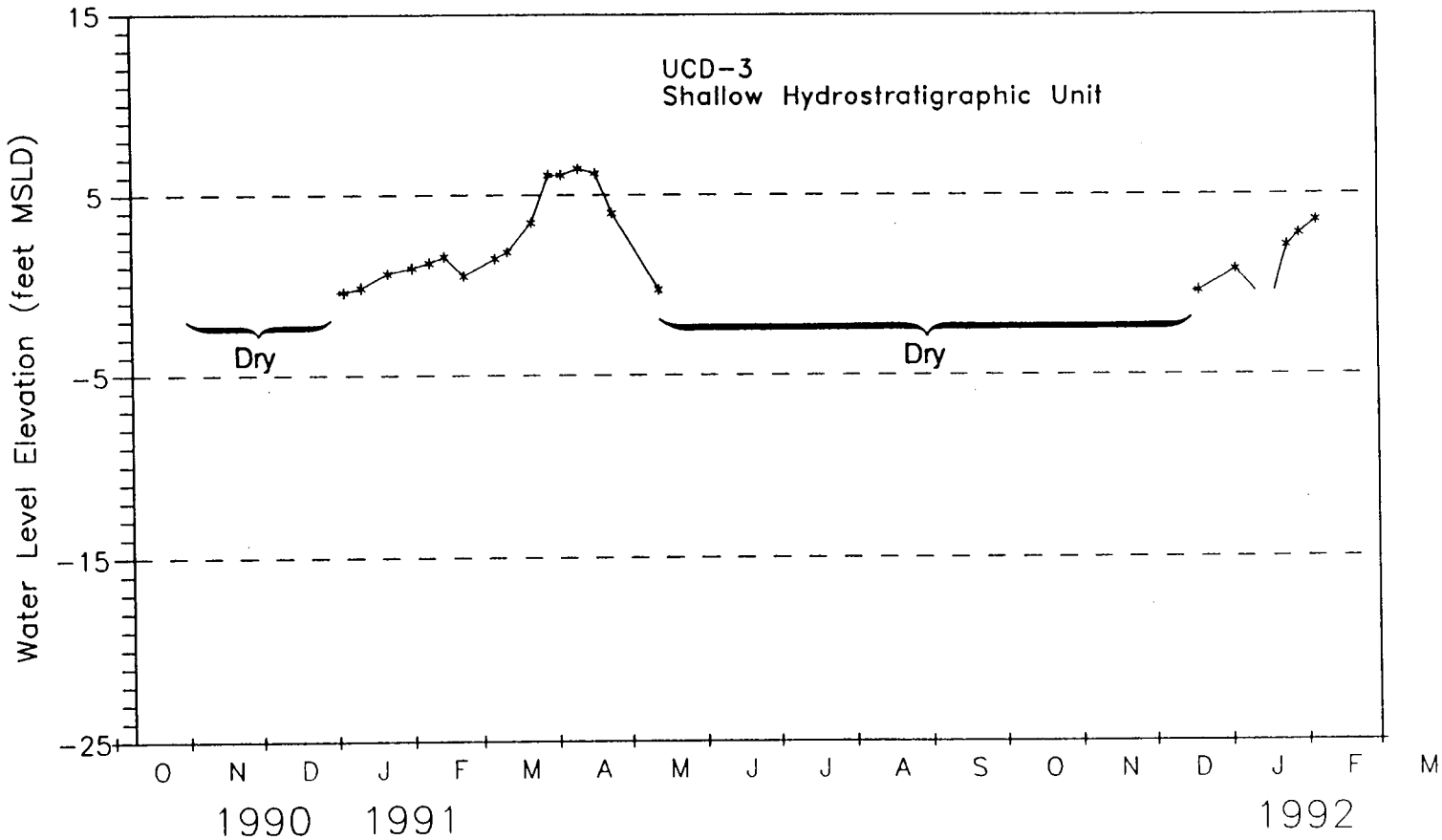
HYDROGRAPHS FOR LEHR MONITORING WELLS

PHASE II SITE CHARACTERIZATION
LEHR ENVIRONMENTAL RESTORATION

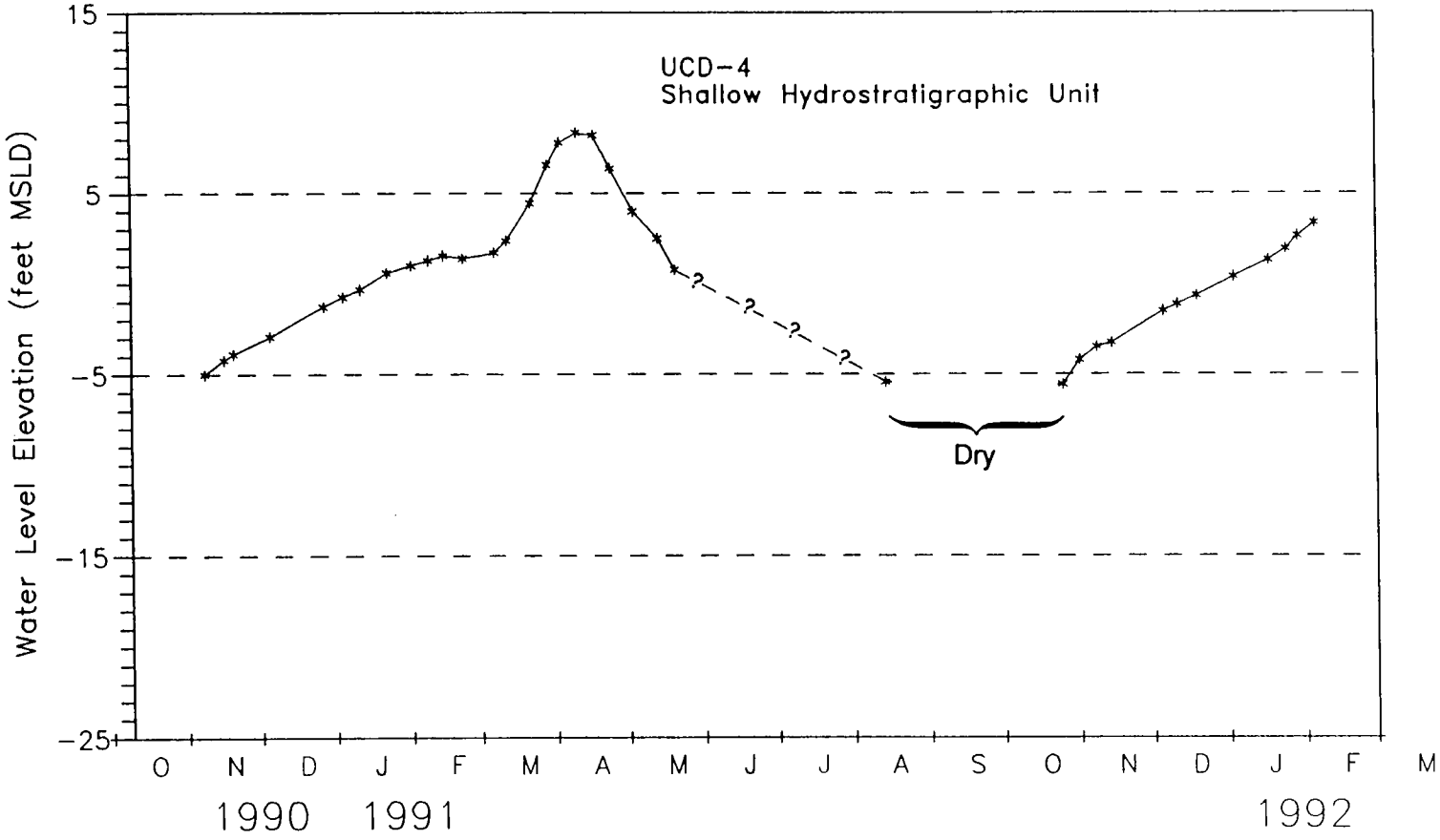
HYDROGRAPH
Groundwater Monitoring Well
DOE Phase II LEHR Site Characterization Report
Davis, California



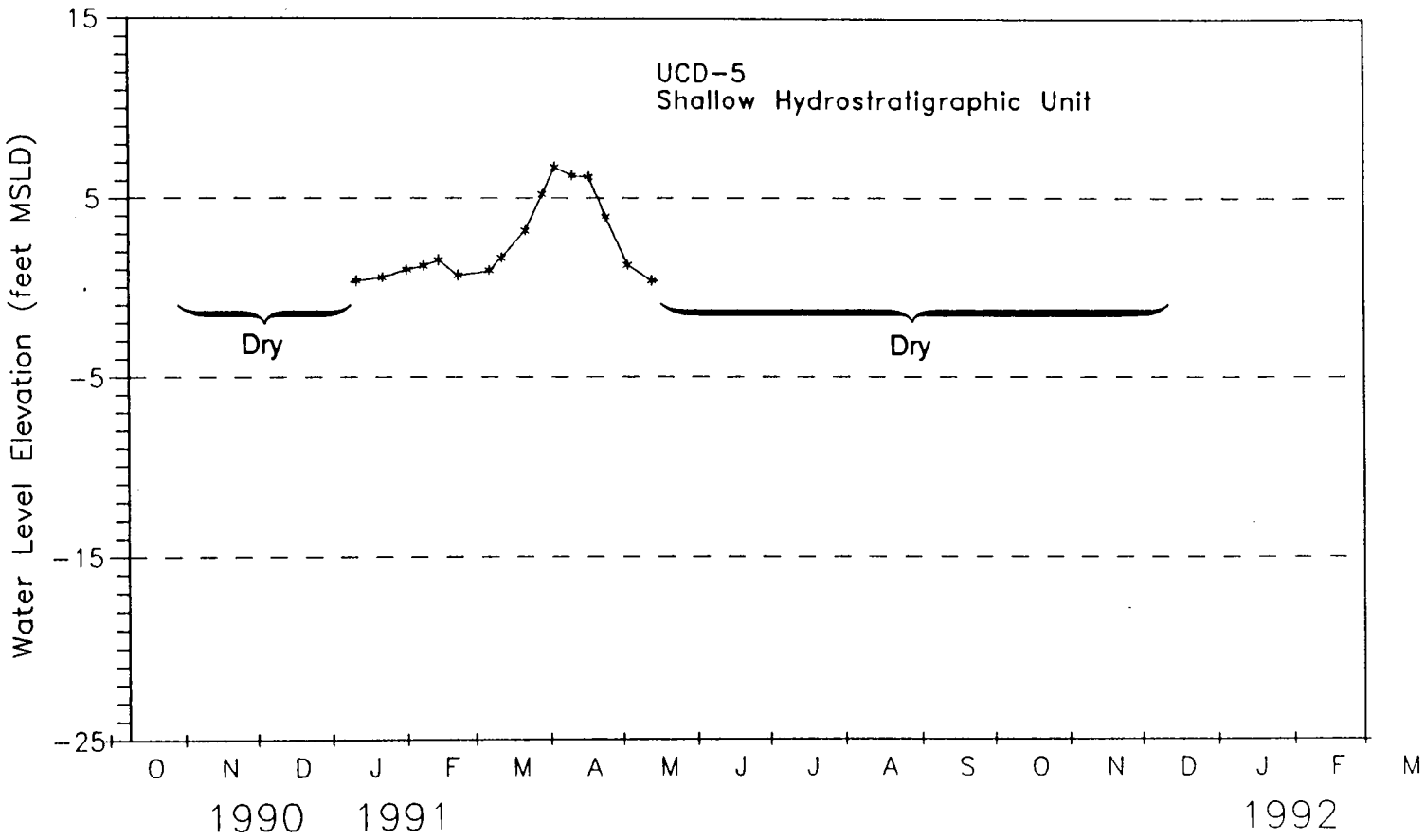
HYDROGRAPH
Groundwater Monitoring Well
DOE Phase II LEHR Site Characterization Report
Davis, California



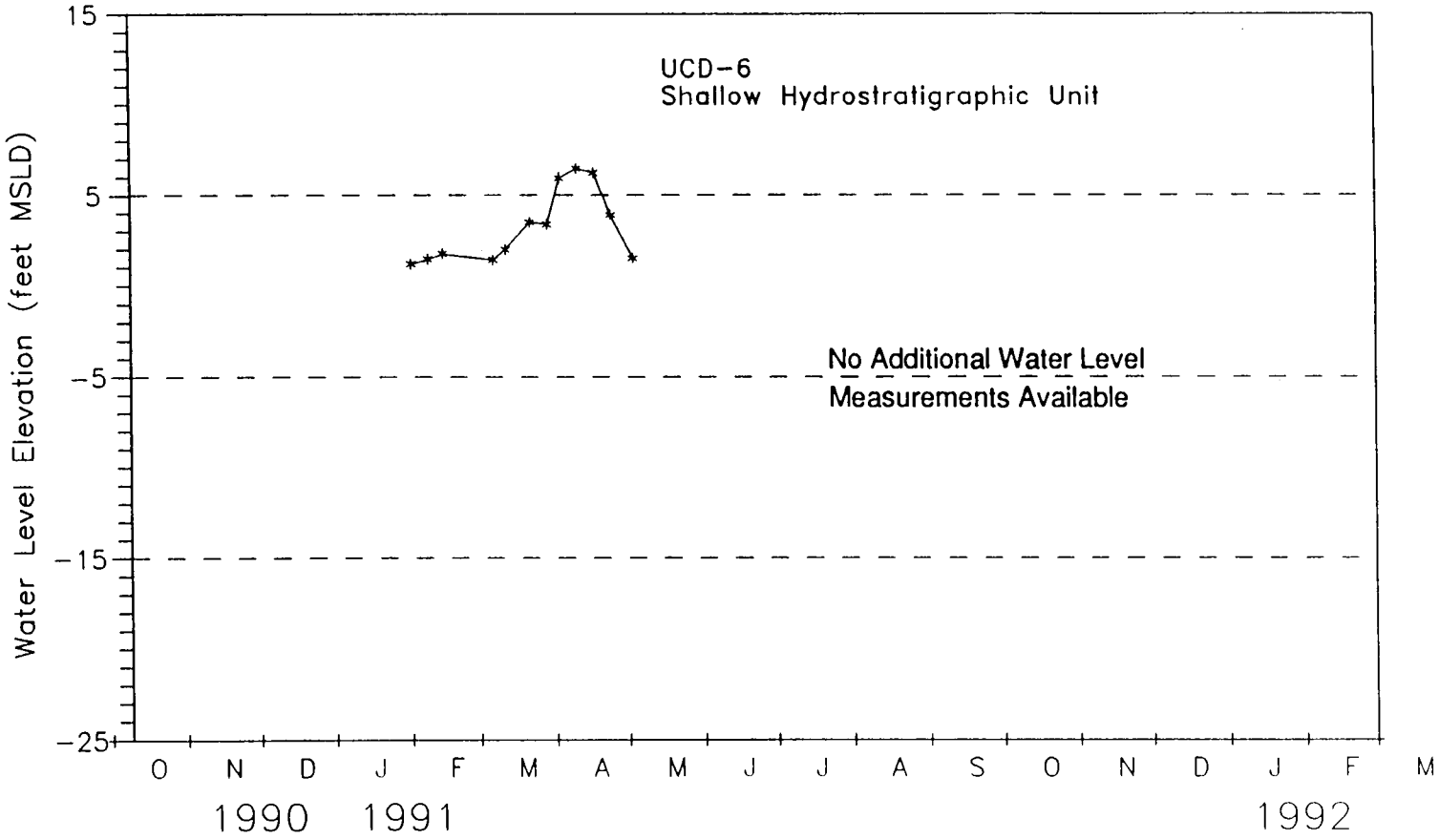
HYDROGRAPH
Groundwater Monitoring Well
DOE Phase II LEHR Site Characterization Report
Davis, California



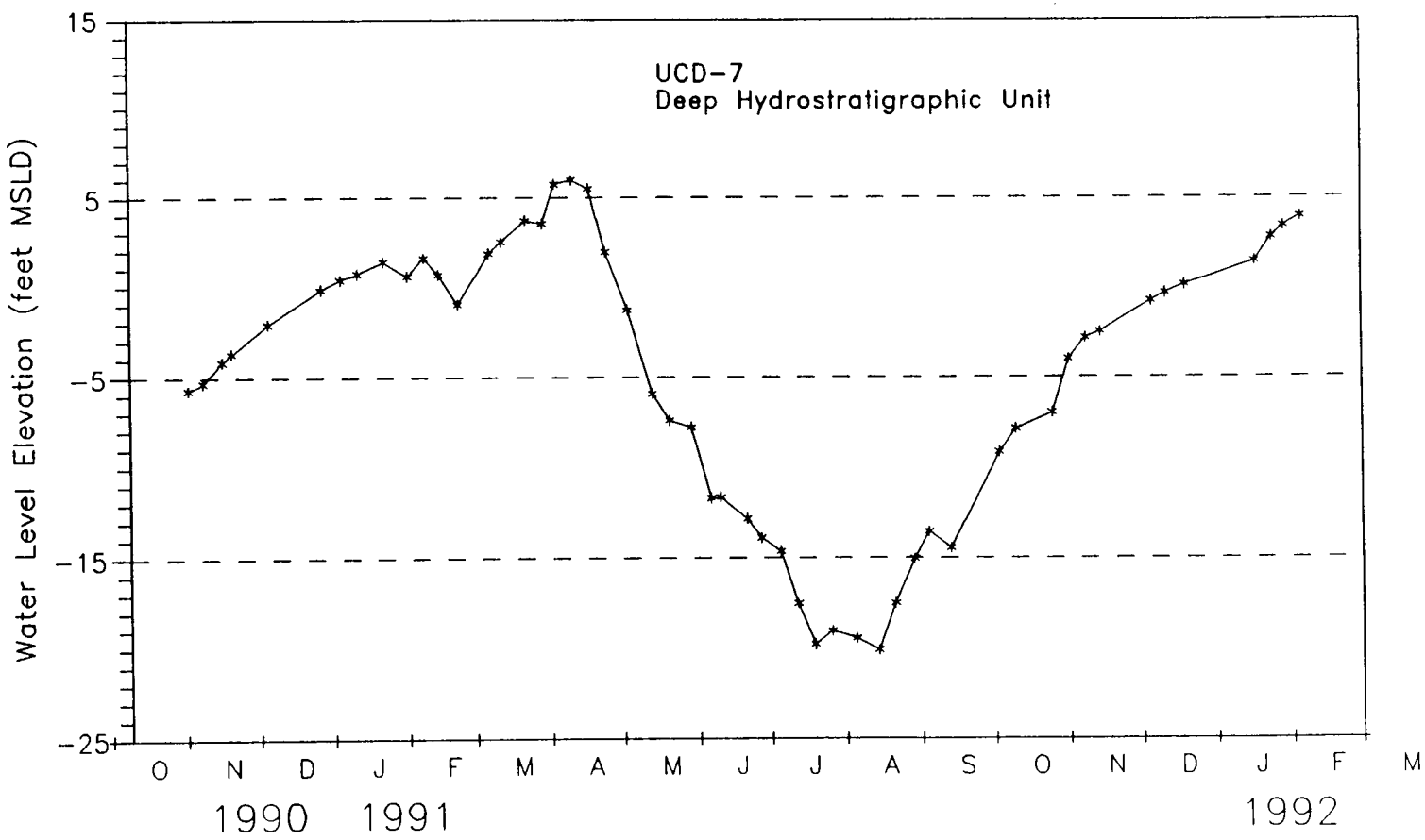
HYDROGRAPH
Groundwater Monitoring Well
DOE Phase II LEHR Site Characterization Report
Davis, California



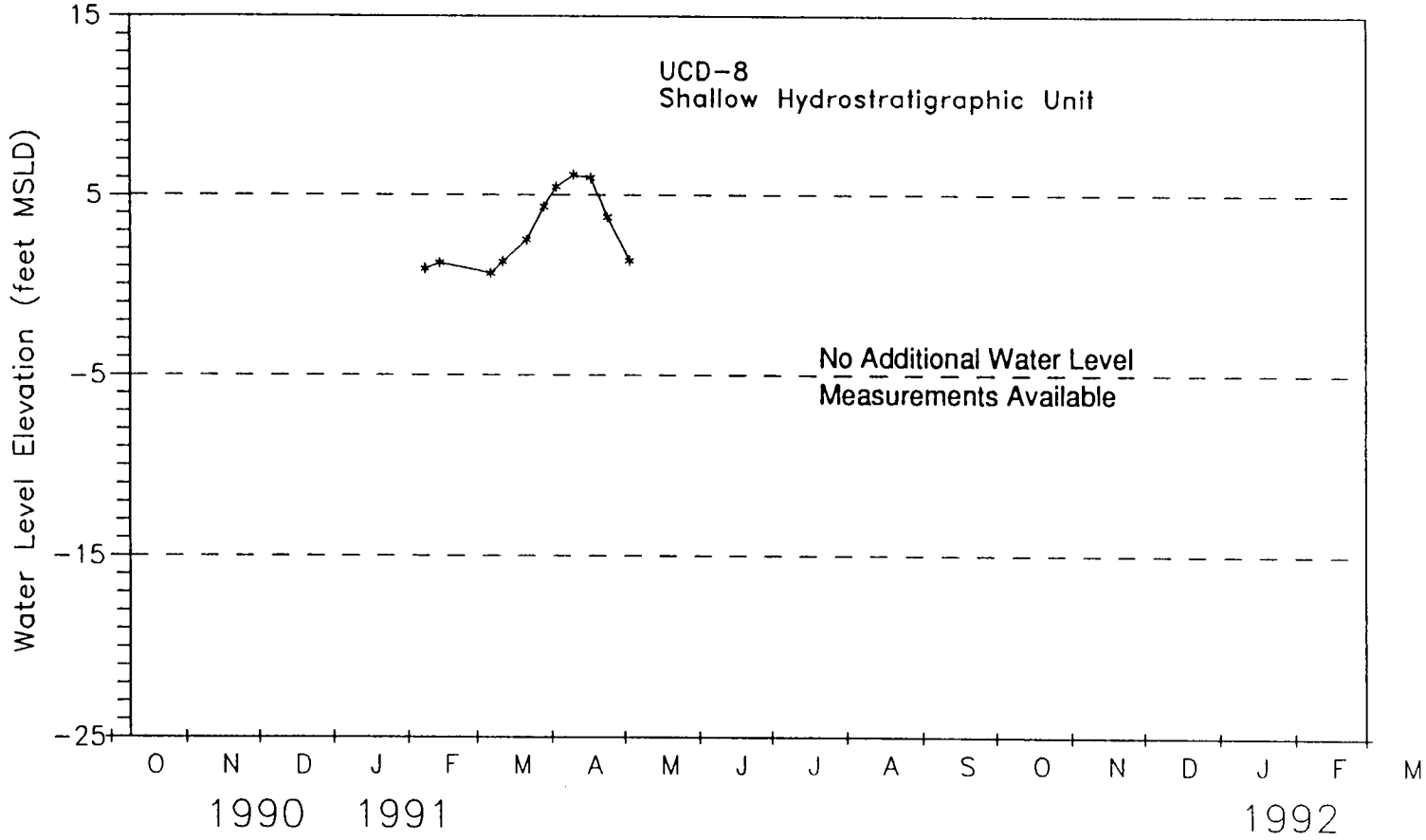
HYDROGRAPH
Groundwater Monitoring Well
DOE Phase II LEHR Site Characterization Report
Davis, California



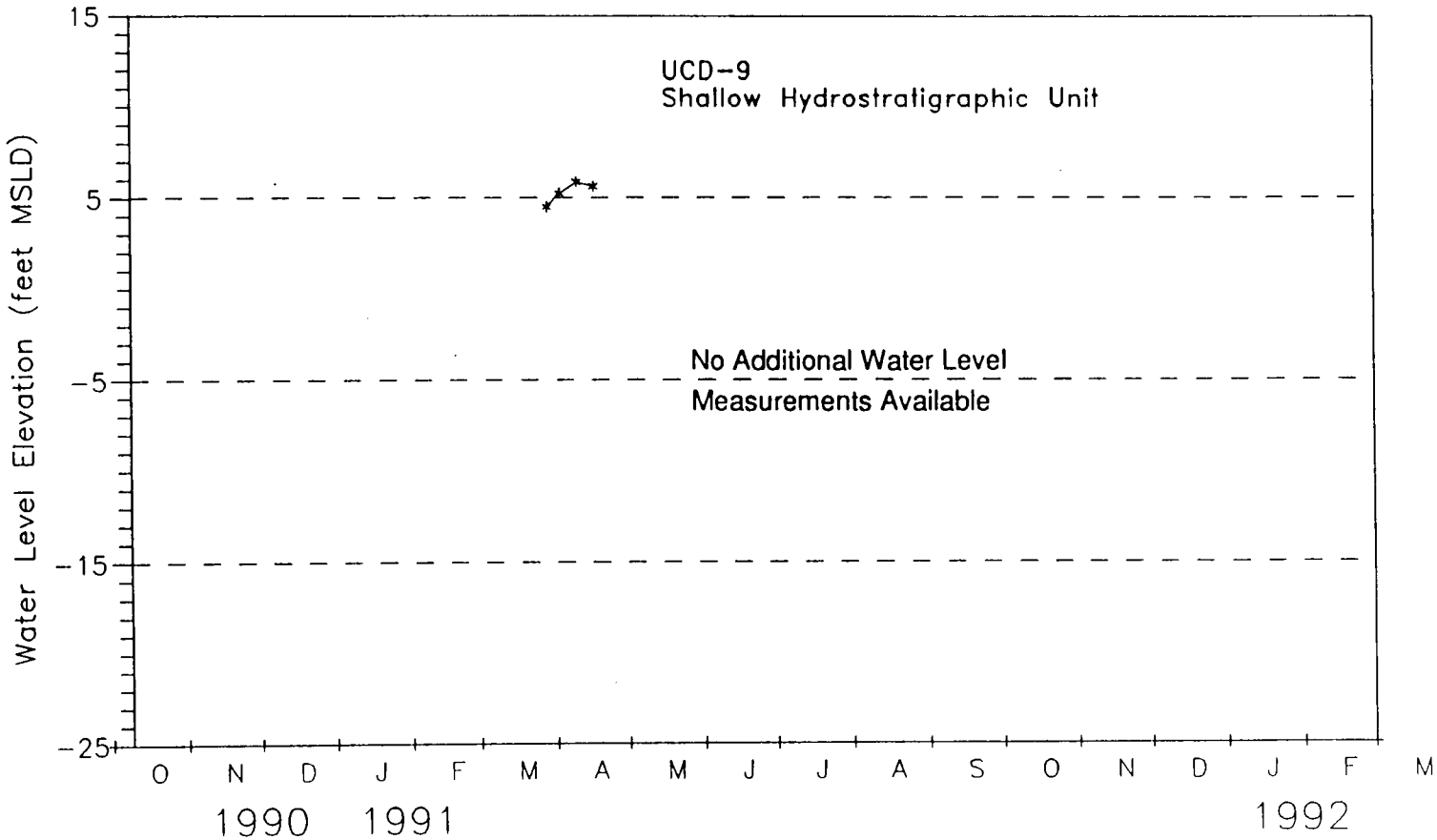
HYDROGRAPH
Groundwater Monitoring Well
DOE Phase II LEHR Site Characterization Report
Davis, California



HYDROGRAPH
Groundwater Monitoring Well
DOE Phase II LEHR Site Characterization Report
Davis, California



HYDROGRAPH
Groundwater Monitoring Well
DOE Phase II LEHR Site Characterization Report
Davis, California



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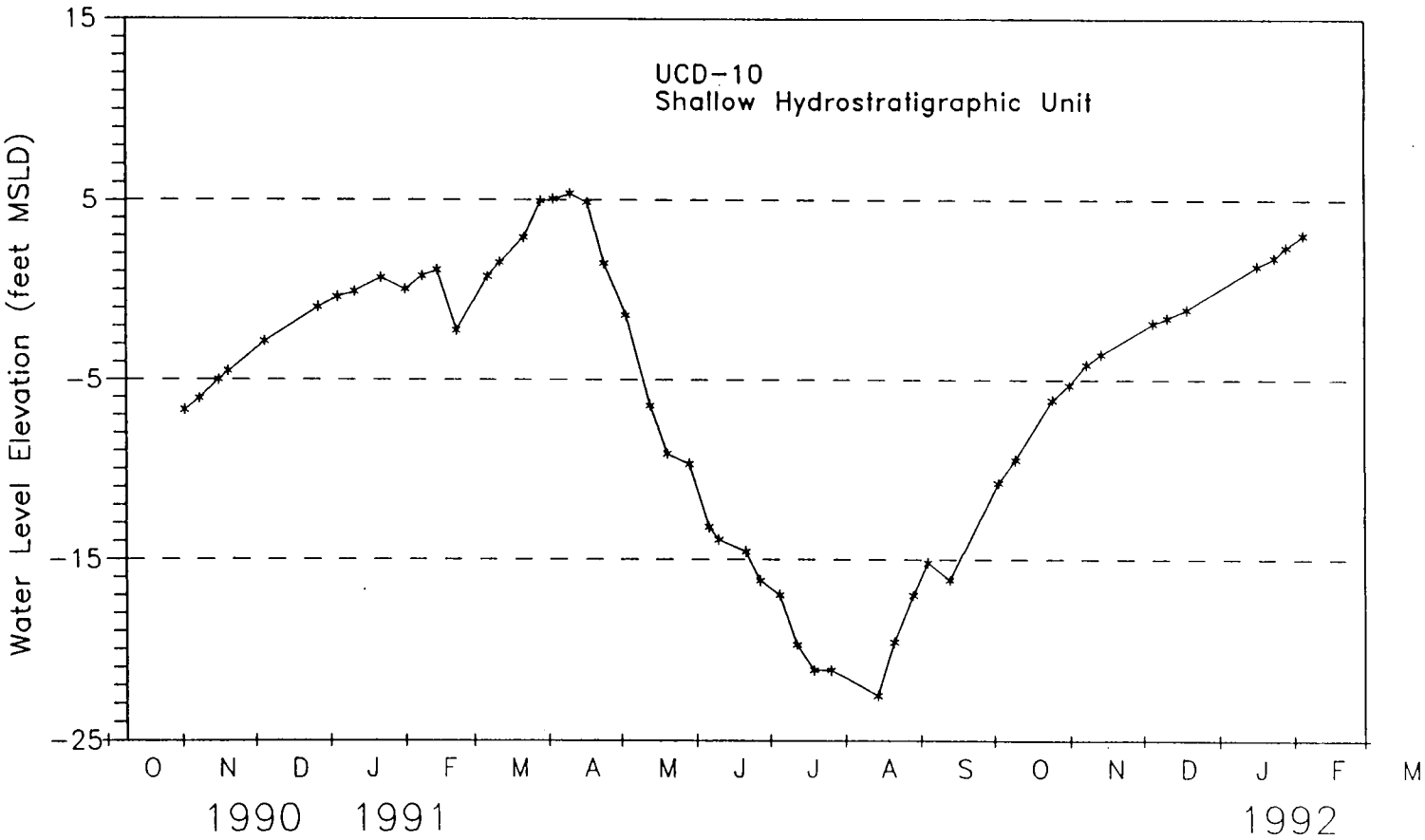
Groundwater Monitoring Well
DOE Phase II LEHR Site Characterization Report
Davis, California



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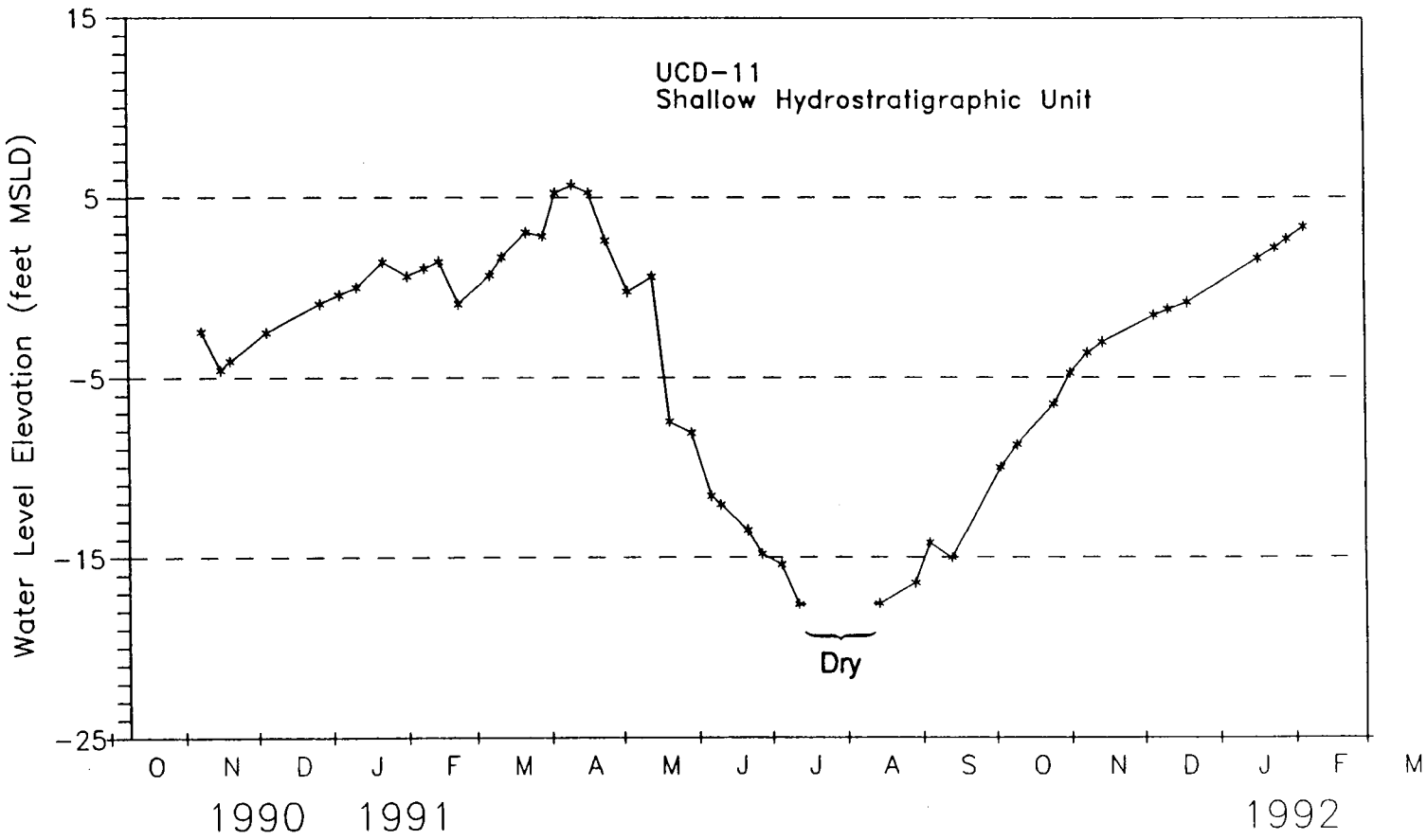
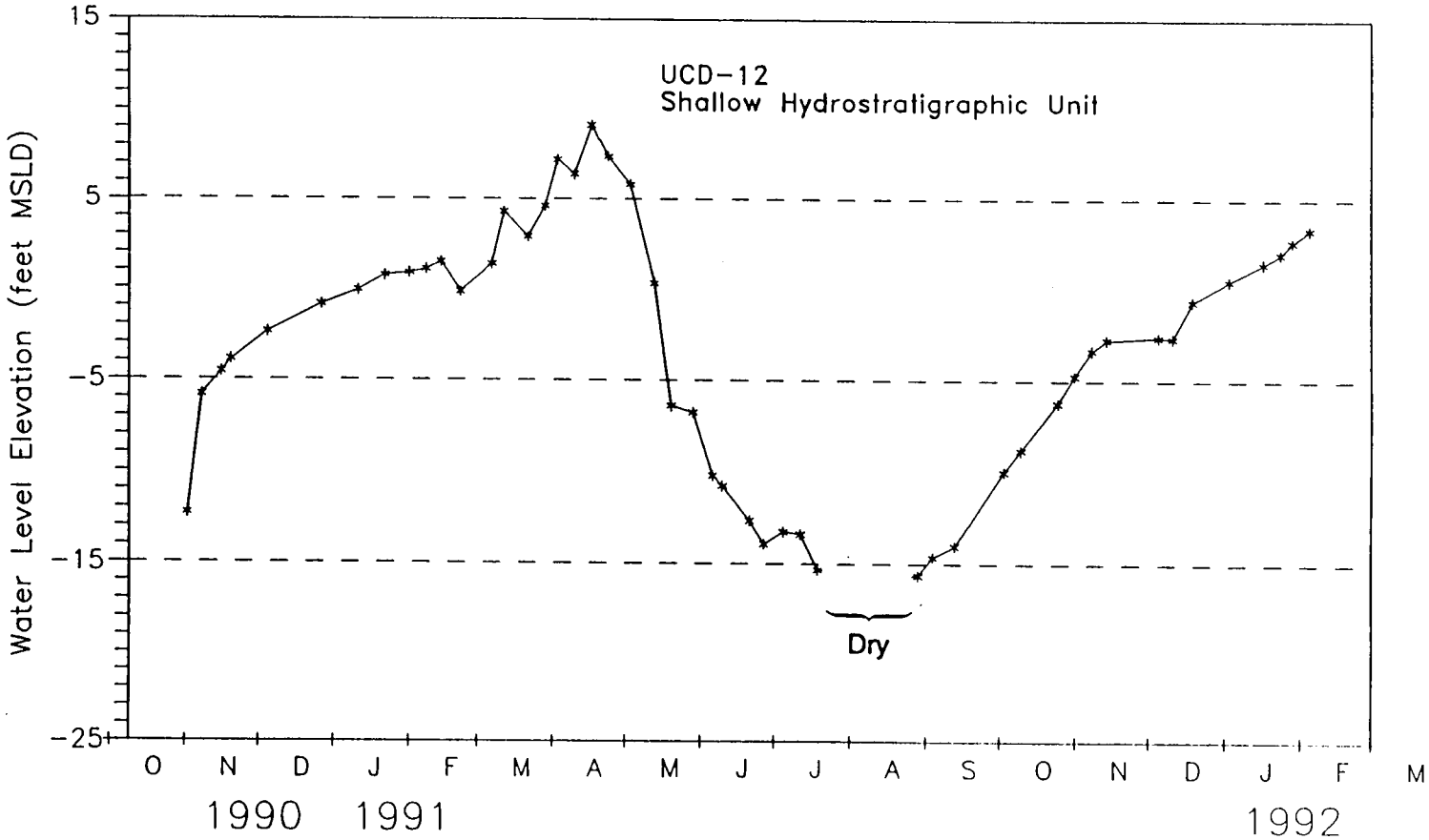
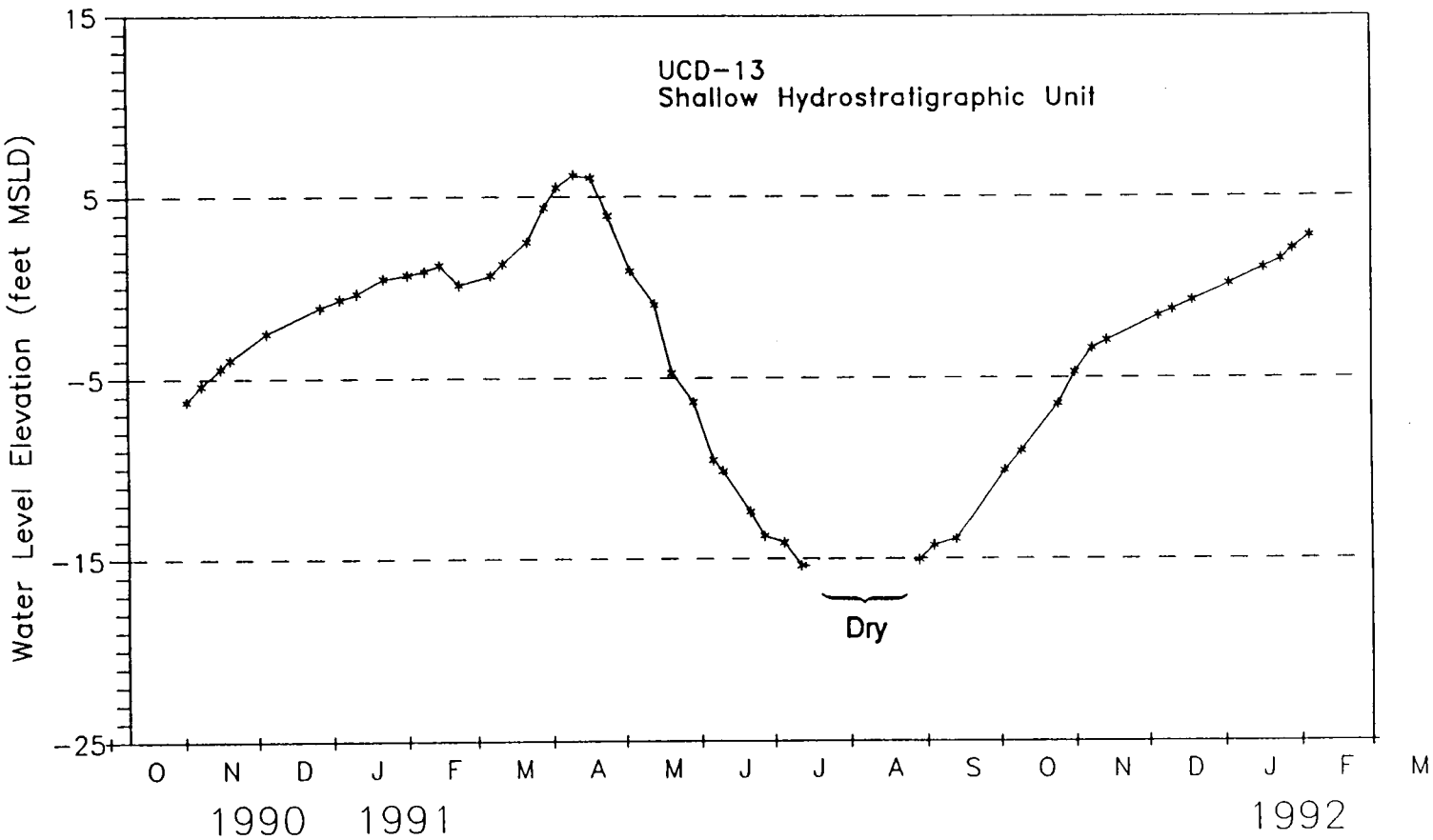
Groundwater Monitoring Well
DOE Phase II LEHR Site Characterization Report
Davis, California



HYDROGRAPH
Groundwater Monitoring Well
DOE Phase II LEHR Site Characterization Report
Davis, California



HYDROGRAPH
Groundwater Monitoring Well
DOE Phase II LEHR Site Characterization Report
Davis, California



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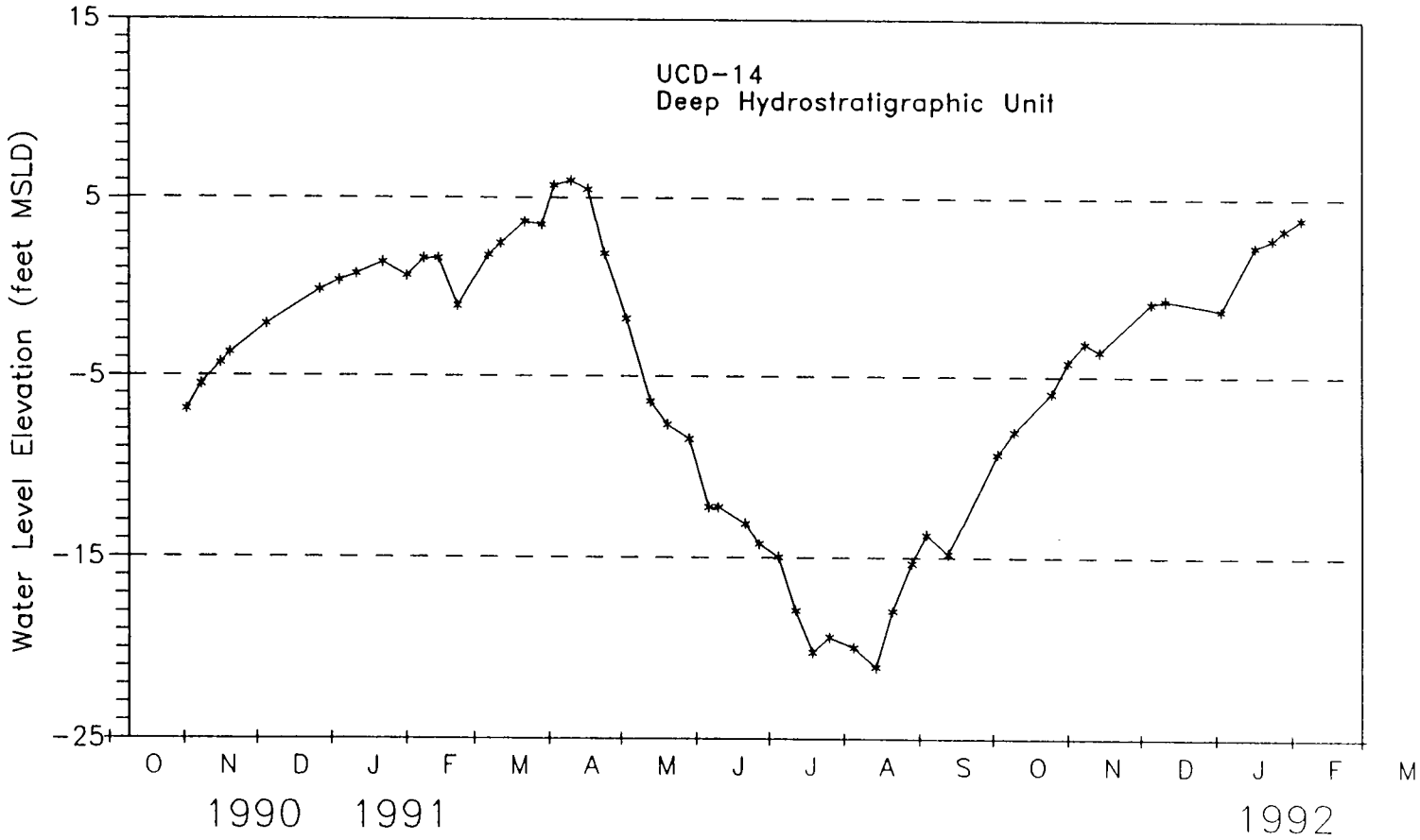
Groundwater Monitoring Well
DOE Phase II LEHR Site Characterization Report
Davis, California



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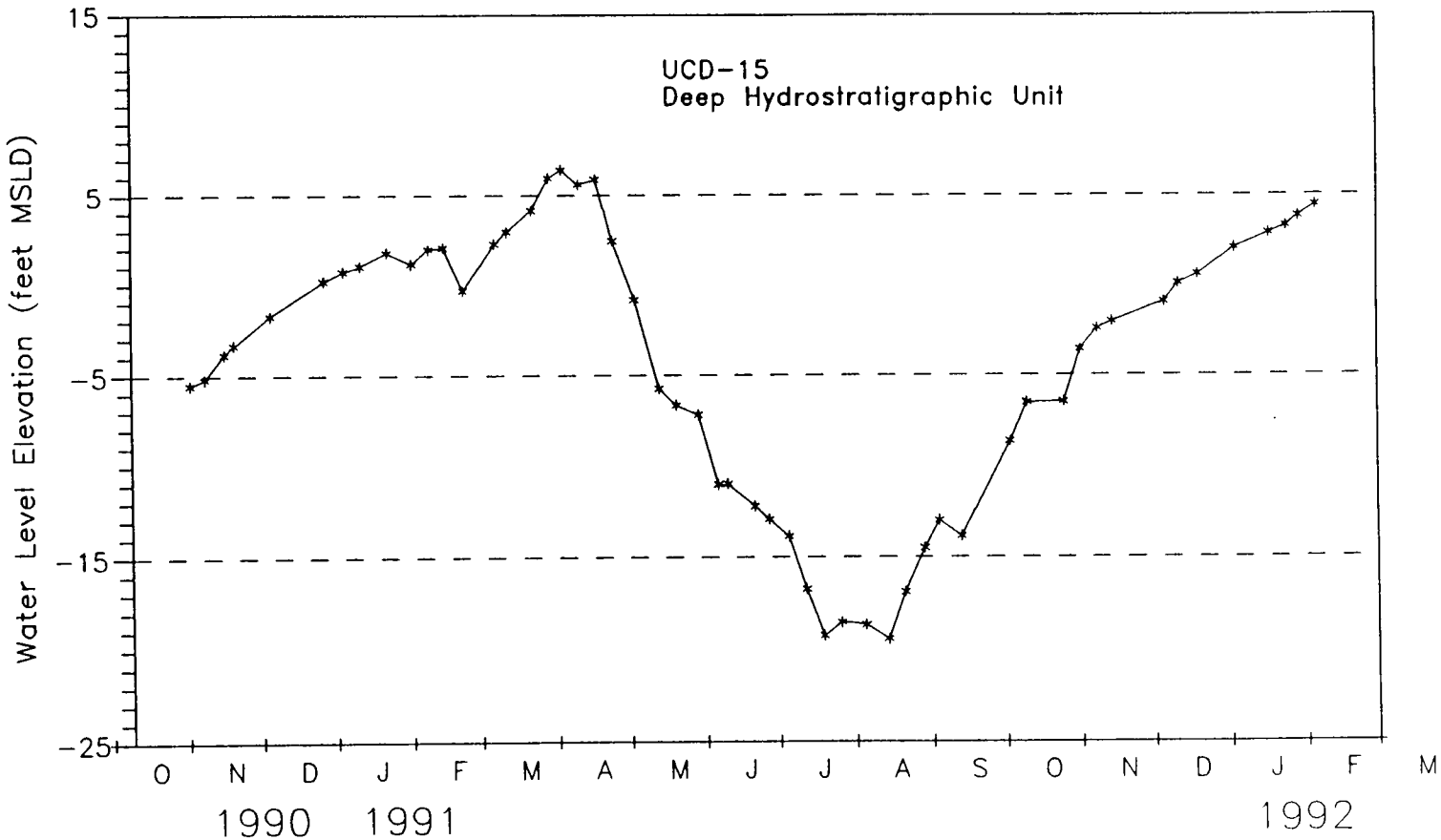
Groundwater Monitoring Well
DOE Phase II LEHR Site Characterization Report
Davis, California



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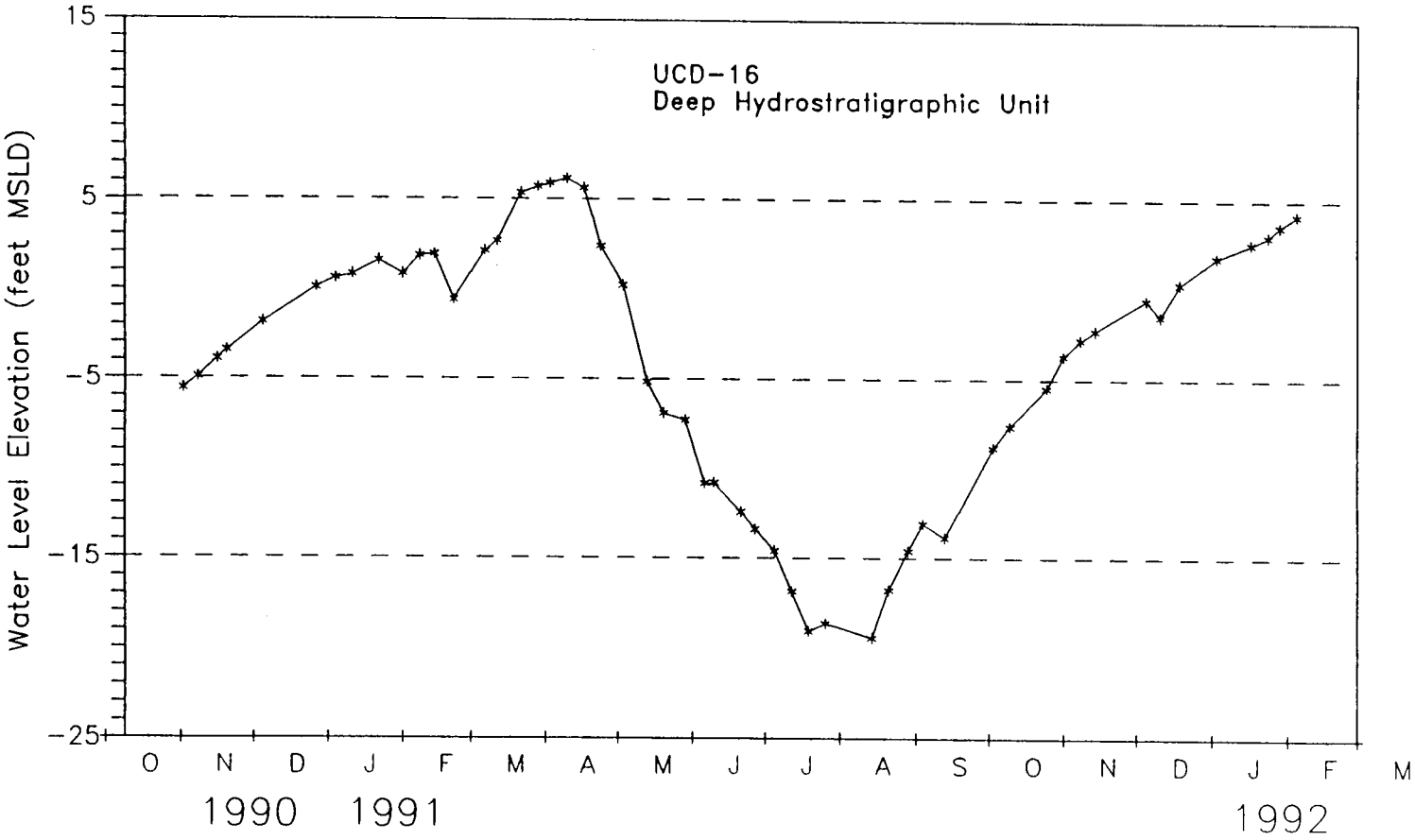
Groundwater Monitoring Well
DOE Phase II LEHR Site Characterization Report
Davis, California



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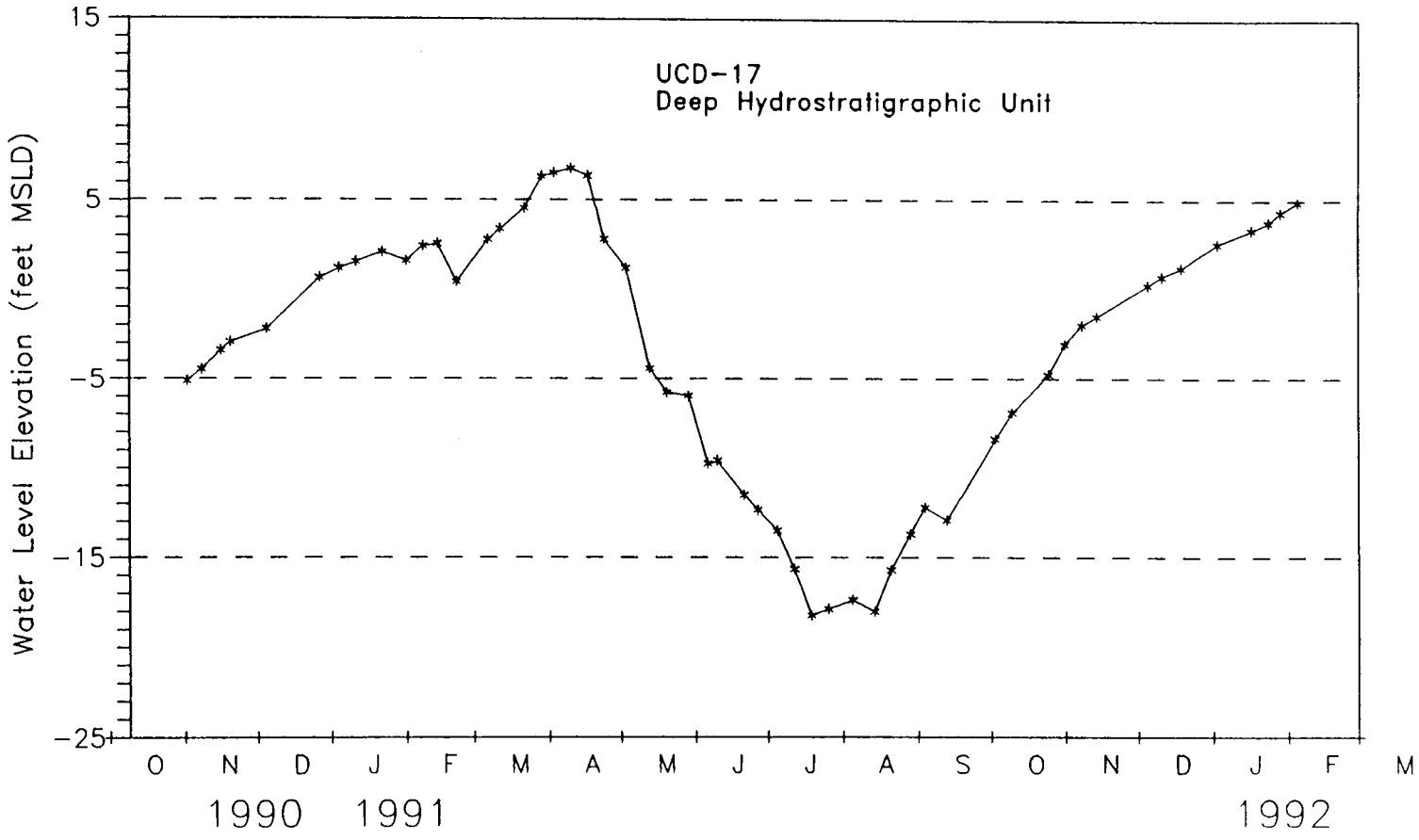
Groundwater Monitoring Well
DOE Phase II LEHR Site Characterization Report
Davis, California



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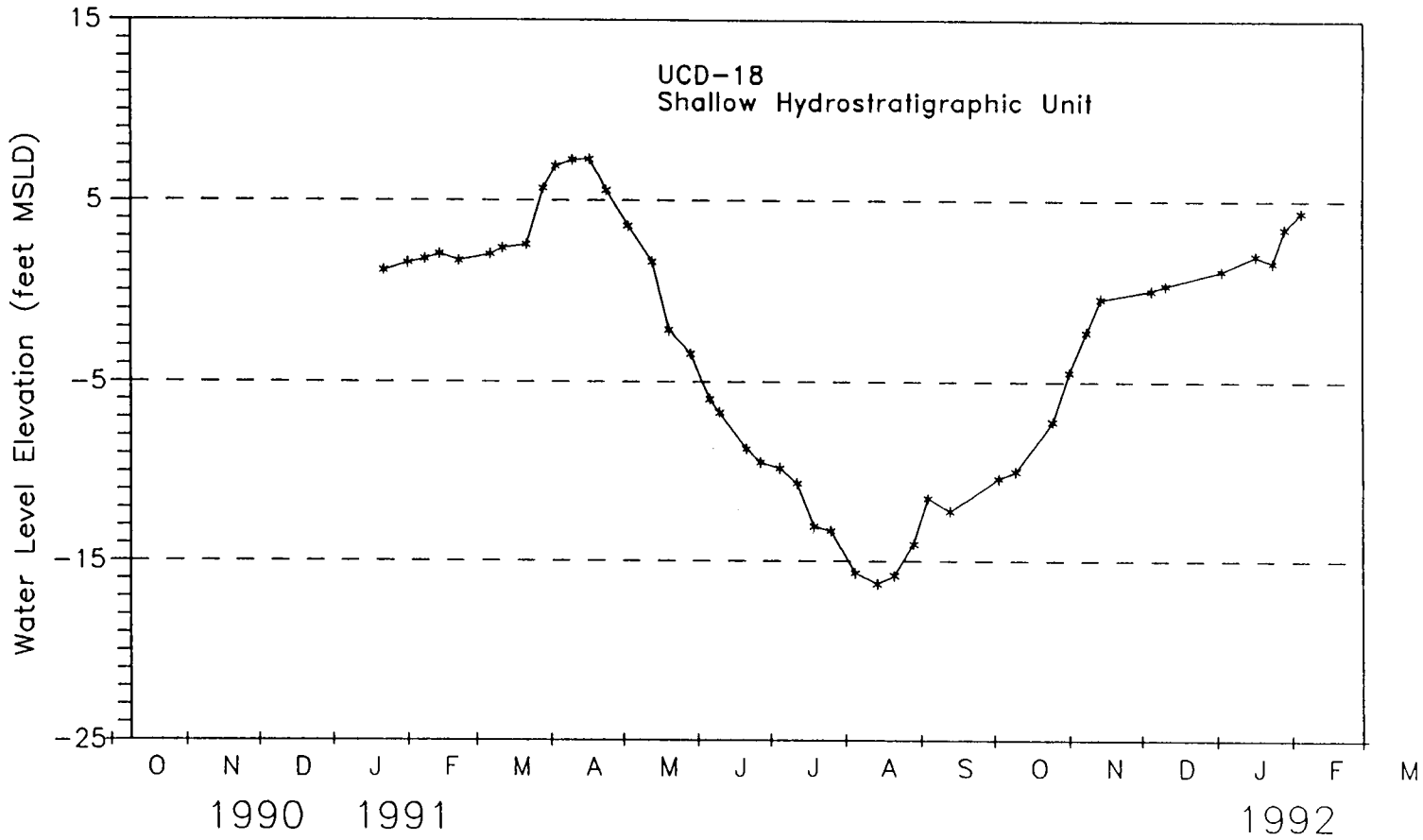
Groundwater Monitoring Well
DOE Phase II LEHR Site Characterization Report
Davis, California



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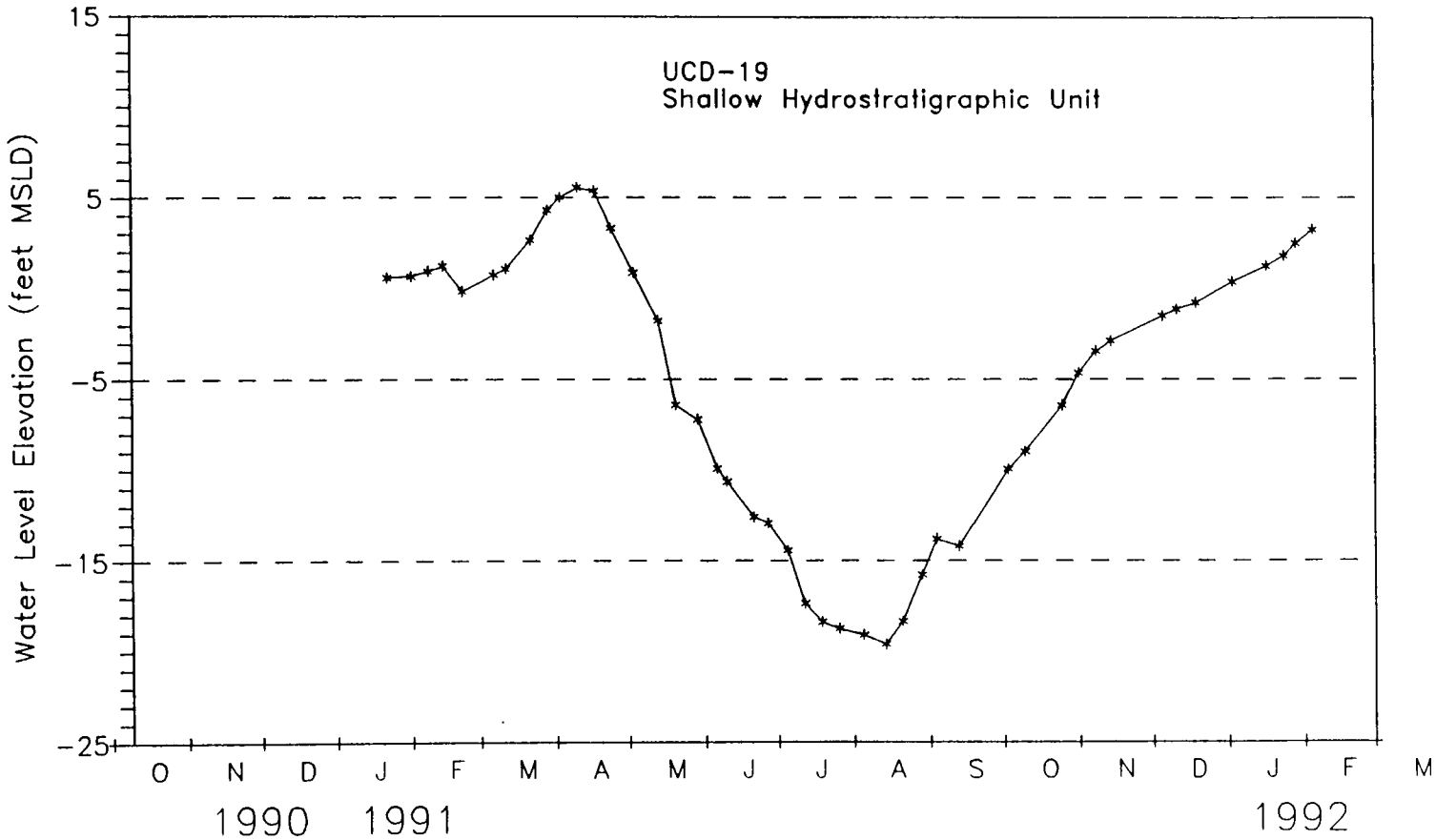
Groundwater Monitoring Well
DOE Phase II LEHR Site Characterization Report
Davis, California



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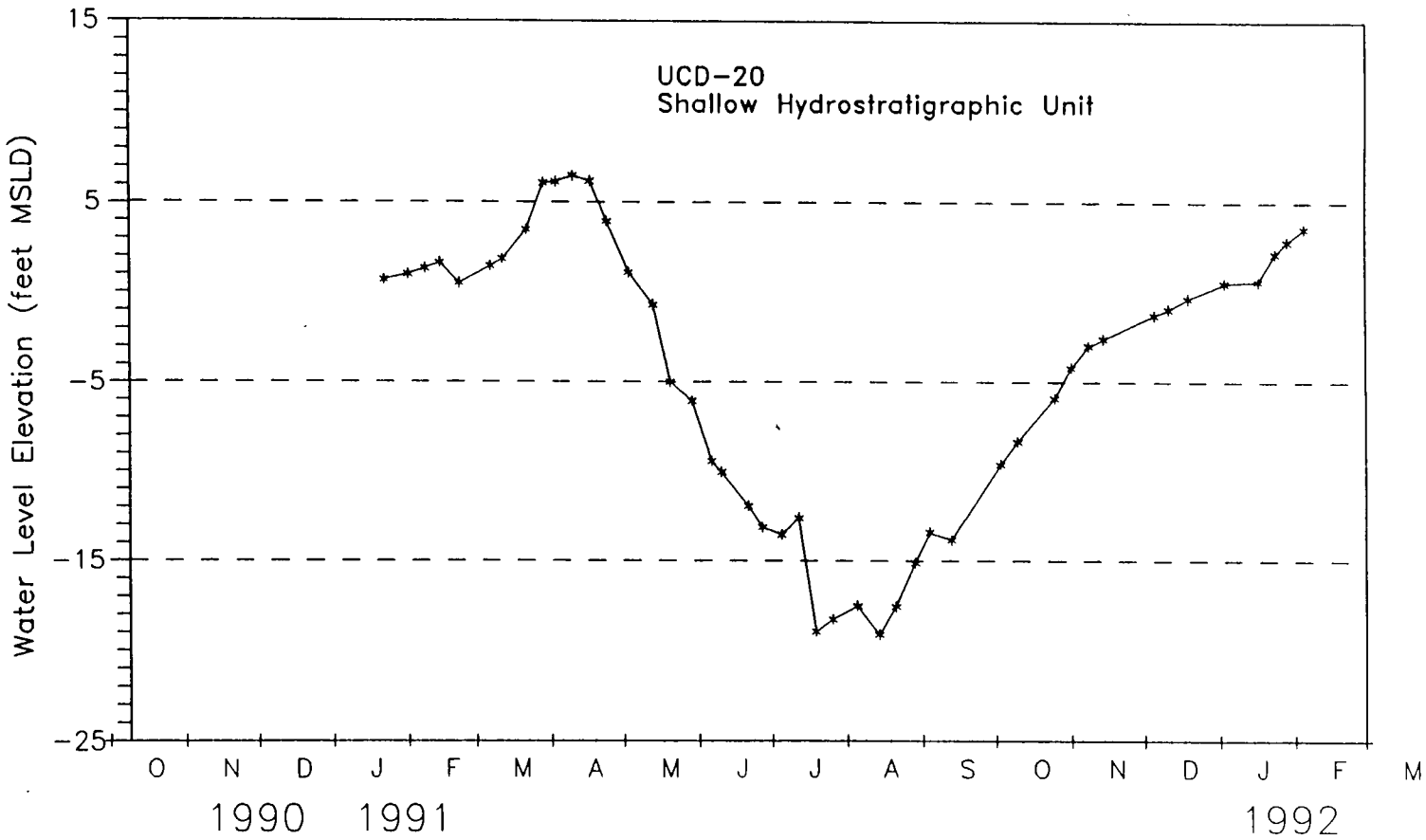
Groundwater Monitoring Well
DOE Phase II LEHR Site Characterization Report
Davis, California



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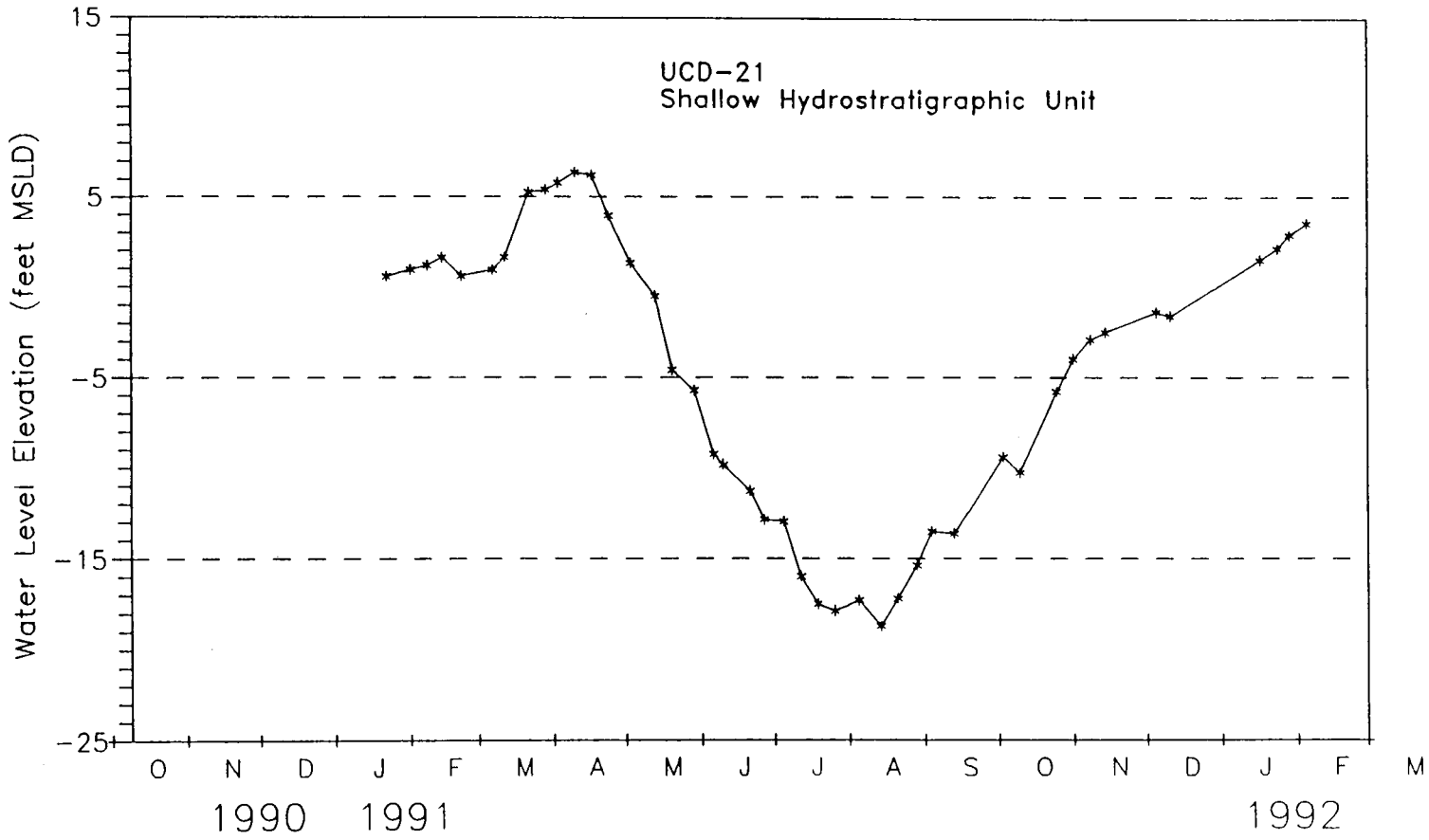
Groundwater Monitoring Well
DOE Phase II LEHR Site Characterization Report
Davis, California



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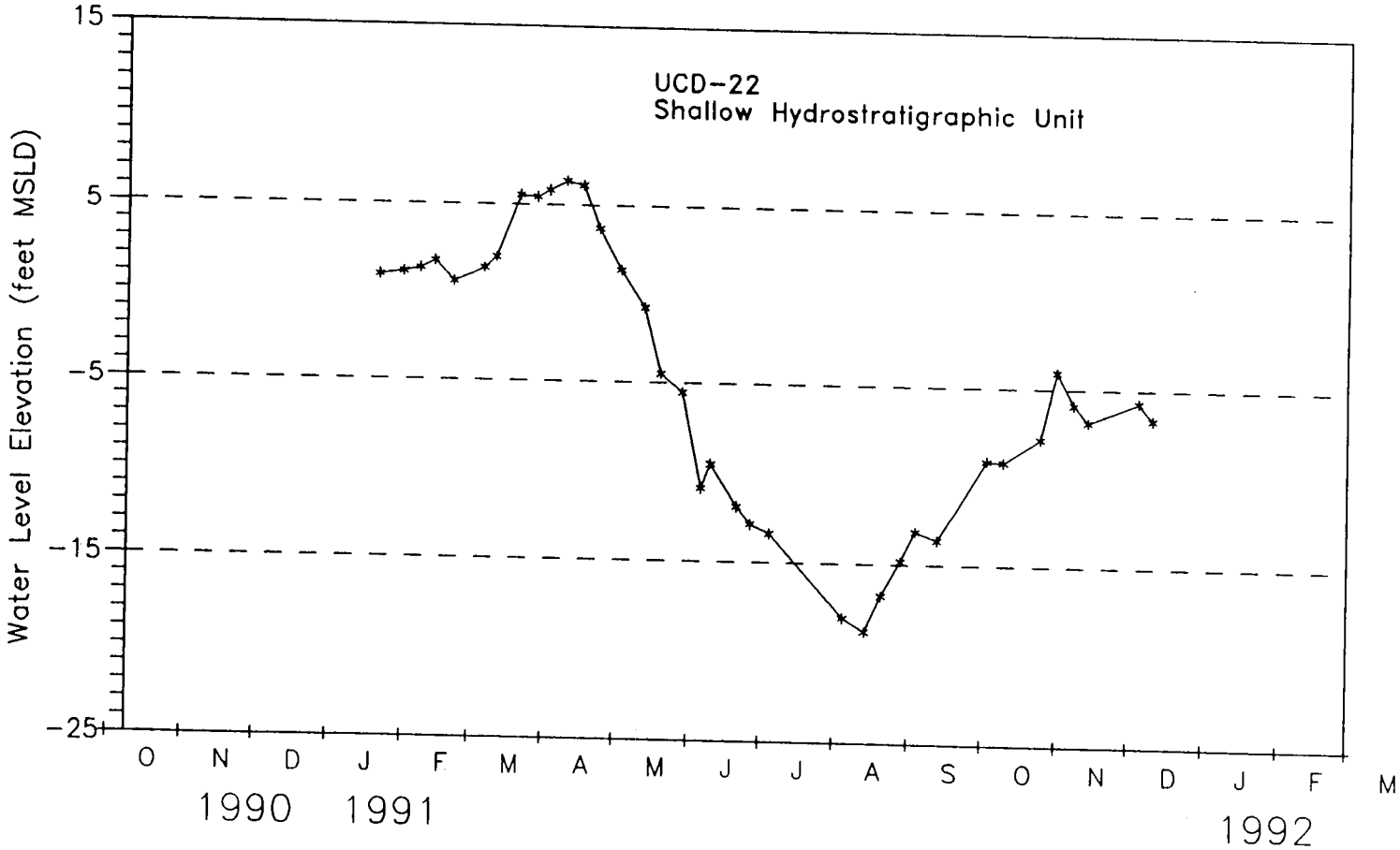
Groundwater Monitoring Well
DOE Phase II LEHR Site Characterization Report
Davis, California



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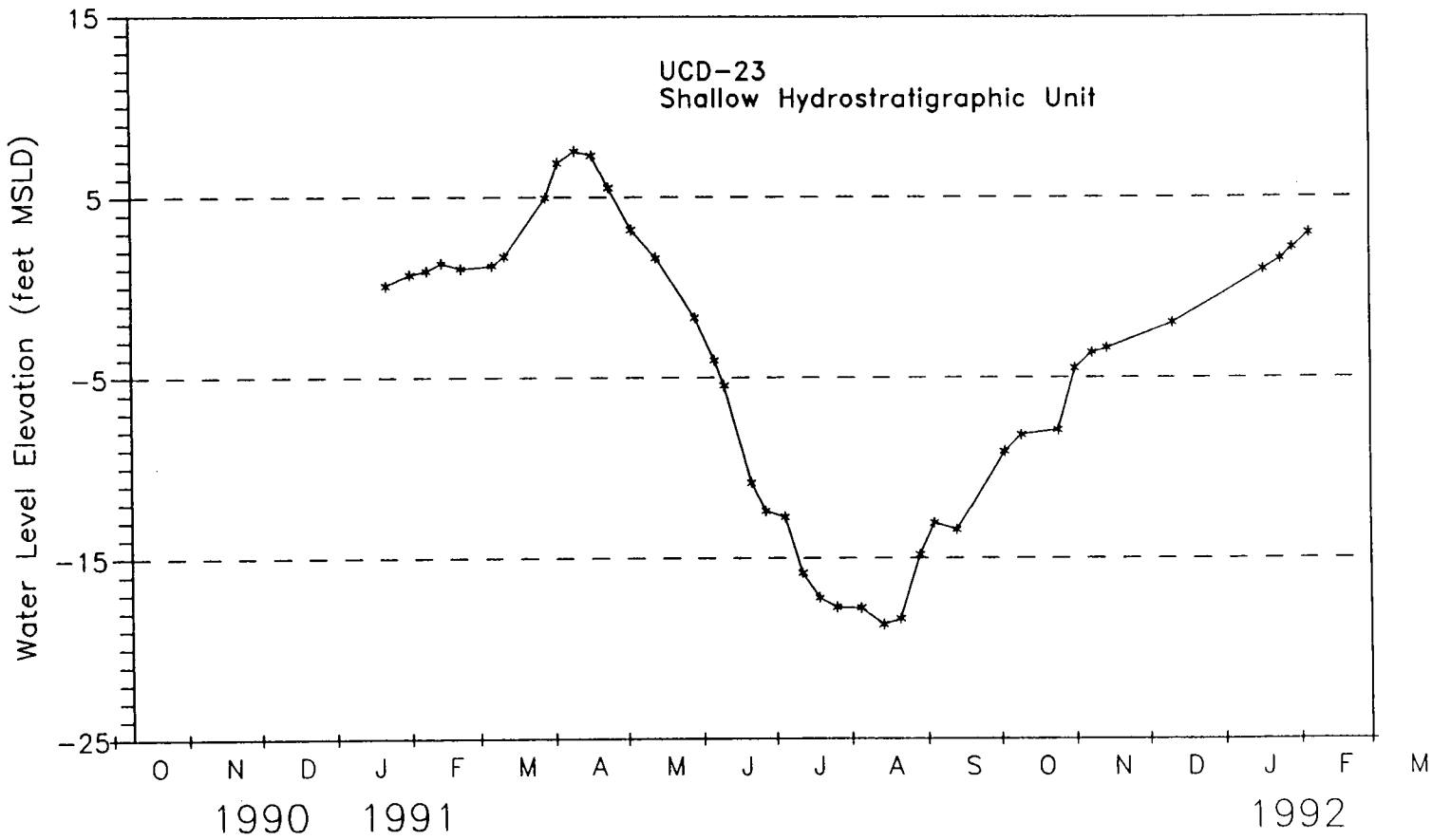
Groundwater Monitoring Well
DOE Phase II LEHR Site Characterization Report
Davis, California



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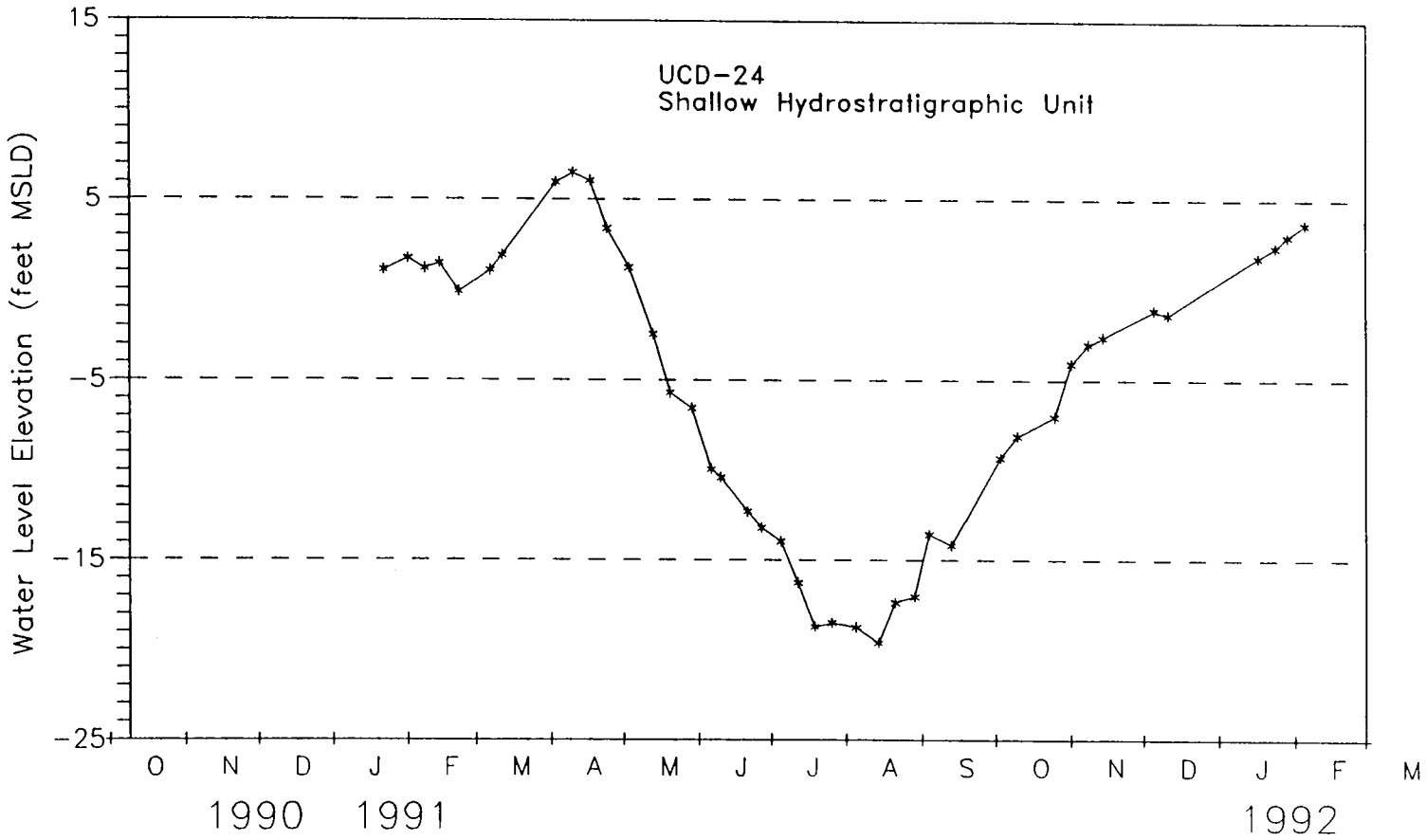
Groundwater Monitoring Well
DOE Phase II LEHR Site Characterization Report
Davis, California



APPENDIX E

FIELD DOCUMENTATION
PHASE II SITE CHARACTERIZATION
LEHR ENVIRONMENTAL RESTORATION

APPENDIX E

FIELD DOCUMENTATION
PHASE II SITE CHARACTERIZATION
LEHR ENVIRONMENTAL RESTORATION

Field work conducted during this Phase II Site Characterization was documented to provide a record of data collection activities. Presented in this appendix are the following field documents:

Section 1 - Well development data sheets;

Section 2 - Field records of water sampling; and

Section 3 - Chain-of-Custodies.

Soil Boring Logs and Monitoring Well Boring Logs, and Monitoring Well Construction Diagrams are presented in Appendix C. Descriptions of field activities including drilling, and soil and water sampling conducted during the Phase II LEHR Site Characterization is included in Appendix A.

APPENDIX E
SECTION 1

WELL DEVELOPMENT DATA SHEETS

WELL DEVELOPMENT DATA SHEET

116
25
11

WELL NUMBER: VCD 15
DEPTH OF WELL: 1.8' [illegible]
CASING TYPE/DIAMETER: [illegible] Screen .020 [illegible]
BOREHOLE DIAMETER: 8 5/8
Screen ~~EFFECTIVE~~ INTERVAL: 118 to 43
REFERENCE POINT: [illegible] PVC

JOB NUMBER: 10805-454 [illegible]
OWNER: [illegible] Phase II
LOCATION: [illegible]
DATE DEVELOPED: 4/13/90
DEVELOPED BY: R. Moren
SURFACE ELEVATION:

ONE CASING VOLUME (Gallons): 45.74
TOTAL VOLUME EVACUATED (Gallons): 1520
NUMBER OF CASING VOLUMES EVACUATED: 32.3

DRILLING METHOD: Casing Hammer

DEVELOPMENT METHOD:

DATE	TIME	WATER LEVEL BEFORE EVACUATION	GALLONS EVACUATED	EQUIV. CASING VOL.	pH	CONDUCTIVITY	TEMP. °F	COMME (appearar water, odor
4/13	8:20	47.75	5	Initial 4.0	7.65	963	63.7	[illegible]
	10:30		200	= 4	7.50	1055	75.0	Will be Pump
	11:16		250		7.54	1065	76.1	Water [illegible]
			400		7.50	1012	71.9	101.7 [illegible]
	11:25		500		7.61	1026	71.3	40.1 [illegible]
	11:30		625		7.72	1009	71.6	22.5 N
	11:33		700		7.60	1033	71.2	18.4 [illegible]
			950		7.70	1040	70.4	15.1 N
			1300		7.57	1034	69.8	12.0 [illegible]
	12:00		1400		7.64	1028	69.5	16.7 NT
	12:05		1520	32.34	7.64	1032	70.6	13.5 NT

Bailer

Begin Pump

OBSERVATIONS AND COMMENTS:

Some Sand Comm [illegible] fine grain
Pulled 45 gals - Very little Sand. Begin Swabbing - Swab a 5' Secti
5 minutes each - Bailed [illegible] Pump. 1320 gals

Meter Before Pump 19314
20633
1319

11:05 Pump 26 gpm W.L. 48.5
" " " " " 48.5

LOG OF DEVELOPMEN

Dames & Moo

WELL DEVELOPMENT DATA SHEET

WELL NUMBER: UCD 16
DEPTH OF WELL: 119
CASING TYPE/DIAMETER: 4" Stainless Steel
BOREHOLE DIAMETER: 7 5/8
Screen ~~EFFECTIVE~~ INTERVAL: 119 - 94
REFERENCE POINT: Top pvc

ONE CASING VOLUME (Gallons): 40.47
TOTAL VOLUME EVACUATED (Gallons): 1446
NUMBER OF CASING VOLUMES EVACUATED: 35.73

JOB NUMBER: 10805 - 454 - 044
OWNER: DOE
LOCATION: LEHRC
DATE DEVELOPED: 4/13/90
DEVELOPED BY: R MOREN
SURFACE ELEVATION:

DRILLING METHOD: Casing Hammer

DEVELOPMENT METHOD:

Colm
72.02
40.47

DATE	TIME	WATER LEVEL BEFORE EVACUATION	GALLONS EVACUATED	EQUIV. CASING VOL.	pH	CONDUCTIVITY	TEMP.	COMME (appearar water, odo
4/13	1 45	46.97	4 Initial H_2O		7.59	1162	74.0	Lt Brown Silty
	4 00		120		7.52	1108	75.2	
	4 15		200		7.56	1064	71.8	
	4 18		250		7.53	1055	70.3	NTU
			380	9.4	7.54	1056	70.5	NTU 3
	4 23		520		7.56	1053	70.1	NTU 2
	4 36		850		7.56	1055	70.2	NTU 1
	4 40		1080	26.7	7.53	1038	68.9	NTU 1
	4 46		1160		7.58	1023	67.4	NTU 2
	4 50		1260		7.53	1020	66.7	NTU
	4 56		1380	34.09	7.53	1019	67.0	NTU 1

OBSERVATIONS AND COMMENTS:
1 CV 40.47
1st Bailing Not Pulling Many Fines - (Sand) Pump from Bottom
Water Clear up fairly Quickly

Meter Before Pumping 20633
After Pumping 22029
1396 gals

4 00 Pump 10.5 gpm W.L. 47.4
4 15 Pump 26 gpm W.L. 47.4
4 23 Pump 26 gpm W.L. 47.8
4 36 Pump 26 gpm W.L. 47.8
4 47 [illegible]

LOG OF DEVELOPME

Dames & Mo

WELL DEVELOPMENT DATA SHEET

WELL NUMBER: UCD-17
DEPTH OF WELL: 113
CASING TYPE/DIAMETER: 4"
BOREHOLE DIAMETER: 9 5/8
EFFECTIVE INTERVAL: ~~[illegible]~~ 113-81
REFERENCE POINT: ~~[illegible]~~ Surface

JOB NUMBER: 10205-454-044
OWNER: DOE
LOCATION: LEHR
DATE DEVELOPED: 4/16/90
DEVELOPED BY: Rick Mozen
SURFACE ELEVATION:

ONE CASING VOLUME (Gallons): 44.3
TOTAL VOLUME EVACUATED (Gallons): 1786
NUMBER OF CASING VOLUMES EVACUATED: 40.3

DRILLING METHOD: Casing Hammer

DEVELOPMENT METHOD:

DATE	TIME	WATER LEVEL BEFORE EVACUATION	GALLONS EVACUATED	EQUIV. CASING VOL.	pH	CONDUC-TIVITY	TEMP. F	COMME (appearar water, odo
4/16	9:45	44.9	Initial 4.0		8.34	877	66.4	>200
	12:35		250		7.73	909	63.1	>200
	12:42		350		7.75	934	62.8	130 N
			550		7.70	928	62.7	80 N
			750		7.76	932	62.7	125 NT
	1:20		1150		7.89	943	64.3	25.5 N
			1300		7.64	943	64.4	11.9 N
			1450		7.64	938	63.7	11.2 N
			1600		7.64	938	63.7	11.3 N
			1786	40.3	7.71	944	63.9	10.2 N

water Color 68

OBSERVATIONS AND COMMENTS:

Water Lt Brown Silty Bailed = 100 gals Still Pulling Some Fine Sand
well Continues to Make Fine Sand Possibly Still Settling

Time	Pump Rate	Water level
12:30	5 gpm	~~[illegible]~~ 45.3 ~~[illegible]~~
12:35	17.5	45.4
12:50	26 gpm	45.6
1:1	26 gpm	45.6
1:35	26 gpm	45.6

Initial Meter Reading 22029
Final Meter Reading 23555
1536

LOG OF DEVELOPMEN

Dames & Moc

WELL DEVELOPMENT DATA SHEET

WELL NUMBER: UCD - 18
DEPTH OF WELL: 70.0
CASING TYPE/DIAMETER: 4" PVC
BOREHOLE DIAMETER:
EFFECTIVE INTERVAL: 54-67
REFERENCE POINT:

JOB NUMBER: 10805-454-C44
OWNER: DOE
LOCATION: UCD - LEHR
DATE DEVELOPED: 10/30/90 – 10/31
DEVELOPED BY: DAVID MORIER
SURFACE ELEVATION:

ONE CASING VOLUME (Gallons): 8.4
TOTAL VOLUME EVACUATED (Gallons):
NUMBER OF CASING VOLUMES EVACUATED:

DRILLING METHOD:

DEVELOPMENT METHOD:

	DATE	TIME	WATER LEVEL BEFORE EVACUATION	GALLONS EVACUATED	EQUIV. CASING VOL.	pH	CONDUC-TIVITY	TEMP.	~~COMME~~ Turbid (appeara water, odc
Bailed	10/30/90	1145	57.18'	~50	6.0 gal				
	10/31/90	0830	57.05'	~90	10.7				
pump	10/31/90	0955	57.35'	114	13.6	7.87	758	18.2	> 200 N
		1000	60.5'	126	15.0	7.79	760	18.2	> 200 NT
		1005	60.7'	137	16.3	7.78	767	18.3	126 N
		1010	60.9'	151	17.9	7.72	739	18.2	72.6 N
		1015	61.0'	172	20.5	7.69	730	18.3	34.7 N
		1020	60.5'	209	24.9	7.68	730	18.4	51 NTU

SEE FIELD RECORD OF WATER SAMPLING FOR CONTINUATION

OBSERVATIONS AND COMMENTS:
Water levels taken on north side of monument
Pump was shut down from 1025 to 1040 to wait for more development water barrels.

LOG OF DEVELOPME

Dames & Mc

10/29/9

WELL DEVELOPMENT DATA SHEET

WELL NUMBER: UCD 19
DEPTH OF WELL: 74.5'
CASING TYPE/DIAMETER: 4" PVC
BOREHOLE DIAMETER:
EFFECTIVE INTERVAL:
REFERENCE POINT:

JOB NUMBER: 10805-454-044
OWNER: D.O.E.
LOCATION: UCD - LEHR
DATE DEVELOPED: 10/29/90
DEVELOPED BY: DAVID MORIER
SURFACE ELEVATION:

ONE CASING VOLUME (Gallons): 12.3
TOTAL VOLUME EVACUATED (Gallons):
NUMBER OF CASING VOLUMES EVACUATED:

DRILLING METHOD:

DEVELOPMENT METHOD:

	DATE	TIME	WATER LEVEL BEFORE EVACUATION	GALLONS EVACUATED	EQUIV. CASING VOL.	pH	CONDUC-TIVITY	TEMP.	COMMI (appeara water, od
BAILED	10/29/90	1040	56.5'	25	2.0				
		1200	58.8'	95	7.7				
		1425	58.4'	105	8.5				well wen
		1440	58.8'	106	8.5	6.6	1215	23.7	> 200 N
	SEE FIELD RECORD OF WATER SAMPLING SHEET								

OBSERVATIONS AND COMMENTS:

LOG OF DEVELOPME

Dames & M

11/11

WELL DEVELOPMENT DATA SHEET

WELL NUMBER: UCD 20
DEPTH OF WELL: 73.0
CASING TYPE/DIAMETER: 4" PVC
BOREHOLE DIAMETER:
EFFECTIVE INTERVAL: 72-57
REFERENCE POINT:

JOB NUMBER: 10805-454-044
OWNER: ~~UCD~~ DOE
LOCATION: UCD LEAK
DATE DEVELOPED: 11/1/90
DEVELOPED BY: DAVID MORIER
SURFACE ELEVATION:

ONE CASING VOLUME (Gallons): 11.1
TOTAL VOLUME EVACUATED (Gallons):
NUMBER OF CASING VOLUMES EVACUATED:

DRILLING METHOD:

Initial water column = 17.1 Ft. 1CV = 11.1 gallons

DEVELOPMENT METHOD:

DATE	TIME	WATER LEVEL BEFORE EVACUATION	GALLONS EVACUATED	EQUIV. CASING VOL.	pH	CONDUC-TIVITY	TEMP.	COMME (appearai water, odo
11/1/90	0900	55.9'	45	4.05				
11/1/90	1035	~~57.1'~~ 56.8'	80	7.21				
11/1/90	1140	—	105	9.46				

OBSERVATIONS AND COMMENTS:

see field record of water sampling for pump purging record

LOG OF DEVELOPME

Dames & Mc

11/2/90

WELL DEVELOPMENT DATA SHEET

WELL NUMBER: UCD 21
DEPTH OF WELL: 73.0'
CASING TYPE/DIAMETER: 4" PVC
BOREHOLE DIAMETER:
EFFECTIVE INTERVAL: 72 - 57
REFERENCE POINT:

JOB NUMBER: 10905 - 454 - 044
OWNER: ~~UCD 21~~ DOE
LOCATION: ~~UCD 21~~ UCD - LEH
DATE DEVELOPED: 11/2/90
DEVELOPED BY:
SURFACE ELEVATION:

ONE CASING VOLUME (Gallons): 11.9
TOTAL VOLUME EVACUATED (Gallons):
NUMBER OF CASING VOLUMES EVACUATED:

DRILLING METHOD:

DEVELOPMENT METHOD:

DATE	TIME	WATER LEVEL BEFORE EVACUATION	GALLONS EVACUATED	EQUIV. CASING VOL.	pH	CONDUC-TIVITY	TEMP.	COMM (appear water, od
11/2/90	0935	54.7'	110	9.2				Water has rank od
11/2/90	1105	55.6'	150	12.6				well turbid v. little
11/2/90	1206	56.3'	165	13.9				V. little

OBSERVATIONS AND COMMENTS:
* initial bail had small amount of sand (~ 1/4 cup from a 3 gal sample) All water levels are taken from N. side of street level monument casing.

LOG OF DEVELOPME

Dames & M

WELL DEVELOPMENT DATA SHEET

WELL NUMBER: UCD-22
DEPTH OF WELL: 73.0
CASING TYPE/DIAMETER: 4" PVC
BOREHOLE DIAMETER:
EFFECTIVE INTERVAL: 57 - 72
REFERENCE POINT:

JOB NUMBER: 16805-454-04
OWNER: DOE
LOCATION: UCD LEHR
DATE DEVELOPED: 11-7-90
DEVELOPED BY: Water Development
SURFACE ELEVATION:

ONE CASING VOLUME (Gallons): 12.9 gallons
TOTAL VOLUME EVACUATED (Gallons):
NUMBER OF CASING VOLUMES EVACUATED:

DRILLING METHOD:

Initial Water column = 19.83'

DEVELOPMENT METHOD:

DATE	TIME	WATER LEVEL BEFORE EVACUATION	GALLONS EVACUATED	EQUIV. CASING VOL.	pH	CONDUC-TIVITY	TEMP.	COMM (appeara water, od
11/7	0910	53.17	55					silty
	0940	67.78	after initial bailing					
	1000	54.30	prior to swabbing					
	1040	53.15	95					silty
	1100	68.25'	after bailing					
	1125	55.80	prior to setting pump					
	1155	53.36	just prior to pumping					
	1200		110		7.79	905	19.8	

OBSERVATIONS AND COMMENTS:

Start pumping at 24215

see [illegible]

[illegible]

24206

A Dawn - Steve 2-3

752 1493

LOG OF DEVELOPME

Dames & M

[illegible]

WELL DEVELOPMENT DATA SHEET

WELL NUMBER: MW-23
DEPTH OF WELL: 73.1 bgs
CASING TYPE/DIAMETER: [illegible]
BOREHOLE DIAMETER:
EFFECTIVE INTERVAL: [illegible]
REFERENCE POINT:

JOB NUMBER: 10805-454-044
OWNER: ~~USED~~ DOE
LOCATION: UCD LENR
DATE DEVELOPED: 11/5
DEVELOPED BY: Water Development
SURFACE ELEVATION:

ONE CASING VOLUME (Gallons): [illegible]
TOTAL VOLUME EVACUATED (Gallons):
NUMBER OF CASING VOLUMES EVACUATED:

DRILLING METHOD:

Initial 54.1'

DEVELOPMENT METHOD:

DATE	TIME	WATER LEVEL BEFORE EVACUATION	GALLONS EVACUATED	EQUIV. CASING VOL.	pH	CONDUC-TIVITY	TEMP.	COMME (appearar water, odo
11/5	0950	54.1'	55 gallons					very silty
	1110	54.2'	water level after swabbing					
	1135		110 gallons					silty
	1225	54.25	water level prior to pumping					
	1233		140 g		7.64	842	19.9	3.5 gpm
	1240		165 g		7.63	817	19.9	3.5 gpm
	1250		200 g		7.61	790	20.0	3.5 gpm
	1258		220 g	Turbidity [illegible]	7.60	781	20.0	3.5 gpm

OBSERVATIONS AND COMMENTS:

Start at 33705

Data continued on the Field Record of water sampling

LOG OF DEVELOPME

Dames & Mo

WELL DEVELOPMENT DATA SHEET

WELL NUMBER: UCD - 24
DEPTH OF WELL: 73.0
CASING TYPE/DIAMETER: PVC - 4"
BOREHOLE DIAMETER:
EFFECTIVE INTERVAL: 57 - 72 feet
REFERENCE POINT: top of PVC casing

ONE CASING VOLUME (Gallons): 19.55' x 0.65 = 12.7g
TOTAL VOLUME EVACUATED (Gallons):
NUMBER OF CASING VOLUMES EVACUATED:

JOB NUMBER: 10805-454-044
OWNER: DOE
LOCATION: UCD - LEHR
DATE DEVELOPED: 11/6/90
DEVELOPED BY: Water Development
SURFACE ELEVATION:

DRILLING METHOD:

DEVELOPMENT METHOD:

DATE	TIME	WATER LEVEL BEFORE EVACUATION	GALLONS EVACUATED	EQUIV. CASING VOL.	pH	CONDUC-TIVITY	TEMP.	COMM (appear water, oc
11/6	0845	53.45'	55					
	0920	64.05'	after bailing - prior to swabbing					
	0933	54.50'	after break of 13 minutes for recharge - prior to					
	1016	53.40'	after swabbing prior to second bailing					
	1030		95					bailed
	1056	56.55'						
	1125	53.75'	just prior to pumping					
	1140		130		7.31	1188	20.1	very sil

(continued on water sampling form.)

OBSERVATIONS AND COMMENTS:
Start pumping at 24043

LOG OF DEVELOPM

Dames & I

APPENDIX E
SECTION 2

FIELD RECORDS OF WATER SAMPLING SHEETS

PHASE II SITE CHARACTERIZATION
LEHR ENVIRONMENTAL RESTORATION

FIELD RECORDS OF WATER SAMPLING
FALL QUARTER, NOVEMBER 1990

PHASE II SITE CHARACTERIZATION
LEHR ENVIRONMENTAL RESTORATION

Dames & Moore

FIELD RECORD OF WATER SAMPLING

WELL NO. UCD-1 JOB NUMBER 10805-454-044

DEPTH OF WELL 58.79 CLIENT D.O.E.

CASING TYPE/DIAMETER 2" PVC LOCATION UC Davis - LEHR

BOREHOLE DIAMETER _____ SAMPLED BY: D. ZIMER

SCREENED INTERVAL _____ TO _____ SAND PACK INTERVAL _____ TO _____

REF. POINT _____ ELEVATION _____ DATUM _____

PURGING PRIOR TO SAMPLING

PURGING METHOD disposable bailer

PUMP FLOW RATE _____ WC = 2.95' 3W = 1.5

INITIAL WATER LEVEL 55.84' ONE CASING/BOREHOLE VOLUME (Gallons) 0.47

DATE	TIME	TEMP (°)	SPEC. COND.	pH	QUARTS ~~GALLONS~~ REMOVED	TURBIDITY (NTU)	COMMENTS (appearance of water, odor, etc.)
11-2	1115	17.6	1008	6.71	6.75 qts	>200	
		18.5	1019	6.83	6.90 qts	>200	
		18.4	1004	6.84	7.00 qts	>200	
		18.1	1001	6.82	8.00 qts	>200	

RECORD OF SAMPLING

SAMPLING METHOD Disposable bailer

DATE OF SAMPLE 11/2/92 TIME 1300 DEPTH OF SAMPLE _____

1-1 L Plastic (HNO_3) - Metals, Na, K, Mg, Ca

1-1L Plastic - Cr(VI), SO_4, Cl, TDS, Turbidity, Alkalinity

1-1L Glass (H_2SO_4) - Nitrates, COD, Phosphate.

4-40 ml VOA's - Formaldehyde, 624

1-1 gallon glass - 608, 625

1-1 gallon plastic cube - (HNO_3) Gross α, Gross β, Gamma Strontium 90

1-4 oz. glass - Tritium

TEMP. _____

SPEC. COND. _____

pH _____

COMMENTS: Well has no PVC cap over Casing
Water starts out clear but gets very silty with continued bailing.
During readings water was very silty

11/5/90

Dames & Moore

FIELD RECORD OF WATER SAMPLING

WELL NO. UCD 4 * JOB NUMBER 10805-454-044

DEPTH OF WELL 56.5 (57.5' from top of monument) CLIENT D.O.E.

CASING TYPE/DIAMETER 2" PVC LOCATION UC Davis - LEHR

BOREHOLE DIAMETER _____ SAMPLED BY: David Moier

SCREENED INTERVAL 45.0 TO 55.0 SAND PACK INTERVAL _____ TO _____

REF. POINT _____ ELEVATION _____ DATUM _____

PURGING PRIOR TO SAMPLING

PURGING METHOD Disposable bailer

PUMP FLOW RATE _____

INITIAL WATER LEVEL ~~56.4'~~ 57.4' ONE CASING/BOREHOLE VOLUME (Gallons) .16

DATE	TIME	TEMP (°)	SPEC. COND.	pH	GALLONS REMOVED	TURBIDITY (NTU)	COMMENTS (appearance of water, odor, etc.)

RECORD OF SAMPLING

SAMPLING METHOD _____

DATE OF SAMPLE 11/5/90 TIME _____ DEPTH OF SAMPLE _____

1-1 L Plastic (HNO_3) - Metals, Na, K, Mg, Ca

1-1L Plastic - Cr(VI), SO_4, Cl, TDS, Turbidity, Alkalinity

1-1L Glass (CH_2SO_4) - Nitrates, COD, Phosphate.

4-40 ml VOA's - Formaldehyde, 624

1-1 gallon glass - 608, 625

1-1 gallon plastic cube - (HNO_3) Gross α, Gross β, Gamma Strontium 90

1-4 oz. glass - Tritium

TEMP. _____

SPEC. COND. _____

pH _____

COMMENTS: Could not sample 0945 11/5/90 because only 1" of water was measured in well. David Moier goes to UCD 11 to sample.

*

10/29

Dames & Moore

FIELD RECORD OF WATER SAMPLING

WELL NO. UCD-7 JOB NUMBER 10805-454-044

DEPTH OF WELL 90.0 ft CLIENT D.O.E.

CASING TYPE/DIAMETER 2" PVC LOCATION UC Davis - LEHR

BOREHOLE DIAMETER _____ SAMPLED BY: D. Zuber

SCREENED INTERVAL _____ TO _____ SAND PACK INTERVAL _____ TO _____

REF. POINT _____ ELEVATION _____ DATUM _____

PURGING PRIOR TO SAMPLING

PURGING METHOD Bladder Pump

PUMP FLOW RATE .33 gal / minute

WC = 32.9 x 0.16 gal/ft = 5.3 gal

INITIAL WATER LEVEL 57.10 ONE CASING/BOREHOLE VOLUME (Gallons) 3 cv = 16 gall

DATE	TIME	TEMP (°)	SPEC. COND.	pH	GALLONS REMOVED	TURBIDITY (NTU)	COMMENTS (appearance of water, odor, etc.)
10/19	1130	19.3	798	6.40	16.0	4.20	
		19.1	796	7.07	17.0	4.00	
		19.3	803	7.14	18.0	3.00	
		19.0	804	7.05	20.0	2.90	
		19.0	805	7.20	22.0	1.48	
		19.1	810	7.29	24.0	1.78	

RECORD OF SAMPLING

SAMPLING METHOD Bladder Pump

DATE OF SAMPLE 10-29-90 TIME 1200 DEPTH OF SAMPLE _____

✓1-1 L Plastic (HNO_3) - Metals, Na, K, Mg, Ca

✓1-1L Plastic - Cr(VI), SO_4, Cl, TDS, Turbidity, Alkalinity

✓1-1L Glass (H_2SO_4) - Nitrates, COD, Phosphate.

✓4-40 ml VOA's - Formaldehyde, 624

✓1-1 gallon glass - 608, 625

✓1-1 gallon plastic cube - (HNO_3) Gross α, Gross β, Gamma Strontium 90

✓1-4 oz. glass - Tritium

TEMP. 19.1

SPEC. COND. 810

pH 7.29

COMMENTS: Metals sample was filtered with in line filter
Approximately 30 gallons purged prior to sampling

11/8

Dames & Moore

FIELD RECORD OF WATER SAMPLING

WELL NO. LCD-10 JOB NUMBER 10805-454-044

DEPTH OF WELL 70.0 CLIENT D.O.E.

CASING TYPE/DIAMETER 4" PVC LOCATION UC Davis - LEHR

BOREHOLE DIAMETER 54.0 - 69.0 SAMPLED BY: D. Zoller

SCREENED INTERVAL _____ TO _____ SAND PACK INTERVAL _____ TO _____

REF. POINT _____ ELEVATION _____ DATUM _____

PURGING PRIOR TO SAMPLING

PURGING METHOD dedicated purge pump

PUMP FLOW RATE _____ WC = 14.06

INITIAL WATER LEVEL 55.94' ONE CASING/BOREHOLE VOLUME (Gallons) 9.1 gallons

DATE	TIME	TEMP (°)	SPEC. COND.	pH	GALLONS REMOVED	TURBIDITY (NTU)	COMMENTS (appearance of water, odor, etc.)
11/8	1040	18.0	1630	7.55	40	20	
	1050	18.0	1560	7.54	42	13	
	1054	18.0	1540	7.54	44	7	
	1055	18.0	1530	7.52	45	6	
1058		18.0	1530	7.	46	6	

RECORD OF SAMPLING

SAMPLING METHOD bladder pump (dedicated)

DATE OF SAMPLE 11-8-90 TIME 1045 DEPTH OF SAMPLE _____

1-1 L Plastic (HNO_3) - Metals, Na, K, Mg, Ca

1-1L Plastic - Cr(VI), SO_4, Cl, TDS, Turbidity, Alkalinity

1-1L Glass (H_2SO_4) - Nitrates, COD, Phosphate.

4-40 ml VOA's - Formaldehyde, 624

1-1 gallon glass - 608, 625

1-1 gallon plastic cube - (HNO_3) Gross α, Gross β, Gamma Strontium 90

1-4 oz. glass - Tritium

TEMP. _____

SPEC. COND. _____

pH _____

COMMENTS: _____

395'

Dames & Moore

FIELD RECORD OF WATER SAMPLING

WELL NO. UCD - 11 JOB NUMBER 10805-454-044

DEPTH OF WELL 66.5' CLIENT D.O.E.

CASING TYPE/DIAMETER 4" PVC LOCATION UC Davis - LEHR

BOREHOLE DIAMETER _____ SAMPLED BY: _____

SCREENED INTERVAL _____ TO _____ SAND PACK INTERVAL _____ TO _____

REF. POINT _____ ELEVATION _____ DATUM _____

PURGING PRIOR TO SAMPLING

PURGING METHOD Purge pump

PUMP FLOW RATE _____

INITIAL WATER LEVEL 56.56' ONE CASING/BOREHOLE VOLUME (Gallons) 6.5

DATE	TIME	TEMP (°)	SPEC. COND.	pH	GALLONS REMOVED	TURBIDITY (NTU)	COMMENTS (appearance of water, odor, etc.)
11/5/90	1230	18.6	960	6.58	~15	5.0	
	1240	18.6	975	6.60*	19	3.0	
	1245	18.5	965	7.05*	21	2.65	
	1250	18.5	970	6.85*	~~25~~ 23	1.4	
	1255	18.5	965	7.00*	25	1.5	
	1305	18.5	980	6.95*	30	0.75	
	1315	18.5	970	6.93*	36	0.50	
	1323	18.5	970	6.95*	~~42~~ 40	0.52	
	1333	18.5	970	7.05*	43	0.50	
	1340	18.5	975	7.04*	48	0.40	

RECORD OF SAMPLING

SAMPLING METHOD dedicated bladder pump.

DATE OF SAMPLE 11/5/90 TIME 14:00 DEPTH OF SAMPLE _____

1-1 L Plastic (HNO_3) - Metals, Na, K, Mg, Ca

1-1L Plastic - Cr(VI), SO_4, Cl, TDS, Turbidity, Alkalinity

1-1L Glass (H_2SO_4) - Nitrates, COD, Phosphate.

4-40 ml VOA's - Formaldehyde, 624

1-1 gallon glass - 608, 625

1-1 gallon plastic cube - (HNO_3) Gross α, Gross β, Gamma Strontium 90

1-4 oz. glass - Tritium

TEMP. _____

SPEC. COND. _____

pH _____

COMMENTS: * pH meter was drifting, but check out o.k. w/ pH 7.0 buffer

1348 18.5 990 6.97* 52 0.52

10/31

Dames & Moore

FIELD RECORD OF WATER SAMPLING

WELL NO. UCD-12 JOB NUMBER 10805-454-044

DEPTH OF WELL 64.5 CLIENT D.O.E.

CASING TYPE/DIAMETER 4" PVC LOCATION UC Davis - LEHR

BOREHOLE DIAMETER _____ SAMPLED BY: D. Zuber

SCREENED INTERVAL 49.5 TO 64.5 SAND PACK INTERVAL _____ TO _____

REF. POINT _____ ELEVATION _____ DATUM _____

PURGING PRIOR TO SAMPLING

PURGING METHOD dedicated purge pump

PUMP FLOW RATE _____ WC = 6.02' 1 CV = 3.9 gallons

INITIAL WATER LEVEL 58.48' ONE CASING/BOREHOLE VOLUME (Gallons) _____

DATE	TIME	TEMP (°)	SPEC. COND.	pH	GALLONS REMOVED	TURBIDITY (NTU)	COMMENTS (appearance of water, odor, etc.)
10/31		18.4	2640	7.34	18	56.2	
		18.5	2500	7.23	22	35.3	
		18.5	2480	7.30	24	25.3	
		18.7	2460	7.32	26	26.1	

RECORD OF SAMPLING

SAMPLING METHOD Disposable Bailer

DATE OF SAMPLE 10/31/90 TIME 1200 DEPTH OF SAMPLE _____

✓1-1 L Plastic (HNO_3) - Metals, Na, K, Mg, Ca

✓1-1L Plastic - Cr(VI), SO_4, Cl, TDS, Turbidity, Alkalinity

✓1-1L Glass (H_2SO_4) - Nitrates, COD, Phosphate.

✓4-40 ml VOA's - Formaldehyde, 624

✓1-1 gallon glass - 608, 625

✓1-1 gallon plastic cube - (HNO_3) Gross α, Gross β, Gamma Strontium 90

✓1-4 oz. glass - Tritium

TEMP. _____

SPEC. COND. _____

pH _____

COMMENTS: bladder Pump would not work - so that I had to bail with disposable bailer.
Metals sample was filtered
Final water level 58.57'

11/1

Dames & Moore

FIELD RECORD OF WATER SAMPLING

WELL NO. UCD-13 JOB NUMBER 10805-454-044

DEPTH OF WELL 65.0 CLIENT D.O.E.

CASING TYPE/DIAMETER 4" PVC LOCATION UC Davis - LEHR

BOREHOLE DIAMETER _____ SAMPLED BY: D. Zeber

SCREENED INTERVAL 50.0 TO 65.0 SAND PACK INTERVAL _____ TO _____

REF. POINT _____ ELEVATION _____ DATUM _____

PURGING PRIOR TO SAMPLING

PURGING METHOD _____

PUMP FLOW RATE _____ 1 CV = 4.10 gallons 3 CV = 13 gallons

INITIAL WATER LEVEL 58.69' ONE CASING/BOREHOLE VOLUME (Gallons) _____

DATE	TIME	TEMP (°)	SPEC. COND.	pH	GALLONS REMOVED	TURBIDITY (NTU)	COMMENTS (appearance of water, odor, etc.)
11-1	1150	18.2	1130	7.37	18	59.7	
		18.6	1039	7.44	20	57.2	
		18.6	1035	7.39	22	37.4	
		18.5	1039	7.34	23	27.5	

RECORD OF SAMPLING

SAMPLING METHOD Disposable Bailer

DATE OF SAMPLE 11-1-90 TIME 1230 DEPTH OF SAMPLE _____

✓ 1-1 L Plastic (HNO_3) - Metals, Na, K, Mg, Ca

✓ 1-1 L Plastic - Cr(VI), SO_4, Cl, TDS, Turbidity, Alkalinity

✓ 1-1 L Glass (H_2SO_4) - Nitrates, COD, Phosphate.

✓ 4-40 ml VOA's - Formaldehyde, 624

✓ 1-1 gallon glass - 608, 625

✓ 1-1 gallon plastic cube - (HNO_3) Gross α, Gross β, Gamma Strontium 90

✓ 1-4 oz. glass - Tritium

TEMP. _____

SPEC. COND. _____

pH _____

COMMENTS: Bladder pump was just at water level table - could not get water. Used disp. bailers to sample - peristaltic pump + apparatus to filter for metals

11/1

Dames & Moore

FIELD RECORD OF WATER SAMPLING

WELL NO. UCD-14 JOB NUMBER 10805-454-044

DEPTH OF WELL 85.0 CLIENT D.O.E.

CASING TYPE/DIAMETER 4" PVC LOCATION UC Davis - LEHR

BOREHOLE DIAMETER _____ SAMPLED BY: _____

SCREENED INTERVAL 75.0 TO 85.0 SAND PACK INTERVAL _____ TO _____

REF. POINT _____ ELEVATION _____ DATUM _____

PURGING PRIOR TO SAMPLING

PURGING METHOD dedicated Surge pump

PUMP FLOW RATE _____

WC = 27.16
1CV = 17.7 gallon

INITIAL WATER LEVEL 57.84 ONE CASING/BOREHOLE VOLUME (Gallons) 3CV = 53 gall.

DATE	TIME	TEMP (°)	SPEC. COND.	pH	GALLONS REMOVED	TURBIDITY (NTU)	COMMENTS (appearance of water, odor, etc.)
U-1	1510	18.9	709	7.01	55	3.4	
		18.7	722	7.06	57	5.8	
		18.8	724	7.12	59	3.3	
		19.0	733	7.11	60	3.3	

RECORD OF SAMPLING

SAMPLING METHOD _____

DATE OF SAMPLE _____ TIME _____ DEPTH OF SAMPLE _____

✓1-1 L Plastic (HNO_3) - Metals, Na, K, Mg, Ca

✓1-1 L Plastic - Cr(VI), SO_4, Cl, TDS, Turbidity, Alkalinity

✓1-1 L Glass (H_2SO_4) - Nitrates, COD, Phosphate.

✓4-40 ml VOA's - Formaldehyde, 624

✓1-1 gallon glass - 608, 625

✓1-1 gallon plastic cube - (HNO_3) Gross α, Gross β, Gamma Strontium 90

✓1-4 oz. glass - Tritium

TEMP. _____

SPEC. COND. _____

pH _____

COMMENTS: Water was generally clear from the start
Metals filtered with an in-line filter

11/8

Dames & Moore

FIELD RECORD OF WATER SAMPLING

WELL NO. UCD-15B JOB NUMBER 10805-454-044

DEPTH OF WELL _____ CLIENT D.O.E.

CASING TYPE/DIAMETER _____ LOCATION UC Davis - LEHR

BOREHOLE DIAMETER _____ SAMPLED BY: _____

SCREENED INTERVAL _____ TO _____ SAND PACK INTERVAL _____ TO _____

REF. POINT _____ ELEVATION _____ DATUM _____

PURGING PRIOR TO SAMPLING

PURGING METHOD _____

PUMP FLOW RATE _____

INITIAL WATER LEVEL _____ ONE CASING/BOREHOLE VOLUME (Gallons) _____

DATE	TIME	TEMP (°)	SPEC. COND.	pH	GALLONS REMOVED	TURBIDITY (NTU)	COMMENTS (appearance of water, odor, etc.)
		Dupe of UCD-15					

RECORD OF SAMPLING

SAMPLING METHOD _____

DATE OF SAMPLE 11-6-90 TIME 1530 DEPTH OF SAMPLE _____

1-1 L Plastic (HNO_3) - Metals, Na, K, Mg, Ca

1-1L Plastic - Cr(VI), SO_4, Cl, TDS, Turbidity, Alkalinity

1-1L Glass (H_2SO_4) - Nitrates, COD, Phosphate.

4-40 ml VOA's - Formaldehyde, 624

1-1 gallon glass - 608, 625

1-1 gallon plastic cube - (HNO_3) Gross α, Gross β, Gamma Strontium 90

1-4 oz. glass - Tritium

TEMP. _____

SPEC. COND. _____

pH _____

COMMENTS: Dupe of UCD-15

11/8

Dames & Moore

FIELD RECORD OF WATER SAMPLING

WELL NO. UCD-15 JOB NUMBER 10805-454-044

DEPTH OF WELL 120.50 CLIENT D.O.E.

CASING TYPE/DIAMETER 4" PVC LOCATION UC Davis - LEHR

BOREHOLE DIAMETER _____ SAMPLED BY: D-Zuber

SCREENED INTERVAL 91 TO 116 SAND PACK INTERVAL _____ TO _____

REF. POINT _____ ELEVATION _____ DATUM _____

PURGING PRIOR TO SAMPLING

PURGING METHOD dedicated submersible pump

PUMP FLOW RATE ≈ 7 gpm WC = 63'

INITIAL WATER LEVEL 56.65' ONE CASING/BOREHOLE VOLUME (Gallons) 42 gallons

DATE	TIME	TEMP (°)	SPEC. COND.	pH	GALLONS REMOVED	TURBIDITY (NTU)	COMMENTS (appearance of water, odor, etc.)
11/8		18.3	650	7.78	140	0.84	≈ 7 gpm
		18.4	652	7.76	154	0.68	↓
		18.3	650	7.72	168	0.59	
		18.3	649	7.79	182	0.83	

RECORD OF SAMPLING

SAMPLING METHOD dedicated submersible pump

DATE OF SAMPLE 11-8-90 TIME 1500 DEPTH OF SAMPLE _____

1-1 L Plastic (HNO_3) - Metals, Na, K, Mg, Ca

1-1L Plastic - Cr(VI), SO_4, Cl, TDS, Turbidity, Alkalinity

1-1L Glass (H_2SO_4) - Nitrates, COD, Phosphate.

4-40 ml VOA's - Formaldehyde, 624

1-1 gallon glass - 608, 625

1-1 gallon plastic cube-(HNO_3) Gross α, Gross β, Gamma Strontium 90

1-4 oz. glass - Tritium

TEMP. _____

SPEC. COND. _____

pH _____

COMMENTS: _____

11/9

Dames & Moore

FIELD RECORD OF WATER SAMPLING

WELL NO. UCD-16 JOB NUMBER 10805-454-044

DEPTH OF WELL 122 CLIENT D.O.E.

CASING TYPE/DIAMETER 4" PVC LOCATION UC Davis - LEHR

BOREHOLE DIAMETER SAMPLED BY: D. Zilker

SCREENED INTERVAL 92 TO 112 SAND PACK INTERVAL TO

REF. POINT ELEVATION DATUM

PURGING PRIOR TO SAMPLING

PURGING METHOD Submersible dedicated pump

PUMP FLOW RATE ≈ 7 gpm WC = 67.03

INITIAL WATER LEVEL 54.97 ONE CASING/BOREHOLE VOLUME (Gallons) 44 gallons

DATE	TIME	TEMP (°)	SPEC. COND.	pH	GALLONS REMOVED	TURBIDITY (NTU)	COMMENTS (appearance of water, odor, etc.)
	0915	18.5	690	7.40	140	1.90	
	0922	18.4	680	7.38	190	0.29	
	925	18.4	650	7.38	210	0.33	
	0928	18.4	660	7.37	225	0.40	

RECORD OF SAMPLING

SAMPLING METHOD Submersible dedicated Pump

DATE OF SAMPLE 11-9-90 TIME 1000 DEPTH OF SAMPLE

1-1 L Plastic (HNO_3) - Metals, Na, K, Mg, Ca

1-1L Plastic - Cr(VI), SO_4, Cl, TDS, Turbidity, Alkalinity

1-1L Glass (H_2SO_4) - Nitrates, COD, Phosphate.

4-40 ml VOA's - Formaldehyde, 624

1-1 gallon glass - 608, 625

1-1 gallon plastic cube - (HNO_3) Gross α, Gross β, Gamma Strontium 90

1-4 oz. glass - Tritium

TEMP.

SPEC. COND.

pH

COMMENTS:

11/9

Dames & Moore

FIELD RECORD OF WATER SAMPLING

WELL NO. UCD-17 JOB NUMBER 10805-454-044

DEPTH OF WELL _____ CLIENT D.O.E.

CASING TYPE/DIAMETER _____ LOCATION UC Davis - LEHR

BOREHOLE DIAMETER _____ SAMPLED BY: _____

SCREENED INTERVAL _____ TO _____ SAND PACK INTERVAL _____ TO _____

REF. POINT _____ ELEVATION _____ DATUM _____

PURGING PRIOR TO SAMPLING

PURGING METHOD _____

PUMP FLOW RATE _____ WC-56 57

INITIAL WATER LEVEL 56.42 ONE CASING/BOREHOLE VOLUME (Gallons) 57 gallons

DATE	TIME	TEMP (°)	SPEC. COND.	pH	GALLONS REMOVED	TURBIDITY (NTU)	COMMENTS (appearance of water, odor, etc.)
11/8	1115	18.8	700	7.36	170	0.18	
		18.8	680	7.33	175	0.24	
		18.7	670	7.33	180	0.29	
	1128	18.8	670	7.37	190	0.18	

RECORD OF SAMPLING

SAMPLING METHOD _____

DATE OF SAMPLE 11/8 TIME 1130 DEPTH OF SAMPLE _____

1-1 L Plastic (HNO_3) - Metals, Na, K, Mg, Ca

1-1L Plastic - Cr(VI), SO_4, Cl, TDS, Turbidity, Alkalinity

1-1L Glass (CH_2SO_4) - Nitrates, COD, Phosphate.

4-40 ml VOA's - Formaldehyde, 624

1-1 gallon glass - 608, 625

1-1 gallon plastic cube - (HNO_3) Gross α, Gross β, Gamma Strontium 90

1-4 oz. glass - Tritium

TEMP. _____

SPEC. COND. _____

pH _____

COMMENTS: _____

Dames & Moore

FIELD RECORD OF WATER SAMPLING

WELL NO. UCD - 18 JOB NUMBER 10805-454-044

DEPTH OF WELL [illegible] CLIENT D. O. E.

CASING TYPE/DIAMETER 4" PVC LOCATION UC Davis - LEHR

BOREHOLE DIAMETER SAMPLED BY: David [illegible]

SCREENED INTERVAL 54 TO 67 SAND PACK INTERVAL TO

REF. POINT ELEVATION DATUM

PURGING PRIOR TO SAMPLING

PURGING METHOD Submersible pump from development rig

PUMP FLOW RATE 2 GPM

INITIAL WATER LEVEL ONE CASING/BOREHOLE VOLUME (Gallons) 5.4

DATE	TIME	TEMP (°)	SPEC. COND.	pH	GALLONS REMOVED	TURBIDITY (NTU)	COMMENTS (appearance of water, odor, etc.)
10/31	1055	19.0	731	7.77	~~149~~ 239	14.8	
* → 10/31	1105	20.1	725	7.72	~~162~~ 252	23.6	
10/31	1120	19.4	719	7.71	~~179~~ 279	30.4	
	1125	19.2	720	7.71	~~203~~ 293	31.0	
	1135	19.2	723	7.69	~~215~~ 308	5.0	
	1140	19.2	720	7.69	226 316	3.7	

R. J. Bates 10-31-90

RECORD OF SAMPLING

SAMPLING METHOD DISPOSABLE BAILER

DATE OF SAMPLE 10/31/90 TIME 1530 DEPTH OF SAMPLE

1-1 L Plastic (HNO_3) - Metals, Na, K, Mg, Ca

1-1L Plastic - Cr(VI), SO_4, Cl, TDS, Turbidity, Alkalinity

1-1L Glass (H_2SO_4) - Nitrates, COD, Phosphate.

4-40 ml VOA's - Formaldehyde, 624

1-1 gallon glass - 608, 625

1-1 gallon plastic cube - (HNO_3) Gross α, Gross β, Gamma Strontium 90

1-4 oz. glass - Tritium

TEMP.

SPEC. COND.

pH

COMMENTS: * pump shut down for 4 minutes

10/29/90

Dames & Moore

FIELD RECORD OF WATER SAMPLING

WELL NO. UCD 19 JOB NUMBER 10805-454-044

DEPTH OF WELL 74.5' CLIENT D.O.E.

CASING TYPE/DIAMETER 4" PVC LOCATION UC Davis - LEHR

BOREHOLE DIAMETER _____ SAMPLED BY: DAVID M. &

SCREENED INTERVAL _____ TO _____ SAND PACK INTERVAL _____ TO _____

REF. POINT _____ ELEVATION _____ DATUM _____

PURGING PRIOR TO SAMPLING

PURGING METHOD Submersible pump from development rig.

PUMP FLOW RATE _____

INITIAL WATER LEVEL _____ ONE CASING/BOREHOLE VOLUME (Gallons) _____

DATE	TIME	TEMP (°)	SPEC. COND.	pH	GALLONS REMOVED	TURBIDITY (NTU)	COMMENTS (appearance of water, odor, etc.)
10/29/90	1500	23.7	1215	6.62	106.5	> 200	
	1510	22.6	1190	7.45	107.0	168	
	1525	22.8	1225	7.64	107.5	53.5	
	1535	23.5	1233	7.85	108.0	33.2	
	1545	23.7	1235	7.70	108.5	30.0	
	1600	23.7	1215	7.68	109.5	27.4	
	1615				129.5		NOT SAMPLED

RECORD OF SAMPLING

SAMPLING METHOD NOT SAMPLED

DATE OF SAMPLE _____ TIME _____ DEPTH OF SAMPLE _____

1-1 L Plastic (HNO_3) - Metals, Na, K, Mg, Ca

1-1L Plastic - Cr(VI), SO_4, Cl, TDS, Turbidity, Alkalinity

1-1L Glass (H_2SO_4) - Nitrates, COD, Phosphate.

4-40 ml VOA's - Formaldehyde, 624

1-1 gallon glass - 608, 625

1-1 gallon plastic cube-(HNO_3) Gross α, Gross β, Gamma Strontium 90

1-4 oz. glass - Tritium

TEMP. _____

SPEC. COND. _____

pH _____

COMMENTS: Water was not sampled 10/29/90. See field record of water sampling for UCD 19 on 10/30/90.

10/30

Dames & Moore

FIELD RECORD OF WATER SAMPLING

-10/31

WELL NO. UCD-19 JOB NUMBER 10805-454-044

DEPTH OF WELL 74.5' CLIENT D.O.E.

CASING TYPE/DIAMETER 4" PVC LOCATION UC Davis - LEHR

BOREHOLE DIAMETER _____ SAMPLED BY: _____

SCREENED INTERVAL _____ TO _____ SAND PACK INTERVAL _____ TO _____

REF. POINT _____ ELEVATION _____ DATUM _____

PURGING PRIOR TO SAMPLING

PURGING METHOD Submersible Pump on WD Development Rig

PUMP FLOW RATE variable between 3 gpm to 0.5 gpm.

INITIAL WATER LEVEL 58.3' from top of ~~monument~~ ONE CASING/BOREHOLE VOLUME (Gallons) _____

DATE	TIME	TEMP (°)	SPEC. COND.	pH	GALLONS REMOVED	TURBIDITY (NTU)	COMMENTS (appearance of water, odor, etc.)
10/30	0845	19.6	1200	6.84	17	27.1	
	0850	20.4	1215	7.45	35	6.8	
	0900	20.4	1229	7.50	52	4.2	
	0905	20.3	1217	7.54	55	4.0	Water looked clear
129	gallons removed initially on 10/29/90						

RECORD OF SAMPLING

SAMPLING METHOD Disposable bailer

DATE OF SAMPLE 10/30/90 TIME 0900 DEPTH OF SAMPLE _____

✓1-1 L Plastic (HNO_3) - Metals, Na, K, Mg, Ca

1-1L Plastic - Cr(VI), SO_4, Cl, TDS, Turbidity, Alkalinity

1-1L Glass (H_2SO_4) - Nitrates, COD, Phosphate.

4-40 ml VOA's - Formaldehyde, 624

1-1 gallon glass - 608, 625

1-1 gallon plastic cube - (HNO_3) Gross α, Gross β, Gamma Strontium 90

1-4 oz. glass - Tritium

TEMP. _____

SPEC. COND. _____

pH _____

COMMENTS: Water Level 58.4' prior to sampling
During Purge pump was set at 72.5'
Filtered for Metals

Dames & Moore

FIELD RECORD OF WATER SAMPLING

WELL NO. CD 30 JOB NUMBER 10805-454-044

DEPTH OF WELL 73.0' CLIENT D.O.E.

CASING TYPE/DIAMETER 4" PVC LOCATION UC Davis - LEHR

BOREHOLE DIAMETER _____ SAMPLED BY: DAVID MORIER

SCREENED INTERVAL 57' TO 72' SAND PACK INTERVAL _____ TO _____

REF. POINT _____ ELEVATION _____ DATUM _____

PURGING PRIOR TO SAMPLING

PURGING METHOD submersible pump from development rig

PUMP FLOW RATE 3GPM → (Except ~~2GPM~~ as indicated by *)

INITIAL WATER LEVEL 56.5 ONE CASING/BOREHOLE VOLUME (Gallons) 11.1

	DATE	TIME	TEMP (°)	SPEC. COND.	pH	GALLONS REMOVED	TURBIDITY (NTU)	COMMENTS (appearance of water, odor, etc.)
	11/1/90	1234	19.6	1500	7.53	129	>1,000	
	11/1/90	1242	19.6	1563	7.53	153	>1,000	
	11/1/90	1255	19.7	1350	7.43	165	>1,000	
*	11/1/90	1300	19.9	1350	7.47	178	135	
**	11/1/90	1315	19.9	1360	7.52	203	98.7	
***	11/1/90	1328	19.9	1360	7.51	212	45.2	
****	11/1/90	1335	19.9	1360	7.51	265	67.0	
****	11/1/90	1400	19.9	1360	7.46	284	22.0	
****	11/1/90	1410	19.9	1360	7.51	300	21.2	

O.K. for sampling
D. Atkinson 11-1-90

RECORD OF SAMPLING

SAMPLING METHOD Disposable bailer

DATE OF SAMPLE 11/1/90 TIME 1430 DEPTH OF SAMPLE 57.6'

1-1 L Plastic (HNO_3) - Metals, Na, K, Mg, Ca

1-1 L Plastic - Cr(VI), SO_4, Cl, TDS, Turbidity, Alkalinity

1-1 L Glass (H_2SO_4) - Nitrates, COD, Phosphate.

4-40 ml VOA's - Formaldehyde, 624

1-1 gallon glass - 608, 625

1-1 gallon plastic cube - (HNO_3) Gross α, Gross β, Gamma Strontium 90

1-4 oz. glass - Tritium

TEMP. _____

SPEC. COND. _____

pH _____

COMMENTS: * Rate was 2 GPM, ** Rate was 1½ GPM, *** Rate was < 1 GPM **** Rate was 1 GPM.

	DATE	TIME	TEMP	SPEC COND	PH	GAL REMOVED	TURBIDITY
****	11/1/90	1420	20.1	1375	7.51	295	16.5
****	11/1/90	1435	19.5	1360	7.53	305	17.1

Dames & Moore

FIELD RECORD OF WATER SAMPLING

WELL NO. UCD 21 JOB NUMBER 10805-454-044

DEPTH OF WELL 73.0' CLIENT D.O.E.

CASING TYPE/DIAMETER 4" PVC LOCATION UC Davis - LEHR

BOREHOLE DIAMETER _____ SAMPLED BY: DAVID MORIER

SCREENED INTERVAL 72 TO 57 SAND PACK INTERVAL _____ TO _____

REF. POINT _____ ELEVATION _____ DATUM _____

PURGING PRIOR TO SAMPLING

PURGING METHOD _____

PUMP FLOW RATE 3 → 1 GPM

INITIAL WATER LEVEL 58.0' ONE CASING/BOREHOLE VOLUME (Gallons) 11.9

DATE	TIME	TEMP (°)	SPEC. COND.	pH	GALLONS REMOVED	TURBIDITY (NTU)	COMMENTS (appearance of water, odor, etc.)
11/2/90	1245	20.6	1550	7.44	203	>200	
11/2/90	1300	20.5	1525	7.45	225	>200	
11/2/90	1310	20.9	1520	7.50	242	>200	
11/2/90	1325	20.5	1527	7.42	259	91.0	
11/2/90	1345	20.6	1536	7.40	290	23.2	
11/2/90	1400	20.6	1524	7.41	305	29.2	
11/2/90	1415	20.9	1536	7.41	325	54.5	
11/2/90	1430	20.8	1494	7.42	345	35.3	
11/2/90	1445	20.8	1470	7.42	362	39.4	

R. L. [illegible] 11/2/90

RECORD OF SAMPLING

SAMPLING METHOD Disposable Bailer

DATE OF SAMPLE 11/2/90 TIME 1545 DEPTH OF SAMPLE _____

1-1 L Plastic (HNO_3) - Metals, Na, K, Mg, Ca

1-1 L Plastic - Cr(VI), SO_4, Cl, TDS, Turbidity, Alkalinity

1-1 L Glass (H_2SO_4) - Nitrates, COD, Phosphate.

4-40 ml VOA's - Formaldehyde, 624

1-1 gallon glass - 608, 625

1-1 gallon plastic cube - (HNO_3) Gross α, Gross β, Gamma Strontium 90

1-4 oz. glass - Tritium

TEMP. _____

SPEC. COND. _____

pH _____

COMMENTS: All water levels are taken from N. side of street level monument casing

11/2/90	1600	20.6	1458	7.44	380	33.2
11/2/90	1615	20.5	1442	7.41	395	29.5

11/7

Dames & Moore

FIELD RECORD OF WATER SAMPLING

WELL NO. UCD-22 JOB NUMBER 10805-454-044

DEPTH OF WELL 73.0 CLIENT D.O.E.

CASING TYPE/DIAMETER 4" PVC LOCATION UC Davis - LEHR

BOREHOLE DIAMETER _____ SAMPLED BY: _____

SCREENED INTERVAL 57 TO 72 SAND PACK INTERVAL _____ TO _____

REF. POINT _____ ELEVATION _____ DATUM _____

PURGING PRIOR TO SAMPLING

PURGING METHOD Submersible Pump from Development Rig

PUMP FLOW RATE 0.8 - 1.0 gpm

INITIAL WATER LEVEL 53.17' ONE CASING/BOREHOLE VOLUME (Gallons) 12.9

DATE	TIME	TEMP (°)	SPEC. COND.	pH	GALLONS REMOVED	TURBIDITY (NTU)	COMMENTS (appearance of water, odor, etc.)
11/7	1225	20.0	890	7.65	140	>200	1 gpm
	1230	20.0	850	7.56	145	191	1 gpm
	1255	20.1	880	7.57	165	94	1 gpm
	1340	20.1	930	7.69	185	105	0.8 gpm
	1350	20.0	840	7.56	190	85	0.8 gpm
	1400	20.0	840	7.56	195	80	0.8 gpm
	1410	20.0	830	7.57	200	49	0.8 gpm
	1420	20.0	840	7.56	207	16	0.8 gpm
	1435	20.0	820	7.5	215	7	0.8 gpm

RECORD OF SAMPLING

SAMPLING METHOD Voss Disposable bailer

DATE OF SAMPLE 11-7-90 TIME 1515 DEPTH OF SAMPLE _____

1-1 L Plastic (HNO_3) - Metals, Na, K, Mg, Ca

1-1L Plastic - Cr(VI), SO_4, Cl, TDS, Turbidity, Alkalinity

1-1L Glass (H_2SO_4) - Nitrates, COD, Phosphate.

4-40 ml VOA's - Formaldehyde, 624

1-1 gallon glass - 608, 625

1-1 gallon plastic cube - (HNO_3) Gross α, Gross β, Gamma Strontium 90

1-4 oz. glass - Tritium

TEMP. _____

SPEC. COND. _____

pH _____

COMMENTS: _____

11/5

Dames & Moore

FIELD RECORD OF WATER SAMPLING

WELL NO. UCD-23 JOB NUMBER 10805-454-044

DEPTH OF WELL 73.0 feet CLIENT D.O.E.

CASING TYPE/DIAMETER 4" PVC LOCATION UC Davis - LEHR

BOREHOLE DIAMETER _____ SAMPLED BY: _____

SCREENED INTERVAL 56.5 TO 71.5 SAND PACK INTERVAL _____ TO _____

REF. POINT _____ ELEVATION _____ DATUM _____

PURGING PRIOR TO SAMPLING

PURGING METHOD Pump (submersible) from Development Rig

PUMP FLOW RATE 1.5 - 3.5 gpm WC = 18.9'

INITIAL WATER LEVEL 54.1' ONE CASING/BOREHOLE VOLUME (Gallons) _____

DATE	TIME	TEMP (°)	SPEC. COND.	pH	GALLONS REMOVED	TURBIDITY (NTU)	COMMENTS (appearance of water, odor, etc.)
11/5	1310	20.0	775	7.59	255	105	3.5 gpm
		20.0	774	7.59	275	94	3.5 gpm
		20.0	772	7.55	320	129	3.5 gpm
		20.5	771	7.55	345	15	1.5 gpm
		20.5	771	7.67	360	4.3	1.5 gpm
	1353	20.6	775	7.65	370	3.5	1.5 gpm
		20.6	775	7.63	389	3.1	1.5 gpm

RECORD OF SAMPLING

SAMPLING METHOD Voss disposable bailer

DATE OF SAMPLE 11-5-90 TIME 1500 DEPTH OF SAMPLE _____

1-1 L Plastic (HNO_3) - Metals, Na, K, Mg, Ca

1-1 L Plastic - Cr(VI), SO_4, Cl, TDS, Turbidity, Alkalinity

1-1 L Glass (H_2SO_4) - Nitrates, COD, Phosphate.

4-40 ml VOA's - Formaldehyde, 624

1-1 gallon glass - 608, 625

1-1 gallon plastic cube - (HNO_3) Gross α, Gross β, Gamma Strontium 90

1-4 oz. glass - Tritium

TEMP. _____

SPEC. COND. _____

pH _____

COMMENTS: Turbidity increased during sampling to above the range of the meter > 200 ftu

11/6

Dames & Moore

FIELD RECORD OF WATER SAMPLING

WELL NO. UCD-24 JOB NUMBER 10805-454-044

DEPTH OF WELL 73.0' CLIENT D.O.E.

CASING TYPE/DIAMETER 4" PVC LOCATION UC Davis - LEHR

BOREHOLE DIAMETER SAMPLED BY: D. Zikes

SCREENED INTERVAL 57 TO 72 SAND PACK INTERVAL TO

REF. POINT ELEVATION DATUM

PURGING PRIOR TO SAMPLING

PURGING METHOD

PUMP FLOW RATE

INITIAL WATER LEVEL 53.45 ONE CASING/BOREHOLE VOLUME (Gallons)

DATE	TIME	TEMP (°)	SPEC. COND.	pH	GALLONS REMOVED	TURBIDITY (NTU)	COMMENTS (appearance of water, odor, etc.)
11/6	1145	20.2	1140	7.41	150	>200	2 gpm
	1155	20.1	1125	7.36	165	83	1.8 gpm
	1215	20.1	1100	7.36	195	29	1.8 gpm
	1225	20.1	1090	7.39	215	24	1.8 gpm
	1240	20.1	1090	7.39	240	16	1.8 gpm
	1252	20.1	1090	7.41	267	17	1.8 gpm
					272 removed total		

RECORD OF SAMPLING

SAMPLING METHOD disposable bailer

DATE OF SAMPLE 11-6-90 TIME 1545 DEPTH OF SAMPLE

1-1 L Plastic (HNO_3) - Metals, Na, K, Mg, Ca

1-1L Plastic - Cr(VI), SO_4, Cl, TDS, Turbidity, Alkalinity

1-1L Glass (H_2SO_4) - Nitrates, COD, Phosphate.

4-40 mL VOA's - Formaldehyde, 624

1-1 gallon glass - 608, 625

1-1 gallon plastic cube - (HNO_3) Gross α, Gross β, Gamma Strontium 90

1-4 oz. glass - Tritium

TEMP.

SPEC. COND.

pH

COMMENTS: UCD-24B is a dupe of this sample

1/4E 142x

Dames & Moore

FIELD RECORD OF WATER SAMPLING

WELL NO. UCD-24B JOB NUMBER 10805-454-044

DEPTH OF WELL Dupe of CLIENT D.O.E.

CASING TYPE/DIAMETER _____ LOCATION UC Davis - LEHR

BOREHOLE DIAMETER _____ SAMPLED BY: _____

SCREENED INTERVAL _____ TO _____ SAND PACK INTERVAL _____ TO _____

REF. POINT _____ ELEVATION _____ DATUM _____

PURGING PRIOR TO SAMPLING

PURGING METHOD Submersible pump from development rig

PUMP FLOW RATE 3.0 to 1.8 gpm

INITIAL WATER LEVEL _____ ONE CASING/BOREHOLE VOLUME (Gallons) _____

DATE	TIME	TEMP (°)	SPEC. COND.	pH	GALLONS REMOVED	TURBIDITY (NTU)	COMMENTS (appearance of water, odor, etc.)
		DUPE		of			
		UCD		24			

RECORD OF SAMPLING

SAMPLING METHOD Voss disposable bailer

DATE OF SAMPLE 11-6-90 TIME 1430 DEPTH OF SAMPLE _____

1-1 L Plastic (HNO_3) - Metals, Na, K, Mg, Ca

1-1L Plastic - Cr(VI), SO_4, Cl, TDS, Turbidity, Alkalinity

1-1L Glass (H_2SO_4) - Nitrates, COD, Phosphate.

4-40 ml VOA's - Formaldehyde, 624

1-1 gallon glass - 608, 625

1-1 gallon plastic cube - (HNO_3) Gross α, Gross β, Gamma Strontium 90

1-4 oz. glass - Tritium

TEMP. _____

SPEC. COND. _____

pH _____

COMMENTS: DUPE of UCD-24

Dames & Moore

FIELD RECORD OF WATER SAMPLING

WELL NO. PCD - 1 JOB NUMBER 10805-454-044

DEPTH OF WELL _____ CLIENT D.O.E.

CASING TYPE/DIAMETER _____ LOCATION UC Davis - LEHR

BOREHOLE DIAMETER _____ SAMPLED BY: _____

SCREENED INTERVAL _____ TO _____ SAND PACK INTERVAL _____ TO _____

REF. POINT _____ ELEVATION _____ DATUM _____

PURGING PRIOR TO SAMPLING

PURGING METHOD _____

PUMP FLOW RATE _____

INITIAL WATER LEVEL _____ ONE CASING/BOREHOLE VOLUME (Gallons) _____

DATE	TIME	TEMP (°)	SPEC. COND.	pH	GALLONS REMOVED	TURBIDITY (NTU)	COMMENTS (appearance of water, odor, etc.)
11/9/90	1200	17.5	1105	7.33		7.7	
11/9/90	1205	16.0	1026	7.37		11.0	
11/9/90	1210	16.0	1017	7.37		7.5	

RECORD OF SAMPLING

SAMPLING METHOD Integrated depth water sample

DATE OF SAMPLE 11/9/90 TIME 1210 DEPTH OF SAMPLE ~18"

✓ 1-1 L Plastic (HNO_3) - Metals, Na, K, Mg, Ca

✓ 1-1L Plastic - Cr(VI), SO_4, Cl, TDS, Turbidity, Alkalinity

✓ 1-1L Glass (H_2SO_4) - Nitrates, COD, Phosphate.

✓ 4-40 ml VOA's - Formaldehyde, 624

✓ 1-1 gallon glass - 608, 625

✓ 1-1 gallon plastic cube - (HNO_3) Gross α, Gross β, Gamma Strontium 90

✓ 1-4 oz. glass - Tritium

TEMP. _____

SPEC. COND. _____

pH _____

COMMENTS: _____

Dames & Moore

FIELD RECORD OF WATER SAMPLING

WELL NO. STPO JOB NUMBER 10805-454-044

DEPTH OF WELL _____ CLIENT D.O.E.

CASING TYPE/DIAMETER _____ LOCATION UC Davis - LEHR

BOREHOLE DIAMETER _____ SAMPLED BY: _____

SCREENED INTERVAL _____ TO _____ SAND PACK INTERVAL _____ TO _____

REF. POINT _____ ELEVATION _____ DATUM _____

PURGING PRIOR TO SAMPLING

PURGING METHOD _____

PUMP FLOW RATE _____

INITIAL WATER LEVEL _____ ONE CASING/BOREHOLE VOLUME (Gallons) _____

DATE	TIME	TEMP (°)	SPEC. COND.	pH	GALLONS REMOVED	TURBIDITY (NTU)	COMMENTS (appearance of water, odor, etc.)
11/9/90	1040	22.7	1222	7.24		6.0	water moving swiftly w/ a little foam on surface
11/9/90	1045	22.8	1237	7.29		8.0	6-12 NTU turbidity reading

RECORD OF SAMPLING

SAMPLING METHOD grab w/ 500 ml flask

DATE OF SAMPLE 11/9/90 TIME 1050 DEPTH OF SAMPLE _____

✓ 1-1 L Plastic (HNO_3) - Metals, Na, K, Mg, Ca

✓ 1-1 L Plastic - Cr(VI), SO_4, Cl, TDS, Turbidity, Alkalinity

✓ 1-1 L Glass (CH_2SO_4) - Nitrates, COD, Phosphate.

✓ 4-40 ml VOA's - Formaldehyde, 624

✓ 1-1 gallon glass - 608, 625

✓ 1-1 gallon plastic cube - (HNO_3) Gross α, Gross β, Gamma Strontium 90

✓ 1-4 oz. glass - Tritium

TEMP. 22.8°C

SPEC. COND. _____

pH _____

COMMENTS: sewage treatment plant outfall surface water sample

Dames & Moore

FIELD RECORD OF WATER SAMPLING

WELL NO. PCU-1d JOB NUMBER 10805-454-044

DEPTH OF WELL _____ CLIENT D.O.E.

CASING TYPE/DIAMETER _____ LOCATION UC Davis - LEHR

BOREHOLE DIAMETER _____ SAMPLED BY: _____

SCREENED INTERVAL _____ TO _____ SAND PACK INTERVAL _____ TO _____

REF. POINT _____ ELEVATION _____ DATUM _____

PURGING PRIOR TO SAMPLING

PURGING METHOD _____

PUMP FLOW RATE _____

INITIAL WATER LEVEL _____ ONE CASING/BOREHOLE VOLUME (Gallons) _____

DATE	TIME	TEMP (°)	SPEC. COND.	pH	GALLONS REMOVED	TURBIDITY (NTU)	COMMENTS (appearance of water, odor, etc.)
	Dupe of					PCU-1	

RECORD OF SAMPLING

SAMPLING METHOD _____

DATE OF SAMPLE 11/9/90 TIME _____ DEPTH OF SAMPLE _____

1-1 L Plastic (HNO_3) - Metals, Na, K, Mg, Ca

1-1L Plastic - Cr(VI), SO_4, Cl, TDS, Turbidity, Alkalinity

1-1L Glass (H_2SO_4) - Nitrates, COD, Phosphate.

4-40 ml VOA's - Formaldehyde, 624

1-1 gallon glass - 608, 625

1-1 gallon plastic cube - (HNO_3) Gross α, Gross β, Gamma Strontium 90

1-4 oz. glass - Tritium

TEMP. _____

SPEC. COND. _____

pH _____

COMMENTS: Dupe of PCU-1d

11/9/90

Dames & Moore

FIELD RECORD OF WATER SAMPLING

WELL NO. PCU-1 JOB NUMBER 10805-454-044

DEPTH OF WELL _____ CLIENT D.O.E.

CASING TYPE/DIAMETER _____ LOCATION UC Davis - LEHR

BOREHOLE DIAMETER _____ SAMPLED BY: _____

SCREENED INTERVAL _____ TO _____ SAND PACK INTERVAL _____ TO _____

REF. POINT _____ ELEVATION _____ DATUM _____

PURGING PRIOR TO SAMPLING

PURGING METHOD _____

PUMP FLOW RATE _____

INITIAL WATER LEVEL _____ ONE CASING/BOREHOLE VOLUME (Gallons) _____

DATE	TIME	TEMP (°)	SPEC. COND.	pH	GALLONS REMOVED	TURBIDITY (NTU)	COMMENTS (appearance of water, odor, etc.)
11/9/90	0855	16.5	1098	7.13		12.2	Water is low in Creek
11/9/90	0900	16.5	1080	7.20		8.0	Algal particles affect turbidity readings

RECORD OF SAMPLING

SAMPLING METHOD Integrated depth water sampler

DATE OF SAMPLE 11/9/90 TIME ~~0855~~ 0900 DEPTH OF SAMPLE ~~~6"~~ ~8"

1-1 L Plastic (HNO_3) - Metals, Na, K, Mg, Ca

1-1L Plastic - Cr(VI), SO_4, Cl, TDS, Turbidity, Alkalinity

1-1L Glass (H_2SO_4) - Nitrates, COD, Phosphate.

4-40 ml VOA's - Formaldehyde, 624

1-1 gallon glass - 608, 625

1-1 gallon plastic cube - (HNO_3) Gross α, Gross β, Gamma Strontium 90

1-4 oz. glass - Tritium

TEMP. 16.5°C

SPEC. COND. _____

pH _____

COMMENTS: Putah Creek Upstream surface water sample. Creek stagnant and surface completely covered with algal or leaf particles

FIELD RECORDS OF WATER SAMPLING
WINTER QUARTER, FEBRUARY 1991

PHASE II SITE CHARACTERIZATION
LEHR ENVIRONMENTAL RESTORATION

Dames & Moore

FIELD RECORD OF WATER SAMPLING

WELL NO. [illegible] JOB NUMBER 10805-454-044

DEPTH OF WELL 57' CLIENT D.O.E.

CASING TYPE/DIAMETER [illegible] PVC LOCATION UC Davis - LEHR

BOREHOLE DIAMETER _____ SAMPLED BY: D MORIER

SCREENED INTERVAL 45.0 TO [illegible] SAND PACK INTERVAL _____ TO _____

REF. POINT _____ ELEVATION _____ DATUM _____

PURGING PRIOR TO SAMPLING

PURGING METHOD BLADDER PUMP

PUMP FLOW RATE _____

INITIAL WATER LEVEL 49.95' from top of [illegible] of PVC ONE CASING/BOREHOLE VOLUME (Gallons) 1.15

DATE	TIME	TEMP (°)	SPEC. COND.	pH	GALLONS REMOVED	TURBIDITY (NTU)	COMMENTS (appearance of water, odor, etc.)
2/7/91	1310	62.1	1150	7.18	~7.5	23.0	
2/7/91	1315	62.6	1146	7.22	~8.0	12.0	
	[illegible]	62.8	[illegible]	7.22	~8.5	8.5	
	1325	62.5	[illegible]	[illegible]	~9.0	8.0	

RECORD OF SAMPLING

SAMPLING METHOD Bladder pump

DATE OF SAMPLE 2/7/91 TIME 1330 DEPTH OF SAMPLE _____

1-1 L Plastic (HNO_3) - Metals, Na, K, Mg, Ca

1-1L Plastic - Cr(VI), SO_4, Cl, TDS, Turbidity, Alkalinity

1-1L Glass (H_2SO_4) - Nitrates, COD, Phosphate.

4-40 ml VOA's - Formaldehyde, 624

1-1 gallon glass - 608, 625

1-1 gallon plastic cube - Gross α, Gross β, Gamma Strontium 90

1-4 oz. glass - Tritium

TEMP. 62.5

SPEC. COND. 1154

pH 7.26

COMMENTS: _____

Dames & Moore

FIELD RECORD OF WATER SAMPLING

WELL NO. MCD-1 JOB NUMBER 10805-454-044

DEPTH OF WELL 57' CLIENT D.O.E.

CASING TYPE/DIAMETER 2" PVC LOCATION UC Davis - LEHR

BOREHOLE DIAMETER _____ SAMPLED BY: D. MORIER

SCREENED INTERVAL _____ TO _____ SAND PACK INTERVAL _____ TO _____

REF. POINT _____ ELEVATION _____ DATUM _____

PURGING PRIOR TO SAMPLING

PURGING METHOD BLADDER PUMP

PUMP FLOW RATE _____

INITIAL WATER LEVEL 48.00' (FROM TOP OF N. SIDE OF PVC) ONE CASING/BOREHOLE VOLUME (Gallons) 1.46

DATE	TIME	TEMP (°)	SPEC. COND.	pH	GALLONS REMOVED	TURBIDITY (NTU)	COMMENTS (appearance of water, odor, etc.)
2/7/91	1652	62.0	1584	6.[illegible]	~2	72.0	
[illegible]	[illegible]	62.7	1601	[illegible]	~4	54.0	
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	~6	56.0	
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	62.0	

RECORD OF SAMPLING

SAMPLING METHOD Bladder pump

DATE OF SAMPLE 2/7/91 TIME 1120 DEPTH OF SAMPLE _____

1-1 L Plastic (HNO_3) - Metals, Na, K, Mg, Ca

1-1L Plastic - Cr(VI), SO_4, Cl, TDS, Turbidity, Alkalinity

1-1L Glass (CH_2SO_4) - Nitrates, COD, Phosphate.

4-40 ml VOA's - Formaldehyde, 624

1-1 gallon glass - 608, 625

1-1 gallon plastic cube - Gross α, Gross β, Gamma Strontium 90

1-4 oz. glass - Tritium

TEMP. _____

SPEC. COND. _____

pH _____

COMMENTS: Pump had been removed from well. Pump was installed, approximately 6 gallons were purged prior to sampling.

Dames & Moore

FIELD RECORD OF WATER SAMPLING

WELL NO. UCD-10 JOB NUMBER 10805-454-044

DEPTH OF WELL 70' CLIENT D.O.E.

CASING TYPE/DIAMETER 4" - PC LOCATION UC Davis - LEHR

BOREHOLE DIAMETER _____ SAMPLED BY: D. Uoxier

SCREENED INTERVAL 54.0 TO 69.0 SAND PACK INTERVAL _____ TO _____

REF. POINT _____ ELEVATION _____ DATUM _____

PURGING PRIOR TO SAMPLING

PURGING METHOD Bladder pump

PUMP FLOW RATE _____

INITIAL WATER LEVEL 48.40' (from north side of top of PVC) ONE CASING/BOREHOLE VOLUME (Gallons) 14.0

DATE	TIME	TEMP (°)	SPEC. COND.	pH	GALLONS REMOVED	TURBIDITY (NTU)	COMMENTS (appearance of water, odor, etc.)
2/11/91	1000	61.1	22,000	7.21	~45	34.0	
	1005	62.0	22,400	7.15	~45	30.0	
	10[illegible]	62.[illegible]	22,500	7.23	[illegible]	22.0	

RECORD OF SAMPLING

SAMPLING METHOD Bladder pump

DATE OF SAMPLE 2/11/91 TIME 0945 DEPTH OF SAMPLE _____

1-1 L Plastic (HNO_3) - Metals, Na, K, Mg, Ca

1-1L Plastic - Cr(VI), SO_4, Cl, TDS, Turbidity, Alkalinity

1-1L Glass (H_2SO_4) - Nitrates, COD, Phosphate.

4-40 ml VOA's - Formaldehyde, 624

1-1 gallon glass - 608, 625

1-1 gallon plastic cube - Gross α, Gross β, Gamma Strontium 90

1-4 oz. glass - Tritium

TEMP. 62.0

SPEC. COND. 22,500

pH 7.23

COMMENTS: _____

Dames & Moore

FIELD RECORD OF WATER SAMPLING

WELL NO. ICD-7 JOB NUMBER 10805-454-044

DEPTH OF WELL 90' CLIENT D.O.E.

CASING TYPE/DIAMETER 2" PVC LOCATION UC Davis - LEHR

BOREHOLE DIAMETER _____ SAMPLED BY: D. MOKIER

SCREENED INTERVAL _____ TO _____ SAND PACK INTERVAL _____ TO _____

REF. POINT _____ ELEVATION _____ DATUM _____

PURGING PRIOR TO SAMPLING

PURGING METHOD (Bladder pump)

PUMP FLOW RATE _____

INITIAL WATER LEVEL 49.67' (to top of north side of PVC) ONE CASING/BOREHOLE VOLUME (Gallons) 6.58

DATE	TIME	TEMP (°)	SPEC. COND.	pH	GALLONS REMOVED	TURBIDITY (NTU)	COMMENTS (appearance of water, odor, etc.)
2/7/91	1510	65.6	1246	7.45	~15	3.5	
[illegible]	1515	65.5	1233	7.43	~16	5.0	
[illegible]	15[illegible]	64.7	1220	7.51	~18	5.0	

RECORD OF SAMPLING

SAMPLING METHOD Bladder pump

DATE OF SAMPLE 2/7/91 TIME 1530 DEPTH OF SAMPLE _____

1-1 L Plastic (HNO_3) - Metals, Na, K, Mg, Ca

1-1L Plastic - Cr(VI), SO_4, Cl, TDS, Turbidity, Alkalinity

1-1L Glass (CH_2SO_4) - Nitrates, COD, Phosphate.

4-40 ml VOA's - Formaldehyde, 624

1-1 gallon glass - 608, 625

1-1 gallon plastic cube - Gross α, Gross β, Gamma Strontium 90

1-4 oz. glass - Tritium

TEMP. _____

SPEC. COND. _____

pH _____

COMMENTS: 19 gallons [illegible] sampling

Dames & Moore

FIELD RECORD OF WATER SAMPLING

WELL NO. UCD-12 JOB NUMBER 10805-454-044

DEPTH OF WELL 66' CLIENT D.O.E.

CASING TYPE/DIAMETER 4" PVC LOCATION UC Davis - LEHR

BOREHOLE DIAMETER _____ SAMPLED BY: D. MORIER

SCREENED INTERVAL 49.5 TO 64.5 SAND PACK INTERVAL _____ TO _____

REF. POINT _____ ELEVATION _____ DATUM _____

PURGING PRIOR TO SAMPLING

PURGING METHOD Bladder pump

PUMP FLOW RATE _____

INITIAL WATER LEVEL 50.25' (from north side of top of PVC) ONE CASING/BOREHOLE VOLUME (Gallons) 10.3

DATE	TIME	TEMP (°)	SPEC. COND.	pH	GALLONS REMOVED	TURBIDITY (NTU)	COMMENTS (appearance of water, odor, etc.)
2/11/91	1457	63.7	4,120	7.64	~25	25.0	
	1411	63.7	4,150	7.59	~28	25.0	
	1411	63.6	4,090	7.63	~32	38.6	

RECORD OF SAMPLING

SAMPLING METHOD Bladder pump

DATE OF SAMPLE 2/11/91 TIME 1330 DEPTH OF SAMPLE _____

1-1 L Plastic (HNO_3) - Metals, Na, K, Mg, Ca

1-1L Plastic - Cr(VI), SO_4, Cl, TDS, Turbidity, Alkalinity

1-1L Glass (H_2SO_4) - Nitrates, COD, Phosphate.

4-40 ml VOA's - Formaldehyde, 624

1-1 gallon glass - 608, 625

1-1 gallon plastic cube - Gross α, Gross β, Gamma Strontium 90

1-4 oz. glass - Tritium

TEMP. 63.6

SPEC. COND. 4,090

pH 7.63

COMMENTS: UCD-12d is a duplicate of UCD-12

Dames & Moore

FIELD RECORD OF WATER SAMPLING

WELL NO. UCD - 11 JOB NUMBER 10805-454-044

DEPTH OF WELL 76' CLIENT D. O. E.

CASING TYPE/DIAMETER 4" PVC LOCATION UC Davis - LEHR

BOREHOLE DIAMETER _____ SAMPLED BY: D. Monroe

SCREENED INTERVAL 56.0 TO 65.0 SAND PACK INTERVAL _____ TO _____

REF. POINT _____ ELEVATION _____ DATUM _____

PURGING PRIOR TO SAMPLING

PURGING METHOD Bladder pump

PUMP FLOW RATE _____

INITIAL WATER LEVEL 47.0 [illegible] ONE CASING/BOREHOLE VOLUME (Gallons) 11.1

DATE	TIME	TEMP (°)	SPEC. COND.	pH	GALLONS REMOVED	TURBIDITY (NTU)	COMMENTS (appearance of water, odor, etc.)
2/11/91	1143	60.5	1455	7.49	~23	8.5	
2/11/91	1147	60.5	1458	7.71	~27	8.5	
	1152	61.5	1478	7.70	~30	7.5	
	1157	61.7	1472	7.79	~35	8.5	

RECORD OF SAMPLING

SAMPLING METHOD Bladder pump

DATE OF SAMPLE 2/11/91 TIME 230 DEPTH OF SAMPLE _____

1-1 L Plastic (HNO_3) - Metals, Na, K, Mg, Ca

1-1L Plastic - Cr(VI), SO_4, Cl, TDS, Turbidity, Alkalinity

1-1L Glass (H_2SO_4) - Nitrates, COD, Phosphate.

4-40 ml VOA's - Formaldehyde, 624

1-1 gallon glass - 608, 625

1-1 gallon plastic cube - Gross α, Gross β, Gamma Strontium 90

1-4 oz. glass - Tritium

TEMP. 61.7

SPEC. COND. 1472

pH 7.79

COMMENTS: _____

Dames & Moore

FIELD RECORD OF WATER SAMPLING

WELL NO. UCD-12 JOB NUMBER 10805-454-044

DEPTH OF WELL 66 CLIENT D.O.E.

CASING TYPE/DIAMETER 4" PVC LOCATION UC Davis - LEHR

BOREHOLE DIAMETER _____ SAMPLED BY: [illegible]

SCREENED INTERVAL 55.0 TO 65.0 SAND PACK INTERVAL _____ TO _____

REF. POINT _____ ELEVATION _____ DATUM _____

PURGING PRIOR TO SAMPLING

PURGING METHOD Bladder pump

PUMP FLOW RATE _____

INITIAL WATER LEVEL 50.63' (from north side of top [illegible]) ONE CASING/BOREHOLE VOLUME (Gallons) 10.0

DATE	TIME	TEMP (°)	SPEC. COND.	pH	GALLONS REMOVED	TURBIDITY (NTU)	COMMENTS (appearance of water, odor, etc.)
2/12/91	1400	65.2	1854	8.42	~21	6.8	
	1406	66.7	1857	8.02	~25	8.8	
	1409	66.6	1843	8.53	~27	8.0	
	1412	66.2	1852	8.09	~33	8.0	
	1417	65.7	1858	7.30	~39	11.0	pH meter was recalibrated
	1422	65.7	1833	7.16	~42	5.0	
	1427	65.6	1865	7.04	~45	7.3	

RECORD OF SAMPLING

SAMPLING METHOD Bladder pump

DATE OF SAMPLE 2/12/91 TIME 1400 DEPTH OF SAMPLE _____

1-1 L Plastic (HNO_3) - Metals, Na, K, Mg, Ca

1-1L Plastic - Cr(VI), SO_4, Cl, TDS, Turbidity, Alkalinity

1-1L Glass (H_2SO_4) - Nitrates, COD, Phosphate.

4-40 ml VOA's - Formaldehyde, 624

1-1 gallon glass - 608, 625

1-1 gallon plastic cube - Gross α, Gross β, Gamma Strontium 90

1-4 oz. glass - Tritium

TEMP. 65.6

SPEC. COND. 1865

pH 7.04

COMMENTS: _____

Dames & Moore

FIELD RECORD OF WATER SAMPLING

WELL NO. UCD-12d JOB NUMBER 10805-454-044

DEPTH OF WELL 66' CLIENT D.O.E.

CASING TYPE/DIAMETER 4" PVC LOCATION UC Davis - LEHR

BOREHOLE DIAMETER _____ SAMPLED BY: D. Mor[illegible]

SCREENED INTERVAL 49.5 TO 64.5 SAND PACK INTERVAL _____ TO _____

REF. POINT _____ ELEVATION _____ DATUM _____

PURGING PRIOR TO SAMPLING

PURGING METHOD Bladder pump

PUMP FLOW RATE _____

INITIAL WATER LEVEL 53.75' from [illegible] ONE CASING/BOREHOLE VOLUME (Gallons) _____

DATE	TIME	TEMP (°)	SPEC. COND.	pH	GALLONS REMOVED	TURBIDITY (NTU)	COMMENTS (appearance of water, odor, etc.)
2/11/91	1407	63.7	4,130	7.64	~35	250	
	1411	63.7	4,150	7.59	~28	250	
	1416	63.6	4,090	7.63	~32	38.0	

DUPLICATE

UCD-12d = UCD-12

RECORD OF SAMPLING

SAMPLING METHOD Bladder pump

DATE OF SAMPLE 12/11/91 TIME 400 DEPTH OF SAMPLE _____

1-1 L Plastic (HNO_3) - Metals, Na, K, Mg, Ca

1-1L Plastic - Cr(VI), SO_4, Cl, TDS, Turbidity, Alkalinity

1-1L Glass (H_2SO_4) - Nitrates, COD, Phosphate.

4-40 ml VOA's - Formaldehyde, 624

1-1 gallon glass - 608, 625

1-1 gallon plastic cube - Gross α, Gross β, Gamma Strontium 90

1-4 oz. glass - Tritium

TEMP. 63.6

SPEC. COND. 4,090

pH 7.63

COMMENTS: UCD-12d = UCD-12

Dames & Moore

FIELD RECORD OF WATER SAMPLING

WELL NO. UCD-15 JOB NUMBER 10805-454-044

DEPTH OF WELL _____ CLIENT D.O.E.

CASING TYPE/DIAMETER 4" LOCATION UC Davis - LEHR

BOREHOLE DIAMETER _____ SAMPLED BY: R. Moreen

SCREENED INTERVAL 91 TO 116 SAND PACK INTERVAL _____ TO _____

REF. POINT Top PVC ELEVATION _____ DATUM _____

116
50
66
.5
33
3
99

PURGING PRIOR TO SAMPLING

PURGING METHOD Submersible Pump

PUMP FLOW RATE 4-5 gpm Begin purging 11:12 Pick Pump 11:50

INITIAL WATER LEVEL 49.77 ONE CASING/BOREHOLE VOLUME (Gallons) = 36

DATE	TIME	TEMP (°)	SPEC. COND.	pH	GALLONS REMOVED	TURBIDITY (NTU)	COMMENTS (appearance of water, odor, etc.)
2/4	1050						Water Clear
	1135	58.7	857	7.73	120	2.4	
	1139	60.7	883	7.71		2.1	
	1141	60.9	889	7.73	140	1.8	
	1145	61.0	889	7.74	150	1.9	Water Clear

RECORD OF SAMPLING

SAMPLING METHOD Submersible Pump

DATE OF SAMPLE 2/4/91 TIME 12:00 DEPTH OF SAMPLE _____

1-1 L Plastic (HNO_3) - Metals, Na, K, Mg, Ca

1-1L Plastic - Cr(VI), SO_4, Cl, TDS, Turbidity, Alkalinity

1-1L Glass (H_2SO_4) - Nitrates, COD, Phosphate.

4-40 ml VOA's - Formaldehyde, 624

1-1 gallon glass - 608, 625

1-1 gallon plastic cube - Gross α, Gross β, Gamma Strontium 90

1-4 oz. glass - Tritium

TEMP. 61.0

SPEC. COND. 889

pH 7.74

COMMENTS: Nice Clear H_2O

Dames & Moore

FIELD RECORD OF WATER SAMPLING

WELL NO. UCD-14 JOB NUMBER 10805-454-044

DEPTH OF WELL 96' CLIENT D.O.E.

CASING TYPE/DIAMETER [illegible] LOCATION UC Davis - LEHR

BOREHOLE DIAMETER _____ SAMPLED BY: D. MOKIER

SCREENED INTERVAL 75.0 TO 95.0 SAND PACK INTERVAL _____ TO _____

REF. POINT _____ ELEVATION _____ DATUM _____

PURGING PRIOR TO SAMPLING

PURGING METHOD Bladder pump

PUMP FLOW RATE _____

INITIAL WATER LEVEL [illegible] ONE CASING/BOREHOLE VOLUME (Gallons) 23.8

DATE	TIME	TEMP (°)	SPEC. COND.	pH	GALLONS REMOVED	TURBIDITY (NTU)	COMMENTS (appearance of water, odor, etc.)
2/12/91	1104	61.4	900	7.52	~60	6.1	
	1110	62.[illegible]	913	7.59	~[illegible]5	6.3	
	[illegible]	62.[illegible]	912	7.60	~[illegible]	6.5	

RECORD OF SAMPLING

SAMPLING METHOD Bladder pump

DATE OF SAMPLE 2/12/91 TIME 1130 DEPTH OF SAMPLE _____

1-1 L Plastic (HNO_3) - Metals, Na, K, Mg, Ca

1-1L Plastic - Cr(VI), SO_4, Cl, TDS, Turbidity, Alkalinity

1-1L Glass (H_2SO_4) - Nitrates, COD, Phosphate.

4-40 mL VOA's - Formaldehyde, 624

1-1 gallon glass - 608, 625

1-1 gallon plastic cube - Gross α, Gross β, Gamma Strontium 90

1-4 oz. glass - Tritium

TEMP. 62.2

SPEC. COND. 912

pH 7.60

COMMENTS: _____

Dames & Moore

FIELD RECORD OF WATER SAMPLING

WELL NO. UCD-17 JOB NUMBER 10805-454-044

DEPTH OF WELL _____ CLIENT D.O.E.

CASING TYPE/DIAMETER 4" LOCATION UC Davis - LEHR

BOREHOLE DIAMETER _____ SAMPLED BY: R. Moreno

SCREENED INTERVAL 88 TO 113 SAND PACK INTERVAL _____ TO _____

REF. POINT Top PVC ELEVATION _____ DATUM _____

PURGING PRIOR TO SAMPLING

PURGING METHOD Submersible Pump

PUMP FLOW RATE ≈ 5 gpm

INITIAL WATER LEVEL 48.5 ONE CASING/BOREHOLE VOLUME (Gallons) 36 gals

DATE	TIME	TEMP (°)	SPEC. COND.	pH	GALLONS REMOVED	TURBIDITY (NTU)	COMMENTS (appearance of water, odor, etc.)
2/5/91							
	0909	60.1	857	7.58	130	0.2	
		61.7	890	7.57		0.1	
		62.0	895	7.59		0.1	
	0915	62.1	897	7.57	150	0.1	

RECORD OF SAMPLING

SAMPLING METHOD Submersible Pump

DATE OF SAMPLE 2/5/91 TIME 0915 DEPTH OF SAMPLE _____

1-1 L Plastic (HNO_3) - Metals, Na, K, Mg, Ca

1-1L Plastic - Cr(VI), SO_4, Cl, TDS, Turbidity, Alkalinity

1-1L Glass (H_2SO_4) - Nitrates, COD, Phosphate.

4-40 ml VOA's - Formaldehyde, 624

1-1 gallon glass - 608, 625

1-1 gallon plastic cube - Gross α, Gross β, Gamma Strontium 90

1-4 oz. glass - Tritium

TEMP. 62.1

SPEC. COND. 897

pH 7.57

COMMENTS: _____

Dames & Moore

FIELD RECORD OF WATER SAMPLING

WELL NO. UCD-16 JOB NUMBER 10805-454-044

DEPTH OF WELL _____ CLIENT D.O.E.

CASING TYPE/DIAMETER 4" LOCATION UC Davis - LEHR

BOREHOLE DIAMETER _____ SAMPLED BY: R. Moren

SCREENED INTERVAL 92 TO 117 SAND PACK INTERVAL _____ TO _____

REF. POINT Top PVC ELEVATION _____ DATUM _____

CA
117
47
69
.5
34.5
133.5

PURGING PRIOR TO SAMPLING

PURGING METHOD Grundfos Submersible Pump = 4-5 gpm

PUMP FLOW RATE _____

INITIAL WATER LEVEL 49.18 ONE CASING/BOREHOLE VOLUME (Gallons) = 140 gals

DATE	TIME	TEMP (°)	SPEC. COND.	pH	GALLONS REMOVED	TURBIDITY (NTU)	COMMENTS (appearance of water, odor, etc.)
2/4/91	0915						Clear
	0940	58.1	878	7.77		1.7	Clear
	0944	59.1	889	7.78		1.0	
		59.0	887	7.75		1.3	

RECORD OF SAMPLING

SAMPLING METHOD Submersible Pump

DATE OF SAMPLE 2/4/91 TIME 9:45 DEPTH OF SAMPLE _____

1-1 L Plastic (HNO_3) - Metals, Na, K, Mg, Ca

1-1L Plastic - Cr(VI), SO_4, Cl, TDS, Turbidity, Alkalinity

1-1L Glass (H_2SO_4) - Nitrates, COD, Phosphate.

4-40 ml VOA's - Formaldehyde, 624

1-1 gallon glass - 608, 625

1-1 gallon plastic cube - Gross α, Gross β, Gamma Strontium 90

1-4 oz. glass - Tritium

TEMP. 59.0

SPEC. COND. 887

pH 7.75

COMMENTS: _____

Dames & Moore

FIELD RECORD OF WATER SAMPLING

WELL NO. UCD-19 JOB NUMBER 10805-454-044

DEPTH OF WELL _____ CLIENT D.O.E.

CASING TYPE/DIAMETER 4 LOCATION UC Davis - LEHR

BOREHOLE DIAMETER _____ SAMPLED BY: R. MOREN

SCREENED INTERVAL 56.5 TO 71.5 SAND PACK INTERVAL _____ TO _____

REF. POINT Top PVC ELEVATION _____ DATUM _____

PURGING PRIOR TO SAMPLING

PURGING METHOD Submersible Pump

PUMP FLOW RATE _____

INITIAL WATER LEVEL 50.05 ONE CASING/BOREHOLE VOLUME (Gallons) 12.1

DATE	TIME	TEMP (°)	SPEC. COND.	pH	GALLONS REMOVED	TURBIDITY (NTU)	COMMENTS (appearance of water, odor, etc.)
2/6/91	12	60.2	1568	7.58	40	1.3	
		63.1	1634	7.55		0.9	
		64.4	1650	7.51		0.9	
		64.5	1660	7.53		0.9	

RECORD OF SAMPLING

SAMPLING METHOD Submersible Pump

DATE OF SAMPLE 2/6/91 TIME 1230 DEPTH OF SAMPLE _____

1-1 L Plastic (HNO_3) - Metals, Na, K, Mg, Ca

1-1L Plastic - Cr(VI), SO_4, Cl, TDS, Turbidity, Alkalinity

1-1L Glass (H_2SO_4) - Nitrates, COD, Phosphate.

4-40 mL VOA's - Formaldehyde, 624

1-1 gallon glass - 608, 625

1-1 gallon plastic cube - Gross α, Gross β, Gamma Strontium 90

1-4 oz. glass - Tritium

TEMP. 64.5

SPEC. COND. 1660

pH 7.53

COMMENTS: _____

Dames & Moore

FIELD RECORD OF WATER SAMPLING

WELL NO. UCD - 18 JOB NUMBER 10805-454-044

DEPTH OF WELL _____ CLIENT D.O.E.

CASING TYPE/DIAMETER 4" LOCATION UC Davis - LEHR

BOREHOLE DIAMETER _____ SAMPLED BY: _____

SCREENED INTERVAL 54 TO 69 SAND PACK INTERVAL _____ TO _____

REF. POINT Top PVC ELEVATION _____ DATUM _____

PURGING PRIOR TO SAMPLING

PURGING METHOD Submersible Pump

PUMP FLOW RATE _____

INITIAL WATER LEVEL = 48 ONE CASING/BOREHOLE VOLUME (Gallons) = 11.5

69
48
21
10.5
11.5
36

DATE	TIME	TEMP (°)	SPEC. COND.	pH	GALLONS REMOVED	TURBIDITY (NTU)	COMMENTS (appearance of water, odor, etc.)
2/4/91						~~3.8~~	
	1350	59.5	874	7.65	32	3.8	
		61.1	915	7.64		3.9	
	1359	61.4	920	7.63	40	3.8	
		61.9	926	7.64		2.9	

RECORD OF SAMPLING

SAMPLING METHOD Submersible Pump

DATE OF SAMPLE 2/4/91 TIME 1415 DEPTH OF SAMPLE _____

1-1 L Plastic (HNO_3) - Metals, Na, K, Mg, Ca

1-1L Plastic - Cr(VI), SO_4, Cl, TDS, Turbidity, Alkalinity

1-1L Glass (H_2SO_4) - Nitrates, COD, Phosphate.

4-40 ml VOA's - Formaldehyde, 624

1-1 gallon glass - 608, 625

1-1 gallon plastic cube - Gross α, Gross β, Gamma Strontium 90

1-4 oz. glass - Tritium

TEMP. 61.8

SPEC. COND. 926

pH 7.64

COMMENTS: _____

Dames & Moore

FIELD RECORD OF WATER SAMPLING

WELL NO. UCD-20 JOB NUMBER 10805-454-044

DEPTH OF WELL _____ CLIENT D.O.E.

CASING TYPE/DIAMETER 4" LOCATION UC Davis - LEHR

BOREHOLE DIAMETER _____ SAMPLED BY: R. Moreno

SCREENED INTERVAL 57 TO 72 SAND PACK INTERVAL _____ TO _____

REF. POINT Top PVC ELEVATION _____ DATUM _____

PURGING PRIOR TO SAMPLING

PURGING METHOD Submersible Pump

PUMP FLOW RATE _____

INITIAL WATER LEVEL 47.82 ONE CASING/BOREHOLE VOLUME (Gallons) _____

DATE	TIME	TEMP (°)	SPEC. COND.	pH	GALLONS REMOVED	TURBIDITY (NTU)	COMMENTS (appearance of water, odor, etc.)
2/6/91	0910	56.2	1821	7.45		0.2	
		59.7	1878	7.44		0.2	
		60.7	1890	7.44		0.2	
		61.2	1910	7.43		0.2	
		61.5	1920	7.42		0.2	

RECORD OF SAMPLING

SAMPLING METHOD Submersible Pump

DATE OF SAMPLE 2/6/91 TIME 0930 DEPTH OF SAMPLE _____

1-1 L Plastic (HNO_3) - Metals, Na, K, Mg, Ca

1-1L Plastic - Cr(VI), SO_4, Cl, TDS, Turbidity, Alkalinity

1-1L Glass (H_2SO_4) - Nitrates, COD, Phosphate.

4-40 ml VOA's - Formaldehyde, 624

1-1 gallon glass - 608, 625

1-1 gallon plastic cube - Gross α, Gross β, Gamma Strontium 90

1-4 oz. glass - Tritium

TEMP. 61.5

SPEC. COND. 1920

pH 7.42

COMMENTS: _____

Dames & Moore

FIELD RECORD OF WATER SAMPLING

WELL NO. UCD-21 JOB NUMBER 10805-454-044

DEPTH OF WELL _____ CLIENT D.O.E.

CASING TYPE/DIAMETER 4" LOCATION UC Davis - LEHR

BOREHOLE DIAMETER _____ SAMPLED BY: R. Morew

SCREENED INTERVAL 57 TO 72 SAND PACK INTERVAL _____ TO _____

REF. POINT Top PVC ELEVATION _____ DATUM _____

PURGING PRIOR TO SAMPLING

PURGING METHOD Submersible Pump

PUMP FLOW RATE _____

INITIAL WATER LEVEL 47.09 ONE CASING/BOREHOLE VOLUME (Gallons) 14.12

DATE	TIME	TEMP (°)	SPEC. COND.	pH	GALLONS REMOVED	TURBIDITY (NTU)	COMMENTS (appearance of water, odor, etc.)
2/5	1435	62.7	1891	7.36	45	0.9	
		64.3	1984	7.34		0.8	
		64.5	1990	7.34		0.7	
		64.8	1989	7.34		1.0	

RECORD OF SAMPLING

SAMPLING METHOD Submersible Pump

DATE OF SAMPLE 2/5/91 TIME 1445 DEPTH OF SAMPLE _____

1-1 L Plastic (HNO_3) - Metals, Na, K, Mg, Ca

1-1L Plastic - Cr(VI), SO_4, Cl, TDS, Turbidity, Alkalinity

1-1L Glass (H_2SO_4) - Nitrates, COD, Phosphate.

4-40 ml VOA's - Formaldehyde, 624

1-1 gallon glass - 608, 625

1-1 gallon plastic cube - Gross α, Gross β, Gamma Strontium 90

1-4 oz. glass - Tritium

TEMP. 64.8

SPEC. COND. 1989

pH 7.34

COMMENTS: _____

Dames & Moore

FIELD RECORD OF WATER SAMPLING

WELL NO. UCD-22 JOB NUMBER 10805-45

DEPTH OF WELL _____ CLIENT D.O.E.

CASING TYPE/DIAMETER 4" LOCATION UC Davis - U

BOREHOLE DIAMETER _____ SAMPLED BY: R. /

SCREENED INTERVAL 57 TO 72 SAND PACK INTERVAL _____

REF. POINT _____ ELEVATION _____ DATUM _____

PURGING PRIOR TO SAMPLING

PURGING METHOD Submersible Pump

PUMP FLOW RATE _____

INITIAL WATER LEVEL 47.2 ONE CASING/BOREHOLE VOLUME (Ga

DATE	TIME	TEMP (°)	SPEC. COND.	pH	GALLONS REMOVED	TURBIDITY (NTU)	C (at wel
2/5/91	1313	64.5	1028	7.57	48	0.4	
		65.7	1042	7.55		0.4	
		66.2	1046	7.55	50	0.4	
		66.2	1050	7.56	54	0.5	

RECORD OF SAMPLING

SAMPLING METHOD Submersible Pump

DATE OF SAMPLE 2/5/91 TIME 1330 DEPTH OF SAMPLE ____

1-1 L Plastic (HNO_3) - Metals, Na, K, Mg, Ca

1-1L Plastic - Cr(VI), SO_4, Cl, TDS, Turbidity, Alkalinity

1-1L Glass (H_2SO_4) - Nitrates, COD, Phosphate.

4-40 ml VOA's - Formaldehyde, 624

1-1 gallon glass - 608, 625

1-1 gallon plastic cube - Gross α, Gross β, Gamma Strontium 90

1-4 oz. glass - Tritium

TEMP. /

SPEC

CO

COMMENTS: Duplicate Taken - Labeled

Dames & Moore

FIELD RECORD OF WATER SAMPLING

WELL NO. UCD -23 JOB NUMBER 10805-454-044

DEPTH OF WELL _____ CLIENT D.O.E.

CASING TYPE/DIAMETER 4" LOCATION UC Davis - LEHR

BOREHOLE DIAMETER _____ SAMPLED BY: _____

SCREENED INTERVAL 56.5 TO 71.5 SAND PACK INTERVAL _____ TO _____

REF. POINT Top PVC ELEVATION _____ DATUM _____

PURGING PRIOR TO SAMPLING

PURGING METHOD Submersible Pump

PUMP FLOW RATE _____

INITIAL WATER LEVEL 47.8 ONE CASING/BOREHOLE VOLUME (Gallons) 13.62

DATE	TIME	TEMP (°)	SPEC. COND.	pH	GALLONS REMOVED	TURBIDITY (NTU)	COMMENTS (appearance of water, odor, etc.)
2/6/91	1030	58.2	930	7.74	~~16~~ 45	1.6	
		61.4	974	7.69	~~17~~	1.7	
		62.5	990	7.67	~~17~~	1.7	
		63.2	1005	7.65	~~16~~	1.6	
		64.5	1010	7.64	~~17~~	1.7	
2/6/91	1040	64.7	1011	7.64	~~16~~ 55	1.6	Water Clear

RECORD OF SAMPLING

SAMPLING METHOD Submersible Pump

DATE OF SAMPLE 2/6/91 TIME 1040 DEPTH OF SAMPLE _____

1-1 L Plastic (HNO_3) - Metals, Na, K, Mg, Ca

1-1L Plastic - Cr(VI), SO_4, Cl, TDS, Turbidity, Alkalinity

1-1L Glass (H_2SO_4) - Nitrates, COD, Phosphate.

4-40 ml VOA's - Formaldehyde, 624

1-1 gallon glass - 608, 625

1-1 gallon plastic cube - Gross α, Gross β, Gamma Strontium 90

1-4 oz. glass - Tritium

TEMP. ~~17~~ 64.7

SPEC. COND. 1011

pH 7.64

COMMENTS: _____

Dames & Moore

FIELD RECORD OF WATER SAMPLING

WELL NO. UCD-22B JOB NUMBER 10805-454-044

DEPTH OF WELL _____ CLIENT D.O.E.

CASING TYPE/DIAMETER 4" LOCATION UC Davis - LEHR

BOREHOLE DIAMETER _____ SAMPLED BY: R. Morrow

SCREENED INTERVAL 57 TO 72 SAND PACK INTERVAL _____ TO _____

REF. POINT _____ ELEVATION _____ DATUM _____

PURGING PRIOR TO SAMPLING

PURGING METHOD Submersible

PUMP FLOW RATE _____

INITIAL WATER LEVEL 47.2 ONE CASING/BOREHOLE VOLUME (Gallons) _____

DATE	TIME	TEMP (°)	SPEC. COND.	pH	GALLONS REMOVED	TURBIDITY (NTU)	COMMENTS (appearance of water, odor, etc.)

Dupl of UCD 22

RECORD OF SAMPLING

SAMPLING METHOD Submersible Pump

DATE OF SAMPLE 2/5/91 TIME 1600 DEPTH OF SAMPLE _____

1-1 L Plastic (HNO_3) - Metals, Na, K, Mg, Ca

1-1L Plastic - Cr(VI), SO_4, Cl, TDS, Turbidity, Alkalinity

1-1L Glass (H_2SO_4) - Nitrates, COD,

4-40 ml VOA's - Formaldehyde, 624

1-1 gallon glass - 608, 625

1-1 gallon plastic cube - Gross α, Gross β, Gamma Strontium 90

1-4 oz. glass - Tritium

TEMP. _____

SPEC. COND. _____

pH _____

COMMENTS: _____

Dames & Moore

FIELD RECORD OF WATER SAMPLING

WELL NO. UCD-24 JOB NUMBER 10805-454-044

DEPTH OF WELL _____ CLIENT D.O.E.

CASING TYPE/DIAMETER 4" LOCATION UC Davis - LEHR

BOREHOLE DIAMETER _____ SAMPLED BY: R. MOREN

SCREENED INTERVAL 57 TO 72 SAND PACK INTERVAL _____ TO _____

REF. POINT Top PVC ELEVATION _____ DATUM _____

72
47

PURGING PRIOR TO SAMPLING

PURGING METHOD Submersible Pump

PUMP FLOW RATE _____

INITIAL WATER LEVEL 47.35 ONE CASING/BOREHOLE VOLUME (Gallons) 13.87

DATE	TIME	TEMP (°)	SPEC. COND.	pH	GALLONS REMOVED	TURBIDITY (NTU)	COMMENTS (appearance of water, odor, etc.)
2/5/91	1105	61.0	1597	7.44	45	0.7	
		63.9	1656	7.42		0.7	
	1115	64.8	1660	7.40	50	0.5	
		65.1	1665	7.42		0.8	

RECORD OF SAMPLING

SAMPLING METHOD Submersible Pump

DATE OF SAMPLE 2/5/91 TIME 1120 DEPTH OF SAMPLE _____

1-1 L Plastic (HNO_3) - Metals, Na, K, Mg, Ca

1-1L Plastic - Cr(VI), SO_4, Cl, TDS, Turbidity, Alkalinity

1-1L Glass (H_2SO_4) - Nitrates, COD, Phosphate.

4-40 ml VOA's - Formaldehyde, 624

1-1 gallon glass - 608, 625

1-1 gallon plastic cube - Gross α, Gross β, Gamma Strontium 90

1-4 oz. glass - Tritium

TEMP. 65.1

SPEC. COND. 1665

pH 7.42

COMMENTS: _____

Dames & Moore

FIELD RECORD OF WATER SAMPLING

WELL NO. PCU - 1d JOB NUMBER 10805-454-044

DEPTH OF WELL _____ CLIENT D.O.E.

CASING TYPE/DIAMETER _____ LOCATION UC Davis - LEHR

BOREHOLE DIAMETER _____ SAMPLED BY: _____

SCREENED INTERVAL _____ TO _____ SAND PACK INTERVAL _____ TO _____

REF. POINT _____ ELEVATION _____ DATUM _____

PURGING PRIOR TO SAMPLING

PURGING METHOD _____

PUMP FLOW RATE _____

INITIAL WATER LEVEL _____ ONE CASING/BOREHOLE VOLUME (Gallons) _____

DATE	TIME	TEMP (°)	SPEC. COND.	pH	GALLONS REMOVED	TURBIDITY (NTU)	COMMENTS (appearance of water, odor, etc.)

Duplicate of PCU 1

RECORD OF SAMPLING

SAMPLING METHOD _____

DATE OF SAMPLE 2/6/91 TIME 1415 DEPTH OF SAMPLE _____

Not Filled — 1-1 L Plastic ~~[illegible]~~) - Metals, Na, K, Mg, Ca

1-1L Plastic - Cr(VI), SO_4, Cl, TDS, Turbidity, Alkalinity

1-1L Glass (H_2SO_4) - Nitrates, COD, Phosphate.

4-40 ml VOA's - Formaldehyde, 624

1-1 gallon glass - 608, 625

1-1 gallon plastic cube - Gross α, Gross β, Gamma Strontium 90

1-4 oz. glass - Tritium

TEMP. _____

SPEC. COND. _____

pH _____

COMMENTS: Dupe of PCU 1

Dames & Moore

FIELD RECORD OF WATER SAMPLING

WELL NO. PCU-1 JOB NUMBER 10805-454-044

DEPTH OF WELL _____ CLIENT D.O.E.

CASING TYPE/DIAMETER _____ LOCATION UC Davis - LEHR

BOREHOLE DIAMETER _____ SAMPLED BY: _____

SCREENED INTERVAL _____ TO _____ SAND PACK INTERVAL _____ TO _____

REF. POINT _____ ELEVATION _____ DATUM _____

PURGING PRIOR TO SAMPLING

PURGING METHOD _____

PUMP FLOW RATE _____

INITIAL WATER LEVEL _____ ONE CASING/BOREHOLE VOLUME (Gallons) _____

DATE	TIME	TEMP (°) F	SPEC. COND.	pH	GALLONS REMOVED	TURBIDITY (NTU)	COMMENTS (appearance of water, odor, etc.)
2/6/91	1355	57.4	365	8.26		42.0	

RECORD OF SAMPLING

SAMPLING METHOD _____

DATE OF SAMPLE 2/6/91 TIME 14:00 DEPTH OF SAMPLE _____

not filtered

1-1 L Plastic (~~HNO3~~) - Metals, Na, K, Mg, Ca

1-1L Plastic - Cr(VI), SO_4, Cl, TDS, Turbidity, Alkalinity

1-1L Glass (H_2SO_4) - Nitrates, COD, Phosphate.

4-40 mL VOA's - Formaldehyde, 624

1-1 gallon glass - 608, 625

1-1 gallon plastic cube - Gross α, Gross β, Gamma Strontium 90

1-4 oz. glass - Tritium

TEMP. _____

SPEC. COND. _____

pH _____

COMMENTS: Creek is very low, ~~and~~ moderately silty; stagnant, surface is about 20% covered with floating weed

Dames & Moore

FIELD RECORD OF WATER SAMPLING

WELL NO. PCD-1 JOB NUMBER 10805-454-044

DEPTH OF WELL Surface water CLIENT D.O.E.

CASING TYPE/DIAMETER _____ LOCATION UC Davis - LEHR

BOREHOLE DIAMETER _____ SAMPLED BY: _____

SCREENED INTERVAL _____ TO _____ SAND PACK INTERVAL _____ TO _____

REF. POINT _____ ELEVATION _____ DATUM _____

PURGING PRIOR TO SAMPLING

PURGING METHOD _____

PUMP FLOW RATE _____

INITIAL WATER LEVEL _____ ONE CASING/BOREHOLE VOLUME (Gallons) _____

DATE	TIME	TEMP (°F)	SPEC. COND.	pH	GALLONS REMOVED	TURBIDITY (NTU)	COMMENTS (appearance of water, odor, etc.)
2/6/91	1455	61.8	622	7.60		57.0	

RECORD OF SAMPLING

SAMPLING METHOD integrated depth sampler

DATE OF SAMPLE 2/6/91 TIME 1500 DEPTH OF SAMPLE _____

1-1 L Plastic (HNO_3) - Metals, Na, K, Mg, Ca

1-1L Plastic - Cr(VI), SO_4, Cl, TDS, Turbidity, Alkalinity

1-1L Glass (H_2SO_4) - Nitrates, COD, Phosphate.

4-40 ml VOA's - Formaldehyde, 624

1-1 gallon glass - 608, 625

1-1 gallon plastic cube - Gross α, Gross β, Gamma Strontium 90

1-4 oz. glass - Tritium

TEMP. _____

SPEC. COND. _____

pH _____

COMMENTS: Putah Creek Down Stream - creek covered w/ duck weed.. water moderately silty

Dames & Moore

FIELD RECORD OF WATER SAMPLING

WELL NO. STPO JOB NUMBER 10805-454-044

DEPTH OF WELL SURFACE WATER CLIENT D.O.E.

CASING TYPE/DIAMETER _____ LOCATION UC Davis - LEHR

BOREHOLE DIAMETER _____ SAMPLED BY: RICK M. + DAVID M

SCREENED INTERVAL _____ TO _____ SAND PACK INTERVAL _____ TO _____

REF. POINT _____ ELEVATION _____ DATUM _____

PURGING PRIOR TO SAMPLING

PURGING METHOD _____

PUMP FLOW RATE _____

INITIAL WATER LEVEL _____ ONE CASING/BOREHOLE VOLUME (Gallons) _____

DATE	TIME	TEMP (°)	SPEC. COND.	pH	GALLONS REMOVED	TURBIDITY (NTU)	COMMENTS (appearance of water, odor, etc.)
2/6/91	1330	64.3	1223	7.28		6.2	

RECORD OF SAMPLING

SAMPLING METHOD _____

DATE OF SAMPLE 2/6/91 TIME 13 30 DEPTH OF SAMPLE _____

1-1 L Plastic (HNO_3) - Metals, Na, K, Mg, Ca

1-1L Plastic - Cr(VI), SO_4, Cl, TDS, Turbidity, Alkalinity

1-1L Glass (H_2SO_4) - Nitrates, COD, Phosphate.

4-40 ml VOA's - Formaldehyde, 624

1-1 gallon glass - 608, 625

1-1 gallon plastic cube - Gross α, Gross β, Gamma Strontium 90

1-4 oz. glass - Tritium

TEMP. _____

SPEC. COND. _____

pH _____

COMMENTS: Sewage Treatment Plant Outfall -

FIELD RECORDS OF WATER SAMPLING
SUMMER QUARTER, AUGUST 1991

PHASE II SITE CHARACTERIZATION
LEHR ENVIRONMENTAL RESTORATION

Dames & Moore

FIELD RECORD OF WATER SAMPLING

WELL NO. UCD-17 JOB NUMBER 10805-454-044

DEPTH OF WELL 143' CLIENT D.O.E.

CASING TYPE/DIAMETER 4" PVC LOCATION UC Davis - LEHR

BOREHOLE DIAMETER 12" SAMPLED BY: Zuber

SCREENED INTERVAL 58 TO 113 SAND PACK INTERVAL 38 TO 115

REF. POINT BGS ELEVATION — DATUM ~~MSL~~ —

PURGING PRIOR TO SAMPLING

3 CVs 140 g

PURGING METHOD dedicated submersible pump

PUMP FLOW RATE 5

INITIAL WATER LEVEL 69.22 / 72.78 ONE CASING/BOREHOLE VOLUME (Gallons) 46 g

DATE	TIME	TEMP (°)	SPEC. COND.	pH	GALLONS REMOVED	TURBIDITY (NTU)	COMMENTS (appearance of water, odor, etc.)
8-5	1545	65.8	743	7.72	75	0.16	Very Clear
↓	↓	65.8	744	7.76	90	0.16	—
		65.8	741	7.78	115	0.16	—
		65.7	744	7.79	145	0.14	—

RECORD OF SAMPLING

SAMPLING METHOD dedicated submersible pump

DATE OF SAMPLE 8-5-91 TIME 1600 DEPTH OF SAMPLE NA

1-1 L Plastic (HNO_3) - Metals, Na, K, Mg, Ca

1-1L Plastic - Cr(VI), SO_4, Cl, TDS, Turbidity, Alkalinity

1-1L Glass (H_2SO_4) - Nitrates, COD, Phosphate.

4-40 ml VOA's - Formaldehyde, 624

1-1 gallon glass - 608, 625

1-1 gallon plastic cube - (HNO_3) Gross α, Gross β, Gamma Strontium 90

1-4 oz. glass - Tritium

TEMP. 65.7

SPEC. COND. 744

pH 7.79

COMMENTS:

8/5

Dames & Moore

FIELD RECORD OF WATER SAMPLING

WELL NO. UCD-16 JOB NUMBER 10805-454-044

DEPTH OF WELL 122' (TOC) CLIENT D.O.E.

CASING TYPE/DIAMETER 4" PVC LOCATION UC Davis - LEHR

BOREHOLE DIAMETER 12" SAMPLED BY: Zuber

SCREENED INTERVAL 92 TO 117 SAND PACK INTERVAL 90 TO 120

REF. POINT PVC ELEVATION — DATUM MSL —

PURGING PRIOR TO SAMPLING

105 = 3 cv

PURGING METHOD dedicated submersible pump

PUMP FLOW RATE 5-7

INITIAL WATER LEVEL 68.06 ONE CASING/BOREHOLE VOLUME (Gallons) 34 g

WC = 53.94

DATE	TIME	TEMP (°)	SPEC. COND.	pH	GALLONS REMOVED	TURBIDITY (NTU)	COMMENTS (appearance of water, odor, etc.)
8/5	~~1300~~	65.5	805	7.62	65	0.21	—
	1315	65.6	802	7.71	75	0.21	—
		65.6	801	7.76	85	.15	—
		65.6	806	7.75	105	.13	—

RECORD OF SAMPLING

SAMPLING METHOD dedicated submersible pump

DATE OF SAMPLE 8-5-91 TIME 1300 DEPTH OF SAMPLE NA

1-1 L Plastic (HNO_3) - Metals, Na, K, Mg, Ca

1-1L Plastic - Cr(VI), SO_4, Cl, TDS, Turbidity, Alkalinity

1-1L Glass (CH_2SO_4) - Nitrates, COD, Phosphate.

4-40 ml VOA's - Formaldehyde, 624

1-1 gallon glass - 608, 625

1-1 gallon plastic cube - (HNO_3) Gross α, Gross β, Gamma Strontium 90

1-4 oz. glass - Tritium

TEMP. 65.6

SPEC. COND. 806

pH 7.75

COMMENTS:

8/5

Dames & Moore
FIELD RECORD OF WATER SAMPLING

WELL NO. 10D-5 JOB NUMBER 10805-454-044

DEPTH OF WELL 120.5' CLIENT D.O.E.

CASING TYPE/DIAMETER 4" PVC LOCATION UC Davis - LEHR

BOREHOLE DIAMETER 12" SAMPLED BY: Zuber

SCREENED INTERVAL 91 TO 116 SAND PACK INTERVAL 89 TO 120

REF. POINT BGS ELEVATION — DATUM ~~MSL~~ —

PURGING PRIOR TO SAMPLING

3CV = 175 gallon

PURGING METHOD dedicated submersible pump

PUMP FLOW RATE = 5-6 gpm

INITIAL WATER LEVEL 69.28 ONE CASING/BOREHOLE VOLUME (Gallons) ~~38~~ 32 gallons

WC 51.22'

DATE	TIME	TEMP (°)	SPEC. COND.	pH	GALLONS REMOVED	TURBIDITY (NTU)	COMMENTS (appearance of water, odor, etc.)
8/5	1228	67.8	798	7.77	65	0.21	Very Clear
		67.9	783	7.78	75	0.16	—
		66.8	756	7.75	85	0.16	—
		66.7	756	7.77	100	0.15	—
		66.8	761	7.75	110	0.15	—

RECORD OF SAMPLING

SAMPLING METHOD dedicated submersible pump

DATE OF SAMPLE 8-5-91 TIME 1230 DEPTH OF SAMPLE NA

1-1 L Plastic (HNO_3) - Metals, Na, K, Mg, Ca

1-1L Plastic - Cr(VI), SO_4, Cl, TDS, Turbidity, Alkalinity

1-1L Glass (H_2SO_4) - Nitrates, COD, Phosphate.

4-40 ml VOA's - Formaldehyde, 624

1-1 gallon glass - 608, 625

1-1 gallon plastic cube - (HNO_3) Gross α, Gross β, Gamma Strontium 90

1-4 oz. glass - Tritium

TEMP. 66.8

SPEC. COND. 761

pH 7.75

COMMENTS: Total of 130 gallons evacuated

Dames & Moore

FIELD RECORD OF WATER SAMPLING

WELL NO. LAD 01 JOB NUMBER 10805-454-044

DEPTH OF WELL 73' CLIENT D.O.E.

CASING TYPE/DIAMETER 4" PVC LOCATION UC Davis - LEHR

BOREHOLE DIAMETER 17" SAMPLED BY: Zuber

SCREENED INTERVAL 57 TO 72 SAND PACK INTERVAL 54 TO 73.5

REF. POINT BGS ELEVATION — DATUM ~~MSL~~ —

PURGING PRIOR TO SAMPLING

13 gallons

PURGING METHOD dedicated submersible pump

PUMP FLOW RATE 8 gpm

INITIAL WATER LEVEL 66.56 6.44' ONE CASING/BOREHOLE VOLUME (Gallons) 4.5 g

DATE	TIME	TEMP (°)	SPEC. COND.	pH	GALLONS REMOVED	TURBIDITY (NTU)	COMMENTS (appearance of water, odor, etc.)
8/6	1400	70.1	1690	7.34	6	>200	very silty
		70.3	1705	7.37	10	>200	"
		70.4	1702	7.32	15	>200	much clearer
							but still above
							scale on meter

RECORD OF SAMPLING

SAMPLING METHOD dedicate sub. pump

DATE OF SAMPLE 8-6-91 TIME 1640 DEPTH OF SAMPLE NA

1-1 L Plastic (HNO_3) - Metals, Na, K, Mg, Ca

1-1L Plastic - Cr(VI), SO_4, Cl, TDS, Turbidity, Alkalinity

1-1L Glass (H_2SO_4) - Nitrates, COD, Phosphate.

4-40 ml VOA's - Formaldehyde, 624

1-1 gallon glass - 608, 625

1-1 gallon plastic cube - (HNO_3) Gross α, Gross β, Gamma Strontium 90

1-4 oz. glass - Tritium

TEMP. 70.4

SPEC. COND. 1702

pH 7.32

COMMENTS: Water cleared up while sampling but level dropped too low and had to stop and wait for recovery. Removed 13 gallons prior to sampling hoping that water would clear up.

8/6

Dames & Moore

FIELD RECORD OF WATER SAMPLING

WELL NO. LMW-20 JOB NUMBER 10805-454-044

DEPTH OF WELL 73' CLIENT D.O.E.

CASING TYPE/DIAMETER 4" PVC LOCATION UC Davis - LEHR

BOREHOLE DIAMETER 12" SAMPLED BY: Zuber

SCREENED INTERVAL 57 TO 72 SAND PACK INTERVAL 54 TO 73.5

REF. POINT BGS ELEVATION — DATUM —

PURGING PRIOR TO SAMPLING

3CV = 10 gallons

PURGING METHOD dedicated submersible pump

PUMP FLOW RATE ~~[illegible]~~ <1 gpm

INITIAL WATER LEVEL 47.83' ONE CASING/BOREHOLE VOLUME (Gallons) 3.5 g

(1)C = 5.17

DATE	TIME	TEMP (°)	SPEC. COND.	pH	GALLONS REMOVED	TURBIDITY (NTU)	COMMENTS (appearance of water, odor, etc.)
8/6	1300	69.8	1453	7.29	6	>200	silty cloudy
		69.9	1428	7.31	7	>200	"
		—	1456	7.34	8	"	"
		69.8	1408	7.41	10	>200	"

RECORD OF SAMPLING

SAMPLING METHOD dedicated submersible pump

DATE OF SAMPLE 8-6-91 TIME 1340 DEPTH OF SAMPLE N/A

1-1 L Plastic (HNO_3) - Metals, Na, K, Mg, Ca

1-1L Plastic - Cr(VI), SO_4, Cl, TDS, Turbidity, Alkalinity

1-1L Glass (H_2SO_4) - Nitrates, COD, Phosphate.

4-40 ml VOA's - Formaldehyde, 624

1-1 gallon glass - 608, 625

1-1 gallon plastic cube - (HNO_3) Gross α, Gross β, Gamma Strontium 90

1-4 oz. glass - Tritium

TEMP. 69.8

SPEC. COND. 1408

pH 7.41

COMMENTS:

8/6

Dames & Moore

FIELD RECORD OF WATER SAMPLING

WELL NO. MCD-21F JOB NUMBER 10805-454-044

DEPTH OF WELL 73' CLIENT D.O.E.

CASING TYPE/DIAMETER PVC LOCATION UC Davis - LEHR

BOREHOLE DIAMETER [illegible] SAMPLED BY: Zuber

SCREENED INTERVAL 57 TO 72 SAND PACK INTERVAL 55 TO 72

REF. POINT BGS ELEVATION — DATUM NA

PURGING PRIOR TO SAMPLING

11 gallons

PURGING METHOD dedicated submersible pump

PUMP FLOW RATE ~1 gpm

INITIAL WATER LEVEL 47.43 ONE CASING/BOREHOLE VOLUME (Gallons) 3.5 g

DC = 5.6'

DATE	TIME	TEMP (°)	SPEC. COND.	pH	GALLONS REMOVED	TURBIDITY (NTU)	COMMENTS (appearance of water, odor, etc.)
8/6	1100	70.8	1502	7.21	5	>200	Silty
↓	↓	69.2	1468	7.36	7	>200	"
		69.0	1453	7.33	10	>200	"
		69.0	1456	7.39	12	>200	"

RECORD OF SAMPLING

SAMPLING METHOD dedicated submersible pump

DATE OF SAMPLE 8-6-91 TIME 1130 DEPTH OF SAMPLE NA

1-1 L Plastic (HNO_3) - Metals, Na, K, Mg, Ca

1-1L Plastic - Cr(VI), SO_4, Cl, TDS, Turbidity, Alkalinity

1-1L Glass (H_2SO_4) - Nitrates, COD, Phosphate.

4-40 ml VOA's - Formaldehyde, 624

1-1 gallon glass - 608, 625

1-1 gallon plastic cube - (HNO_3) Gross α, Gross β, Gamma Strontium 90

1-4 oz. glass - Tritium

TEMP. 69.0

SPEC. COND. 1456

pH 7.39

COMMENTS: Water level is very low - apparently pump draws down to its own level and I must stop and start several times

Dames & Moore

FIELD RECORD OF WATER SAMPLING

WELL NO. 1CD-18 JOB NUMBER 10805-454-044

DEPTH OF WELL 70' CLIENT D.O.E.

CASING TYPE/DIAMETER 4" PVC LOCATION UC Davis - LEHR

BOREHOLE DIAMETER 17" SAMPLED BY: Zuber

SCREENED INTERVAL 54 TO 69 SAND PACK INTERVAL 51 TO 70

REF. POINT BGS ELEVATION — DATUM —

PURGING PRIOR TO SAMPLING

3 cv = 12 gallon

PURGING METHOD dedicated sub. pump

PUMP FLOW RATE 2 gpm

INITIAL WATER LEVEL 63.79 ONE CASING/BOREHOLE VOLUME (Gallons) 4 gallons

wc = 6.21'

DATE	TIME	TEMP (°)	SPEC. COND.	pH	GALLONS REMOVED	TURBIDITY (NTU)	COMMENTS (appearance of water, odor, etc.)
8/6	1000	65.2	8160	7.55	10	>200	silty - cloudy
		66.4	907	7.56	15	>200	silty
		67.4	919	7.57	18	>200	silty
		67.5	922	7.55	20	>200	silty

RECORD OF SAMPLING

SAMPLING METHOD dedicated sub. pump

DATE OF SAMPLE 8-6-91 TIME 1000 DEPTH OF SAMPLE NA

1-1 L Plastic (HNO_3) - Metals, Na, K, Mg, Ca

1-1L Plastic - Cr(VI), SO_4, Cl, TDS, Turbidity, Alkalinity

1-1L Glass (H_2SO_4) - Nitrates, COD, Phosphate.

4-40 ml VOA's - Formaldehyde, 624

1-1 gallon glass - 608, 625

1-1 gallon plastic cube - (HNO_3) Gross α, Gross β, Gamma Strontium 90

1-4 oz. glass - Tritium

TEMP. 67.5

SPEC. COND. 922

pH 7.55

COMMENTS: none

Dames & Moore

FIELD RECORD OF WATER SAMPLING

WELL NO. UCD - 27 JOB NUMBER 10805-454-044

DEPTH OF WELL 121 CLIENT D.O.E.

CASING TYPE/DIAMETER 4" PVC LOCATION UC Davis - LEHR

BOREHOLE DIAMETER 12" SAMPLED BY: Zuber

SCREENED INTERVAL 57 TO 72 SAND PACK INTERVAL 55 TO 73

REF. POINT BGS ELEVATION — DATUM ~~MSL~~ —

PURGING PRIOR TO SAMPLING

12 gallons

PURGING METHOD dedicated submersible pump

PUMP FLOW RATE 7 gpm

INITIAL WATER LEVEL 66.96 ONE CASING/BOREHOLE VOLUME (Gallons) 3.7

WC = 6.04'

DATE	TIME	TEMP (°)	SPEC. COND.	pH	GALLONS REMOVED	TURBIDITY (NTU)	COMMENTS (appearance of water, odor, etc.)
8/7	1100	70.9	927	7.42	0.5	10.5	
		71.9	933	7.43	8.6	6.9	
		72.0	935	7.45	7	6.1	
		72.1	935	7.43	8	3.3	
		70.4	919	7.48	10	49.0	~~Cha~~ Increased pump rate slightly
		70.4	918	7.51	15	74.0	
		70.4	915	7.45	20	96.0	
		70.4	910	7.45	22	58	cleaning up
		70.4	910	7.45	24	30	taken just prior to sampl

RECORD OF SAMPLING

SAMPLING METHOD dedicated submersible pump

DATE OF SAMPLE 8-7-91 TIME 0930 DEPTH OF SAMPLE NA

1-1 L Plastic (HNO_3) - Metals, Na, K, Mg, Ca

1-1L Plastic - Cr(VI), SO_4, Cl, TDS, Turbidity, Alkalinity

1-1L Glass (H_2SO_4) - Nitrates, COD, Phosphate.

4-40 ml VOA's - Formaldehyde, 624

1-1 gallon glass - 608, 625

1-1 gallon plastic cube - (HNO_3) Gross α, Gross β, Gamma Strontium 90

1-4 oz. glass - Tritium

TEMP. 70.4

SPEC. COND. 910

pH 7.45

COMMENTS:

Dames & Moore
FIELD RECORD OF WATER SAMPLING

WELL NO. UCD-23 JOB NUMBER 10805-454-044

DEPTH OF WELL 73' CLIENT D.O.E.

CASING TYPE/DIAMETER 4" PVC LOCATION UC Davis - LEHR

BOREHOLE DIAMETER 12" SAMPLED BY: Zuber

SCREENED INTERVAL 56.5 TO 71.5 SAND PACK INTERVAL 53.5 TO 73

REF. POINT BGS ELEVATION — DATUM —

PURGING PRIOR TO SAMPLING

3 cv = 12 g

PURGING METHOD dedicated sub pump

PUMP FLOW RATE <1 gpm

INITIAL WATER LEVEL 66.96 ONE CASING/BOREHOLE VOLUME (Gallons) 4 g

WC=6.04

DATE	TIME	TEMP (°)	SPEC. COND.	pH	GALLONS REMOVED	TURBIDITY (NTU)	COMMENTS (appearance of water, odor, etc.)
8/7	1130	70.4	957	7.64	7	>200	very silty
		70.4	958	7.63	8	>200	
		70.8	967	7.56	10	>200	
		72.2	970	7.53	15	>200	Changed pump rate - reduc it slight
		72.4	959	7.53	28	>200	
		72.6	954	7.57	22	>200	Still very silty

RECORD OF SAMPLING

SAMPLING METHOD dedicated sub. pump

DATE OF SAMPLE 8-7-91 TIME 1200 DEPTH OF SAMPLE NA

1-1 L Plastic (HNO_3) - Metals, Na, K, Mg, Ca

1-1L Plastic - Cr(VI), SO_4, Cl, TDS, Turbidity, Alkalinity

1-1L Glass (H_2SO_4) - Nitrates, COD, Phosphate.

4-40 ml VOA's - Formaldehyde, 624

1-1 gallon glass - 608, 625

1-1 gallon plastic cube - (HNO_3) Gross α, Gross β, Gamma Strontium 90

1-4 oz. glass - Tritium

TEMP. 72.6

SPEC. COND. 954

pH 7.57

COMMENTS:

8/7

Dames & Moore

FIELD RECORD OF WATER SAMPLING

WELL NO. MD-1 JOB NUMBER 10805-454-044

DEPTH OF WELL 35.45 CLIENT D.O.E.

CASING TYPE/DIAMETER 2" PVC LOCATION UC Davis - LEHR

BOREHOLE DIAMETER 8" SAMPLED BY: Zuber

SCREENED INTERVAL — TO — SAND PACK INTERVAL — TO —

REF. POINT — ELEVATION — DATUM —

PURGING PRIOR TO SAMPLING

PURGING METHOD —

PUMP FLOW RATE —

INITIAL WATER LEVEL 38.08 ONE CASING/BOREHOLE VOLUME (Gallons) —

DATE	TIME	TEMP (°)	SPEC. COND.	pH	GALLONS REMOVED	TURBIDITY (NTU)	COMMENTS (appearance of water, odor, etc.)
1/19/92	1525						

RECORD OF SAMPLING

SAMPLING METHOD —

DATE OF SAMPLE — TIME — DEPTH OF SAMPLE —

1-1 L Plastic (HNO_3) - Metals, Na, K, Mg, Ca

1-1L Plastic - Cr(VI), SO_4, Cl, TDS, Turbidity, Alkalinity

1-1L Glass (CH_2SO_4) - Nitrates, COD, Phosphate.

4-40 ml VOA's - Formaldehyde, 624

1-1 gallon glass - 608, 625

1-1 gallon plastic cube - (HNO_3) Gross α, Gross β, Gamma Strontium 90

1-4 oz. glass - Tritium

TEMP. —

SPEC. COND. —

pH —

COMMENTS: Well is Dry - no Samples taken this quarter

8/7

Dames & Moore

FIELD RECORD OF WATER SAMPLING

WELL NO. MD-7 JOB NUMBER 10805-454-044

DEPTH OF WELL 57.5' CLIENT D.O.E.

CASING TYPE/DIAMETER 3" LOCATION UC Davis - LEHR

BOREHOLE DIAMETER Dry SAMPLED BY: Zuber

SCREENED INTERVAL — TO — SAND PACK INTERVAL — TO —

REF. POINT — ELEVATION — DATUM —

PURGING PRIOR TO SAMPLING

PURGING METHOD —

PUMP FLOW RATE —

INITIAL WATER LEVEL 53.27 ONE CASING/BOREHOLE VOLUME (Gallons) —

DATE	TIME	TEMP (°)	SPEC. COND.	pH	GALLONS REMOVED	TURBIDITY (NTU)	COMMENTS (appearance of water, odor, etc.)
8-7	1510						
		DRY			NO		
			SAMPLED				

RECORD OF SAMPLING

SAMPLING METHOD —

DATE OF SAMPLE — TIME — DEPTH OF SAMPLE —

1-1 L Plastic (HNO_3) - Metals, Na, K, Mg/Ca

1-1L Plastic - Cr(VI), SO_4, Cl, TDS, Turbidity, Alkalinity

1-1L Glass (H_2SO_4) - Nitrates, COD, Phosphate.

4-40 mL VOA's - Formaldehyde, 624

1-1 gallon glass - 608, 625

1-1 gallon plastic cube - (HNO_3) Gross α, Gross β, Gamma Strontium 90

1-4 oz. glass - Tritium

TEMP. —

SPEC. COND. —

pH —

COMMENTS: DRY - no samples taken this quarter

Dames & Moore

FIELD RECORD OF WATER SAMPLING

WELL NO. MD-2 JOB NUMBER 10805-454-044

DEPTH OF WELL 27.55 CLIENT D.O.E.

CASING TYPE/DIAMETER 1" PVC LOCATION UC Davis - LEHR

BOREHOLE DIAMETER 12" PVC SAMPLED BY: Zuber

SCREENED INTERVAL — TO — SAND PACK INTERVAL ~~52.73~~ TO —

REF. POINT — ELEVATION ~~52.73~~ DATUM ~~MSL~~

PURGING PRIOR TO SAMPLING

PURGING METHOD —

PUMP FLOW RATE —

INITIAL WATER LEVEL DRY ONE CASING/BOREHOLE VOLUME (Gallons) —

DATE	TIME	TEMP (°)	SPEC. COND.	pH	GALLONS REMOVED	TURBIDITY (NTU)	COMMENTS (appearance of water, odor, etc.)
8/7	1540	—	DRY				
		DRY					—

RECORD OF SAMPLING

SAMPLING METHOD —

DATE OF SAMPLE — TIME — DEPTH OF SAMPLE —

1-1 L Plastic (HNO_3) - Metals, Na, K, Mg, Ca

1-1L Plastic - Cr(VI), SO_4, Cl, TDS, Turbidity, Alkalinity

1-1L Glass (H_2SO_4) - Nitrates, COD, Phosphate.

4-40 ml VOA's - Formaldehyde, 624

1-1 gallon glass - 608, 625

1-1 gallon plastic cube - (HNO_3) Gross α, Gross β, Gamma Strontium 90

1-4 oz. glass - Tritium

TEMP. —

SPEC. COND. —

pH —

COMMENTS: Dry well - no samples taken this quarter

Dames & Moore

FIELD RECORD OF WATER SAMPLING

WELL NO. DCD-1 JOB NUMBER 10805-454-044

DEPTH OF WELL NA CLIENT D.O.E.

CASING TYPE/DIAMETER NA LOCATION UC Davis - LEHR

BOREHOLE DIAMETER NA SAMPLED BY: Zuber

SCREENED INTERVAL NA TO _____ SAND PACK INTERVAL NA TO _____

REF. POINT NA ELEVATION — DATUM —

PURGING PRIOR TO SAMPLING

PURGING METHOD NA

PUMP FLOW RATE NA

INITIAL WATER LEVEL NA ONE CASING/BOREHOLE VOLUME (Gallons) NA

DATE	TIME	TEMP (°)	SPEC. COND.	pH	GALLONS REMOVED	TURBIDITY (NTU)	COMMENTS (appearance of water, odor, etc.)
8/8	1315	84.5	998	8.76	—	32.0	—
		84.0	985	8.81		29.6	—

RECORD OF SAMPLING

SAMPLING METHOD depth integrated sampler

DATE OF SAMPLE 8-8-91 TIME 1345 DEPTH OF SAMPLE Surface

1-1 L Plastic (HNO_3) - Metals, Na, K, Mg, Ca

1-1L Plastic - Cr(VI), SO_4, Cl, TDS, Turbidity, Alkalinity

1-1L Glass (H_2SO_4) - Nitrates, COD, Phosphate.

4-40 ml VOA's - Formaldehyde, 624

1-1 gallon glass - 608, 625

1-1 gallon plastic cube - (HNO_3) Gross α, Gross β, Gamma Strontium 90

1-4 oz. glass - Tritium

TEMP. 84.0

SPEC. COND. 985

pH 8.81

COMMENTS: _____

Dames & Moore

FIELD RECORD OF WATER SAMPLING

WELL NO. PCU - 1 JOB NUMBER 10805-454-044

DEPTH OF WELL NA CLIENT D.O.E.

CASING TYPE/DIAMETER NA LOCATION UC Davis - LEHR

BOREHOLE DIAMETER NA SAMPLED BY: Zuber

SCREENED INTERVAL NA TO ____ SAND PACK INTERVAL NA TO ____

REF. POINT NA ELEVATION — DATUM —

PURGING PRIOR TO SAMPLING

PURGING METHOD NA

PUMP FLOW RATE NA

INITIAL WATER LEVEL NA ONE CASING/BOREHOLE VOLUME (Gallons) NA

DATE	TIME	TEMP (°)	SPEC. COND.	pH	GALLONS REMOVED	TURBIDITY (NTU)	COMMENTS (appearance of water, odor, etc.)
8-8	1130	78.2	695	4.18	—	27.5	—
		78.1	691	4.20	—	26.1	—

RECORD OF SAMPLING

SAMPLING METHOD depth integrated sampler

DATE OF SAMPLE 8-8-91 TIME 1200 DEPTH OF SAMPLE NA

1-1 L Plastic (HNO_3) - Metals, Na, K, Mg, Ca

1-1L Plastic - Cr(VI), SO_4, Cl, TDS, Turbidity, Alkalinity

1-1L Glass (H_2SO_4) - Nitrates, COD, Phosphate.

4-40 ml VOA's - Formaldehyde, 624

1-1 gallon glass - 608, 625

1-1 gallon plastic cube - (HNO_3) Gross α, Gross β, Gamma Strontium 90

1-4 oz. glass - Tritium

TEMP. 78.1

SPEC. COND. 691

pH 9.20

COMMENTS: very little or no movement of creek here

Dames & Moore

FIELD RECORD OF WATER SAMPLING

WELL NO. STPA-1B JOB NUMBER 10805-454-044

DEPTH OF WELL SURFACE WATER CLIENT D.O.E.

CASING TYPE/DIAMETER NA LOCATION UC Davis - LEHR

BOREHOLE DIAMETER NA SAMPLED BY: Zuber

SCREENED INTERVAL NA TO _____ SAND PACK INTERVAL NA TO _____

REF. POINT NA ELEVATION _____ DATUM _____

PURGING PRIOR TO SAMPLING

PURGING METHOD NA

PUMP FLOW RATE NA

INITIAL WATER LEVEL NA ONE CASING/BOREHOLE VOLUME (Gallons) NA

DATE	TIME	TEMP (°)	SPEC. COND.	pH	GALLONS REMOVED	TURBIDITY (NTU)	COMMENTS (appearance of water, odor, etc.)

DRY STOP

RECORD OF SAMPLING

SAMPLING METHOD depth integrated samples

DATE OF SAMPLE 8-9-91 TIME 1015 DEPTH OF SAMPLE Surface

1-1 L Plastic (HNO_3) - Metals, Na, K, Mg, Ca

1-1L Plastic - Cr(VI), SO_4, Cl, TDS, Turbidity, Alkalinity

1-1L Glass (CH_2SO_4) - Nitrates, COD, Phosphate.

4-40 mL VOA's - Formaldehyde, 624

1-1 gallon glass - 608, 625

1-1 gallon plastic cube - (HNO_3) Gross α, Gross β, Gamma Strontium 90

1-4 oz. glass - Tritium

TEMP. NA

SPEC. COND. NA

pH NA

COMMENTS: _____

Dames & Moore

FIELD RECORD OF WATER SAMPLING

WELL NO. ETP0-1 JOB NUMBER 10805-454-044

DEPTH OF WELL Surface Water CLIENT D.O.E.

CASING TYPE/DIAMETER NA LOCATION UC Davis - LEHR

BOREHOLE DIAMETER NA SAMPLED BY: Zuber

SCREENED INTERVAL NA TO NA SAND PACK INTERVAL NA TO —

REF. POINT NA ELEVATION — DATUM —

PURGING PRIOR TO SAMPLING

PURGING METHOD NA

PUMP FLOW RATE NA

INITIAL WATER LEVEL NA ONE CASING/BOREHOLE VOLUME (Gallons) NA

DATE	TIME	TEMP (°)	SPEC. COND.	pH	GALLONS REMOVED	TURBIDITY (NTU)	COMMENTS (appearance of water, odor, etc.)
8/8	0845	80.3	1155	7.25	—	3.8	—
		80.5	1167	7.26	—	3.5	—
		81.0	1166	7.26	—	3.4	—

RECORD OF SAMPLING

SAMPLING METHOD depth integrated sampler

DATE OF SAMPLE 8-9-91 TIME 0915 DEPTH OF SAMPLE Surface

1-1 L Plastic (HNO_3) - Metals, Na, K, Mg, Ca

1-1L Plastic - Cr(VI), SO_4, Cl, TDS, Turbidity, Alkalinity

1-1L Glass (CH_2SO_4) - Nitrates, COD, Phosphate.

4-40 ml VOA's - Formaldehyde, 624

1-1 gallon glass - 608, 625

1-1 gallon plastic cube - (HNO_3) Gross α, Gross β, Gamma Strontium 90

1-4 oz. glass - Tritium

TEMP. 81.0

SPEC. COND. 1166

pH 7.26

COMMENTS:

Dames & Moore
FIELD RECORD OF WATER SAMPLING

WELL NO. ICD-7 JOB NUMBER 10805-454-044

DEPTH OF WELL 90' CLIENT D.O.E.

CASING TYPE/DIAMETER 2 4" PVC LOCATION UC Davis - LEHR

BOREHOLE DIAMETER 8 ~~12~~" SAMPLED BY: Zuber

SCREENED INTERVAL 80 TO 90 SAND PACK INTERVAL 75 TO 90

REF. POINT BGS ELEVATION — DATUM — JRB

PURGING PRIOR TO SAMPLING

3cv = ~~27~~ 12 gallons

PURGING METHOD dedicated bladder pump

PUMP FLOW RATE <1 gpm

INITIAL WATER LEVEL 69.97 ONE CASING/BOREHOLE VOLUME (Gallons) JRB 94

WC = 20.03

DATE	TIME	TEMP (°)	SPEC. COND.	pH	GALLONS REMOVED	TURBIDITY (NTU)	COMMENTS (appearance of water, odor, etc.)
8-12	1945	67.8	835	7.39	7	7.7	slightly cloudy
↓	↓	67.4	832	7.54	8	4.3	—
		67.4	836	7.55	12	3.9	—
		66.8	839	7.55	16	3.8	—

RECORD OF SAMPLING

SAMPLING METHOD dedicated bladder pump

DATE OF SAMPLE 8-12-91 TIME 1600 DEPTH OF SAMPLE N/A

1-1 L Plastic (HNO_3) - Metals, Na, K, Mg, Ca

1-1 L Plastic - Cr(VI), SO_4, Cl, TDS, Turbidity, Alkalinity

1-1 L Glass (H_2SO_4) - Nitrates, COD, Phosphate.

4-40 ml VOA's - Formaldehyde, 624

1-1 gallon glass - 608, 625

1-1 gallon plastic cube - (HNO_3) Gross α, Gross β, Gamma Strontium 90

1-4 oz. glass - Tritium

TEMP. 66.8

SPEC. COND. 839

pH 7.55

COMMENTS:

Dames & Moore
FIELD RECORD OF WATER SAMPLING

WELL NO. UCD-11 JOB NUMBER 10805-454-044

DEPTH OF WELL 66.51' (67.93') CLIENT D.O.E.

CASING TYPE/DIAMETER 4" PVC LOCATION UC Davis - LEHR

BOREHOLE DIAMETER 12" SAMPLED BY: Zuber

SCREENED INTERVAL NA TO _____ SAND PACK INTERVAL — TO —

REF. POINT NA ELEVATION 57.67 DATUM MSLD

PURGING PRIOR TO SAMPLING

PURGING METHOD NA

PUMP FLOW RATE NA

INITIAL WATER LEVEL NA ONE CASING/BOREHOLE VOLUME (Gallons) NA

DATE	TIME	TEMP (°)	SPEC. COND.	pH	GALLONS REMOVED	TURBIDITY (NTU)	COMMENTS (appearance of water, odor, etc.)
8-12	11-15						
		DRY					
				NO SAMPLE			

RECORD OF SAMPLING

SAMPLING METHOD NA

DATE OF SAMPLE 8-12-91 TIME ~~[illegible]~~ DEPTH OF SAMPLE

1-1 L Plastic (HNO_3) - Metals, Na, K, Mg, Ca

1-1L Plastic - Cr(VI), SO_4, Cl, TDS, Turbidity, Alkalinity

1-1L Glass (H_2SO_4) - Nitrates, COD, Phosphate

4-40 ml VOA's - Formaldehyde, 624

1-1 gallon glass - 608, 625

1-1 gallon plastic cube - (HNO_3) Gross α, Gross β, Gamma Strontium 90

1-4 oz. glass - Tritium

TEMP.

SPEC. COND.

pH

COMMENTS: Well is dry - no sample taken this quarter

Dames & Moore

FIELD RECORD OF WATER SAMPLING

WELL NO. UCD-14 JOB NUMBER 10805-454-044

DEPTH OF WELL 85' CLIENT D.O.E.

CASING TYPE/DIAMETER 4" PVC LOCATION UC Davis - LEHR

BOREHOLE DIAMETER 12" SAMPLED BY: Zuber

SCREENED INTERVAL 75 TO 85 SAND PACK INTERVAL 69 TO 86

REF. POINT BGS ELEVATION 52.70 DATUM MSLD

PURGING PRIOR TO SAMPLING

3 cv 26 gallons

PURGING METHOD bladder pump

PUMP FLOW RATE 1-2 gpm

INITIAL WATER LEVEL 71.88' ONE CASING/BOREHOLE VOLUME (Gallons) 8.5

WC = 13.2'

DATE	TIME	TEMP (°)	SPEC. COND.	pH	GALLONS REMOVED	TURBIDITY (NTU)	COMMENTS (appearance of water, odor, etc.)
8-12	1400	67.0	1140	7.38	20	3.5	—
		67.0	1139	9.40	22	3.3	—
		67.1	1132	7.42	25	3.2	—

RECORD OF SAMPLING

SAMPLING METHOD sampling bladder pump

DATE OF SAMPLE 8-12-91 TIME 1400 DEPTH OF SAMPLE NA

1-1 L Plastic (HNO_3) - Metals, Na, K, Mg, Ca

1-1L Plastic - Cr(VI), SO_4, Cl, TDS, Turbidity, Alkalinity

1-1L Glass (H_2SO_4) - Nitrates, COD, Phosphate.

4-40 ml VOA's - Formaldehyde, 624 also CH_4

1-1 gallon glass - 608, 625

1-1 gallon plastic cube - (HNO_3) Gross α, Gross β, Gamma Strontium 90

1-4 oz. glass - Tritium

TEMP. 67.1

SPEC. COND. 1132

pH 7.42

COMMENTS:

Dames & Moore

FIELD RECORD OF WATER SAMPLING

WELL NO. UCD-14B JOB NUMBER 10805-454-044

DEPTH OF WELL Dupe of 14 CLIENT D.O.E.

CASING TYPE/DIAMETER 4" PVC LOCATION UC Davis - LEHR

BOREHOLE DIAMETER 12" SAMPLED BY: Zuber

SCREENED INTERVAL NA TO ____ SAND PACK INTERVAL See UCD-14 TO ____

REF. POINT NA ELEVATION — DATUM —

PURGING PRIOR TO SAMPLING

PURGING METHOD NA See UCD-14

PUMP FLOW RATE NA

INITIAL WATER LEVEL NA ONE CASING/BOREHOLE VOLUME (Gallons) See UCD-14

DATE	TIME	TEMP (°)	SPEC. COND.	pH	GALLONS REMOVED	TURBIDITY (NTU)	COMMENTS (appearance of water, odor, etc.)
		Dupe of 14					

RECORD OF SAMPLING

SAMPLING METHOD Sampling bladder pump

DATE OF SAMPLE 8-12-91 TIME 1430 DEPTH OF SAMPLE N/A

1-1 L Plastic (HNO_3) - Metals, Na, K, Mg, Ca

1-1L Plastic - Cr(VI), SO_4, Cl, TDS, Turbidity, Alkalinity

1-1L Glass (H_2SO_4) - Nitrates, COD, Phosphate.

4-40 ml VOA's - Formaldehyde, 624

1-1 gallon glass - 608, 625

1-1 gallon plastic cube - (HNO_3) Gross α, Gross β, Gamma Strontium 90

1-4 oz. glass - Tritium

TEMP. See UCD-14

SPEC. COND. ↓

pH ↓

COMMENTS:

Dames & Moore

FIELD RECORD OF WATER SAMPLING

WELL NO. UCD-13 JOB NUMBER 10805-454-044

DEPTH OF WELL 65' (67.0) CLIENT D.O.E.

CASING TYPE/DIAMETER 4" PVC LOCATION UC Davis - LEHR

BOREHOLE DIAMETER 12" SAMPLED BY: Zuber

SCREENED INTERVAL NA TO _____ SAND PACK INTERVAL NA TO _____

REF. POINT NA ELEVATION 53.16 DATUM MSLD

PURGING PRIOR TO SAMPLING

PURGING METHOD ~~NA~~ Dry

PUMP FLOW RATE _____

INITIAL WATER LEVEL ~~67.0~~ — ONE CASING/BOREHOLE VOLUME (Gallons) N/A

DATE	TIME	TEMP (°)	SPEC. COND.	pH	GALLONS REMOVED	TURBIDITY (NTU)	COMMENTS (appearance of water, odor, etc.)
8-12							
		DRY WELL					
			NO SAMPLES				

RECORD OF SAMPLING

SAMPLING METHOD Dry

DATE OF SAMPLE — TIME — DEPTH OF SAMPLE —

1-1 L Plastic (HNO_3) - Metals, Na, K, Mg, Ca

1-1L Plastic - Cr(VI), SO_4, Cl, TDS, Turbidity, Alkalinity

1-1L Glass (CH_2SO_4) - Nitrates, COD, Phosphate.

4-40 ml VOA's - Formaldehyde, 624

1-1 gallon glass - 608, 625

1-1 gallon plastic cube - (HNO_3) Gross α, Gross β, Gamma Strontium 90

1-4 oz. glass - Tritium

TEMP. _____

SPEC. COND. _____

pH _____

COMMENTS: DRY - well no samples taken. Mud on bottom at probe

Dames & Moore

FIELD RECORD OF WATER SAMPLING

WELL NO. ilCD - 19 JOB NUMBER 10805-454-044

DEPTH OF WELL 74.5' (73.7') CLIENT D.O.E.

CASING TYPE/DIAMETER 4" PVC LOCATION UC Davis - LEHR

BOREHOLE DIAMETER 12" SAMPLED BY: Zuber

SCREENED INTERVAL 56.5 TO 91.5 SAND PACK INTERVAL 53.5 TO 72.5

REF. POINT BGS ELEVATION — DATUM —

PURGING PRIOR TO SAMPLING

3cv = ~~10~~ 7 gallons

PURGING METHOD ~~[illegible]~~ disposable bailer

PUMP FLOW RATE NA

INITIAL WATER LEVEL 70.14' 8-7-91 ONE CASING/BOREHOLE VOLUME (Gallons) 2.3 gallons

3.57'

WC = ~~[illegible]~~ 70.13' 8-13-9

DATE	TIME	TEMP (°)	SPEC. COND.	pH	GALLONS REMOVED	TURBIDITY (NTU)	COMMENTS (appearance of water, odor, etc.)
8/13	1200	68.3	1134	7.58	5	>200	—
	↓	68.1	1145	7.56	6	>200	—
↓	↓	68.5	1152	7.60	7	>200	—

RECORD OF SAMPLING

SAMPLING METHOD disposable bailer

DATE OF SAMPLE 8-13-91 TIME 1200 DEPTH OF SAMPLE NA

1-1 L Plastic (HNO_3) - Metals, Na, K, Mg, Ca

1-1L Plastic - Cr(VI), SO_4, Cl, TDS, Turbidity, Alkalinity

1-1L Glass (H_2SO_4) - Nitrates, COD, Phosphate.

4-40 ml VOA's - Formaldehyde, 624

1-1 gallon glass - 608, 625

1-1 gallon plastic cube - (HNO_3) Gross α, Gross β, Gamma Strontium 90

1-4 oz. glass - Tritium

TEMP. 68.5

SPEC. COND. 1152

pH 7.68

COMMENTS: Pump is above water table and samples could not be taken on 8-7-91

Dames & Moore

FIELD RECORD OF WATER SAMPLING

WELL NO. UCD-19B JOB NUMBER 10805-454-044

DEPTH OF WELL — CLIENT D.O.E.

CASING TYPE/DIAMETER — LOCATION UC Davis - LEHR

BOREHOLE DIAMETER — SAMPLED BY: Zuber

SCREENED INTERVAL — TO — SAND PACK INTERVAL NA TO

REF. POINT — ELEVATION — DATUM

PURGING PRIOR TO SAMPLING

PURGING METHOD disposable bailer

PUMP FLOW RATE —

INITIAL WATER LEVEL — ONE CASING/BOREHOLE VOLUME (Gallons) See UCD-19

DATE	TIME	TEMP (°)	SPEC. COND.	pH	GALLONS REMOVED	TURBIDITY (NTU)	COMMENTS (appearance of water, odor, etc.)
		Dupe of UCD-19					

RECORD OF SAMPLING

SAMPLING METHOD disposable bailer

DATE OF SAMPLE 8-13-91 TIME 1245 DEPTH OF SAMPLE N/A

1-1 L Plastic (HNO_3) - Metals, Na, K, Mg, Ca

1-1L Plastic - Cr(VI), SO_4, Cl, TDS, Turbidity, Alkalinity

1-1L Glass (H_2SO_4) - Nitrates, COD, Phosphate.

4-40 ml VOA's - Formaldehyde, 624

1-1 gallon glass - 608, 625

1-1 gallon plastic cube - (HNO_3) Gross α, Gross β, Gamma Strontium 90

1-4 oz. glass - Tritium

TEMP. See

SPEC. COND. UCD 19

pH

COMMENTS: Dupe of UCD-19

Dames & Moore
FIELD RECORD OF WATER SAMPLING

WELL NO. UCD-10 JOB NUMBER 10805-454-044

DEPTH OF WELL TOC 72.13 (8-13-91) CLIENT D.O.E.

CASING TYPE/DIAMETER 4" PVC LOCATION UC Davis - LEHR

BOREHOLE DIAMETER 12" SAMPLED BY: Zuber

SCREENED INTERVAL 54 TO 69 SAND PACK INTERVAL 52 TO 70

REF. POINT BGS ELEVATION 50.54 DATUM MSL

PURGING PRIOR TO SAMPLING

PURGING METHOD disposable bailer

PUMP FLOW RATE NA

INITIAL WATER LEVEL 70.86 (8/13) 71.37 (8/14) ONE CASING/BOREHOLE VOLUME (Gallons) 5 g

DATE	TIME	TEMP (°)	SPEC. COND.	pH	GALLONS REMOVED	TURBIDITY (NTU)	COMMENTS (appearance of water, odor, etc.)
8/14	0900	70.1	2050	7.31	1 qt	>200	—
〃	〃	70.6	2080	7.49	1.5 qts	>200	—

RECORD OF SAMPLING

SAMPLING METHOD disposable bailer

DATE OF SAMPLE 8-14-91 TIME 0900 DEPTH OF SAMPLE NA

1-1L Plastic (HNO_3) - Metals, Na, K, Mg, Ca

1-1L Plastic - Cr(VI), SO_4, Cl, TDS, Turbidity, Alkalinity

1-1L Glass (H_2SO_4) - Nitrates, COD, Phosphate.

1-1 gallon glass - 608, 625

1-1 gallon plastic cube - (HNO_3) Glass of, Gross B, Gamma Strontium 90

1-4 oz. glass - Tritium

4-40 ml VOA's - Formaldehyde, 624

TEMP. 70.6

SPEC. COND. 2080

pH 7.49

COMMENTS: 8/13 Pump was removed + water level taken. Bailed but well dry after ~3/4 gallon. Waite 10-15 minutes and pulled just a tra of water out stopped for day. Water was very silty and bailer w hitting bottom

8/14 Bailed ~ 1/4 gallon and took readings. Had to waite several times.

FIELD RECORDS OF WATER SAMPLING
SPRING QUARTER, MAY 1991

PHASE II SITE CHARACTERIZATION
LEHR ENVIRONMENTAL RESTORATION

Dames & Moore

FIELD RECORD OF WATER SAMPLING

WELL NO. UCD-4 JOB NUMBER 10805-454-044

DEPTH OF WELL 57.5 CLIENT D.O.E.

CASING TYPE/DIAMETER 2" PVC LOCATION UC Davis - LEHR

BOREHOLE DIAMETER SAMPLED BY: Zuber

SCREENED INTERVAL TO SAND PACK INTERVAL TO

REF. POINT ELEVATION DATUM

PURGING PRIOR TO SAMPLING

4 ~~[illegible]~~ gallons

PURGING METHOD bladder pump

PUMP FLOW RATE

INITIAL WATER LEVEL 49.24 ONE CASING/BOREHOLE VOLUME (Gallons) ~~[illegible]~~ 1.4

WC = 8.3

DATE	TIME	TEMP (°)	SPEC. COND.	pH	GALLONS REMOVED	TURBIDITY (NTU)	COMMENTS (appearance of water, odor, etc.)
5/15	1515	19.7	815	7.31	10	7	
		19.6	829	7.35	11	7	
		19.6	817	7.32	12	6	

RECORD OF SAMPLING

SAMPLING METHOD bladder pump (dedicated)

DATE OF SAMPLE 5-15-91 TIME 1530 DEPTH OF SAMPLE

1-1 L Plastic (HNO_3) - Metals, Na, K, Mg, Ca

1-1L Plastic - Cr(VI), SO_4, Cl, TDS, Turbidity, Alkalinity

1-1L Glass (H_2SO_4) - Nitrates, COD, Phosphate.

4-40 ml VOA's - Formaldehyde, 624

1-1 gallon glass - 608, 625

1-1 gallon plastic cube - (HNO_3) Gross α, Gross β, Gamma Strontium 90

1-4 oz. glass - Tritium

TEMP.

SPEC. COND.

pH

COMMENTS:

Dames & Moore

FIELD RECORD OF WATER SAMPLING

WELL NO. MD-1 JOB NUMBER 10805-454-044

DEPTH OF WELL 58.70' CLIENT D.O.E.

CASING TYPE/DIAMETER _____ LOCATION UC Davis - LEHR

BOREHOLE DIAMETER _____ SAMPLED BY: Zuber

SCREENED INTERVAL _____ TO _____ SAND PACK INTERVAL _____ TO _____

REF. POINT _____ ELEVATION _____ DATUM _____

PURGING PRIOR TO SAMPLING

3 CV = 1.3 gallons

PURGING METHOD bladder pump / disposable bailer

PUMP FLOW RATE _____

INITIAL WATER LEVEL 55.42 ONE CASING/BOREHOLE VOLUME (Gallons) 0.43 gallons

WC = 2.68'

DATE	TIME	TEMP (°)	SPEC. COND.	pH	GALLONS REMOVED	TURBIDITY (NTU)	COMMENTS (appearance of water, odor, etc.)
		18.7	1158	7.11	1.0	>200	Very silty + sandy
		18.6	1141	7.16	1.3	>200	" " "
		18.6	1138	7.22	1.5	>200	" " " bailer

RECORD OF SAMPLING

SAMPLING METHOD disposable bailer / dedicated bladder pump

DATE OF SAMPLE 5-21 TIME 1115; 1400; 1615 DEPTH OF SAMPLE _____

1-1 L Plastic (HNO_3) - Metals, Na, K, Mg, Ca

1-1L Plastic - Cr(VI), SO_4, Cl, TDS, Turbidity, Alkalinity

1-1L Glass (CH_2SO_4) - Nitrates, COD, Phosphate.

4-40 ml VOA's - Formaldehyde, 624

1-1 gallon glass - 608, 625

1-1 gallon plastic cube - (HNO_3) Gross α, Gross β, Gamma Strontium 90

1-4 oz. glass - Tritium

TEMP. _____

SPEC. COND. _____

pH _____

COMMENTS: 0.6 gallons removed prior to going dry @ 1000
1030 Began bailing to take some readings

Dames & Moore

FIELD RECORD OF WATER SAMPLING

WELL NO. UCD-10 JOB NUMBER 10805-454-044

DEPTH OF WELL 70' CLIENT D.O.E.

CASING TYPE/DIAMETER _____ LOCATION UC Davis - LEHR

BOREHOLE DIAMETER _____ SAMPLED BY: Zuber

SCREENED INTERVAL _____ TO _____ SAND PACK INTERVAL _____ TO _____

REF. POINT _____ ELEVATION _____ DATUM _____

PURGING PRIOR TO SAMPLING

3 cv = 24 g

PURGING METHOD _____

PUMP FLOW RATE _____

INITIAL WATER LEVEL 58.39 ONE CASING/BOREHOLE VOLUME (Gallons) 8

WL 11.6'

DATE	TIME	TEMP (°)	SPEC. COND.	pH	GALLONS REMOVED	TURBIDITY (NTU)	COMMENTS (appearance of water, odor, etc.)
		18.6	1598	7.71	20	127	
		18.7	1610	7.79	25	100	
		18.7	1620	7.79	30	88	

RECORD OF SAMPLING

SAMPLING METHOD dedicated bladder pump

DATE OF SAMPLE 5-20-91 TIME 1530 DEPTH OF SAMPLE _____

1-1 L Plastic (HNO_3) - Metals, Na, K, Mg, Ca

1-1L Plastic - Cr(VI), SO_4, Cl, TDS, Turbidity, Alkalinity

1-1L Glass (CH_2SO_4) - Nitrates, COD, Phosphate.

4-40 ml VOA's - Formaldehyde, 624

1-1 gallon glass - 608, 625

1-1 gallon plastic cube - (HNO_3) Gross α, Gross β, Gamma Strontium 90

1-4 oz. glass - Tritium

TEMP. _____

SPEC. COND. _____

pH _____

COMMENTS: Water is significantly cleaner from the sample pump than from the purge pump

Dames & Moore

FIELD RECORD OF WATER SAMPLING

WELL NO. UCD-7 JOB NUMBER 10805-454-044

DEPTH OF WELL 90' CLIENT D.O.E.

CASING TYPE/DIAMETER _____ LOCATION UC Davis - LEHR

BOREHOLE DIAMETER _____ SAMPLED BY: Zuber

SCREENED INTERVAL _____ TO _____ SAND PACK INTERVAL _____ TO _____

REF. POINT _____ ELEVATION _____ DATUM _____

PURGING PRIOR TO SAMPLING

3 CV = 15.3 gallons

PURGING METHOD bladder pump

PUMP FLOW RATE _____

INITIAL WATER LEVEL 58.18 ONE CASING/BOREHOLE VOLUME (Gallons) 5.1 gallons

WL = 32

DATE	TIME	TEMP (°)	SPEC. COND.	pH	GALLONS REMOVED	TURBIDITY (NTU)	COMMENTS (appearance of water, odor, etc.)
		18.7	986	7.60	11	3.1	
		18.7	970	7.63	13	3.6	
		18.7	971	7.61	15	3.2	

RECORD OF SAMPLING

SAMPLING METHOD bladder pump

DATE OF SAMPLE 5-20-91 TIME 1230 DEPTH OF SAMPLE _____

1-1 L Plastic (HNO_3) - Metals, Na, K, Mg, Ca

1-1L Plastic - Cr(VI), SO_4, Cl, TDS, Turbidity, Alkalinity

1-1L Glass (H_2SO_4) - Nitrates, COD, Phosphate.

4-40 ml VOA's - Formaldehyde, 624

1-1 gallon glass - 608, 625

1-1 gallon plastic cube - (HNO_3) Gross α, Gross β, Gamma Strontium 90

1-4 oz. glass - Tritium

TEMP. _____

SPEC. COND. _____

pH _____

COMMENTS: _____

Dames & Moore

FIELD RECORD OF WATER SAMPLING

WELL NO. UCD - 11 JOB NUMBER 10805-454-044

DEPTH OF WELL 66.5' CLIENT D.O.E.

CASING TYPE/DIAMETER _____ LOCATION UC Davis - LEHR

BOREHOLE DIAMETER _____ SAMPLED BY: Zuber

SCREENED INTERVAL _____ TO _____ SAND PACK INTERVAL _____ TO _____

REF. POINT _____ ELEVATION _____ DATUM _____

PURGING PRIOR TO SAMPLING

3cd = 18 gallons

PURGING METHOD _____

PUMP FLOW RATE _____

INITIAL WATER LEVEL 57.68 ONE CASING/BOREHOLE VOLUME (Gallons) 6

WC = 8.8

DATE	TIME	TEMP (°)	SPEC. COND.	pH	GALLONS REMOVED	TURBIDITY (NTU)	COMMENTS (appearance of water, odor, etc.)
		18.6	1018	7.47	20	6.8	
		18.5	1021	7.49	25	6.0	
		18.4	1024	7.65	30	5.0	
		18.5	1026	7.66	35	3.5	

RECORD OF SAMPLING

SAMPLING METHOD _____

DATE OF SAMPLE 5-21-91 TIME 0930 DEPTH OF SAMPLE _____

1-1 L Plastic (HNO_3) - Metals, Na, K, Mg, Ca

1-1L Plastic - Cr(VI), SO_4, Cl, TDS, Turbidity, Alkalinity

1-1L Glass (H_2SO_4) - Nitrates, COD, Phosphate.

4-40 ml VOA's - Formaldehyde, 624

1-1 gallon glass - 608, 625

1-1 gallon plastic cube - (HNO_3) Gross α, Gross β, Gamma Strontium 90

1-4 oz. glass - Tritium

TEMP. _____

SPEC. COND. _____

pH _____

COMMENTS: _____

Dames & Moore

FIELD RECORD OF WATER SAMPLING

WELL NO. UCD-11B JOB NUMBER 10805-454-044

DEPTH OF WELL _____ CLIENT D.O.E.

CASING TYPE/DIAMETER _____ LOCATION UC Davis - LEHR

BOREHOLE DIAMETER _____ SAMPLED BY: Zuber

SCREENED INTERVAL _____ TO _____ SAND PACK INTERVAL _____ TO _____

REF. POINT _____ ELEVATION _____ DATUM _____

PURGING PRIOR TO SAMPLING

PURGING METHOD _____

PUMP FLOW RATE _____

INITIAL WATER LEVEL _____ ONE CASING/BOREHOLE VOLUME (Gallons) _____

DATE	TIME	TEMP (°)	SPEC. COND.	pH	GALLONS REMOVED	TURBIDITY (NTU)	COMMENTS (appearance of water, odor, etc.)
		DUPE of UCD-11					

RECORD OF SAMPLING

SAMPLING METHOD _____

DATE OF SAMPLE 5-21-91 TIME 0845 DEPTH OF SAMPLE _____

1-1 L Plastic (HNO_3) - Metals, Na, K, Mg, Ca

1-1L Plastic - Cr(VI), SO_4, Cl, TDS, Turbidity, Alkalinity

1-1L Glass (H_2SO_4) - Nitrates, COD, Phosphate.

4-40 ml VOA's - Formaldehyde, 624

1-1 gallon glass - 608, 625

1-1 gallon plastic cube - (HNO_3) Gross α, Gross β, Gamma Strontium 90

1-4 oz. glass - Tritium

TEMP. _____

SPEC. COND. _____

pH _____

COMMENTS: Dupe of UCD-11

Dames & Moore

FIELD RECORD OF WATER SAMPLING

WELL NO. UCD-13 JOB NUMBER 10805-454-044

DEPTH OF WELL 65' CLIENT D.O.E.

CASING TYPE/DIAMETER _____ LOCATION UC Davis - LEHR

BOREHOLE DIAMETER _____ SAMPLED BY: Zuber

SCREENED INTERVAL _____ TO _____ SAND PACK INTERVAL _____ TO _____

REF. POINT _____ ELEVATION _____ DATUM _____

PURGING PRIOR TO SAMPLING

16.5 g

PURGING METHOD dedicated purge pump

PUMP FLOW RATE _____

INITIAL WATER LEVEL 56.55' ONE CASING/BOREHOLE VOLUME (Gallons) 5.5g

UC = 8.45

DATE	TIME	TEMP (°)	SPEC. COND.	pH	GALLONS REMOVED	TURBIDITY (NTU)	COMMENTS (appearance of water, odor, etc.)
		19.2	1379	7.13	15	4.1	
		19.1	1353	7.18	20	3.0	
		19.2	1349	7.15	25	4.7	
		19.1	1350	7.16	28	5.0	

RECORD OF SAMPLING

SAMPLING METHOD dedicated sample bladder pump

DATE OF SAMPLE 5-21-91 TIME 1200 DEPTH OF SAMPLE _____

1-1 L Plastic (HNO_3) - Metals, Na, K, Mg, Ca

1-1L Plastic - Cr(VI), SO_4, Cl, TDS, Turbidity, Alkalinity

1-1L Glass (H_2SO_4) - Nitrates, COD, Phosphate.

4-40 ml VOA's - Formaldehyde, 624

1-1 gallon glass - 608, 625

1-1 gallon plastic cube - (HNO_3) Gross α, Gross β, Gamma Strontium 90

1-4 oz. glass - Tritium

TEMP. _____

SPEC. COND. _____

pH _____

COMMENTS: Well recovers slowly sample pump would not work right after purging - waited 20 min for well to recover

Dames & Moore

FIELD RECORD OF WATER SAMPLING

WELL NO. UCD-17 JOB NUMBER 10805-454-044

DEPTH OF WELL 66' CLIENT D.O.E.

CASING TYPE/DIAMETER 4" PVC LOCATION UC Davis - LEHR

BOREHOLE DIAMETER _____ SAMPLED BY: Zuber

SCREENED INTERVAL _____ TO _____ SAND PACK INTERVAL _____ TO _____

REF. POINT _____ ELEVATION _____ DATUM _____

PURGING PRIOR TO SAMPLING

3 cv = 23 g

PURGING METHOD Purge Pump dedicated

PUMP FLOW RATE _____

INITIAL WATER LEVEL 54. ~~[illegible]~~ 6.4 ONE CASING/BOREHOLE VOLUME (Gallons) 7.4

WC = 11.4

DATE	TIME	TEMP (°)	SPEC. COND.	pH	GALLONS REMOVED	TURBIDITY (NTU)	COMMENTS (appearance of water, odor, etc.)
5/14	1115	19.0	2780	7.41	24	16	
		19.1	2830	7.49	25	11	
		19.1	2800	7.80	26		
		19.2	2730	7.44	27		

RECORD OF SAMPLING

SAMPLING METHOD bladder pump (dedicated)

DATE OF SAMPLE 5-14-91 TIME 1315 DEPTH OF SAMPLE _____

1-1 L Plastic (HNO_3) - Metals, Na, K, Mg, Ca

1-1L Plastic - Cr(VI), SO_4, Cl, TDS, Turbidity, Alkalinity

1-1L Glass (H_2SO_4) - Nitrates, COD, Phosphate.

4-40 ml VOA's - Formaldehyde, 624

1-1 gallon glass - 608, 625

1-1 gallon plastic cube - (HNO_3) Gross α, Gross β, Gamma Strontium 90

1-4 oz. glass - Tritium

TEMP. _____

SPEC. COND. _____

pH _____

COMMENTS: _____

Dames & Moore

FIELD RECORD OF WATER SAMPLING

WELL NO. UCD-15 JOB NUMBER 10805-454-044

DEPTH OF WELL 120.50 CLIENT D.O.E.

CASING TYPE/DIAMETER 4" PVC LOCATION UC Davis - LEHR

BOREHOLE DIAMETER _____ SAMPLED BY: D. Zuber

SCREENED INTERVAL _____ TO _____ SAND PACK INTERVAL _____ TO _____

REF. POINT _____ ELEVATION _____ DATUM _____

PURGING PRIOR TO SAMPLING

125 g = 3 CV

PURGING METHOD dedicated submersible pump

PUMP FLOW RATE _____

INITIAL WATER LEVEL 56.19 ONE CASING/BOREHOLE VOLUME (Gallons) 42

WC = 64.31

DATE	TIME	TEMP (°)	SPEC. COND.	pH	GALLONS REMOVED	TURBIDITY (NTU)	COMMENTS (appearance of water, odor, etc.)
5/13	1515	18.2	636	7.61	110	1.8	
		18.0	623	7.59	125	0.7	
		17.9	635	7.65	135	~~0.4~~ 0.3	
		17.9	636	7.64	145	0.3	

RECORD OF SAMPLING

SAMPLING METHOD dedicated submersible pump

DATE OF SAMPLE 5-13-91 TIME 1545 DEPTH OF SAMPLE _____

1-1 L Plastic (HNO_3) - Metals, Na, K, Mg, Ca

1-1L Plastic - Cr(VI), SO_4, Cl, TDS, Turbidity, Alkalinity

1-1L Glass (H_2SO_4) - Nitrates, COD, Phosphate.

4-40 ml VOA's - Formaldehyde, 624

1-1 gallon glass - 608, 625

1-1 gallon plastic cube - (HNO_3) Gross α, Gross β, Gamma Strontium 90

1-4 oz. glass - Tritium

TEMP. _____

SPEC. COND. _____

pH _____

COMMENTS: _____

Dames & Moore

FIELD RECORD OF WATER SAMPLING

WELL NO. UCD-14 JOB NUMBER 10805-454-044

DEPTH OF WELL 85' CLIENT D.O.E.

CASING TYPE/DIAMETER 4" PVC LOCATION UC Davis - LEHR

BOREHOLE DIAMETER _____ SAMPLED BY: Zuber

SCREENED INTERVAL _____ TO _____ SAND PACK INTERVAL _____ TO _____

REF. POINT _____ ELEVATION _____ DATUM _____

PURGING PRIOR TO SAMPLING

3W = 51 g

PURGING METHOD dedicated purge pump

PUMP FLOW RATE _____

INITIAL WATER LEVEL 58.84' ONE CASING/BOREHOLE VOLUME (Gallons) 17 g

WC = 26.16'

DATE	TIME	TEMP (°)	SPEC. COND.	pH	GALLONS REMOVED	TURBIDITY (NTU)	COMMENTS (appearance of water, odor, etc.)
		18.8	1120	7.66	20	5.6	
		18.6	1095	7.41	35	3.0	
		18.6	1074	7.60	45	2.8	
		18.5	1078	7.69	50	2.5	

RECORD OF SAMPLING

SAMPLING METHOD dedicated sample bladder pump

DATE OF SAMPLE 5-21-91 TIME 1300 DEPTH OF SAMPLE _____

1-1 L Plastic (HNO_3) - Metals, Na, K, Mg, Ca

1-1L Plastic - Cr(VI), SO_4, Cl, TDS, Turbidity, Alkalinity

1-1L Glass (H_2SO_4) - Nitrates, COD, Phosphate.

4-40 ml VOA's - Formaldehyde, 624

1-1 gallon glass - 608, 625

1-1 gallon plastic cube - (HNO_3) Gross α, Gross β, Gamma Strontium 90

1-4 oz. glass - Tritium

TEMP. _____

SPEC. COND. _____

pH _____

COMMENTS: _____

Dames & Moore

FIELD RECORD OF WATER SAMPLING

WELL NO. MW-17 JOB NUMBER 10805-454-044

DEPTH OF WELL 143 CLIENT D.O.E.

CASING TYPE/DIAMETER 4" PVC LOCATION UC Davis - LEHR

BOREHOLE DIAMETER _____ SAMPLED BY: D. Zuber

SCREENED INTERVAL _____ TO _____ SAND PACK INTERVAL _____ TO _____

REF. POINT _____ ELEVATION _____ DATUM _____

PURGING PRIOR TO SAMPLING

3 cv = 172 gallons

PURGING METHOD dedicated submersible pump

PUMP FLOW RATE _____

INITIAL WATER LEVEL 55.17 ONE CASING/BOREHOLE VOLUME (Gallons) 57.3

WC = 87.81

DATE	TIME	TEMP (°)	SPEC. COND.	pH	GALLONS REMOVED	TURBIDITY (NTU)	COMMENTS (appearance of water, odor, etc.)
5/13	1145	18.0	695	7.39	110	0.3	very clear
		17.9	694	7.55	130	0.2	
		18.1	699	7.47	150	0.2	
		18.0	692	7.43	170	0.15	very clear

RECORD OF SAMPLING

SAMPLING METHOD dedicated submersible pump

DATE OF SAMPLE 5-13-91 TIME 1145 DEPTH OF SAMPLE _____

1-1 L Plastic (HNO_3) - Metals, Na, K, Mg, Ca

1-1L Plastic - Cr(VI), SO_4, Cl, TDS, Turbidity, Alkalinity

1-1L Glass (H_2SO_4) - Nitrates, COD, Phosphate.

4-40 ml VOA's - Formaldehyde, 624

1-1 gallon glass - 608, 625

1-1 gallon plastic cube - Gross α, Gross β, Gamma Strontium 90

1-4 oz. glass - Tritium

TEMP. _____

SPEC. COND. _____

pH _____

COMMENTS: ≈ 180 gallons removed prior to sampling
Metals is filtered

Dames & Moore

FIELD RECORD OF WATER SAMPLING

WELL NO. UCD-11 JOB NUMBER 10805-454-044

DEPTH OF WELL 122' CLIENT D.O.E.

CASING TYPE/DIAMETER _____ LOCATION UC Davis - LEHR

BOREHOLE DIAMETER _____ SAMPLED BY: Zuber

SCREENED INTERVAL _____ TO _____ SAND PACK INTERVAL _____ TO _____

REF. POINT _____ ELEVATION _____ DATUM _____

PURGING PRIOR TO SAMPLING

3 cv = 130 gallons

PURGING METHOD dedicated submersible pump

PUMP FLOW RATE _____

INITIAL WATER LEVEL 55.21 ONE CASING/BOREHOLE VOLUME (Gallons) 44

WC = 66.8

DATE	TIME	TEMP (°)	SPEC. COND.	pH	GALLONS REMOVED	TURBIDITY (NTU)	COMMENTS (appearance of water, odor, etc.)
5/14	0855	18.3	658	7.65	110	0.5	clear water
		18.2	653	7.70	130	0.2	
		18.3	652	7.71	140	0.2	
		18.2	557	7.69	145	0.2	

RECORD OF SAMPLING

SAMPLING METHOD dedicated submersible pump

DATE OF SAMPLE 5-14-91 TIME 0915 DEPTH OF SAMPLE _____

1-1 L Plastic (HNO_3) - Metals, Na, K, Mg, Ca

1-1L Plastic - Cr(VI), SO_4, Cl, TDS, Turbidity, Alkalinity

1-1L Glass (H_2SO_4) - Nitrates, COD, Phosphate.

4-40 ml VOA's - Formaldehyde, 624

1-1 gallon glass - 608, 625

1-1 gallon plastic cube - (HNO_3) Gross α, Gross β, Gamma Strontium 90

1-4 oz. glass - Tritium

TEMP. _____

SPEC. COND. _____

pH _____

COMMENTS: 150 gallons removed prior to sampling

Dames & Moore

FIELD RECORD OF WATER SAMPLING

WELL NO. UCD-19 JOB NUMBER 10805-454-044

DEPTH OF WELL 74.5' CLIENT D.O.E.

CASING TYPE/DIAMETER _____ LOCATION UC Davis - LEHR

BOREHOLE DIAMETER _____ SAMPLED BY: Zuber

SCREENED INTERVAL _____ TO _____ SAND PACK INTERVAL _____ TO _____

REF. POINT _____ ELEVATION _____ DATUM _____

PURGING PRIOR TO SAMPLING

3w - 39 gallons

PURGING METHOD _____

PUMP FLOW RATE _____

INITIAL WATER LEVEL 54.86 ONE CASING/BOREHOLE VOLUME (Gallons) 13

WC = 19.7

DATE	TIME	TEMP (°)	SPEC. COND.	pH	GALLONS REMOVED	TURBIDITY (NTU)	COMMENTS (appearance of water, odor, etc.)
5/15	1340	19.6	985	7.48	20	15	Started out
		19.5	988	7.43	35	13	slightly silty
		19.5	1080	7.43	45	8	
		19.6	1078	7.46	50	6.5	clears up
							with
							pumping

RECORD OF SAMPLING

SAMPLING METHOD _____

DATE OF SAMPLE 5-15-97 TIME 1400 DEPTH OF SAMPLE _____

1-1 L Plastic (HNO_3) - Metals, Na, K, Mg, Ca

1-1L Plastic - Cr(VI), SO_4, Cl, TDS, Turbidity, Alkalinity

1-1L Glass (H_2SO_4) - Nitrates, COD, Phosphate.

4-40 ml VOA's - Formaldehyde, 624

1-1 gallon glass - 608, 625

1-1 gallon plastic cube - (HNO_3) Gross α, Gross β, Gamma Strontium 90

1-4 oz. glass - Tritium

TEMP. _____

SPEC. COND. _____

pH _____

COMMENTS: 50 gallons removed prior to sampling

Dames & Moore

FIELD RECORD OF WATER SAMPLING

WELL NO. ~~MW~~ MCD-18 JOB NUMBER 10805-454-044

DEPTH OF WELL 70.0 CLIENT D.O.E.

CASING TYPE/DIAMETER 4" PVC LOCATION UC Davis - LEHR

BOREHOLE DIAMETER _____ SAMPLED BY: Zuber

SCREENED INTERVAL _____ TO _____ SAND PACK INTERVAL _____ TO _____

REF. POINT _____ ELEVATION _____ DATUM _____

PURGING PRIOR TO SAMPLING

3 cv = 48 g

PURGING METHOD dedicated submersible pump.

PUMP FLOW RATE _____

INITIAL WATER LEVEL 46.15 ONE CASING/BOREHOLE VOLUME (Gallons) 16 gallons

WC = 23.85

DATE	TIME	TEMP (°)	SPEC. COND.	pH	GALLONS REMOVED	TURBIDITY (NTU)	COMMENTS (appearance of water, odor, etc.)
5/13	1314	16.2	764	7.20	30	8.0	
		18.0	770	7.52	40	6.3	
		18.0		7.59	45	6.0	
		18.0		7.56	50	6.0	

RECORD OF SAMPLING

SAMPLING METHOD dedicated submersible pump

DATE OF SAMPLE 5-13-91 TIME 1330 DEPTH OF SAMPLE _____

1-1 L Plastic (HNO_3) - Metals, Na, K, Mg, Ca

1-1L Plastic - Cr(VI), SO_4, Cl, TDS, Turbidity, Alkalinity

1-1L Glass (H_2SO_4) - Nitrates, COD, Phosphate.

4-40 ml VOA's - Formaldehyde, 624

1-1 gallon glass - 608, 625

1-1 gallon plastic cube - (HNO_3) Gross α, Gross β, Gamma Strontium 90

1-4 oz. glass - Tritium

TEMP. _____

SPEC. COND. _____

pH _____

COMMENTS:

Dames & Moore

FIELD RECORD OF WATER SAMPLING

WELL NO. UMD-21 JOB NUMBER 10805-454-044

DEPTH OF WELL 73' CLIENT D.O.E.

CASING TYPE/DIAMETER 4" PVC LOCATION UC Davis - LEHR

BOREHOLE DIAMETER _____ SAMPLED BY: Zuber

SCREENED INTERVAL _____ TO _____ SAND PACK INTERVAL _____ TO _____

REF. POINT _____ ELEVATION _____ DATUM _____

PURGING PRIOR TO SAMPLING

3cv = 48 gallons

PURGING METHOD dedicated submersible pump

PUMP FLOW RATE _____

INITIAL WATER LEVEL 48.82 ONE CASING/BOREHOLE VOLUME (Gallons) 16 gallons

WC = 24.18

DATE	TIME	TEMP (°)	SPEC. COND.	pH	GALLONS REMOVED	TURBIDITY (NTU)	COMMENTS (appearance of water, odor, etc.)
	1550	20.4	1230	7.42	40	13	
		20.2	1200	7.41	45	12	
		20.1	1205	7.38	48	11.5	

RECORD OF SAMPLING

SAMPLING METHOD dedicated submersible pump

DATE OF SAMPLE 5-24-91 TIME 1600 DEPTH OF SAMPLE _____

1-1 L Plastic (HNO_3) - Metals, Na, K, Mg, Ca

1-1L Plastic - Cr(VI), SO_4, Cl, TDS, Turbidity, Alkalinity

1-1L Glass (CH_2SO_4) - Nitrates, COD, Phosphate.

4-40 ml VOA's - Formaldehyde, 624

1-1 gallon glass - 608, 625

1-1 gallon plastic cube - (HNO_3) Gross α, Gross β, Gamma Strontium 90

1-4 oz. glass - Tritium

TEMP. _____

SPEC. COND. _____

pH _____

COMMENTS: 55 gallons removed prior to sampling

Dames & Moore

FIELD RECORD OF WATER SAMPLING

WELL NO. 160 D-20 JOB NUMBER 10805-454-044

DEPTH OF WELL 73' CLIENT D.O.E.

CASING TYPE/DIAMETER _____ LOCATION UC Davis - LEHR

BOREHOLE DIAMETER _____ SAMPLED BY: Zuber

SCREENED INTERVAL _____ TO _____ SAND PACK INTERVAL _____ TO _____

REF. POINT _____ ELEVATION _____ DATUM _____

PURGING PRIOR TO SAMPLING

3CV = 44 gallons

PURGING METHOD _____

PUMP FLOW RATE _____

INITIAL WATER LEVEL 50.89 ONE CASING/BOREHOLE VOLUME (Gallons) 14.5

WC = 22.11

DATE	TIME	TEMP (°)	SPEC. COND.	pH	GALLONS REMOVED	TURBIDITY (NTU)	COMMENTS (appearance of water, odor, etc.)
5/15	0900	19.1	952	7.41	40	0.9	
		19.2	948	7.46	45	0.9	
		19.2	449	7.45	50	0.9	

RECORD OF SAMPLING

SAMPLING METHOD _____

DATE OF SAMPLE 5-15-91 TIME 0915 DEPTH OF SAMPLE _____

1-1 L Plastic (HNO_3) - Metals, Na, K, Mg, Ca

1-1L Plastic - Cr(VI), SO_4, Cl, TDS, Turbidity, Alkalinity

1-1L Glass (H_2SO_4) - Nitrates, COD, Phosphate.

4-40 ml VOA's - Formaldehyde, 624

1-1 gallon glass - 608, 625

1-1 gallon plastic cube - (HNO_3) Gross α, Gross β, Gamma Strontium 90

1-4 oz. glass - Tritium

TEMP. _____

SPEC. COND. _____

pH _____

COMMENTS: _____

Dames & Moore

FIELD RECORD OF WATER SAMPLING

WELL NO. UCD-23 JOB NUMBER 10805-454-044

DEPTH OF WELL 53' CLIENT D.O.E.

CASING TYPE/DIAMETER 4" PVC LOCATION UC Davis - LEHR

BOREHOLE DIAMETER _____ SAMPLED BY: Zuber

SCREENED INTERVAL _____ TO _____ SAND PACK INTERVAL _____ TO _____

REF. POINT _____ ELEVATION _____ DATUM _____

PURGING PRIOR TO SAMPLING

3 CV = 51 gallons

PURGING METHOD dedicated submersible pump

PUMP FLOW RATE _____

INITIAL WATER LEVEL 47.52 ONE CASING/BOREHOLE VOLUME (Gallons) 17

WC = 25.5

DATE	TIME	TEMP (°)	SPEC. COND.	pH	GALLONS REMOVED	TURBIDITY (NTU)	COMMENTS (appearance of water, odor, etc.)
5/15	1204	20.2	789	7.45	40	22	Started out silty
		20.3	773	7.53	45	12	and red
		20.3	772	7.55	50	6	
		20.0	774	7.52	55	4.5	

RECORD OF SAMPLING

SAMPLING METHOD dedicated submersible pump

DATE OF SAMPLE 5-15-91 TIME 1230 DEPTH OF SAMPLE _____

1-1 L Plastic (HNO_3) - Metals, Na, K, Mg, Ca

1-1L Plastic - Cr(VI), SO_4, Cl, TDS, Turbidity, Alkalinity

1-1L Glass (CH_2SO_4) - Nitrates, COD, Phosphate.

4-40 mL VOA's - Formaldehyde, 624

1-1 gallon glass - 608, 625

1-1 gallon plastic cube - (HNO_3) Gross α, Gross β, Gamma Strontium 90

1-4 oz. glass - Tritium

TEMP. _____

SPEC. COND. _____

pH _____

COMMENTS: _____

Dames & Moore

FIELD RECORD OF WATER SAMPLING

WELL NO. UCD-22 JOB NUMBER 10805-454-044

DEPTH OF WELL 73' CLIENT D.O.E.

CASING TYPE/DIAMETER _____ LOCATION UC Davis - LEHR

BOREHOLE DIAMETER _____ SAMPLED BY: Zuber

SCREENED INTERVAL _____ TO _____ SAND PACK INTERVAL _____ TO _____

REF. POINT _____ ELEVATION _____ DATUM _____

PURGING PRIOR TO SAMPLING

3CV = 44 gallons

PURGING METHOD dedicated disposable pump

PUMP FLOW RATE _____

INITIAL WATER LEVEL 50.55 ONE CASING/BOREHOLE VOLUME (Gallons) 14.6

WC = 22.51

DATE	TIME	TEMP (°)	SPEC. COND.	pH	GALLONS REMOVED	TURBIDITY (NTU)	COMMENTS (appearance of water, odor, etc.)
5/15	1010	19.9	758	7.51	25	1.1	
		19.8	753	7.52	35	1.2	
		19.8	749	7.56	45	1.1	

RECORD OF SAMPLING

SAMPLING METHOD dedicated disposable pump

DATE OF SAMPLE 5-15-96 TIME 1030 DEPTH OF SAMPLE _____

1-1 L Plastic (HNO_3) - Metals, Na, K, Mg, Ca

1-1L Plastic - Cr(VI), SO_4, Cl, TDS, Turbidity, Alkalinity

1-1L Glass (H_2SO_4) - Nitrates, COD, Phosphate.

4-40 ml VOA's - Formaldehyde, 624

1-1 gallon glass - 608, 625

1-1 gallon plastic cube - (HNO_3) Gross α, Gross β, Gamma Strontium 90

1-4 oz. glass - Tritium

TEMP. _____

SPEC. COND. _____

pH _____

COMMENTS: _____

Dames & Moore

FIELD RECORD OF WATER SAMPLING

WELL NO. UCD-24 JOB NUMBER 10805-454-044

DEPTH OF WELL 73' CLIENT D.O.E.

CASING TYPE/DIAMETER 4" PVC LOCATION UC Davis - LEHR

BOREHOLE DIAMETER SAMPLED BY: Zuber

SCREENED INTERVAL TO SAND PACK INTERVAL TO

REF. POINT ELEVATION DATUM

PURGING PRIOR TO SAMPLING

3 cv = 42 g

PURGING METHOD dedicated submersible pump

PUMP FLOW RATE 3-5 gpm

INITIAL WATER LEVEL 51.87 ONE CASING/BOREHOLE VOLUME (Gallons) 14 gallons

WC = 73.13

DATE	TIME	TEMP (°) 20.5	SPEC. COND.	pH	GALLONS REMOVED	TURBIDITY (NTU)	COMMENTS (appearance of water, odor, etc.)
	1430		1140	7.26	30	2.1	
		20.7	1060	7.31	35	1.7	
		20.8	1075	7.32	40	1.4	
		21.1	1080	7.33	42	1.6	

RECORD OF SAMPLING

SAMPLING METHOD dedicated submersible pump

DATE OF SAMPLE 5-14-97 TIME 1445 DEPTH OF SAMPLE

1-1 L Plastic (HNO_3) - Metals, Na, K, Mg, Ca

1-1L Plastic - Cr(VI), SO_4, Cl, TDS, Turbidity, Alkalinity

1-1L Glass (H_2SO_4) - Nitrates, COD, Phosphate.

4-40 ml VOA's - Formaldehyde, 624

1-1 gallon glass - 608, 625

1-1 gallon plastic cube - (HNO_3) Gross α, Gross β, Gamma Strontium 90

1-4 oz. glass - Tritium

TEMP.

SPEC. COND.

pH

COMMENTS:

Dames & Moore

FIELD RECORD OF WATER SAMPLING

WELL NO. UCD-23B JOB NUMBER 10805-454-044

DEPTH OF WELL _____ CLIENT D.O.E.

CASING TYPE/DIAMETER _____ LOCATION UC Davis - LEHR

BOREHOLE DIAMETER _____ SAMPLED BY: Zuber

SCREENED INTERVAL _____ TO _____ SAND PACK INTERVAL _____ TO _____

REF. POINT _____ ELEVATION _____ DATUM _____

PURGING PRIOR TO SAMPLING

PURGING METHOD _____

PUMP FLOW RATE _____

INITIAL WATER LEVEL _____ ONE CASING/BOREHOLE VOLUME (Gallons) _____

DATE	TIME	TEMP (°)	SPEC. COND.	pH	GALLONS REMOVED	TURBIDITY (NTU)	COMMENTS (appearance of water, odor, etc.)

Dupe of UCD-23

RECORD OF SAMPLING

SAMPLING METHOD _____

DATE OF SAMPLE 5-15-91 TIME 1300 DEPTH OF SAMPLE _____

1-1 L Plastic (HNO_3) - Metals, Na, K, Mg, Ca

1-1L Plastic - Cr(VI), SO_4, Cl, TDS, Turbidity, Alkalinity

1-1L Glass (H_2SO_4) - Nitrates, COD, Phosphate.

4-40 ml VOA's - Formaldehyde, 624

1-1 gallon glass - 608, 625

1-1 gallon plastic cube - (HNO_3) Gross α, Gross β, Gamma Strontium 90

1-4 oz. glass - Tritium

TEMP. _____

SPEC. COND. _____

pH _____

COMMENTS: UCD-23B is a dupe of UCD-23

Dames & Moore

FIELD RECORD OF WATER SAMPLING

WELL NO. PCU-Surface JOB NUMBER 10805-454-044

DEPTH OF WELL _____ CLIENT D.O.E.

CASING TYPE/DIAMETER _____ LOCATION UC Davis - LEHR

BOREHOLE DIAMETER _____ SAMPLED BY: Zuber

SCREENED INTERVAL _____ TO _____ SAND PACK INTERVAL _____ TO _____

REF. POINT _____ ELEVATION _____ DATUM _____

PURGING PRIOR TO SAMPLING

PURGING METHOD _____

PUMP FLOW RATE _____

INITIAL WATER LEVEL _____ ONE CASING/BOREHOLE VOLUME (Gallons) _____

DATE	TIME	TEMP (°)	SPEC. COND.	pH	GALLONS REMOVED	TURBIDITY (NTU)	COMMENTS (appearance of water, odor, etc.)

RECORD OF SAMPLING

SAMPLING METHOD depth integrated sampler

DATE OF SAMPLE 5-21-91 TIME 1450 DEPTH OF SAMPLE _____

~~1-1L Plastic (HNO3) - Metals, Na, K, Mg, Ca~~

~~1-1 gallon glass - 608, 625~~

ONLY → 1-1L Plastic - Cr(VI), SO_4, Cl, TDS, Turbidity, Alkalinity

~~1-1 gallon plastic cube - (HNO3) Gross α, Gross β, Gamma Strontium 90~~

~~1-1L Glass (H_2SO_4) - Nitrates, COD, Phosphate~~

~~1-4 oz glass - Tritium~~

4-40 ml VOA's - Formaldehyde, 624

TEMP. _____

SPEC. COND. _____

pH _____

COMMENTS: Re-sample for Cr(VI) and Turbidity For samples taken on 5-16-91

Dames & Moore

FIELD RECORD OF WATER SAMPLING

WELL NO. PCD - Surface JOB NUMBER 10805-454-044

DEPTH OF WELL _____ CLIENT D.O.E.

CASING TYPE/DIAMETER _____ LOCATION UC Davis - LEHR

BOREHOLE DIAMETER _____ SAMPLED BY: Zuber

SCREENED INTERVAL _____ TO _____ SAND PACK INTERVAL _____ TO _____

REF. POINT _____ ELEVATION _____ DATUM _____

PURGING PRIOR TO SAMPLING

PURGING METHOD _____

PUMP FLOW RATE _____

INITIAL WATER LEVEL _____ ONE CASING/BOREHOLE VOLUME (Gallons) _____

DATE	TIME	TEMP (°)	SPEC. COND.	pH	GALLONS REMOVED	TURBIDITY (NTU)	COMMENTS (appearance of water, odor, etc.)

RECORD OF SAMPLING

SAMPLING METHOD depth integrated sampler

DATE OF SAMPLE 5-21-91 TIME 1515 DEPTH OF SAMPLE _____

~~1-1L Plastic (HNO3) - Metals, Na, K, Mg, Ca~~

~~1-1 gallon glass - 608, 625~~

→ 1-1L Plastic - Cr(VI), SO4, Cl, TDS, Turbidity, Alkalinity

~~1-1 gallon plastic cube (HNO3) Gross α, Gross β, Gamma Strontium 90~~

~~1-1L Glass (H2SO4) - Nitrates, COD, Phosphate.~~

~~1-4oz glass - Tritium~~

~~4-40ml VOA's - Formaldehyde, 624~~

TEMP. _____

SPEC. COND. _____

pH _____

COMMENTS: re-sample for Cr(VI) and Turbidity for samples taken on 5-16-91

Dames & Moore

FIELD RECORD OF WATER SAMPLING

WELL NO. STPO-1 JOB NUMBER 10805-454-044

DEPTH OF WELL Surface Water CLIENT D.O.E.

CASING TYPE/DIAMETER _____ LOCATION UC Davis - LEHR

BOREHOLE DIAMETER _____ SAMPLED BY: Zuber

SCREENED INTERVAL _____ TO _____ SAND PACK INTERVAL _____ TO _____

REF. POINT _____ ELEVATION _____ DATUM _____

PURGING PRIOR TO SAMPLING

PURGING METHOD _____

PUMP FLOW RATE _____

INITIAL WATER LEVEL _____ ONE CASING/BOREHOLE VOLUME (Gallons) _____

DATE	TIME	TEMP (°)	SPEC. COND.	pH	GALLONS REMOVED	TURBIDITY (NTU)	COMMENTS (appearance of water, odor, etc.)
		Surface water					

RECORD OF SAMPLING

SAMPLING METHOD depth integrated water sampler

DATE OF SAMPLE 5-21-91 TIME 1440 DEPTH OF SAMPLE _____

~~1-1L Plastic (HNO3) - Metals, Na, K, Mg, Ca~~

ONLY → 1-1L Plastic - Cr(VI), SO4, Cl, TDS, Turbidity, Alkalinity

~~1-1L Glass (H2SO4) - Nitrates, COD, Phosphate~~

~~4-40 ml VOA's - Formaldehyde, 624~~

1-1 gallon glass - 608, 625

1-1 gallon plastic cube - (HNO3) Gross α, Gross β, Gamma Strontium 90

1-4 oz. glass - Tritium

TEMP. _____

SPEC. COND. _____

pH _____

COMMENTS: Re-sample for Cr(VI) and Turbidity for samples taken on 5-16-91

Dames & Moore

FIELD RECORD OF WATER SAMPLING

WELL NO. STPA-1B JOB NUMBER 10805-454-044

DEPTH OF WELL Surface CLIENT D.O.E.

CASING TYPE/DIAMETER _____ LOCATION UC Davis - LEHR

BOREHOLE DIAMETER _____ SAMPLED BY: Zuber

SCREENED INTERVAL _____ TO _____ SAND PACK INTERVAL _____ TO _____

REF. POINT _____ ELEVATION _____ DATUM _____

PURGING PRIOR TO SAMPLING

PURGING METHOD _____

PUMP FLOW RATE _____

INITIAL WATER LEVEL _____ ONE CASING/BOREHOLE VOLUME (Gallons) _____

DATE	TIME	TEMP (°)	SPEC. COND.	pH	GALLONS REMOVED	TURBIDITY (NTU)	COMMENTS (appearance of water, odor, etc.)

RECORD OF SAMPLING

SAMPLING METHOD depth integrated sampler

DATE OF SAMPLE 5-21-91 TIME 1500 DEPTH OF SAMPLE _____

~~1-1L Plastic (HNO3) - Metals Na, K, Mg, Ca~~

n/Y → 1-1L Plastic - Cr(VI), SO_4, Cl, TDS, Turbidity, Alkalinity

~~1-1L Glass (H_2SO_4) - Nitrates, COD, Phosphate.~~

~~4-40ml VOA's - Formaldehyde, 624~~

~~1-1 gallon glass - 608, 625~~

~~1-1 gallon plastic cube - (HNO_3) Gross α, Gross β, Gamma Strontium 90~~

~~1-4oz glass - Tritium~~

TEMP. _____

SPEC. COND. _____

pH _____

COMMENTS: Re sample for Cr(VI) and Turbidity for samples taken on 5-16-91

Dames & Moore

FIELD RECORD OF WATER SAMPLING

WELL NO. STP0-1 JOB NUMBER 10805-454-044

DEPTH OF WELL — CLIENT D.O.E.

CASING TYPE/DIAMETER — LOCATION UC Davis - LEHR

BOREHOLE DIAMETER — SAMPLED BY: Zuber/McHugh

SCREENED INTERVAL _____ TO _____ SAND PACK INTERVAL _____ TO _____

REF. POINT _____ ELEVATION _____ DATUM _____

PURGING PRIOR TO SAMPLING

PURGING METHOD N/A

PUMP FLOW RATE N/A

INITIAL WATER LEVEL N/A ONE CASING/BOREHOLE VOLUME (Gallons) _____

DATE	TIME	TEMP (°)	SPEC. COND.	pH	GALLONS REMOVED	TURBIDITY (NTU)	COMMENTS (appearance of water, odor, etc.)
5-16	0930	23.8	972	7.31		3.5	slightly odorous
"	"	23.9	997	7.30		3.8	
"	"	23.9	982	7.34		3.5	

RECORD OF SAMPLING

SAMPLING METHOD depth integrated sampler

DATE OF SAMPLE 5-16-91 TIME 0930 DEPTH OF SAMPLE 0 - 1.5'

1-1 L Plastic (HNO_3) - Metals, Na, K, Mg, Ca

1-1L Plastic - Cr(VI), SO_4, Cl, TDS, Turbidity, Alkalinity

1-1L Glass (H_2SO_4) - Nitrates, COD, Phosphate.

4-40 ml VOA's - Formaldehyde, 624

1-1 gallon glass - 608, 625

1-1 gallon plastic cube - (HNO_3) Gross α, Gross β, Gamma Strontium 90

1-4 oz. glass - Tritium

TEMP. ~~23.8~~ 23.8

SPEC. COND. ~~[illegible]~~ 982

pH ~~[illegible]~~ 7.31

COMMENTS: _____

Dames & Moore

FIELD RECORD OF WATER SAMPLING

WELL NO. STPO - 1B JOB NUMBER 10805-454-044

DEPTH OF WELL — CLIENT D.O.E.

CASING TYPE/DIAMETER — LOCATION UC Davis - LEHR

BOREHOLE DIAMETER — SAMPLED BY: Zuber / McHugh

SCREENED INTERVAL _____ TO _____ SAND PACK INTERVAL _____ TO _____

REF. POINT _____ ELEVATION _____ DATUM _____

PURGING PRIOR TO SAMPLING

PURGING METHOD N/A

PUMP FLOW RATE N/A

INITIAL WATER LEVEL N/A ONE CASING/BOREHOLE VOLUME (Gallons) _____

DATE	TIME	TEMP (°)	SPEC. COND.	pH	GALLONS REMOVED	TURBIDITY (NTU)	COMMENTS (appearance of water, odor, etc.)
		Dupe of STPO-1					

RECORD OF SAMPLING

SAMPLING METHOD depth integrated samples

DATE OF SAMPLE 5-16-91 TIME 0900 DEPTH OF SAMPLE _____

1-1 L Plastic (HNO_3) - Metals, Na, K, Mg, Ca

1-1L Plastic - Cr(VI), SO_4, Cl, TDS, Turbidity, Alkalinity

1-1L Glass (H_2SO_4) - Nitrates, COD, Phosphate.

4-40 ml VOA's - Formaldehyde, 624

1-1 gallon glass - 608, 625

1-1 gallon plastic cube - (HNO_3) Gross α, Gross β, Gamma Strontium 90

1-4 oz. glass - Tritium

TEMP. _____

SPEC. COND. _____

pH _____

COMMENTS: Dupe of STPO-1

Dames & Moore

FIELD RECORD OF WATER SAMPLING

WELL NO. PC,D JOB NUMBER 10805-454-044

DEPTH OF WELL — CLIENT D.O.E.

CASING TYPE/DIAMETER — LOCATION UC Davis - LEHR

BOREHOLE DIAMETER — SAMPLED BY: Zuber

SCREENED INTERVAL — TO — SAND PACK INTERVAL — TO —

REF. POINT — ELEVATION — DATUM —

PURGING PRIOR TO SAMPLING

PURGING METHOD —

PUMP FLOW RATE —

INITIAL WATER LEVEL — ONE CASING/BOREHOLE VOLUME (Gallons) —

DATE	TIME	TEMP (°)	SPEC. COND.	pH	GALLONS REMOVED	TURBIDITY (NTU)	COMMENTS (appearance of water; odor; etc.)
5-16	1:30	23.6	712	8.10		28	
"	"	23.5	695	8.18			
"	"	23.2	680	8.16			

RECORD OF SAMPLING

SAMPLING METHOD depth integrated Sampler

DATE OF SAMPLE 5-16-91 TIME 1:30 DEPTH OF SAMPLE

1-1 L Plastic (HNO_3) - Metals, Na, K, Mg, Ca

1-1L Plastic - Cr(VI), SO_4, Cl, TDS, Turbidity, Alkalinity

1-1L Glass (H_2SO_4) - Nitrates, COD, Phosphate.

4-40 ml VOA's - Formaldehyde, 624

1-1 gallon glass - 608, 625

1-1 gallon plastic cube - (HNO_3) Gross α, Gross β, Gamma Strontium 90

1-4 oz. glass - Tritium

TEMP. 23.5

SPEC. COND. 695

pH 8.16

COMMENTS:

Dames & Moore

FIELD RECORD OF WATER SAMPLING

WELL NO. PC11 / Surface Water JOB NUMBER 10805-454-044

DEPTH OF WELL — CLIENT D.O.E.

CASING TYPE/DIAMETER — LOCATION UC Davis - LEHR

BOREHOLE DIAMETER — SAMPLED BY: Zuber/McHugh

SCREENED INTERVAL — TO — SAND PACK INTERVAL — TO

REF. POINT — ELEVATION — DATUM —

PURGING PRIOR TO SAMPLING

PURGING METHOD N/A

PUMP FLOW RATE N/A

INITIAL WATER LEVEL N/A ONE CASING/BOREHOLE VOLUME (Gallons)

DATE	TIME	TEMP (°)	SPEC. COND.	pH	GALLONS REMOVED	TURBIDITY (NTU)	COMMENTS (appearance of water, odor, etc.)
5-16	11:20	20.4	385	8.56	—	15	murky/Cloudy
"	"	20.6	376	8.78	—		
		20.7	381	8.75			

RECORD OF SAMPLING

SAMPLING METHOD depth integrated samples

DATE OF SAMPLE 5-16-91 TIME 1130 DEPTH OF SAMPLE

1-1 L Plastic (HNO_3) - Metals, Na, K, Mg, Ca

1-1L Plastic - Cr(VI), SO_4, Cl, TDS, Turbidity, Alkalinity

1-1L Glass (CH_2SO_4) - Nitrates, COD, Phosphate.

4-40 ml VOA's - Formaldehyde, 624

1-1 gallon glass - 608, 625

1-1 gallon plastic cube - (HNO_3) Gross α, Gross β, Gamma Strontium 90

1-4 oz. glass - Tritium

TEMP. —

SPEC. COND. —

pH —

COMMENTS: Water appears stagnant - no evidence of current

FIELD RECORDS OF WATER SAMPLING
FALL QUARTER, NOVEMBER 1991

PHASE II SITE CHARACTERIZATION
LEHR ENVIRONMENTAL RESTORATION

Dames & Moore

FIELD RECORD OF WATER SAMPLING

WELL NO. [illegible] JOB NUMBER 10805-454-044

DEPTH OF WELL N/A CLIENT D.O.E.

CASING TYPE/DIAMETER N/A LOCATION UC Davis - LEHR

BOREHOLE DIAMETER N/A SAMPLED BY: Dave Zuber Gary Nikkerson

SCREENED INTERVAL N/A TO N/A SAND PACK INTERVAL N/A TO N/A

REF. POINT N/A ELEVATION N/A DATUM N/A

PURGING PRIOR TO SAMPLING

PURGING METHOD N/A

PUMP FLOW RATE N/A

INITIAL WATER LEVEL N/A ONE CASING/BOREHOLE VOLUME (Gallons) N/A

DATE	TIME	TEMP (°)	SPEC. COND.	pH	GALLONS REMOVED	TURBIDITY (NTU)	COMMENTS (appearance of water, odor, etc.)
		Replicate of PCD					
		CHE PCD					

RECORD OF SAMPLING

SAMPLING METHOD X

DATE OF SAMPLE [illegible] TIME [illegible] DEPTH OF SAMPLE [illegible]

1-1 L Plastic (HNO_3) - Metals, Na, K, Mg, Ca

1-1L Plastic - Cr(VI), SO_4, Cl, TDS, Turbidity, Alkalinity

1-1L Glass (CH_2SO_4) - Nitrates, COD, Phosphate.

4-40 ml VOA's - Formaldehyde, 624

1-1 gallon glass - 608, 625

1-1 gallon plastic cube - (HNO_3) Gross α, Gross β, Gamma Strontium 90

1-4 oz. ~~glass~~ plastic - Tritium GAD

TEMP. [illegible]

SPEC. COND. [illegible]

pH [illegible]

COMMENTS: Replicate of PCD.

Dames & Moore
FIELD RECORD OF WATER SAMPLING

WELL NO. PCD JOB NUMBER 10805-454-044

DEPTH OF WELL N/A CLIENT D.O.E.

CASING TYPE/DIAMETER N/A LOCATION UC Davis - LEHR

BOREHOLE DIAMETER N/A SAMPLED BY: ~~Dave Zuber~~ Gary Dickerson

SCREENED INTERVAL N/A TO N/A SAND PACK INTERVAL N/A TO N/A

REF. POINT N/A ELEVATION N/A DATUM N/A

PURGING PRIOR TO SAMPLING

PURGING METHOD N/A

PUMP FLOW RATE N/A

INITIAL WATER LEVEL N/A ONE CASING/BOREHOLE VOLUME (Gallons) N/A

DATE	TIME	TEMP (°)	SPEC. COND.	pH	GALLONS REMOVED	TURBIDITY (NTU)	COMMENTS (appearance of water, odor, etc.)
11/21/11	17:10	60.8	569	~~8.57~~ 8.55	N/A	9.28	None

RECORD OF SAMPLING

SAMPLING METHOD depth integrated sampler

DATE OF SAMPLE [illegible] TIME 13:30 DEPTH OF SAMPLE 2" -

1-1 L Plastic (HNO_3) - Metals, Na, K, Mg, Ca

1-1L Plastic - Cr(VI), SO_4, Cl, TDS, Turbidity, Alkalinity

1-1L Glass (H_2SO_4) - Nitrates, COD, Phosphate.

4-40 ml VOA's - Formaldehyde, 624

1-1 gallon glass - 608, 625

1-1 gallon plastic cube - (HNO_3) Gross α, Gross β, Gamma Strontium 90

1-4 oz. ~~glass~~ lead plastic - Tritium

TEMP. 60.8

SPEC. COND. 569

pH 8.55

COMMENTS: X

(*) It is decided that a filtered sample (metals) should be taken. So, at 15:45 a filtered metals sample was collected. Labelled PCD-F and PCD-B-F.

Dames & Moore
FIELD RECORD OF WATER SAMPLING

WELL NO. UCD-4 JOB NUMBER 10805-454-044

DEPTH OF WELL 57.2 CLIENT D.O.E.

CASING TYPE/DIAMETER 2" PVC LOCATION UC Davis - LEHR

BOREHOLE DIAMETER 8" SAMPLED BY: Dave Zuber/Gary Dickenson

SCREENED INTERVAL 45 TO 55 SAND PACK INTERVAL 40 TO 55

REF. POINT TOC ELEVATION X DATUM MSL

PURGING PRIOR TO SAMPLING

PURGING METHOD disposable bailer

PUMP FLOW RATE N/A

INITIAL WATER LEVEL 54.33 ONE CASING/BOREHOLE VOLUME (Gallons) .46
3x = 1.4

DATE	TIME	TEMP (°)	SPEC. COND.	pH	GALLONS REMOVED	TURBIDITY (NTU)	COMMENTS (appearance of water, odor, etc.)
11/26/91	10:25	62.4	1260	7.35	.4	80.3	cloudy
	10:32	62.7	1223	7.57	1.0	>200	Very Turbid, well becoming dry
↓	10:54	62.5	1172	7.82	1.5	189.4	" "

RECORD OF SAMPLING

SAMPLING METHOD disposable bailer

DATE OF SAMPLE 11/26/91 TIME 11:30 DEPTH OF SAMPLE X

1-1 L Plastic (HNO_3) - Metals, Na, K, Mg, Ca

1-1L Plastic - Cr(VI), SO_4, Cl, TDS, Turbidity, Alkalinity

1-1L Glass (H_2SO_4) - Nitrates, COD, Phosphate.

4-40 ml VOA's - Formaldehyde, 624

1-1 gallon glass - 608, 625

1-1 gallon plastic cube - (HNO_3) Gross α, Gross β, Gamma Strontium 90

1-4 oz. glass - Tritium

TEMP. 62.5

SPEC. COND. 1172

pH 7.82

COMMENTS: 1 casing vol = 2.87' x .16 = .46 gal
Total Purge: 1.5

Dames & Moore

FIELD RECORD OF WATER SAMPLING

WELL NO. [illegible]-1 JOB NUMBER 10805-454-044

DEPTH OF WELL 58.45 CLIENT D.O.E.

CASING TYPE/DIAMETER 2" PCV LOCATION UC Davis - LEHR

BOREHOLE DIAMETER 8" SAMPLED BY: Dave Zuber/Gary Dickinson

SCREENED INTERVAL 46.5 TO 56.5 SAND PACK INTERVAL 46 TO 56.5

REF. POINT TOC ELEVATION X DATUM msl

PURGING PRIOR TO SAMPLING

PURGING METHOD disposable bailer

PUMP FLOW RATE N/A

INITIAL WATER LEVEL 51.68 ONE CASING/BOREHOLE VOLUME (Gallons) 1.1

3x = 3.2

DATE	TIME	TEMP (°)	SPEC. COND.	pH	GALLONS REMOVED	TURBIDITY (NTU)	COMMENTS (appearance of water, odor, etc.)
11/26/91	8:50	62.6	1822	7.21	1.0	112.4	cloudy
	8:59	62.3	1803	6.85	2.0	131.0	" "
	9:07	62.6	1474	6.89	3.1	131.8	" "
	9:11	62.5	1470	6.86	3.5	132.7	" "

RECORD OF SAMPLING

SAMPLING METHOD disposable bailer

DATE OF SAMPLE 11/26/91 TIME 9:30 DEPTH OF SAMPLE X

1-1 L Plastic (HNO_3) - Metals, Na, K, Mg, Ca

1-1L Plastic - Cr(VI), SO_4, Cl, TDS, Turbidity, Alkalinity

1-1L Glass (CH_2SO_4) - Nitrates, COD, Phosphate.

4-40 ml VOA's - Formaldehyde, 624

1-1 gallon glass - 608, 625

1-1 gallon plastic cube - (HNO_3) Gross α, Gross β, Gamma Strontium 90

1-4 oz. ~~glass~~ GAO Plastic - Tritium

TEMP. 62.5

SPEC. COND. 1470

pH 6.86

COMMENTS: 1 casing vol = 6.37' x .16 = 1.1 gal

Total Purge: 3.5 gal

Dames & Moore

FIELD RECORD OF WATER SAMPLING

WELL NO. [illegible] JOB NUMBER 10805-454-044

DEPTH OF WELL [illegible] CLIENT D. O. E.

CASING TYPE/DIAMETER [illegible] PVC LOCATION UC Davis - LEHR

BOREHOLE DIAMETER [illegible] SAMPLED BY: Dave Zuber/[illegible] Dickenson

SCREENED INTERVAL [illegible] TO [illegible] SAND PACK INTERVAL [illegible] TO 66.5

REF. POINT TOC ELEVATION X DATUM [illegible] MSL

PURGING PRIOR TO SAMPLING

PURGING METHOD dedicated bladder pump

PUMP FLOW RATE X

INITIAL WATER LEVEL [illegible] ONE CASING/BOREHOLE VOLUME (Gallons) [illegible]

3X = 29.4

DATE	TIME	TEMP (°)	SPEC. COND.	pH	GALLONS REMOVED	TURBIDITY (NTU)	COMMENTS (appearance of water, odor, etc.)
11/25/96	2:25	64.8	1304	2.50	10	14.41	clear
↓		64.1	1292	7.60	20	12.81	" "
	3:34	63.7	1285	7.65	25	10.74	" "
↓		63.5	1284	7.75	30	7.03	" "

RECORD OF SAMPLING

SAMPLING METHOD dedicated bladder pump

DATE OF SAMPLE 11/25/96 TIME 14:00 DEPTH OF SAMPLE X

1-1 L Plastic (HNO_3) - Metals, Na, K, Mg, Ca

1-1L Plastic - Cr(VI), SO_4, Cl, TDS, Turbidity, Alkalinity

1-1L Glass (H_2SO_4) - Nitrates, COD, Phosphate.

4-40 ml VOA's - Formaldehyde, 624

1-1 gallon glass - 608, 625

1-1 gallon plastic cube - (HNO_3) Gross α, Gross β, Gamma Strontium 90

1-4 oz. glass - Tritium

TEMP. 63.5

SPEC. COND. 1284

pH 7.75

COMMENTS: 1 casing vol = 14.93' x .66 = 9.8 gal

Total purge = 40 gallons

Dames & Moore

FIELD RECORD OF WATER SAMPLING

WELL NO. [illegible] JOB NUMBER 10805-454-044

DEPTH OF WELL ✓ CLIENT D.O.E.

CASING TYPE/DIAMETER _____ LOCATION UC Davis - LEHR

BOREHOLE DIAMETER _____ SAMPLED BY: Dave Zuber / Gary Dickenson

SCREENED INTERVAL _____ TO _____ SAND PACK INTERVAL X TO X

REF. POINT X ELEVATION X DATUM X

PURGING PRIOR TO SAMPLING

PURGING METHOD X

PUMP FLOW RATE X

INITIAL WATER LEVEL X ONE CASING/BOREHOLE VOLUME (Gallons) X

DATE	TIME	TEMP (°)	SPEC. COND.	pH	GALLONS REMOVED	TURBIDITY (NTU)	COMMENTS (appearance of water; odor; etc.)

RECORD OF SAMPLING

SAMPLING METHOD dedicated bladder pump

DATE OF SAMPLE 11/7-8/91 TIME 1:30 DEPTH OF SAMPLE X

1-1 L Plastic (HNO_3) - Metals, Na, K, Mg, Ca

1-1L Plastic - Cr(VI), SO_4, Cl, TDS, Turbidity, Alkalinity

1-1L Glass (H_2SO_4) - Nitrates, COD, Phosphate.

4-40 mL VOA's - Formaldehyde, 624

1-1 gallon glass - 608, 625

1-1 gallon plastic cube - (HNO_3) Gross α, Gross β, Gamma Strontium 90

1-4 oz. ~~glass~~ plastic - Tritium

TEMP. ✓

SPEC. COND. X

pH X

COMMENTS: Replicate of UM-10

Dames & Moore
FIELD RECORD OF WATER SAMPLING

WELL NO. [illegible] JOB NUMBER 10805-454-044

DEPTH OF WELL [illegible] CLIENT D.O.E.

CASING TYPE/DIAMETER [illegible] LOCATION UC Davis - LEHR

BOREHOLE DIAMETER [illegible] SAMPLED BY: Dave Zuber / Gary Dickenson

SCREENED INTERVAL [illegible] TO [illegible] SAND PACK INTERVAL [illegible] TO [illegible]

REF. POINT TOC ELEVATION [illegible] DATUM MSL

PURGING PRIOR TO SAMPLING

PURGING METHOD [illegible] submersible pump (bladder [illegible])

PUMP FLOW RATE X

INITIAL WATER LEVEL 52.77 ONE CASING/BOREHOLE VOLUME (Gallons) 12.8 3x=38.3

DATE	TIME	TEMP (°)	SPEC. COND.	pH	GALLONS REMOVED	TURBIDITY (NTU)	COMMENTS (appearance of water, odor, etc.)
11/25/91	9:45	[illegible]	1962	7.79	35	17.01	slight turbidity
1		52.7	1989	7.52	39	18.17	"
1		82.7	1970	6.90	47	21.5	"
✓		[illegible]	1945	7.05	50	22.0	"

RECORD OF SAMPLING

SAMPLING METHOD dedicated bladder pump

DATE OF SAMPLE [illegible] TIME 10:45 DEPTH OF SAMPLE X

1-1 L Plastic (HNO_3) - Metals, Na, K, Mg, Ca

1-1L Plastic - Cr(VI), SO_4, Cl, TDS, Turbidity, Alkalinity

1-1L Glass (H_2SO_4) - Nitrates, COD, Phosphate.

4-40 ml VOA's - Formaldehyde, 624

1-1 gallon glass - 608, 625

1-1 gallon plastic cube - (HNO_3) Gross α, Gross β, Gamma Strontium 90

1-4 oz. glass - Tritium plastic

TEMP. 62.8

SPEC. COND. 1945

pH 7.05

COMMENTS: 1 casing vol. = 19.36' x .66 = 12.8 gal.

Total Pump - 50 gallons

Dames & Moore

FIELD RECORD OF WATER SAMPLING

WELL NO. UCD-7 JOB NUMBER 10805-454-044

DEPTH OF WELL 90 CLIENT D.O.E.

CASING TYPE/DIAMETER 2" PVC LOCATION UC Davis - LEHR

BOREHOLE DIAMETER 8" SAMPLED BY: Dave Zuber / Gary Dikkersen

SCREENED INTERVAL 80 TO 90 SAND PACK INTERVAL 75 TO 90

REF. POINT TOC ELEVATION ' DATUM MSL

PURGING PRIOR TO SAMPLING

PURGING METHOD dedicated bladder pump

PUMP FLOW RATE

INITIAL WATER LEVEL 53.33 ONE CASING/BOREHOLE VOLUME (Gallons) 5.9
3x = 17.6

DATE	TIME	TEMP (°)	SPEC. COND.	pH	GALLONS REMOVED	TURBIDITY (NTU)	COMMENTS (appearance of water; odor; etc.)
11/19/01	15:15	64.5	908	7.63	10	7.50	clear
"	15:24	64.1	917	7.63	15	5.38	clear
"	"	63.8	921	7.60	20	3.48	"

RECORD OF SAMPLING

SAMPLING METHOD dedicated bladder pump

DATE OF SAMPLE 11/19/01 TIME 1345 DEPTH OF SAMPLE N/A

1-1 L Plastic (HNO_3) - Metals, Na, K, Mg, Ca

1-1L Plastic - Cr(VI), SO_4, Cl, TDS, Turbidity, Alkalinity

1-1L Glass (H_2SO_4) - Nitrates, COD, Phosphate.

4-40 mL VOA's - Formaldehyde, 624

1-1 gallon glass - 608, 625

1-1 gallon plastic cube - (HNO_3) Gross α, Gross β, Gamma Strontium 90

1-4 oz. ~~glass~~ plastic Tritium

TEMP. 63.8

SPEC. COND. 921

pH 7.60

COMMENTS: 1 Case Vol = 36.67 x .16 = 5.9 gallons.
Total Purge: 20 gal.

Dames & Moore

FIELD RECORD OF WATER SAMPLING

WELL NO. MW-13 JOB NUMBER 10805-454-044

DEPTH OF WELL 67.0 CLIENT D.O.E.

CASING TYPE/DIAMETER 4" PVC LOCATION UC Davis - LEHR

BOREHOLE DIAMETER 12" SAMPLED BY: Dave Zuber / Gary Dickerson

SCREENED INTERVAL 50 TO 65 SAND PACK INTERVAL 47 TO 66.5

REF. POINT TOC ELEVATION DATUM MSL

PURGING PRIOR TO SAMPLING

PURGING METHOD dedicated bladder pump

PUMP FLOW RATE

INITIAL WATER LEVEL 54.80 ONE CASING/BOREHOLE VOLUME (Gallons) 8.1 3x=24.2

DATE	TIME	TEMP (°)	SPEC. COND.	pH	GALLONS REMOVED	TURBIDITY (NTU)	COMMENTS (appearance of water, odor, etc.)
11/20/91	11:19	62.3	2030	7.45	25	11.90	cloudy
"	11:23	62.8	1980	7.45	35	13.02	"
"	11:28	62.8	1970	7.41	40	12.73	"

RECORD OF SAMPLING

SAMPLING METHOD dedicated bladder pump

DATE OF SAMPLE 11/20/91 TIME 11:45 DEPTH OF SAMPLE X

1-1 L Plastic (HNO_3) - Metals, Na, K, Mg, Ca

1-1L Plastic - Cr(VI), SO_4, Cl, TDS, Turbidity, Alkalinity

1-1L Glass (H_2SO_4) - Nitrates, COD, Phosphate.

4-40 ml VOA's - Formaldehyde, 624

1-1 gallon glass - 608, 625

1-1 gallon plastic cube - (HNO_3) Gross α, Gross β, Gamma Strontium 90

1-4 oz. ~~glass~~ plastic - Tritium

1-1l glass - Carbon 14

TEMP. 62.8

SPEC. COND. 1970

pH 7.41

COMMENTS: 1 casing vol = 12.2' x .66 = 8.1 gallons

Total purge: 40 gallons.

Dames & Moore
FIELD RECORD OF WATER SAMPLING

WELL NO. UCD-12 JOB NUMBER 10805-454-044

DEPTH OF WELL 67.35 (TOC) CLIENT D.O.E.

CASING TYPE/DIAMETER 4" PVC LOCATION UC Davis - LEHR

BOREHOLE DIAMETER 12" SAMPLED BY: Dave Zuber / Gary Dockenson

SCREENED INTERVAL 49.5 TO 64.5 SAND PACK INTERVAL 47 TO 66.5

REF. POINT TOC ELEVATION X DATUM insc

PURGING PRIOR TO SAMPLING

PURGING METHOD dedicated submersible pump

PUMP FLOW RATE

INITIAL WATER LEVEL 54.23 ONE CASING/BOREHOLE VOLUME (Gallons) 8.7
3X = 26

DATE	TIME	TEMP (°)	SPEC. COND.	pH	GALLONS REMOVED	TURBIDITY (NTU)	COMMENTS (appearance of water, odor, etc.)
11/20/94	14:30	63.3	3310	8.16	20	19.8	clear
1	15:05	63.4	3540	8.03	30	4.11	"
↓	15:10	63.7	3290	7.70	35	26.2	"

RECORD OF SAMPLING

SAMPLING METHOD disposable bailer

DATE OF SAMPLE 11/20/94 TIME 15:30 DEPTH OF SAMPLE X

1-1 L Plastic (HNO_3) - Metals, Na, K, Mg, Ca

1-1 L Plastic - Cr(VI), SO_4, Cl, TDS, Turbidity, Alkalinity

1-1 L Glass (H_2SO_4) - Nitrates, COD, Phosphate.

4-40 ml VOA's - Formaldehyde, 624

1-1 gallon glass - 608, 625

1-1 gallon plastic cube - (HNO_3) Gross α, Gross β, Gamma Strontium 90

1-4 oz. ~~glass~~ GAY plastic - Tritium

TEMP. 63.7

SPEC. COND. 3290

pH 7.70

COMMENTS: 1 casing vol = 13.1' x .66 = 8.7 gallons
Purged: 37 gallons

Dames & Moore

FIELD RECORD OF WATER SAMPLING

WELL NO. OCD-14 JOB NUMBER 10805-454-044

DEPTH OF WELL 85 CLIENT D.O.E.

CASING TYPE/DIAMETER 4" PVC LOCATION UC Davis - LEHR

BOREHOLE DIAMETER 12" SAMPLED BY: Dave Zuber/Gary [illegible]

SCREENED INTERVAL 75 TO 85 SAND PACK INTERVAL 67 TO 85

REF. POINT TOC ELEVATION X DATUM MSL

PURGING PRIOR TO SAMPLING

PURGING METHOD dedicated bladder pump

PUMP FLOW RATE

INITIAL WATER LEVEL 53.67 ONE CASING/BOREHOLE VOLUME (Gallons) 20.5
3x = 61.6

DATE	TIME	TEMP (°)	SPEC. COND.	pH	GALLONS REMOVED	TURBIDITY (NTU)	COMMENTS (appearance of water, odor, etc.)
11/20/91	9:17	61.7	1012	8.01	35	15.23	cloudy/clear
"	9:22	62.2	1018	7.89	45	13.36	" "
	9:33	61.8	1014	7.97	57	11.47	" "
✓	9:41	61.8	1007	7.95	75	11.58	" "

RECORD OF SAMPLING

SAMPLING METHOD dedicated bladder pump

DATE OF SAMPLE 11/20/91 TIME 10:05 DEPTH OF SAMPLE X

1-1 L Plastic (HNO_3) - Metals, Na, K, Mg, Ca

1-1L Plastic - Cr(VI), SO_4, Cl, TDS, Turbidity, Alkalinity

1-1L Glass (H_2SO_4) - Nitrates, COD, Phosphate.

4-40 ml VOA's - Formaldehyde, 624

1-1 gallon glass - 608, 625

1-1 gallon plastic cube - (HNO_3) Gross α, Gross β, Gamma Strontium 90

1-4 oz. ~~glass~~ plastic - Tritium

1-1 L glass - Carbon 14

TEMP. 61.8

SPEC. COND. 1007

pH 7.95

COMMENTS: 1 casing vol = 31.1' x .66 = 20.5 gallons

Total Purge: 75 gallons

Dames & Moore
FIELD RECORD OF WATER SAMPLING

WELL NO. UCD-15 JOB NUMBER 10805-454-044

DEPTH OF WELL 120.5 CLIENT D.O.E.

CASING TYPE/DIAMETER 4" PVC LOCATION UC Davis - LEHR

BOREHOLE DIAMETER 12" SAMPLED BY: Dave Zuber / Gary Dickenson

SCREENED INTERVAL 91 TO 116 SAND PACK INTERVAL 88 TO 117

REF. POINT TOC ELEVATION K DATUM MSD

PURGING PRIOR TO SAMPLING

PURGING METHOD Dedicated submersible pump

PUMP FLOW RATE ~5 gpm

INITIAL WATER LEVEL 53.28 ONE CASING/BOREHOLE VOLUME (Gallons) 44.4

DATE	TIME	TEMP (°)	SPEC. COND.	pH	GALLONS REMOVED	TURBIDITY (NTU)	COMMENTS (appearance of water, odor, etc.)
11/18/91	10:00	63.2	666	7.85	30	not available	clear
"	10:06	62.8	661	7.87	60	" "	clear
"	10:18	62.3	644	7.75	110	.20	clear
	10:30	61.8	644	7.88	135	.13	clear

RECORD OF SAMPLING

SAMPLING METHOD Dedicated submersible pump

DATE OF SAMPLE 11/18/91 TIME 11:05 DEPTH OF SAMPLE X

1-1 L Plastic (HNO_3) - Metals, Na, K, Mg, Ca filtered

1-1L Plastic - Cr(VI), SO_4, Cl, TDS, Turbidity, Alkalinity

1-1L Glass (H_2SO_4) - Nitrates, COD, Phosphate.

4-40 ml VOA's - Formaldehyde, 624

1-1 gallon glass - 608, 625

1-1 gallon plastic cube - (HNO_3) Gross α, Gross β, Gamma Strontium 90

1-4 oz. glass - Tritium

1-1L Glass - Carbon 14

TEMP. 61.8

SPEC. COND. 644

pH 7.88

GAD

COMMENTS: 1 casing volume = 67.22' x .66 = 44.36 gal

Turbidity was "Not available" because the Turbidity meter Dave Zuber and I are sharing it between us.

Dames & Moore

FIELD RECORD OF WATER SAMPLING

WELL NO. MW-16 JOB NUMBER 10805-454-044

DEPTH OF WELL 122' CLIENT D.O.E.

CASING TYPE/DIAMETER 4" PVC LOCATION UC Davis - LEHR

BOREHOLE DIAMETER 12" SAMPLED BY: Dave Zuber

SCREENED INTERVAL 92 TO 117 SAND PACK INTERVAL 89 TO 118

REF. POINT TOC ELEVATION — DATUM MSL

PURGING PRIOR TO SAMPLING

3CV = 140 g

PURGING METHOD dedicated Submersible pump

PUMP FLOW RATE 5 gpm

INITIAL WATER LEVEL 51.37 ONE CASING/BOREHOLE VOLUME (Gallons) 46 g

WC = 70.6

DATE	TIME	TEMP (°)	SPEC. COND.	pH	GALLONS REMOVED	TURBIDITY (NTU)	COMMENTS (appearance of water, odor, etc.)
	1435	64.9	725	7.75	140	1.1	
		64.9	727	7.68	150	0.3	
		64.8	726	7.67	160	0.3	

RECORD OF SAMPLING

SAMPLING METHOD dedicated submersible pump

DATE OF SAMPLE 11/19/01 TIME 14:30 DEPTH OF SAMPLE

1-1 L Plastic (HNO_3) - Metals, Na, K, Mg, Ca

1-1L Plastic - Cr(VI), SO_4, Cl, TDS, Turbidity, Alkalinity

1-1L Glass (H_2SO_4) - Nitrates, COD, Phosphate.

4-40 ml VOA's - Formaldehyde, 624

1-1 gallon glass - 608, 625

1-1 gallon plastic cube - (HNO_3) Gross α, Gross β, Gamma Strontium 90

1-4 oz. glass - Tritium

TEMP.

SPEC. COND.

pH

COMMENTS:

Dames & Moore
FIELD RECORD OF WATER SAMPLING

WELL NO. UCD-17 JOB NUMBER 10805-454-044

DEPTH OF WELL 147 CLIENT D.O.E.

CASING TYPE/DIAMETER 4" PVC LOCATION UC Davis - LEHR

BOREHOLE DIAMETER 12" SAMPLED BY: Dave Zuber / Gary Dickinson

SCREENED INTERVAL 88 TO 113 SAND PACK INTERVAL 85 TO 115

REF. POINT TOC ELEVATION ' DATUM msl

PURGING PRIOR TO SAMPLING

PURGING METHOD dedicated submersible pump

PUMP FLOW RATE 5 gpm

INITIAL WATER LEVEL 53.06 ONE CASING/BOREHOLE VOLUME (Gallons) 59.4

DATE	TIME	TEMP (°F)	SPEC. COND.	pH	GALLONS REMOVED	TURBIDITY (NTU)	COMMENTS (appearance of water, odor, etc.)
11/16/01	12:44	64.4	678	7.79	20	N/A	clear
	12:57	64.4	675	7.91	55	N/A	clear
	13:07	65.3	676	7.94	135	1.15	clear
	13:17	63.4	669	8.07	170	.65	clear
	13:23	64.1	674	7.88	200	.50	clear

RECORD OF SAMPLING

SAMPLING METHOD dedicated submersible pump

DATE OF SAMPLE 11/16/01 TIME 13:45 DEPTH OF SAMPLE X

1-1 L Plastic (HNO_3) - Metals, Na, K, Mg, Ca filtered

1-1L Plastic - Cr(VI), SO_4, Cl, TDS, Turbidity, Alkalinity

1-1L Glass (CH_2SO_4) - Nitrates, COD, Phosphate.

4-40 ml VOA's - Formaldehyde, 624

1-1 gallon glass - 608, 625

1-1 gallon plastic cube - (HNO_3) Gross α, Gross β, Gamma Strontium 90

1-4 oz. glass - Tritium

1-1 L glass - Carbon 14

TEMP. 64.1

SPEC. COND. 674

pH 7.88

COMMENTS: Total purge: 200 gal > 3 c.v.
Turbidity was "N/A" because Dave Zuber was using the turbidity meter at another well.

Dames & Moore
FIELD RECORD OF WATER SAMPLING

WELL NO. UCD-18 JOB NUMBER 10805-454-044

DEPTH OF WELL 70 CLIENT D.O.E.

CASING TYPE/DIAMETER 4" PVC LOCATION UC Davis - LEHR

BOREHOLE DIAMETER 12" SAMPLED BY: Dave Zuber

SCREENED INTERVAL 54 TO 69 SAND PACK INTERVAL 51 TO 70

REF. POINT TOC ELEVATION _____ DATUM MSL

PURGING PRIOR TO SAMPLING

3CV = 42g

PURGING METHOD ded. submersible pump

PUMP FLOW RATE 3 gpm

INITIAL WATER LEVEL 49.14 ONE CASING/BOREHOLE VOLUME (Gallons) 14g

WC = 21

DATE	TIME	TEMP (°)	SPEC. COND.	pH	GALLONS REMOVED	TURBIDITY (NTU)	COMMENTS (appearance of water, odor, etc.)
11-18	1235	64.6	771	7.67	40	26.2	Cloudy
		65.4	767	7.65	43	21.0	
		65.5	767	7.65	46	20.2	
		65.6	770	7.66	50	19.5	

RECORD OF SAMPLING

SAMPLING METHOD dedicated Submersible Pump

DATE OF SAMPLE 11-18-91 TIME 1245 DEPTH OF SAMPLE N/A

1-1 L Plastic (HNO_3) - Metals, Na, K, Mg, Ca

1-1L Plastic - Cr(VI), SO_4, Cl, TDS, Turbidity, Alkalinity

1-1L Glass (CH_2SO_4) - Nitrates, COD, Phosphate.

4-40 ml VOA's - Formaldehyde, 624

1-1 gallon glass - 608, 625

1-1 gallon plastic cube - (HNO_3) Gross α, Gross β, Gamma Strontium 90

1-4 oz. glass - Tritium

1-1L glass - Carbon 14 640

TEMP. 65.6

SPEC. COND. 770

pH 7.66

COMMENTS:

Dames & Moore

FIELD RECORD OF WATER SAMPLING

WELL NO. UCD-14 JOB NUMBER 10805-454-044

DEPTH OF WELL 73.7 CLIENT D.O.E.

CASING TYPE/DIAMETER 4" PVC LOCATION UC Davis - LEHR

BOREHOLE DIAMETER 12" SAMPLED BY: Dave Zuber / Gary Pickerson

SCREENED INTERVAL 71.5 TO 56.5 SAND PACK INTERVAL 72.5 TO 53.5

REF. POINT TOC ELEVATION X DATUM MSL

PURGING PRIOR TO SAMPLING

PURGING METHOD dedicated submersible pump

PUMP FLOW RATE 2.5 gpm

INITIAL WATER LEVEL 54.08 ONE CASING/BOREHOLE VOLUME (Gallons) 12.9
3X = 38.8

DATE	TIME	TEMP (°)	SPEC. COND.	pH	GALLONS REMOVED	TURBIDITY (NTU)	COMMENTS (appearance of water, odor, etc.)
11/19/91	10:31	64.9	1210	7.68	30	3.11	clear
↓	10:35	65.2	1242	7.64	40	3.37	clear
↓	10:39	65.2	1266	7.56	50 → 47	2.42	clear

RECORD OF SAMPLING

SAMPLING METHOD dedicated submersible pump

DATE OF SAMPLE 11/19/91 TIME 10:55 DEPTH OF SAMPLE X

1-1 L Plastic (HNO_3) - Metals, Na, K, Mg, Ca

1-1L Plastic - Cr(VI), SO_4, Cl, TDS, Turbidity, Alkalinity

1-1L Glass (H_2SO_4) - Nitrates, COD, Phosphate.

4-40 ml VOA's - Formaldehyde, 624

1-1 gallon glass - 608, 625

1-1 gallon plastic cube - (HNO_3) Gross α, Gross β, Gamma Strontium 90

1-4 oz. glass - Tritium

TEMP. 65.2

SPEC. COND. 1266

pH 7.56

COMMENTS: 1 casing vol. = 19.62' x .66 = 12.9 gal
Total flush: 47 to 50 gallons.

Dames & Moore

FIELD RECORD OF WATER SAMPLING

WELL NO. UCD-20 JOB NUMBER 10805-454-044

DEPTH OF WELL 73 CLIENT D.O.E.

CASING TYPE/DIAMETER PVC 4" LOCATION UC Davis - LEHR

BOREHOLE DIAMETER 12" SAMPLED BY: Dave Zuber / Gary Dickenson

SCREENED INTERVAL 57 TO 72 SAND PACK INTERVAL 54 TO 73.5

REF. POINT TOC ELEVATION ✓ DATUM MSL

PURGING PRIOR TO SAMPLING

PURGING METHOD Dedicated submersible pump

PUMP FLOW RATE ~2.5 gpm

INITIAL WATER LEVEL 52.18 ONE CASING/BOREHOLE VOLUME (Gallons) 13.7 3x = 41.2

DATE	TIME	TEMP (°)	SPEC. COND.	pH	GALLONS REMOVED	TURBIDITY (NTU)	COMMENTS (appearance of water, odor, etc.)
11/16/91	14:59	67.1	1237	7.82	13	N/A	clear
	15:07	67.5	1221	7.74	25	9.6	clear
	15:11	67.2	1229	7.63	38	15.30	clear
	15:14	66.9	1378	7.63	50	10.20	clear

RECORD OF SAMPLING

SAMPLING METHOD Dedicated submersible pump

DATE OF SAMPLE 11/16/91 TIME 15:40 DEPTH OF SAMPLE ✓

1-1 L Plastic (HNO_3) - Metals, Na, K, Mg, Ca (filtered)

1-1L Plastic - Cr(VI), SO_4, Cl, TDS, Turbidity, Alkalinity

1-1L Glass (H_2SO_4) - Nitrates, COD, Phosphate.

4-40 ml VOA's - Formaldehyde, 624

1-1 gallon glass - 608, 625

1-1 gallon plastic cube - (HNO_3) Gross α, Gross β, Gamma Strontium 90

1-4 oz. ~~glass~~ GAID - Tritium (plastic)

TEMP. 66.9

SPEC. COND. 1378

pH 7.63

COMMENTS: 1 casing vol = 20.82' x .66 = 13.74 gallons. Total purge: 50 gallons

Turbidity was "N/A" because Dave Zuber was using the turbidity meter at another well.

Dames & Moore

FIELD RECORD OF WATER SAMPLING

WELL NO. LCD-21 JOB NUMBER 10805-454-044

DEPTH OF WELL 73 CLIENT D.O.E.

CASING TYPE/DIAMETER 4" PVC LOCATION UC Davis - LEHR

BOREHOLE DIAMETER 12" SAMPLED BY: Dave Zuber

SCREENED INTERVAL 57 TO 72 SAND PACK INTERVAL 54 TO 73

REF. POINT ELEVATION DATUM

PURGING PRIOR TO SAMPLING

3 cv = 45

PURGING METHOD dedicated Sub. Pump

PUMP FLOW RATE 2-3 gpm

INITIAL WATER LEVEL 50.35 ONE CASING/BOREHOLE VOLUME (Gallons) 15

WC = 22.65

DATE	TIME	TEMP (°)	SPEC. COND.	pH	GALLONS REMOVED	TURBIDITY (NTU)	COMMENTS (appearance of water, odor, etc.)
11-18	1540	67.0	1515	7.41	38	1.4	clear
↓	↓	67.1	1523	7.38	48	1.3	"
↓	↓	67.1	1520	7.37	48	1.6	"

RECORD OF SAMPLING

SAMPLING METHOD dedicated submersible pump

DATE OF SAMPLE 11-18-91 TIME 1600 DEPTH OF SAMPLE N/A

1-1 L Plastic (HNO_3) - Metals, Na, K, Mg, Ca

1-1L Plastic - Cr(VI), SO_4, Cl, TDS, Turbidity, Alkalinity

1-1L Glass (H_2SO_4) - Nitrates, COD, Phosphate.

4-40 ml VOA's - Formaldehyde, 624

1-1 gallon glass - 608, 625

1-1 gallon plastic cube - (HNO_3) Gross α, Gross β, Gamma Strontium 90

1-4 oz. glass - Tritium

TEMP. 67.1

SPEC. COND. 1520

pH 7.37

COMMENTS:

Dames & Moore
FIELD RECORD OF WATER SAMPLING

WELL NO. [illegible] JOB NUMBER 10805-454-044

DEPTH OF WELL [illegible] CLIENT D.O.E.

CASING TYPE/DIAMETER [illegible] LOCATION UC Davis - LEHR

BOREHOLE DIAMETER [illegible] SAMPLED BY: Dave Zuber / [illegible]

SCREENED INTERVAL [illegible] TO [illegible] SAND PACK INTERVAL [illegible] TO [illegible]

REF. POINT TOC ELEVATION [illegible] DATUM [illegible]

PURGING PRIOR TO SAMPLING

PURGING METHOD dedicated submersible pump

PUMP FLOW RATE [illegible]

INITIAL WATER LEVEL 50.64' ONE CASING/BOREHOLE VOLUME (Gallons) [illegible] 3X=44.2

DATE	TIME	TEMP (°)	SPEC. COND.	pH	GALLONS REMOVED	TURBIDITY (NTU)	COMMENTS (appearance of water; odor; etc.)
11/19/91	12:55	67.1	928	7.61	25	2.80	clear
	12:55	66.8	904	7.60	35	1.88	clear
	[illegible]	66.8	987	7.59	45	2.50	clear
	13:05	[illegible]	985	7.58	55	2.38	clear

RECORD OF SAMPLING

SAMPLING METHOD dedicated submersible pump

DATE OF SAMPLE 11/19/91 TIME 13:10 DEPTH OF SAMPLE X

1-1 L Plastic (HNO_3) - Metals, Na, K, Mg, Ca

1-1L Plastic - Cr(VI), SO_4, Cl, TDS, Turbidity, Alkalinity

1-1L Glass (H_2SO_4) - Nitrates, COD, Phosphate.

4-40 ml VOA's - Formaldehyde, 624

1-1 gallon glass - 608, 625

1-1 gallon plastic cube - (HNO_3) Gross α, Gross β, Gamma Strontium 90

1-4 oz. glass - Tritium

TEMP. 66.8

SPEC. COND. 985

pH 7.58

COMMENTS: 1 casing vol = 22.1' x .66 = 14.8 gallons

Dames & Moore

FIELD RECORD OF WATER SAMPLING

WELL NO. [illegible] JOB NUMBER 10805-454-044

DEPTH OF WELL [illegible] CLIENT D.O.E.

CASING TYPE/DIAMETER [illegible] LOCATION UC Davis - LEHR

BOREHOLE DIAMETER [illegible] SAMPLED BY: Dave Zuber / Tony Dickenson

SCREENED INTERVAL [illegible] TO [illegible] SAND PACK INTERVAL [illegible] TO [illegible]

REF. POINT [illegible] ELEVATION [illegible] DATUM [illegible]

PURGING PRIOR TO SAMPLING

PURGING METHOD Dedicated submersible pump

PUMP FLOW RATE [illegible] gpm

INITIAL WATER LEVEL [illegible] ONE CASING/BOREHOLE VOLUME (Gallons) [illegible]

DATE	TIME	TEMP (°)	SPEC. COND.	pH	GALLONS REMOVED	TURBIDITY (NTU)	COMMENTS (appearance of water, odor, etc.)
		Replicate					
		[illegible]					
		[illegible]					
			See UCD-22				

RECORD OF SAMPLING

SAMPLING METHOD Dedicated submersible pump.

DATE OF SAMPLE [illegible] TIME [illegible] DEPTH OF SAMPLE

1-1 L Plastic (HNO_3) - Metals, Na, K, Mg, Ca

1-1L Plastic - Cr(VI), SO_4, Cl, TDS, Turbidity, Alkalinity

1-1L Glass (H_2SO_4) - Nitrates, COD, Phosphate.

4-40 mL VOA's - Formaldehyde, 624

1-1 gallon glass - 608, 625

1-1 gallon plastic cube - (HNO_3) Gross α, Gross β, Gamma Strontium 90

1-4 oz. ~~glass~~ GAO plastic - Tritium

TEMP.

SPEC. COND.

pH

COMMENTS: Replicate of UCD-22

Dames & Moore

FIELD RECORD OF WATER SAMPLING

WELL NO. UCD-23 JOB NUMBER 10805-454-044

DEPTH OF WELL 73' CLIENT D.O.E.

CASING TYPE/DIAMETER 4" PVC LOCATION UC Davis - LEHR

BOREHOLE DIAMETER 12" SAMPLED BY: Dave Zuber

SCREENED INTERVAL 53.5 TO 71.5 SAND PACK INTERVAL 53.5 TO 73

REF. POINT TOC ELEVATION _____ DATUM MSL

PURGING PRIOR TO SAMPLING

3 CV = 42 g

PURGING METHOD dedicated sub. pump

PUMP FLOW RATE 2-3 gpm

INITIAL WATER LEVEL 51.60 ONE CASING/BOREHOLE VOLUME (Gallons) 13.9

WC = 21.4

DATE	TIME	TEMP (°)	SPEC. COND.	pH	GALLONS REMOVED	TURBIDITY (NTU)	COMMENTS (appearance of water, odor, etc.)
11-18	1105	68.0	889	7.67	38	6.1	slightly hazy
		67.8	895	7.63	40	4.2	clear
		67.8	900	7.60	45	3.0	—
		67.8	903	7.64	48	2.9	—

RECORD OF SAMPLING

SAMPLING METHOD dedicated sub. pump

DATE OF SAMPLE 11-18-91 TIME 1100 DEPTH OF SAMPLE N/A

1-1 L Plastic (HNO_3) - Metals, Na, K, Mg, Ca

1-1L Plastic - Cr(VI), SO_4, Cl, TDS, Turbidity, Alkalinity

1-1L Glass (CH_2SO_4) - Nitrates, COD, Phosphate.

4-40 mL VOA's - Formaldehyde, 624

1-1 gallon glass - 608, 625

1-1 gallon plastic cube - (HNO_3) Gross α, Gross β, Gamma Strontium 90

1-4 oz. glass - Tritium

TEMP. 67.8

SPEC. COND. 903

pH 7.64

COMMENTS: _____

Dames & Moore

FIELD RECORD OF WATER SAMPLING

WELL NO. UCD-24 JOB NUMBER 10805-454-044

DEPTH OF WELL 73 CLIENT D.O.E.

CASING TYPE/DIAMETER PVC 4" LOCATION UC Davis - LEHR

BOREHOLE DIAMETER 12" SAMPLED BY: Dave Zuber / Gary Dickenson

SCREENED INTERVAL 57 TO 72 SAND PACK INTERVAL 54 TO 73

REF. POINT TOC - top of casing ELEVATION DATUM MSL

PURGING PRIOR TO SAMPLING

PURGING METHOD dedicated submersible pump

PUMP FLOW RATE 2.5 gpm

INITIAL WATER LEVEL 51.14 ONE CASING/BOREHOLE VOLUME (Gallons) 14.4
3x = 43.3

DATE	TIME	TEMP (°)	SPEC. COND.	pH	GALLONS REMOVED	TURBIDITY (NTU)	COMMENTS (appearance of water, odor, etc.)
11/10/91	8:33	64.2	1507	7.50	5	2.85	clear
	8:48	64.2	1456	7.67	25	1.35	clear
	8:59	64.2	1450	7.53	40	1.70	clear
	9:03	64.2	1451	7.53	50 ~~45~~	1.62	clear

RECORD OF SAMPLING

SAMPLING METHOD dedicated submersible pump

DATE OF SAMPLE 11/10/91 TIME 9:20 DEPTH OF SAMPLE X

1-1 L Plastic (HNO_3) - Metals, Na, K, Mg, Ca

1-1L Plastic - Cr(VI), SO_4, Cl, TDS, Turbidity, Alkalinity

1-1L Glass (H_2SO_4) - Nitrates, COD, Phosphate.

4-40 ml VOA's - Formaldehyde, 624

1-1 gallon glass - 608, 625

1-1 gallon plastic cube - (HNO_3) Gross α, Gross β, Gamma Strontium 90

1-4 oz. glass - Tritium

TEMP. 64.2

SPEC. COND. 1451

pH 7.53

COMMENTS: 1 casing vol = 21.86' x .66 = 14.4 gal
Total purge: 50 gal.

Dames & Moore
FIELD RECORD OF WATER SAMPLING

WELL NO. [illegible] JOB NUMBER 10805-454-044

DEPTH OF WELL N/A CLIENT D.O.E.

CASING TYPE/DIAMETER N/A LOCATION UC Davis - LEHR

BOREHOLE DIAMETER N/A SAMPLED BY: Dave Zuber / Gary Dickenson

SCREENED INTERVAL N/A TO N/A SAND PACK INTERVAL N/A TO N/A

REF. POINT N/A ELEVATION N/A DATUM N/A

PURGING PRIOR TO SAMPLING

PURGING METHOD N/A

PUMP FLOW RATE N/A

INITIAL WATER LEVEL N/A ONE CASING/BOREHOLE VOLUME (Gallons) N/A

DATE	TIME	TEMP (°)	SPEC. COND.	pH	GALLONS REMOVED	TURBIDITY (NTU)	COMMENTS (appearance of water, odor, etc.)
8/21/01	[illegible]	51.2	375	8.54	N/A	4.50	none
"	8:20	50.9	373	8.36	N/A	4.70	none

RECORD OF SAMPLING

SAMPLING METHOD depth integrated sampler

DATE OF SAMPLE [illegible] TIME [illegible] DEPTH OF SAMPLE X 3"

1-1 L Plastic (HNO_3) - Metals, Na, K, Mg, Ca

1-1 L Plastic - Cr(VI), SO_4, Cl, TDS, Turbidity, Alkalinity

1-1 L Glass (H_2SO_4) - Nitrates, COD, Phosphate.

4-40 ml VOA's - Formaldehyde, 624

1-1 gallon glass - 608, 625

1-1 gallon plastic cube - (HNO_3) Gross α, Gross β, Gamma Strontium 90

1-4 oz. ~~glass~~ plastic - Tritium

TEMP. 50.9

SPEC. COND. 373

pH 8.36

COMMENTS: Jeff Bold was present.
It is decided that filter samples (for metals) should be taken. So, at 15:20 a filtered metals sample was collected. Labelled PCU-F.

Dames & Moore
FIELD RECORD OF WATER SAMPLING

WELL NO. STPO JOB NUMBER 10805-454-044

DEPTH OF WELL N/A CLIENT D.O.E.

CASING TYPE/DIAMETER N/A LOCATION UC Davis - LEHR

BOREHOLE DIAMETER N/A SAMPLED BY: ~~Dave Zuber~~ Gary Dickenson

SCREENED INTERVAL N/A TO N/A SAND PACK INTERVAL N/A TO N/A

REF. POINT N/A ELEVATION N/A DATUM N/A

PURGING PRIOR TO SAMPLING

PURGING METHOD N/A

PUMP FLOW RATE N/A

INITIAL WATER LEVEL N/A ONE CASING/BOREHOLE VOLUME (Gallons) N/A

DATE	TIME	TEMP (°)	SPEC. COND.	pH	GALLONS REMOVED	TURBIDITY (NTU)	COMMENTS (appearance of water, odor, etc.)
11/21/91	10:27	68.0	1110	7.39	N/A	4.25	effluent odor, foamy

RECORD OF SAMPLING

SAMPLING METHOD Sample bottles

DATE OF SAMPLE 11/21/91 TIME 10:30 DEPTH OF SAMPLE Surface

1-1 L Plastic (HNO_3) - Metals, Na, K, Mg, Ca

1-1 L Plastic - Cr(VI), SO_4, Cl, TDS, Turbidity, Alkalinity

1-1 L Glass (H_2SO_4) - Nitrates, COD, Phosphate.

4-40 ml VOA's - Formaldehyde, 624

1-1 gallon glass - 608, 625

1-1 gallon plastic cube - (HNO_3) Gross α, Gross β, Gamma Strontium 90

1-4 oz. ~~glass~~ plastic - GAD Tritium

TEMP. 68.0

SPEC. COND. 1110

pH 7.39

COMMENTS: Jeff Bold was present.
It is decided that filter samples (metals) should be taken. So, at 15:25 a filtered metals sample was collected. Labelled GAD STPO-F.

APPENDIX D
SECTION 3

CHAIN-OF-CUSTODIES

MASTER

APPENDIX E
SECTION 3

CHAIN-OF-CUSTODIES

PHASE II SITE CHARACTERIZATION
LEHR ENVIRONMENTAL RESTORATION

CHAIN-OF-CUSTODIES
GROUNDWATER AND SURFACE WATER SAMPLES

FALL QUARTER, NOVEMBER 1990

PHASE II SITE CHARACTERIZATION
LEHR ENVIRONMENTAL RESTORATION

Fed w/ 9330995?

LIST____ CHAIN OF CUSTODY

Project Name UCD/ LEHR
DOE Site Characterization

Project # 10805-454-044

Clients Name;
Dames & Moore
9300 Tech Center Drive, Ste 100
Sacramento, California 95826
(916)364-8698
Attention: Mr. Joe Niland

Signatures
Dames & Moore J. David Zuber Date 10/31
D.O.E REP [signature] Date 10/31/90
Sampler Dave Zuber

Sample No.	S	W	Date	Time	# of Containers	Laboratory Number
TRIP BLANK		X			2	
UCD-18		X	10/31	1330	10	
UCD-12		X	10/31	1200	10	

Analyses Requested for All Samples Listed.

17 CAM Metals, Na, K, Mg, Ca ✓

Hexavalent Chromium, TDS, Sulfate, Turbidity, Chloride, Alkalinity ✓

Nitrates, COD, Phosphate ✓

Formaldehyde ✓

608, 625 ✓

624 ✓

Gross alpha, Gross beta, Strontium 90, Gamma ✓

Tritium ✓

Relinquished by: J. David Zuber Date 1730 Time 10/31 Rec'd by: 9330995343 Date 10/31 Time 1730
Relinquished by: Date Time Rec'd by: C. Rodriguez Date 11/1/90 Time 9:00
Relinquished by: Date Time Rec'd by: Date Time

90-110-10

Fed Exp 93309955

LIST____ CHAIN OF CUSTODY

Project Name UCD/ LEHR
DOE Site Characterization

Project # 10805-454-044

Clients Name;
Dames & Moore
9300 Tech Center Drive, Ste 100
Sacramento, California 95826
(916)364-8698
Attention: Mr. Joe Niland

Signatures
Dames & Moore [signature] Date 11/1/90
D.O.E REP [signature] Date 11-1-90
Sampler Dave Zuber

Sample No.	S	W	Date	Time	# of Containers	Laboratory Number
TRIP BLANK		X				
UCD-13		X	11/1	1030	10	
UCD-14		X	11/1	1600	10	
UCD-20		X	11/1	1430	10	
TRIP BLANK		X				

Analyses Requested for All Samples Listed.

17 CAM Metals, Na, K, Mg, Ca. ✓
Hexavalent Chromium, TDS, ✓
Sulfate, Turbidity, ✓
Chloride, Alkalinity. ✓
Nitrates (as Nitrogen), COD, ✓
Phosphate. ✓
Formaldehyde.
608 - Organochlorine pesticides ✓
625-semi-volitile organic compounds. ✓
624 - volitile organic compounds. ✓
Gross alpha, Gross beta, ✓
Strontium 90 ✓
Gamma-Emitters. ✓
Tritium. ✓

Relinquished by: [signature] Date 11/1 Time 1740 Rec'd by: 9330995553+ [redacted] Date 11/1 Time 1740
Relinquished by: Date Time Rec'd by: C. Rodriguez Date 11/2/90 Time 9:00
Relinquished by: Date Time Rec'd by: Date Time

Fed # 9330995354
alf

LIST____ CHAIN OF CUSTODY

Project Name UCD/ LEHR
DOE Site Characterization

Project # 10805-454-044

Clients Name;
Dames & Moore
9300 Tech Center Drive, Ste 100
Sacramento, California 95826
(916)364-8698
Attention: Mr. Joe Niland

Signatures
Dames & Moore J. Daniel Zuber Date 10/30
D.O.E REP R.L. Baker Date 10/30/90
Sampler Dave Zuber

Sample No.	S	W	Date	Time	# of Containers	Laboratory Number
UCD-19		X	10/30	0900	10	
Trip Blank		X			2	

Analyses Requested for All Samples Listed.

17 CAM Metals, Na, K, Mg, Ca. ✓
Hexavalent Chromium, TDS, ✓
Sulfate, Turbidity, ✓
Chloride, Alkalinity.
Nitrates (as Nitrogen), COD, ✓
Phosphate. ✓
Formaldehyde. ✓
608 - Organochlorine pesticides
625-semi-volitile organic compounds. ✓
624 - volitile organic compounds. ✓
Gross alpha, Gross beta, ✓
Strontium 90 ✓
Gamma-Emitters. ✓
Tritium. ✓

Relinquished by: J. Daniel Zuber Date 10/30 Time 1745 Rec'd by: 9330995354 Date 10/30 Time 1745
Relinquished by: Date Time Rec'd by: Kathy Ortega Date 10/31/90 Time 9:30
Relinquished by: Date Time Rec'd by: Date Time

Fed. express

LIST____ CHAIN OF CUSTODY

Project Name UCD/ LEHR
DOE Site Characterization

Project # 10805-454-044

Clients Name;
Dames & Moore
9300 Tech Center Drive, Ste 100
Sacramento, California 95826
(916)364-8698
Attention: Mr. Joe Niland

Signatures
Dames & Moore J. Daniel Zuber Date 10/29
D.O.E REP R.D. Batson Date 10/29/90
Sampler DAVE ZUBER Daniel Zuber

Sample No.	S	W	Date	Time	# of Containers	Laboratory Number
UCD-7		X	10/29	1200	10	
9010 TRIP BLANK		X			2	

Analyses Requested for All Samples Listed.

17 CAM Metals, Na, K, Mg, Ca. ✓
Hexavalent Chromium, TDS,
Sulfate, Turbidity,
Chloride, Alkalinity. ✓
Nitrates (as Nitrogen), COD,
Phosphate.
Formaldehyde.
608 - Organochlorine pesticides
625-semi-volitile organic compounds.
624 - volitile organic compounds. ✓
Gross alpha, Gross beta,
Strontium 90
Gamma-Emitters. ✓
Tritium. ✓

Relinquished by; J. Daniel Zuber Date 10/29 Time 1730 Rec'd by; #9330495366 Date 10/29 Time 1730
Relinquished by; Date Time Rec'd by; L. Hexrugh Date 10/30 Time 9:30
Relinquished by; Date Time Rec'd by; Date Time

see expres 9330995483

LIST____ CHAIN OF CUSTODY

Project Name UCD/ LEHR
DOE Site Characterization

Project # 10805-454-044

Clients Name;
Dames & Moore
9300 Tech Center Drive, Ste 100
Sacramento, California 95826
(916)364-8698
Attention: Mr. Joe Niland

Signatures
Dames & Moore David Morier Date 11/9/90

D.O.E REP Richard L Bates Date 11-9-90

Sampler DAVID MORIER & DAVID ZUBER

Sample No.	S	W	Date	Time	# of Containers	Laboratory Number
TRIP BLANK		X			2	
UCD-16		X	11/9	1000	10	
UCD-17		X	11/9	1130	10	
TRIP BLANK		X			2	
PCU-1		X	11/9	0900	10	
PCU-1d		X	11/9	0900	10	
TRIP BLANK		X			2	
PCD-1		X	11/9	1210	10	
TRIP BLANK		X			2	
STPO		X	11/9	1050	10	

Analyses Requested for All Samples Listed.

17 CAM Metals, Na, K, Mg, Ca.
Hexavalent Chromium, TDS, Sulfate, Turbidity, Chloride, Alkalinity.
Nitrates (as Nitrogen), COD, Phosphate.
Formaldehyde.
608 - Organochlorine pesticides
625-semi-volitile organic compounds.
624 - volitile organic compounds.
Gross alpha, Gross beta, Strontium 90
Gamma-Emitters.
Tritium.

Relinquished by: David Morier Date 11/9/90 Time 1730 Rec'd by: FED EX # 9330995483 Date 11/9/90 Time 1730
Relinquished by: L Hennigh Date 11/12/90 Time 9:30 Rec'd by: Date Time
Relinquished by: Date Time Rec'd by: Date Time

LIST____ CHAIN OF CUSTODY

Project Name UCD/ LEHR
DOE Site Characterization

Project # 10805-454-044

Clients Name;
Dames & Moore
9300 Tech Center Drive, Ste 100
Sacramento, California 95826
(916)364-8698
Attention: Mr. Joe Niland

Signatures
Dames & Moore J. Daniel Zuber Date 11/5/90
D.O.E REP [signature] Date 11-5-90
Sampler D. Zuber

Sample No.	S	W	Date	Time	# of Containers	Laboratory Number
TRIP BLANK		X			2	
UCD-23		X	11/5	1500	10	
UCD-11		X	11/5	1400	10	

Analyses Requested for
All Samples Listed.

17 CAM Metals, Na, K, Mg, Ca.
Hexavalent Chromium, TDS,
Sulfate, Turbidity,
Chloride, Alkalinity.
Nitrates (as Nitrogen), COD,
Phosphate.
Formaldehyde.
608 - Organochlorine pesticides
625-semi-volitile organic compounds.
624 - volitile organic compounds.
Gross alpha, Gross beta,
Strontium 90
Gamma-Emitters.
Tritium.

Fed-Ex #

Relinquished by: J. Daniel Zuber Date 11/5 Time 1730 Rec'd by: 9330995531 Date 11/5 Time 1730
Relinquished by: Date Time Rec'd by: [signature] Date 11/6 Time 9:30
Relinquished by: Date Time Rec'd by: Date Time

Fed
EP
9330995520

LIST____ CHAIN OF CUSTODY

Project Name UCD/ LEHR
DOE Site Characterization

Project # 10805-454-044

Clients Name;
Dames & Moore
9300 Tech Center Drive, Ste 100
Sacramento, California 95826
(916)364-8698
Attention: Mr. Joe Niland

Signatures
Dames & Moore J. Paul Zuber Date 11-7-90

D.O.E REP R. Zuber Date 11-7-90

Sampler Dave Zuber

Sample No.	S	W	Date	Time	# of Containers	Laboratory Number
Trip Blank		X			2	
UCD-22		X	11/7	1515	10	

Analyses Requested for
All Samples Listed.

17 CAM Metals, Na, K, Mg, Ca.
Hexavalent Chromium, TDS,
Sulfate, Turbidity,
Chloride, Alkalinity.
Nitrates (as Nitrogen), COD,
Phosphate.
Formaldehyde.
608 - Organochlorine Pesticides
625-semi-volitile organic compounds.
624 - volitile organic compounds.
Gross alpha, Gross beta,
Strontium 90
Gamma-Emitters.
Tritium.

Fed Ex #

Relinquished by; J. Paul Zuber Date 11/7 Time 1720 Rec'd by; 9330995520 Date 11/7 Time 1720
Relinquished by; Date Time Rec'd by; Kathy Ortega Date 11/8/90 Time 9:30
Relinquished by; Date Time Rec'd by; Date Time

4P
9330995564

LIST____ CHAIN OF CUSTODY

Project Name UCD/ LEHR
DOE Site Characterization

Project # 10805-454-044

Clients Name;
Dames & Moore
9300 Tech Center Drive, Ste 100
Sacramento, California 95826
(916)364-8698
Attention: Mr. Joe Niland

Signatures
Dames & Moore J. David Zuber Date 11/6/90
D.O.E REP R Bateman Date 11-6-90
Sampler Dave Zuber

Sample No.	S	W	Date	Time	# of Containers	Laboratory Number
TRIP BLANK		X			2	
UCD-24		X	11/6	1545	10	
UCD-24B		X	11/6	1430	10	

Analyses Requested for
All Samples Listed.

17 CAM Metals, Na, K, Mg, Ca.
Hexavalent Chromium, TDS,
Sulfate, Turbidity,
Chloride, Alkalinity.
Nitrates (as Nitrogen), COD,
Phosphate.
Formaldehyde.
608 - Organochlorine pesticides
625-semi-volitile organic compounds.
624 - volitile organic compounds.
Gross alpha, Gross beta,
Strontium 90
Gamma-Emitters.
Tritium.

FED EX#

Relinquished by: J. David Zuber Date 11/6 Time 1700 Rec'd by: 9330995564 Date 11/6 Time 1700
Relinquished by: Date Time Rec'd by: C. Rodriguez Date 11/7 Time 7:00
Relinquished by: Date Time Rec'd by: Date Time

ed wp 93309955

LIST____ CHAIN OF CUSTODY

Project Name UCD/ LEHR
DOE Site Characterization

Project # 10805-454-044

Clients Name;
Dames & Moore
9300 Tech Center Drive, Ste 100
Sacramento, California 95826
(916)364-8698
Attention: Mr. Joe Niland

Signatures
Dames & Moore [signature] Date 11/8/90
D.O.E REP Not Available Date
Sampler Dave Zuber

Sample No.	S	W	Date	Time	# of Containers	Laboratory Number
TRIP BLANK		X			2	
UCD-10		X	11/8	1045	10	
UCD-15		X	11/8	1500	10	
UCD-15B		X	11/8	1530	10	
TRIP BLANK					2	

Analyses Requested for All Samples Listed.

17 CAM Metals, Na, K, Mg, Ca. ✓
Hexavalent Chromium, TDS, ✓
Sulfate, Turbidity, ✓
Chloride, Alkalinity. ✓
Nitrates (as Nitrogen), COD, ✓
Phosphate. ✓
Formaldehyde. ✓
608 - Organochlorine pesticides ✓
625-semi-volitile organic compounds. ✓
624 - volitile organic compounds. ✓
Gross alpha, Gross beta, ✓
Strontium 90 ✓
Gamma-Emitters. ✓
Tritium. ✓

FED EX #

Relinquished by: [signature] Date 11/8 Time 1730 Rec'd by: 9330995505 Date 11/8 Time 1730
Relinquished by: Date Time Rec'd by: [signature] Date 11/12 Time 7:30
Relinquished by: Date Time Rec'd by: Date Time

CHAIN-OF-CUSTODIES
GROUNDWATER AND SURFACE WATER SAMPLES

WINTER QUARTER, FEBRUARY 1991

PHASE II SITE CHARACTERIZATION
LEHR ENVIRONMENTAL RESTORATION

Fed Express — 1588140920

!!! IMPORTANT !!!

Upon receipt of this form:
1. Inspect all samples.
2. Note any damaged containers.
3. Sign and date this form.
4. Send a FAX of this form to:
   RICK MOREN / DAMES & MOORE
   FAX # (916) 362-7987
5. Do not begin work until authorization is received from Dames & Moore by telephon

LIST 2 CHAIN OF CUSTODY

Project Name UCD/ LEHR
DOE Site Characterization

Project # 10805-454-044

Clients Name;
Dames & Moore
9300 Tech Center Drive, Ste 100
Sacramento, California 95826
(916)364-8698
Attention: Mr. Rick Moren

Signatures
Dames & Moore [signature] Date 2/6/91
D.O.E REP Date
Sampler R. MOREN

Fed X/Euler

	Sample No.	S	W	Date	Time	# of Containers	Laboratory Number
9588140975 (1)	UCD-20		X	2/6/91	0930	10	
	Trip Blank		X			1	
9588190964 (2)	UCD-19		X	2/6/91	1230	10	
	UCD-23		X	2/6/91	1040	10	
	Trip Blank		X			1	
9588190953 (3)	STPO		X	2/6/91	1330	10	
	Trip Blank		X			1	
9588190931 (4)	PCD-1		X	2/6/91	1500	10	
	Trip Blank		X			1	
9588190920 (5)	PCU 1		X	2/6/91	1400	10	
	PCU 10		X	2/6/91	1415	10	
	Trip Blank		X			1	

Analyses Requested for All Samples Listed.

17 CAM Metals, Na, K, Mg, Ca.
Hexavalent Chromium, TDS, Sulfate, Turbidity, Chloride, Alkalinity.
Nitrates (as Nitrogen), COD, Phosphate.
Formaldehyde.
608 - Organochlorine pesticides
625 - Semi-volitile organic compounds.
624 - volitile organic compounds.
Gross alpha, Gross beta, Strontium 90
Gamma-Emitters.
Tritium.

Relinquished by: [signature] Date 2/6/91 Time
Relinquished by: Date Time
Relinquished by: Date Time

Rec'd by: L. Herrick Date 2/7/91 Time 9:30
Rec'd by: Date Time
Rec'd by: Date Time

Fed Exp 9588190883

!!! IMPORTANT !!!

Upon receipt of this form:
1. Inspect all samples.
2. Note any damaged containers.
3. Sign and date this form.
4. Send a FAX of this form to:
   RICK MOREN / DAMES & MOORE
   FAX # (916) 362-7987
5. Do not begin work until authorization is received from Dames & Moore by telephone.

LIST____ CHAIN OF CUSTODY

Project Name UCD/ IHIR
DOE Site Characterization

Project # 10305-454-044

Clients Name;
Dames & Moore
9300 Tech Center Drive, Ste 100
Sacramento, California 95826
(916)364-8698
Attention: Mr. Rick Moren

Signatures
Dames & Moore David Morier Date 2/11/91
D.O.E REP _____ Date _____
Sampler DAVID MORIER

Sample No.	S	W	Date	Time	# of Containers	Laboratory Number
UCD-10		X	2/11/91	0945	10	
UCD-11		X	2/11/91	1230	10	
TRIP BLANK		X			1	
UCD 12		X	2/11/91	1330	10	
UCD-12d		X	2/11/91	1400	10	
TRIP BLANK		X			1	

1/ Control

Analyses Requested for All Samples Listed.

17 CAM Metals, Na, K, Mg, Ca.
Hexavalent Chromium, TDS, Sulfate, Turbidity, Chloride, Alkalinity.
Nitrates (as Nitrogen), COD, Phosphate.
Formaldehyde.
608 - Organochlorine pesticides
625 - semi-volitile organic compounds.
624 - volitile organic compounds.
Gross alpha, Gross beta, Strontium 90
Gamma-Emitters.
Tritium.

Relinquished by: David Morier Date 2/11/91 Time _____ Rec'd by: C. Rodgers Date 2/12/91 Time 9:00
Relinquished by: _____ Date _____ Time _____ Rec'd by: _____ Date _____ Time _____
Relinquished by: _____ Date _____ Time _____ Rec'd by: _____ Date _____ Time _____

Upon receipt of this form:
1. Inspect all samples.
2. Note any damaged containers.
3. Sign and date this form.
4. Send a FAX of this form to:
   RICK MOREN / DAMES & MOORE
   FAX # (916) 362-7987
5. Do not begin work until authorization is received from Dames & Moore by telephone.

LIST____ CHAIN OF CUSTODY

Project Name UCD/ IEHR
DOE Site Characterization

Project # 10805-454-044

Clients Name;
Dames & Moore
9300 Tech Center Drive, Ste 100
Sacramento, California 95826
(916)364-8698
Attention: Mr. Rick Moren

Signatures
Dames & Moore David Morier Date 2/7/91

D.O.E REP _____ Date _____

Sampler DAVID MORIER

Sample No.	S	W	Date	Time	# of Containers	Laboratory Number
UCD-1		X	2/7/91	1130	10	
TRIP BLANK		X			1	
UCD-4		X	2/7/91	1330	10	
TRIP BLANK		X			1	
UCD-7		X	2/7/91	1530	10	
TRIP BLANK		X			1	

Analyses Requested for All Samples Listed.

17 CAM Metals, Na, K, Mg, Ca.
Hexavalent Chromium, TDS, Sulfate, Turbidity, Chloride, Alkalinity.
Nitrates (as Nitrogen), COD, Phosphate.
Formaldehyde.
608 - Organochlorine pesticides
625-semi-volitile organic compounds.
624 - volitile organic compounds.
Gross alpha, Gross beta, Strontium 90
Gamma-Emitters.
Tritium.

Relinquished by: [signature] Date 2/7/91 Time _____ Rec'd by: C. Rodriguez Date 2/8/91 Time 9:40
Relinquished by: _____ Date _____ Time _____ Rec'd by: _____ Date _____ Time _____
Relinquished by: _____ Date _____ Time _____ Rec'd by: _____ Date _____ Time _____

only 2 vol's for TRIP Blank Received, one in Cooler, 2 sets of samples in 10
1 set of samples in 10

Fed Exp. 9588190726

Upon receipt of this form:
1. Inspect all samples.
2. Note any damaged containers.
3. Sign and date this form.
4. Send a FAX of this form to:
   RICK MOREN / DAMES & MOORE
   FAX # (916) 362-7987
5. Do not begin work until authorization is received from Dames & Moore by telephone.

LIST 2 CHAIN OF CUSTODY

Project Name UCD/ IEHR
DOE Site Characterization

Project # 10805-454-044

Clients Name;
Dames & Moore
9300 Tech Center Drive, Ste 100
Sacramento, California 95826
(916)364-8698
Attention: Mr. Rick Moren

Signatures
Dames & Moore [signature] Date 2/5/91

D.O.E REP _____ Date _____

Sampler R. MOREN

Sample No.	S	W	Date	Time	# of Containers	Laboratory Number
UCD-24		X	2/5/91	1130	10	
Trip Blank					1	

Analyses Requested for All Samples Listed.

17 CAM Metals, Na, K, Mg, Ca.
Hexavalent Chromium, TDS, Sulfate, Turbidity, Chloride, Alkalinity.
Nitrates (as Nitrogen), COD, Phosphate.
Formaldehyde.
608 - Organochlorine pesticides
625-semi-volitile organic compounds.
624 - volitile organic compounds.
Gross alpha, Gross beta, Strontium 90
Gamma-Emitters.
Tritium.

Fed X

Relinquished by: [signature] Date 2/5/91 Time
Relinquished by: _____ Date _____ Time
Relinquished by: _____ Date _____ Time

Rec'd by: 9588190776 Date 2/5/91 Time
Rec'd by: Kathy Triga Date 2/6/91 Time 9:50
Rec'd by: _____ Date _____ Time

Express

!!! IMPORTANT !!!

Upon receipt of this form:
1. Inspect all samples.
2. Note any damaged containers.
3. Sign and date this form.
4. Send a FAX of this form to:
   RICK MOREN / DAMES & MOORE
   FAX # (916) 362-7987
5. Do not begin work until authorization is received from Dames & Moore by telephone.

LIST 2 CHAIN OF CUSTODY

Project Name UCD/ IEHR
DOE Site Characterization

Project # 10805-454-044

Clients Name;
Dames & Moore
9300 Tech Center Drive, Ste 100
Sacramento, California 95826
(916)364-8698
Attention: Mr. Rick Moren

Signatures
Dames & Moore [signature] Date 2/5/91

D.O.E REP _____ Date _____

Sampler R. Moren

Sample No.	S	W	Date	Time	# of Containers	Laboratory Number
UCD-22		X	2/5/91	1530	10	
UCD-22B		X		1600	10	
Trip Blank		X			1	

Analyses Requested for All Samples Listed.

17 CAM Metals, Na, K, Mg, Ca.
Hexavalent Chromium, TDS,
Sulfate, Turbidity,
Chloride, Alkalinity.
Nitrates (as Nitrogen), COD,
Phosphate.
Formaldehyde.
608 - Organochlorine pesticides
625-semi-volitile organic compounds.
624 - volitile organic compounds.
Gross alpha, Gross beta,
Strontium 90
Gamma-Emitters.
Tritium.

Fed X

Relinquished by: [signature] Date 2/5/91 Time
Relinquished by: _____ Date _____ Time
Relinquished by: _____ Date _____ Time

Rec'd by: 9588190986 Date 2/5/91 Time
Rec'd by: Kathy Ortega Date 2-6-91 Time 9:30
Rec'd by: _____ Date _____ Time

Fed Express

!!! IMPORTANT !!!

Upon receipt of this form:
1. Inspect all samples.
2. Note any damaged containers.
3. Sign and date this form.
4. Send a FAX of this form to:
   RICK MOREN / DAMES & MOORE
   FAX # (916) 362-7987
5. Do not begin work until authorization is received from Dames & Moore by telephone.

LIST 2 CHAIN OF CUSTODY

Project Name UCD/ IEHR
DOE Site Characterization

Project # 10805-454-044

Clients Name;
Dames & Moore
9300 Tech Center Drive, Ste 100
Sacramento, California 95826
(916)364-8698
Attention: Mr. Rick Moren

Signatures
Dames & Moore [signature] Date 2/5/91
D.O.E REP _____ Date _____
Sampler R. Moren

Sample No.	S	W	Date	Time	# of Containers	Laboratory Number
UCD-21		X	2/5/91	14:45	10	
Trip Blank		X			1	

Analyses Requested for All Samples Listed.

17 CAM Metals, Na, K, Mg, Ca.
Hexavalent Chromium, TDS,
Sulfate, Turbidity,
Chloride, Alkalinity.
Nitrates (as Nitrogen), COD,
Phosphate.
Formaldehyde.
608 - Organochlorine pesticides
625-semi-volitile organic compounds.
624 - volitile organic compounds.
Gross alpha, Gross beta,
Strontium 90
Gamma-Emitters.
Tritium.

Fed X

Relinquished by: [signature] Date 2/5/91 Time
Relinquished by: _____ Date _____ Time
Relinquished by: _____ Date _____ Time

Rec'd by: 9588190765 Date 2/5 Time
Rec'd by: Kathy Ortega Date 2/6/91 Time 9:30
Rec'd by: _____ Date _____ Time

Fed
Exp
1588190791

::: IMPORTANT :::

Upon receipt of this form:
1. Inspect all samples.
2. Note any damaged containers.
3. Sign and date this form.
4. Send a FAX of this form to:
   RICK MOREN / DAMES & MOORE
   FAX # (916) 362-7987
5. Do not begin work until authorization is received from Dames & Moore by telephone.

LIST 2 CHAIN OF CUSTODY

Project Name UCD/ LEHR
DOE Site Characterization

Project # 10805-454-044

Clients Name;
Dames & Moore
9300 Tech Center Drive, Ste 100
Sacramento, California 95826
(916)364-8698
Attention: Mr. Rick Moren

Signatures
Dames & Moore [signature] Date 2/5/91

D.O.E REP _____ Date _____

Sampler R. MOREN

Sample No.	S	W	Date	Time	# of Containers	Laboratory Number
UCD-17		X	2/5/91	0915	10	
Trip Blank		X			1	

Analyses Requested for All Samples Listed.

17 CAM Metals, Na, K, Mg, Ca.
Hexavalent Chromium, TDS,
Sulfate, Turbidity,
Chloride, Alkalinity.
Nitrates (as Nitrogen), COD,
Phosphate.
Formaldehyde.
608 - Organochlorine pesticides
625-semi-volitile organic compounds.
624 - volitile organic compounds.
Gross alpha, Gross beta,
Strontium 90
Gamma-Emitters.
Tritium.

Relinquished by: [signature] Date 2/5/91 Time
Relinquished by: _____ Date _____ Time
Relinquished by: _____ Date _____ Time

FedX 9588190791
Rec'd by: _____ Date 2/5 Time
Rec'd by: Kathy Ortega Date 2/6/91 Time 9:30
Rec'd by: _____ Date _____ Time

!!! IMPORTANT !!!

Upon receipt of this form:
1. Inspect all samples.
2. Note any damaged containers.
3. Sign and date this form.
4. Send a FAX of this form to:
   RICK MOREN / DAMES & MOORE
   FAX # (916) 362-7987
5. Do not begin work until authorization is received from Dames & Moore by telephone.

LIST 2 CHAIN OF CUSTODY

Project Name UCD/ LEHR
DOE Site Characterization

Project # 10805-454-044

Clients Name;
Dames & Moore
9300 Tech Center Drive, Ste 100
Sacramento, California 95826
(916)364-8698
Attention: Mr. Rick Moren

Signatures
Dames & Moore [signature] Date 2/4/91

D.O.E REP _____ Date _____

Sampler R. Moren

Sample No.	S	W	Date	Time	# of Containers	Laboratory Number
UCD 15		x	2/4	1200	10	
UCD-18		x	2/4	1415	10	
Trip Blank						

624 as per Jeff

Analyses Requested for All Samples Listed.

17 CAM Metals, Na, K, Mg, Ca. 1201
Hexavalent Chromium, TDS,
Sulfate, Turbidity,
Chloride, Alkalinity. 3202
Nitrates (as Nitrogen), COD,
Phosphate. 32 oz glass
Formaldehyde. 40ml
608 - Organochlorine pesticides 1 gal
625 - semi-volitile organic compounds
624 - volitile organic compounds. 40ml
Gross alpha, Gross beta, 1 gal dil
Strontium 90
Gamma-Emitters.
Tritium. 1/02 glass

Fed X

Relinquished by: [signature] Date 2/4/91 Time
Relinquished by: _____ Date _____ Time
Relinquished by: _____ Date _____ Time

Rec'd by: 9588190253 Date _____ Time
Rec'd by: C. Rodriguez Date 2/5/91 Time 9:00
Rec'd by: _____ Date _____ Time

!!! IMPORTANT !!!

Upon receipt of this form:
1. Inspect all samples.
2. Note any damaged containers.
3. Sign and date this form.
4. Send a FAX of this form to:
   RICK MOREN / DAMES & MOORE
   FAX # (916) 362-7987
5. Do not begin work until authorization is received from Dames & Moore by telephone.

LIST 2 CHAIN OF CUSTODY

Project Name UCD/ IEHR
DOE Site Characterization

Project # 10805-454-044

Clients Name;
Dames & Moore
9300 Tech Center Drive, Ste 100
Sacramento, California 95826
(916)364-8698
Attention: Mr. Rick Moren

Signatures
Dames & Moore [signature] Date 2/4/91
D.O.E REP Date
Sampler R. Moren

Sample No.	S	W	Date	Time	# of Containers	Laboratory Number
UCD 16		X	2/4/91	0930	10	
~~UCD 15~~		~~X~~	~~2/4/91~~	~~1200~~	~~10~~	
Trip Blank						

Analyses Requested for All Samples Listed.

17 CAM Metals, Na, K, Mg, Ca.
Hexavalent Chromium, TDS, Sulfate, Turbidity, Chloride, Alkalinity.
Nitrates (as Nitrogen), COD, Phosphate.
Formaldehyde.
608 - Organochlorine pesticides
625 - Semi-volitile organic compounds.
624 - volitile organic compounds.
Gross alpha, Gross beta, Strontium 90
Gamma-Emitters.
Tritium.

Relinquished by: [signature] Date 2/4/91 Time
Relinquished by: Date Time
Relinquished by: Date Time

Fed X 9588190264 Rec'd by: Date Time
Rec'd by: C. Rodriguez Date 2/5/91 Time 5:00
Rec'd by: Date Time

Fed Exp 6996396794

!!! IMPORTANT !!!

Upon receipt of this form:
1. Inspect all samples.
2. Note any damaged containers.
3. Sign and date this form.
4. Send a FAX of this form to:
   RICK MOREN / DAMES & MOORE
   FAX # (916) 362-7987
5. Do not begin work until authorization is received from Dames & Moore by telephone.

LIST____ CHAIN OF CUSTODY

Project Name UCD/ LEHR
DOE Site Characterization

Project # 10805-454-044

Clients Name;
Dames & Moore
9300 Tech Center Drive, Ste 100
Sacramento, California 95826
(916)364-8698
Attention: Mr. Rick Moren

Signatures
Dames & Moore David Morier Date 2/12/91

D.O.E REP _____ Date _____

Sampler DAVID MORIER

FEDX

1639794
①

Sample No.	S	W	Date	Time	# of Containers	Laboratory Number
UCD-13		X	2/12/91	1130	10	
UCD-14		X	2/12/91	1400	10	
TRIP BLANK		X			1	

Analyses Requested for All Samples Listed.

17 CAM Metals, Na, K, Mg, Ca.
Hexavalent Chromium, TDS, Sulfate, Turbidity, Chloride, Alkalinity.
Nitrates (as Nitrogen), COD, Phosphate.
Formaldehyde.
608 - Organochlorine pesticides
625-semi-volitile organic compounds.
624 - volitile organic compounds.
Gross alpha, Gross beta, Strontium 90
Gamma-Emitters.
Tritium.

Relinquished by: David Morier Date 2/12/91 Time _____ Rec'd by: C. Rodriguez Date 2/13/91 Time 9:15
Relinquished by: _____ Date _____ Time _____ Rec'd by: _____ Date _____ Time _____
Relinquished by: _____ Date _____ Time _____ Rec'd by: _____ Date _____ Time _____

CHAIN-OF-CUSTODIES
GROUNDWATER AND SURFACE WATER SAMPLES

SPRING QUARTER, MAY 1991

PHASE II SITE CHARACTERIZATION
LEHR ENVIRONMENTAL RESTORATION

1 Fed Ex
3 coolers

340

!!! IMPORTANT !!!

Upon receipt of this form:
1. Inspect all samples.
2. Note any damaged containers.
3. Sign and date this form.
4. Send a FAX of this form to:
   RICK MOREN / DAMES & MOORE
   FAX # (916) 362-7987
5. Do not begin work until authorization is received from Dames & Moore by telephone.

LIST____ CHAIN OF CUSTODY

Project Name UCD/ IEHR
DOE Site Characterization

Project # 10805-454-044

Clients Name;
Dames & Moore
9300 Tech Center Drive, Ste 100
Sacramento, California 95826
(916)364-8698
Attention: Mr. Rick Moren

Signatures
Dames & Moore [signature] Date 5/21
D.O.E REP _____ Date _____
Sampler D. Zuber

Sample No.	S	W	Date	Time	# of Containers	Laboratory Number
STPO-1		X	5/21	1440	1	
STPO-1B		X	5/21	1500	1	
PCU surface		X	5/21	1450	1	
PCD surface		X	5/21	1515	1	

Analyses Requested for All Samples Listed.

~~17 CAM Metals, Na, K, Mg, Ca~~
~~Hexavalent Chromium, TDS, Sulfate, Turbidity, Chloride, Alkalinity.~~
~~Nitrates (as Nitrogen), COD, Phosphate.~~
~~Formaldehyde.~~
~~608 - Organochlorine pesticides~~
~~625 - semi-volitile organic compounds.~~
~~624 - volitile organic compounds.~~
~~Gross alpha, Gross beta, Strontium 90~~
~~Gamma Emitters.~~
~~Tritium.~~

TURBIDITY and Cr(VI) only

Relinquished by: [signature] Date 5/21 Time 1600
Relinquished by: _____ Date _____ Time _____
Relinquished by: _____ Date _____ Time _____

Rec'd by: FED EX # 0398161175 Date 5/21 Time 1600
Rec'd by: L Hennigh CCP Date 5/22 Time 9:30
Rec'd by: _____ Date _____ Time _____

OK TO LOG IN AS PER D. ZUBER

!!! IMPORTANT !!!

Upon receipt of this form:
1. Inspect all samples.
2. Note any damaged containers.
3. Sign and date this form.
4. Send a FAX of this form to:
   RICK MOREN / DAMES & MOORE
   FAX # (916) 362-7987
5. Do not begin work until authorization is received from Dames & Moore by telephone.

LIST ____ CHAIN OF CUSTODY

Project Name UCD/ IEHR
DOE Site Characterization

Project # 10805-454-044

Clients Name;
Dames & Moore
9300 Tech Center Drive, Ste 100
Sacramento, California 95826
(916)364-8698
Attention: Mr. Rick Moren

Signatures
Dames & Moore [signature] Date 5/13
D.O.E REP ____ Date ____
Sampler [signature] (ZUBER)

Sample No.	S	W	Date	Time	# of Containers	Laboratory Number
UCD-17		X	5/13	1145	10	
UCD-18		X	5/13	1330	10	
TRIP BLANK		X			2	
UCD-15		X	5/13	1545	10	
TRIP BLANK		X			2	

Analyses Requested for All Samples Listed.

* 17 CAM Metals, Na, K, Mg, Ca.
Hexavalent Chromium, TDS,
Sulfate, Turbidity,
Chloride, Alkalinity.
Nitrates (as Nitrogen), COD,
Phosphate.
Formaldehyde.
608 - Organochlorine pesticides
625-Semi-volitile organic compounds.
624 - volitile organic compounds.
Gross alpha, Gross beta,
Strontium 90
Gamma-Emitters.
Tritium.
C^{14} by Barium precipitate (see Dr Neary)
* As, Cd, Pb Se, Sb Tl by GFAA
Detection Limit For Tl = 1 ppb
Hg by CVAA
Rest of Metals by ICP

Relinquished by: [signature] Date 5/13 Time 1715
Relinquished by: ____ Date ____ Time ____
Relinquished by: ____ Date ____ Time ____

Rec'd by: Fed-Ex # 0399216083 Date 5/13 Time 1715
Rec'd by: [signature] Date [illegible] Time [illegible]
Rec'd by: ____ Date ____ Time ____

Fed Ex P 9817666062 (NR)

!!! IMPORTANT !!!

Upon receipt of this form:
1. Inspect all samples.
2. Note any damaged containers.
3. Sign and date this form.
4. Send a FAX of this form to:
   RICK MOREN / DAMES & MOORE
   FAX # (916) 362-7987
5. Do not begin work until authorization is received from Dames & Moore by telephone.

LIST____ CHAIN OF CUSTODY

Project Name UCD/ LEHR
DOE Site Characterization

Project # 10805-454-044

Clients Name;
Dames & Moore
9300 Tech Center Drive, Ste 100
Sacramento, California 95826
(916)364-8698
Attention: Mr. Rick Moren

Signatures
Dames & Moore [signature] Date 5/14

D.O.E REP _____ Date _____

Sampler D. Zuber

Sample No.	S	W	Date	Time	# of Containers	Laboratory Number
UCD-16		X	5/14	0915	10	
UCD-12		X	5/14	1315	10	
TRIP BLANK		X			2	
UCD-24		X	5/14	1445	10	
UCD-21		X	5/14	1600	10	
TRIP BLANK		X			2	

Analyses Requested for All Samples Listed.

* 17 CAM Metals, Na, K, Mg, Ca.
Hexavalent Chromium, TDS,
Sulfate, Turbidity,
Chloride, Alkalinity.
Nitrates (as Nitrogen), COD,
Phosphate.
Formaldehyde.
608 - Organochlorine pesticides
625-semi-volitile organic compounds.
624 - volitile organic compounds.
Gross alpha, Gross beta,
Strontium 90
Gamma-Emitters.
Tritium.

* As, Cd, Pb, Se, Sb, Tl by GFAA
Detection limit for Tl = 1 ppb
Hg by CVAA
Rest of Metals by ICP

Relinquished by: [signature] Date 5/14 Time 1730 Rec'd by: Fed Ex # ~~Date~~ ~~Time~~
Relinquished by: ~~Date~~ ~~Time~~ Rec'd by: 9817666062 Date 5/14 Time 1730
Relinquished by: _____ Date _____ Time _____ Rec'd by: [signature] Date 5/15/91 Time 9:15

!!! IMPORTANT !!!

Upon receipt of this form:
1. Inspect all samples.
2. Note any damaged containers.
3. Sign and date this form.
4. Send a FAX of this form to:
   RICK MOREN / DAMES & MOORE
   FAX # (916) 362-7987
5. Do not begin work until authorization is received from Dames & Moore by telephone.

LIST____ CHAIN OF CUSTODY

Project Name UCD/ LEHR
DOE Site Characterization

Project # 10805-454-044

Clients Name;
Dames & Moore
9300 Tech Center Drive, Ste 100
Sacramento, California 95826
(916)364-8698
Attention: Mr. Rick Moren

Signatures
Dames & Moore [signature] Date 5/16

D.O.E REP _____ Date _____

Sampler DAVID ZUBER SUSAN McHugh

Sample No.	S	W	Date	Time	# of Containers	Laboratory Number
STPO-1		X	5/16	0930	10	
STPO-1B		X	5/16	0900	10	
TRIP BLANK		X			2	
PCU Surface		X	5/16	1130	10	
PCD Surface		X	5/16	1330	10	
TRIP BLANK		X			2	

Analyses Requested for All Samples Listed.

*17 CAM Metals, Na, K, Mg, Ca.
Hexavalent Chromium, TDS,
Sulfate, Turbidity,
Chloride, Alkalinity.
Nitrates (as Nitrogen), COD,
Phosphate.
Formaldehyde.
608 - Organochlorine pesticides
625-semi-volitile organic compounds.
624 - volitile organic compounds.
Gross alpha, Gross beta,
Strontium 90
Gamma-Emitters.
Tritium.

As, Cd, Pb, Se, Sb, Tl by GFAA
Detection Limit for Tl = 1 ppb
Hg by CVAA
All other metals by ICP

Turbidity & CRHEX cancelled as per Jeff Tye 5/20/91

Relinquished by: [signature] Date 5/16 Time 1600 Rec'd by: FED Ex # 9817666036 Date 5/16 Time 1600
Relinquished by: _____ Date _____ Time _____ Rec'd by: [signature] Date 5/20/91 Time 7:30
Relinquished by: _____ Date _____ Time _____ Rec'd by: _____ Date _____ Time _____

The above arrived saturday 5/18/91 upon arrival samples we refrigerated, AP

!!! IMPORTANT !!!

Upon receipt of this form:
1. Inspect all samples.
2. Note any damaged containers.
3. Sign and date this form.
4. Send a FAX of this form to:
   RICK MOREN / DAMES & MOORE
   FAX # (916) 362-7987
5. Do not begin work until authorization is received from Dames & Moore by telephone.

LIST____ CHAIN OF CUSTODY

Project Name UCD/ LEHR
DOE Site Characterization

Project # 10805-454-044

Clients Name;
Dames & Moore
9300 Tech Center Drive, Ste 100
Sacramento, California 95826
(916)364-8698
Attention: Mr. Rick Moren

Signatures
Dames & Moore [signature] Date 5/20/91
D.O.E REP _____ Date _____
Sampler DAVE ZUBER

Sample No.	S	W	Date	Time	# of Containers	Laboratory Number
UCD-1		X	5/20	1115	7	
UCD-7		X	5/20	1230	10	
UCD-1		X	5/20	1400	2	
UCD-1		X	5/20	1600	1	
TRIP BLANK		X			2	
UCD-10		X	5/20	1530	10	
TRIP BLANK		X			2	

Analyses Requested for All Samples Listed.

* 17 CAM Metals, Na, K, Mg, Ca.
Hexavalent Chromium, TDS,
Sulfate, Turbidity,
Chloride, Alkalinity.
Nitrates (as Nitrogen), COD,
Phosphate.
Formaldehyde.
608 - Organochlorine pesticides
625-semi-volitile organic compounds.
624 - volitile organic compounds.
Gross alpha, Gross beta,
Strontium 90
Gamma-Emitters.
Tritium.

* As, Cd, Pb, Se, Sb, Tl by GFAA
Detection Limit for Tl = 1 ppb
Hg by CVAA
Other CAM Metals by ICP

Relinquished by: [signature] Date 5/20 Time 1745 Rec'd by: FED EX # 9917666073 Date 5/20 Time 1745
Relinquished by: _____ Date _____ Time _____ Rec'd by: [signature] Date 5/21 Time 9:00
Relinquished by: _____ Date _____ Time _____ Rec'd by: _____ Date _____ Time _____

!!! IMPORTANT !!!

Upon receipt of this form:
1. Inspect all samples.
2. Note any damaged containers.
3. Sign and date this form.
4. Send a FAX of this form to:
   RICK MOREN / DAMES & MOORE
   FAX # (916) 362-7987
5. Do not begin work until authorization is received from Dames & Moore by telephone.

LIST____ CHAIN OF CUSTODY

Project Name UCD/ IEHR
DOE Site Characterization

Project # 10805-454-044

Clients Name;
Dames & Moore
9300 Tech Center Drive, Ste 100
Sacramento, California 95826
(916)364-8698
Attention: Mr. Rick Moren

Signatures
Dames & Moore [signature] Date 5/15
D.O.E REP _____ Date _____
Sampler D. Zuber [signature]

Sample No.	S	W	Date	Time	# of Containers	Laboratory Number
UCD-20		X	5/15	0915	10	
UCD 22		X	5/15	1030	10	
TRIP BLANK.		X			2	
H3 BRONE UCD-23		X	5/15	1230	10	
UCD-23B		X	5/15	1300	10	
TRIP BLANK.		X			2	
UCD-19		X	5/15	1400	10	
☐ UCD-~~#~~4		X	5/15	1530	10	
TRIP BLANK		X	~~5/15~~		2	

Analyses Requested for All Samples Listed.

- * 17 CAM Metals, Na, K, Mg, Ca.
- Hexavalent Chromium, TDS, Sulfate, Turbidity, Chloride, Alkalinity.
- Nitrates (as Nitrogen), COD, Phosphate.
- Formaldehyde.
- 608 - Organochlorine pesticides
- 625-Semi-volitile organic compounds.
- 624 - volitile organic compounds.
- Gross alpha, Gross beta, Strontium 90
- Gamma-Emitters.
- Tritium.
- → As, Cd, Pb, Se, Sb, Tl by GFAA; Detection Limit for TR = 1ppb
- Hg by CVAA
- Other metals by ICP
- ☐ Carbon-14 (FOR UCD-4 ONLY)

Relinquished by: [signature] Date 5/15 Time 1715 Rec'd by: FED Ex # 9817666106 Date 5/15 Time 1710
Relinquished by: _____ Date _____ Time _____ Rec'd by: Overnight CEP Date 5/16 Time 9:30
Relinquished by: _____ Date _____ Time _____ Rec'd by: _____ Date _____ Time _____

!!! IMPORTANT !!!

Upon receipt of this form:
1. Inspect all samples.
2. Note any damaged containers.
3. Sign and date this form.
4. Send a FAX of this form to:
   RICK MOREN / DAMES & MOORE
   FAX # (916) 362-7987
5. Do not begin work until authorization is received from Dames & Moore by telephone.

LIST____ CHAIN OF CUSTODY

Project Name UCD/ IEHR
DOE Site Characterization

Project # 10805-454-044

Clients Name;
Dames & Moore
9300 Tech Center Drive, Ste 100
Sacramento, California 95826
(916)364-8698
Attention: Mr. Rick Moren

Signatures
Dames & Moore [signature] Date 5/21
D.O.E REP _____ Date _____
Sampler D. ZUBER

Sample No.	S	W	Date	Time	# of Containers	Laboratory Number
UCD-11B		X	5/21	0845	10	
UCD-11		X	5/21	0930	10	
TRIP BLANK		X			2	
UCD-13		X	5/21	1200	10	
UCD-14		X	5/21	1300	10	
TRIP BLANK		X			2	

Analyses Requested for All Samples Listed.

*17 CAM Metals, Na, K, Mg, Ca.
Hexavalent Chromium, TDS,
Sulfate, Turbidity,
Chloride, Alkalinity.
Nitrates (as Nitrogen), COD,
Phosphate.
Formaldehyde.
608 - Organochlorine pesticides
625-semi-volitile organic compounds.
624 - volitile organic compounds.
Gross alpha, Gross beta,
Strontium 90
Gamma-Emitters.
Tritium.
* As, Cd, Pb, Se, Sb, Tl by GFAA
Tl detection Limit = 1 ppb
Hg by CVAA
Other Metals by ICP
C14 for UCD-13 and UCD-14 only

Relinquished by: [signature] Date 5/21 Time 1600 Rec'd by: FEDEX # Date 5/21 Time 1600
Relinquished by: _____ Date _____ Time _____ Rec'd by: 0398161175 Date _____ Time _____
Relinquished by: _____ Date _____ Time _____ Rec'd by: Kathy Ortega Date 5/22 Time 9:30

CHAIN-OF-CUSTODIES
GROUNDWATER AND SURFACE WATER SAMPLES

SUMMER QUARTER, AUGUST 1991

PHASE II SITE CHARACTERIZATION
LEHR ENVIRONMENTAL RESTORATION

1 7731327240

!!! IMPORTANT !!!

Upon receipt of this form:
1. Inspect all samples.
2. Note any damaged containers
3. Sign and date this form.
4. Send a FAX of this form to RICK MOREN / DAMES & MOORE FAX # (916) 387-0802
5. Do not begin work until authorization is received from Dames & Moore by telephone

LIST____ CHAIN OF CUSTODY

Project Name UCD/ LEHR
DOE Site Characterization

Project #

Clients Name;
Dames & Moore
3801 Folsom Blvd. Suite 200
Sacramento, California 95826
(916) 387-8800
Attention: Mr. Joe Niland

Signatures
Dames & Moore [signature] Date 8/14

Date

Sampler Dave Zuber

Sample No.	S	W	Date	Time	# of Containers	Laboratory Number
UCD-10		X	8/14	0900	5	
TRIP BLANK		X			2	

Analyses Requested for All Samples Listed.

~~17 CAM Metals Na, K, Mg, Ca~~
~~As, Cd, Pb, Sc, Sb, Tl by GFAA~~
~~Detection limit for Tl = 1 ppb~~
~~Hg by CVAA~~
~~Rest of metals by ICP~~
~~Hexavalent Chromium, TDS,~~
~~Sulfate, Turbidity,~~
~~Chloride, Alkalinity,~~
~~Nitrate, Nitrogen, COD,~~
~~Phosphate.~~
* Formaldehyde.
~~608 organochlorine pesticides~~
~~625 semi-volatile organic compounds.~~
ONLY * 624 - volatile organic compounds.
~~Gross alpha, Gross beta,~~
~~Strontium 90~~
~~Gamma Emitters.~~
* Tritium.

Relinquished by: [signature] Date 8/14 Time 1700
Relinquished by: Date Time
Relinquished by: Date Time

Rec'd by: FED Ex Date Time
Rec'd by: L. Henrigh CEP Date 8/15/91 Time 9:00
Rec'd by: Date Time

* SEND RESULTS AND INVOICES TO RICK MOREN

!!! IMPORTANT !!!

Upon receipt of this form:
1. Inspect all samples.
2. Note any damaged containers.
3. Sign and date this form.
4. Send a FAX of this form to:
   RICK MOREN / DAMES & MOORE
   FAX # (916) 387-0802
5. Do not begin work until authorization is received from Dames & Moore by telepho

LIST____ CHAIN OF CUSTODY

Project Name UCD/ LEHR
DOE Site Characterization

Project #

Clients Name;
Dames & Moore
3801 Folsom Blvd. Suite 200
Sacramento, California 95826
(916) 387-8800
Attention: Mr. Joe Niland

Signatures
Dames & Moore [signature] Date 8-8-91

Date

Sampler Dave Zeber

Sample No.	S	W	Date	Time	# of Containers	Laboratory Number
STPO-1		X	8-8	0915	10	
STPO-1B		X	8-8	1015	10	
TRIP BLANK		X			2	
PCU-1		X	8-8	1200	10	
PCD-1		X	8-8	1345	10	
TRIP BLANK		X			2	

Analyses Requested for All Samples Listed.

17 CAM Metals, Na, K, Mg, Ca
As, Cd, Pb, Se, Sb, Tl by GFAA
Detection limit for Tl = 1 ppb
Hg by CVAA
Rest of metals by ICP
Hexavalent Chromium, TDS,
Sulfate, Turbidity,
Chloride, Alkalinity.
Nitrates (as Nitrogen), COD,
Phosphate.
Formaldehyde.
608 - Organochlorine pesticides
625 - Semi-volitile organic compounds.
624 - volitile organic compounds.
Gross alpha, Gross beta,
Strontium 90
Gamma-Emitters.
Tritium.

Relinquished by: [signature] Date 8-8-91 Time 1530
Relinquished by: Date Time
Relinquished by: Date Time

Rec'd by: FED EX 9817666095 Date 8-8 Time 1530
Rec'd by: [signature] CER Date 8-9-91 Time 9:45
Rec'd by: Date Time

* SEND RESULTS AND INVOICES TO RICK MOREN AT THE ABOVE DAMES & MOORE ADDRESS

910811

[... IMPORTANT ...]

Upon receipt of this form:
1. Inspect all samples.
2. Note any damaged containers.
3. Sign and date this form.
4. Send a FAX of this form to:
   RICK MOREN / DAMES & MOORE
   FAX # (916) 387-0802
5. Do not begin work until authorization is received from Dames & Moore by telepho

LIST___ CHAIN OF CUSTODY

Project Name UCD/ LEHR
DOE Site Characterization

Project #

Clients Name;
Dames & Moore
8801 Folsom Blvd. Suite 200
Sacramento, California 95826
(916) 387-8800
Attention: Mr. Joe Niland

Signatures
Dames & Moore [signature] Date 8-7-91

Date

Sampler Dave Zuber

Sample No.	S	W	Date	Time	# of Containers	Laboratory Number
~~[illegible]~~						
UCD-22		X	8-7	0930	10	
UCD-23		X	8-7	1200	10	
TRIP BLANKS		X			2	

Analyses Requested for All Samples Listed.

17 CAM Metals, Na, K, Mg, Ca
As, Cd, Pb, Se, Sb, Tl by GFAA
Detection limit for Tl = 1 ppb
Hg by CVAA
Rest of metals by ICP
Hexavalent Chromium, TDS,
Sulfate, Turbidity,
Chloride, Alkalinity.
Nitrates (as Nitrogen), COD,
Phosphate.
Formaldehyde.
608 - Organochlorine pesticides
625-semi-volitile organic compounds.
624 - volitile organic compounds.
Gross alpha, Gross beta,
Strontium 90
Gamma-Emitters.
Tritium.

Relinquished by: [signature] Date 8-7-91 Time 1700 Rec'd by: ~~FED EX #~~ 0398161131 Date 8-7-91 Time 1700
Relinquished by: Date Time Rec'd by: Date Time
Relinquished by: Date Time Rec'd by: Date Time

* SEND RESULTS AND INVOICES TO RICK MOREN
AT THE ABOVE DAMES & MOORE ADDRESS

... IMPORTANT ...

Upon receipt of this form:
1. Inspect all samples.
2. Note any damaged containers.
3. Sign and date this form.
4. Send a FAX of this form to:
   RICK MOREN / DAMES & MOORE
   FAX # (916) 387-0802
5. Do not begin work until authorization is received from Dames & Moore by telephon

LIST____ CHAIN OF CUSTODY

Project Name UCD/ LEHR
DOE Site Characterization

Project #

Clients Name;
Dames & Moore
8801 Folsom Blvd. Suite 200
Sacramento, California 95826
(916) 387-8800
Attention: Mr. Joe Niland

Signatures
Dames & Moore [signature] Date 8-12-91

Date

Sampler D. Zeber

Sample No.	S	W	Date	Time	# of Containers	Laboratory Number
UCD-7		X	8-12	1000	10	
TRIP BLANK		X			2	
UCD-14		X	8-12	1400	10	
UCD-14B		X	8-12	1430	10	
TRIP BLANK		X			2	

Analyses Requested for All Samples Listed.

17 CAM Metals, Na, K, Mg, Ca
As, Cd, Pb, Se, Sb, Tl by GFAA
Detection limit for Tl = 1 ppb
Hg by CVAA
Rest of metals by ICP
Hexavalent Chromium, TDS,
Sulfate, Turbidity,
Chloride, Alkalinity.
Nitrates (as Nitrogen), COD,
Phosphate.
Formaldehyde.
608 - Organochlorine pesticides
625-semi-volitile organic compounds.
624 - volitile organic compounds.
Gross alpha, Gross beta,
Strontium 90
Gamma-Emitters.
Tritium.

Relinquished by: [signature] Date 8-12 Time 1700
Relinquished by: Date Time
Relinquished by: Date Time

Rec'd by: FED EX 0398161120 Date 8/12 Time 1700
Rec'd by: L. Henrich CEP Date 8/13/91 Time 9:30
Rec'd by: Date Time

* SEND RESULTS AND INVOICES TO RICK MOREN
AT THE ABOVE DAMES & MOORE ADDRESS

Fed Ex # 0398161

6801 Folsom Blvd #200

!!! IMPORTANT !!!

Upon receipt of this form:
1. Inspect all samples.
2. Note any damaged containers.
3. Sign and date this form.
4. Send a FAX of this form to:
   RICK MOREN / DAMES & MOORE
   FAX # (916) ~~368-7987~~ 3970802
5. Do not begin work until authorization is received from Dames & Moore by telephone.

LIST____ CHAIN OF CUSTODY

Project Name UCD/ LEHR
DOE Site Characterization

Project #

Clients Name;
Dames & Moore
~~9300 Tech Center Drive, Ste 100~~
Sacramento, California 95826
~~(916)364-8698~~ 916-387-8800
Attention: Mr. Joe Niland

Signatures
Dames & Moore John R. Zuber Date 8-6-91

Date

Sampler David Zuber

Sample No.	S	W	Date	Time	# of Containers	Laboratory Number
⊕ UCD-18		X	8-6	1000	10	
UCD-24		X	8-6	1130	10	
TRIP BLANK		X			2	
UCD-20		X	8-6	1340	10	
UCD-21		X	8-6	1620	10	
TRIP BLANK		X			2	

Analyses Requested for All Samples Listed.

17 CAM Metals, Na, K, Mg, Ca
As, Cd, Pb, Se, Sb, Tl by GFAA
Detection limit for Tl = 1 ppb
Hg by CVAA
Rest of metals by ICP
Hexavalent Chromium, TDS,
Sulfate, Turbidity,
Chloride, Alkalinity,
Nitrates (as Nitrogen), COD,
Phosphate.
Formaldehyde.
608 - Organochlorine pesticides
625-semi-volitile organic compounds.
624 - volitile organic compounds.
Gross alpha, Gross beta,
Strontium 90
Gamma-Emitters.
Tritium.
⊕ Carbon-14 for UCD-18 only

QA PKG

Relinquished by: John R. Zuber Date 8-6 Time 1730
Relinquished by: Date Time
Relinquished by: Date Time

Rec'd by: FED EX # ~~0398161153~~ Date 8-6 Time 1730
Rec'd by: Date 8/7/91 Time 9:15
Rec'd by: Date Time

SEND RESULTS AND INVOICES TO RICK MOREN

91 0 35048

::: IMPORTANT :::

Upon receipt of this form:
1. Inspect all samples.
2. Note any damaged containers.
3. Sign and date this form.
4. Send a FAX of this form to:
   RICK MOREN / DAMES & MOORE
   FAX # (916) 362-7987
5. Do not begin work until authorization is received from Dames & Moore by telephone.

LIST____ CHAIN OF CUSTODY

Project Name UCD/ LEHR
DOE Site Characterization

Project #

Clients Name;
Dames & Moore
9300 Tech Center Drive, Ste 100
Sacramento, California 95826
(916)364-8698
Attention: Mr. Joe Niland

Signatures
Dames & Moore [signature] Date 8-5-91

Date

Sampler David Zuber

Sample No.	S	W	Date	Time	# of Containers	Laboratory Number
* UCD-15		X	8-5	1230	10	
UCD-16		X	8-5	1500	10	
TRIP BLANK		X			2	
* UCD-17		X	8-5	1600	10	
TRIP BLANK		X			2	

Analyses Requested for All Samples Listed.

17 CAM Metals, Na, K, Mg, Ca
As, Cd, Pb, Se, Sb, Tl by GFAA
Detection limit for Tl = 1 ppb
Hg by CVAA
Rest of metals by ICP
Hexavalent Chromium, TDS,
Sulfate, Turbidity,
Chloride, Alkalinity.
Nitrates (as Nitrogen), COD,
Phosphate.
Formaldehyde.
608 - Organochlorine pesticides
625 - semi-volitile organic compounds.
624 - volitile organic compounds.
Gross alpha, Gross beta,
Strontium 90
Gamma-Emitters.
Tritium.
* Carbon-14 for UCD-15 and UCD-17 only *

Relinquished by: [signature] Date 8-5 Time 1730
Relinquished by: Date Time
Relinquished by: Date Time

Rec'd by: FED EX # 0398161164 Date 8/5 Time 1730
Rec'd by: Date Time
Rec'd by: Cecilia Finley Date 8/6/91 Time 9:15

CHAIN-OF-CUSTODIES
GROUNDWATER AND SURFACE WATER SAMPLES

FALL QUARTER, NOVEMBER 1991

PHASE II SITE CHARACTERIZATION
LEHR ENVIRONMENTAL RESTORATION

Upon receipt of this form:
1. Inspect all samples.
2. Note any damaged containers.
3. Sign and date this form.
4. Send a FAX of this form to:
   RICK MOREN / DAMES & MOORE
   FAX # (916) 387-0802
5. Do not begin work until authorization is received from Dames & Moore by telephone

LIST____ CHAIN OF CUSTODY

Project Name UCD/ LEHR
DOE Site Characterization

Project #

Clients Name;
Dames & Moore
8801 Folsom Blvd. Suite 200
Sacramento, California 95826
(916) 387-8800
Attention: Mr. Joe Niland

Signatures
Dames & Moore Gary Dickenson Date 11/20/91

Date

Sampler Gary Dickenson

Sample No.	S	W	Date	Time	# of Containers	Laboratory Number
UCD-14		✓	11/20/91	10:05	11	
UCD-13		✓		11:45	11	
Trip Blank		✓			2	
UCD-12		✓		15:30	10	
Trip Blank		✓			2	

Analyses Requested for All Samples Listed.

17 CAM Metals, Na, K, Mg, Ca
As, Cd, Pb, Se, Sb, Tl by GFAA
Detection limit for Tl = 1 ppb
Hg by CVAA
Rest of metals by ICP
Hexavalent Chromium, TDS,
Sulfate, Turbidity,
Chloride, Alkalinity.
Nitrates (as Nitrogen), COD,
Phosphate.
Formaldehyde.
608 - Organochlorine pesticides
625-semi-volitile organic compounds.
624 - volitile organic compounds.
Gross alpha, Gross beta,
Strontium 90
Gamma-Emitters.
Tritium.
Carbon 14 for UCD-14 and 13 only.

Relinquished by: Gary Dickenson Date 11/20/91 Time 17:20
Relinquished by: Date Time
Relinquished by: Date Time

Rec'd by: FED EX # 1198591472 Date Time
Rec'd by: L. Blank Date 11/21/91 Time 9:30
Rec'd by: Date Time

* SEND RESULTS AND INVOICES TO RICK MOREN AT THE ABOVE DAMES & MOORE ADDRESS

All samples received

2nd EEP

::: IMPORTANT :::

Upon receipt of this form:
1. Inspect all samples.
2. Note any damaged containers.
3. Sign and date this form.
4. Send a FAX of this form to:
   RICK MOREN / DAMES & MOORE
   FAX # (916) 387-0802
5. Do not begin work until authorization is received from Dames & Moore by telephone.

LIST____ CHAIN OF CUSTODY

Project Name UCD/ LEHR
DOE Site Characterization

Project #

Clients Name;
Dames & Moore
8801 Folsom Blvd. Suite 200
Sacramento, California 95826
(916) 387-8800
Attention: Mr. Joe Niland

Signatures
Dames & Moore [signature] Date 11/19/91

Date

Sampler Gary Dickenson

Sample No.	S	W	Date	Time	# of Containers	Laboratory Number
UCD-24		X	11/19	0920	10	
UCD-19		X		1055	10	
Trip Blank		X			2	
UCD-22		X		1310	10	
UCD-22B		X		1320	10	
Trip Blank		X			2	
UCD-7		X		1345	10	
Trip Blank		X			2	

Analyses Requested for All Samples Listed.

17 CAM Metals, Na, K, Mg, Ca
As, Cd, Pb, Se, Sb, Tl by GFAA
Detection limit for Tl = 1 ppb
Hg by CVAA
Rest of metals by ICP
Hexavalent Chromium, TDS,
Sulfate, Turbidity,
Chloride, Alkalinity.
Nitrates (as Nitrogen), COD,
Phosphate.
Formaldehyde.
608 - organochlorine pesticides
625-semi-volitile organic compounds.
624 - volitile organic compounds.
Gross alpha, Gross beta,
Strontium 90
Gamma-Emitters.
Tritium.

Relinquished by: [signature] Date 11/19/91 Time 1700
Relinquished by: Date Time
Relinquished by: Date Time

Rec'd by: FED EX * 1198591402 Date 11/19 Time 1700
Rec'd by: C. Rodriguez Date 11/20 Time 9:30
Rec'd by: Date Time

* SEND RESULTS AND INVOICES TO RICK MOREN
AT THE ABOVE DAMES & MOORE ADDRESS

all samples received ok

Ex P
1198591763
(NR)

Upon receipt of this form:
1. Inspect all samples.
2. Note any damaged containers.
3. Sign and date this form.
4. Send a FAX of this form to:
   RICK MOREN / DAMES & MOORE
   FAX # (916) 387-0802
5. Do not begin work until authorization is received from Dames & Moore by telephone.

LIST____ CHAIN OF CUSTODY

Project Name UCD/ LEHR
DOE Site Characterization

Project #

Clients Name;
Dames & Moore
8801 Folsom Blvd. Suite 200
Sacramento, California 95826
(916) 387-8800
Attention: Mr. Joe Niland

Signatures
Dames & Moore Gary Dickenson Date 11/26/91
Date
Sampler Gary Dickenson

Sample No.	S	W	Date	Time	# of Containers	Laboratory Number
UCD-1		U	11/26/91	9:30	10	
UCD-4		2		11:30	11	
Trip Blank		✓				

Analyses Requested for All Samples Listed.

17 CAM Metals, Na, K, Mg, Ca
As, Cd, Pb, Se, Sb, Tl by GFAA
Detection limit for Tl = 1 ppb
Hg by CVAA
Rest of metals by ICP
Hexavalent Chromium, TDS,
Sulfate, Turbidity,
Chloride, Alkalinity.
Nitrates (as Nitrogen), COD,
Phosphate.
Formaldehyde.
608 - Organochlorine pesticides
625-Semi-volitile organic compounds.
624 - volitile organic compounds.
Gross alpha, Gross beta,
Strontium 90
Gamma-Emitters.
Tritium.
* Carbon 14 for UCD-4 only

Relinquished by: Gary Dickenson Date 11/26/91 Time 15:00
Relinquished by: Date Time
Relinquished by: Date Time

Rec'd by: Fed Ex #1198591763 Date 11/26/91 Time 15:00
Rec'd by: Kathy Ortega Date 11/27 Time 9:30
Rec'd by: Date Time

* SEND RESULTS AND INVOICES TO RICK MOREN AT THE ABOVE DAMES & MOORE ADDRESS

Upon receipt of this form: KW
1. Inspect all samples.
2. Note any damaged containers.
3. Sign and date this form.
4. Send a FAX of this form to:
   RICK MOREN / DAMES & MOORE
   FAX # (916) 387-0802
5. Do not begin work until authorization is received from Dames & Moore by telephone.

LIST____ CHAIN OF CUSTODY

Project Name UCD/ LEHR
DOE Site Characterization

Project #

Clients Name;
Dames & Moore
8801 Folsom Blvd. Suite 200
Sacramento, California 95826
(916) 387-8800
Attention: Mr. Joe Niland

Signatures
Dames & Moore Gary Dickenson Date 11/25/91
Date
Sampler Gary Dickenson

Sample No.	S	W	Date	Time	# of Containers	Laboratory Number
UCD-10		C	11/25/91	10:45	10	
UCD-10B		C		10:30	10	
Trip blank		C			2	
UCD-11		C		14:00	10	
Trip blank		C			2	

Analyses Requested for All Samples Listed.

17 CAM Metals, Na, K, Mg, Ca
As, Cd, Pb, Se, Sb, Tl by GFAA
Detection limit for Tl = 1 ppb
Hg by CVAA
Rest of metals by ICP
Hexavalent Chromium, TDS,
Sulfate, Turbidity,
Chloride, Alkalinity.
Nitrates (as Nitrogen), COD,
Phosphate.
Formaldehyde.
608 - Organochlorine pesticides
625 - semi-volitile organic compounds.
624 - volitile organic compounds.
Gross alpha, Gross beta,
Strontium 90
Gamma-Emitters.
Tritium.

Relinquished by: Gary Dickenson Date 11-25-91 Time 16:15
Relinquished by: Date Time
Relinquished by: Date Time

Rec'd by: Fed. Ex. # 1118594145 0 Date 11/25/91 Time 16:15
Rec'd by: Cecil Robinson Date 11/26/91 Time 9:00
Rec'd by: Date Time

* SEND RESULTS AND INVOICES TO RICK MOREN AT THE ABOVE DAMES & MOORE ADDRESS (all samples OK)

[... IMPORTANT ...]

Upon receipt of this form:
1. Inspect all samples.
2. Note any damaged containers.
3. Sign and date this form.
4. Send a FAX of this form to:
   RICK MOREN / DAMES & MOORE
   FAX # (916) 387-0802
5. Do not begin work until authorization is received from Dames & Moore by telephone.

LIST____ CHAIN OF CUSTODY

Project Name UCD/ LEHR
DOE Site Characterization

Project # 10805-454-044

Clients Name;
Dames & Moore
8801 Folsom Blvd. Suite 200
Sacramento, California 95826
(916) 387-8800
Attention: Mr. Joe Niland

Signatures
Dames & Moore [signature] Date 11/18/91

Date

Sampler Gary Dickenson / [signature]

Sample No.	S	W	Date	Time	# of Containers	Laboratory Number
⊛ UCD-15		✓	11/18/91	11:05	11	
⊛ UCD-17		✓		13:45	11	
Trip blanks		✓			2	
UCD-20		✓		15:40	10	
Trip blanks		✓			2	
UCD-23		✓		11:00	10	
⊛ UCD-18		✓		12:45	11	
Trip blanks		✓			2	
UCD-16		✓		14:30	10	
UCD-21		✓		16:00	10	
Trip blanks		✓			2	

Analyses Requested for All Samples Listed.

17 CAM Metals, Na✓, K✓, Mg✓, Ca✓
✓As, Cd✓, Pb✓, Se✓, Sb✓, Tl✓ by GFAA
Detection limit for Tl = 1 ppb
Hg by CVAA
Rest of metals by ICP
Hexavalent Chromium✓, TDS✓,
✓Sulfate, Turbidity✓,
Chloride✓, Alkalinity✓
Nitrates (as Nitrogen)✓, COD✓,
Phosphate✓
Formaldehyde✓
✓608 - Organochlorine pesticides
✓625 - Semi-volitile organic compounds.
✓624 - volitile organic compounds.
Gross alpha✓, Gross beta✓,
Strontium 90✓
Gamma-Emitters✓
Tritium✓
⊛ Carbon-14 for UCD 15, 17, 18 only

Relinquished by: [signature] Date 11/18 Time 1730 Rec'd by: FED EX # 1198571461 Date 11-18 Time 1730
Relinquished by: Date Time Rec'd by: [signature] Date 11/19/91 Time 9:30
Relinquished by: Date Time Rec'd by: Date Time

* SEND RESULTS AND INVOICES TO RICK MOREN AT THE ABOVE DAMES & MOORE ADDRESS

All samples received

7C4
C4P
1198591413
(NR)

Upon receipt of this form:
1. Inspect all samples.
2. Note any damaged containers.
3. Sign and date this form.
4. Send a FAX of this form to:
   RICK MOREN / DAMES & MOORE
   FAX # (916) 387-0802
5. Do not begin work until authorization is received from Dames & Moore by telephone.

LIST____ CHAIN OF CUSTODY

Project Name UCD/ LEHR
DOE Site Characterization

Project #

Clients Name;
Dames & Moore
8801 Folsom Blvd. Suite 200
Sacramento, California 95826
(916) 387-8800
Attention: Mr. Joe Niland

Signatures
Dames & Moore [signature] Date 11/21/91

Date

Sampler [signature]

Sample No.	S	W	Date	Time	# of Containers	Laboratory Number
PCU		✓	11/21/91	9:05	10	
STPU		✓		10:30	10	
Trip blank		–			2	
PCD		✓		13:30	10	
PCD-B		✓		13:40	10	
Trip blank		✓			2	
PCU-F		✓		15:20	1	
STPC-F		✓		15:25	1	
PCD-F		✓		15:45	1	
PCD-B-F		✓		15:55	1	
Trip blank		✓			2	

No 608 → Broken

Analyses Requested for All Samples Listed.

17 CAM Metals, Na, K, Mg, Ca
As, Cd, Pb, Se, Sb, Tl by GFAA
Detection limit for Tl = 1 ppb
Hg by CVAA
Rest of metals by ICP
Hexavalent Chromium, TDS,
Sulfate, Turbidity,
Chloride, Alkalinity.
Nitrates (as Nitrogen), COD,
Phosphate.
Formaldehyde.
608 - Organochlorine pesticides
625-semi-volitile organic compounds.
624 - volitile organic compounds.
Gross alpha, Gross beta,
Strontium 90
Gamma-Emitters.
Tritium.
(*) xxx-F run for metals as above (17 CAM metals, ...).

Relinquished by: [signature] Date 11/21/91 Time 16:45
Relinquished by: Date Time
Relinquished by: Date Time

Rec'd by: FedEx # 1198591413 Date 11/21/91 Time 16:45
Rec'd by: [signature] Date 11/22/91 Time 9:30
Rec'd by: Date Time

* SEND RESULTS AND INVOICES TO RICK MOREN
AT THE ABOVE DAMES & MOORE ADDRESS

CHAIN-OF-CUSTODY SOIL SAMPLES

PHASE II SITE CHARACTERIZATION
LEHR ENVIRONMENTAL RESTORATION

D7'

LIST 4 CHAIN OF CUSTODY

Project Name UCD/ LEHR FACILITY
PHASE II Site Characterization

Project # 10805-454-044
W.I. 62 XX

Clients Name;
Dames & Moore
9300 Tech Center Drive, Ste 100
Sacramento, California 95826
(916)364-8698
Attention: Mr. Joe Niland
cc. Ms. Alice Tackett, UCD/LEHR FACILITY

Signatures:
Dames & Moore — Date 2/20/90
UCD — Date 2/20/90
DOE Rep. — Date 2/20/90
Sampler — Richard Moore for DOE

Sample No.	S	W	Date	Time	# of Containers	Laboratory Number
PS-C-20B-0.0	x		2/20		1	
PS-C-20C-13.0	x				1	
PS-D-32A-0.0	x				1	
PS-D-32C 18.0	x				1	
PS-D-4A-0.0	x				1	
PS-D-4C 18.0	x				1	
PS-D-21A-0.0	x				1	
PS-D-21C 18.0	x				1	
PS D-13A -0.0	x				1	
PS D-13C -18.0	x				1	
PS D 13B -0.0	x				1	
PS H5A -0.0	x				1	
PS H5C -18.0	x				1	
PS-I3A -0.0	x				1	
PS-I3C 18.0	x				1	

Analyses Requested for All Samples Listed.

Chlordane
NITRATES (As Nitrogen)
~~Radiologic Scan~~
Gross Alpha
Gross Beta
Tritium
Strontium 90
Gamma Spec Report Radionuclides
Ruthenium 106
Thorium 232
Cesium 137
Potassium 40

Additional Requests

DHL

Relinquished by: [signature] Date 2/20/90 Time 2:45 — Rec'd by: 183469915 Date 2/20 Time
Relinquished by: Date Time — Rec'd by: Kathy Ortiga Date 2/21/90 Time 10:15
Relinquished by: Date Time — Rec'd by: Date Time

Jea

LIST 4 CHAIN OF CUSTODY

Project Name UCD/ LEHR FACILITY
PHASE II Site Characterization

Project # 10805-454-044
W.I. 62 XX

Clients Name;
Dames & Moore
9300 Tech Center Drive, Ste 100
Sacramento, California 95826
(916)364-8698
Attention: Mr. Joe Niland
cc. Ms. Alice Tackett, UCD/LEHR FACILITY

Signatures:
Dames & Moore [signature] Date
UCD [signature] Date 2/21/90
DOE Rep. [signature] for DOE Date 2/21/90
Sampler Richard Moren

	Sample No.	S	W	Date	Time	# of Containers	Laboratory Number
X	PS-J25A-0.0	X		2/21		1	
X	PS-J25C-18.0	X				1	
	PS-J-9A-0.0	X				1	
	PS-J-9C-18.0	X				1	
	PS-J22A-0.0	X				1	
	PS-J22C-18.0	X				1	
	PS-J22B-0.0	X				1	
X	PS-K27A-0.0	X				1	
X	PS-K27C-18.0	X				1	
X	PS K23A-0.0	X				1	
X	PS K23C-18.0	X				1	
	PS L19A-0.0	X				1	
	PS L19C-18.0	X				1	
	PS L-2A-0.0	X				1	
	PS L-2C-18.0	X				1	
X	PS L-1A-0.0	X				1	
X	PS L-1C-18.0	X				1	
X	PS L-1B-0.0	X				1	

* See Additional Requests

Analyses Requested for All Samples Listed.

Chlordane
Nitrates (As Nitrogen)
~~Radiologic Scan~~
Gross Alpha
Gross Beta
Tritium
Strontium 90
Gamma Spec Report Positive Peaks Including
Radium 226
Thorium 232
Cesium 137
Potassium 40

Additional Requests
* CARBON 14 As Marked w/ *

Relinquished by: [signature] Date 2/21 Time 2:30 Rec'd by: Fed x Airbill # 6184799272 Date Time
Relinquished by: Date Time Rec'd by: Date Time
Relinquished by: Date Time Rec'd by: [signature] CEP, Inc Date 2/22 Time 10:00 AM

LIST 4 CHAIN OF CUSTODY

Project Name UCD/ LEHR FACILITY
PHASE II Site Characterization

Project # 10805-454-044
W.S. 62 XX

Clients Name;
Dames & Moore
9300 Tech Center Drive, Ste 100
Sacramento, California 95826
(916)364-8698
Attention: Mr. Joe Niland
cc. Ms. Alice Tackett, UCD/LEHR FACILITY

Signatures:
Dames & Moore [signature] Date 2/21
UCD Alice Tackett Date 2/21/90
DOE Rep. Alice Tackett for DOE Date 2/21/90
Sampler Richard Moren

See Additional Requests

Sample No.	S	W	Date	Time	# of Containers	Laboratory Number
X PS-M17A-0.0	X		2/21		1	
X PS-M17C-18.0	X				1	
PS-M14A-0.0	X				1	
PS M14C 18.0	X				1	
PS M29A-0.0	X				1	
PS M29C-18.0	X				1	

Analyses Requested for All Samples Listed.

Chlordane
NITRATES (As Nitrogen)
~~Phenologic Scan~~
Gross Alpha
Gross Beta
Tritium
Strontium 90
Gamma Spec Report Positive Peaks Including
Radium 226
Thorium 232
Cesium 137
Potassium 40

Additional Requests
* CARBON 14 As Marked w/ *

Relinquished by: [signature] Date 2/21 Time 2:30 Rec'd by: Fed X Air-bill 6184799272 Date 2/21 Time 2:00
Relinquished by: Date Time Rec'd by: Date Time
Relinquished by: Date Time Rec'd by: [signature] CET, INC. Date 2/22 Time 10:00 AM

LIST 4 CHAIN OF CUSTODY

Project Name UCD/ LEHR FACILITY
PHASE II Site Characterization

Project # 10805-454-044
W.S. 62 XX

Clients Name;
Dames & Moore
9300 Tech Center Drive, Ste 100
Sacramento, California 95826
(916)364-8698
Attention: Mr. Joe Niland
cc. Ms. Alice Tackett, UCD/LEHR FACILITY

Signatures:
Dames & Moore [signature] Date 2/21
UCD Alice Tackett Date 2/21/90
DOE Rep. Alice Tackett for DOE Date 2/21/90
Sampler Richard Moren

See Additional Requests

Sample No.	S	W	Date	Time	# of Containers	Laboratory Number
X PS-M17A-0.0	X		2/21		1	
X PS-M17C-18.0	X				1	
PS-M14A-0.0	X				1	
PS M14C 18.0	X				1	
PS M29A-0.0	X				1	
PS M29C-18.0	X				1	

Analyses Requested for All Samples Listed.

Chlordane
NITRATES (As Nitrogen)
~~Phenologic Scan~~
Gross Alpha
Gross Beta
Tritium
Strontium 90
Gamma Spec Report Positive Peaks Including
Radium 226
Thorium 232
Cesium 137
Potassium 40

Additional Requests
* CARBON 14 As Marked w/ *

Relinquished by: [signature] Date 2/21 Time 2:30 Rec'd by: Fed X Air-bill 6184799272 Date 2/21 Time 2:00
Relinquished by: Date Time Rec'd by: Date Time
Relinquished by: Date Time Rec'd by: [signature] CET, INC. Date 2/22 Time 10:00 AM

Fedex

LIST 4 CHAIN OF CUSTODY

Pg 1/2

Project Name UCD/ LEHR FACILITY
PHASE II Site Characterization

Project # 10805-454-044
U.I. 62xx

Clients Name;
Dames & Moore
9300 Tech Center Drive, Ste 100
Sacramento, California 95826
(916)364-8698
Attention: Mr. Joe Niland
cc. Ms. Alice Tackett, UCD/LEHR FACILITY

Signatures:
Dames & Moore — Date 2/22/90
UCD — Alice Tackett — Date 2/22/90
DOE Rep. — Alice Tackett for DOE — Date 2/23/90
Sampler — Rick Murren

Sample No.	S	W	Date	Time	# of Containers	Laboratory Number
PS E6A -0.0	X		2/22		1	
PS E6C -18.0	X				1	
PS E24A 0.0	X				1	
PS E24C 18.0	X				1	
PS E24B 0.0	X				1	
PS E10A 0.0	X				1	
PS E10C 18.0	X				1	
PS F26A 0.0	X				1	
PS F26C 18.0	X				1	
PS F21A 0.0	X				1	
PS F21C 18.0	X				1	
PS G25A 0.0	X				1	
PS G25C 18.0	X				1	
PS G22A 0.0	X				1	
PS G22C 18.0	X				1	
PS G22B 0.0	X				1	

Analyses Requested for All Samples Listed.

Chlordane
Nitrates (As Nitrogen)
~~Pesticide Scan~~
Gross - Alpha
Gross - Beta
Tritium
Strontium 90
Gamma Spec. Report Positive Peaks Including:
Radium 226
Thorium 232
Cesium 137
Potassium 40

Additional Requests

Relinquished by: [signature] Date 2/22 Time 3:13 — Rec'd by: Fed x Airbill 6184799261 Date 2/22 Time 3:13
Relinquished by: Date Time — Rec'd by: Date Time
Relinquished by: Date Time — Rec'd by: Date Time

LIST [illegible] CHAIN OF CUSTODY

Pg 2/2

Project Name UCD/ LEHR FACILITY
PHASE II Site Characterization

Project # 10805-454-044
W.I. 62 XX

Clients Name;
Dames & Moore
9300 Tech Center Drive, Ste 100
Sacramento, California 95826
(916)364-8698
Attention: Mr. Joe Niland
cc. Ms. Alice Tackett, UCD/LEHR FACILITY

Signatures:
Dames & Moore [signature] Date 2/22/90
UCD [signature] Date 2/22/90
DOE Rep. [signature] for DOE Date 2/22/90
Sampler Rick Moren

Organic Sludge →

Sample No.	S	W	Date	Time	# of Containers	Laboratory Number
LS 1			2/22			
OF 1	X		2/22			

Analyses Requested for All Samples Listed.

~~Chlordane~~
NITRATES As Nitrogen
~~[illegible]~~
17 CAM METALS
Hexavalent Chromium
Formaldehyde
Organochlorine Pesticides (EPA 8080)
Volitile Organic Compounds (EPA 8240)
Semi Volitile Organic Compounds (EPA 8270)
Gross Alpha
Gross Beta
Tritium
Strontium 90

Additional Requests
Gamma Emitters Report Positive Peaks including
Radium 226
Thorium 232
Cesium 137
Potassium 40

Relinquished by: [signature] Date 2/22 Time 3:15
Relinquished by: Date Time
Relinquished by: Date Time

Rec'd by: Fen x Ar-B.A 6184799261 Date 2/22 Time 3:15
Rec'd by: Date Time
Rec'd by: Date Time

LIST____ CHAIN OF CUSTODY

Project Name UCD/ LEHR FACILITY
PHASE II Site Characterization

Project #

Clients Name;
Dames & Moore
9300 Tech Center Drive, Ste 100
Sacramento, California 95826
(916)364-8698
Attention: Mr. Joe Niland
cc. Ms. Alice Tackett, UCD/LEHR FACILITY

Signatures:
Dames & Moore — Mark Eisenberg — Date 3/8/90
UCD — Alice Tackett — Date 3/8/90
DOE Rep. — Alice Tackett for DOE — Date 3/8/90
Sampler — Rich Morsen / Mark Eisenberg

Sample No.	S	W	Date	Time	# of Containers	Laboratory Number
SB-16-10.0-B			3/8/90	12:00		
SB-16-22.0-C				12:15		
SB-17-9.0-A				12:40		
SB-17-22.0-C				12:50		
SB-18-10.0-A				1:00		
SB-18-22.0-C				1:10		
SB-19-0.0 A						
SB-19-7.5 A						
SB 19-10.0 A						
SB 19-0.0 B						

Analyses Requested for All Samples Listed.

NITRATES AS NITROGEN
17 CAM METALS
HEXAVALENT CHROMIUM
FORMALDEHYDE
ORGANOCHLORINE PESTICIDES (8080)
VOLATILE ORGANIC COMPOUNDS (8240)
SEMI-VOLATILE ORGANIC COMPOUNDS (8270)
GROSS - ALPHA
GROSS - BETA
TRITIUM
STRONTIUM 90
GAMMA - EMITTERS including:
RADIUM - 226
THORIUM - 232
CESIUM - 137
POTASSIUM - 40
Diesel
Kerosene

Relinquished by; [signature] Date 3/8 Time 3:30 Rec'd by; Fed X 6184799202 Date Time
Relinquished by; Date Time Rec'd by; Cecilia Rodriguez Date 3/9/90 Time 9:30
Relinquished by; Date Time Rec'd by; Date Time

LIST____ CHAIN OF CUSTODY

Project Name UCD/ LEHR FACILITY
PHASE II Site Characterization

Project #

Clients Name;
Dames & Moore
9300 Tech Center Drive, Ste 100
Sacramento, California 95826
(916)364-8698
Attention: Mr. Joe Niland
cc. Ms. Alice Tackett, UCD/LEHR FACILITY

Signatures:
Dames & Moore — Date 3/9/90
UCD — Date 3/9/90
DOE Rep. — Date 3/9/90
Sampler — Rich Morin

Sample No.	S	W	Date	Time	# of Containers	Laboratory Number
SB 22-0.8A	X		3/9		1	
SB 22-2.5A	X				1	
SB 22-5.0A	X				1	
SB 22-10.0A	X				1	
SB 22-15.0A	X				1	
SB 22 20.0A	X				1	

Analyses Requested for All Samples Listed.

NITRATES AS NITROGEN
17 CAM METALS
HEXAVALENT CHROMIUM
FORMALDEHYDE
ORGANOCHLORINE PESTICIDES (8080)
VOLATILE ORGANIC COMPOUNDS (8240)
SEMI-VOLATILE ORGANIC COMPOUNDS (8270)
GROSS - ALPHA
GROSS - BETA
TRITIUM
STRONTIUM 90
GAMMA - EMITTERS including:
RADIUM - 226
THORIUM - 232
CESIUM - 137
POTASSIUM - 40

Fed X

Relinquished by; [signature] Date 3/9 Time 3/30 Rec'd by; 6184799180 Date 3/9 Time 3/30
Relinquished by; Date Time Rec'd by; Cecilia Rodriguez Date 3/12/90 Time 8:00
Relinquished by; Date Time Rec'd by; Date Time

— 505-982-928°

LIST____ **CHAIN OF CUSTODY**

Project Name UCD/ LEHR FACILITY
PHASE II Site Characterization

Project #

Clients Name;
Dames & Moore
9300 Tech Center Drive, Ste 100
Sacramento, California 95826
(916)364-8698
Attention: Mr. Joe Niland
cc. Ms. Alice Tackett, UCD/LEHR FACILITY

Signatures:
Dames & Moore — Date 3/9/90
UCD — Date 3/9/90
DOE Rep. — Date 3/9/90
Sampler — Rick Moren

Sample No.	S	W	Date	Time	# of Containers	Laboratory Number
SB 20-0.0A	X		3/9	9:35	1	
SB 20-2.5A	X			9:45	1	
SB 20-5.0A	X			9:55	1	
SB 20-10.0A	X			10:05	1	
SB 21-2.5A	X			11:50	1	
SB 21-5.0A	X			11:55	1	
SB 21-7.5A	X			12:20	1	
SB 21-10.0A	X			11:30	1	
SB 21-10.0B	X			11:35	1	
SB 19A-0.0A	X			12:50	1	
~~SB-22~~					1	
~~SB-22~~						
~~SB-22~~						
~~SB-22~~						
~~SB-22~~						
~~SB-22~~						

Analyses Requested for **All** Samples Listed.

NITRATES AS NITROGEN
17 CAM METALS
HEXAVALENT CHROMIUM
FORMALDEHYDE
ORGANOCHLORINE PESTICIDES (8080)
VOLATILE ORGANIC COMPOUNDS (8240)
SEMI-VOLATILE ORGANIC COMPOUNDS (8270)
GROSS - ALPHA
GROSS - BETA
TRITIUM
STRONTIUM 90
GAMMA - EMITTERS including:
RADIUM - 226
THORIUM - 232
CESIUM - 137
POTASSIUM - 40
Diesel
Kerosene
Fed X

Relinquished by: [signature] Date 3/9/90 Time 3:30 Rec'd by: 6184799180 Date 3/9 Time 3:30
Relinquished by: ____ Date ____ Time ____ Rec'd by: [signature] Date 3/10 Time 8:00
Relinquished by: ____ Date ____ Time ____ Rec'd by: ____ Date ____ Time ____

Fed Lab

LIST____ CHAIN OF CUSTODY

Project Name UCD/ LEHR FACILITY
PHASE II Site Characterization

Project #

Clients Name;
Dames & Moore
9300 Tech Center Drive, Ste 100
Sacramento, California 95826
(916)364-8698
Attention: Mr. Joe Niland
cc. Ms. Alice Tackett, UCD/LEHR FACILITY

Signatures:
Dames & Moore — Date 3/12
UCD — Date 3/12/90
DOE Rep. — Date 3/12/90
Sampler — Rich Morgen

Sample No.	S	W	Date	Time	# of Containers	Laboratory Number
SB 23 - 0.5 A	X		3/12		1	
SB 23 - 2.0 A	X				1	
SB 23 5.0 A	X				1	
SB 23 - 12.0 A	X				1	
~~SB 23 15.0 A~~	~~X~~				~~1~~	
SB 23 20.A	X				1	
SB 23 12.0 B	X				1	
SB 23 30.0 A	X				1	
SB 22 30.0 A	X				1	
SB 24 1.0 A	X				1	
SB 24 2.5 A	X				1	
SB 24 5.0 A	X				1	
SB 24 10.0 A	X				1	
SB 24 20.0 A	X				1	
SB 24 30.0 A	X				1	
SB 24 30.0 B	X				1	

Analyses Requested for All Samples Listed.

NITRATES AS NITROGEN
17 CAM METALS
HEXAVALENT CHROMIUM
FORMALDEHYDE
ORGANOCHLORINE PESTICIDES (8080)
VOLATILE ORGANIC COMPOUNDS (8240)
SEMI-VOLATILE ORGANIC COMPOUNDS (8270)
GROSS - ALPHA
GROSS - BETA
TRITIUM
STRONTIUM 90
GAMMA - EMITTERS including:
RADIUM - 226
THORIUM - 232
CESIUM - 137
POTASSIUM - 40

Relinquished by; [signature] Date 3/12 Time 3/30 Rec'd by; Fed X 6184799176 Date 3/12 Time 330
Relinquished by; ____ Date ____ Time ____ Rec'd by; Cecilia Rodriguez Date 3/13/90 Time 9:00
Relinquished by; ____ Date ____ Time ____ Rec'd by; ____ Date ____ Time ____

Fed Exp

LIST____ CHAIN OF CUSTODY

Project Name UCD/ LEHR FACILITY
PHASE II Site Characterization

Project #

Clients Name;
Dames & Moore
9300 Tech Center Drive, Ste 100
Sacramento, California 95826
(916)364-8698
Attention: Mr. Joe Niland
cc. Ms. Alice Tackett, UCD/LEHR FACILITY

Signatures:
Dames & Moore [signature] Date 3/13/90
UCD Alice Tackett Date 3/13/90
DOE Rep. Alice Tackett for DOE Date 3/13/90
Sampler

Sample No.	S	W	Date	Time	# of Containers	Laboratory Number
SB 25 5.0A			3/13		1	
SB 25 10.0A					1	
SB 25 15.0A					1	
SB 25 20.0A					1	
this one → SB 25 25.0A					1	
SB 25 30.0A					1	
SB 26 5.0A					1	
SB 26 10.0A					1	
SB 26 15.0A					1	
SB 26 2.5 A					1	
SB 26 25.0A					1	
SB 26 30.0A					1	
SB 26 15.0B					1	
SB 27 5.0 A					1	
SB 27 10.0A					1	
SB 27 15.0A					1	
SB 27 20.0A					1	
This one → SB 25 25.0A SB 27 25.0A					1	
SB 27 30.0A					1	

Analyses Requested for All Samples Listed.

NITRATES AS NITROGEN
17 CAM METALS
HEXAVALENT CHROMIUM
FORMALDEHYDE
ORGANOCHLORINE PESTICIDES (8080)
VOLATILE ORGANIC COMPOUNDS (8240)
SEMI-VOLATILE ORGANIC COMPOUNDS (8270)
GROSS - ALPHA
GROSS - BETA
TRITIUM
STRONTIUM 90
GAMMA - EMITTERS including:
RADIUM - 226
THORIUM - 232
CESIUM - 137
POTASSIUM - 40

Fed X

Relinquished by; [signature] Date 3/13/90 Time 3:20 Rec'd by; 6184799165 Date 3/13/90 Time 3:30
Relinquished by; Date Time Rec'd by; Cecilia Lodge Date 3/14/90 Time 12:45
Relinquished by; Date Time Rec'd by; Date Time

Received 2 Samples marked SB 25 25.0A 3/13
No sample for ~~SB 27 25.0~~

Fed Ex

LIST____ CHAIN OF CUSTODY

Project Name UCD/ LEHR FACILITY
PHASE II Site Characterization

Project #

Clients Name;
Dames & Moore
9300 Tech Center Drive, Ste 100
Sacramento, California 95826
(916)364-8698
Attention: Mr. Joe Niland
cc. Ms. Alice Tackett, UCD/LEHR FACILITY

Signatures:
Dames & Moore [signature] Date 3/27
UCD [signature] Date 3/28/90
DOE Rep. [signature] Date 3/28/90
Sampler R. MOREN

Sample No.	S	W	Date	Time	# of Containers	Laboratory Number
~~[illegible]~~	~~X~~		~~3/27~~	~~1245~~	~~[illegible]~~	
MW 15. 10.0A	X		3/27	1 30	1	
MW 15. 15.0A	X		3/27		1	
MW 15 20.0A	X				1	
~~[illegible]~~	~~X~~				~~[illegible]~~	

Analyses Requested for
All Samples Listed.

NITRATES AS NITROGEN
17 CAM METALS ✓
HEXAVALENT CHROMIUM
FORMALDEHYDE ✓
ORGANOCHLORINE PESTICIDES (8080)
VOLATILE ORGANIC COMPOUNDS (8240) ✓
SEMI-VOLATILE ORGANIC COMPOUNDS (8270) ✓
GROSS - ALPHA ✓
GROSS - BETA ✓
TRITIUM
STRONTIUM 90
GAMMA - EMITTERS including:
RADIUM - 226
THORIUM - 232
CESIUM - 137
POTASSIUM - 40

Fed X

Relinquished by; [signature] Date 3/27/90 Time 5:00 Rec'd by; 6184799132 Date 3/27/90 Time 5:00
Relinquished by; Date Time Rec'd by; Cecilia Radu Date 3/27 Time 9:15
Relinquished by; Date Time Rec'd by; Date Time

LIST 2 CHAIN OF CUSTODY

Project Name UCD/ LEHR FACILITY
PHASE II Site Characterization

Project #

Clients Name;
Dames & Moore
9300 Tech Center Drive, Ste 100
Sacramento, California 95826
(916)364-8698
Attention: Mr. Joe Niland
cc. Ms. Alice Tackett, UCD/LEHR FACILITY

Signatures:
Dames & Moore — Date 3/29/90
UCD — Date 3/29/90
DOE Rep. — Date
Sampler — Rick Moren

Sample No.	S	W	Date	Time	# of Containers	Laboratory Number
MW15 25.0A	X		3/29/90		1	
MW15 30.0A	X				1	
MW15 35.0A	X				1	
MW15 35.0B	X				1	

Analyses Requested for All Samples Listed.

NITRATES AS NITROGEN
17 CAM METALS ✓
HEXAVALENT CHROMIUM
FORMALDEHYDE
ORGANOCHLORINE PESTICIDES (8080)
VOLATILE ORGANIC COMPOUNDS (8240) ✓
SEMI-VOLATILE ORGANIC COMPOUNDS (8270)
GROSS - ALPHA
GROSS - BETA
TRITIUM
STRONTIUM 90
GAMMA - EMITTERS including:
RADIUM - 226
THORIUM - 232 ✓
CESIUM - 137 ✓
POTASSIUM - 40 ✓

Fd X

Relinquished by: Date 3/29/90 Time Rec'd by: 6996596805 Date Time
Relinquished by: Date Time Rec'd by: Cecilia Rodriguez Date 3/30/90 Time 9:20 AM
Relinquished by: Date Time Rec'd by: Date Time

Fed
4/9

LIST____ CHAIN OF CUSTODY

Project Name UCD/ LEHR FACILITY
PHASE II Site Characterization

Project #

Clients Name;
Dames & Moore
9300 Tech Center Drive, Ste 100
Sacramento, California 95826
(916)364-8698
Attention: Mr. Joe Niland
cc. Ms. Alice Tackett, UCD/LEHR FACILITY

Signatures:
Dames & Moore [signature] Date
UCD [signature] Date 4/6/90
DOE Rep. [signature] Date 4/6/90
Sampler R. Morris

Sample No.	S	W	Date	Time	# of Containers	Laboratory Number
UCD 16-1.5A	X		4/6/90		2	
UCD 17-5.0A	X		1		1	
UCD 17-10.0A	X		1		1	

Analyses Requested for
All Samples Listed.

NITRATES AS NITROGEN
17 CAM METALS
HEXAVALENT CHROMIUM
FORMALDEHYDE
ORGANOCHLORINE PESTICIDES (8080)
VOLATILE ORGANIC COMPOUNDS (8240)
SEMI-VOLATILE ORGANIC COMPOUNDS (8270)
GROSS - ALPHA
GROSS - BETA
TRITIUM
STRONTIUM 90
GAMMA - EMITTERS including:
RADIUM - 226
THORIUM - 232
CESIUM - 137
POTASSIUM - 40

Relinquished by; [signature] Date 4/6/90 Time 5:00 Rec'd by; Fed X 6996596702 Date 4/6/90 Time 5:00
Relinquished by; Date Time Rec'd by; [signature] Date 4/9/90 Time 8:00
Relinquished by; Date Time Rec'd by; Date Time

Fed
cpf

LIST 2 CHAIN OF CUSTODY

Project Name UCD/ LEHR FACILITY
PHASE II Site Characterization

Project #

Clients Name;
Dames & Moore
9300 Tech Center Drive, Ste 100
Sacramento, California 95826
(916)364-8698
Attention: Mr. Joe Niland
cc. Ms. Alice Tackett, UCD/LEHR FACILITY

Signatures:
Dames & Moore [signature] Date 4/3/90
UCD [signature] Date 4/3/90
DOE Rep. [signature] Date 4/3/90
Sampler

Sample No.	S	W	Date	Time	# of Containers	Laboratory Number
UCD 16 5.0A	X		4/3/90		1	
UCD 16 10.0A	X				1	
UCD 16 15.0A	X				1	
UCD 16 30.0A	X				1	
UCD 16 40.0A	X				1	

Analyses Requested for All Samples Listed.

NITRATES AS NITROGEN
17 CAM METALS
HEXAVALENT CHROMIUM
FORMALDEHYDE
ORGANOCHLORINE PESTICIDES (8080)
VOLATILE ORGANIC COMPOUNDS (8240)
SEMI-VOLATILE ORGANIC COMPOUNDS (8270)
GROSS - ALPHA
GROSS - BETA
TRITIUM
STRONTIUM 90
GAMMA - EMITTERS including:
RADIUM - 226
THORIUM - 232
CESIUM - 137
POTASSIUM - 40

Rd X

Relinquished by; [signature] Date 4/3/90 Time 3:20 Rec'd by; 6996396713 Date 4/3/90 Time 3:10
Relinquished by; Date Time Rec'd by; Cecilia Rodriguez Date 4/4/90 Time 9:20
Relinquished by; Date Time Rec'd by; Date Time

F.U.
EXP.

LIST 2 CHAIN OF CUSTODY

Project Name UCD/ LEHR FACILITY
PHASE II Site Characterization

Project #

Clients Name;
Dames & Moore
9300 Tech Center Drive, Ste 100
Sacramento, California 95826
(916)364-8698
Attention: Mr. Joe Niland
cc. Ms. Alice Tackett, UCD/LEHR FACILITY

Signatures:
Dames & Moore — Date 4/9/90
UCD — Date 4/11/90
DOE Rep. (TETC) — Date 4/9/90
Sampler Rick MOREN

Sample No.	S	W	Date	Time	# of Containers	Laboratory Number
UCD 17-20A	X		4/9/90		1	
UCD 17-20B	X				1	
UCD 17-30.0A	X				1	
UCD 17-40.0A	X				1	

Analyses Requested for All Samples Listed.

NITRATES AS NITROGEN ✓
17 CAM METALS ✓
HEXAVALENT CHROMIUM ✓
FORMALDEHYDE ✓
ORGANOCHLORINE PESTICIDES (8080) ✓
VOLATILE ORGANIC COMPOUNDS (8240) ✓
SEMI-VOLATILE ORGANIC COMPOUNDS (8270) ✓
GROSS - ALPHA ✓
GROSS - BETA ✓
TRITIUM ✓
STRONTIUM 90 ✓
GAMMA - EMITTERS including:
RADIUM - 226 ✓
THORIUM - 232 ✓
CESIUM - 137 ✓
POTASSIUM - 40 ✓

Fed X

Relinquished by: Date 4/9/90 Time
Rec'd by: 6977396680 Date 4/9/90 Time 10:00
Relinquished by: Date Time
Rec'd by: Date 4/10 Time 10
Relinquished by: Date Time
Rec'd by: Date Time

LIST 2 CHAIN OF CUSTODY

Project Name UCD/ LEHR
DOE Site Characterization

Project # 10805-454-044

Clients Name;
Dames & Moore
9300 Tech Center Drive, Ste 100
Sacramento, California 95826
(916)364-8698
Attention: Mr. Joe Niland

Signatures
Dames & Moore — Date 9/26/90
UCD — Date
[redacted]elle — Date 9/26/90
Sampler Jim Brack

Sample No.	S	W	Date	Time	# of Containers	Laboratory Number
UCD-19-[illegible]A	X		9/26/90	0900	1	
UCD-19-20A	X			0957	1	
UCD-19-40A	X			1310	1	
UCD-19-50B	X			1341	1	

5011

Analyses Requested for All Samples Listed.

17 Cam Metals ✓
Hex Chrom ✓
Nitrate as N ✓
Formaldehyde ✓
EPA 8080 ✓
EPA 8240 ✓
EPA 8270 ✓
Gross Alpha ✓
Gross Beta ✓
Tritium ✓
Strontium 90 ✓
Gamma Emitters ✓

Additional Requests

Relinquished by; Date 9/26/90 Time 1600
Relinquished by; Date Time
Relinquished by; Date Time

Rec'd by; Kathy Ortega Date 9-27-90 Time 9:30
Rec'd by; Date Time
Rec'd by; Date Time

FED
9/28

LIST 2 CHAIN OF CUSTODY

Project Name UCD/ LEHR
DOE Site Characterization

Project # 10805-454-044

Clients Name; DOE
Dames & Moore
9300 Tech Center Drive, Ste 100
Sacramento, California 95826
(916)364-8698
Attention: Mr. Joe Niland

Signatures
Dames & Moore — Date 9/27/90
UCD — Date
Battelle — Date 9/27/90
Sampler — Jim Brake

Sample No.	S	W	Date	Time	# of Containers	Laboratory Number
UCD-19-70A	X		9/27/90	0840	1	
UCD-19-73A	X		9/27/90	1000	1	
UCD-19-70B	X		9/27/90	0840	1	

Analyses Requested for All Samples Listed.

- 1, CAM Metals
- Hex. Chrom.
- Nitrate as N
- Formaldehyde
- EPA 8080
- EPA 8240
- EPA 8270
- Gross Alpha
- Gross Beta
- Tritium
- Strontium 90
- Gamma emitters

Additional Requests

Relinquished by; Date 9/27/90 Time 1645 — Rec'd by; Date 9-28 Time 9:30
Relinquished by; Date Time — Rec'd by; Date Time
Relinquished by; Date Time — Rec'd by; Date Time

Sacramento, CA 95826

Fed cntp.

LIST 2 CHAIN OF CUSTODY

Project Name UCD/ LEHR FACILITY
PHASE II Site Characterization

Project # 10805-454-044

Clients Name; D.O.E
Dames & Moore
9300 Tech Center Drive, Ste 100
Sacramento, California 95826
(916)364-8698
Attention: Mr. Joe Niland
cc. Ms. Alice Tackett, UCD/LEHR FACILITY

Signatures:
Dames & Moore [signature] Date 10/2/90
UCD Date
DOE Rep. [signature] Date 10/2/90
Sampler Rick MOREN

Sample No.	S	W	Date	Time	# of Containers	Laboratory Number
UCD 18 5.0A	X		10/2		1	
UCD 18 20.0A	X		10/2		1	
UCD 18 35.0A	X		10/2		1	
UCD 18 45.0A	X		10/2		1	
UCD 18 55.0A	X		10/2		1	
UCD 18 65.0A	X		10/2		1	

Analyses Requested for All Samples Listed.

NITRATES AS NITROGEN
17 CAM METALS ✓
HEXAVALENT CHROMIUM ✓
FORMALDEHYDE ✓
ORGANOCHLORINE PESTICIDES (8080)
VOLATILE ORGANIC COMPOUNDS (8240)
SEMI-VOLATILE ORGANIC COMPOUNDS (8270)
GROSS - ALPHA ✓
GROSS - BETA ✓
TRITIUM ✓
STRONTIUM 90 ✓
GAMMA - ✓ EMITTERS including:
RADIUM - 226
THORIUM - 232
CESIUM - 137
POTASSIUM - 40

Fed x 6996396654

Relinquished by; [signature] Date 10/2 Time 17:15 Rec'd by; Date 10/2 Time
Relinquished by; Date Time Rec'd by; C Rodney Date 10/3 Time 9:30
Relinquished by; Date Time Rec'd by; [signature] Date Time

FUT
exl
[illegible]

CEP

1-505-982-9841

LIST 2 CHAIN OF CUSTODY

Project Name UCD/ LEHR FACILITY
PHASE II Site Characterization

Project # 10 805-454-044

Clients Name;
Dames & Moore
9300 Tech Center Drive, Ste 100
Sacramento, California 95826
(916)364-8698
Attention: Mr. Joe Niland
cc. Ms. Alice Tackett, UCD/LEHR FACILITY

Signatures:
Dames & Moore [signature] Date 10/5/90
~~UCD~~ Date
DOE Rep. [signature] Date 10/5/90
Sampler Rich Moren

Sample No.	S	W	Date	Time	# of Containers	Laboratory Number
UCD 20 0.0 A	X		10/5		1	
UCD 20 15.0 A	X				1	
UCD 20 25.0 A	X				1	
UCD 20 35.0 A	X				1	
UCD 20 50.0 A	X				1	
UCD 20 65.0 A	X				1	
UCD 20 65.0 B	X				1	

Analyses Requested for All Samples Listed.

NITRATES AS NITROGEN
17 CAM METALS
HEXAVALENT CHROMIUM
FORMALDEHYDE
ORGANOCHLORINE PESTICIDES (8080)
VOLATILE ORGANIC COMPOUNDS (8240)
SEMI-VOLATILE ORGANIC COMPOUNDS (8270)
GROSS - ALPHA
GROSS - BETA
TRITIUM
STRONTIUM 90
GAMMA - EMITTERS including:
RADIUM - 226
THORIUM - 232
CESIUM - 137
POTASSIUM - 40

Relinquished by; [signature] Date 10/5 Time Rec'd by; Fed X 6184799143 Date 10/5 Time
Relinquished by; Date Time Rec'd by; [signature] Date 10/8 Time 2:30
Relinquished by; Date Time Rec'd by; Date Time

Please send Confirmation of Reciept to Joe Niland

LIST 2 CHAIN OF CUSTODY

Project Name UCD/ LEHR FACILITY
PHASE II Site Characterization

Project #

Clients Name;
Dames & Moore
9300 Tech Center Drive, Ste 100
Sacramento, California 95826
(916)364-8698
Attention: Mr. Joe Niland
cc. Ms. Alice Tackett, UCD/LEHR FACILITY

Signatures:
Dames & Moore — Date 10/10/90
UCD — Date
DOE Rep. — Date 10-10-90
Sampler — Rich Moren

Sample No.	S	W	Date	Time	# of Containers	Laboratory Number
UCD 21 0.0 A	X		10/10		1	
UCD 21 15.0 A	X				1	
UCD 21 25.0 A	X				1	
UCD 21 35.0 A	X				1	
UCD 21 50.0 A	X				1	
UCD 21 60.0 A	X				1	

Analyses Requested for All Samples Listed.

- NITRATES AS NITROGEN ✓
- 17 CAM METALS ✓
- HEXAVALENT CHROMIUM ✓
- FORMALDEHYDE ✓
- ORGANOCHLORINE PESTICIDES (8080) ✓
- VOLATILE ORGANIC COMPOUNDS (8240) ✓
- SEMI-VOLATILE ORGANIC COMPOUNDS (8270) ✓
- GROSS - ALPHA ✓
- GROSS - BETA ✓
- TRITIUM ✓
- STRONTIUM 90 ✓
- GAMMA - EMITTERS including: ✓
  - RADIUM - 226 ✓
  - THORIUM - 232 ✓
  - CESIUM - 137 ✓
  - POTASSIUM - 40 ✓

Relinquished by; Date 10/10 Time — Rec'd by; Fed X Air bill 6184799154 Date 10/10 Time
Relinquished by; Date Time — Rec'd by; Date Time
Relinquished by; Date Time — Rec'd by; Date 10-11 Time 9:30

* Please send Confirmation of Reciept to Joe Niland *

Fed express

LIST 2 CHAIN OF CUSTODY

Project Name UCD/ LEHR FACILITY
PHASE II Site Characterization

Project #

Clients Name;
Dames & Moore
9300 Tech Center Drive, Ste 100
Sacramento, California 95826
(916)364-8698
Attention: Mr. Joe Niland
cc. Ms. Alice Tackett, UCD/LEHR FACILITY

Signatures:
Dames & Moore [signature] Date 10/15/90
~~UCD~~ Date
DOE Rep. [signature] Date 10-15-90
Sampler Rich Moren

Sample No.	S	W	Date	Time	# of Containers	Laboratory Number
UCD 23 0.0A	x		10/15		1	
UCD 23 5.0A	x				1	
UCD 23 20.0A	x				1	
UCD 23 35.0A	x				1	
UCD 23 35.0B	x				1	
UCD 23 50.0A	x				1	
UCD 23 70.0A	x				1	
UCD 15 Comp	x				1	
UCD 16 Comp	x				1	
UCD 17 Comp	x				1	

Soil:

Waste Dist

Analyses Requested for All Samples Listed.

- NITRATES AS NITROGEN ✓
- 17 CAM METALS ✓
- HEXAVALENT CHROMIUM ✓
- FORMALDEHYDE ✓
- ORGANOCHLORINE PESTICIDES (8080) ✓
- VOLATILE ORGANIC COMPOUNDS (8240) ✓
- SEMI-VOLATILE ORGANIC COMPOUNDS (8270) ✓
- GROSS - ALPHA ✓
- GROSS - BETA ✓
- TRITIUM ✓
- STRONTIUM 90 ✓
- GAMMA ✓ - EMITTERS including:
  - RADIUM - 226 ✓
  - THORIUM - 232 ✓
  - CESIUM - 137 ✓
  - POTASSIUM - 40 ✓

Fed x Airbill

Relinquished by; [signature] Date 10/15 Time Rec'd by; 6996396643 Date Time
Relinquished by; Date Time Rec'd by; L. Hennigin Date 10-16 Time 9:00 AM
Relinquished by; Date Time Rec'd by; Date Time

Please Send Confirmation of Reciept to Joe Niland

Thanx.

FED EXPRESS p-1

LIST 2 CHAIN OF CUSTODY

Project Name UCD/ LEHR FACILITY
PHASE II Site Characterization

Project #

Clients Name;
Dames & Moore
9300 Tech Center Drive, Ste 100
Sacramento, California 95826
(916)364-8698
Attention: Mr. Joe Niland
cc. Ms. Alice Tackett, UCD/LEHR FACILITY

Signatures:
Dames & Moore — Date 10/18
~~UCD~~ — Date
DOE Rep. — Date 10/18/90
Sampler — Rick Marsh

Sample No.	S	W	Date	Time	# of Containers	Laboratory Number
UCD-24 0.0 A	X		10/18		1	
UCD-24 5.0A	X				1	
UCD-24 10.0A	X				1	
UCD-24 40.0A	X				1	
UCD-24 50.0A	X				1	
UCD-24 60.0A	X				1	
UCD-24 10.0B	X				1	

Analyses Requested for All Samples Listed.

NITRATES AS NITROGEN
17 CAM METALS
HEXAVALENT CHROMIUM
FORMALDEHYDE
ORGANOCHLORINE PESTICIDES (8080)
VOLATILE ORGANIC COMPOUNDS (8240)
SEMI-VOLATILE ORGANIC COMPOUNDS (8270)
GROSS - ALPHA
GROSS - BETA
TRITIUM
STRONTIUM 90
GAMMA - EMITTERS including:
RADIUM - 226
THORIUM - 232
CESIUM - 137
POTASSIUM - 40

Fed X Airbill 6996396820

Relinquished by: [signature] Date 10/18 Time
Rec'd by: Date 10/19 Time
Relinquished by: Date Time
Rec'd by: Date Time
Relinquished by: Date Time
Rec'd by: L. Henrich Date 10/19 Time 9:45 AM.

* Please send Confirmation of Receipt to Joe Niland

Upon receipt of this form:
1. Inspect all samples.
2. Note any damaged containers.
3. Sign and date this form.
4. Send a FAX of this form to:
   RICK MOREN / DAMES & MOORE
   FAX # (916) 362-7987
5. Do not begin work until authorization is received from Dames & Moore by telephone

LIST____ CHAIN OF CUSTODY

Project Name UCD/ LEHR
DOE Site Characterization

Project # 10805-454-044

Clients Name;
Dames & Moore
9300 Tech Center Drive, Ste 100
Sacramento, California 95826
(916)364-8698
Attention: Mr. Joe Niland

Signatures
Dames & Moore J. David Zuber Date 2/20
~~D.O.E REP~~ Date
Sampler DAVID ZUBER

Sample No.	S	W	Date	Time	# of Containers	Laboratory Number
AEC-1 0.0A	X		2-19		1	
AEC-1 12.0A	X				1	
AEC-2 0.0A	X				1	
AEC-2 12.0A	X				1	
AEC-3 0.0A	X				1	
AEC-3 12.0A	X				1	
AEC-4 0.0A	X				1	
AEC-4 12.0A	X				1	

Analyses Requested for All Samples Listed.

Chlordane
Tritium
Strontium 90
Carbon 14

Relinquished by; J. David Zuber Date 2/20 Time 1400
Relinquished by; Date Time
Relinquished by; Date Time

FED-EX
Rec'd by; 9583190850 Date 2/20 Time 1400
Rec'd by; [illegible] Date 2/21 Time 9:15
Rec'd by; Date Time

Federal Exp. 9588190846

!!! IMPORTANT !!!

Upon receipt of this form:
1. Inspect all samples.
2. Note any damaged containers.
3. Sign and date this form.
4. Send a FAX of this form to:
   RICK MOREN / DAMES & MOORE
   FAX # (916) 362-7987
5. Do not begin work until authorization is received from Dames & Moore by telephone.

LIST____ CHAIN OF CUSTODY

Project Name UCD/ LEHR
DOE Site Characterization

Project # 10805-454-044

Clients Name;
Dames & Moore
9300 Tech Center Drive, Ste 100
Sacramento, California 95826
(916)364-8698
Attention: Mr. Joe Niland

Signatures
Dames & Moore: J. David Zuber Date 2/21/91
D.O.E REP: _____ Date _____
Sampler: DAVID ZUBER

Sample No.	S	W	Date	Time	# of Containers	Laboratory Number
AEC-5 0.0A	X		2/21		1	
AEC-5 12.0A	X				1	
AEC-5 12.0B	X				1	
AEC-6 0.0A	X				1	
AEC-6 12.0A	X				1	
AEC-8 0.0A	X				1	
AEC-8 12.0A	X				1	
AEC-9 0.0A	X				1	
AEC-9 12.0A	X				1	
AEC-10 24.0A	X				1	
AEC-10 60.0A	X				1	
AEC-11 24.0A	X				1	
AEC-11 60.0A	X				1	
AEC-11 60.0B	X				1	

Analyses Requested for All Samples Listed.

Chlorodane
Tritium
Strontium 90
Carbon 14

Relinquished by: J. David Zuber Date 2/21/91 Time 1730
Relinquished by: _____ Date _____ Time _____
Relinquished by: _____ Date _____ Time _____

FED EX #
Rec'd by: 9588190846 Date 2/21 Time 1730
Rec'd by: C. Rodriguez Date 2/22/91 Time 10:00
Rec'd by: _____ Date _____ Time _____

Fed up

LIST 2 CHAIN OF CUSTODY

Project Name UCD/ LEHR FACILITY
PHASE II Site Characterization

Project #

Clients Name;
Dames & Moore
9300 Tech Center Drive, Ste 100
Sacramento, California 95826
(916)364-8698
Attention: Mr. Joe Niland
cc. Ms. Alice Tackett, UCD/LEHR FACILITY

Signatures:
Dames & Moore — Date 10/23
UCD — Date
DOE Rep. — Date 10/23/90
Sampler — Rick Morten

Sample No.	S	W	Date	Time	# of Containers	Laboratory Number
UCD-22 5.0A	X		10/23		1	
UCD-22 10.0A	X				1	
UCD-22 20.0A	X				1	
UCD-22 30.0A	X				1	
UCD-22 40.0A	X				1	
UCD-22 55.0A	X				1	
UCD-22 20.0B	X				1	

Analyses Requested for All Samples Listed.

NITRATES AS NITROGEN
17 CAM METALS
HEXAVALENT CHROMIUM
FORMALDEHYDE
ORGANOCHLORINE PESTICIDES (8080)
VOLATILE ORGANIC COMPOUNDS (8240)
SEMI-VOLATILE ORGANIC COMPOUNDS (8270)
GROSS - ALPHA
GROSS - BETA
TRITIUM
STRONTIUM 90
GAMMA - EMITTERS including:
RADIUM - 226
THORIUM - 232
CESIUM - 137
POTASSIUM - 40

Fed X Air

Relinquished by; Date 10/23 Time Rec'd by; 6996396772 Date 10/23 Time
Relinquished by; Date Time Rec'd by; L. Hennigh Date 10-24 Time 9:20
Relinquished by; Date Time Rec'd by; Date Time

Send Confirmation of Receipt To Joe Niland

90-10-512