VOLUME I

Groundwater and Soils Investigation

U.C. Davis LEHR Facility

Davis, California

For

UNIVERSITY OF CALIFORNIA, DAVIS

May 1989

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Project UCD-101H

Wahler Associates

Geotechnical and Water Resources Engineering

May 19, 1989
Project UCD-101H

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Radiation Safety Officer
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Temporary Building 20
Davis, California 95616

Subject: Groundwater and Soils Investigation
U.C. Davis Research Facility
University of California, Davis
Davis, California

Dear Carolyn,

It gives us great pleasure to present our final report on the groundwater and soils investigation of the U.C. Davis Research Facility in Davis, California. Our investigation utilized a multi-phase approach. We feel that this approach produced the most efficient and cost-effective procedures in obtaining the desired goals. The particular issues addressed in this report include the installation and sampling of seven groundwater monitoring wells, in addition to the extensive backhoe and shallow soil boring exploration. The exploration and monitoring programs were augmented by a comprehensive analytical effort from TMA/NORCAL of Richmond, California. All QA/QC protocols followed by TMA/NORCAL and Wahler Associates are included in this report.

Also enclosed is a review of the DOE comments on the original draft report, which provides a summary of WA's response to each specific issue raised regarding the original draft report.

If you have any questions or wish to respond to information contained in this report, we would be very happy to hear from you.

Very truly yours,

WAHLER ASSOCIATES

F. Homayounfar NICK

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CW/PFS/NH:Z
Enclosure

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EXECUTIVE SUMMARY

Wahler Associates has completed a groundwater and soils investigation of the U.C. Davis Research Facility in Davis, California. The objective of the investigation was to assess the possibility of chemical and/or radionuclide contamination in the soil and groundwater at the site, thus providing a basis for future investigation and monitoring of the site.

The on-site investigation included:

1. Installation of seven groundwater monitoring wells, six A-aquifer and one B-aquifer;
2. Two groundwater sampling rounds;
3. Chemical and radionuclide analysis of water samples;
4. Installation of forty-three shallow (less than 20 feet) soil borings in suspect radionuclide usage areas and backhoe exploration in an attempt to locate burial trenches and pits for subsequent soil sampling; and
5. ~~Chemical and~~ radionuclide analysis of soil samples.

The results of the site investigation have been evaluated and the results are summarized in this report. The major findings are as follows:

- Strontium 90 (Sr90) was not detected in groundwater monitoring wells UCD-1 to UCD-7.
- The highest level of Radium 226 (Ra226) detected in the groundwater was in UCD-5 at 0.84 pCi/L in the 11/87 round and 0.0 pCi/L in the 6/88 round. The remaining wells ranged from 0.0 to 0.18 pCi/L.
- The maximum contaminant level (MCL) for chromium in drinking water is 0.05 mg/l. Groundwater in wells UCD-1 to UCD-7 exceed the MCL.
- The MCL for lead in drinking water is 0.05 mg/l. Groundwater in wells UCD-6 and UCD-7 exceed the MCL.

- The MCL for nitrogen/nitrate in drinking water is 10 mg/l (as nitrogen). Groundwater in wells UCD-1, UCD-2, UCD-3, UCD-5, UCD-6, and UCD-7 exceeds the MCL.

- Tritium (H^3) was detected in one soil sample from UCD-1 at a depth of 25' at 102 pCi/gm. All other H^3 levels ranged from 0.0 to 0.07 pCi/gm for soil samples.

- Sr90 was detected in soil samples from the Sr90 leachfield from the 25-foot deep soil boring SB-3 at 5 to 15 feet in depth and in four of five soil borings in the leachfield. The Sr90 levels ranged from 1.6 pCi/gm at 5 feet deep, 1.4 pCi/gm at 10 feet deep and 0.6 pCi/gm at 15 feet deep. Levels decrease with depth. Cesium 137 (CS 137) was detected in one sample SB-3, B-2 at 6.2 pCi/gm at a depth of 5 feet.

- Ra226 was detected next to the radium seepage pits in soil boring composite samples SB-12 at 0.98 pCi/gm and SB-14 at 1.23 pCi/gm. Sr90 was detected in SB-12 at 1.0 pCi/gm and SB-14 at 0.3 pCi/gm.

The results of the study have led to the following recommendations:

- Conduct quarterly sampling of the groundwater monitoring wells to monitor any significant changes in the groundwater quality.

- Groundwater monitoring well UCD-5 should be carefully monitored on a quarterly basis for increased levels of Ra226.

- Investigate the lateral and vertical extent of Sr90 and Ra226 in the soil and groundwater near the Sr90 leachfield and the Ra226 seepage pits.

- Investigate the lateral and vertical extent of the chemicals found in the groundwater monitoring wells which exceed the MCL's.

Analyze the individual members of composites (retained by UCD) in the vicinity of the Sr90 leachfield and the Ra226 seepage pits to better define the vertical extent and concentrations of radionuclides at the site.

CHAPTER I

CHAPTER I

INTRODUCTION

Wahler Associates (WA) is pleased to present this report which summarizes the groundwater and soil investigation undertaken at the UC Davis (UCD) Laboratory for Energy Related Health Research (LEHR) Facility in Davis, California. This project, WA Project No. UCD-101H, was conducted synchronous with our WA Project No. UCD-201H. The information gained from the performance of the UCD-201H project was utilized to some degree in the completion of this report. If you have any questions regarding the UCD-201H project or report, we would be happy to provide additional information from our files.

A. PROJECT DESCRIPTION

The UCD Research Facility conducted radiological studies from the early 1950's to 1974. During this time the burial of radioactive, chemical and general solid and liquid wastes generated at the UCD LEHR Project took place. An "Initial Assessment Survey" (IAS) was performed by Rockwell International under DOE contract number DE-AT03-84SF15160 and summarized in their report dated October 31, 1984. The WA study was based on the IAS and discussions with DOE San Francisco and UCD. The proposed "Work Plan for Characterization of the Lateral and Vertical Extent of Radionuclides in the Soil and Ground Water" was submitted to UCD/DOE on June 19, 1987 and approved in October 1987. In October of 1987, DOE/UCD retained Wahler Associates to investigate potential low-level radioactive sites and the groundwater down-gradient of these potential sites at the UCD Research Facility. The investigation consisted of five major phases. A multiphase approach was utilized, allowing for data gathered during each step to guide the direction of work in subsequent steps. Our Scope of Work briefly outlines these phases and steps which were followed. Detailed proposals dated July 9, and August 13, 1987 outlined the work to be completed. The scope of work was further detailed in the letter dated August 21, 1987.

B. GENERAL SITE DESCRIPTION

The UCD radioactive waste burial sites are located at the UCD LEHR Facility on old Davis Road, approximately one mile south of the UCD main campus. The facility is bound on the south side by Putah Creek, to the east and north by other UCD Facilities, and to the west by Old Davis Road (see Figure I-1). The site is located on generally flat lying alluvial deposits. The facility has expanded and changed many of its buildings and dog cages since its beginning in the early 1950's to attain its present configuration. Air photo interpretation has aided greatly in documenting these changes (airphotos are included in Appendix G). The activity level at the facility is lower at present than in the past and there are many unused dog cages at the site. In addition, some dog cages have apparently been removed. See Figure I-2 for a detailed site plan showing groundwater well locations, exploration trench locations, and geologic cross-section alignments.

C. SCOPE OF WORK

The scope of work undertaken in this investigation included the following phases and steps:

Phase I and II

Analysis and Workplan Preparation

Phase III

Monitoring Program Implementation

1. Upgradient Background (Site 1)
   1-well to 56.5 feet (UCD-1)
   Survey one well

2. Ra-226 Seepage Pits (Site 2)

   4 soil borings to 20 feet
   1 soil boring to 10 feet
   1 well to 52.5 feet (UCD-6)
   Survey one well

3. Sr-90 Leachfield (Site 3)

4 soil borings to 10 feet 5 = 10
1 soil boring to 25 feet
1 well to 48.5 feet (UCD-5) + 1 = 3
Survey one well

4. Dog Pen Area, and Down-gradient of Sr-90 Leachfield

18 soil borings to 10 feet with dog cages to remain intact, drilled with a portable drill rig
1 well to 60 feet (UCD-2)
1 well to 51.5 feet (UCD-3)
1 well to 90 feet B-aquifer (UCD-7)
} 3 = 6
Survey three wells

total subsurface work
18 = 28 soil borings
backhoe pits
7 wells
Appendix A says 43 soil
10 trenc

5. Sr-90 Trench Area (Site 5)

1 well to 56.5 feet (UCD-4) 1 = 7
Survey one well
Backhoe exploration (weekend-one day)
3 stream gauges
10 soil borings to 20 feet + 10 = 38

38 soil borings
7 wells
45 borings

6. Irrigation Well (Site 6)

Cancelled

7. Install Dedicated Bladder Pumps

8. Groundwater Sampling

Phase IV

Sample Analysis (Soil and Water)

Includes expedited testing on a few samples (see Summary Tables III-1, III-2 and III-3 for sample analysis breakdown)

Phase V

Documentation of Results

Report and Data Analysis

D. LIMITATIONS

This report is intended for the sole use of DOE and UCD in the assessment of groundwater and near surface conditions related to low-level radioactive waste disposal at the UCD LEHR Site in Davis, California.

Wahler Associates cannot accept responsibility for the consequences of its use by other parties, or for other purposes. As with all geotechnical reports, the opinions expressed here are subject to revision in the light of new information which may be developed in the future, and no warranties are either expressed or implied.

The analyses were limited to the chemical and radionuclide testing listed in our proposals. The sampling of the seven groundwater monitoring wells, soil borings and the exploration trenches cannot determine the extent of any contamination that might occur at locations where data or samples were not actually taken.

CHAPTER II

CHAPTER II

SITE CONDITIONS

A. GEOMORPHOLOGY

The study area is located along Putah Creek, about 12 miles downstream from the town of Winters. Putah Creek drains a portion of the Coast Ranges of northern California, and emerges from the Vaca Mountains onto the plain of the western Sacramento Valley near Winters. Along its course, Putah Creek has deposited a thick section of alluvium consisting of gravel, sand, silt and clay. About 8 miles east of Winters, a structural high (anticline) brings to the surface an older, generally less permeable, alluvial deposit (Tehama Formation) (Figure II-1). This structural high diverts the channel of Putah Creek slightly to the south and may also act as a barrier to groundwater movement. The surface of the Tehama Formation drops and the alluvial section thickens rapidly east of the anticline and beneath the project site.

B. GEOLOGY

The geology of the study area is depicted on the Geologic Map on Figure II-1. The location of generalized geologic cross-sections is shown on Figure II-2. The generalized geologic cross-sections are shown on Figures II-3 and II-4. The geologic units exposed in the area include Plio-Pleistocene and Pleistocene continental deposits exposed in the Vaca Mountains and Holocene alluvium. For the purposes of this report, the Plio-Pleistocene Tehama Formation will be considered a bedrock unit. The bedrock formation and superadjacent alluvium are discussed below.

Tehama Formation - Plio-Pleistocene continental deposits assigned to Tehama Formation (Sims and others, 1973) crop out in the study area in the unnamed anticline about 3½ to 8 miles west-northwest of the site. The Tehama Formation consists of well consolidated, locally cemented, gravel, sand, silt, and clay. It underlies the alluvium in most of the study area. The

Tehama Formation acts as a barrier to groundwater movement (Woodward-Clyde Consultants, 1976). Some portions of the Tehama Formation appear to contain sufficient sand and gravel to qualify as potential aquifers.

Alluvium - Undifferentiated, Holocene alluvial deposits underlie the broad plain of the western Sacramento Valley. In the study area, the alluvium consists of poorly consolidated gravel, sand, silt and clay deposited by Putah Creek and other, smaller streams. Information from water well driller's logs (as obtained from the California Department of Water Resources - see Appendix H) indicates that the alluvium is generally 50 to 160 feet thick, increasing to as much as 240 feet thick in the study area and vicinity. Review of our boring logs of the site shows agreement with these figures. The thicker accumulations of sand and gravel appear to occur as localized deposits surrounded by the more predominant clay and silt.

Two generalized geologic cross-sections, Figures II-3 and II-4, were prepared from DWR driller's logs. The alluvial nature of these deposits is clearly displayed by the interfingering of sands and gravels with clays. Four site cross-sections, Figures II-5 to II-8, were prepared from WA boring logs show the interfingering and noncontinuous nature of the alluvial deposits which underlie the site. The locations of geologic cross-sections are shown on Figure I-2.

C. HYDROGEOLOGY REVIEW

The hydrogeology of the study area is roughly depicted on the Groundwater Elevation Map (Figure II-9), Generalized Geologic Cross-Sections (Figures II-3 and II-4, and Site Groundwater Gradient Map (Figure II-10).

Groundwater is mainly contained in and transported through the sandy units that exist beneath the study site. Within the upper 240 feet of the materials that exist beneath the ground surface, there appear to be three aquifer units. The A-aquifer appears to be an inconsistent sand and gravel unit, with interfingering clayey and silty units, that ranges in depth from 20 to 60 feet. The B and C-aquifers appear to be more continuous than the

aquifer and range in depth from 75 to 140 feet and from 150 to 240 feet respectively. The thick aquifer units that exist with depth are separated by thick clay and silt units that act as aquitards. These aquitards would inhibit the vertical migration of groundwater.

Wells UCD-1 through UCD-6 are screened in the bottom of the "A" aquifer and located to provide information on hydraulic gradients as well as to help delineate the extent of radioactive constituents in this upper layer. Well UCD-7 is screened in the "B" aquifer in order to determine if radioactive constituents have migrated downward into this lower layer. In general, a 10-foot screened interval was employed in well construction to obtain an integrated measure of groundwater quality over a larger vertical interval of the aquifer.

Well UCD-1 was used as a background well due to the fact that it is not directly down-gradient from any of the suspected areas of radiation usage or disposal.

Based upon groundwater elevations in wells from the lower Sacramento Valley during the 1980's, the direction of the regional groundwater gradient near the study site appears to be towards the east and southeast. However, review of the site groundwater gradient map (Figure II-10), shows that the site specific local direction is to the north and northeast. The apparently anomalous direction of the site-specific gradient is probably due to influent effects of South Fork Putah Creek or other local surface recharge sources. Local or regional groundwater pumping for irrigation may also affect the local groundwater gradients on-site.

AIR PHOTO REVIEW

We have obtained an oblique aerial photo and three sets of air-photos (1962, 1968 and 1973) of the study site and surrounding area and have performed a preliminary interpretation of the changes that have occurred from 1962 to 1973. Each set of air photos was observed through a pair of stereoscopic lenses that allowed the photos to be viewed three dimensionally. Buildings and landforms could be distinguished where otherwise they may not have been.

The oblique photo was viewed without any visual aid. Discussions of the aerial photos are as follows:

1962

- The large dog pen area had not been expanded to its present size (Figure G-I, Appendix G). The covers over the walkway between each of the six rows of cages had not been constructed at this time. A trench of unknown status is adjacent to row F to the east. Another trench of half the size is south of and adjacent to the trench adjacent to row F. These trenches may be burial trenches.

- An old buried channel of South Fork Putah Creek has been observed south of the present creek channel. The levees of this newer channel can be seen (Figure G-2, Appendix G).

1962-1968

- An oblique aerial photo (Figure G-5, Appendix G) taken between 1962-1968 (exact age unknown) shows that rows A through J had been constructed by this time, but the covers over the walkways had not yet been constructed. In addition, another possible burial trench is exposed adjacent to rows H and I. The half size trench observed in the 1962 photo had been filled by this time and the trench adjacent to row F appears to be partially filled and without any visible debris.

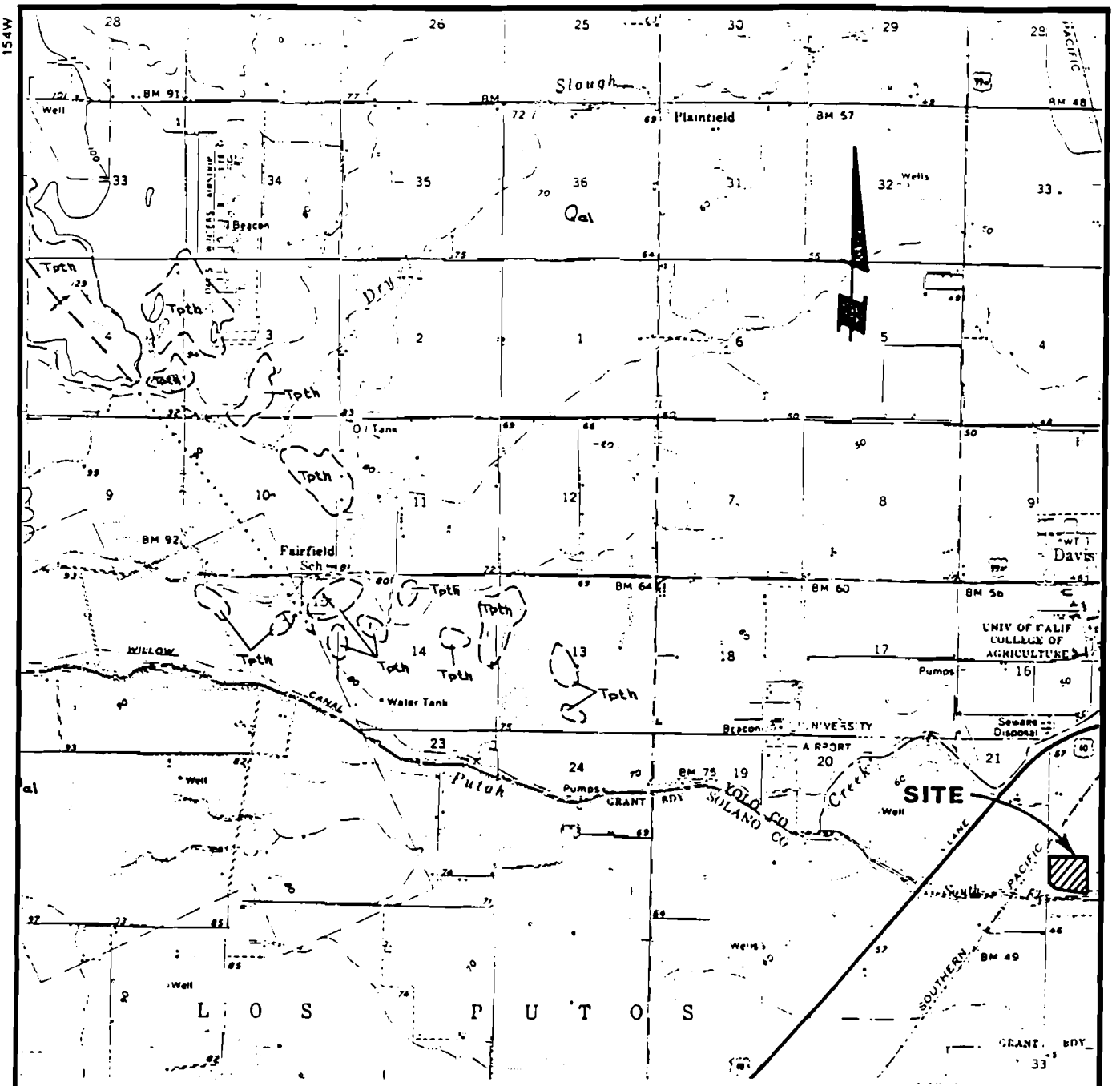
1968

- By this time, ten rows of cages had been constructed in the original dog pen site (Figure G-3, Appendix G) and two rows of cages had been constructed to the east of the original pen site adjacent to rows I and J. The walkway coverings over the dogpens can now be seen. The open trenches observed in the July 20, 1962 aerial photos and the oblique aerial photo can no longer be seen.

1973

- By this time, one additional row of cages had been added to the eastern section of cages for a total of thirteen rows of cages (Figure G-4, Appendix G).

- A racetrack is now seen near Putah Creek to the southwest of the study site.



PRELIMINARY GEOLOGIC MAP OF SOLANO COUNTY AND PARTS OF NAPA, CONTRA COSTA, MARIN, AND YOLO COUNTIES, CALIFORNIA

Compiled by
J.D. Sims, K.F. Fox Jr., J.A. Bartow, and E.J. Helley
1973

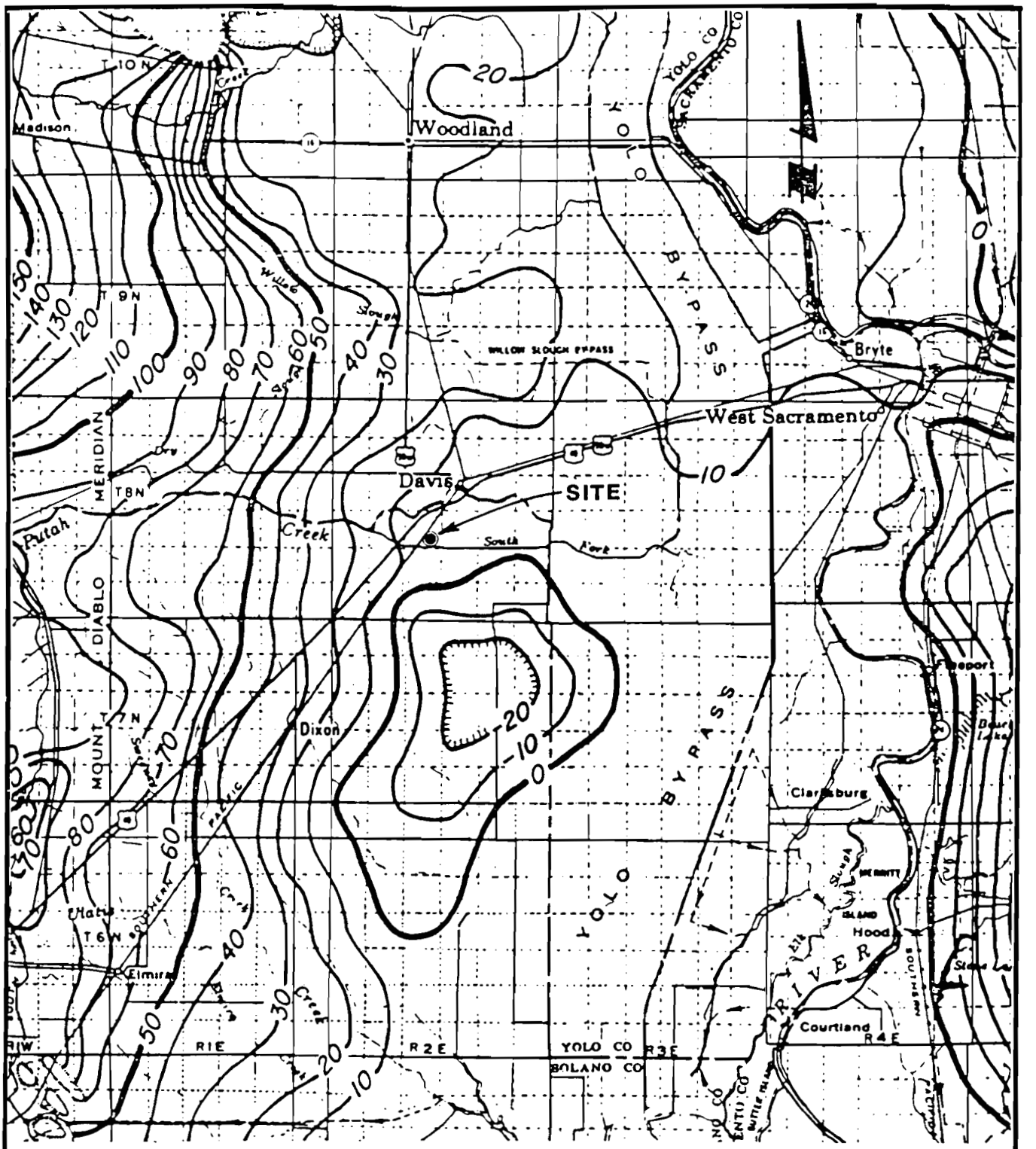
SCALE: 1" = 1 MILE

Qal ALLUVIUM -- mainly unconsolidated flood-plain deposits; sand, silt, gravel, and clay irregularly interstratified.

Tpth TEHAMA FORMATION -- sand, gravel, silt, and silty clay; irregularly interstratified volcaniclastic gravel dominated by pumiceous and vesicular volcanic pebbles; clays dominantly smectites. Name "Tehama" (Russell and Vander Hoff, 1931; and Anderson and Russell, 1939) has priority over Weaver's (1949, p. 94-97) name "Wolfskill Formation", a name here abandoned.

Wahler Associates	U.C. DAVIS	GEOLOGIC MAP		
		PROJECT NO.	DATE	FIGURE NO.
	PALO ALTO • CALIFORNIA	UCD-101H	DECEMBER 1988	11-1

OZALID



STATE OF CALIFORNIA
THE RESOURCES AGENCY
DEPARTMENT OF WATER RESOURCES
CENTRAL DISTRICT

LINES OF EQUAL ELEVATION OF WATER IN WELLS

IN LOWER SACRAMENTO VALLEY AND SAN JOAQUIN COUNTY

SPRING 1980

EXPLANATION

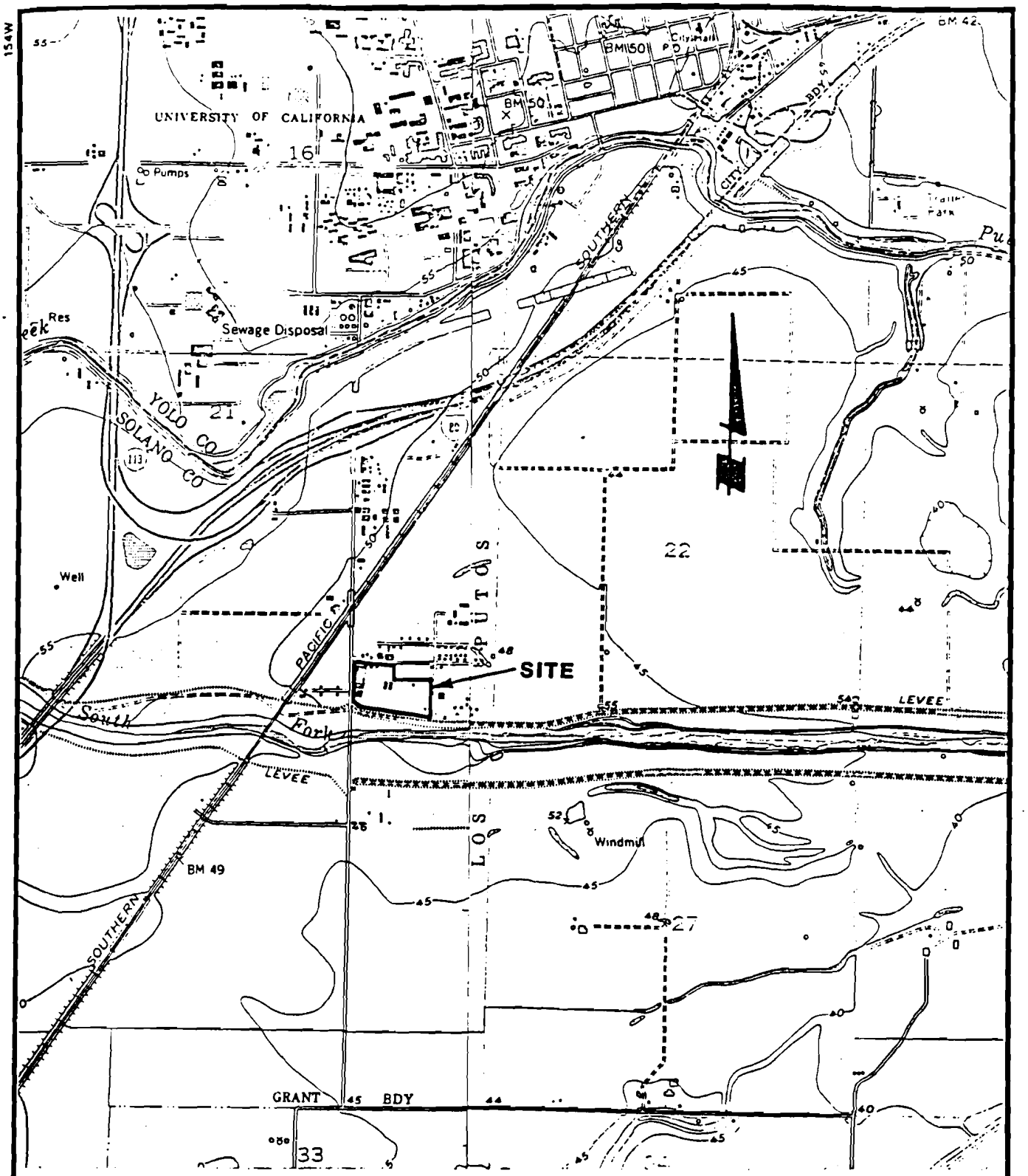
10 — WATER TABLE CONTOUR
Contours on top of zone of saturation in unconfined and semiconfined deposits, dashed where inferred, datum is mean sea level, contour interval 10 feet.

EDGE OF FOOTHILLS

SCALE: 1" = 4 MILES

Wahler Associates	U.C. DAVIS	GROUND WATER ELEVATION MAP 1980		
		PROJECT NO.	DATE	FIGURE NO.
	PALO ALTO • CALIFORNIA	UCD-101H	DECEMBER 1988	11-9

OZALID



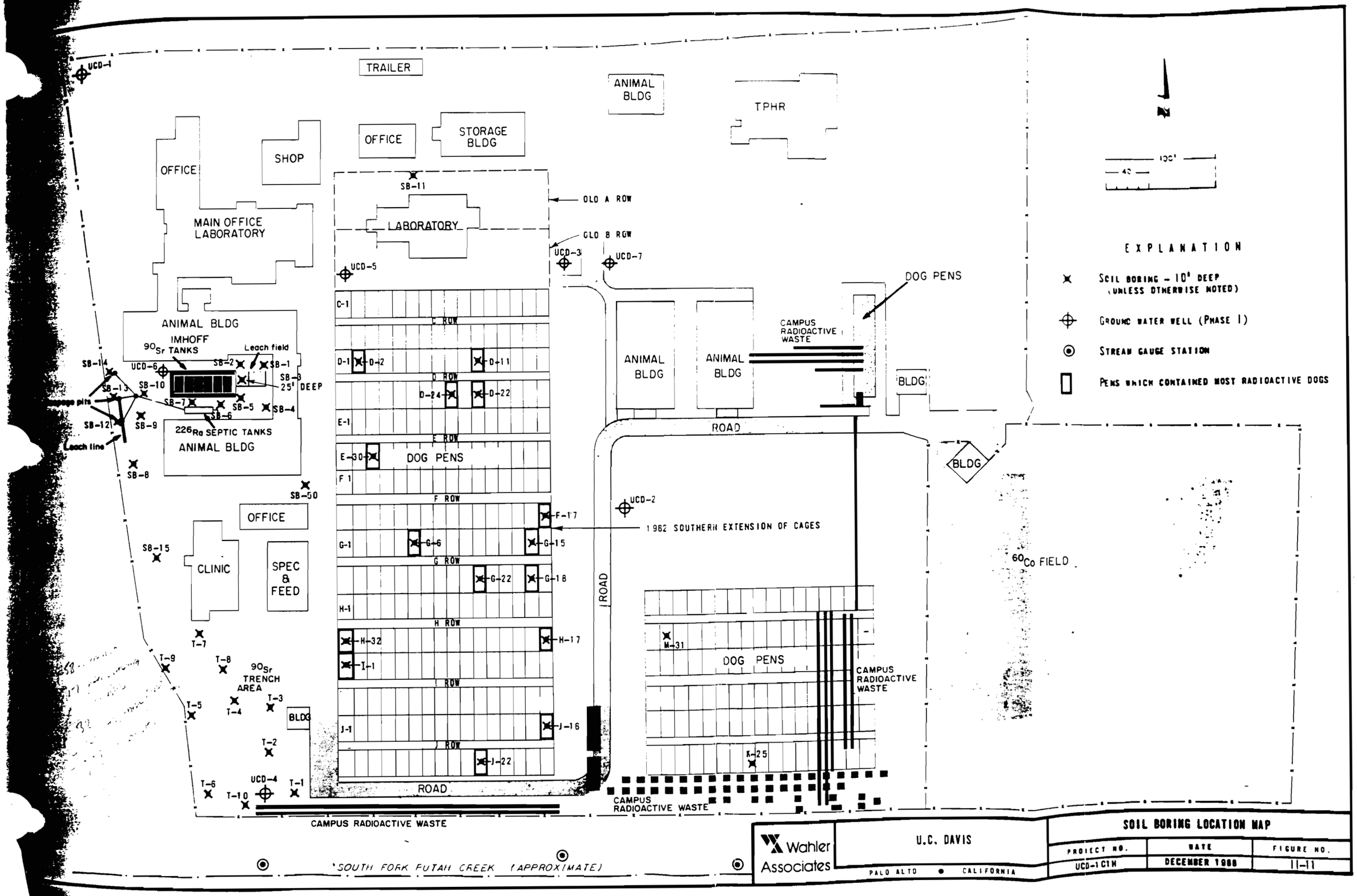
MERRITT, CALIF.
SE/4 WOODLAND 15' QUADRANGLE
38121-E7-TF-024
1952
PHOTOREVISED 1981
DMA 1661 III SE-SERIES V895

DAVIS, CALIF.
SW/4 DAVIS 15' QUADRANGLE
N3830—W12137.5/7.5
1952
PHOTOREVISED 1981
DMA 1661 II SW-SERIES V895

SCALE: 1" = 2000'

Wahler Associates	U.C. DAVIS	SITE LOCATION MAP		
		PROJECT NO.	DATE	FIGURE NO.
	PALO ALTO • CALIFORNIA	UCD-101H	DECEMBER 1988	1-1

OZALID


TRAILER
ANIMAL BLDG
TPHR
OFFICE
SHOP
OFFICE
STORAGE BLDG
MAIN OFFICE LABORATORY
LABORATORY
OLD A ROW
OLD B ROW
DOG PENS
CAMPUS RADIOACTIVE WASTE
ANIMAL BLDG
IMHOFF
90Sr TANKS
Leach field
25' DEEP
226Ra SEPTIC TANKS
ANIMAL BLDG
Leach line
OFFICE
CLINIC
SPEC & FEED
90Sr TRENCH AREA
BLDG
C ROW
D ROW
E ROW
F ROW
G ROW
H ROW
I ROW
J ROW
DOG PENS
ROAD
1962 SOUTHERN EXTENSION OF CAGES
ROAD
DOG PENS
CAMPUS RADIOACTIVE WASTE
60Co FIELD
BLDG
CAMPUS RADIOACTIVE WASTE
CAMPUS RADIOACTIVE WASTE
SOUTH FORK PUTAH CREEK (APPROXIMATE)
EXPLANATION
SOIL BORING - 10' DEEP (UNLESS OTHERWISE NOTED)
GROUND WATER WELL (PHASE I)
STREAM GAUGE STATION
PENS WHICH CONTAINED MOST RADIOACTIVE DOGS
Wahler Associates
PALO ALTO • CALIFORNIA
U.C. DAVIS
SOIL BORING LOCATION MAP
PROJECT NO. UCD-1C1H
DATE DECEMBER 1988
FIGURE NO. 11-11

CHAPTER III

CHAPTER III

SUMMARY OF RESULTS AND RECOMMENDATIONS

SUMMARY OF RESULTS

Groundwater beneath the UCD/LEHR is in two distinct aquifers (A and B). The "A"-aquifer is 10 to 20 feet thick and is generally unconfined to confined, depending on the position of the overlying clayey aquitard. The "A"-aquifer is underlain by a 23-foot thick clayey aquitard (A-B aquitard) in the vicinity of UCD-7. The "B"-aquifer was encountered in UCD-7 at a depth of 78 feet and is confined by the A-B aquitard.

Putah Creek appears to recharge the "A"-aquifer along the southern boundary of the site. The "A"-aquifer gradient on Figure II-10 appears to be deflected towards the northeast away from Putah Creek which probably reflects a recharge mound beneath the axis of the creek in the "A"-aquifer.

Water levels in the "A"-aquifer dropped by approximately 5-7 feet between 9/87 and 6/88, possibly due to excessive irrigation usage or seasonal (or more long-term) fluctuations in groundwater levels.

There is a possibility of vertical migration of contaminants between the "A" and "B" aquifers at the site.

Strontium 90 (Sr90) was not detected in groundwater monitoring wells UCD-1 to UCD-7.

The highest level of Radium 226 (Ra226) detected in the groundwater was in UCD-5 at 0.84 pCi/L. The remaining wells ranged from 0.0 to 0.18 pCi/L. Ra226 was not detected in UCD-5 in the July 1988 sampling round.

The maximum contaminant level (MCL) for chromium in drinking water is 0.05 mg/l. Groundwater in wells UCD-1 to UCD-7 exceeds the MCL.

- The MCL for lead in drinking water is 0.05 mg/l. Groundwater in wells UCD-6 and UCD-7 exceeds the MCL.

- The MCL for nitrogen/nitrate in drinking water is 10 mg /l (as nitrogen). Groundwater in wells UCD-1, UCD-2, UCD-3, UCD-5, UCD-6, and UCD-7 exceeds the MCL.

- Tritium (H^3) was detected in one soil sample from UCD-1 at a depth of 25' at 102 pCi/gm. All other H^3 levels ranged from 0.0 to 0.07 pCi/gm for soil samples.

- Sr90 was detected in soil samples from the Sr90 leachfield from the 25-foot deep soil boring SB-3 at 5 to 15 feet in depth and in four of five soil borings in the leachfield. The Sr90 levels ranged from 1.6 pCi/gm at 5 feet deep, 1.4 pCi/gm at 10 feet deep and 0.6 pCi/gm at 15 feet deep. Levels decrease with depth. Cesium 137 (Cs 137) was detected in one sample SB-3, B-2 at 6.2 pCi/gm at a depth of 5 feet.

- Ra226 was detected next to the radium seepage pits in soil boring composite samples SB-12 at 0.98 pCi/gm and SB-14 at 1.23 pCi/gm. Sr90 was detected in SB-12 at 1.0 pCi/gm and SB-14 at 0.3 pCi/gm.

RECOMMENDATIONS

- Conduct quarterly sampling of the groundwater monitoring wells to monitor any sgnificant changes in the groundwater quality.

- Groundwater monitoring well UCD-5 should be carefully monitored on a quarterly basis for increased levels of Ra226.

- Investigate the lateral and vertical extent of Sr90 and Ra226 in the soil and groundwater near the Sr90 leachfield and the Ra226 seepage pits.

- Investigate the lateral and vertical extent of the chemicals found in the groundwater monitoring wells which exceeds the MCL's.

- Analyze the individual members of composites (retained by UCD) in the vicinity of the Sr90 leachfield and the Ra226 seepage pits to better define the vertical extent and concentrations of radionuclides at the site.

TABLE III-1

SUMMARY OF GROUNDWATER CHEMICAL RESULTS (in mg/l)

Sample Analysis (mg/l)	Sample ID UCD-1	Sample ID UCD-2	MCL (mg/l*)	STLC (mg/l**)	NSRL (ug/day***)
Silver	LT 0.01	LT 0.01	0.05	5.0	--
Arsenic	0.016	0.008	0.05	5.0	10
Barium	0.1	0.1	1.0	0.75	--
Beryllium	LT 0.01	LT 0.01	--	100	0.1
Cadmium	LT 0.01	LT 0.01	0.010	1.0	--
Cobalt	LT 0.02	LT 0.02	--	80	--
Chromium (total)	.10	0.13	0.05	560	--
Copper	LT 0.02	LT 0.02	--	25	--
Mercury	0.0007	0.0006	0.002	0.2	--
Molybdenum	LT 0.2	LT 0.2	--	350	--
Nickel	LT 0.04	LT 0.04	--	20	--
Lead	LT 0.05	0.05	0.05	5.0	0.05
Animony	LT 0.2	LT 0.2	--	15	--
Selenium	LT 0.002	LT 0.002	0.01	1.0	--
Thallium	LT 0.10	LT 0.10	--	7.0	--
Vanadium	LT 0.5	LT 0.5	--	24	--
Zinc	0.05	0.07	--	250	--
Turbidity (NTU)	16	9.5	--	--	--
Formaldehyde	LT 2	LT 2	--	--	--
Nitrogen/Nitrate (mgN/L)	16	98	10	--	--
Chloroform	LT 0.005	0.007	--	--	9
1,2,-Dichloropropane	LT 0.005	LT 0.005	--	--	--
Methylene chloride	LT 0.005	LT 0.005	--	--	--
1,1-Dichloroethane	LT 0.005	LT 0.005	--	--	--
1,1-Dichloroethene	LT 0.005	LT 0.005	--	--	--
1,2-Dichlorobenzene	LT 0.010	LT 0.010	--	--	--
1,4-Dichlorobenzene	LT 0.010	LT 0.010	--	--	--

*Maximum contaminant levels for water used by humans when continually used for drinking or culinary purposes, from Title 22, Environmental Health, Chapter 15, Article 4, Section 64435.

**Soluble Threshold Limit Concentration. Any waste is a hazardous waste which contains a substance which exceeds its listed soluble threshold limit concentration. Title 22, Environmental Health, Chapter 30, Article II, Section 66699.

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LT = Less Than
*** = Proposition 65 chemicals
J = Present, but below, detection limits (concentration not quantifiable)
MCL = Maximum contaminant level
STLC = Soluble threshold limit concentration
NSRL = No significant risk levels in micrograms/day, Safe Drinking Water and Enforcement Act, Sections 12709, 12711, and 12805

TABLE III-1 (Continued)

SUMMARY OF GROUNDWATER CHEMICAL RESULTS (in mg/l)

Sample Analysis (mg/l)	Sample ID UCD-3	UCD-4	UCD-5	MCL (mg/l*)	STLC (mg/l**)	NSRL (ug/day***)
Silver	LT 0.01	LT 0.1	LT 0.1	0.05	5.0	--
Arsenic	LT 0.010	LT 0.005	0.012	0.05	5.0	10
Barium	LT 0.1	0.1	0.1	1.0	100	--
Beryllium	LT 0.01	LT 0.01	LT 0.0	--	0.75	0.1
Cadmium	LT 0.01	LT 0.01	LT 0.010	1.0	--	--
Cobalt	LT 0.02	LT 0.02	LT 0.02	--	80	--
Chromium	0.08	0.4	0.08	0.05	560	--
Copper	LT 0.02	0.02	LT 0.02	--	25	--
Mercury	0.0006	LT 0.0005	LT 0.0005	0.002	0.2	--
Molybdenum	LT 0.2	LT 0.2	LT 0.2	--	350	--
Nickel	LT 0.04	LT 0.04	LT 0.04	--	20	--
Lead	LT 0.02	LT 0.02	LT 0.02	0.05	5.0	0.05
Animony	LT 0.2	LT 0.2	LT 0.2	--	15	--
Selenium	LT 0.002	LT 0.002	LT 0.002	0.01	1.0	--
Thallium	LT 0.10	LT 0.10	LT 0.10	--	7.0	--
Vanadium	LT 0.5	LT 0.5	LT 0.5	--	24	--
Zinc	0.06	0.16	0.05	--	250	--
Turbidity (NTU)	5.5	1.6	12	--	--	--
Formaldehyde	LT 2	LT 0.2	LT 2	--	--	--
Nitrogen/Nitrate (mgN/L)	360	1.4	48	10	--	--
Chloroform	LT 0.005	LT 0.005	0.006	--	--	9
`,-Dichloropropane	LT 0.005	LT 0.005	LT 0.005	--	--	--
ethylene chloride	LT 0.005	LT 0.005	LT 0.005	--	--	--
1,1-Dichloroethane	LT 0.005	LT 0.005	LT 0.005	--	--	--
1,1-Dichloroethene	LT 0.005	LT 0.005	LT 0.005	--	--	--
1,2-Dichlorobenzene	LT 0.010	LT 0.010	LT 0.010	--	--	--
1,4-Dichlorobenzene	LT 0.010	LT 0.010	LT 0.010	--	--	--

*Maximum contaminant levels for water used by humans when continually used for drinking or culinary purposes, from Title 22, Environmental Health, Chapter 15, Article 4, Section 64435.

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TABLE III-1 (Continued)

SUMMARY OF GROUNDWATER CHEMICAL RESULTS (in mg/l)

Sample Analysis (mg/l)	Sample ID UCD-6	Sample ID UCD-7	MCL (mg/l*)	STLC (mg/l**)	NSRL (ug/day***)
Silver	LT 0.01	LT 0.01	0.05	5.0	--
Arsenic	0.006	0.005	0.05	5.0	10
Barium	0.2	0.2	1.0	0.75	--
Beryllium	LT 0.01	LT 0.01	--	100	0.1
Cadmium	LT 0.01	LT 0.01	0.010	1.0	--
Cobalt	LT 0.02	LT 0.02	--	80	--
Chromium	0.09	0.09	0.05	560	--
Copper	LT 0.02	LT 0.02	--	25	--
Mercury	0.0007	0.0005	0.002	0.2	--
Molybdenum	LT 0.2	LT 0.2	--	350	--
Nickel	LT 0.04	LT 0.04	--	20	--
Lead	0.10	0.15	0.05	5.0	0.05
Animony	LT 0.2	LT 0.2	--	15	--
Selenium	LT 0.002	LT 0.002	0.01	1.0	--
Thallium	LT 0.10	LT 0.10	--	7.0	--
Vanadium	LT 0.5	LT 0.5	--	24	--
Zinc	0.13	0.10	--	250	--
Turbidity (NTU)	70	20	--	--	--
Formaldehyde	LT 2	LT 2	--	--	--
Nitrogen/Nitrate (mgN/L)	90	51	10	--	--
ıloroform	LT 0.005	0.007	--	--	9
,2,-Dichloropropane	LT 0.005	LT 0.005	--	--	--
Methylene chloride	LT 0.005	LT 0.005	--	--	--
1,1-Dichloroethane	LT 0.005	LT 0.005	--	--	--
1,1-Dichloroethene	LT 0.005	LT 0.005	--	--	--
1,2-Dichlorobenzene	LT 0.010	LT 0.010	--	--	--
1,4-Dichlorobenzene	LT 0.010	LT 0.010	--	--	--

*Maximum contaminant levels for water used by humans when continually used for drinking or culinary purposes, from Title 22, Environmental Health, Chapter 15, Article 4, Section 64435.

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TABLE III-1

SUMMARY OF GROUNDWATER CHEMICAL RESULTS

Sample Analysis (mg/L)	Sample ID				MCL (mg/L*)	STLC (mg/L**)	NSRL (ug/day***)
	UCD-8		UCD-9				
	Round 1	Round 2	Round 1	Round 2			
Silver	LT 0.01	NT	LT 0.01	NT	0.05	5.0	--
Arsenic	0.005	NT	0.010	NT	0.05	5.0	10
Barium	0.2	NT	0.4	NT	1.0	100	--
Beryllium	LT 0.01	NT	LT 0.01	NT	--	0.75	0.1
Cadmium	LT 0.01	NT	LT 0.01	NT	0.010	1.0	--
Cobalt	LT 0.02	NT	LT 0.02	NT	--	80	--
Chromium	0.11	NT	0.19	NT	0.05	560	--
Copper	0.03	NT	0.03	NT	--	25	--
Mercury	0.0009	NT	0.0006	NT	0.002	0.2	--
Molybdenum	LT 0.2	NT	LT 0.2	NT	--	350	--
Nickel	0.05	NT	0.05	NT	--	20	--
Lead	0.20	NT	LT 0.05	NT	0.05	5.0	0.05
Antimony	LT 0.2	NT	LT 0.2	NT	--	15	--
Selenium	LT 0.002	NT	LT 0.002	NT	0.01	1.0	--
Thallium	LT 0.10	NT	LT 0.10	NT	--	7.0	--
Vanadium	LT 0.5	NT	LT 0.5	NT	--	24	--
Zinc	0.06	NT	0.07	NT	--	250	--
Turbidity (NTU)	LT 1	22	25	12,000	--	--	--
Formaldehyde (mg/L)	LT 2	NT	LT 2	NT	--	--	--
Nitogen/Nitrate (mgN/L)	38	NT	56	NT	10	--	--
Chloroform	0.007	0.011	5.8	41.90	--	--	9
1,2-Dichloropropane	NT	LT 0.0001	NT	0.014	--	--	--

TABLE III-1

SUMMARY OF GROUNDWATER CHEMICAL RESULTS

Sample Analysis (mg/L)	Sample ID				MCL	STLC	NSRL
	UCD-8		UCD-9		(mg/L*)	(mg/L**)	(ug/day***)
	Round 1	Round 2	Round 1	Round 2			
Methylene chloride	00.009	NT	0.110	NT	--	--	--
1,1-Dichloroethane	LT 0.005	LT 0.0001	J	0.0223	--	--	--
1,1-Dichloroethene	LT 0.005	LT 0.0001	LT 0.005	0.0225	--	--	--
1,2-Dichlorobenzene	NT	0.00477		LT 0.0001	--	--	--
1,4-dichlorobenzene	NT	0.0043		LT 0.0001	--	--	--
Dichloromethane	NT	0.00132	NT	0.004	--	--	--

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TABLE III-2

SUMMARY OF WATER RADIONUCLIDE RESULTS (in pCi/L)

Sample ID	Analysis Results in pCi/L±2					
	^{90}Sr	^{226}Ra	Gross Alpha	Gross Beta	^{3}H	^{137}Cs
UCD-1	6/28/88 0±2 11/16/87 0±1	6/28/88 0.18±0.09 11/16/87 0±0.05	11/16/87 0±2	11/16/87 0±5	11/16/87 0±1,000	0±10
UCD-2	6/28/88 0±1 11/17/87 0±2	6/28/88 0.12±0.09 11/17/87 0.11±0.05	11/17/87 0±4	11/17/87 7±5	11/17/87 0±1,000	0±10
UCD-3	6/28/88 0±2 11/17/87 0±2	6/28/88 0±0.06 11/17/87 0±0.05	11/17/87 0±2	11/17/87 0±5	11/17/87 0±1,000	0±10
UCD-4	6/28/88 0±2 11/18/87 0±2	6/28/88 0.14±0.06 11/18/88 0±0.05	11/18/87 0±3	11/18/87 5±4	11/18/87 0±1,000	0±10
UCD-5	6/28/88 0±2 11/18/87 0±2	6/28/88 0±0.05 11/18/87 0.84±0.06	11/18/87 0±2	11/18/87 0±5	11/18/87 0±1,000	0±10
UCD-6	6/28/88 0±2 11/24/87 0±2	6/28/88 0.15±0.10 11/24/87 0.10±0.05	11/24/87 0±2	11/24/87 0±4	11/24/87 0±1,000	0±10
UCD-7	6/29/88 0±4 11/17/87 0±2	6/29/88 0±0.1 11/17/87 0.10±0.05	11/17/87 0±2	11/17/87 0±5	11/17/87 0±1,000	0±10
SPIKES by UCD						
UCD-10	--	0±1	0±3	8±5	0±1,000	0±10
UCD-11	--	0±1	12±3	11±4	12,000±1,000	0±10

TABLE III-3

SUMMARY OF SOIL RADIONUCLIDE RESULTS IN pCi/gm

Sample ID	Gross Alpha	Gross Beta	^{3}H	^{90}Sr	Gamma Scan			
					^{40}K	^{226}Ra	^{232}Th	^{137}Cs
UCD-1, B-1	5±3	30±5	0±0.03	0±0.2	12.0±0.6	0.46±0.05	0.43±0.05	--
UCD-1, B-2, 5, 8, 10, 13	0±6	31±8	0±0.03	0±0.2	9.8±0.6	0.38±0.05	0.46±0.05	--
UCD-1, B-4	0±3	27±5	0±0.03	0±0.2	11.3±0.6	0.54±0.05	0.69±0.05	--
UCD-1, B-7	0±3	26±5	0±0.03	0±0.2	12.2±0.6	0.51±0.05	0.54±0.05	--
UCD-1, B-11	5±3	29±6	0±0.03	0±0.2	10.8±0.6	0.56±0.05	0.58±0.06	--
UCD-1, B-12	0±3	29±6	0±0.03	0±0.2	12.0±0.6	0.57±0.05	0.71±0.06	--
UCD-1, B-15	10±3	16±4	102±5	0±0.2	10.9±0.5	0.47±0.5	0.45±0.07	--
SB-1, B-1, 2, 3	7±3	32±7	0±0.03	1.4±0.2	11.2±0.6	0.48±0.05	0.48±0.05	--
SB-2A, B-1, 2	0±3	45±8	0±0.03	0.6±0.3	10.3±0.5	0.45±0.05	0.38±0.06	0.05±0.02
SB-3, B-1	0±3	28±5	0±0.03	0±0.2	10.6±0.5	0.45±0.05	0.48±0.05	--
SB-3, B-2	0±3	34±6	0.07±0.03	1.6±0.2	12.7±06	0.50±0.05	0.44±0.05	6.2±0.3
SB-3, B-3	0±3	50±7	0.07±0.03	1.4±0.2	12.4±0.6	0.45±0.05	0.59±0.06	0.06±0.02
SB-3, B-4	0±3	60±7	0.04±0.03	0.6±0.2	12.0±0.6	0.57±0.05	0.58±0.05	--
SB-3, B-5	0±3	35±6	0±0.03	0±0.2	11.610.6	0.54±0.05	0.60±0.06	--
SB-3, B-6	7±6	30±6	0±0.03	0±0.2	10.1±0.5	0.44±0.05	0.47±0.05	--
SB-4, B-1	0±3	27±6	0±0.03	0±0.2	8.1±0.4	0.30±0.05	0.32±0.05	--
SB-4, B-2	0±3	30.5	0±0.03	0±0.2	8.2±0.4	0.31±0.05	0.52±0.06	--

TABLE III-3 (Continued)

SUMMARY OF SOIL RADIONUCLIDE RESULTS IN pCi/gm

Sample ID	Gross Alpha	Gross Beta	^{3}H	^{90}Sr	Gamma Scan			
					^{40}K	^{226}Ra	^{232}Th	^{137}Cs
SB-4, B-3	0±3	32±6	0±0.03	0±0.2	8.1±0.4	0.34±0.05	0.37±0.05	0.04±0.03
SB-5, B-1,2,3	0±3	28±7	0±0.03	0.9±0.2	10.7±0.5	0.42±0.05	0.39±0.05	--
SB-6, B-1,2,3	10±5	27±7	0±0.03	0±0.2	10.8±0.5	0.54±0.05	0.59±0.06	--
SB-7, B-1,2,3	0±4	14±4	0±0.03	0±0.2	4.8±0.3	0.26±0.04	0.22±0.04	--
SB-8, B-1,2,3	0±4	26±5	0±0.03	0±0.2	11.8±0.6	0.54±0.05	0.44±0.05	--
SB-9, B-1,2,3	0±3	62±9	0±0.03	0±0.2	10.8±0.5	0.50±0.05	0.56±0.06	--
SB-10, B-1,2,3	0±4	28±6	0.04±0.03	0±0.2	9.3±0.5	0.49±0.05	0.43±0.05	--
SB-10, B-5	7±3	31±6	0±0.03	0±0.2	13.3±0.7	0.54±0.05	0.66±0.06	--
SB-11, B-1,2,3	0±3	28±5	0±0.03	0±0.2	12.1±0.6	0.54±0.03	0.53±0.04	--
SB-12, B-1,2,3	6±4	28±7	0±0.03	1.0±0.2	12.9±0.7	0.98±0.05	0.53±0.06	--
SB-13, B-1,4,7,	7±5	31±7	0±0.03	1.6±0.2	12.7±06	0.50±0.05	0.44±0.05	6.2±0.3
SB-13, B-13	4±3	38±6	0±0.03	0±0.2	14.7±0.7	0.72±0.05	0.49±0.05	--
SB-14, B-1,4,6,9	0±5	38±7	0±0.03	0.3±0.2	13.4±0.7	1.23±0.06	0.58±0.06	0.09±0.02
SB-14, B-12	0±3	33±5	0±0.03	0±0.2	12.2±0.6	0.65±0.05	0.66-0.05	0.05±0.02
SB-15, B-1,4,7	0±4	52±8	0±0.03	0±0.2	9.4±0.5	0.45±0.05	0.41±0.05	--
D-2, B-363,365,367	0±3	26±6	0±0.03	0±0.2	11.0±0.6	0.51±0.04	0.51±0.04	--
D-11,B-343,347,349	0±3	23±5	0±0.03	0±0.2	10.5±0.5	0.44±0.04	0.50±0.05	--

TABLE III-3 (Continued)

SUMMARY OF SOIL RADIONUCLIDE RESULTS IN pCi/gm

Sample ID	Gross Alpha	Gross Beta	^{3}H	^{90}Sr	Gamma Scan ^{40}K	Gamma Scan ^{226}Ra	Gamma Scan ^{232}Th	Gamma Scan ^{137}Cs
D-22,B-351,353,355	0±3	24±6	0±0.03	0±0.2	10.3±0.6	0.47±0.04	0.45±0.05	--
D-24,B-357,359,361	0±3	27±6	0±0.03	0±0.2	12.0±0.6	0.52±0.05	0.51±0.05	--
E-3D, B-369,371, 373	0±5	32±6	0±0.03	0±0.2	9.8±0.5	0.41±0.05	0.38±0.05	--
F-17, B-399,401 403	0±3	25±6	0±0.03	0±0.2	10.9±0.6	0.52±0.03	0.56±0.05	--
G-6, B375,377, 379	0±4	31±6	0.04±0.03	0±0.2	11.1±0.6	0.46±0.03	0.56±0.05	--
G-15, B-393,395, 397	0±3	27±6	0±0.03	0±0.2	11.4±0.6	0.51±0.03	0.49±0.05	--
G-18, B-387,389, 391	0±4	25±6	0±0.03	0±0.2	10.1±0.5	0.47±0.03	0.47±0.05	--
G-22, B-381,383, 385	0±4	26±6	0±0.03	0±0.2	11.8±0.6	0.43±0.04	0.38±0.04	--
H-17, B-321,323 325	0±4	23±5	0±0.03	0±0.2	10.6±0.5	0.53±0.05	0.44±0.05	--
H-32, B-339,341 343	0±3	25±5	0±0.03	0±0.2	10.6±0.5	0.48±0.05	0.49±0.05	--
I-1, B-333,335, 337	0±3	24±6	0±0.03	0±0.2	11.3±0.6	0.49±0.05	0.52±0.05	--
J-16, B-315,317, 319	6±3	21±5	0±0.03	0±0.2	11.8±0.6	0.61±0.05	0.59±0.05	--

TABLE III-3 (Continued)

SUMMARY OF SOIL RADIONUCLIDE RESULTS IN pCi/gm

Sample ID	Gross Alpha	Gross Beta	^{3}H	^{90}Sr	Gamma Scan			
					^{40}K	^{226}Ra	^{232}Th	^{137}Cs
J-22, B-327,329, 331	0±4	22±5	0±0.03	0±0.2	10.9±0.5	0.55±0.05	0.50±0.05	--
K-25, B-300,303, 305	0±4	25±5	0±0.03	0±0.2	11.1±0.6	0.53±0.05	0.50±0.05	--
M-31, B-308,310, 312	0±4	21±6	0±0.03	0±0.2	11.1±0.6	0.53±0.05	0.50±0.05	0.05±0.02
T-1 TR-1,2,3,4,5	5±4	18±3	0±0.03	0±0.2	10.8±0.5	0.47±0.05	0.56±0.07	0.03±0.01
T-2 TR-6,7,8,9,10	9±6	16±4	0±0.04	0±0.2	11.3±0.6	0.50±0.05	0.6±0.06	--
T-3 TR-11,12,13,14,15	4±3	17±3	0±0.03	0±0.2	11.5±0.6	0.51±0.05	0.52±0.06	--
T-4 TR-16,17,18,19,20	4±3	14±3	0±0.04	0±0.2	11.0±0.6	0.54±0.05	0.51±0.06	--
T-5 TR-21,22,23,24,25	5±3	17±3	0±0.03	0±0.2	9.6±0.5	0.50±0.05	0.48±0.08	--
T-6 TR-26,27,28,29,30	4±3	19±3	0±0.03	0±0.2	10.6±0.6	0.57±0.05	0.57±0.07	0.02±0.01
T-7 TR-31,32,33,34,35	0±3	18±3	0±0.03	0±0.2	11.4±0.6	0.55±0.05	0.56±0.06	--
T-8 TR-36,37,38,39,40	0±3	22±3	0±0.03	0±0.2	10.8±0.5	0.47±0.05	0.44±0.07	--

TABLE III-3 (Continued)

SUMMARY OF SOIL RADIONUCLIDE RESULTS IN pCi/gm

Sample ID	Gross Alpha	Gross Beta	^{3}H	^{90}Sr	Gamma Scan			
					^{40}K	^{226}Ra	^{232}Th	^{137}Cs
T-9								
TR-41,42,43,44,45	0±3	15±4	0±0.03	0±0.2	10.4±0.5	0.47±0.05	0.41±0.07	--
T-10								
TR-46,47,48,49,50	0±3	21±3	0±0.03	0±0.2	11.9±0.6	0.52±0.06	0.58±0.06	--
Spikes by UCD								
DSB-1	15±5	55±8	010.03	0±0.2	11.7±0.6	5.4±0.3	0.5410.04	0.14±0.02
D5B-2	20±6	44±7	0±0.03	0±0.2	11.6±0.6	5.4±0.3	0.53±0.05	0.16±0.02
DSB-3	5±4	24±6	0±0.03	0±0.2	12.4±0.6	.57±0.03	0.70±0.04	0.14±0.02

REFERENCES

REFERENCES

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Woodward-Clyde Consultants; (1976), Aggregate Extraction in Yolo County, a Study of Impacts and Management of Alternatives: Prepared for Aggregate Resources Advisory Committee, County of Yolo Planning Department.

Aerial Photographs

UCD - Several photos reviewed of unknown ages.

1973 - Photo numbers 3594-4-196 and 197 taken by Cartwright Aerial Survey, Sacramento, California on 7-13-73.

1968 - Photo numbers GS-VBZJ-6-12 and 6-13 taken by the U.S.G.S. on 5-28-68.

1962 - Photo numbers YOL7-43 and SOL7-44 taken by Cartwright Aerial Survey, Sacramento, California on 7-20-62

1962? - Oblique aerial photo - UCD

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TABLE III-1

SUMMARY OF GROUNDWATER CHEMICAL RESULTS (in mg/l)

Sample Analysis (mg/l)	Sample ID UCD-1	Sample ID UCD-2	MCL (mg/l*)	STLC (mg/l**)	NSRL (ug/day***)
Silver	LT 0.01	LT 0.01	0.05	5.0	--
Arsenic	0.016	0.008	0.05	5.0	10
Barium	0.1	0.1	1.0	0.75	--
Beryllium	LT 0.01	LT 0.01	--	100	0.1
Cadmium	LT 0.01	LT 0.01	0.010	1.0	--
Cobalt	LT 0.02	LT 0.02	--	80	--
Chromium	0.10	0.13	0.05	560	--
Copper	LT 0.02	LT 0.02	--	25	--
Mercury	0.0007	0.0006	0.002	0.2	--
Molybdenum	LT 0.2	LT 0.2	--	350	--
Nickel	LT 0.04	LT 0.04	--	20	--
Lead	LT 0.05	0.05	0.05	5.0	0.05
Animony	LT 0.2	0.2	--	15	--
Selenium	LT 0.002	LT 0.002	0.01	1.0	--
Thallium	LT 0.10	LT 0.10	--	7.0	--
Vanadium	LT 0.5	LT 0.5	--	24	--
Zinc	0.05	0.07	--	250	--
Turbidity (NTU)	16	9.5	--	--	--
Formaldehyde	LT 2	LT 2	--	--	--
Nitrogen/Nitrate	16	98	45	--	--
Chloroform	LT 5	7	--	--	9
1,2,-Dichloropropane	LT 5	LT 5	--	--	--
Methylene chloride	LT 5	LT 5	--	--	--
1,1-Dichloroethane	LT 5	LT 5	--	--	--
1,1-Dichloroethene	LT 5	LT 5	--	--	--
1,2-Dichlorobenzene	LT 10	LT 10	--	--	--
1,4-Dichlorobenzene	LT 10	LT 10	--	--	--

*Maximum contaminant levels for water used by humans when continually used for drinking or culinary purposes, from Title 22, Environmental Health, Chapter 15, Article 4, Section 64435.

**Soluble Threshold Limit Concentration. Any waste is a hazardous waste which contains a substance which exceeds its listed soluble threshold limit concentration. Title 22, Environmental Health, Chapter 30, Article II, Section 66699.

NT = Not Tested
LT = Less Than
*** = Proposition 65 chemicals
J = Present, but below, detection limits (concentration not quantifiable)
MCL = Maximum contaminant level
STLC = Soluble threshold limit concentration
NSRL = No significant risk levels in micrograms/day, Safe Drinking Water and Enforcement Act, Sections 12709, 12711, and 12805

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TABLE III-1 (Continued)

SUMMARY OF GROUNDWATER CHEMICAL RESULTS (in mg/l)

Sample Analysis (mg/l)	Sample ID UCD-3	UCD-4	UCD-5	MCL (mg/l*)	STLC (mg/l**)	NSRL (ug/day***)
Silver	LT 0.01	LT 0.1	LT 0.1	0.05	5.0	--
Arsenic	LT 0.010	LT 0.005	0.012	0.05	5.0	10
Barium	LT 0.1	0.1	0.1	1.0	100	--
Beryllium	LT 0.01	LT 0.01	LT 0.0	--	0.75	0.1
Cadmium	LT 0.01	LT 0.01	LT 0.010	1.0	--	--
Cobalt	LT 0.02	LT 0.02	LT 0.02	--	80	--
Chromium	0.08	0.4	0.08	0.05	560	--
Copper	LT 0.02	0.02	LT 0.02	--	25	--
Mercury	0.0006	LT 0.0005	LT 0.0005	0.002	0.2	--
Molybdenum	LT 0.2	LT 0.2	LT 0.2	--	350	--
Nickel	LT 0.04	LT 0.04	LT 0.04	--	20	--
Lead	LT 0.02	LT 0.02	LT 0.02	0.05	5.0	0.05
Animony	LT 0.2	LT 0.2	LT 0.2	--	15	--
Selenium	LT 0.002	LT 0.002	LT 0.002	0.01	1.0	--
Thallium	LT 0.10	LT 0.10	LT 0.10	--	7.0	--
Vanadium	LT 0.5	LT 0.5	LT 0.5	--	24	--
Zinc	0.06	0.16	0.05	--	250	--
Turbidity (NTU)	5.5	1.6	12	--	--	--
Formaldehyde	LT 2	LT 0.2	LT 2	--	--	--
Nitrogen/Nitrate	360	1.4	48	45	--	--
loroform	LT 5	LT 5	6	--	--	9
,2,-Dichloropropane	LT 5	LT 5	LT 5	--	--	--
Methylene chloride	LT 5	LT 5	LT 5	--	--	--
1,1-Dichloroethane	LT 5	LT 5	LT 5	--	--	--
1,1-Dichloroethene	LT 5	LT 5	LT 5	--	--	--
1,2-Dichlorobenzene	LT 10	LT 10	LT 10	--	--	--
1,4-Dichlorobenzene	LT 10	LT 10	LT 10	--	--	--

*Maximum contaminant levels for water used by humans when continually used for drinking or culinary purposes, from Title 22, Environmental Health, Chapter 15, Article 4, Section 64435.

**Soluble Threshold Limit Concentration. Any waste is a hazardous waste which contains a substance which exceeds its listed soluble threshold limit concentration. Title 22, Environmental Health, Chapter 30, Article II, Section 66699.

NT = Not Tested
LT = Less Than
*** = Proposition 65 chemicals
J = Present, but below, detection limits (concentration not quantifiable)
MCL = Maximum contaminant level
STLC = Soluble threshold limit concentration
NSRL = No significant risk levels in micrograms/day, Safe Drinking Water and Enforcement Act, Sections 12709, 12711, and 12805

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TABLE III-1 (Continued)

SUMMARY OF GROUNDWATER CHEMICAL RESULTS (in mg/l)

Sample Analysis (mg/l)	Sample ID UCD-6	Sample ID UCD-7	MCL (mg/l*)	STLC (mg/l**)	NSRL (ug/day***)
Silver	LT 0.01	LT 0.01	0.05	5.0	--
Arsenic	0.006	0.005	0.05	5.0	10
Barium	0.2	0.2	1.0	0.75	--
Beryllium	LT 0.01	LT 0.01	--	100	0.1
Cadmium	LT 0.01	LT 0.01	0.010	1.0	--
Cobalt	LT 0.02	LT 0.02	--	80	--
Chromium	0.09	0.09	0.05	560	--
Copper	LT 0.02	LT 0.02	--	25	--
Mercury	0.0007	0.0005	0.002	0.2	--
Molybdenum	LT 0.2	LT 0.2	--	350	--
Nickel	LT 0.04	LT 0.04	--	20	--
Lead	0.10	0.15	0.05	5.0	0.05
Animony	LT 0.2	LT 0.2	--	15	--
Selenium	LT 0.002	LT 0.002	0.01	1.0	--
Thallium	LT 0.10	LT 0.10	--	7.0	--
Vanadium	LT 0.5	LT 0.5	--	24	--
Zinc	0.13	0.10	--	250	--
Turbidity (NTU)	70	20	--	--	--
Formaldehyde	LT 2	LT 2	--	--	--
Nitrogen/Nitrate	90	51	45	--	--
Chloroform	LT 5	7	--	--	9
1,2,-Dichloropropane	LT 5	LT 5	--	--	--
Methylene chloride	LT 5	LT 5	--	--	--
1,1-Dichloroethane	LT 5	LT 5	--	--	--
1,1-Dichloroethene	LT 5	LT 5	--	--	--
1,2-Dichlorobenzene	LT 10	LT 10	--	--	--
1,4-Dichlorobenzene	LT 10	LT 10	--	--	--

*Maximum contaminant levels for water used by humans when continually used for drinking or culinary purposes, from Title 22, Environmental Health, Chapter 15, Article 4, Section 64435.

**Soluble Threshold Limit Concentration. Any waste is a hazardous waste which contains a substance which exceeds its listed soluble threshold limit concentration. Title 22, Environmental Health, Chapter 30, Article II, Section 66699.

NT = Not Tested
LT = Less Than
*** = Proposition 65 chemicals
J = Present, but below, detection limits (concentration not quantifiable)
MCL = Maximum contaminant level
STLC = Soluble threshold limit concentration
NSRL = No significant risk levels in micrograms/day, Safe Drinking Water and Enforcement Act, Sections 12709, 12711, and 12805

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TABLE III-2

SUMMARY OF WATER RADIONUCLINE RESULTS (in mg/L)

Sample ID	Analysis Results in pCi/L±2					
	^{90}Sr	^{226}Ra	Gross Alpha	Gross Beta	^{3}H	^{137}Cs
UCD-1	6/28/88 0±2 11/16/88 0±1	6/28/88 0.18±0.09 0±0.05 11/16/88	11/16/87 0±2	11/16/87 0±5	11/16/87 0±1,000	0±10
UCD-2	6/28/88 0±1 11/17/88 0±2	6/28/88 0.12±0.09 11/17/87 0.11±0.05	11/17/87 0±4	11/17/87 7±5	11/17/87 0±1,000	0±10
UCD-3	6/28/88 0±2 11/17/88 0±2	6/28/88 0±0.06 11/17/87 0±0.05	11/17/87 0±2	11/17/87 0±5	11/17/87 0±1,000	0±10
UCD-4	6/28/88 0±2 11/18/88 0±2	6/28/88 0.14±0.06 11/18/88 0±0.05	11/18/87 0±3	11/18/87 5±4	11/18/87 0±1,000	0±10
UCD-5	6/28/88 0±2 11/18/88 0±2	6/28/88 0±0.05 11/18/88 0.84±0.06	11/18/87 0±2	11/18/87 0±5	11/18/87 0±1,000	0±10
UCD-6	11/24/87 0±2	11/24/87 0.10±0.05	11/24/87 0±2	11/24/87 0±4	11/24/87 0±1,000	0±10
UCD-7	11/17/87 0±2	11/17/87 0.10±0.05	11/17/87 0±2	11/17/87 0±5	11/17/87 0±1,000	0±10
SPIKES by UCD						
UCD-10	--	0±1	0±3	8±5	0±1,000	0±10
UCD-11	--	0±1	12±3	11±4	12,000±1,000	0±10

APPENDIX A

APPENDIX A

DRILLING AND EXCAVATION PROCEDURES

1. Groundwater Monitoring Wells

A total of seven groundwater monitoring wells (UCD-1 through UCD-7) were installed beginning on October 7 and ending on November 5, 1988. The borings were drilled by PC Exploration and HEW Drilling. A Mobile B-53 drill rig utilizing 8-inch O.D., 3.7-inch I.D. hollow-stem augers was used to advance the borings. Sampling was completed with a 2.9-inch O.D., 2.5-inch I.D. split spoon sampler, loaded with 6.0x2.5-inch thin-walled stainless steel liners.

All drilling and sampling equipment was steam-cleaned before and after each boring. Also, radionuclide wipe samples of all equipment were taken and analyzed by UCD Environmental Health and Safety (EH&S) field personnel. The results of these wipe samples were used as a safety check before any equipment was moved to different locations around the site. Each drill site was covered with heavy plastic sheeting which prevented the spread of drill cuttings to adjacent soils. All drill cuttings were placed in lined and appropriately labeled 55 gallon drums. All personnel at the drilling site wore protective clothing, gloves and shoe covers while drilling activities proceeded. UCD EH&S personnel provided constant safety monitoring with geiger counters during drilling periods. Respirator protection was also on hand for all personnel. All personnel remained on the plastic sheeted area during drilling periods, until geiger counter frisking was performed and protective clothing was removed.

Soil samples and drill cuttings were frisked by UCD EH&S personnel as each sample was removed from the sampler. Geologic logs were completed by experienced Wahler Associates hydrogeologists under the supervision of a

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certified engineering geologist or registered professional engineer. The boring logs can be found in (Appendix F). The soils were logged and classified in accordance with the Unified Soil Classification System. The boring logs and a key for soil exploration logs is contained in Appendix F.

Borings were terminated when the targeted clay zone or depth was reached. This clay zone was backfilled so that the bottom of the wells were coincident with the bottom of the aquifer. The wells were constructed with 2.0-inch Schedule 40 PVC casing. The flush-threaded casing has 0.020-inch factory slots in specific locations where the aquifer is to be screened and is solid above the screen. An artificial No. 3 sand pack was tremied into position around and 5 feet above the slotted portions of the casing. The sand was extended 5 feet above the slotted area to prevent the infiltration of the neat cement slurry into the well. The neat cement slurry, consisting of cement grout and 2-5 percent powdered bentonite, was tremied into position forming the upper well seal. Before the cement slurry solidified, above-ground steel locking well covers were positioned over the PVC well casings. After all work was complete the well locations were surveyed by Yolo Engineers and Surveyors, Inc. of Woodland, California. All well covered were painted and marked by metal stamping with the appropriate identification.

The immediate area around the wells has been graded to prevent the ponding of surface waters at the well location.

2. Soil Borings

A total of 43 soil borings were completed at the site. The drilling began on October 12, 1987 and was finished on April 26, 1988. The borings locations can found on Figure __. The borings were drilled by PC Exploration of Roseville, California and HEW Drilling of Palo Alto, California. Both companies followed the same drilling, sealing, sampling and safety protocol. PC Exploration utilized two types of drill rigs to advance the borings. The larger rig of the two was a Mobile B-53.

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The same procedures outlined for the installation of the monitoring wells was used by this larger drill rig. All soil borings were terminated above groundwater.

In areas where access was limited, the dog pen areas, a small portable drill rig was used. This drill rig advanced the borings with 6-inch O.D. solid flight augers. Sampling, sealing, and safety procedures duplicated the previously outlined protocols. Prior to drilling in some of the confined areas required modifications for the drilling space needed.

3. Backhoe Trenches

A total of 10 trenches were excavated on the 17th of February 1988. Their location is shown on Figure I. The trenches were excavated by Arrow Earth, Inc. of Woodland, California. A John Deere 580-E 4 by 4 backhoe with an 18-inch bucket was utilized for this activity. The operator and all personnel in the area wore respirators at all times to prevent the inhalation of potentially hazardous air-born particles. Additionally, a Gillian Personal Pump, supplied and monitored by UCD EH&S personnel, was attached to the backhoe which allowed for constant and long-term ambient air sampling.

Soils removed from the trenches were placed on heavy plastic sheeting to prevent the spread of potentially contaminated soils. No groundwater was encountered during the backhoe trenching.

A graphic and lithologic log was made of each excavation by an experienced Wahler Associates hydrogeologist under the supervision of a registered civil engineer. The backhoe trenching logs can be found in Appendix F. Grab samples of selected soils and other encountered materials were collected by UCD EH&S personnel. Additionally all of the trenching was observed by DOE representatives. After all desired information was collected the trenches

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were backfilled with the soils and bentonite powder. During the backfill operation approximately 5 to 10 percent powdered bentonite was added to the soils, which should enhance sealing of the disturbed soils. Survey stakes were placed at the ends of each trench for surveying and future reference.

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APPENDIX B

APPENDIX B

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MONITORING WELLS

Wahler Associates performed sampling of the groundwater in all wells of the site. An array of chemical and radionuclide analyses which included EPA methods 601, 624, 625 and 608; 17 CAM metals; nitrates; formaldehyde; Ra-226; Sr-90; gross alpha, beta, gamma and H-3 were completed.

1. Well Development

The wells at the site have been developed in accordance with the applicable protocols. The wells were developed using air, bailing and surging techniques. Soon after the wells were installed, our well development technician started the development process. We first placed a steel drum with a plastic liner next to the well to be developed to receive the purge water which will be stored on site until safe disposal can take place by UC Davis. A clean 5/8-inch polyethelene hose was lowered to the bottom of the well to be used for nitrogen agitation of the sediment in the well, repeatedly for intervals of about 5 seconds, and the surrounding well filter pack. We use clean, dry nitrogen in steel cylinders for this purpose. The nitrogen is injected into the well at about 30 to 50 psi to agitate and put into suspension fine particles of natural soils. After this agitation, a clean bailer is rapidly lowered to the bottom of the well and rapidly withdrawn. The rapid lowering and withdrawal of the bailers also surges water into and out of the screen, acting as a surge block, but additionally, the bailer removes suspended sediment with each trip out of the well. The use of a bailer as a surge block is clearly defined in EPA Method 600/2-85/104 and is considered the more common method with less potential for damage to the wells. The well development procedure continued until the wells were fully developed. All wells were developed to their maximum potential for groundwater sampling.

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2. Pump Installation

The installation of dedicated bladder pumps in each well was completed after the well development procedure was finished. Each of the bladder pumps (Well Wizard bladder pump model P1100), has been test certified for EPA priority pollutant parameters by the manufacturer. Also, each pump and all Teflon tubing was wipe sampled for radionuclides, by UCD EH&S personnel, and results were received before installation took place. Additionally, deionized water was passed through the pumps and given to UCD for evaluation of radiochemical content with a scintillation counter. No activity in excess of the natural background radiation was detected.

The pumps and tubing are assembled together and installed into the well without any surface or soil contact. The pump is positioned approximately 1½ feet from the bottom of the well (BOH). The polyethylene tubing is cut to the desired length, a slip cap with the appropriate fitting is attached, and the pump installation is complete. To ensure that the pump is functioning properly approximately one bore volume of water is pumped from the well and into an appropriately labeled and lined 55 gallon drum.

3. Groundwater Sampling

We sampled for four distinct groups of analyses: radionuclides, metals and organics and nitrates. The water sampled for radionuclides was filtered through a 0.45 micron membrane filter by TMA/NORCAL before analysis to mitigate against suspended naturally occurring radionuclides. These samples were tested for dissolved radionuclides in the groundwater.

The groundwater samples collected for metals analysis were field filtered through a 0.45 micron membrane before being placed in the appropriate containers. The metal samples were filtered in a nitrogen pressure chamber in the field. Wahler Associates uses a nitrogen atmosphere to filter groundwater samples to be tested for metals, although not required, to

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mitigate against oxidizing dissolved metallic ions in the groundwater sample. If dissolved metallic ions are oxidized before filtering, the metallic oxide would then be filtered out and possibly lower the true amount of dissolved metallic ions. The filtered groundwater samples are then field acidified with nitric acid to prevent any further oxidation before analysis.

The unfiltered groundwater samples for organic analysis were placed in the appropriate containers which were then placed in an ice chest containing blue-ice for refrigerated transport to the project laboratory for analysis.

On December 22, 1987, a representative of Wahler Associates transported spike samples to the project laboratory for analysis. These samples, prepared by UCD, were analyzed as unknowns to the laboratory for radionuclides. The results of these analysis can be found in Appendix C and indicated by the identification UCD-10, UCD-11, DSB-1, DSB-2 and DSB-3. All spikes analyzed by the project laboratory were reconfirmed as accurate by UCD/DOE. Results of the second spike analyses and QA/QC indicated the spikes were incorrectly prepared.

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APPENDIX C

TMA
Thermo Analytical Inc.

TMA/Norcal
2030 Wright Avenue
P.O. Box 4040
Richmond, CA 94804-0040

(415) 235-2633

RECEIVED
ASSOC.

September 15, 1988

Ref: TMA/Norcal CN 766

Mr. Charlie Wittman
Wahler Associates
1023 Corporation Way
Palo Alto, CA 94303

Dear Mr. Wittman:

The results of the eleven water samples we received for analysis on 1 July 1988 have been completed and are shown on Table 1.

We appreciate this opportunity to be of service.

Very truly yours,

Marvin P. Hunt
Program Manager

MPH/ss

Attachment 1: QC Data

TABLE 1 WATER RESULTS

Sample Number	Collection Date	Analysis	Results pCi/L ± 2 σ
UCD-1	6/28/88	^{90}Sr	0 ± 2
		^{226}Ra	0.18 ± 0.09
UCD-2	6/28/88	^{90}Sr	0 ± 2
		^{226}Ra	0.12 ± 0.09
UCD-3	6/28/88	^{90}Sr	0 ± 2
		^{226}Ra	0 ± 0.06
UCD-4	6/28/88	^{90}Sr	0 ± 2
		^{226}Ra	0.14 ± 0.06
UCD-5	6/28/88	^{90}Sr	0 ± 2
		^{226}Ra	0 ± 0.05
UCD-6	6/28/88	^{90}Sr	0 ± 2
		^{226}Ra	0.15 ± 0.10
UCD-7	6/29/88	^{90}Sr	0 ± 4 (1)
		^{226}Ra	0 ± 0.1 (1)
UCD-8	6/29/88	^{90}Sr	0 ± 2
		^{226}Ra	0 ± 0.06
UCD-9	6/29/88	^{90}Sr	0 ± 3 (1)
		^{226}Ra	0 ± 0.1 (1)
UCD-10	6/29/88	^{90}Sr	0 ± 2
		^{226}Ra	0 ± 0.07
UCD-11	6/29/88	^{90}Sr	0 ± 2
		^{226}Ra	4.8 ± 0.2

(1) Small sample received for analysis, reduced aliquot had to be used.

TMA
Thermo Analytical Inc.

TMA/Norcal
2030 Wright Avenue
P.O. Box 4040
Richmond, CA 94804-0040
(415) 235-2633

RECEIVED
1988
WAHLER & ASSOC.

August 9, 1988

Ref: TMA/Norcal CN 766

Mr. Charlie Wittman
Wahler Associates
1023 Corporation Way
Palo Alto, CA 94303

Dear Mr. Wittman:

The results of the eleven soil samples we received for analysis on 9 May 1988 have been completed and are shown on Table 1.

We appreciate this opportunity to be of service.

Very truly yours,

Marvin P. Hunt
Program Manager

MPH/ss

Attachment 1: QC Data

TABLE 1 SOIL RESULTS

Sample Number	Collection Date	Analysis	Results pCi/g ± 2 σ
T-1 Composite TR 1,2,3,4,5	4/26/88	Gross Alpha	5 ± 4
		Gross Beta	18 ± 3
		^{3}H	0 ± 0.03
		^{90}Sr	0 ± 0.2
		Gamma Scan:	
		^{40}K	10.8 ± 0.5
		^{137}Cs	0.03 ± 0.01
		^{226}Ra	0.47 ± 0.05
		^{232}Th	0.56 ± 0.07
UCD-1-B15	10/8/87	Gross Alpha	10 ± 3
		Gross Beta	16 ± 4
		^{3}H	102 ± 5
		^{90}Sr	0 ± 0.2
		Gamma Scan:	
		^{40}K	10.9 ± 0.5
		^{226}Ra	0.47 ± 0.05
		^{232}Th	0.45 ± 0.07
T-2 Composite TR-6,7,8,9,10	4/26/88	Gross Alpha	9 ± 6
		Gross Beta	16 ± 4
		^{3}H	0 ± 0.04
		^{90}Sr	0 ± 0.2
		Gamma Scan:	
		^{40}K	11.3 ± 0.6
		^{226}Ra	0.50 ± 0.05
		^{232}Th	0.60 ± 0.06
T-3 Composite TR-11,12,13,14,15	4/26/86	Gross Alpha	4 ± 3
		Gross Beta	17 ± 3
		^{3}H	0 ± 0.03
		^{90}Sr	0 ± 0.2
		Gamma Scan:	
		^{40}K	11.5 ± 0.6
		^{226}Ra	0.51 ± 0.05
		^{232}Th	0.52 ± 0.06
T-4 Composite TR-16,17,18,19,20	4/26/88	Gross Alpha	4 ± 3
		Gross Beta	14 ± 3
		^{3}H	0 ± 0.04
		^{90}Sr	0 ± 0.2
		Gamma Scan:	
		^{40}K	11.0 ± 0.6
		^{226}Ra	0.54 ± 0.05
		^{232}Th	0.51 ± 0.06

TABLE 1 SOIL RESULTS (cont'd, page two)

Sample Number	Collection Date	Analysis	Results pCi/g ± 2 σ
T-5 Composite TR 21,22,23,24,25	4/26/88	Gross Alpha	5 ± 3
		Gross Beta	17 ± 3
		^{3}H	0 ± 0.03
		^{90}Sr	0 ± 0.2
		Gamma Scan:	
		^{40}K	9.6 ± 0.5
		^{226}Ra	0.50 ± 0.05
		^{232}Th	0.48 ± 0.08
T-6 Composite TR 26,27,27,29,30	4/26/88	Gross Alpha	4 ± 3
		Gross Beta	19 ± 3
		^{3}H	0 ± 0.03
		^{90}Sr	0 ± 0.2
		Gamma Scan:	
		^{40}K	10.6 ± 0.6
		^{137}Cs	0.02 ± 0.01
		^{226}Ra	0.53 ± 0.05
		^{232}Th	0.53 ± 0.07
T-7 Composite TR 31,32,33,34,35	4/26/88	Gross Alpha	0 ± 3
		Gross Beta	18 ± 3
		^{3}H	0 ± 0.03
		^{90}Sr	0 ± 0.2
		Gamma Scan:	
		^{40}K	11.4 ± 0.6
		^{226}Ra	0.55 ± 0.05
		^{232}Th	0.56 ± 0.06
T-8 Composite TR 36,37,38,39,40	4/26/88	Gross Alpha	0 ± 3
		Gross Beta	22 ± 3
		^{3}H	0 ± 0.03
		^{90}Sr	0 ± 0.2
		Gamma Scan:	
		^{40}K	10.8 ± 0.5
		^{226}Ra	0.47 ± 0.05
		^{232}Th	0.44 ± 0.07
T-9 Composite TR 41,42,43,44,45	4/26/88	Gross Alpha	0 ± 3
		Gross Beta	15 ± 4
		^{3}H	0 ± 0.03
		^{90}Sr	0 ± 0.2
		Gamma Scan:	
		^{40}K	10.4 ± 0.5
		^{226}Ra	0.47 ± 0.05
		^{232}Th	0.41 ± 0.07

TABLE 1 SOIL RESULTS (cont'd, page 3)

Sample Number	Collection Date	Analysis	Results pCi/g ± 2 σ
T-10 Composite TR 46,47,48,49,50	4/26/88	Gross Alpha	0 ± 3
		Gross Beta	21 ± 3
		^{3}H	0 ± 0.03
		^{90}Sr	0 ± 0.2
		Gamma Scan:	
		^{40}K	11.9 ± 0.6
		^{226}Ra	0.52 ± 0.05
		^{232}Th	0.58 ± 0.06

ATTACHMENT 1 QC DATA

Enclosed is a tabulation of the QC data for the soil samples received 9 May 1988.

Ge(Li) ^{137}Cs Spike	Recovered/Added Ratio	1.00
Gross Beta Blank		0 ± 5 pCi/g
Gross Alpha Blank		0 ± 3 pCi/g
Ge(Li) Blank		0 ± 0.03 pCi/g as ^{137}Cs
^{226}Ra Spike	Recovered/Added Ratio	0.84
^{90}Sr Spike	Recovered/Added Ratio	1.00
^{3}H Blank		0 ± 1000 pCi/L
^{3}H Split		0 ± 0.03 pCi/g
Gross Beta Spike	Recovered/Added Ratio	1.15
Gross Alpha Spike	Recovered/Added Ratio	0.78

I hope this is satisfactory.

TMA
Thermo Analytical Inc.

TMA/Norcal
2030 Wright Avenue
P O Box 4040
Richmond, CA 94804-0040

(415) 235-2633

Wahler Associates
P.O. Box 10023
1023 Corporation Way
Palo Alto, CA 94303
Attention: Charlie Wittman

August 1, 1988
Samples Received: 7/1/88
TMA/Norcal Lab No.: 766-115

ANALYSIS REPORT

Sample Identification TMA/Norcal	Customer	Turbidity NTU
766-115-1	UCD-1	56
766-115-2	UCD-2	4
766-115-3	UCD-3	480
766-115-4	UCD-4	11
766-115-5	UCD-5	53
766-115-6	UCD-6	5,000
766-115-7	UCD-7	4
766-115-8	UCD-8	22
766-115-9	UCD-9	12,000

George E. Dunstan
Director of Program Management

GED/dss

TMA
Thermo Analytical Inc.

TMA/Norcal
2030 Wright Avenue
P O Box 4040
Richmond, CA 94804-0040

(415) 235-2633

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MAR 2 - 1988
Wahler & Associates

February 29, 1988

Ref: TMA/Norcal CN 766

Mr. Charlie Wittman
Wahler Associates
1023 Corporation Way
Palo Alto, CA 94303

Dear Mr. Wittman:

The results of the six samples we received for analysis on 22 December 1987 have been completed. The liquid results are shown on Table 1, and the solid results are shown on Table 2.

We appreciate this opportunity to be of service.

Very truly yours,

Marvin P. Hunt
Program Manager

MPH/ss

Enclosures: Tables 1 and 2

TABLE 1 LIQUID RESULTS

Sample Number	Collection Date	Analysis	Results pCi/L ± 2 σ
UCD-10	12/22/87	Gross Alpha	0 ± 3
		Gross Beta	8 ± 5
		^{3}H	0 ± 1,000
		^{226}Ra	0 ± 0.1
		Gamma Scan:	
		^{137}Cs	0 ± 10
UCD-11	12/22/87	Gross Alpha	12 ± 3
		Gross Beta	11 ± 4
		^{3}H	12,000 ± 1,000
		^{226}Ra	0 ± 0.1
		Gamma Scan:	
		^{137}Cs	0 ± 10
UCD-11	12/22/87	^{3}H	12,000 ± 1,000

TABLE 2 SOIL RESULTS

Sample Number	Collection Date	Analysis	Results pCi/g ± 2 σ
DSB-1	12/22/87	Gross Alpha	15 ± 5
		Gross Beta	55 ± 8
		^{3}H	0 ± 0.03
		^{90}Sr	0 ± 0.2
		Gamma Scan:	
		^{40}K	11.7 ± 0.6
		^{137}Cs	0.14 ± 0.02
		^{226}Ra	5.4 ± 0.3
		^{232}Th	0.54 ± 0.04
D5B-2	12/22/87	Gross Alpha	20 ± 6
		Gross Beta	44 ± 7
		^{3}H	0 ± 0.03
		^{90}Sr	0 ± 0.2
		Gamma Scan:	
		^{40}K	11.6 ± 0.6
		^{137}Cs	0.16 ± 0.02
		^{226}Ra	5.4 ± 0.3
		^{232}Th	0.53 ± 0.05
DSB-3	12/22/87	Gross Alpha	5 ± 4
		Gross Beta	24 ± 6
		^{3}H	0 ± 0.03
		^{90}Sr	0 ± 0.2
		Gamma Scan:	
		^{40}K	12.4 ± 0.6
		^{137}Cs	0.14 ± 0.02
		^{226}Ra	0.57 ± 0.03
		^{232}Th	0.70 ± 0.04

TMA
Thermo Analytical Inc.

TMA/Norcal
2030 Wright Avenue
Richmond, CA 94804-0040
(415) 235-2633

Mailing Address
P.O. Box 4040
Richmond, CA 94804-0040

Wahler Associates
P.O. Box 10023
1023 Corporation Way
Palo Alto, CA 94303
Attention: Charlie Wittman

January 21, 1988
Samples Received: 11/19 & 11/24/88
TMA/Norcal #: 766-99, -100, -102
P.O. No.: UCD-101

ANALYSIS REPORT

Sample Identification Analysis (mg/L)	766-99-5 UCD-8	766-99-11 UCD-9	766-100-25 UCD-1	766-100-26 UCD-2
Silver	<0.01	<0.01	<0.01	<0.01
Arsenic	0.005	0.010	0.016	0.008
Barium	0.2	0.4	0.1	0.1
Beryllium	<0.01	<0.01	<0.01	<0.01
Cadmium	<0.01	<0.01	<0.01	<0.01
Cobalt	<0.02	<0.02	<0.02	<0.02
Chromium	0.11	0.19	0.10	0.13
Copper	0.03	0.03	<0.02	<0.02
Mercury	0.0009	0.0006	0.0007	0.0006
Molybdenum	<0.2	<0.2	<0.2	<0.2
Nickel	0.05	0.05	<0.04	<0.04
Lead	0.20	<0.05	<0.05	0.05
Antimony	<0.2	<0.2	<0.2	<0.2
Selenium	<0.002	<0.002	<0.002	<0.002
Thallium	<0.10	<0.10	<0.10	<0.10
Vanadium	<0.5	<0.5	<0.5	<0.5
Zinc	0.06	0.07	0.05	0.07
Turbidity (NTU)	<1	25	16	9.5
Formaldehyde (mg/L)	<2	<2	<2	<2
Nitrogen,Nitrate (mgN/L)	38	56	16	98

George E. Dunstan
Director of Program Management

GED/dss

Wahler Associates
TMA/Norcal Lab No.: 766-102

January 21, 1988

Sample Identification Analysis (mg/L)	766-100-27 UCD-3	766-100-28 UCD-4	766-100-29 UCD-5	766-100-30 UCD-7
Silver	<0.01	<0.01	<0.01	<0.01
Arsenic	0.010	0.005	0.012	0.005
Barium	0.1	0.1	0.1	0.2
Beryllium	<0.01	<0.01	<0.01	<0.01
Cadmium	<0.01	<0.01	<0.01	<0.01
Cobalt	<0.02	<0.02	<0.02	<0.02
Chromium	0.08	0.04	0.08	0.09
Copper	<0.02	0.02	<0.02	<0.02
Mercury	0.0006	<0.0005	<0.0005	0.0005
Molybdenum	<0.2	<0.2	<0.2	<0.2
Nickel	<0.04	<0.04	<0.04	<0.04
Lead	<0.05	<0.05	<0.05	0.15
Antimony	<0.2	<0.2	<0.2	<0.2
Selenium	<0.002	<0.002	<0.002	<0.002
Thallium	<0.10	<0.10	<0.10	<0.10
Vanadium	<0.5	<0.5	<0.5	<0.5
Zinc	0.06	0.16	0.05	0.10
Turbidity (NTU)	5.5	1.6	12	20
Formaldehyde (mg/L)	<2	<0.2	<2	<2
Nitrogen,Nitrate (mgN/L)	360	1.4	48	51

Wahler Associates
TMA/Norcal Lab No.: 766-102

January 21, 1988

Sample Identification	766-102-5
Analysis (mg/L)	UCD-6
Silver	<0.01
Arsenic	0.006
Barium	0.2
Beryllium	<0.01
Cadmium	<0.01
Cobalt	<0.02
Chromium	0.09
Copper	<0.02
Mercury	0.0007
Molybdenum	<0.2
Nickel	<0.04
Lead	0.10
Antimony	<0.2
Selenium	<0.002
Thallium	<0.10
Vanadium	<0.5
Zinc	0.13
Turbidity (NTU)	70*
Formaldehyde (mg/L)	<2
Nitrogen,Nitrate (mgN/L)	90

*contains particles that settled quickly. Reported value is the constant reading.

Wahler Associates

Date: January 21, 1988
TMA/Norcal Lab No.: 766-100-1
Client I.D.: UCD-1

Volatiles	ug/L(ppb)	Volatiles	ug/L(ppb)
chloromethane	<10	1,2-dichloropropane	<5
bromomethane	<10	trans-1,3-dichloropropene	<5
vinyl chloride	<10	trichloroethene	<5
chloroethane	<10	dibromochloromethane	<5
methylene chloride	<5	1,1,2-trichloroethane	<5
acetone	<10	benzene	<5
carbon disulfide	<5	cis-1,3-dichloropropene	<5
1,1-dichloroethene	<5	2-chloroethylvinylether	<10
1,1-dichloroethane	<5	bromoform	<5
trans-1,2-dichloroethene	<5	4-methyl-2-pentanone	<10
chloroform	<5	2-hexanone	<10
1,2-dichloroethane	<5	tetrachloroethene	<5
2-butanone	<10	1,1,2,2-tetrachloroethane	<5
1,1,1-trichloroethane	<5	toluene	<5
carbon tetrachloride	<5	chlorobenzene	<5
vinyl acetate	<10	ethylbenzene	<5
bromodichloromethane	<5	styrene	<5
		total xylenes	<5

Wahler Associates

Date: January 21, 1988
TMA/Norcal Lab No.: 766-100-3
Client I.D.: UCD-2

Volatiles	ug/L(ppb)	Volatiles	ug/L(ppb)
chloromethane	<10	1,2-dichloropropane	<5
bromomethane	<10	trans-1,3-dichloropropene	<5
vinyl chloride	<10	trichloroethene	<5
chloroethane	<10	dibromochloromethane	<5
methylene chloride	<5	1,1,2-trichloroethane	<5
acetone	<10	benzene	<5
carbon disulfide	<5	cis-1,3-dichloropropene	<5
1,1-dichloroethene	<5	2-chloroethylvinylether	<10
1,1-dichloroethane	<5	bromoform	<5
trans-1,2-dichloroethene	<5	4-methyl-2-pentanone	<10
chloroform	7	2-hexanone	<10
1,2-dichloroethane	<5	tetrachloroethene	<5
2-butanone	<10	1,1,2,2-tetrachloroethane	<5
1,1,1-trichloroethane	<5	toluene	<5
carbon tetrachloride	<5	chlorobenzene	<5
vinyl acetate	<10	ethylbenzene	<5
bromodichloromethane	<5	styrene	<5
		total xylenes	<5

Wahler Associates

Date: January 21, 1988
TMA/Norcal Lab No.: 766-100-5
Client I.D.: UCD-3

Volatiles	ug/L(ppb)	Volatiles	ug/L(ppb)
chloromethane	<10	1,2-dichloropropane	<5
bromomethane	<10	trans-1,3-dichloropropene	<5
vinyl chloride	<10	trichloroethene	<5
chloroethane	<10	dibromochloromethane	<5
methylene chloride	<5	1,1,2-trichloroethane	<5
acetone	<10	benzene	<5
carbon disulfide	<5	cis-1,3-dichloropropene	<5
1,1-dichloroethene	<5	2-chloroethylvinylether	<10
1,1-dichloroethane	<5	bromoform	<5
trans-1,2-dichloroethene	<5	4-methyl-2-pentanone	<10
chloroform	<5	2-hexanone	<10
1,2-dichloroethane	<5	tetrachloroethene	<5
2-butanone	<10	1,1,2,2-tetrachloroethane	<5
1,1,1-trichloroethane	<5	toluene	<5
carbon tetrachloride	<5	chlorobenzene	<5
vinyl acetate	<10	ethylbenzene	<5
bromodichloromethane	<5	styrene	<5
		total xylenes	<5

Wahler Associates

Date: January 21, 1988
TMA/Norcal Lab No.: 766-100-7
Client I.D.: UCD-4

Volatiles	ug/L(ppb)	Volatiles	ug/L(ppb)
.chloromethane	<10	1,2-dichloropropane	<5
bromomethane	<10	trans-1,3-dichloropropene	<5
vinyl chloride	<10	trichloroethene	<5
chloroethane	<10	dibromochloromethane	<5
methylene chloride	<5	1,1,2-trichloroethane	<5
acetone	<10	benzene	<5
carbon disulfide	<5	cis-1,3-dichloropropene	<5
1,1-dichloroethene	<5	2-chloroethylvinylether	<10
1,1-dichloroethane	<5	bromoform	<5
trans-1,2-dichloroethene	<5	4-methyl-2-pentanone	<10
chloroform	<5	2-hexanone	<10
1,2-dichloroethane	<5	tetrachloroethene	<5
2-butanone	<10	1,1,2,2-tetrachloroethane	<5
1,1,1-trichloroethane	<5	toluene	<5
carbon tetrachloride	<5	chlorobenzene	<5
vinyl acetate	<10	ethylbenzene	<5
bromodichloromethane	<5	styrene	<5
		total xylenes	<5

Wahler Associates

Date: January 21, 1988
TMA/Norcal Lab No.: 766-100-9
Client I.D.: UCD-5

Volatiles	ug/L(ppb)	Volatiles	ug/L(ppb)
chloromethane	<10	1,2-dichloropropane	<5
bromomethane	<10	trans-1,3-dichloropropene	<5
vinyl chloride	<10	trichloroethene	<5
chloroethane	<10	dibromochloromethane	<5
methylene chloride	<5 J	1,1,2-trichloroethane	<5
acetone	<10	benzene	<5
carbon disulfide	<5	cis-1,3-dichloropropene	<5
1,1-dichloroethene	<5	2-chloroethylvinylether	<10
1,1-dichloroethane	<5	bromoform	<5
trans-1,2-dichloroethene	<5	4-methyl-2-pentanone	<10
chloroform	6	2-hexanone	<10
1,2-dichloroethane	<5	tetrachloroethene	<5
2-butanone	<10	1,1,2,2-tetrachloroethane	<5
1,1,1-trichloroethane	<5	toluene	<5
carbon tetrachloride	<5	chlorobenzene	<5
vinyl acetate	<10	ethylbenzene	<5
bromodichloromethane	<5	styrene	<5
		total xylenes	<5

J = present, but below detection limits.

Wahler Associates

Date: January 21, 1988
TMA/Norcal Lab No.: 766-102-1
Client I.D.: UCD-6

Volatiles	ug/L(ppb)	Volatiles	ug/L(ppb)
chloromethane	<10	1,2-dichloropropane	<5
bromomethane	<10	trans-1,3-dichloropropene	<5
vinyl chloride	<10	trichloroethene	<5
chloroethane	<10	dibromochloromethane	<5
methylene chloride	<5	1,1,2-trichloroethane	<5
acetone	<10	benzene	<5
carbon disulfide	<5	cis-1,3-dichloropropene	<5
1,1-dichloroethene	<5	2-chloroethylvinylether	<10
1,1-dichloroethane	<5	bromoform	<5
trans-1,2-dichloroethene	<5	4-methyl-2-pentanone	<10
chloroform	<5	2-hexanone	<10
1,2-dichloroethane	<5	tetrachloroethene	<5
2-butanone	<10	1,1,2,2-tetrachloroethane	<5
1,1,1-trichloroethane	<5	toluene	<5
carbon tetrachloride	<5	chlorobenzene	<5
vinyl acetate	<10	ethylbenzene	<5
bromodichloromethane	<5	styrene	<5
		total xylenes	<5

SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET

UCD-1

Lab Name: TMA/NORCAL Contract: _____

Lab Code: _____ Case No.: _____ SAS No.: _____ SDG No.: _____

Matrix: (soil/water) WATER Lab Sample ID: 766-100-19

Sample wt/vol: 500 (g/mL) ML Lab File ID: A25799

Level: (low/med) LOW Date Received: 11/19/87

% Moisture: not dec. _____ dec. _____ Date Extracted: 11/21/87

Extraction: (SepF/Cont/Sonc) _____ Date Analyzed: 11/25/87

GPC Cleanup: (Y/N) N pH: _____ Dilution Factor: 0.500

CONCENTRATION UNITS: (ug/L or ug/Kg) UG/L

CAS NO.	COMPOUND		Q
108-95-2	Phenol	10	U
111-44-4	bis(2-Chloroethyl)Ether	10	U
95-57-8	2-Chlorophenol	10	U
541-73-1	1,3-Dichlorobenzene	10	U
106-46-7	1,4-Dichlorobenzene	10	U
100-51-6	Benzyl Alcohol	10	U
95-50-1	1,2-Dichlorobenzene	10	U
95-48-7	2-Methylphenol	10	U
39638-32-9	bis(2-Chloroisopropyl)Ether	10	U
106-44-5	4-Methylphenol	10	U
621-64-7	N-Nitroso-Di-n-Propylamine	10	U
67-72-1	Hexachloroethane	10	U
98-95-3	Nitrobenzene	10	U
78-59-1	Isophorone	10	U
88-75-5	2-Nitrophenol	10	U
105-67-9	2,4-Dimethylphenol	10	U
65-85-0	Benzoic Acid	50	U
111-91-1	bis(2-Chloroethoxy)Methane	10	U
120-83-2	2,4-Dichlorophenol	10	U
120-82-1	1,2,4-Trichlorobenzene	10	U
91-20-3	Naphthalene	10	U
106-47-8	4-Chloroaniline	10	U
87-68-3	Hexachlorobutadiene	10	U
59-50-7	4-Chloro-3-Methylphenol	10	U
91-57-6	2-Methylnaphthalene	10	U
77-47-4	Hexachlorocyclopentadiene	10	U
88-06-2	2,4,6-Trichlorophenol	10	U
95-95-4	2,4,5-Trichlorophenol	50	U
91-58-7	2-Chloronaphthalene	10	U
88-74-4	2-Nitroaniline	50	U
131-11-3	Dimethyl Phthalate	10	U
208-96-8	Acenaphthylene	10	U
606-20-2	2,6-Dinitrotoluene	10	U

SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET

UCD-1

Lab Name: TMA/NORCAL Contract: _____

Lab Code: _____ Case No.: _____ SAS No.: _____ SDG No.: _____

Matrix: (soil/water) WATER Lab Sample ID: 766-100-19

Sample wt/vol: 500 (g/mL) ML Lab File ID: A25799

Level: (low/med) LOW Date Received: 11/19/87

% Moisture: not dec. _____ dec. _____ Date Extracted: 11/21/87

Extraction: (SepF/Cont/Sonc) _____ Date Analyzed: 11/25/87

GPC Cleanup: (Y/N) N pH: _____ Dilution Factor: 0.500

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/L	Q
99-09-2	3-Nitroaniline	50	U
83-32-9	Acenaphthene	10	U
51-28-5	2,4-Dinitrophenol	50	U
100-02-7	4-Nitrophenol	50	U
132-64-9	Dibenzofuran	10	U
121-14-2	2,4-Dinitrotoluene	10	U
84-66-2	Diethylphthalate	10	U
7005-72-3	4-Chlorophenyl-phenylether	10	U
86-73-7	Fluorene	10	U
100-10-6	4-Nitroaniline	50	U
534-52-1	4,6-Dinitro-2-Methylphenol	50	U
86-30-6	N-Nitrosodiphenylamine (1)	10	U
101-55-3	4-Bromophenyl-phenylether	10	U
118-74-1	Hexachlorobenzene	10	U
87-86-5	Pentachlorophenol	50	U
85-01-8	Phenanthrene	10	U
120-12-7	Anthracene	10	U
84-74-2	Di-n-Butylphthalate	10	U
206-44-0	Fluoranthene	10	U
129-00-0	Pyrene	10	U
85-68-7	Butylbenzylphthalate	10	U
91-94-1	3,3'-Dichlorobenzidine	20	U
56-55-3	Benzo(a)Anthracene	10	U
218-01-9	Chrysene	10	U
117-81-7	bis(2-Ethylhexyl)Phthalate	6	J
117-84-0	Di-n-Octyl Phthalate	10	U
205-99-2	Benzo(b)Fluoranthene	10	U
207-08-9	Benzo(k)Fluoranthene	10	U
50-32-8	Benzo(a)Pyrene	10	U
193-39-5	Indeno(1,2,3-cd)Pyrene	10	U
53-70-3	Dibenz(a,h)Anthracene	10	U
191-24-2	Benzo(g,h,i)Perylene	10	U

(1) - Cannot be separated from Diphenylamine

SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET

UCD-2

Lab Name: TMA/NORCAL Contract: _____

Lab Code: _____ Case No.: _____ SAS No.: _____ SDG No.: _____

Matrix: (soil/water) WATER Lab Sample ID: 766-100-20

Sample wt/vol: 500 (g/mL) ML Lab File ID: A25825

Level: (low/med) LOW Date Received: 11/19/87

% Moisture: not dec. ____ dec. ____ Date Extracted: 11/27/87

Extraction: (SepF/Cont/Sonc) ____ Date Analyzed: 12/04/87

GPC Cleanup: (Y/N) N pH: _____ Dilution Factor: 0.500

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/L	Q
108-95-2	Phenol	10	U
111-44-4	bis(2-Chloroethyl)Ether	10	U
95-57-8	2-Chlorophenol	10	U
541-73-1	1,3-Dichlorobenzene	10	U
106-46-7	1,4-Dichlorobenzene	10	U
100-51-6	Benzyl Alcohol	10	U
95-50-1	1,2-Dichlorobenzene	10	U
95-48-7	2-Methylphenol	10	U
39638-32-9	bis(2-Chloroisopropyl)Ether	10	U
106-44-5	4-Methylphenol	10	U
621-64-7	N-Nitroso-Di-n-Propylamine	10	U
67-72-1	Hexachloroethane	10	U
98-95-3	Nitrobenzene	10	U
78-59-1	Isophorone	10	U
88-75-5	2-Nitrophenol	10	U
105-67-9	2,4-Dimethylphenol	10	U
65-85-0	Benzoic Acid	50	U
111-91-1	bis(2-Chloroethoxy)Methane	10	U
120-83-2	2,4-Dichlorophenol	10	U
120-82-1	1,2,4-Trichlorobenzene	10	U
91-20-3	Naphthalene	10	U
106-47-8	4-Chloroaniline	10	U
87-68-3	Hexachlorobutadiene	10	U
59-50-7	4-Chloro-3-Methylphenol	10	U
91-57-6	2-Methylnaphthalene	10	U
77-47-4	Hexachlorocyclopentadiene	10	U
88-06-2	2,4,6-Trichlorophenol	10	U
95-95-4	2,4,5-Trichlorophenol	50	U
91-58-7	2-Chloronaphthalene	10	U
88-74-4	2-Nitroaniline	50	U
131-11-3	Dimethyl Phthalate	10	U
208-96-8	Acenaphthylene	10	U
606-20-2	2,6-Dinitrotoluene	10	U

SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET

UCD-2

Lab Name: TMA/NORCAL Contract: _____

Lab Code: _____ Case No.: _____ SAS No.: _____ SDG No.: _____

Matrix: (soil/water) WATER Lab Sample ID: 766-100-20

Sample wt/vol: 500 (g/mL) ML Lab File ID: A25825

Level: (low/med) LOW Date Received: 11/19/87

% Moisture: not dec. _____ dec. _____ Date Extracted: 11/27/87

Extraction: (SepF/Cont/Sonc) _____ Date Analyzed: 12/04/87

GPC Cleanup: (Y/N) N pH: _____ Dilution Factor: 0.500

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/L	Q
99-09-2	3-Nitroaniline	50	U
83-32-9	Acenaphthene	10	U
51-28-5	2,4-Dinitrophenol	50	U
100-02-7	4-Nitrophenol	50	U
132-64-9	Dibenzofuran	10	U
121-14-2	2,4-Dinitrotoluene	10	U
84-66-2	Diethylphthalate	10	U
7005-72-3	4-Chlorophenyl-phenylether	10	U
86-73-7	Fluorene	10	U
100-10-6	4-Nitroaniline	50	U
534-52-1	4,6-Dinitro-2-Methylphenol	50	U
86-30-6	N-Nitrosodiphenylamine (1)	10	U
101-55-3	4-Bromophenyl-phenylether	10	U
118-74-1	Hexachlorobenzene	10	U
87-86-5	Pentachlorophenol	50	U
85-01-8	Phenanthrene	10	U
120-12-7	Anthracene	10	U
84-74-2	Di-n-Butylphthalate	10	U
206-44-0	Fluoranthene	10	U
129-00-0	Pyrene	10	U
85-68-7	Butylbenzylphthalate	10	U
91-94-1	3,3'-Dichlorobenzidine	20	U
56-55-3	Benzo(a)Anthracene	10	U
218-01-9	Chrysene	10	U
117-81-7	bis(2-Ethylhexyl)Phthalate	10	U
117-84-0	Di-n-Octyl Phthalate	10	U
205-99-2	Benzo(b)Fluoranthene	10	U
207-08-9	Benzo(k)Fluoranthene	10	U
50-32-8	Benzo(a)Pyrene	10	U
193-39-5	Indeno(1,2,3-cd)Pyrene	10	U
53-70-3	Dibenz(a,h)Anthracene	10	U
191-24-2	Benzo(g,h,i)Perylene	10	U

(1) - Cannot be separated from Diphenylamine

UCD-3

Lab Name: TMA/NORCAL Contract: _____

Lab Code: _____ Case No.: _____ SAS No.: _____ SDG No.: _____

: (soil/water) WATER Lab Sample ID: 766-100-21

Sample wt/vol: 500 (g/mL) ML Lab File ID: A25826

Level: (low/med) LOW Date Received: 11/19/87

% Moisture: not dec. ____ dec. ____ Date Extracted: 11/27/87

Extraction: (SepF/Cont/Sonc) CONT Date Analyzed: 12/04/87

GPC Cleanup: (Y/N) N pH: _____ Dilution Factor: 0.500

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/L	Q
108-95-2	Phenol	10	U
111-44-4	bis(2-Chloroethyl)Ether	10	U
95-57-8	2-Chlorophenol	10	U
541-73-1	1,3-Dichlorobenzene	10	U
106-46-7	1,4-Dichlorobenzene	10	U
100-51-6	Benzyl Alcohol	10	U
95-50-1	1,2-Dichlorobenzene	10	U
95-48-7	2-Methylphenol	10	U
39638-32-9	bis(2-Chloroisopropyl)Ether	10	U
106-44-5	4-Methylphenol	10	U
621-64-7	N-Nitroso-Di-n-Propylamine	10	U
67-72-1	Hexachloroethane	10	U
98-95-3	Nitrobenzene	10	U
78-59-1	Isophorone	10	U
88-75-5	2-Nitrophenol	10	U
105-67-9	2,4-Dimethylphenol	10	U
65-85-0	Benzoic Acid	50	U
111-91-1	bis(2-Chloroethoxy)Methane	10	U
120-83-2	2,4-Dichlorophenol	10	U
120-82-1	1,2,4-Trichlorobenzene	10	U
91-20-3	Naphthalene	10	U
106-47-8	4-Chloroaniline	10	U
87-68-3	Hexachlorobutadiene	10	U
59-50-7	4-Chloro-3-Methylphenol	10	U
91-57-6	2-Methylnaphthalene	10	U
77-47-4	Hexachlorocyclopentadiene	10	U
88-06-2	2,4,6-Trichlorophenol	10	U
95-95-4	2,4,5-Trichlorophenol	50	U
91-58-7	2-Chloronaphthalene	10	U
88-74-4	2-Nitroaniline	50	U
131-11-3	Dimethyl Phthalate	10	U
208-96-8	Acenaphthylene	10	U
606-20-2	2,6-Dinitrotoluene	10	U

SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

UCD-3

Lab Name: TMA/NORCAL Contract: _____

Lab Code: _____ Case No.: _____ SAS No.: _____ SDG No.: _____

Matrix: (soil/water) WATER Lab Sample ID: 766-100-21

Sample wt/vol: 500 (g/mL) ML Lab File ID: A25826

Level: (low/med) LOW Date Received: 11/19/87

% Moisture: not dec. ____ dec. ____ Date Extracted: 11/27/87

Extraction: (SepF/Cont/Sonc) CONT Date Analyzed: 12/04/87

GPC Cleanup: (Y/N) N pH: _____ Dilution Factor: 0.500

CONCENTRATION UNITS: (ug/L or ug/Kg) UG/L

CAS NO.	COMPOUND		Q
99-09-2	3-Nitroaniline	50	U
83-32-9	Acenaphthene	10	U
51-28-5	2,4-Dinitrophenol	50	U
100-02-7	4-Nitrophenol	50	U
132-64-9	Dibenzofuran	10	U
121-14-2	2,4-Dinitrotoluene	10	U
84-66-2	Diethylphthalate	10	U
7005-72-3	4-Chlorophenyl-phenylether	10	U
86-73-7	Fluorene	10	U
100-10-6	4-Nitroaniline	50	U
534-52-1	4,6-Dinitro-2-Methylphenol	50	U
86-30-6	N-Nitrosodiphenylamine (1)	10	U
101-55-3	4-Bromophenyl-phenylether	10	U
118-74-1	Hexachlorobenzene	10	U
87-86-5	Pentachlorophenol	50	U
85-01-8	Phenanthrene	10	U
120-12-7	Anthracene	10	U
84-74-2	Di-n-Butylphthalate	10	U
206-44-0	Fluoranthene	10	U
129-00-0	Pyrene	10	U
85-68-7	Butylbenzylphthalate	10	U
91-94-1	3,3'-Dichlorobenzidine	20	U
56-55-3	Benzo(a)Anthracene	10	U
218-01-9	Chrysene	10	U
117-81-7	bis(2-Ethylhexyl)Phthalate	10	U
117-84-0	Di-n-Octyl Phthalate	10	U
205-99-2	Benzo(b)Fluoranthene	10	U
207-08-9	Benzo(k)Fluoranthene	10	U
50-32-8	Benzo(a)Pyrene	10	U
193-39-5	Indeno(1,2,3-cd)Pyrene	10	U
53-70-3	Dibenz(a,h)Anthracene	10	U
191-24-2	Benzo(g,h,i)Perylene	10	U

(1) - Cannot be separated from Diphenylamine

SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET

UCD-4

Lab Name: TMA/NORCAL Contract: _____

Lab Code: _____ Case No.: _____ SAS No.: _____ SDG No.: _____

Matrix: (soil/water) WATER Lab Sample ID: 766-100-22

Sample wt/vol: 500 (g/mL) ML Lab File ID: A25827

Level: (low/med) LOW Date Received: 11/19/87

% Moisture: not dec. ____ dec. ____ Date Extracted: 11/27/87

Extraction: (SepF/Cont/Sonc) CONT Date Analyzed: 12/04/87

GPC Cleanup: (Y/N) N pH: _____ Dilution Factor: 0.500

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/L	Q
108-95-2	Phenol	10	U
111-44-4	bis(2-Chloroethyl)Ether	10	U
95-57-8	2-Chlorophenol	10	U
541-73-1	1,3-Dichlorobenzene	10	U
106-46-7	1,4-Dichlorobenzene	10	U
100-51-6	Benzyl Alcohol	10	U
95-50-1	1,2-Dichlorobenzene	10	U
95-48-7	2-Methylphenol	10	U
39638-32-9	bis(2-Chloroisopropyl)Ether	10	U
106-44-5	4-Methylphenol	10	U
621-64-7	N-Nitroso-Di-n-Propylamine	10	U
67-72-1	Hexachloroethane	10	U
98-95-3	Nitrobenzene	10	U
78-59-1	Isophorone	10	U
88-75-5	2-Nitrophenol	10	U
105-67-9	2,4-Dimethylphenol	10	U
65-85-0	Benzoic Acid	50	U
111-91-1	bis(2-Chloroethoxy)Methane	10	U
120-83-2	2,4-Dichlorophenol	10	U
120-82-1	1,2,4-Trichlorobenzene	10	U
91-20-3	Naphthalene	10	U
106-47-8	4-Chloroaniline	10	U
87-68-3	Hexachlorobutadiene	10	U
59-50-7	4-Chloro-3-Methylphenol	10	U
91-57-6	2-Methylnaphthalene	10	U
77-47-4	Hexachlorocyclopentadiene	10	U
88-06-2	2,4,6-Trichlorophenol	10	U
95-95-4	2,4,5-Trichlorophenol	50	U
91-58-7	2-Chloronaphthalene	10	U
88-74-4	2-Nitroaniline	50	U
131-11-3	Dimethyl Phthalate	10	U
208-96-8	Acenaphthylene	10	U
606-20-2	2,6-Dinitrotoluene	10	U

UCD-4

Lab Name: TMA/NORCAL Contract: _____

Lab Code: _____ Case No.: _____ SAS No.: _____ SDG No.: _____

Matrix: (soil/water) WATER Lab Sample ID: 766-100-22

Sample wt/vol: 500 (g/mL) ML Lab File ID: A25827

Level: (low/med) LOW Date Received: 11/19/87

% Moisture: not dec. ____ dec. ____ Date Extracted: 11/27/87

Extraction: (SepF/Cont/Sonc) CONT Date Analyzed: 12/04/87

GPC Cleanup: (Y/N) N pH: _____ Dilution Factor: 0.500

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/L	Q
99-09-2	3-Nitroaniline	50	U
83-32-9	Acenaphthene	10	U
51-28-5	2,4-Dinitrophenol	50	U
100-02-7	4-Nitrophenol	50	U
132-64-9	Dibenzofuran	10	U
121-14-2	2,4-Dinitrotoluene	10	U
84-66-2	Diethylphthalate	10	U
7005-72-3	4-Chlorophenyl-phenylether	10	U
86-73-7	Fluorene	10	U
100-10-6	4-Nitroaniline	50	U
534-52-1	4,6-Dinitro-2-Methylphenol	50	U
86-30-6	N-Nitrosodiphenylamine (1)	10	U
101-55-3	4-Bromophenyl-phenylether	10	U
118-74-1	Hexachlorobenzene	10	U
87-86-5	Pentachlorophenol	50	U
85-01-8	Phenanthrene	10	U
120-12-7	Anthracene	10	U
84-74-2	Di-n-Butylphthalate	10	U
206-44-0	Fluoranthene	10	U
129-00-0	Pyrene	10	U
85-68-7	Butylbenzylphthalate	10	U
91-94-1	3,3'-Dichlorobenzidine	20	U
56-55-3	Benzo(a)Anthracene	10	U
218-01-9	Chrysene	10	U
117-81-7	bis(2-Ethylhexyl)Phthalate	10	U
117-84-0	Di-n-Octyl Phthalate	10	U
205-99-2	Benzo(b)Fluoranthene	10	U
207-08-9	Benzo(k)Fluoranthene	10	U
50-32-8	Benzo(a)Pyrene	10	U
193-39-5	Indeno(1,2,3-cd)Pyrene	10	U
53-70-3	Dibenz(a,h)Anthracene	10	U
191-24-2	Benzo(g,h,i)Perylene	10	U

(1) - Cannot be separated from Diphenylamine

SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET

UCD-5

Lab Name: TMA/NORCAL Contract: _____

Lab Code: _____ Case No.: _____ SAS No.: _____ SDG No.: _____

Matrix: (soil/water) WATER Lab Sample ID: 766-100-23

Sample wt/vol: 500 (g/mL) ML Lab File ID: A33033

Level: (low/med) LOW Date Received: 11/19/87

% Moisture: not dec. _____ dec. _____ Date Extracted: 11/27/87

Extraction: (SepF/Cont/Sonc) CONT Date Analyzed: 12/04/87

GPC Cleanup: (Y/N) N pH: _____ Dilution Factor: 0.500

CONCENTRATION UNITS: (ug/L or ug/Kg) UG/L

CAS NO.	COMPOUND		Q
108-95-2	Phenol	10	U
111-44-4	bis(2-Chloroethyl)Ether	10	U
95-57-8	2-Chlorophenol	10	U
541-73-1	1,3-Dichlorobenzene	10	U
106-46-7	1,4-Dichlorobenzene	10	U
100-51-6	Benzyl Alcohol	10	U
95-50-1	1,2-Dichlorobenzene	10	U
95-48-7	2-Methylphenol	10	U
39638-32-9	bis(2-Chloroisopropyl)Ether	10	U
106-44-5	4-Methylphenol	10	U
621-64-7	N-Nitroso-Di-n-Propylamine	10	U
67-72-1	Hexachloroethane	10	U
98-95-3	Nitrobenzene	10	U
78-59-1	Isophorone	10	U
88-75-5	2-Nitrophenol	10	U
105-67-9	2,4-Dimethylphenol	10	U
65-85-0	Benzoic Acid	50	U
111-91-1	bis(2-Chloroethoxy)Methane	10	U
120-83-2	2,4-Dichlorophenol	10	U
120-82-1	1,2,4-Trichlorobenzene	10	U
91-20-3	Naphthalene	10	U
106-47-8	4-Chloroaniline	10	U
87-68-3	Hexachlorobutadiene	10	U
59-50-7	4-Chloro-3-Methylphenol	10	U
91-57-6	2-Methylnaphthalene	10	U
77-47-4	Hexachlorocyclopentadiene	10	U
88-06-2	2,4,6-Trichlorophenol	10	U
95-95-4	2,4,5-Trichlorophenol	50	U
91-58-7	2-Chloronaphthalene	10	U
88-74-4	2-Nitroaniline	50	U
131-11-3	Dimethyl Phthalate	10	U
208-96-8	Acenaphthylene	10	U
606-20-2	2,6-Dinitrotoluene	10	U

SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET

UCD-5

Lab Name: TMA/NORCAL Contract: _____

Lab Code: _____ Case No.: _____ SAS No.: _____ SDG No.: _____

Matrix: (soil/water) WATER Lab Sample ID: 766-100-23

Sample wt/vol: 500 (g/mL) ML Lab File ID: A33033

Level: (low/med) LOW Date Received: 11/19/87

% Moisture: not dec. _____ dec. _____ Date Extracted: 11/27/87

Extraction: (SepF/Cont/Sonc) CONT Date Analyzed: 12/04/87

GPC Cleanup: (Y/N) N pH: _____ Dilution Factor: 0.500

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/L	Q
99-09-2	3-Nitroaniline	50	U
83-32-9	Acenaphthene	10	U
51-28-5	2,4-Dinitrophenol	50	U
100-02-7	4-Nitrophenol	50	U
132-64-9	Dibenzofuran	10	U
121-14-2	2,4-Dinitrotoluene	10	U
84-66-2	Diethylphthalate	10	U
7005-72-3	4-Chlorophenyl-phenylether	10	U
86-73-7	Fluorene	10	U
100-10-6	4-Nitroaniline	50	U
534-52-1	4,6-Dinitro-2-Methylphenol	50	U
86-30-6	N-Nitrosodiphenylamine (1)	10	U
101-55-3	4-Bromophenyl-phenylether	10	U
118-74-1	Hexachlorobenzene	10	U
87-86-5	Pentachlorophenol	50	U
85-01-8	Phenanthrene	10	U
120-12-7	Anthracene	10	U
84-74-2	Di-n-Butylphthalate	10	U
206-44-0	Fluoranthene	10	U
129-00-0	Pyrene	10	U
85-68-7	Butylbenzylphthalate	10	U
91-94-1	3,3'-Dichlorobenzidine	20	U
56-55-3	Benzo(a)Anthracene	10	U
218-01-9	Chrysene	10	U
117-81-7	bis(2-Ethylhexyl)Phthalate	10	U
117-84-0	Di-n-Octyl Phthalate	10	U
205-99-2	Benzo(b)Fluoranthene	10	U
207-08-9	Benzo(k)Fluoranthene	10	U
50-32-8	Benzo(a)Pyrene	10	U
193-39-5	Indeno(1,2,3-cd)Pyrene	10	U
53-70-3	Dibenz(a,h)Anthracene	10	U
191-24-2	Benzo(g,h,i)Perylene	10	U

(1) - Cannot be separated from Diphenylamine

SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET

UCD-7

Lab Name: TMA/NORCAL Contract: _____

Lab Code: _____ Case No.: _____ SAS No.: _____ SDG No.: _____

Matrix: (soil/water) WATER Lab Sample ID: 766-100-24

Sample wt/vol: 500 (g/mL) ML Lab File ID: A33028

Level: (low/med) LOW Date Received: 11/19/87

% Moisture: not dec. _____ dec. _____ Date Extracted: 11/27/87

Extraction: (SepF/Cont/Sonc) CONT Date Analyzed: 12/04/87

GPC Cleanup: (Y/N) N pH: _____ Dilution Factor: 0.500

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/L	Q
108-95-2	Phenol	10	U
111-44-4	bis(2-Chloroethyl)Ether	10	U
95-57-8	2-Chlorophenol	10	U
541-73-1	1,3-Dichlorobenzene	10	U
106-46-7	1,4-Dichlorobenzene	10	U
100-51-6	Benzyl Alcohol	10	U
95-50-1	1,2-Dichlorobenzene	10	U
95-48-7	2-Methylphenol	10	U
39638-32-9	bis(2-Chloroisopropyl)Ether	10	U
106-44-5	4-Methylphenol	10	U
621-64-7	N-Nitroso-Di-n-Propylamine	10	U
67-72-1	Hexachloroethane	10	U
98-95-3	Nitrobenzene	10	U
78-59-1	Isophorone	10	U
88-75-5	2-Nitrophenol	10	U
105-67-9	2,4-Dimethylphenol	10	U
65-85-0	Benzoic Acid	50	U
111-91-1	bis(2-Chloroethoxy)Methane	10	U
120-83-2	2,4-Dichlorophenol	10	U
120-82-1	1,2,4-Trichlorobenzene	10	U
91-20-3	Naphthalene	10	U
106-47-8	4-Chloroaniline	10	U
87-68-3	Hexachlorobutadiene	10	U
59-50-7	4-Chloro-3-Methylphenol	10	U
91-57-6	2-Methylnaphthalene	10	U
77-47-4	Hexachlorocyclopentadiene	10	U
88-06-2	2,4,6-Trichlorophenol	10	U
95-95-4	2,4,5-Trichlorophenol	50	U
91-58-7	2-Chloronaphthalene	10	U
88-74-4	2-Nitroaniline	50	U
131-11-3	Dimethyl Phthalate	10	U
208-96-8	Acenaphthylene	10	U
606-20-2	2,6-Dinitrotoluene	10	U

SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET

UCD-7

Lab Name: TMA/NORCAL Contract: _____

Lab Code: _____ Case No.: _____ SAS No.: _____ SDG No.: _____

Matrix: (soil/water) WATER Lab Sample ID: 766-100-24

Sample wt/vol: 500 (g/mL) ML Lab File ID: A33028

Level: (low/med) LOW Date Received: 11/19/87

% Moisture: not dec. ____ dec. ____ Date Extracted: 11/27/87

Extraction: (SepF/Cont/Sonc) CONT Date Analyzed: 12/04/87

GPC Cleanup: (Y/N) N pH: _____ Dilution Factor: 0.500

CONCENTRATION UNITS: (ug/L or ug/Kg) UG/L

CAS NO.	COMPOUND		Q
99-09-2	3-Nitroaniline	50	U
83-32-9	Acenaphthene	10	U
51-28-5	2,4-Dinitrophenol	50	U
100-02-7	4-Nitrophenol	50	U
132-64-9	Dibenzofuran	10	U
121-14-2	2,4-Dinitrotoluene	10	U
84-66-2	Diethylphthalate	10	U
7005-72-3	4-Chlorophenyl-phenylether	10	U
86-73-7	Fluorene	10	U
100-10-6	4-Nitroaniline	50	U
534-52-1	4,6-Dinitro-2-Methylphenol	50	U
86-30-6	N-Nitrosodiphenylamine (1)	10	U
101-55-3	4-Bromophenyl-phenylether	10	U
118-74-1	Hexachlorobenzene	10	U
87-86-5	Pentachlorophenol	50	U
85-01-8	Phenanthrene	10	U
120-12-7	Anthracene	10	U
84-74-2	Di-n-Butylphthalate	10	U
206-44-0	Fluoranthene	10	U
129-00-0	Pyrene	10	U
85-68-7	Butylbenzylphthalate	10	U
91-94-1	3,3'-Dichlorobenzidine	20	U
56-55-3	Benzo(a)Anthracene	10	U
218-01-9	Chrysene	10	U
117-81-7	bis(2-Ethylhexyl)Phthalate	10	U
117-84-0	Di-n-Octyl Phthalate	10	U
205-99-2	Benzo(b)Fluoranthene	10	U
207-08-9	Benzo(k)Fluoranthene	10	U
50-32-8	Benzo(a)Pyrene	10	U
193-39-5	Indeno(1,2,3-cd)Pyrene	10	U
53-70-3	Dibenz(a,h)Anthracene	10	U
191-24-2	Benzo(g,h,i)Perylene	10	U

(1) - Cannot be separated from Diphenylamine

Wahler Associates

Date: January 21, 1988
TMA/Norcal Lab No.: 766-102-1
Client I.D.: UCD-6

Volatiles	ug/L(ppb)	Volatiles	ug/L(ppb)
chloromethane	<10	1,2-dichloropropane	<5
bromomethane	<10	trans-1,3-dichloropropene	<5
vinyl chloride	<10	trichloroethene	<5
chloroethane	<10	dibromochloromethane	<5
methylene chloride	<5	1,1,2-trichloroethane	<5
acetone	<10	benzene	<5
carbon disulfide	<5	cis-1,3-dichloropropene	<5
1,1-dichloroethene	<5	2-chloroethylvinylether	<10
1,1-dichloroethane	<5	bromoform	<5
trans-1,2-dichloroethene	<5	4-methyl-2-pentanone	<10
chloroform	<5	2-hexanone	<10
1,2-dichloroethane	<5	tetrachloroethene	<5
2-butanone	<10	1,1,2,2-tetrachloroethane	<5
1,1,1-trichloroethane	<5	toluene	<5
carbon tetrachloride	<5	chlorobenzene	<5
vinyl acetate	<10	ethylbenzene	<5
bromodichloromethane	<5	styrene	<5
		total xylenes	<5

Wahler Associates

Date: January 21, 1988
TMA/Norcal Lab No.: 766-100-11
Client I.D.: UCD-7

Volatiles	ug/L(ppb)	Volatiles	ug/L(ppb)
chloromethane	<10	1,2-dichloropropane	<5
bromomethane	<10	trans-1,3-dichloropropene	<5
vinyl chloride	<10	trichloroethene	<5
chloroethane	<10	dibromochloromethane	<5
methylene chloride	<5 J	1,1,2-trichloroethane	<5
acetone	<10	benzene	<5
carbon disulfide	<5	cis-1,3-dichloropropene	<5
1,1-dichloroethene	<5	2-chloroethylvinylether	<10
1,1-dichloroethane	<5	bromoform	<5
trans-1,2-dichloroethene	<5	4-methyl-2-pentanone	<10
chloroform	<5	2-hexanone	<10
1,2-dichloroethane	<5	tetrachloroethene	<5
2-butanone	<10	1,1,2,2-tetrachloroethane	<5
1,1,1-trichloroethane	<5	toluene	<5
carbon tetrachloride	<5	chlorobenzene	<5
vinyl acetate	<10	ethylbenzene	<5
bromodichloromethane	<5	styrene	<5
		total xylenes	<5

J = present, but below detection limits.

1B

SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

UCD-1

Lab Name: TMA/NORCAL Contract: _____

Code: _____ Case No.: _____ SAS No.: _____ SDG No.: _____

Matrix: (soil/water) WATER Lab Sample ID: 766-100-19

Sample wt/vol: 500 (g/mL) ML Lab File ID: A25799

Level: (low/med) LOW Date Received: 11/19/87

% Moisture: not dec. _____ dec. _____ Date Extracted: 11/21/87

Extraction: (SepF/Cont/Sonc) _____ Date Analyzed: 11/25/87

GPC Cleanup: (Y/N) N pH: _____ Dilution Factor: 0.500

CONCENTRATION UNITS: (ug/L or ug/Kg) UG/L

CAS NO.	COMPOUND		G
108-95-2	Phenol	10	U
111-44-4	bis(2-Chloroethyl)Ether	10	U
95-57-8	2-Chlorophenol	10	U
541-73-1	1,3-Dichlorobenzene	10	U
106-46-7	1,4-Dichlorobenzene	10	U
100-51-6	Benzyl Alcohol	10	U
95-50-1	1,2-Dichlorobenzene	10	U
95-48-7	2-Methylphenol	10	U
39638-32-9	bis(2-Chloroisopropyl)Ether	10	U
106-44-5	4-Methylphenol	10	U
621-64-7	N-Nitroso-Di-n-Propylamine	10	U
67-72-1	Hexachloroethane	10	U
98-95-3	Nitrobenzene	10	U
78-59-1	Isophorone	10	U
88-75-5	2-Nitrophenol	10	U
105-67-9	2,4-Dimethylphenol	10	U
65-85-0	Benzoic Acid	50	U
111-91-1	bis(2-Chloroethoxy)Methane	10	U
120-83-2	2,4-Dichlorophenol	10	U
120-82-1	1,2,4-Trichlorobenzene	10	U
91-20-3	Naphthalene	10	U
106-47-8	4-Chloroaniline	10	U
87-68-3	Hexachlorobutadiene	10	U
59-50-7	4-Chloro-3-Methylphenol	10	U
91-57-6	2-Methylnaphthalene	10	U
77-47-4	Hexachlorocyclopentadiene	10	U
88-06-2	2,4,6-Trichlorophenol	10	U
95-95-4	2,4,5-Trichlorophenol	50	U
91-58-7	2-Chloronaphthalene	10	U
88-74-4	2-Nitroaniline	50	U
131-11-3	Dimethyl Phthalate	10	U
208-96-8	Acenaphthylene	10	U
606-20-2	2,6-Dinitrotoluene	10	U

1C

SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

UCD-1

Lab Name: TMA/NORCAL Contract: _____

Code: _____ Case No.: _____ SAS No.: _____ SDG No.: _____

Matrix: (soil/water) WATER Lab Sample ID: 766-100-19

Sample wt/vol: 500 (g/mL) ML Lab File ID: A25799

Level: (low/med) LOW Date Received: 11/19/87

% Moisture: not dec. ____ dec. ____ Date Extracted: 11/21/87

Extraction: (SepF/Cont/Sonc) ____ Date Analyzed: 11/25/87

GPC Cleanup: (Y/N) N pH: _____ Dilution Factor: 0.500

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/L	Q
99-09-2	3-Nitroaniline	50	U
83-32-9	Acenaphthene	10	U
51-28-5	2,4-Dinitrophenol	50	U
100-02-7	4-Nitrophenol	50	U
132-64-9	Dibenzofuran	10	U
121-14-2	2,4-Dinitrotoluene	10	U
84-66-2	Diethylphthalate	10	U
7005-72-3	4-Chlorophenyl-phenylether	10	U
86-73-7	Fluorene	10	U
100-10-6	4-Nitroaniline	50	U
534-52-1	4,6-Dinitro-2-Methylphenol	50	U
86-30-6	N-Nitrosodiphenylamine (1)	10	U
101-55-3	4-Bromophenyl-phenylether	10	U
118-74-1	Hexachlorobenzene	10	U
87-86-5	Pentachlorophenol	50	U
85-01-8	Phenanthrene	10	U
120-12-7	Anthracene	10	U
84-74-2	Di-n-Butylphthalate	10	U
206-44-0	Fluoranthene	10	U
129-00-0	Pyrene	10	U
85-68-7	Butylbenzylphthalate	10	U
91-94-1	3,3'-Dichlorobenzidine	20	U
56-55-3	Benzo(a)Anthracene	10	U
218-01-9	Chrysene	10	U
117-81-7	bis(2-Ethylhexyl)Phthalate	6	J
117-84-0	Di-n-Octyl Phthalate	10	U
205-99-2	Benzo(b)Fluoranthene	10	U
207-08-9	Benzo(k)Fluoranthene	10	U
50-32-8	Benzo(a)Pyrene	10	U
193-39-5	Indeno(1,2,3-cd)Pyrene	10	U
53-70-3	Dibenz(a,h)Anthracene	10	U
191-24-2	Benzo(g,h,i)Perylene	10	U

(1) - Cannot be separated from Diphenylamine

1B

SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

UCD-2

Lab Name: TMA/NORCAL Contract: _____

Code: _____ Case No.: _____ SAS No.: _____ SDG No.: _____

Matrix: (soil/water) WATER Lab Sample ID: 766-100-20

Sample wt/vol: 500 (g/mL) ML Lab File ID: A25825

Level: (low/med) LOW Date Received: 11/19/87

% Moisture: not dec. _____ dec. _____ Date Extracted: 11/27/87

Extraction: (SepF/Cont/Sonc) _____ Date Analyzed: 12/04/87

GPC Cleanup: (Y/N) N pH: _____ Dilution Factor: 0.500

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/L	Q
108-95-2	Phenol	10	U
111-44-4	bis(2-Chloroethyl)Ether	10	U
95-57-8	2-Chlorophenol	10	U
541-73-1	1,3-Dichlorobenzene	10	U
106-46-7	1,4-Dichlorobenzene	10	U
100-51-6	Benzyl Alcohol	10	U
95-50-1	1,2-Dichlorobenzene	10	U
95-48-7	2-Methylphenol	10	U
39638-32-9	bis(2-Chloroisopropyl)Ether	10	U
106-44-5	4-Methylphenol	10	U
621-64-7	N-Nitroso-Di-n-Propylamine	10	U
67-72-1	Hexachloroethane	10	U
98-95-3	Nitrobenzene	10	U
78-59-1	Isophorone	10	U
88-75-5	2-Nitrophenol	10	U
105-67-9	2,4-Dimethylphenol	10	U
65-85-0	Benzoic Acid	50	U
111-91-1	bis(2-Chloroethoxy)Methane	10	U
120-83-2	2,4-Dichlorophenol	10	U
120-82-1	1,2,4-Trichlorobenzene	10	U
91-20-3	Naphthalene	10	U
106-47-8	4-Chloroaniline	10	U
87-68-3	Hexachlorobutadiene	10	U
59-50-7	4-Chloro-3-Methylphenol	10	U
91-57-6	2-Methylnaphthalene	10	U
77-47-4	Hexachlorocyclopentadiene	10	U
88-06-2	2,4,6-Trichlorophenol	10	U
95-95-4	2,4,5-Trichlorophenol	50	U
91-58-7	2-Chloronaphthalene	10	U
88-74-4	2-Nitroaniline	50	U
131-11-3	Dimethyl Phthalate	10	U
208-96-8	Acenaphthylene	10	U
606-20-2	2,6-Dinitrotoluene	10	U

1C

SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

UCD-2

Lab Name: TMA/NORCAL Contract: _____

Code: _____ Case No.: _____ SAS No.: _____ SDG No.: _____

Matrix: (soil/water) WATER Lab Sample ID: 766-100-20

Sample wt/vol: 500 (g/mL) ML Lab File ID: A25825

Level: (low/med) LOW Date Received: 11/19/87

% Moisture: not dec. _____ dec. _____ Date Extracted: 11/27/87

Extraction: (SepF/Cont/Sonc) _____ Date Analyzed: 12/04/87

GPC Cleanup: (Y/N) N pH: _____ Dilution Factor: 0.500

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/L	Q
99-09-2	3-Nitroaniline	50	U
83-32-9	Acenaphthene	10	U
51-28-5	2,4-Dinitrophenol	50	U
100-02-7	4-Nitrophenol	50	U
132-64-9	Dibenzofuran	10	U
121-14-2	2,4-Dinitrotoluene	10	U
84-66-2	Diethylphthalate	10	U
7005-72-3	4-Chlorophenyl-phenylether	10	U
86-73-7	Fluorene	10	U
100-10-6	4-Nitroaniline	50	U
534-52-1	4,6-Dinitro-2-Methylphenol	50	U
86-30-6	N-Nitrosodiphenylamine (1)	10	U
101-55-3	4-Bromophenyl-phenylether	10	U
118-74-1	Hexachlorobenzene	10	U
87-86-5	Pentachlorophenol	50	U
85-01-8	Phenanthrene	10	U
120-12-7	Anthracene	10	U
84-74-2	Di-n-Butylphthalate	10	U
206-44-0	Fluoranthene	10	U
129-00-0	Pyrene	10	U
85-68-7	Butylbenzylphthalate	10	U
91-94-1	3,3'-Dichlorobenzidine	20	U
56-55-3	Benzo(a)Anthracene	10	U
218-01-9	Chrysene	10	U
117-81-7	bis(2-Ethylhexyl)Phthalate	10	U
117-84-0	Di-n-Octyl Phthalate	10	U
205-99-2	Benzo(b)Fluoranthene	10	U
207-08-9	Benzo(k)Fluoranthene	10	U
50-32-8	Benzo(a)Pyrene	10	U
193-39-5	Indeno(1,2,3-cd)Pyrene	10	U
53-70-3	Dibenz(a,h)Anthracene	10	U
191-24-2	Benzo(g,h,i)Perylene	10	U

(1) - Cannot be separated from Diphenylamine

1B

SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

UCD-3

Lab Name: TMA/NORCAL Contract: _____

Code: _____ Case No.: _____ SAS No.: _____ SDG No.: _____

Matrix: (soil/water) WATER Lab Sample ID: 766-100-21

Sample wt/vol: 500 (g/mL) ML Lab File ID: A25826

Level: (low/med) LOW Date Received: 11/19/87

% Moisture: not dec. ____ dec. ____ Date Extracted: 11/27/87

Extraction: (SepF/Cont/Sonc) CONT Date Analyzed: 12/04/87

GPC Cleanup: (Y/N) N pH: _____ Dilution Factor: 0.500

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/L	Q
108-95-2	Phenol	10	U
111-44-4	bis(2-Chloroethyl)Ether	10	U
95-57-8	2-Chlorophenol	10	U
541-73-1	1,3-Dichlorobenzene	10	U
106-46-7	1,4-Dichlorobenzene	10	U
100-51-6	Benzyl Alcohol	10	U
95-50-1	1,2-Dichlorobenzene	10	U
95-48-7	2-Methylphenol	10	U
39638-32-9	bis(2-Chloroisopropyl)Ether	10	U
106-44-5	4-Methylphenol	10	U
621-64-7	N-Nitroso-Di-n-Propylamine	10	U
67-72-1	Hexachloroethane	10	U
98-95-3	Nitrobenzene	10	U
78-59-1	Isophorone	10	U
88-75-5	2-Nitrophenol	10	U
105-67-9	2,4-Dimethylphenol	10	U
65-85-0	Benzoic Acid	50	U
111-91-1	bis(2-Chloroethoxy)Methane	10	U
120-83-2	2,4-Dichlorophenol	10	U
120-82-1	1,2,4-Trichlorobenzene	10	U
91-20-3	Naphthalene	10	U
106-47-8	4-Chloroaniline	10	U
87-68-3	Hexachlorobutadiene	10	U
59-50-7	4-Chloro-3-Methylphenol	10	U
91-57-6	2-Methylnaphthalene	10	U
77-47-4	Hexachlorocyclopentadiene	10	U
88-06-2	2,4,6-Trichlorophenol	10	U
95-95-4	2,4,5-Trichlorophenol	50	U
91-58-7	2-Chloronaphthalene	10	U
88-74-4	2-Nitroaniline	50	U
131-11-3	Dimethyl Phthalate	10	U
208-96-8	Acenaphthylene	10	U
606-20-2	2,6-Dinitrotoluene	10	U

1C

SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

UCD-3

Lab Name: TMA/NORCAL Contract: _____

Lab Code: _____ Case No.: _____ SAS No.: _____ SDG No.: _____

Matrix: (soil/water) WATER Lab Sample ID: 766-100-21

Sample wt/vol: 500 (g/mL) ML Lab File ID: A25826

Level: (low/med) LOW Date Received: 11/19/87

% Moisture: not dec. _____ dec. _____ Date Extracted: 11/27/87

Extraction: (SepF/Cont/Sonc) CONT Date Analyzed: 12/04/87

GPC Cleanup: (Y/N) N pH: _____ Dilution Factor: 0.500

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/L	Q
99-09-2	3-Nitroaniline	50	U
83-32-9	Acenaphthene	10	U
51-28-5	2,4-Dinitrophenol	50	U
100-02-7	4-Nitrophenol	50	U
132-64-9	Dibenzofuran	10	U
121-14-2	2,4-Dinitrotoluene	10	U
84-66-2	Diethylphthalate	10	U
7005-72-3	4-Chlorophenyl-phenylether	10	U
86-73-7	Fluorene	10	U
100-10-6	4-Nitroaniline	50	U
534-52-1	4,6-Dinitro-2-Methylphenol	50	U
86-30-6	N-Nitrosodiphenylamine (1)	10	U
101-55-3	4-Bromophenyl-phenylether	10	U
118-74-1	Hexachlorobenzene	10	U
87-86-5	Pentachlorophenol	50	U
85-01-8	Phenanthrene	10	U
120-12-7	Anthracene	10	U
84-74-2	Di-n-Butylphthalate	10	U
206-44-0	Fluoranthene	10	U
129-00-0	Pyrene	10	U
85-68-7	Butylbenzylphthalate	10	U
91-94-1	3,3'-Dichlorobenzidine	20	U
56-55-3	Benzo(a)Anthracene	10	U
218-01-9	Chrysene	10	U
117-81-7	bis(2-Ethylhexyl)Phthalate	10	U
117-84-0	Di-n-Octyl Phthalate	10	U
205-99-2	Benzo(b)Fluoranthene	10	U
207-08-9	Benzo(k)Fluoranthene	10	U
50-32-8	Benzo(a)Pyrene	10	U
193-39-5	Indeno(1,2,3-cd)Pyrene	10	U
53-70-3	Dibenz(a,h)Anthracene	10	U
191-24-2	Benzo(g,h,i)Perylene	10	U

(1) - Cannot be separated from Diphenylamine

1B

SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

UCD-4

Lab Name: TMA/NORCAL Contract: _____

Code: _____ Case No.: _____ SAS No.: _____ SDG No.: _____

Matrix: (soil/water) WATER Lab Sample ID: 766-100-22

Sample wt/vol: 500 (g/mL) ML Lab File ID: A25827

Level: (low/med) LOW Date Received: 11/19/87

% Moisture: not dec. _____ dec. _____ Date Extracted: 11/27/87

Extraction: (SepF/Cont/Sonc) CONT Date Analyzed: 12/04/87

GPC Cleanup: (Y/N) N pH: _____ Dilution Factor: 0.500

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/L	Q
108-95-2	Phenol	10	U
111-44-4	bis(2-Chloroethyl)Ether	10	U
95-57-8	2-Chlorophenol	10	U
541-73-1	1,3-Dichlorobenzene	10	U
106-46-7	1,4-Dichlorobenzene	10	U
100-51-6	Benzyl Alcohol	10	U
95-50-1	1,2-Dichlorobenzene	10	U
95-48-7	2-Methylphenol	10	U
39638-32-9	bis(2-Chloroisopropyl)Ether	10	U
106-44-5	4-Methylphenol	10	U
621-64-7	N-Nitroso-Di-n-Propylamine	10	U
67-72-1	Hexachloroethane	10	U
98-95-3	Nitrobenzene	10	U
78-59-1	Isophorone	10	U
88-75-5	2-Nitrophenol	10	U
105-67-9	2,4-Dimethylphenol	10	U
65-85-0	Benzoic Acid	50	U
111-91-1	bis(2-Chloroethoxy)Methane	10	U
120-83-2	2,4-Dichlorophenol	10	U
120-82-1	1,2,4-Trichlorobenzene	10	U
91-20-3	Naphthalene	10	U
106-47-8	4-Chloroaniline	10	U
87-68-3	Hexachlorobutadiene	10	U
59-50-7	4-Chloro-3-Methylphenol	10	U
91-57-6	2-Methylnaphthalene	10	U
77-47-4	Hexachlorocyclopentadiene	10	U
88-06-2	2,4,6-Trichlorophenol	10	U
95-95-4	2,4,5-Trichlorophenol	50	U
91-58-7	2-Chloronaphthalene	10	U
88-74-4	2-Nitroaniline	50	U
131-11-3	Dimethyl Phthalate	10	U
208-96-8	Acenaphthylene	10	U
606-20-2	2,6-Dinitrotoluene	10	U

1C

SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

UCD-4

Lab Name: TMA/NORCAL Contract: _____

Code: _____ Case No.: _____ SAS No.: _____ SDG No.: _____

Matrix: (soil/water) WATER Lab Sample ID: 766-100-22

Sample wt/vol: 500 (g/mL) ML Lab File ID: A25827

Level: (low/med) LOW Date Received: 11/19/87

% Moisture: not dec. _____ dec. _____ Date Extracted: 11/27/87

Extraction: (SepF/Cont/Sonc) CONT Date Analyzed: 12/04/87

GPC Cleanup: (Y/N) N pH: _____ Dilution Factor: 0.500

CONCENTRATION UNITS: (ug/L or ug/Kg) UG/L

CAS NO.	COMPOUND		G
99-09-2	3-Nitroaniline	50	U
83-32-9	Acenaphthene	10	U
51-28-5	2,4-Dinitrophenol	50	U
100-02-7	4-Nitrophenol	50	U
132-64-9	Dibenzofuran	10	U
121-14-2	2,4-Dinitrotoluene	10	U
84-66-2	Diethylphthalate	10	U
7005-72-3	4-Chlorophenyl-phenylether	10	U
86-73-7	Fluorene	10	U
100-10-6	4-Nitroaniline	50	U
534-52-1	4,6-Dinitro-2-Methylphenol	50	U
86-30-6	N-Nitrosodiphenylamine (1)	10	U
101-55-3	4-Bromophenyl-phenylether	10	U
118-74-1	Hexachlorobenzene	10	U
87-86-5	Pentachlorophenol	50	U
85-01-8	Phenanthrene	10	U
120-12-7	Anthracene	10	U
84-74-2	Di-n-Butylphthalate	10	U
206-44-0	Fluoranthene	10	U
129-00-0	Pyrene	10	U
85-68-7	Butylbenzylphthalate	10	U
91-94-1	3,3'-Dichlorobenzidine	20	U
56-55-3	Benzo(a)Anthracene	10	U
218-01-9	Chrysene	10	U
117-81-7	bis(2-Ethylhexyl)Phthalate	10	U
117-84-0	Di-n-Octyl Phthalate	10	U
205-99-2	Benzo(b)Fluoranthene	10	U
207-08-9	Benzo(k)Fluoranthene	10	U
50-32-8	Benzo(a)Pyrene	10	U
193-39-5	Indeno(1,2,3-cd)Pyrene	10	U
53-70-3	Dibenz(a,h)Anthracene	10	U
191-24-2	Benzo(g,h,i)Perylene	10	U

(1) - Cannot be separated from Diphenylamine

1B

SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

UCD-5

Lab Name: TMA/NORCAL Contract: _____

b Code: _____ Case No.: _____ SAS No.: _____ SDG No.: _____

Matrix: (soil/water) WATER Lab Sample ID: 766-100-23

Sample wt/vol: 500 (g/mL) ML Lab File ID: A33033

Level: (low/med) LOW Date Received: 11/19/87

% Moisture: not dec. _____ dec. _____ Date Extracted: 11/27/87

Extraction: (SepF/Cont/Sonc) CONT Date Analyzed: 12/04/87

GPC Cleanup: (Y/N) N pH: _____ Dilution Factor: 0.500

CONCENTRATION UNITS: (ug/L or ug/Kg) UG/L

CAS NO.	COMPOUND		Q
108-95-2	Phenol	10	U
111-44-4	bis(2-Chloroethyl)Ether	10	U
95-57-8	2-Chlorophenol	10	U
541-73-1	1,3-Dichlorobenzene	10	U
106-46-7	1,4-Dichlorobenzene	10	U
100-51-6	Benzyl Alcohol	10	U
95-50-1	1,2-Dichlorobenzene	10	U
95-48-7	2-Methylphenol	10	U
39638-32-9	bis(2-Chloroisopropyl)Ether	10	U
106-44-5	4-Methylphenol	10	U
621-64-7	N-Nitroso-Di-n-Propylamine	10	U
67-72-1	Hexachloroethane	10	U
98-95-3	Nitrobenzene	10	U
78-59-1	Isophorone	10	U
88-75-5	2-Nitrophenol	10	U
105-67-9	2,4-Dimethylphenol	10	U
65-85-0	Benzoic Acid	50	U
111-91-1	bis(2-Chloroethoxy)Methane	10	U
120-83-2	2,4-Dichlorophenol	10	U
120-82-1	1,2,4-Trichlorobenzene	10	U
91-20-3	Naphthalene	10	U
106-47-8	4-Chloroaniline	10	U
87-68-3	Hexachlorobutadiene	10	U
59-50-7	4-Chloro-3-Methylphenol	10	U
91-57-6	2-Methylnaphthalene	10	U
77-47-4	Hexachlorocyclopentadiene	10	U
88-06-2	2,4,6-Trichlorophenol	10	U
95-95-4	2,4,5-Trichlorophenol	50	U
91-58-7	2-Chloronaphthalene	10	U
88-74-4	2-Nitroaniline	50	U
131-11-3	Dimethyl Phthalate	10	U
208-96-8	Acenaphthylene	10	U
606-20-2	2,6-Dinitrotoluene	10	U

1C

SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

UCD-5

Lab Name: TMA/NORCAL Contract: _____

Code: _____ Case No.: _____ SAS No.: _____ SDG No.: _____

Matrix: (soil/water) WATER Lab Sample ID: 766-100-23

Sample wt/vol: 500 (g/mL) ML Lab File ID: A33033

Level: (low/med) LOW Date Received: 11/19/87

% Moisture: not dec. _____ dec. _____ Date Extracted: 11/27/87

Extraction: (SepF/Cont/Sonc) CONT Date Analyzed: 12/04/87

GPC Cleanup: (Y/N) N pH: _____ Dilution Factor: 0.500

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/L	Q
99-09-2	3-Nitroaniline	50	U
83-32-9	Acenaphthene	10	U
51-28-5	2,4-Dinitrophenol	50	U
100-02-7	4-Nitrophenol	50	U
132-64-9	Dibenzofuran	10	U
121-14-2	2,4-Dinitrotoluene	10	U
84-66-2	Diethylphthalate	10	U
7005-72-3	4-Chlorophenyl-phenylether	10	U
86-73-7	Fluorene	10	U
100-10-6	4-Nitroaniline	50	U
534-52-1	4,6-Dinitro-2-Methylphenol	50	U
86-30-6	N-Nitrosodiphenylamine (1)	10	U
101-55-3	4-Bromophenyl-phenylether	10	U
118-74-1	Hexachlorobenzene	10	U
87-86-5	Pentachlorophenol	50	U
85-01-8	Phenanthrene	10	U
120-12-7	Anthracene	10	U
84-74-2	Di-n-Butylphthalate	10	U
206-44-0	Fluoranthene	10	U
129-00-0	Pyrene	10	U
85-68-7	Butylbenzylphthalate	10	U
91-94-1	3,3'-Dichlorobenzidine	20	U
56-55-3	Benzo(a)Anthracene	10	U
218-01-9	Chrysene	10	U
117-81-7	bis(2-Ethylhexyl)Phthalate	10	U
117-84-0	Di-n-Octyl Phthalate	10	U
205-99-2	Benzo(b)Fluoranthene	10	U
207-08-9	Benzo(k)Fluoranthene	10	U
50-32-8	Benzo(a)Pyrene	10	U
193-39-5	Indeno(1,2,3-cd)Pyrene	10	U
53-70-3	Dibenz(a,h)Anthracene	10	U
191-24-2	Benzo(g,h,i)Perylene	10	U

(1) - Cannot be separated from Diphenylamine

1B

SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

UCD-6

Lab Name: TMA/NORCAL Contract: _____

Code: _____ Case No.: _____ SAS No.: _____ SDG No.: _____

Matrix: (soil/water) WATER Lab Sample ID: 766-102-3

Sample wt/vol: 500 (g/mL) ML Lab File ID: A25830

Level: (low/med) LOW Date Received: 11/24/87

% Moisture: not dec. ____ dec. ____ Date Extracted: 11/25/87

Extraction: (SepF/Cont/Sonc) CONT Date Analyzed: 12/04/87

GPC Cleanup: (Y/N) N pH: _____ Dilution Factor: 0.500

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/L	Q
108-95-2	Phenol	10	U
111-44-4	bis(2-Chloroethyl)Ether	10	U
95-57-8	2-Chlorophenol	10	U
541-73-1	1,3-Dichlorobenzene	10	U
106-46-7	1,4-Dichlorobenzene	10	U
100-51-6	Benzyl Alcohol	10	U
95-50-1	1,2-Dichlorobenzene	10	U
95-48-7	2-Methylphenol	10	U
39638-32-9	bis(2-Chloroisopropyl)Ether	10	U
106-44-5	4-Methylphenol	10	U
621-64-7	N-Nitroso-Di-n-Propylamine	10	U
67-72-1	Hexachloroethane	10	U
98-95-3	Nitrobenzene	10	U
78-59-1	Isophorone	10	U
88-75-5	2-Nitrophenol	10	U
105-67-9	2,4-Dimethylphenol	10	U
65-85-0	Benzoic Acid	50	U
111-91-1	bis(2-Chloroethoxy)Methane	10	U
120-83-2	2,4-Dichlorophenol	10	U
120-82-1	1,2,4-Trichlorobenzene	10	U
91-20-3	Naphthalene	10	U
106-47-8	4-Chloroaniline	10	U
87-68-3	Hexachlorobutadiene	10	U
59-50-7	4-Chloro-3-Methylphenol	10	U
91-57-6	2-Methylnaphthalene	10	U
77-47-4	Hexachlorocyclopentadiene	10	U
88-06-2	2,4,6-Trichlorophenol	10	U
95-95-4	2,4,5-Trichlorophenol	50	U
91-58-7	2-Chloronaphthalene	10	U
88-74-4	2-Nitroaniline	50	U
131-11-3	Dimethyl Phthalate	10	U
208-96-8	Acenaphthylene	10	U
606-20-2	2,6-Dinitrotoluene	10	U

1C

SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

UCD-6

Lab Name: TMA/NORCAL Contract: _____

) Code: _____ Case No.: _____ SAS No.: _____ SDG No.: _____

Matrix: (soil/water) WATER Lab Sample ID: 766-102-3

Sample wt/vol: 500 (g/mL) ML Lab File ID: A25830

Level: (low/med) LOW Date Received: 11/24/87

% Moisture: not dec. _____ dec. _____ Date Extracted: 11/25/87

Extraction: (SepF/Cont/Sonc) CONT Date Analyzed: 12/04/87

GPC Cleanup: (Y/N) N pH: _____ Dilution Factor: 0.500

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/L	Q
99-09-2	3-Nitroaniline	50	U
83-32-9	Acenaphthene	10	U
51-28-5	2,4-Dinitrophenol	50	U
100-02-7	4-Nitrophenol	50	U
132-64-9	Dibenzofuran	10	U
121-14-2	2,4-Dinitrotoluene	10	U
84-66-2	Diethylphthalate	10	U
7005-72-3	4-Chlorophenyl-phenylether	10	U
86-73-7	Fluorene	10	U
100-10-6	4-Nitroaniline	50	U
534-52-1	4,6-Dinitro-2-Methylphenol	50	U
86-30-6	N-Nitrosodiphenylamine (1)	10	U
101-55-3	4-Bromophenyl-phenylether	10	U
118-74-1	Hexachlorobenzene	10	U
87-86-5	Pentachlorophenol	50	U
85-01-8	Phenanthrene	10	U
120-12-7	Anthracene	10	U
84-74-2	Di-n-Butylphthalate	10	U
206-44-0	Fluoranthene	10	U
129-00-0	Pyrene	10	U
85-68-7	Butylbenzylphthalate	10	U
91-94-1	3,3'-Dichlorobenzidine	20	U
56-55-3	Benzo(a)Anthracene	10	U
218-01-9	Chrysene	10	U
117-81-7	bis(2-Ethylhexyl)Phthalate	10	U
117-84-0	Di-n-Octyl Phthalate	10	U
205-99-2	Benzo(b)Fluoranthene	10	U
207-08-9	Benzo(k)Fluoranthene	10	U
50-32-8	Benzo(a)Pyrene	10	U
193-39-5	Indeno(1,2,3-cd)Pyrene	10	U
53-70-3	Dibenz(a,h)Anthracene	10	U
191-24-2	Benzo(g,h,i)Perylene	10	U

(1) - Cannot be separated from Diphenylamine

1B

SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

UCD-7

Lab Name: TMA/NORCAL Contract: _____

Code: _____ Case No.: _____ SAS No.: _____ SDG No.: _____

Matrix: (soil/water) WATER Lab Sample ID: 766-100-24

Sample wt/vol: 500 (g/mL) ML Lab File ID: A33028

Level: (low/med) LOW Date Received: 11/19/87

% Moisture: not dec. _____ dec. _____ Date Extracted: 11/27/87

Extraction: (SepF/Cont/Sonc) CONT Date Analyzed: 12/04/87

GPC Cleanup: (Y/N) N pH: _____ Dilution Factor: 0.500

CONCENTRATION UNITS: (ug/L or ug/Kg) UG/L

CAS NO.	COMPOUND		Q
108-95-2	Phenol	10	U
111-44-4	bis(2-Chloroethyl)Ether	10	U
95-57-8	2-Chlorophenol	10	U
541-73-1	1,3-Dichlorobenzene	10	U
106-46-7	1,4-Dichlorobenzene	10	U
100-51-6	Benzyl Alcohol	10	U
95-50-1	1,2-Dichlorobenzene	10	U
95-48-7	2-Methylphenol	10	U
39638-32-9	bis(2-Chloroisopropyl)Ether	10	U
106-44-5	4-Methylphenol	10	U
621-64-7	N-Nitroso-Di-n-Propylamine	10	U
67-72-1	Hexachloroethane	10	U
98-95-3	Nitrobenzene	10	U
78-59-1	Isophorone	10	U
88-75-5	2-Nitrophenol	10	U
105-67-9	2,4-Dimethylphenol	10	U
65-85-0	Benzoic Acid	50	U
111-91-1	bis(2-Chloroethoxy)Methane	10	U
120-83-2	2,4-Dichlorophenol	10	U
120-82-1	1,2,4-Trichlorobenzene	10	U
91-20-3	Naphthalene	10	U
106-47-8	4-Chloroaniline	10	U
87-68-3	Hexachlorobutadiene	10	U
59-50-7	4-Chloro-3-Methylphenol	10	U
91-57-6	2-Methylnaphthalene	10	U
77-47-4	Hexachlorocyclopentadiene	10	U
88-06-2	2,4,6-Trichlorophenol	10	U
95-95-4	2,4,5-Trichlorophenol	50	U
91-58-7	2-Chloronaphthalene	10	U
88-74-4	2-Nitroaniline	50	U
131-11-3	Dimethyl Phthalate	10	U
208-96-8	Acenaphthylene	10	U
606-20-2	2,6-Dinitrotoluene	10	U

1C

SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

UCD-7

Lab Name: TMA/NORCAL Contract: _____

Code: _____ Case No.: _____ SAS No.: _____ SDG No.: _____

Matrix: (soil/water) WATER Lab Sample ID: 766-100-24

Sample wt/vol: 500 (g/mL) ML Lab File ID: A33028

Level: (low/med) LOW Date Received: 11/19/87

% Moisture: not dec. ____ dec. ____ Date Extracted: 11/27/87

Extraction: (SepF/Cont/Sonc) CONT Date Analyzed: 12/04/87

GPC Cleanup: (Y/N) N pH: _____ Dilution Factor: 0.500

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/L	Q
99-09-2	3-Nitroaniline	50	U
83-32-9	Acenaphthene	10	U
51-28-5	2,4-Dinitrophenol	50	U
100-02-7	4-Nitrophenol	50	U
132-64-9	Dibenzofuran	10	U
121-14-2	2,4-Dinitrotoluene	10	U
84-66-2	Diethylphthalate	10	U
7005-72-3	4-Chlorophenyl-phenylether	10	U
86-73-7	Fluorene	10	U
100-10-6	4-Nitroaniline	50	U
534-52-1	4,6-Dinitro-2-Methylphenol	50	U
86-30-6	N-Nitrosodiphenylamine (1)	10	U
101-55-3	4-Bromophenyl-phenylether	10	U
118-74-1	Hexachlorobenzene	10	U
87-86-5	Pentachlorophenol	50	U
85-01-8	Phenanthrene	10	U
120-12-7	Anthracene	10	U
84-74-2	Di-n-Butylphthalate	10	U
206-44-0	Fluoranthene	10	U
129-00-0	Pyrene	10	U
85-68-7	Butylbenzylphthalate	10	U
91-94-1	3,3'-Dichlorobenzidine	20	U
56-55-3	Benzo(a)Anthracene	10	U
218-01-9	Chrysene	10	U
117-81-7	bis(2-Ethylhexyl)Phthalate	10	U
117-84-0	Di-n-Octyl Phthalate	10	U
205-99-2	Benzo(b)Fluoranthene	10	U
207-08-9	Benzo(k)Fluoranthene	10	U
50-32-8	Benzo(a)Pyrene	10	U
193-39-5	Indeno(1,2,3-cd)Pyrene	10	U
53-70-3	Dibenz(a,h)Anthracene	10	U
191-24-2	Benzo(g,h,i)Perylene	10	U

(1) - Cannot be separated from Diphenylamine

Laboratory Name: TMA/NORCAL
Case No.

Sample Number

UCD-1

ORGANICS ANALYSIS DATA SHEET

Pesticide/PCBs

766-100-19

CONCENTRATION: Low GPC CLEANUP: No

DATE EXTRACTED/PREPARED: 11/22/87 Continuous Liquid-Liquid Extraction

DATE ANALYZED: 11/22/87

CONCENTRATION/DILUTION FACTOR: 1.0

CAS Number			ug/l
319-84-6	Alpha-BHC	(	0.05
319-85-7	Beta-BHC	(	0.05
319-86-8	Delta-BHC	(	0.05
58-89-9	Gamma-BHC (Lindane)	(	0.05
76-44-8	Heptachlor	(	0.05
309-00-2	Aldrin	(	0.05
1024-57-3	Heptachlor Epoxide	(	0.05
959-98-8	Endosulfan I	(	0.05
60-57-1	Dieldrin	(	0.10
72-55-9	4-4' DDE	(	0.10
72-20-8	Endrin	(	0.10
33213-65-9	Endosulfan II	(	0.10
72-54-8	4-4' DDD	(	0.10
1031-07-8	Endosulfan Sulfate	(	0.10
50-29-3	4-4' DDT	(	0.10
72-43-5	Methoxychlor	(	0.50
53494-70-5	Endrin Ketone	(	0.10
57-74-9	Chlordane	(	0.50
8001-35-2	Toxaphene	(	1.00
12674-11-2	Aroclor-1016	(	0.50
11104-28-2	Aroclor-1221	(	0.50
11141-16-5	Aroclor-1232	(	0.50
53469-21-9	Aroclor-1242	(	0.50
12672-29-6	Aroclor-1248	(	0.50
11097-69-1	Aroclor-1254	(	1.00
11096-82-5	Aroclor-1260	(	1.00
7421-93-4	Endrin Aldehyde	(	0.10

4.0 = Volume of extract injected (ul)
500 = Volume of water extracted (ml)
5.0 = Volume of total extract (ml)

Laboratory Name: TMA/NORCAL
Case No.

Sample Number

UCD-2

766-100-20

ORGANICS ANALYSIS DATA SHEET

Pesticide/PCBs

CONCENTRATION: Low GPC CLEANUP: No

DATE EXTRACTED/PREPARED: 11/22/87 Continuous Liquid-Liquid Extraction

DATE ANALYZED: 11/22/87

CONCENTRATION/DILUTION FACTOR: 1.0

CAS Number		ug/l
319-84-6	Alpha-BHC	(0.05
319-85-7	Beta-BHC	(0.05
319-86-8	Delta-BHC	(0.05
58-89-9	Gamma-BHC (Lindane)	(0.05
76-44-8	Heptachlor	(0.05
309-00-2	Aldrin	(0.05
1024-57-3	Heptachlor Epoxide	(0.05
959-98-8	Endosulfan I	(0.05
60-57-1	Dieldrin	(0.10
72-55-9	4-4' DDE	(0.10
72-20-8	Endrin	(0.10
33213-65-9	Endosulfan II	(0.10
72-54-8	4-4' DDD	(0.10
1031-07-8	Endosulfan Sulfate	(0.10
50-29-3	4-4' DDT	(0.10
72-43-5	Methoxychlor	(0.50
53494-70-5	Endrin Ketone	(0.10
57-74-9	Chlordane	(0.50
8001-35-2	Toxaphene	(1.00
12674-11-2	Aroclor-1016	(0.50
11104-28-2	Aroclor-1221	(0.50
11141-16-5	Aroclor-1232	(0.50
53469-21-9	Aroclor-1242	(0.50
12672-29-6	Aroclor-1248	(0.50
11097-69-1	Aroclor-1254	(1.00
11096-82-5	Aroclor-1260	(1.00
7421-93-4	Endrin Aldehyde	(0.10

4.0 = Volume of extract injected (ul)
500 = Volume of water extracted (ml)
5.0 = Volume of total extract (ml)

Laboratory Name: TMA/NORCAL
Case No.

Sample Number

UCD-3

766-100-21

ORGANICS ANALYSIS DATA SHEET

Pesticide/PCBs

CONCENTRATION: Low

GPC CLEANUP: No

DATE EXTRACTED/PREPARED: 11/22/87

Continuous Liquid-Liquid Extraction

DATE ANALYZED: 11/22/87

CONCENTRATION/DILUTION FACTOR: 1.0

CAS Number		ug/l
319-84-6	Alpha-BHC	(0.05
319-85-7	Beta-BHC	(0.05
319-86-8	Delta-BHC	(0.05
58-89-9	Gamma-BHC (Lindane)	(0.05
76-44-8	Heptachlor	(0.05
309-00-2	Aldrin	(0.05
1024-57-3	Heptachlor Epoxide	(0.05
959-98-8	Endosulfan I	(0.05
60-57-1	Dieldrin	(0.10
72-55-9	4-4' DDE	(0.10
72-20-8	Endrin	(0.10
33213-65-9	Endosulfan II	(0.10
72-54-8	4-4' DDD	(0.10
1031-07-8	Endosulfan Sulfate	(0.10
50-29-3	4-4' DDT	(0.10
72-43-5	Methoxychlor	(0.50
53494-70-5	Endrin Ketone	(0.10
57-74-9	Chlordane	(0.50
8001-35-2	Toxaphene	(1.00
12674-11-2	Aroclor-1016	(0.50
11104-28-2	Aroclor-1221	(0.50
11141-16-5	Aroclor-1232	(0.50
53469-21-9	Aroclor-1242	(0.50
12672-29-6	Aroclor-1248	(0.50
11097-69-1	Aroclor-1254	(1.00
11096-82-5	Aroclor-1260	(1.00
7421-93-4	Endrin Aldehyde	(0.10

4.0 : Volume of extract injected (ul)
500 : Volume of water extracted (ml)
5.0 : Volume of total extract (ml)

Laboratory Name: TMA/NORCAL
Case No.

Sample Number

UCD-4

766-100-22

ORGANICS ANALYSIS DATA SHEET

Pesticide/PCBs

CONCENTRATION: Low GPC CLEANUP: No

DATE EXTRACTED/PREPARED: 11/22/87 Continuous Liquid-Liquid Extraction

DATE ANALYZED: 11/22/87

CONCENTRATION/DILUTION FACTOR: 1.0

CAS Number			ug/l
319-84-6	Alpha-BHC	(	0.05
319-85-7	Beta-BHC	(	0.05
319-86-8	Delta-BHC	(	0.05
58-89-9	Gamma-BHC (Lindane)	(	0.05
76-44-8	Heptachlor	(	0.05
309-00-2	Aldrin	(	0.05
1024-57-3	Heptachlor Epoxide	(	0.05
959-98-8	Endosulfan I	(	0.05
60-57-1	Dieldrin	(	0.10
72-55-9	4-4' DDE	(	0.10
72-20-8	Endrin	(	0.10
33213-65-9	Endosulfan II	(	0.10
72-54-8	4-4' DDD	(	0.10
1031-07-8	Endosulfan Sulfate	(	0.10
50-29-3	4-4' DDT	(	0.10
72-43-5	Methoxychlor	(	0.50
53494-70-5	Endrin Ketone	(	0.10
57-74-9	Chlordane	(	0.50
8001-35-2	Toxaphene	(	1.00
12674-11-2	Aroclor-1016	(	0.50
11104-28-2	Aroclor-1221	(	0.50
11141-16-5	Aroclor-1232	(	0.50
53469-21-9	Aroclor-1242	(	0.50
12672-29-6	Aroclor-1248	(	0.50
11097-69-1	Aroclor-1254	(	1.00
11096-82-5	Aroclor-1260	(	1.00
7421-93-4	Endrin Aldehyde	(	0.10

4.0 = Volume of extract injected (ul)
500 = Volume of water extracted (ml)
5.0 = Volume of total extract (ml)

Laboratory Name: TMA/NORCAL
Case No.

Sample Number

UCD-5

766-100-23

ORGANICS ANALYSIS DATA SHEET

Pesticide/PCBs

CONCENTRATION: Low

GPC CLEANUP: No

DATE EXTRACTED/PREPARED: 11/22/87

Continuous Liquid-Liquid Extraction

DATE ANALYZED: 11/22/87

CONCENTRATION/DILUTION FACTOR: 1.0

CAS Number		ug/l
319-84-6	Alpha-BHC	(0.05
319-85-7	Beta-BHC	(0.05
319-86-8	Delta-BHC	(0.05
58-89-9	Gamma-BHC (Lindane)	(0.05
76-44-8	Heptachlor	(0.05
309-00-2	Aldrin	(0.05
1024-57-3	Heptachlor Epoxide	(0.05
959-98-8	Endosulfan I	(0.05
60-57-1	Dieldrin	(0.10
72-55-9	4-4' DDE	(0.10
72-20-8	Endrin	(0.10
33213-65-9	Endosulfan II	(0.10
72-54-8	4-4' DDD	(0.10
1031-07-8	Endosulfan Sulfate	(0.10
50-29-3	4-4' DDT	(0.10
72-43-5	Methoxychlor	(0.50
53494-70-5	Endrin Ketone	(0.10
57-74-9	Chlordane	(0.50
8001-35-2	Toxaphene	(1.00
12674-11-2	Aroclor-1016	(0.50
11104-28-2	Aroclor-1221	(0.50
11141-16-5	Aroclor-1232	(0.50
53469-21-9	Aroclor-1242	(0.50
12672-29-6	Aroclor-1248	(0.50
11097-69-1	Aroclor-1254	(1.00
11096-82-5	Aroclor-1260	(1.00
7421-93-4	Endrin Aldehyde	(0.10

4.0 : Volume of extract injected (ul)
500 : Volume of water extracted (ml)
5.0 : Volume of total extract (ml)

Laboratory Name: TMA/NORCAL
Case No.

Sample Number

ORGANICS ANALYSIS DATA SHEET

UCD-6

Pesticide/PCBs

766-102-4

CONCENTRATION: LOW GPC CLEANUP:NO

DATE EXTRACTED/PREPARED: 11/19/87 SEPT FUNNEL

DATE ANALYZED: 12/02/87

CONCENTRATION/DILUTION FACTOR: 1.0

CAS Number			ug/l
319-84-6	Alpha-BHC	<	0.05
319-85-7	Beta-BHC	<	0.05
319-86-8	Delta-BHC	<	0.05
58-89-9	Gamma-BHC (Lindane)	<	0.05
76-44-8	Heptachlor	<	0.05
309-00-2	Aldrin	<	0.05
1024-57-3	Heptachlor Epoxide	<	0.05
959-98-8	Endosulfan I	<	0.05
60-57-1	Dieldrin	<	0.10
72-55-9	4-4' DDE	<	0.10
72-20-8	Endrin	<	0.10
33213-65-9	Endosulfan II	<	0.10
72-54-8	4-4' DDD	<	0.10
1031-07-8	Endosulfan Sulfate	<	0.10
50-29-3	4-4' DDT	<	0.10
72-43-5	Methoxychlor	<	0.50
53494-70-5	Endrin Ketone	<	0.10
57-74-9	Chlordane	<	0.50
8001-35-2	Toxaphene	<	1.00
12674-11-2	Aroclor-1016	<	0.50
11104-28-2	Aroclor-1221	<	0.50
11141-16-5	Aroclor-1232	<	0.50
53469-21-9	Aroclor-1242	<	0.50
12672-29-6	Aroclor-1248	<	0.50
11097-69-1	Aroclor-1254	<	1.00
11096-82-5	Aroclor-1260	<	1.00
7421-93-4	Endrin Aldehyde	<	0.10

4.0 = Volume of extract injected (ul)
500 = Volume of water extracted (ml)
5.0 = Volume of total extract (ml)

Laboratory Name: TMA/NORCAL
Case No.

Sample Number

UCD-7

766-100-24

ORGANICS ANALYSIS DATA SHEET

Pesticide/PCBs

CONCENTRATION: Low GPC CLEANUP: No

DATE EXTRACTED/PREPARED: 11/22/87 Continuous Liquid-Liquid Extraction

DATE ANALYZED: 11/22/87

CONCENTRATION/DILUTION FACTOR: 1.0

CAS Number			ug/l
319-84-6	Alpha-BHC	(	0.05
319-85-7	Beta-BHC	(	0.05
319-86-8	Delta-BHC	(	0.05
58-89-9	Gamma-BHC (Lindane)	(	0.05
76-44-8	Heptachlor	(	0.05
309-00-2	Aldrin	(	0.05
1024-57-3	Heptachlor Epoxide	(	0.05
959-98-8	Endosulfan I	(	0.05
60-57-1	Dieldrin	(	0.10
72-55-9	4-4' DDE	(	0.10
72-20-8	Endrin	(	0.10
33213-65-9	Endosulfan II	(	0.10
72-54-8	4-4' DDD	(	0.10
1031-07-8	Endosulfan Sulfate	(	0.10
50-29-3	4-4' DDT	(	0.10
72-43-5	Methoxychlor	(	0.50
53494-70-5	Endrin Ketone	(	0.10
57-74-9	Chlordane	(	0.50
8001-35-2	Toxaphene	(	1.00
12674-11-2	Aroclor-1016	(	0.50
11104-28-2	Aroclor-1221	(	0.50
11141-16-5	Aroclor-1232	(	0.50
53469-21-9	Aroclor-1242	(	0.50
12672-29-6	Aroclor-1248	(	0.50
11097-69-1	Aroclor-1254	(	1.00
11096-82-5	Aroclor-1260	(	1.00
7421-93-4	Endrin Aldehyde	(	0.10

4.0 = Volume of extract injected (ul)
500 = Volume of water extracted (ml)
5.0 = Volume of total extract (ml)

TMA
Thermo Analytical Inc.

TMA/Norcal
2030 Wright Avenue
Richmond, CA 94804-0040
(415) 235-2633

Mailing Address
P.O. Box 4040
Richmond, CA 94804-0040

RECEIVED
JAN 19 1988
WAHLER & ASSOC.

January 15, 1988

Ref: TMA/Norcal CN 766

Mr. Charlie Wittman
Wahler Associates
1023 Corporation Way
Palo Alto, CA 94303

Dear Mr. Wittman:

The results of the eight water samples we received for analysis on November 19, 1987 have been completed and are shown on Table 1.

We appreciate this opportunity to be of service.

Very truly yours,

Marvin P. Hunt
Program Manager

MPH/ss

TABLE 1 WATER RESULTS

Sample Number	Collection Date	Analysis	Results pCi/L ± 2 σ
UCD-1	11/16/87	Gross Alpha	0 ± 2
		Gross Beta	0 ± 5
		^{3}H	0 ± 1000
		^{90}Sr	0 ± 2
		^{226}Ra	0 ± 0.05
		Gamma Scan:	
		^{137}Cs	0 ± 10
UCD-2	11/17/87	Gross Alpha	0 ± 4
		Gross Beta	7 ± 5
		^{3}H	0 ± 1000
		^{90}Sr	0 ± 2
		^{226}Ra	0.11 ± 0.05
		Gamma Scan:	
		^{137}Cs	0 ± 10
UCD-3	11/17/87	Gross Alpha	0 ± 2
		Gross Beta	0 ± 5
		^{3}H	0 ± 1000
		^{90}Sr	0 ± 2
		^{226}Ra	0 ± 0.05
		Gamma Scan:	
		^{137}Cs	0 ± 10
UCD-4	11/18/87	Gross Alpha	0 ± 3
		Gross Beta	5 ± 4
		^{3}H	0 ± 1000
		^{90}Sr	0 ± 2
		^{226}Ra	0 ± 0.05
		Gamma Scan:	
		^{137}Cs	0 ± 10
UCD-5	11/18/87	Gross Alpha	0 ± 2
		Gross Beta	0 ± 5
		^{3}H	0 ± 1000
		^{90}Sr	0 ± 2
		^{226}Ra	0.84 ± 0.06
		Gamma Scan:	
		^{137}Cs	0 ± 10
UCD-7	11/17/87	Gross Alpha	0 ± 2
		Gross Beta	0 ± 5
		^{3}H	0 ± 1000
		^{90}Sr	0 ± 2
		^{226}Ra	0.10 ± 0.05
		Gamma Scan:	
		^{137}Cs	0 ± 10

UCD-101H

TMA
Thermo Analytical Inc.

TMA/Norcal
2030 Wright Avenue
Richmond, CA 94804-0040
(415) 235-2633

Mailing Address
P.O. Box 4040
Richmond, CA 94804-0040

RECEIVED
JAN 21 1988
WAHLER & ASSOC.

January 19, 1988

Ref: TMA/Norcal CN 766

Mr. Charlie Wittman
Wahler Associates
1023 Corporation Way
Palo Alto, CA 94303

Dear Mr. Wittman:

The results of the one water sample we received for analysis on November 24, 1987 have been completed and are shown below.

Sample Number	Collection Date	Analysis	Results pCi/L ± 2 σ
UCD-6	11/24/87	Gross Alpha	0 ± 2
		Gross Beta	0 ± 4
		^{3}H	0 ± 1000
		^{90}Sr	0 ± 2
		^{226}Ra	0.10 ± 0.05
		Gamma Scan:	
		^{137}Cs	0 ± 10

We appreciate this opportunity to be of service.

Very truly yours,

Marvin P. Hunt
Program Manager

MPH/ss

TMA
Thermo Analytical Inc.

TMA/Norcal
2030 Wright Avenue
Richmond, CA 94804-0040
(415) 235-2633

Mailing Address
P.O. Box 4040
Richmond, CA 94804-0040

Wahler Associates
P.O. Box 10023
1023 Corporation Way
Palo Alto, CA 94303
Attention: Charlie Wittman

January 21, 1988
Samples Received: 11/19 & 11/24/88
TMA/Norcal #: 766-99, -100, -102
P.O. No.: UCD-101

ANALYSIS REPORT

Sample Identification Analysis (mg/L)	766-99-5 UCD-8	766-99-11 UCD-9	766-100-25 UCD-1	766-100-26 UCD-2
Silver	<0.01	<0.01	<0.01	<0.01
Arsenic	0.005	0.010	0.016	0.008
Barium	0.2	0.4	0.1	0.1
Beryllium	<0.01	<0.01	<0.01	<0.01
Cadmium	<0.01	<0.01	<0.01	<0.01
Cobalt	<0.02	<0.02	<0.02	<0.02
Chromium	0.11	0.19	0.10	0.13
Copper	0.03	0.03	<0.02	<0.02
Mercury	0.0009	0.0006	0.0007	0.0006
Molybdenum	<0.2	<0.2	<0.2	<0.2
Nickel	0.05	0.05	<0.04	<0.04
Lead	0.20	<0.05	<0.05	0.05
Antimony	<0.2	<0.2	<0.2	<0.2
Selenium	<0.002	<0.002	<0.002	<0.002
Thallium	<0.10	<0.10	<0.10	<0.10
Vanadium	<0.5	<0.5	<0.5	<0.5
Zinc	0.06	0.07	0.05	0.07
Turbidity (NTU)	<1	25	16	9.5
Formaldehyde (mg/L)	<2	<2	<2	<2
Nitrogen, Nitrate (mgN/L)	38	56	16	98

George E. Dunstan
Director of Program Management

GED/dss

Wahler Associates
TMA/Norcal Lab No.: 766-102

January 21, 1988

Sample Identification Analysis (mg/L)	766-100-27 UCD-3	766-100-28 UCD-4	766-100-29 UCD-5	766-100-30 UCD-7
Silver	<0.01	<0.01	<0.01	<0.01
Arsenic	0.010	0.005	0.012	0.005
Barium	0.1	0.1 100µg/l	0.1	0.2
Beryllium	<0.01	<0.01	<0.01	<0.01
Cadmium	<0.01	<0.01	<0.01	<0.01
Cobalt	<0.02	<0.02	<0.02	<0.02
Chromium	0.08	0.04 40µg/l	0.08	0.09
Copper	<0.02	0.02 20	<0.02	<0.02
Mercury	0.0006	<0.0005	<0.0005	0.0005
Molybdenum	<0.2	<0.2	<0.2	<0.2
Nickel	<0.04	<0.04	<0.04	<0.04
Lead	<0.05	<0.05	<0.05	0.15
Antimony	<0.2	<0.2	<0.2	<0.2
Selenium	<0.002	<0.002	<0.002	<0.002
Thallium	<0.10	<0.10	<0.10	<0.10
Vanadium	<0.5	<0.5	<0.5	<0.5
Zinc	0.06	0.16 160	0.05	0.10
Turbidity (NTU)	5.5	1.6	12	20
Formaldehyde (mg/L)	<2	<0.2	<2	<2
Nitrogen,Nitrate (mgN/L)	360	1.4	48	51

Wahler Associates
TMA/Norcal Lab No.: 766-102

January 21, 1988

Sample Identification Analysis (mg/L)	766-102-5 UCD-6
Silver	<0.01
Arsenic	0.006
Barium	0.2
Beryllium	<0.01
Cadmium	<0.01
Cobalt	<0.02
Chromium	0.09
Copper	<0.02
Mercury	0.0007
Molybdenum	<0.2
Nickel	<0.04
Lead	0.10
Antimony	<0.2
Selenium	<0.002
Thallium	<0.10
Vanadium	<0.5
Zinc	0.13
Turbidity (NTU)	70*
Formaldehyde (mg/L)	<2
Nitrogen,Nitrate (mgN/L)	90

*contains particles that settled quickly. Reported value is the constant reading.

Wahler Associates

Date: January 21, 1988
TMA/Norcal Lab No.: 766-99-1
Client I.D.: UCD-8

Volatiles	ug/L(ppb)	Volatiles	ug/L(ppb)
chloromethane	<10	1,2-dichloropropane	<5
bromomethane	<10	trans-1,3-dichloropropene	<5
vinyl chloride	<10	trichloroethene	<5
chloroethane	<10	dibromochloromethane	<5
methylene chloride	9	1,1,2-trichloroethane	<5
acetone	<10	benzene	<5
carbon disulfide	<5	cis-1,3-dichloropropene	<5
1,1-dichloroethene	<5	2-chloroethylvinylether	<10
1,1-dichloroethane	<5	bromoform	<5
trans-1,2-dichloroethene	<5	4-methyl-2-pentanone	<10
chloroform	7	2-hexanone	<10
1,2-dichloroethane	<5	tetrachloroethene	<5
2-butanone	<10	1,1,2,2-tetrachloroethane	<5
1,1,1-trichloroethane	<5	toluene	<5
carbon tetrachloride	<5	chlorobenzene	<5
vinyl acetate	<10	ethylbenzene	<5
bromodichloromethane	<5	styrene	<5
		total xylenes	<5

Wahler Associates

Date: January 21, 1988
TMA/Norcal Lab No.: 766-99-7
Client I.D.: UCD-9

Volatiles	ug/L(ppb)	Volatiles	ug/L(ppb)
chloromethane	<100	1,2-dichloropropane	<50
bromomethane	<100	trans-1,3-dichloropropene	<50
vinyl chloride	<100	trichloroethene	<50
chloroethane	<100	dibromochloromethane	<50
methylene chloride	110	1,1,2-trichloroethane	<50
acetone	<100	benzene	<50
carbon disulfide	<50	cis-1,3-dichloropropene	<50
1,1-dichloroethene	<50	2-chloroethylvinylether	<100
1,1-dichloroethane	<50 J	bromoform	<50
trans-1,2-dichloroethene	<50	4-methyl-2-pentanone	<100
chloroform	5,800	2-hexanone	<100
1,2-dichloroethane	<50	tetrachloroethene	<50
2-butanone	<100	1,1,2,2-tetrachloroethane	<50
1,1,1-trichloroethane	<50	toluene	<50
carbon tetrachloride	<50	chlorobenzene	<50
vinyl acetate	<100	ethylbenzene	<50
bromodichloromethane	<50	styrene	<50
		total xylenes	<50

J = present, but below detection limits.

Wahler Associates

Date: January 21, 1988
TMA/Norcal Lab No.: 766-100-1
Client I.D.: UCD-1

Volatiles	ug/L(ppb)	Volatiles	ug/L(ppb)
chloromethane	<10	1,2-dichloropropane	<5
bromomethane	<10	trans-1,3-dichloropropene	<5
vinyl chloride	<10	trichloroethene	<5
chloroethane	<10	dibromochloromethane	<5
methylene chloride	<5	1,1,2-trichloroethane	<5
acetone	<10	benzene	<5
carbon disulfide	<5	cis-1,3-dichloropropene	<5
1,1-dichloroethene	<5	2-chloroethylvinylether	<10
1,1-dichloroethane	<5	bromoform	<5
trans-1,2-dichloroethene	<5	4-methyl-2-pentanone	<10
chloroform	<5	2-hexanone	<10
1,2-dichloroethane	<5	tetrachloroethene	<5
2-butanone	<10	1,1,2,2-tetrachloroethane	<5
1,1,1-trichloroethane	<5	toluene	<5
carbon tetrachloride	<5	chlorobenzene	<5
vinyl acetate	<10	ethylbenzene	<5
bromodichloromethane	<5	styrene	<5
		total xylenes	<5

Wahler Associates

Date: January 21, 1988
TMA/Norcal Lab No.: 766-100-3
Client I.D.: UCD-2

Volatiles	ug/L(ppb)	Volatiles	ug/L(ppb)
chloromethane	<10	1,2-dichloropropane	<5
bromomethane	<10	trans-1,3-dichloropropene	<5
vinyl chloride	<10	trichloroethene	<5
chloroethane	<10	dibromochloromethane	<5
methylene chloride	<5	1,1,2-trichloroethane	<5
acetone	<10	benzene	<5
carbon disulfide	<5	cis-1,3-dichloropropene	<5
1,1-dichloroethene	<5	2-chloroethylvinylether	<10
1,1-dichloroethane	<5	bromoform	<5
trans-1,2-dichloroethene	<5	4-methyl-2-pentanone	<10
chloroform	7	2-hexanone	<10
1,2-dichloroethane	<5	tetrachloroethene	<5
2-butanone	<10	1,1,2,2-tetrachloroethane	<5
1,1,1-trichloroethane	<5	toluene	<5
carbon tetrachloride	<5	chlorobenzene	<5
vinyl acetate	<10	ethylbenzene	<5
bromodichloromethane	<5	styrene	<5
		total xylenes	<5

Wahler Associates

Date: January 21, 1988
TMA/Norcal Lab No.: 766-100-5
Client I.D.: UCD-3

Volatiles	ug/L(ppb)	Volatiles	ug/L(ppb)
chloromethane	<10	1,2-dichloropropane	<5
bromomethane	<10	trans-1,3-dichloropropene	<5
vinyl chloride	<10	trichloroethene	<5
chloroethane	<10	dibromochloromethane	<5
methylene chloride	<5	1,1,2-trichloroethane	<5
acetone	<10	benzene	<5
carbon disulfide	<5	cis-1,3-dichloropropene	<5
1,1-dichloroethene	<5	2-chloroethylvinylether	<10
1,1-dichloroethane	<5	bromoform	<5
trans-1,2-dichloroethene	<5	4-methyl-2-pentanone	<10
chloroform	<5	2-hexanone	<10
1,2-dichloroethane	<5	tetrachloroethene	<5
2-butanone	<10	1,1,2,2-tetrachloroethane	<5
1,1,1-trichloroethane	<5	toluene	<5
carbon tetrachloride	<5	chlorobenzene	<5
vinyl acetate	<10	ethylbenzene	<5
bromodichloromethane	<5	styrene	<5
		total xylenes	<5

Wahler Associates

Date: January 21, 1988
TMA/Norcal Lab No.: 766-100-7
Client I.D.: UCD-4

Volatiles	ug/L(ppb)	Volatiles	ug/L(ppb)
chloromethane	<10	1,2-dichloropropane	<5
bromomethane	<10	trans-1,3-dichloropropene	<5
vinyl chloride	<10	trichloroethene	<5
chloroethane	<10	dibromochloromethane	<5
methylene chloride	<5	1,1,2-trichloroethane	<5
acetone	<10	benzene	<5
carbon disulfide	<5	cis-1,3-dichloropropene	<5
1,1-dichloroethene	<5	2-chloroethylvinylether	<10
1,1-dichloroethane	<5	bromoform	<5
trans-1,2-dichloroethene	<5	4-methyl-2-pentanone	<10
chloroform	<5	2-hexanone	<10
1,2-dichloroethane	<5	tetrachloroethene	<5
2-butanone	<10	1,1,2,2-tetrachloroethane	<5
1,1,1-trichloroethane	<5	toluene	<5
carbon tetrachloride	<5	chlorobenzene	<5
vinyl acetate	<10	ethylbenzene	<5
bromodichloromethane	<5	styrene	<5
		total xylenes	<5

Wahler Associates

Date: January 21, 1988
TMA/Norcal Lab No.: 766-100-9
Client I.D.: UCD-5

Volatiles	ug/L(ppb)	Volatiles	ug/L(ppb)
chloromethane	<10	1,2-dichloropropane	<5
bromomethane	<10	trans-1,3-dichloropropene	<5
vinyl chloride	<10	trichloroethene	<5
chloroethane	<10	dibromochloromethane	<5
methylene chloride	<5 J	1,1,2-trichloroethane	<5
acetone	<10	benzene	<5
carbon disulfide	<5	cis-1,3-dichloropropene	<5
1,1-dichloroethene	<5	2-chloroethylvinylether	<10
1,1-dichloroethane	<5	bromoform	<5
trans-1,2-dichloroethene	<5	4-methyl-2-pentanone	<10
chloroform	6	2-hexanone	<10
1,2-dichloroethane	<5	tetrachloroethene	<5
2-butanone	<10	1,1,2,2-tetrachloroethane	<5
1,1,1-trichloroethane	<5	toluene	<5
carbon tetrachloride	<5	chlorobenzene	<5
vinyl acetate	<10	ethylbenzene	<5
bromodichloromethane	<5	styrene	<5
		total xylenes	<5

J = present, but below detection limits.

Wahler Associates

Date: January 21, 1988
TMA/Norcal Lab No.: 766-100-11
Client I.D.: UCD-7

Volatiles	ug/L(ppb)	Volatiles	ug/L(ppb)
chloromethane	<10	1,2-dichloropropane	<5
bromomethane	<10	trans-1,3-dichloropropene	<5
vinyl chloride	<10	trichloroethene	<5
chloroethane	<10	dibromochloromethane	<5
methylene chloride	<5 J	1,1,2-trichloroethane	<5
acetone	<10	benzene	<5
carbon disulfide	<5	cis-1,3-dichloropropene	<5
1,1-dichloroethene	<5	2-chloroethylvinylether	<10
1,1-dichloroethane	<5	bromoform	<5
trans-1,2-dichloroethene	<5	4-methyl-2-pentanone	<10
chloroform	<5	2-hexanone	<10
1,2-dichloroethane	<5	tetrachloroethene	<5
2-butanone	<10	1,1,2,2-tetrachloroethane	<5
1,1,1-trichloroethane	<5	toluene	<5
carbon tetrachloride	<5	chlorobenzene	<5
vinyl acetate	<10	ethylbenzene	<5
bromodichloromethane	<5	styrene	<5
		total xylenes	<5

J = present, but below detection limits.

SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET

UCD-6

Lab Name: TMA/NORCAL Contract: _____

Lab Code: _____ Case No.: _____ SAS No.: _____ SDG No.: _____

Matrix: (soil/water) WATER Lab Sample ID: 766-102-3

Sample wt/vol: 500 (g/mL) ML Lab File ID: A25830

Level: (low/med) LOW Date Received: 11/24/87

% Moisture: not dec. _____ dec. _____ Date Extracted: 11/25/87

Extraction: (SepF/Cont/Sonc) CONT Date Analyzed: 12/04/87

GPC Cleanup: (Y/N) N pH: _____ Dilution Factor: 0.500

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/L	Q
108-95-2	Phenol	10	U
111-44-4	bis(2-Chloroethyl)Ether	10	U
95-57-8	2-Chlorophenol	10	U
541-73-1	1,3-Dichlorobenzene	10	U
106-46-7	1,4-Dichlorobenzene	10	U
100-51-6	Benzyl Alcohol	10	U
95-50-1	1,2-Dichlorobenzene	10	U
95-48-7	2-Methylphenol	10	U
39638-32-9	bis(2-Chloroisopropyl)Ether	10	U
106-44-5	4-Methylphenol	10	U
621-64-7	N-Nitroso-Di-n-Propylamine	10	U
67-72-1	Hexachloroethane	10	U
98-95-3	Nitrobenzene	10	U
78-59-1	Isophorone	10	U
88-75-5	2-Nitrophenol	10	U
105-67-9	2,4-Dimethylphenol	10	U
65-85-0	Benzoic Acid	50	U
111-91-1	bis(2-Chloroethoxy)Methane	10	U
120-83-2	2,4-Dichlorophenol	10	U
120-82-1	1,2,4-Trichlorobenzene	10	U
91-20-3	Naphthalene	10	U
106-47-8	4-Chloroaniline	10	U
87-68-3	Hexachlorobutadiene	10	U
59-50-7	4-Chloro-3-Methylphenol	10	U
91-57-6	2-Methylnaphthalene	10	U
77-47-4	Hexachlorocyclopentadiene	10	U
88-06-2	2,4,6-Trichlorophenol	10	U
95-95-4	2,4,5-Trichlorophenol	50	U
91-58-7	2-Chloronaphthalene	10	U
88-74-4	2-Nitroaniline	50	U
131-11-3	Dimethyl Phthalate	10	U
208-96-8	Acenaphthylene	10	U
606-20-2	2,6-Dinitrotoluene	10	U

SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET

UCD-6

Lab Name: TMA/NORCAL Contract: _____

Lab Code: _____ Case No.: _____ SAS No.: _____ SDG No.: _____

Matrix: (soil/water) WATER Lab Sample ID: 766-102-3

Sample wt/vol: 500 (g/mL) ML Lab File ID: A25830

Level: (low/med) LOW Date Received: 11/24/87

% Moisture: not dec. ____ dec. ____ Date Extracted: 11/25/87

Extraction: (SepF/Cont/Sonc) CONT Date Analyzed: 12/04/87

GPC Cleanup: (Y/N) N pH: _____ Dilution Factor: 0.500

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/L	Q
99-09-2	3-Nitroaniline	50	U
83-32-9	Acenaphthene	10	U
51-28-5	2,4-Dinitrophenol	50	U
100-02-7	4-Nitrophenol	50	U
132-64-9	Dibenzofuran	10	U
121-14-2	2,4-Dinitrotoluene	10	U
84-66-2	Diethylphthalate	10	U
7005-72-3	4-Chlorophenyl-phenylether	10	U
86-73-7	Fluorene	10	U
100-10-6	4-Nitroaniline	50	U
534-52-1	4,6-Dinitro-2-Methylphenol	50	U
86-30-6	N-Nitrosodiphenylamine (1)	10	U
101-55-3	4-Bromophenyl-phenylether	10	U
118-74-1	Hexachlorobenzene	10	U
87-86-5	Pentachlorophenol	50	U
85-01-8	Phenanthrene	10	U
120-12-7	Anthracene	10	U
84-74-2	Di-n-Butylphthalate	10	U
206-44-0	Fluoranthene	10	U
129-00-0	Pyrene	10	U
85-68-7	Butylbenzylphthalate	10	U
91-94-1	3,3'-Dichlorobenzidine	20	U
56-55-3	Benzo(a)Anthracene	10	U
218-01-9	Chrysene	10	U
117-81-7	bis(2-Ethylhexyl)Phthalate	10	U
117-84-0	Di-n-Octyl Phthalate	10	U
205-99-2	Benzo(b)Fluoranthene	10	U
207-08-9	Benzo(k)Fluoranthene	10	U
50-32-8	Benzo(a)Pyrene	10	U
193-39-5	Indeno(1,2,3-cd)Pyrene	10	U
53-70-3	Dibenz(a,h)Anthracene	10	U
191-24-2	Benzo(g,h,i)Perylene	10	U

(1) - Cannot be separated from Diphenylamine

SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET

UCD-8

Lab Name: TMA/NORCAL Contract: _____

Lab Code: _____ Case No.: _____ SAS No.: _____ SDG No.: _____

Matrix: (soil/water) WATER Lab Sample ID: 766-99-4

Sample wt/vol: 500 (g/mL) ML Lab File ID: A25797

Level: (low/med) LOW Date Received: 11/19/87

% Moisture: not dec. ____ dec. ____ Date Extracted: 11/21/87

Extraction: (SepF/Cont/Sonc) ____ Date Analyzed: 11/25/87

GPC Cleanup: (Y/N) N pH: _____ Dilution Factor: 0.500

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/L	Q
108-95-2	Phenol	10	U
111-44-4	bis(2-Chloroethyl)Ether	10	U
95-57-8	2-Chlorophenol	10	U
541-73-1	1,3-Dichlorobenzene	10	U
106-46-7	1,4-Dichlorobenzene	10	U
100-51-6	Benzyl Alcohol	10	U
95-50-1	1,2-Dichlorobenzene	10	U
95-48-7	2-Methylphenol	10	U
39638-32-9	bis(2-Chloroisopropyl)Ether	10	U
106-44-5	4-Methylphenol	10	U
621-64-7	N-Nitroso-Di-n-Propylamine	10	U
67-72-1	Hexachloroethane	10	U
98-95-3	Nitrobenzene	10	U
78-59-1	Isophorone	10	U
88-75-5	2-Nitrophenol	10	U
105-67-9	2,4-Dimethylphenol	10	U
65-85-0	Benzoic Acid	50	U
111-91-1	bis(2-Chloroethoxy)Methane	10	U
120-83-2	2,4-Dichlorophenol	10	U
120-82-1	1,2,4-Trichlorobenzene	10	U
91-20-3	Naphthalene	10	U
106-47-8	4-Chloroaniline	10	U
87-68-3	Hexachlorobutadiene	10	U
59-50-7	4-Chloro-3-Methylphenol	10	U
91-57-6	2-Methylnaphthalene	10	U
77-47-4	Hexachlorocyclopentadiene	10	U
88-06-2	2,4,6-Trichlorophenol	10	U
95-95-4	2,4,5-Trichlorophenol	50	U
91-58-7	2-Chloronaphthalene	10	U
88-74-4	2-Nitroaniline	50	U
131-11-3	Dimethyl Phthalate	10	U
208-96-8	Acenaphthylene	10	U
606-20-2	2,6-Dinitrotoluene	10	U

SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET

UCD-8

Lab Name: TMA/NORCAL Contract: _____

Lab Code: _____ Case No.: _____ SAS No.: _____ SDG No.: _____

Matrix: (soil/water) WATER Lab Sample ID: 766-99-4

Sample wt/vol: 500 (g/mL) ML Lab File ID: A25797

Level: (low/med) LOW Date Received: 11/19/87

% Moisture: not dec. _____ dec. _____ Date Extracted: 11/21/87

Extraction: (SepF/Cont/Sonc) _____ Date Analyzed: 11/25/87

GPC Cleanup: (Y/N) N pH: _____ Dilution Factor: 0.500

CONCENTRATION UNITS: (ug/L or ug/Kg) UG/L

CAS NO.	COMPOUND		Q
99-09-2	3-Nitroaniline	50	U
83-32-9	Acenaphthene	10	U
51-28-5	2,4-Dinitrophenol	50	U
100-02-7	4-Nitrophenol	50	U
132-64-9	Dibenzofuran	10	U
121-14-2	2,4-Dinitrotoluene	10	U
84-66-2	Diethylphthalate	10	U
7005-72-3	4-Chlorophenyl-phenylether	10	U
86-73-7	Fluorene	10	U
100-10-6	4-Nitroaniline	50	U
534-52-1	4,6-Dinitro-2-Methylphenol	50	U
86-30-6	N-Nitrosodiphenylamine (1)	10	U
101-55-3	4-Bromophenyl-phenylether	10	U
118-74-1	Hexachlorobenzene	10	U
87-86-5	Pentachlorophenol	50	U
85-01-8	Phenanthrene	10	U
120-12-7	Anthracene	10	U
84-74-2	Di-n-Butylphthalate	10	U
206-44-0	Fluoranthene	10	U
129-00-0	Pyrene	10	U
85-68-7	Butylbenzylphthalate	10	U
91-94-1	3,3'-Dichlorobenzidine	20	U
56-55-3	Benzo(a)Anthracene	10	U
218-01-9	Chrysene	10	U
117-81-7	bis(2-Ethylhexyl)Phthalate	61	
117-84-0	Di-n-Octyl Phthalate	10	U
205-99-2	Benzo(b)Fluoranthene	10	U
207-08-9	Benzo(k)Fluoranthene	10	U
50-32-8	Benzo(a)Pyrene	10	U
193-39-5	Indeno(1,2,3-cd)Pyrene	10	U
53-70-3	Dibenz(a,h)Anthracene	10	U
191-24-2	Benzo(g,h,i)Perylene	10	U

(1) - Cannot be separated from Diphenylamine

1B

SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO

UCD-9

Lab Name: TMA/NORCAL Contract: _____

Lab Code: _____ Case No.: _____ SAS No.: _____ SDG No.: _____

Matrix: (soil/water) WATER Lab Sample ID: 766-99-10

Sample wt/vol: 500 (g/mL) ML Lab File ID: A25798

Level: (low/med) LOW Date Received: 11/19/87

% Moisture: not dec. _____ dec. _____ Date Extracted: 11/21/87

Extraction: (SepF/Cont/Sonc) _____ Date Analyzed: 11/23/87

GPC Cleanup: (Y/N) N pH: _____ Dilution Factor: 0.500

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/L	Q
108-95-2	Phenol	10	U
111-44-4	bis(2-Chloroethyl)Ether	10	U
95-57-8	2-Chlorophenol	10	U
541-73-1	1,3-Dichlorobenzene	10	U
106-46-7	1,4-Dichlorobenzene	10	U
100-51-6	Benzyl Alcohol	10	U
95-50-1	1,2-Dichlorobenzene	10	U
95-48-7	2-Methylphenol	10	U
39638-32-9	bis(2-Chloroisopropyl)Ether	10	U
106-44-5	4-Methylphenol	10	U
621-64-7	N-Nitroso-Di-n-Propylamine	10	U
67-72-1	Hexachloroethane	10	U
98-95-3	Nitrobenzene	10	U
78-59-1	Isophorone	10	U
88-75-5	2-Nitrophenol	10	U
105-67-9	2,4-Dimethylphenol	10	U
65-85-0	Benzoic Acid	50	U
111-91-1	bis(2-Chloroethoxy)Methane	10	U
120-83-2	2,4-Dichlorophenol	10	U
120-82-1	1,2,4-Trichlorobenzene	10	U
91-20-3	Naphthalene	10	U
106-47-8	4-Chloroaniline	10	U
87-68-3	Hexachlorobutadiene	10	U
59-50-7	4-Chloro-3-Methylphenol	10	U
91-57-6	2-Methylnaphthalene	10	U
77-47-4	Hexachlorocyclopentadiene	10	U
88-06-2	2,4,6-Trichlorophenol	10	U
95-95-4	2,4,5-Trichlorophenol	50	U
91-58-7	2-Chloronaphthalene	10	U
88-74-4	2-Nitroaniline	50	U
131-11-3	Dimethyl Phthalate	10	U
208-96-8	Acenaphthylene	10	U
606-20-2	2,6-Dinitrotoluene	10	U

1C

SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

UCD-9

Lab Name: TMA/NORCAL Contract: _____

Lab Code: _____ Case No.: _____ SAS No.: _____ SDG No.: _____

Matrix: (soil/water) WATER Lab Sample ID: 766-99-10

Sample wt/vol: 500 (g/mL) ML Lab File ID: A25798

Level: (low/med) LOW Date Received: 11/19/87

% Moisture: not dec. ____ dec. ____ Date Extracted: 11/21/87

Extraction: (SepF/Cont/Sonc) ____ Date Analyzed: 11/25/87

GPC Cleanup: (Y/N) N pH: _____ Dilution Factor: 0.500

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/L	Q
99-09-2	3-Nitroaniline	50	U
83-32-9	Acenaphthene	10	U
51-28-5	2,4-Dinitrophenol	50	U
100-02-7	4-Nitrophenol	50	U
132-64-9	Dibenzofuran	10	U
121-14-2	2,4-Dinitrotoluene	10	U
84-66-2	Diethylphthalate	10	U
7005-72-3	4-Chlorophenyl-phenylether	10	U
86-73-7	Fluorene	10	U
100-10-6	4-Nitroaniline	50	U
534-52-1	4,6-Dinitro-2-Methylphenol	50	U
86-30-6	N-Nitrosodiphenylamine (1)	10	U
101-55-3	4-Bromophenyl-phenylether	10	U
118-74-1	Hexachlorobenzene	10	U
87-86-5	Pentachlorophenol	50	U
85-01-8	Phenanthrene	10	U
120-12-7	Anthracene	10	U
84-74-2	Di-n-Butylphthalate	10	U
206-44-0	Fluoranthene	10	U
129-00-0	Pyrene	10	U
85-68-7	Butylbenzylphthalate	10	U
91-94-1	3,3'-Dichlorobenzidine	20	U
56-55-3	Benzo(a)Anthracene	10	U
218-01-9	Chrysene	10	U
117-81-7	bis(2-Ethylhexyl)Phthalate	10	U
117-84-0	Di-n-Octyl Phthalate	10	U
205-99-2	Benzo(b)Fluoranthene	10	U
207-08-9	Benzo(k)Fluoranthene	10	U
50-32-8	Benzo(a)Pyrene	10	U
193-39-5	Indeno(1,2,3-cd)Pyrene	10	U
53-70-3	Dibenz(a,h)Anthracene	10	U
191-24-2	Benzo(g,h,i)Perylene	10	U

(1) - Cannot be separated from Diphenylamine

Laboratory Name: TMA/NORCAL
Case No.

Sample Number

UCD-8

766-99-4

ORGANICS ANALYSIS DATA SHEET

Pesticide/PCBs

CONCENTRATION: Low

GPC CLEANUP: No

DATE EXTRACTED/PREPARED: 11/22/87

Continuous Liquid-Liquid Extraction

DATE ANALYZED: 11/22/87

CONCENTRATION/DILUTION FACTOR: 1.0

CAS Number			ug/l
319-84-6	Alpha-BHC	<	0.05
319-85-7	Beta-BHC	<	0.05
319-86-8	Delta-BHC	<	0.05
58-89-9	Gamma-BHC (Lindane)	<	0.05
76-44-8	Heptachlor	<	0.05
309-00-2	Aldrin	<	0.05
1024-57-3	Heptachlor Epoxide	<	0.05
959-98-8	Endosulfan I	<	0.05
60-57-1	Dieldrin	<	0.10
72-55-9	4-4' DDE	<	0.10
72-20-8	Endrin	<	0.10
33213-65-9	Endosulfan II	<	0.10
72-54-8	4-4' DDD	<	0.10
1031-07-8	Endosulfan Sulfate	<	0.10
50-29-3	4-4' DDT	<	0.10
72-43-5	Methoxychlor	<	0.50
53494-70-5	Endrin Ketone	<	0.10
57-74-9	Chlordane	<	0.50
8001-35-2	Toxaphene	<	1.00
12674-11-2	Aroclor-1016	<	0.50
11104-28-2	Aroclor-1221	<	0.50
11141-16-5	Aroclor-1232	<	0.50
53469-21-9	Aroclor-1242	<	0.50
12672-29-6	Aroclor-1248	<	0.50
11097-69-1	Aroclor-1254	<	1.00
11096-82-5	Aroclor-1260	<	1.00
7421-93-4	Endrin Aldehyde	<	0.10

4.0 = Volume of extract injected (ul)
500 = Volume of water extracted (ml)
5.0 = Volume of total extract (ml)

Laboratory Name: TMA/MORCAL
Case No.

Sample Number

UCD-9

766-99-10

ORGANICS ANALYSIS DATA SHEET

Pesticide/PCBs

CONCENTRATION: Low GPC CLEANUP: No

DATE EXTRACTED/PREPARED: 11/22/87 Continuous Liquid-Liquid Extraction

DATE ANALYZED: 11/22/87

CONCENTRATION/DILUTION FACTOR: 1.0

CAS Number			ug/l
319-84-6	Alpha-BHC	(	0.05
319-85-7	Beta-BHC	(	0.05
319-86-8	Delta-BHC	(	0.05
58-89-9	Gamma-BHC (Lindane)	(	0.05
76-44-8	Heptachlor	(	0.05
309-00-2	Aldrin	(	0.05
1024-57-3	Heptachlor Epoxide	(	0.05
959-98-8	Endosulfan I	(	0.05
60-57-1	Dieldrin	(	0.10
72-55-9	4-4' DDE	(	0.10
72-20-8	Endrin	(	0.10
33213-65-9	Endosulfan II	(	0.10
72-54-8	4-4' DDD	(	0.10
1031-07-8	Endosulfan Sulfate	(	0.10
50-29-3	4-4' DDT	(	0.10
72-43-5	Methoxychlor	(	0.50
53494-70-5	Endrin Ketone	(	0.10
57-74-9	Chlordane	(	0.50
8001-35-2	Toxaphene	(	1.00
12674-11-2	Aroclor-1016	(	0.50
11104-28-2	Aroclor-1221	(	0.50
11141-16-5	Aroclor-1232	(	0.50
53469-21-9	Aroclor-1242	(	0.50
12672-29-6	Aroclor-1248	(	0.50
11097-69-1	Aroclor-1254	(	1.00
11096-82-5	Aroclor-1260	(	1.00
7421-93-4	Endrin Aldehyde	(	0.10

4.0 = Volume of extract injected (ul)
500 = Volume of water extracted (ml)
5.0 = Volume of total extract (ml)

Laboratory Name: TRA/NORCAL
Case No.

Sample Number

UCD-3

ORGANICS ANALYSIS DATA SHEET

Pesticide/PCBs

766-100-21

CONCENTRATION: Low

GPC CLEANUP: No

DATE EXTRACTED/PREPARED: 11/22/87

Continuous Liquid-Liquid Extraction

DATE ANALYZED: 11/22/87

CONCENTRATION/DILUTION FACTOR: 1.0

CAS Number			ug/l
319-84-6	Alpha-BHC	<	0.05
319-85-7	Beta-BHC	<	0.05
319-86-8	Delta-BHC	<	0.05
58-89-9	Gamma-BHC (Lindane)	<	0.05
76-44-8	Heptachlor	<	0.05
309-00-2	Aldrin	<	0.05
1024-57-3	Heptachlor Epoxide	<	0.05
959-98-8	Endosulfan I	<	0.05
60-57-1	Dieldrin	<	0.10
72-55-9	4-4' DDE	<	0.10
72-20-8	Endrin	<	0.10
33213-65-9	Endosulfan II	<	0.10
72-54-8	4-4' DDD	<	0.10
1031-07-8	Endosulfan Sulfate	<	0.10
50-29-3	4-4' DDT	<	0.10
72-43-5	Methoxychlor	<	0.50
53494-70-5	Endrin Ketone	<	0.10
57-74-9	Chlordane	<	0.50
8001-35-2	Toxaphene	<	1.00
12674-11-2	Aroclor-1016	<	0.50
11104-28-2	Aroclor-1221	<	0.50
11141-16-5	Aroclor-1232	<	0.50
53469-21-9	Aroclor-1242	<	0.50
12672-29-6	Aroclor-1248	<	0.50
11097-69-1	Aroclor-1254	<	1.00
11096-82-5	Aroclor-1260	<	1.00
7421-93-4	Endrin Aldehyde	<	0.10

4.0 = Volume of extract injected (ul)
500 = Volume of water extracted (ml)
5.0 = Volume of total extract (ml)

Laboratory Name: TMA/NORCAL
Case No.

Sample Number

UCD-4

766-100-22

ORGANICS ANALYSIS DATA SHEET

Pesticide/PCBs

CONCENTRATION: Low GPC CLEANUP: No

DATE EXTRACTED/PREPARED: 11/22/87 Continuous Liquid-Liquid Extraction

DATE ANALYZED: 11/22/87

CONCENTRATION/DILUTION FACTOR: 1.0

CAS Number			ug/l
319-84-6	Alpha-BHC	(	0.05
319-85-7	Beta-BHC	(	0.05
319-86-8	Delta-BHC	(	0.05
58-89-9	Gamma-BHC (Lindane)	(	0.05
76-44-8	Heptachlor	(	0.05
309-00-2	Aldrin	(	0.05
1024-57-3	Heptachlor Epoxide	(	0.05
959-98-8	Endosulfan I	(	0.05
60-57-1	Dieldrin	(	0.10
72-55-9	4-4' DDE	(	0.10
72-20-8	Endrin	(	0.10
33213-65-9	Endosulfan II	(	0.10
72-54-8	4-4' DDD	(	0.10
1031-07-8	Endosulfan Sulfate	(	0.10
50-29-3	4-4' DDT	(	0.10
72-43-5	Methoxychlor	(	0.50
53494-70-5	Endrin Ketone	(	0.10
57-74-9	Chlordane	(	0.50
8001-35-2	Toxaphene	(	1.00
12674-11-2	Aroclor-1016	(	0.50
11104-28-2	Aroclor-1221	(	0.50
11141-16-5	Aroclor-1232	(	0.50
53469-21-9	Aroclor-1242	(	0.50
12672-29-6	Aroclor-1248	(	0.50
11097-69-1	Aroclor-1254	(	1.00
11096-82-5	Aroclor-1260	(	1.00
7421-93-4	Endrin Aldehyde	(	0.10

4.0 = Volume of extract injected (ul)
500 = Volume of water extracted (ml)
5.0 = Volume of total extract (ml)

Laboratory Name: TMA/NORCAL
Case No.

Sample Number

UCD-5

766-100-23

ORGANICS ANALYSIS DATA SHEET

Pesticide/PCBs

CONCENTRATION: Low

GPC CLEANUP: No

DATE EXTRACTED/PREPARED: 11/22/87

Continuous Liquid-Liquid Extraction

DATE ANALYZED: 11/22/87

CONCENTRATION/DILUTION FACTOR: 1.0

CAS Number			ug/l
319-84-6	Alpha-BHC	(	0.05
319-85-7	Beta-BHC	(	0.05
319-86-8	Delta-BHC	(	0.05
58-89-9	Gamma-BHC (Lindane)	(	0.05
76-44-8	Heptachlor	(	0.05
309-00-2	Aldrin	(	0.05
1024-57-3	Heptachlor Epoxide	(	0.05
959-98-8	Endosulfan I	(	0.05
60-57-1	Dieldrin	(	0.10
72-55-9	4-4' DDE	(	0.10
72-20-8	Endrin	(	0.10
33213-65-9	Endosulfan II	(	0.10
72-54-8	4-4' DDD	(	0.10
1031-07-8	Endosulfan Sulfate	(	0.10
50-29-3	4-4' DDT	(	0.10
72-43-5	Methoxychlor	(	0.50
53494-70-5	Endrin Ketone	(	0.10
57-74-9	Chlordane	(	0.50
8001-35-2	Toxaphene	(	1.00
12674-11-2	Aroclor-1016	(	0.50
11104-28-2	Aroclor-1221	(	0.50
11141-16-5	Aroclor-1232	(	0.50
53469-21-9	Aroclor-1242	(	0.50
12672-29-6	Aroclor-1248	(	0.50
11097-69-1	Aroclor-1254	(	1.00
11096-82-5	Aroclor-1260	(	1.00
7421-93-4	Endrin Aldehyde	(	0.10

4.0 = Volume of extract injected (ul)
500 = Volume of water extracted (ml)
5.0 = Volume of total extract (ml)

Laboratory Name: TMA/NORCAL
Case No.

Sample Number

UCD-7

766-100-24

ORGANICS ANALYSIS DATA SHEET

Pesticide/PCBs

CONCENTRATION: Low

GPC CLEANUP: No

DATE EXTRACTED/PREPARED: 11/22/87 Continuous Liquid-Liquid Extraction

DATE ANALYZED: 11/22/37

CONCENTRATION/DILUTION FACTOR: 1.0

CAS Number			ug/l
319-84-6	Alpha-BHC	(	0.05
319-85-7	Beta-BHC	(	0.05
319-86-8	Delta-BHC	(	0.05
58-89-9	Gamma-BHC (Lindane)	(	0.05
76-44-8	Heptachlor	(	0.05
309-00-2	Aldrin	(	0.05
1024-57-3	Heptachlor Epoxide	(	0.05
959-98-8	Endosulfan I	(	0.05
60-57-1	Dieldrin	(	0.10
72-55-9	4-4' DDE	(	0.10
72-20-8	Endrin	(	0.10
33213-65-9	Endosulfan II	(	0.10
72-54-8	4-4' DDD	(	0.10
1031-07-8	Endosulfan Sulfate	(	0.10
50-29-3	4-4' DDT	(	0.10
72-43-5	Methoxychlor	(	0.50
53494-70-5	Endrin Ketone	(	0.10
57-74-9	Chlordane	(	0.50
8001-35-2	Toxaphene	(	1.00
12674-11-2	Aroclor-1016	(	0.50
11104-28-2	Aroclor-1221	(	0.50
11141-16-5	Aroclor-1232	(	0.50
53469-21-9	Aroclor-1242	(	0.50
12672-29-6	Aroclor-1248	(	0.50
11097-69-1	Aroclor-1254	(	1.00
11096-82-5	Aroclor-1260	(	1.00
7421-93-4	Endrin Aldehyde	(	0.10

4.0 = Volume of extract injected (ul)
500 = Volume of water extracted (ml)
5.0 = Volume of total extract (ml)

Laboratory Name: TMA/NORCAL
Case No.

Sample Number

UCD-6

766-102-4

ORGANICS ANALYSIS DATA SHEET

Pesticide/PCBs

CONCENTRATION: LOW GPC CLEANUP:NO

DATE EXTRACTED/PREPARED: 11/19/87 SEPT FUNNEL

DATE ANALYZED: 12/02/87

CONCENTRATION/DILUTION FACTOR: 1.0

CAS Number			ug/l
319-84-6	Alpha-BHC	<	0.05
319-85-7	Beta-BHC	<	0.05
319-86-8	Delta-BHC	<	0.05
58-89-9	Gamma-BHC (Lindane)	<	0.05
76-44-8	Heptachlor	<	0.05
309-00-2	Aldrin	<	0.05
1024-57-3	Heptachlor Epoxide	<	0.05
959-98-8	Endosulfan I	<	0.05
60-57-1	Dieldrin	<	0.10
72-55-9	4-4' DDE	<	0.10
72-20-8	Endrin	<	0.10
33213-65-9	Endosulfan II	<	0.10
72-54-8	4-4' DDD	<	0.10
1031-07-8	Endosulfan Sulfate	<	0.10
50-29-3	4-4' DDT	<	0.10
72-43-5	Methoxychlor	<	0.50
53494-70-5	Endrin Ketone	<	0.10
57-74-9	Chlordane	<	0.50
8001-35-2	Toxaphene	<	1.00
12674-11-2	Aroclor-1016	<	0.50
11104-28-2	Aroclor-1221	<	0.50
11141-16-5	Aroclor-1232	<	0.50
53469-21-9	Aroclor-1242	<	0.50
12672-29-6	Aroclor-1248	<	0.50
11097-69-1	Aroclor-1254	<	1.00
11096-82-5	Aroclor-1260	<	1.00
7421-93-4	Endrin Aldehyde	<	0.10

4.0 = Volume of extract injected (ul)
500 = Volume of water extracted (ml)
5.0 = Volume of total extract (ml)

TMA
Thermo Analytical Inc.

TMA/Norcal
2030 Wright Avenue
Richmond, CA 94804-0040
(415) 235-2633

Mailing Address
P.O. Box 4040
Richmond, CA 94804-0040

RECEIVED
DEC 30 1987
WAHLER & ASSOC.

December 23, 1987

Ref: TMA/Norcal CN 766

Mr. Charlie Wittman
Wahler Associates
1023 Corporation Way
Palo Alto, CA 94303

Dear Mr. Wittman:

The final results of the fourty-nine soil samples we received for analysis on October 23, 1987 have been completed and are shown on Table 1.

We appreciate this opportunity to be of service.

Very truly yours,

Marvin P. Hunt
Program Manager

MPH/ss

TABLE 1 SOIL RESULTS

Sample Number	Collection Date	Analysis	Results pCi/g ± 2 σ
SB-11 B-1, B-2, B-3	10/16/87	Gross Alpha	0 ± 3
		Gross Beta	28 ± 5
		^{3}H	0 ± 0.03
		^{90}Sr	0 ± 0.2
		Gamma Scan:	
		^{40}K	12.1 ± 0.6
		^{226}Ra	0.54 ± 0.03
		^{232}Th	0.53 ± 0.04
F-17 B-399, B-401, B-403	10/16/87	Gross Alpha	0 ± 3
		Gross Beta	25 ± 6
		^{3}H	0 ± 0.03
		^{90}Sr	0 ± 0.2
		Gamma Scan:	
		^{40}K	10.9 ± 0.6
		^{226}Ra	0.52 ± 0.03
		^{232}Th	0.47 ± 0.02
G-15 B-393, B-395, B-397	10/16/87	Gross Alpha	0 ± 3
		Gross Beta	27 ± 6
		^{3}H	0 ± 0.03
		^{90}Sr	0 ± 0.2
		Gamma Scan:	
		^{40}K	11.4 ± 0.6
		^{226}Ra	0.51 ± 0.03
		^{232}Th	0.49 ± 0.05
G-18 B-387, B-389, B-391	10/16/87	Gross Alpha	0 ± 4
		Gross Beta	25 ± 6
		^{3}H	0 ± 0.03
		^{90}Sr	0 ± 0.2
		Gamma Scan:	
		^{40}K	10.1 ± 0.5
		^{226}Ra	0.47 ± 0.03
		^{232}Th	0.47 ± 0.05
G-22 B-381, B-383, B-385	10/16/87	Gross Alpha	0 ± 4
		Gross Beta	26 ± 6
		^{3}H	0 ± 0.03
		^{90}Sr	0 ± 0.2
		Gamma Scan:	
		^{40}K	11.8 ± 0.6
		^{226}Ra	0.43 ± 0.04
		^{232}Th	0.38 ± 0.04

TABLE 1 SOIL RESULTS (cont'd, page 2)

Sample Number	Collection Date	Analysis	Results pCi/g ± 2 σ
G-6	10/16/87	Gross Alpha	0 ± 4
B-375, B-377,		Gross Beta	31 ± 6
B-379		^{3}H	0.04 ± 0.03
		^{90}Sr	0 ± 0.2
		Gamma Scan:	
		^{40}K	11.1 ± 0.6
		^{226}Ra	0.46 ± 0.03
		^{232}Th	0.56 ± 0.05
E-3D	10/16/87	Gross Alpha	0 ± 5
B-369, B-371,		Gross Beta	32 ± 6
B-373		^{3}H	0 ± 0.03
		^{90}Sr	0 ± 0.2
		Gamma Scan:	
		^{40}K	9.8 ± 0.5
		^{226}Ra	0.42 ± 0.05
		^{232}Th	0.38 ± 0.05
D-2	10/15/87	Gross Alpha	0 ± 3
B-363, B-365,		Gross Beta	26 ± 6
B-367		^{3}H	0 ± 0.03
		^{90}Sr	0 ± 0.2
		Gamma Scan:	
		^{40}K	11.0 ± 0.6
		^{226}Ra	0.51 ± 0.04
		^{232}Th	0.51 ± 0.04
D-24	10/15/87	Gross Alpha	0 ± 3
B-357, B-359,		Gross Beta	27 ± 6
B-361		^{3}H	0 ± 0.03
		^{90}Sr	0 ± 0.2
		Gamma Scan:	
		^{40}K	12.0 ± 0.6
		^{226}Ra	0.52 ± 0.05
		^{232}Th	0.51 ± 0.05
D-22	10/15/87	Gross Alpha	0 ± 5
B-351, B-353,		Gross Beta	24 ± 6
B-355		^{3}H	0 ± 0.03
		^{90}Sr	0 ± 0.2
		Gamma Scan:	
		^{40}K	10.3 ± 0.6
		^{226}Ra	0.47 ± 0.04
		^{232}Th	0.45 ± 0.05

TABLE 1 SOIL RESULTS (cont'd, page 3)

Sample Number	Collection Date	Analysis	Results pCi/g ± 2 σ
D-11 B-343, B-347, B-349	10/14/87	Gross Alpha	0 ± 3
		Gross Beta	23 ± 5
		^{3}H	0 ± 0.03
		^{90}Sr	0 ± 0.2
		Gamma Scan:	
		^{40}K	10.5 ± 0.5
		^{226}Ra	0.44 ± 0.04
		^{232}Th	0.50 ± 0.05
H-32 B-339, B-341, B-343	10/14/87	Gross Alpha	0 ± 3
		Gross Beta	25 ± 5
		^{3}H	0 ± 0.03
		^{90}Sr	0 ± 0.2
		Gamma Scan:	
		^{40}K	10.6 ± 0.5
		^{226}Ra	0.48 ± 0.05
		^{232}Th	0.49 ± 0.05
I-1 B-333, B-335, B-337	10/13/87	Gross Alpha	0 ± 3
		Gross Beta	24 ± 6
		^{3}H	0 ± 0.03
		^{90}Sr	0 ± 0.2
		Gamma Scan:	
		^{40}K	11.3 ± 0.6
		^{226}Ra	0.49 ± 0.05
		^{232}Th	0.52 ± 0.05
J-22 B-327, B-329, B-331	10/13/87	Gross Alpha	0 ± 4
		Gross Beta	22 ± 5
		^{3}H	0 ± 0.03
		^{90}Sr	0 ± 0.2
		Gamma Scan:	
		^{40}K	10.9 ± 0.5
		^{226}Ra	0.55 ± 0.05
		^{232}Th	0.50 ± 0.05
H-17 B-321, B-323, B-325	10/13/87	Gross Alpha	0 ± 4
		Gross Beta	23 ± 5
		^{3}H	0 ± 0.03
		^{90}Sr	0 ± 0.2
		Gamma Scan:	
		^{40}K	10.6 ± 0.5
		^{226}Ra	0.53 ± 0.05
		^{232}Th	0.44 ± 0.05

TABLE 1 SOIL RESULTS (cont'd, page 4)

Sample Number	Collection Date	Analysis	Results pCi/g ± 2 σ
J-16 B-315, B-317, B-319	10/13/87	Gross Alpha	6 ± 3
		Gross Beta	21 ± 5
		^{3}H	0 ± 0.03
		^{90}Sr	0 ± 0.2
		Gamma Scan:	
		^{40}K	11.8 ± 0.6
		^{226}Ra	0.61 ± 0.05
		^{232}Th	0.59 ± 0.05
K-25 B-300, B-303, B-305	10/12/87	Gross Alpha	0 ± 4
		Gross Beta	25 ± 5
		^{3}H	0 ± 0.03
		^{90}Sr	0 ± 0.2
		Gamma Scan:	
		^{40}K	11.1 ± 0.6
		^{137}Cs	0.05 ± 0.02
		^{226}Ra	0.53 ± 0.05
		^{232}Th	0.50 ± 0.05
M-31 B-308, B-310, B-312	10/12/87	Gross Alpha	0 ± 4
		Gross Beta	21 ± 6
		^{3}H	0 ± 0.03
		^{90}Sr	0 ± 0.2
		Gamma Scan:	
		^{40}K	11.1 ± 0.6
		^{226}Ra	0.53 ± 0.05
		^{232}Th	0.52 ± 0.05
SB-10 B-1, B-1, B-3	10/16/87	Gross Alpha	0 ± 4
		Gross Beta	28 ± 6
		^{3}H	0.04 ± 0.03
		^{90}Sr	0 ± 0.2
		Gamma Scan:	
		^{40}K	9.3 ± 0.5
		^{226}Ra	0.49 ± 0.05
		^{232}Th	0.43 ± 0.05
SB-12 B-1, B-2, B-3, B-4	10/16/87	Gross Alpha	6 ± 4
		Gross Beta	28 ± 7
		^{3}H	0 ± 0.03
		^{90}Sr	1.0 ± 0.2
		Gamma Scan:	
		^{40}K	12.9 ± 0.7
		^{226}Ra	0.98 ± 0.05
		^{232}Th	0.53 ± 0.06

TABLE 1 SOIL RESULTS (cont'd, page 5)

Sample Number	Collection Date	Analysis	Results pCi/g ± 2 σ
SB-13	10/19/87	Gross Alpha	7 ± 5
B-1, B-4,		Gross Beta	31 ± 7
B-7, B-10		^{3}H	0 ± 0.03
		^{90}Sr	0 ± 0.2
		Gamma Scan:	
		^{40}K	13.4 ± 0.7
		^{226}Ra	0.82 ± 0.05
		^{232}Th	0.53 ± 0.06
SB-14	10/20/87	Gross Alpha	0 ± 5
B-1, B-4,		Gross Beta	38 ± 7
B-6, B-9		^{3}H	0 ± 0.03
		^{90}Sr	0.3 ± 0.2
		Gamma Scan:	
		^{40}K	13.4 ± 0.7
		^{137}Cs	0.09 ± 0.02
		^{226}Ra	1.23 ± 0.06
		^{232}Th	0.58 ± 0.06
SB-6	10/15/87	Gross Alpha	10 ± 5
B-1, B-2,		Gross Beta	27 ± 7
B-3		^{3}H	0 ± 0.03
		^{90}Sr	0 ± 0.2
		Gamma Scan:	
		^{40}K	10.8 ± 0.5
		^{226}Ra	0.54 ± 0.05
		^{232}Th	0.59 ± 0.06
SB-7	10/15/87	Gross Alpha	0 ± 4
B-1, B-2,		Gross Beta	14 ± 4
B-3		^{3}H	0 ± 0.03
		^{90}Sr	0 ± 0.2
		Gamma Scan:	
		^{40}K	4.8 ± 0.3
		^{226}Ra	0.26 ± 0.04
		^{232}Th	0.22 ± 0.04
SB-8	10/15/87	Gross Alpha	0 ± 4
B-1, B-2,		Gross Beta	26 ± 5
B-3		^{3}H	0 ± 0.03
		^{90}Sr	0 ± 0.2
		Gamma Scan:	
		^{40}K	11.8 ± 0.6
		^{226}Ra	0.54 ± 0.05
		^{232}Th	0.44 ± 0.05

TABLE 1 SOIL RESULTS (cont'd, page 6)

Sample Number	Collection Date	Analysis	Results pCi/g ± 2 σ
SB-9 B-1, B-2, B-3	10/16/87	Gross Alpha	0 ± 3
		Gross Beta	62 ± 9
		^{3}H	0 ± 0.03
		^{90}Sr	0 ± 0.2
		Gamma Scan:	
		^{40}K	10.8 ± 0.5
		^{226}Ra	0.50 ± 0.05
		^{232}Th	0.56 ± 0.06
SB-15 B-1, B-4, B-7	10/19/87	Gross Alpha	0 ± 4
		Gross Beta	52 ± 8
		^{3}H	0 ± 0.03
		^{90}Sr	0 ± 0.2
		Gamma Scan:	
		^{40}K	9.4 ± 0.5
		^{226}Ra	0.45 ± 0.05
		^{232}Th	0.41 ± 0.05
SB-1 B-1, B-2, B-3	10/14/87	Gross Alpha	7 ± 3
		Gross Beta	32 ± 7
		^{3}H	0 ± 0.03
		^{90}Sr	1.4 ± 0.2
		Gamma Scan:	
		^{40}K	11.2 ± 0.6
		^{226}Ra	0.48 ± 0.05
		^{232}Th	0.48 ± 0.05
SB-5 B-1, B-2, B-3	10/15/87	Gross Alpha	0 ± 3
		Gross Beta	28 ± 7
		^{3}H	0 ± 0.03
		^{90}Sr	0.9 ± 0.2
		Gamma Scan:	
		^{40}K	10.7 ± 0.5
		^{226}Ra	0.42 ± 0.05
		^{232}Th	0.39 ± 0.05

TABLE 1 SOIL RESULTS (cont'd, page 7)

Sample Number	Collection Date	Analysis	Results pCi/g ± 2 σ
SB-2A B-1, B-2	10/14/87	Gross Alpha	0 ± 4
		Gross Beta	45 ± 8
		^{3}H	0 ± 0.03
		^{90}Sr	0.6 ± 0.2
		Gamma Scan:	
		^{40}K	10.3 ± 0.5
		^{137}Cs	0.05 ± 0.02
		^{226}Ra	0.45 ± 0.05
		^{232}Th	0.38 ± 0.06
UCD-1 B-2, B-5, B-8, B-10, B-13	10/7/87	Gross Alpha	0 ± 6
		Gross Beta	31 ± 8
		^{3}H	0 ± 0.03
		^{90}Sr	0 ± 0.2
		Gamma Scan:	
		^{40}K	9.8 ± 0.5
		^{226}Ra	0.38 ± 0.05
		^{232}Th	0.46 ± 0.05
UCD-1 B-1	10/7/87	Gross Alpha	5 ± 3
		Gross Beta	30 ± 5
		^{3}H	0 ± 0.03
		^{90}Sr	0 ± 0.2
		Gamma Scan:	
		^{40}K	12.0 ± 0.6
		^{226}Ra	0.46 ± 0.05
		^{232}Th	0.43 ± 0.05
UCD-1 B-4	----	Gross Alpha	0 ± 3
		Gross Beta	27 ± 5
		^{3}H	0 ± 0.03
		^{90}Sr	0 ± 0.2
		Gamma Scan:	
		^{40}K	11.3 ± 0.6
		^{226}Ra	0.54 ± 0.05
		^{232}Th	0.69 ± 0.05
UCD-1 B-7	10/7/87	Gross Alpha	0 ± 3
		Gross Beta	26 ± 5
		^{3}H	0 ± 0.03
		^{90}Sr	0 ± 0.2
		Gamma Scan:	
		^{40}K	12.2 ± 0.6
		^{226}Ra	0.51 ± 0.05
		^{232}Th	0.54 ± 0.05

TABLE 1 SOIL RESULTS (cont'd, page 8)

Sample Number	Collection Date	Analysis	Results pCi/g ± 2 σ
UCD-1 B-11	10/7/87	Gross Alpha	5 ± 3
		Gross Beta	22 ± 5
		^{3}H	0 ± 0.03
		^{90}Sr	0 ± 0.2
		Gamma Scan:	
		^{40}K	10.8 ± 0.5
		^{226}Ra	0.56 ± 0.05
		^{232}Th	0.58 ± 0.06
UCD-1 B-12	10/7/87	Gross Alpha	0 ± 5
		Gross Beta	29 ± 6
		^{3}H	0 ± 0.03
		^{90}Sr	0 ± 0.2
		Gamma Scan:	
		^{40}K	12.0 ± 0.6
		^{226}Ra	0.57 ± 0.05
		^{232}Th	0.71 ± 0.06

TMA
Thermo Analytical Inc.

TMA/Norcal
2030 Wright Avenue
Richmond, CA 94804-0040
(415) 235-2633

Mailing Address
P.O. Box 4040
Richmond, CA 94804-0040

November 24, 1987

Ref: TMA/Norcal CN 766

Mr. Charlie Wittman
Wahler Associates
1023 Corporation Way
Palo Alto, CA 94303

Dear Mr. Wittman:

The results of the thirteen rush soil samples we received for analysis on October 23, 1987 have been completed and are shown on Table 1.

We appreciate this opportunity to be of service.

Very truly yours,

Marvin P. Hunt
Program Manager

MPH/ss

TABLE 1 SOIL RESULTS

Sample Number	Collection Date	Analysis	Results pCi/g ± 2 σ
SB-3 B-1	10/15/87	Gross Alpha	0 ± 3
		Gross Beta	28 ± 5
		^{3}H	0 ± 0.03
		^{90}Sr	0 ± 0.2
		Gamma Scan:	
		^{40}K	10.6 ± 0.5
		^{226}Ra	0.45 ± 0.05
		^{232}Th	0.48 ± 0.05
SB-3 B-2	10/15/87	Gross Alpha	0 ± 3
		Gross Beta	34 ± 6
		^{3}H	0.07 ± 0.03
		^{90}Sr	1.6 ± 0.2
		Gamma Scan:	
		^{40}K	12.7 ± 0.6
		^{137}Cs	6.2 ± 0.3
		^{226}Ra	0.50 ± 0.05
		^{232}Th	0.44 ± 0.05
SB-3 B-3	10/15/87	Gross Alpha	0 ± 4
		Gross Beta	50 ± 7
		^{3}H	0.07 ± 0.03
		^{90}Sr	1.4 ± 0.2
		Gamma Scan:	
		^{40}K	12.4 ± 0.6
		^{137}Cs	0.06 ± 0.02
		^{226}Ra	0.45 ± 0.05
		^{232}Th	0.59 ± 0.06
SB-3 B-4	10/15/87	Gross Alpha	0 ± 3
		Gross Beta	60 ± 7
		^{3}H	0.04 ± 0.03
		^{90}Sr	0.6 ± 0.2
		Gamma Scan:	
		^{40}K	12.0 ± 0.6
		^{226}Ra	0.57 ± 0.05
		^{232}Th	0.58 ± 0.05
SB-3 B-5	10/15/87	Gross Alpha	0 ± 4
		Gross Beta	35 ± 6
		^{3}H	0 ± 0.03
		^{90}Sr	0 ± 0.2
		Gamma Scan:	
		^{40}K	11.6 ± 0.6
		^{226}Ra	0.54 ± 0.05
		^{232}Th	0.60 ± 0.06

TABLE 1 SOIL RESULTS (cont'd, page two)

Sample Number	Collection Date	Analysis	Results pCi/g ± 2 σ
SB-3 B-6	10/15/87	Gross Alpha	7 ± 3
		Gross Beta	30 ± 6
		^{3}H	0 ± 0.03
		^{90}Sr	0 ± 0.2
		Gamma Scan:	
		^{40}K	10.1 ± 0.5
		^{226}Ra	0.44 ± 0.05
		^{232}Th	0.47 ± 0.05
SB-4 B-1	10/14/87	Gross Alpha	0 ± 4
		Gross Beta	27 ± 6
		^{3}H	0 ± 0.03
		^{90}Sr	0 ± 0.2
		Gamma Scan:	
		^{40}K	8.1 ± 0.4
		^{226}Ra	0.30 ± 0.05
		^{232}Th	0.32 ± 0.05
SB-4 B-2	10/14/87	Gross Alpha	0 ± 4
		Gross Beta	30 ± 5
		^{3}H	0 ± 0.03
		^{90}Sr	0 ± 0.2
		Gamma Scan:	
		^{40}K	8.2 ± 0.4
		^{226}Ra	0.31 ± 0.05
		^{232}Th	0.52 ± 0.06
SB-4 B-3	10/14/87	Gross Alpha	0 ± 3
		Gross Beta	32 ± 6
		^{3}H	0 ± 0.03
		^{90}Sr	0 ± 0.2
		Gamma Scan:	
		^{40}K	8.1 ± 0.4
		^{137}Cs	0.04 ± 0.03
		^{226}Ra	0.34 ± 0.05
		^{232}Th	0.37 ± 0.05
SB-10 B-5	10/16/87	Gross Alpha	7 ± 3
		Gross Beta	31 ± 6
		^{3}H	0 ± 0.03
		^{90}Sr	0 ± 0.2
		Gamma Scan:	
		^{40}K	13.3 ± 0.7
		^{226}Ra	0.54 ± 0.05
		^{232}Th	0.66 ± 0.06

TABLE 1 SOIL RESULTS (cont'd, page 3)

Sample Number	Collection Date	Analysis	Results pCi/g ± 2 σ
SB-12 B-5	10/16/87	Gross Alpha	0 ± 3
		Gross Beta	30 ± 6
		^{3}H	0 ± 0.03
		^{90}Sr	0 ± 0.2
		Gamma Scan:	
		^{40}K	13.5 ± 0.7
		^{226}Ra	0.65 ± 0.05
		^{232}Th	0.71 ± 0.06
SB-13 B-13	10/19/87	Gross Alpha	4 ± 3
		Gross Beta	38 ± 6
		^{3}H	0 ± 0.03
		^{90}Sr	0 ± 0.2
		Gamma Scan:	
		^{40}K	14.7 ± 0.7
		^{226}Ra	0.72 ± 0.05
		^{232}Th	0.49 ± 0.05
SB-14 B-12	10/20/87	Gross Alpha	0 ± 3
		Gross Beta	33 ± 5
		^{3}H	0 ± 0.03
		^{90}Sr	0 ± 0.2
		Gamma Scan:	
		^{40}K	12.2 ± 0.6
		^{137}Cs	0.05 ± 0.02
		^{226}Ra	0.65 ± 0.05
		^{232}Th	0.66 ± 0.05

DRAFT

APPENDIX D

Serial Number 104
WA Project Number UCD-101/201
Page 1 of 2

CHAIN OF CUSTODY RECORD AND ANALYSIS REQUEST FORM

Date Sample Shipped 6-30-88
Name of Laboratory TMA/NORCAL
Lab Project Manager MARVIN HUNT
Turnaround Time NORMAL
Report to Charlie Wittman
Checked : Amy Chau

Collector Charlie Wittman
Affiliation WA
Address 1033 Corporation Way Palo Alto 943
Phone (415) 968 6250

Sample Information

Your Sample I.D.	Date Collected	Matrix	Container	Analysis Requested	
UCD-1	6-28-88	H_2O	PLAS. JUG	RA226	SR90
-2				"	"
-3				"	"
-4				"	"
-5				"	"
-6				"	"
-7				"	"
-8				"	"

Comments Please filter the Ra226/SR90 samples before analyses. No charge for analysis, include QA/QC

Wahler Contact Person Charlie Wittman Phone (415) 968 6250

Chain of Possession

	Relinquished by (Sign. & affiliation)	Date	Time	Received by (Sign. & affiliation)	Date	Time
1.	Charlie Wittman WA	6/30/88	10:52	Frank Desk	6/30/88	10:5
		/ /			/ /	
2.	[illegible] W.A.	7/1/88	11:55	[illegible]	7/1/88	11:55
		/ /			/ /	
3.		/ /			/ /	
		/ /			/ /	

Wahler Associates

Serial Number 104
WA Project Number UCD-101/80,
Page 2 of 2

CHAIN OF CUSTODY RECORD AND ANALYSIS REQUEST FORM (Cont'd)

Sample Information

Your Sample I.D.	Date Collected	Matrix	Container	Analysis Requested
UCD -9	6-29-88	H_2O	PLAS. JUG	RA 226 / SR 90
-10	6-28-88	"		" "
-11	6-28-88	"		" "

Comments Please filter the Ra 226/SR 90 samples before analysis.

Wahler Contact Person Charlie Wittman Phone (415) 968 6250

Wahler Associates

Serial Number 105
WA Project Number UCD-201H
Page 1 of 1

CHAIN OF CUSTODY RECORD AND ANALYSIS REQUEST FORM

Date Sample Shipped 6-30-88
Name of Laboratory TMA/NORCAL
Lab Project Manager George Dunston
Turnaround Time NORMAL
Report to Charlie Wittman

Collector Charlie Wittman
Affiliation WA
Address 1023 Corporation Way Palo Alto Ca 94
Phone (415) 9686250

Checked: Amy Chau.

Sample Information

Your Sample I.D.	Date Collected	Matrix	Container	Analysis Requested
UCD-8	6-29-88	H_2O	[redacted] VOA's	EPA 601, Turbidity
-9	"	"	"	" , "
-7	"	"	"	Turbidity only
-6	"	"	"	"
-5	"	"	"	"
-4	"	"	"	"
-3	"	"	"	"
-2	"	"	"	"
-1	"	"	"	"

Comments EPA 601 VOA'S ARE REFRIGERATED
include QA/QC

Wahler Contact Person Charlie Wittman Phone (415) 9686250

Chain of Possession

	Relinquished by (Sign. & affiliation)	Date	Time	Received by (Sign. & affiliation)	Date	Time
1.	Charlie Wittman WA	6/30/88	10:52	Front Desk	6/30/88	10:52
2.	L. Schnapp WA	7/1/88	11:55	Elana Alvarado	7/1/88	11:55
3.		/ /			/ /	
		/ /			/ /	

Wahler Associates

Serial Number 068
WA Project Number 4CD-101H
Page 1 of 4

5-6-88 or 9

CHAIN OF CUSTODY RECORD AND ANALYSIS REQUEST FORM

Date Sample Shipped 5/6/88
Name of Laboratory TMA / NorCal
Lab Project Manager MARVIN HUNT
Turnaround Time NORMAL
Report to Charlie Wittman

Collector C. Wittman / G. Smart
Affiliation Wahler assoc.
Address 1023 corporation WAY
Phone (415) 968-6250

Sample Information

Your Sample I.D.	Date Collected	Matrix	Container	Analysis Requested
T-1 composite	4/26/88	soil	plas. bag	gross alpha, beta gamma, tritium, Sr-90
TR-1				
TR-2	Comp.			
TR-3				
TR-4				
TR-5				
UCD-1-B15	10-8-87	soil	plas bag	"

Comments

Wahler Contact Person Charlie Wittman Phone (415) 968-6250

Chain of Possession

	Relinquished by (Sign. & affiliation)	Date	Time	Received by (Sign. & affiliation)	Date	Time
1.	Charlie Wittman Wahler	5/9/88	11:52	Erma Alvarado TMA/NORCAL	5/9/88	11:52
2.		/ /			/ /	
		/ /			/ /	
3.		/ /			/ /	
		/ /			/ /	

Wahler Associates

Serial Number 068
WA Project Number UCD-101H
Page 2 of 4

CHAIN OF CUSTODY RECORD AND ANALYSIS REQUEST FORM (Cont'd)

Sample Information

Your Sample I.D.	Date Collected	Matrix	Container	Analysis Requested
T-2 Composite	4/26/88	Soil	plas. bag	gross alpha, beta, gamma, tritium, Sr-90.
TR-6				
TR-7				
TR-8				
TR-9				
TR-10				
T-3 Composite	4/26/88	Soil	plas. bag	" " "
TR-11				" " "
TR-12				
TR-13				
TR-14				
TR-15				
T-4 Composite	4/26/88	"	"	" " "
TR-16				" " "
TR-17				
TR-18				
TR-19				
TR-20				

Comments

Wahler Contact Person Charlie Wittman Phone (415) 968-6250

Wahler Associates

Serial Number 068
WA Project Number UCD-101H
Page 3 of 4

CHAIN OF CUSTODY RECORD AND ANALYSIS REQUEST FORM (Cont'd)

Sample Information

Your Sample I.D.	Date Collected	Matrix	Container	Analysis Requested
T-5 composite	4/26/88	Soil	plas. bag	gross alpha, beta gamma, tritium Sr-90.
TR-21				
TR-22				
TR-23				
TR-24				
TR-25				
T-6 composite	4/26/88	Soil	plas. bag	" " "
TR-26				" " "
TR-27				
TR-28				
TR-29				
TR-30				
T-7 composite	4/26/88	Soil	plas. bag	" " "
TR-31				" " "
TR-32				
TR-33				
TR-34				
TR-35				

Comments

Wahler Contact Person _____ Phone (___) _____

Wahler Associates

Serial Number 068
WA Project Number 4CD-101H
Page 4 of 4

CHAIN OF CUSTODY RECORD AND ANALYSIS REQUEST FORM (Cont'd)

Sample Information

Your Sample I.D.	Date Collected	Matrix	Container	Analysis Requested
T-8 composite	4/26/88	Soil	plas. bag	gross alpha, beta, gamma, tritium, Sr-90.
TR-36				
TR-37				
TR-38				
TR-39				
TR-40				
T-9 composite	4/26/88	Soil	plas. bag	" " "
TR-41				" " "
TR-42				
TR-43				
TR-44				
TR-45				
T-10 composite	4/26/88	Soil	plas. bag	" " "
TR-46				" " "
TR-47				
TR-48				
TR-49				
TR-50				

Comments

Wahler Contact Person _____ Phone (___) _____

Wahler Associates

Wahler Associates

WA Project Number: UCD-101?

Page 1 of 1

Field Sample Chain of Custody Record

Source of Sample(s) _____

Address _____

Phone ( )

Report to (1) CHARLIE WITTMAN

Collector DING CANUAS

Affiliation WAHLER ASSOCIATES

Address 1023 CORPORATION WAY, PALO ALTO, CA. 94303

Phone (415) 968-6250

Sample Information

Your Sample I.D.	Matrix	Container	Analysis Requested
DSB-1	SOIL	8AG	gross alpha, beta, Gamma, tritiu SR-90
DSB-2	"	"	" " " "
DSB-3	"	"	" " " "
UCD-10	H_2O	8 OZ PLASTIC BOTTLE	tritium
UCD-11	"	"	"
UCD-11	"	"	"
UCD-10	"	3500ML PLASTIC JUG	gross alpha, beta, Gamma, Ra-226, SR-
UCD-11	"	"	"

Chain of Possession

	Relinquished by (Signature and affiliation)	Date	Time	Received by (3) (Signature and affiliation)	Date
1.	Ding Canuas	12/10/87	11:44 Am.	Mark A. Yatt	12/02/87
2.		/ /			/ /
3.		/ /			/ /

(1) There is a separate Request for Analysis form that should be filled out by the coll and given to the Laboratory when samples are delivered.
(2) e.g. water, sludge, soil, etc.
(3) If any samples are not intact at time of transfer, please describe on the back of t form.

Wahler Associates

WA Project Number: CCD 10

Field Sample Chain of Custody Record

Source of Sample(s) WELLS

Address

Phone ( )

Report to (1) Charlie Wittman

Collector PAUL SCHMIDT

Affiliation Wahler Assoc

Address

Phone (415) 968-6250

Sample Information

Lab No.	Field No.	Date	Time	Type (2)	Depth	Remarks (Suspected Contaminants Field Conditions, etc.
		/ /				See attached
		/ /				Analysis
		/ /				Request
		/ /				Form
		/ /				
		/ /				
		/ /				
		/ /				

Chain of Possession

	Relinquished by (Signature and affiliation)	Date	Time	Received by (3) (Signature and affiliation)	Date
1.	Paul F. Schmidt	11/24/87	1458	Kermit Blum TMA	11/24/87
2.		/ /			/ /
3.		/ /			/ /

(1) There is a separate Request for Analysis form that should be filled out by the colle and given to the Laboratory when samples are delivered.
(2) e.g. water, sludge, soil, etc.
(3) If any samples are not intact at time of transfer, please describe on the back of th form.

Wahler Associates

Geotechnical and Water Resources Engineering

ANALYSIS REQUEST FORM

TMA NORCAL Date Sample Shipped 24 Nov. '87

Wahler Associates will indicate a contact person and phone number which the Lab staff can use to obtain or verify the appropriate analytical requirements.

Your Sample I.D.	Matrix	Container	Analysis Requested
UCD-6	H_2O	2 VOA's	EPA 624
"	"	1 l jar	EPA 625
"	"	"	EPA 608
"	"	1 pt plastic	17 CAM metals
"	"	1 pt plastic	Nitrates & Formaldehyde
"	"	4, 1 l jars	Ra-226, Sr-90, gross alpha, beta, gamma
"	"	1 l jar	H-3

Comments Standard analysis period requested.

Contact Person Charlie Wittman (415) 968-6250
Name Telephone

Lab Project Manager (if known) George Dunston, Marvin Hunt

*Duplicate VOA samples sent for lab convenience.

1023 Corporation Way, P.O. Box 10023, Palo Alto, California 94303 • Telephone Number (415) 968-6250
Telex Number 4998623

Wahler Associates

WA Project Number: 1JC D 101

Field Sample Chain of Custody Record

Source of Sample(s) WELLS

Address

Phone ( )

Report to (1) Charlie Wittman

Collector PAUL SCHMIDT

Affiliation Wahler Associates

Address 1023 Corporation W.
Palo Alto, CA. 943.

Phone (415) 968-6250

Sample Information

Lab No.	Field No.	Date	Time	Type (2)	Depth	Remarks (Suspected Contaminants, Field Conditions, etc.)
		/ /				See Attached
		/ /				Analysis
		/ /				Request
		/ /				Form
		/ /				Samples rec'd in satisfactory
		/ /				condition M.Wt
		/ /				
		/ /				

Chain of Possession

	Relinquished by (Signature and affiliation)	Date	Time	Received by (3) (Signature and affiliation)	Date	T
1.	Paul F. Schmidt Wahler	11/19/87	11:00	Charles H. Wittman	11/18/87	1
2.	Charlie Wittman	11/19/87	1:57	Mary P. Wt	11/19/87	1
3.		/ /			/ /	

(1) There is a separate Request for Analysis form that should be filled out by the collec and given to the Laboratory when samples are delivered.
(2) e.g. water, sludge, soil, etc.
(3) If any samples are not intact at time of transfer, please describe on the back of thi form.

Wahler Associates

Geotechnical and Water Resources Engineering

ANALYSIS REQUEST FORM

TMA Date Sample Shipped 19 Nov. '87

Wahler Associates will indicate a contact person and phone number which the Lab staff can use to obtain or verify the appropriate analytical requirements.

Your Sample I.D.	Matrix	Container	Analysis Requested
UCD-1	H_2O	2 VOA's	EPA 624
	"	1 ½ jar	EPA 625
	"	"	EPA 608
	"	1 qt. plastic	17 CAM metals
	"	1 pt. plastic	Nitrates & Formaldehyde
	"	1 gal plastic	Ra-226, Sr-90,
			gross alpha, beta, gamma
	"	8 oz plastic	H-3
UCD-2	H_2O	2 VOA's	EPA 624
		1 ½ jar	EPA 625
		"	EPA 608
		1 qt plastic	17 CAM metals
		1 pt. plastic	Nitrates & Formaldehyde
		1 gal. plastic	Ra-226, Sr-90,
			gross alpha, beta, gamma
		8 oz. plastic	H-3

Comments Results - Standard analysis period (check holding period on VOA samples)

Contact Person Charlie Wilman (415) 968-6250
Name Telephone

Lab Project Manager (if known) George Dunston / Marvin Hunt

*Duplicate VOA samples sent for lab convenience.

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Telex Number 4998623

Wahler Associates

Geotechnical and Water Resources Engineering

ANALYSIS REQUEST FORM

TMA Date Sample Shipped 19 Nov. '87

Wahler Associates will indicate a contact person and phone number which the Lab staff can use to obtain or verify the appropriate analytical requirements.

Your Sample I.D.	Matrix	Container	Analysis Requested
UCD-3	H_2O	2 VOA's	EPA 624
	"	1 D. jar	EPA 625
	"	"	EPA 608
	"	1 qt. plastic	17 CAM metals
	"	1 pt. plastic	Nitrates & Formaldahyde
	"	1 gal plastic	Ra-226, Sr-90,
			gross alpha, beta, gamma
	"	8 oz plastic	H-3
UCD-4	H_2O	2 VOA's	EPA 624
		1 D. jar	EPA 625
		"	EPA 608
		1 qt plastic	17 CAM metals
		1 pt. plastic	Nitrates & Formaldahyde
		1 gal. plastic	Ra-226, Sr-90,
			gross alpha, beta, gamma
		8 oz. plastic	H-3

Comments Results - Standard analysis period (check holding period on VOA samples)

Contact Person Charlie Wilhman (415) 968-6250
Name Telephone

Lab Project Manager (if known) George Dunston / Marvin Hunt

*Duplicate VOA samples sent for lab convenience.

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Telex Number 4998623

Wahler Associates

Geotechnical and Water Resources Engineering

ANALYSIS REQUEST FORM

TMA Date Sample Shipped 19 Nov. '87

Wahler Associates will indicate a contact person and phone number which the Lab staff can use to obtain or verify the appropriate analytical requirements.

Your Sample I.D.	Matrix	Container	Analysis Requested
UCD-5	H_2O	2 VOA's	EPA 624
	"	1 D. jar	EPA 625
	"	"	EPA 608
	"	1 qt. plastic	17 CAM metals
	"	1 pt. plastic	Nitrates & Formaldahyde
	"	1 gal plastic	Ra-226, Sr-90,
			gross alpha, beta, gamma
	"	8 oz plastic	H-3
UCD-7	H_2O	2 VOA's	EPA 624
		1 D. jar	EPA 625
		"	EPA 608
		1 qt plastic	17 CAM metals
		1 pt. plastic	Nitrates & Formaldahyde
		1 gal. plastic	Ra-226, Sr-90,
			gross alpha, beta, gamma
		8 oz. plastic	H-3

Comments Results - Standard analysis period (check holding period on VOA samples)

Contact Person Charlie Wittman (415) 968-6250
Name Telephone

Lab Project Manager (if known) George Dunston / Marvin Hunt

*Duplicate VOA samples sent for lab convenience.

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Telex Number 4998623

Wahler Associates

W.A. PROJECT NO. VCD-101-

Geotechnical and Water Resources Engineering

ANALYSIS REQUEST FORM

TMA/NORCAL Date Sample Shipped 10-23-87

Wahler Associates will indicate a contact person and phone number which the Lab staff can use to obtain or verify the appropriate analytical requirements.

	Your Sample I.D.	Matrix	Container	Analysis Requested
* composite	SB-11, B-1	soil	plastic bag	(gross alpha, beta, gamma, tritium and SR-90) composite
	SB-11, B-2			
	SB-11, B-3			
	F-17, B-399			"
"	F-17, B-401			"
	F-17, B-403			"
	G-15, B-293			"
"	G-15, B-295			"
	G-15, B-297			"
				"
				"

	Relinquished by	Date	Time	Received by (3)	Date	Time
1.	[illegible]	10/23/87	1:55 pm	Elmina Alvado	10/23/87	1:55
		/ /			/ /	
2.		/ /			/ /	
		/ /			/ /	
3.		/ /			/ /	
		/ /			/ /	

* Comments Please retain remaining sample for possible duplicate analyses of individual members of composites

Contact Person Charlie Wittmer (415) 968-6850
Name Telephone

Lab Project Manager (if known) Marvin Hunt

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Telex Number 4998623

Wahler Associates

Geotechnical and Water Resources Engineering

ANALYSIS REQUEST FORM

Date Sample Shipped

Wahler Associates will indicate a contact person and phone number which the Lab staff can use to obtain or verify the appropriate analytical requirements.

	Your Sample I.D.	Matrix	Container	Analysis Requested
Composite	G-18, B-381	"	"	"
	G-18, B-383	"	"	"
	G-18, B-391	"	"	"
"	G-22, B-381	"	"	"
	G-22, B-383	"	"	"
	G-22, B-387	"	"	"
"	G-6, B-375	"	"	"
	G-6, B-377	"	"	"
	G-6, B-379	"	"	"
"	E-30, B-369	"	"	"
	E-30, B-371	"	"	"
	E-30, B-373	"	"	"
"	D-2, B-363	"	"	"
	D-2, B-365	"	"	"
	D-2, B-367	"	"	"
"	D-24, B-357	"	"	"
	D-24, B-359	"	"	"
	D-24, B-361	"	"	"

Comments See page 1

Contact Person _____ ( ) _____
Name Telephone

Lab Project Manager (if known) _____

*Duplicate VOA samples sent for lab convenience.

1023 Corporation Way, P.O. Box 10023, Palo Alto, California 94303 • Telephone Number (415) 968-6250
Telex Number 4998623

Wahler Associates

Geotechnical and Water Resources Engineering

ANALYSIS REQUEST FORM

Date Sample Shipped _____

Wahler Associates will indicate a contact person and phone number which the Lab staff can use to obtain or verify the appropriate analytical requirements.

	Your Sample I.D.	Matrix	Container	Analysis Requested
Composite	D-22, B-351	"	"	"
	D-22, B-[illegible]	"	"	"
	D-22, B-35[illegible]	"	"	"
	D-11, B-34[illegible]			
"	D-11, B-347			
	D-11, B-349			
	H-32, B-339			
"	H-32, B-[illegible]			
	H-32, B-342			
	I-1, B-33[illegible]			
"	I-1, B-335			
	I-1, B-33[illegible]			
	J-22, B-327			
"	J-22, B-329			
	J-22, B-331			
	H-17, B-321			
"	H-17, B-323			
	H-17, B-325			

Comments see page 1

Contact Person _____ ( ) _____
Name Telephone

Lab Project Manager (if known) _____

*Duplicate VOA samples sent for lab convenience.

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Telex Number 4998623

Wahler Associates

Geotechnical and Water Resources Engineering

ANALYSIS REQUEST FORM

Date Sample Shipped

Wahler Associates will indicate a contact person and phone number which the Lab staff can use to obtain or verify the appropriate analytical requirements.

	Your Sample I.D.	Matrix	Container	Analysis Requested
	J-16, B-315	"	"	"
Composite	J-16, B-317			
	J-16, B-319			
	K-25', B-300			
"	K-25', B-302			
	K-25, B-304			
	M-31', B-306			
"	M-31, B-308			
	M-31, B-310			
	SB-10', B-1			
Composite	SB-10' B-2			
	SB-10 B-3			
	SB-10 B-4			
RUSH	SB-10 B-5			RUSH
	SE-12 B-1			
Composite	SE-12 B-2			
	SE-12 B-3			
	SE-12 B-4			
RUSH	SE-12, B-5			RUSH

Comments see page 1

Contact Person _____ ( ) _____
Name Telephone

Lab Project Manager (if known) _____

*Duplicate VOA samples sent for lab convenience.

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Telex Number 4998623

Wahler Associates

Geotechnical and Water Resources Engineering

ANALYSIS REQUEST FORM

Date Sample Shipped

Wahler Associates will indicate a contact person and phone number which the Lab staff can use to obtain or verify the appropriate analytical requirements.

	Your Sample I.D.	Matrix	Container	Analysis Requested
	SB-12, B-1			"
composite	SB-12, B-6			
	SB-12, B-[illegible]			
	SB-12, B-10			
RUSH	SB-12, B-13			RUSH
	SB-14, B-1			
site	SB-14, B-4			
	SB-14, B-6			
	SB-14, B-9			
RUSH	SB-14, B-12			RUSH
Extract Leach	SB-6, B-1			
composite	SB-6, B-2			
	SB-6, B-3			
	SB-7, B-1			
Composite	SB-7, B-2			
	SB-7, B-3			

Comments see page 1

Contact Person _____ ( ) _____
Name Telephone

Lab Project Manager (if known) _____

*Duplicate VOA samples sent for lab convenience.

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Telex Number 4998623

Wahler Associates

Geotechnical and Water Resources Engineering

ANALYSIS REQUEST FORM

Date Sample Shipped

Wahler Associates will indicate a contact person and phone number which the Lab staff can use to obtain or verify the appropriate analytical requirements.

	Your Sample I.D.	Matrix	Container	Analysis Requested
Sabinas Ballast	SB-8, B-1	"	"	"
Composite	SB-8, B-2			
	SB-8, B-3			
	SB-9, B-1			
"	SB-9, B-2			
	SB-9, B-3			
	SB-15, B-1			
"	SB-15, B-4			
	SB-15, B-7			
SB-9 [illegible]	SB-1, B-1			
Composite	SB-1, B-2			
	SB-1, B-3			
	SB-5, B-1			
"	SB-5, B-2			
	SB-5, B-3			
	SB-2A, B-1			
"	SB-2A, B-2			

Comments See page 1

Contact Person _____ ( ) _____
Name Telephone

Lab Project Manager (if known) _____

*Duplicate VOA samples sent for lab convenience.

1023 Corporation Way, P.O. Box 10023, Palo Alto, California 94303 • Telephone Number (415) 968-6250
Telex Number 4998623

Wahler Associates

Geotechnical and Water Resources Engineering

ANALYSIS REQUEST FORM

Date Sample Shipped _____

Wahler Associates will indicate a contact person and phone number which the Lab staff can use to obtain or verify the appropriate analytical requirements.

	Your Sample I.D.	Matrix	Container	Analysis Requested
RUSH	SB-3, B-1	"	"	RUSH
RUSH	SB-3, B-2			RUSH
RUSH	SB-3, B-3			RUSH
RUSH	SB-3, B-4			RUSH
RUSH	SB-3, B-5			RUSH
RUSH	SB-3, B-6			RUSH
RUSH	SB-4, B-1			RUSH
RUSH	SB-4, B-2			RUSH
RUSH	SB-4, B-3			RUSH
	UCL-1, B-1			INDIVIDUALS
	UCL-1, B-4			
	UCL-1, B-7			
	UCL-1, B-11			
	UCL-1, B-16			

Comments See page 1

Contact Person _____ ( ) _____
Name Telephone

Lab Project Manager (if known) _____

*Duplicate VOA samples sent for lab convenience.

1023 Corporation Way. P.O. Box 10023, Palo Alto, California 94303 • Telephone Number (415) 968-6250
Telex Number 4998623

Wahler Associates
1023 Corporation Way, P.O. Box 10023, Palo Alto, California 94303
(415) 968-6250 • TELEX 348-427

ANALYSIS REQUEST FORM

_____ Date Sample Shipped _____

WAHLER ASSOCIATES will indicate a contact person anc phone number which the Lab staff can use to obtain or verify the appropriat analytical requirements.

Your Sample I.D.	Matrix	Container	Analysis Requested
VCD-1 B-2	"	"	" corporate
VCD-1 B-5			
VCD-1 B-8			
VCD-1 B-10			
VCD-1 B-13			

corporate

Comments see page 1

Contact Person _____ Name ( ) _____ Telephone

Lab Project Manager (if known) _____

APPENDIX F

EXPLORATION TRENCH LOGS

Wahler Associates

PALO ALTO • CALIFORNIA

UC DAVIS - LEHR

GRAPHIC TRENCH LOG

PROJECT NO. UCD 101 H

DATE Feb 98

FIGURE NO.

TRENCH NO. 1

SHEET 1 OF 1

LOCATION: UC DAVIS LEHR

NOTES: 8' to Face

UNITS			STRUCTURE			
DEPTH	NO.	DESCRIPTION	NO.	STRIKE	DIP	TYPE
	3	CLAYEY SAND: Mod. yel. bro.; slight roots.				
	2	SILTY SAND: abundant roots				
	1	SAND: clean; bro.				
	4	Gravel: fill material, possible trench, dog pen gravel				

STATION →

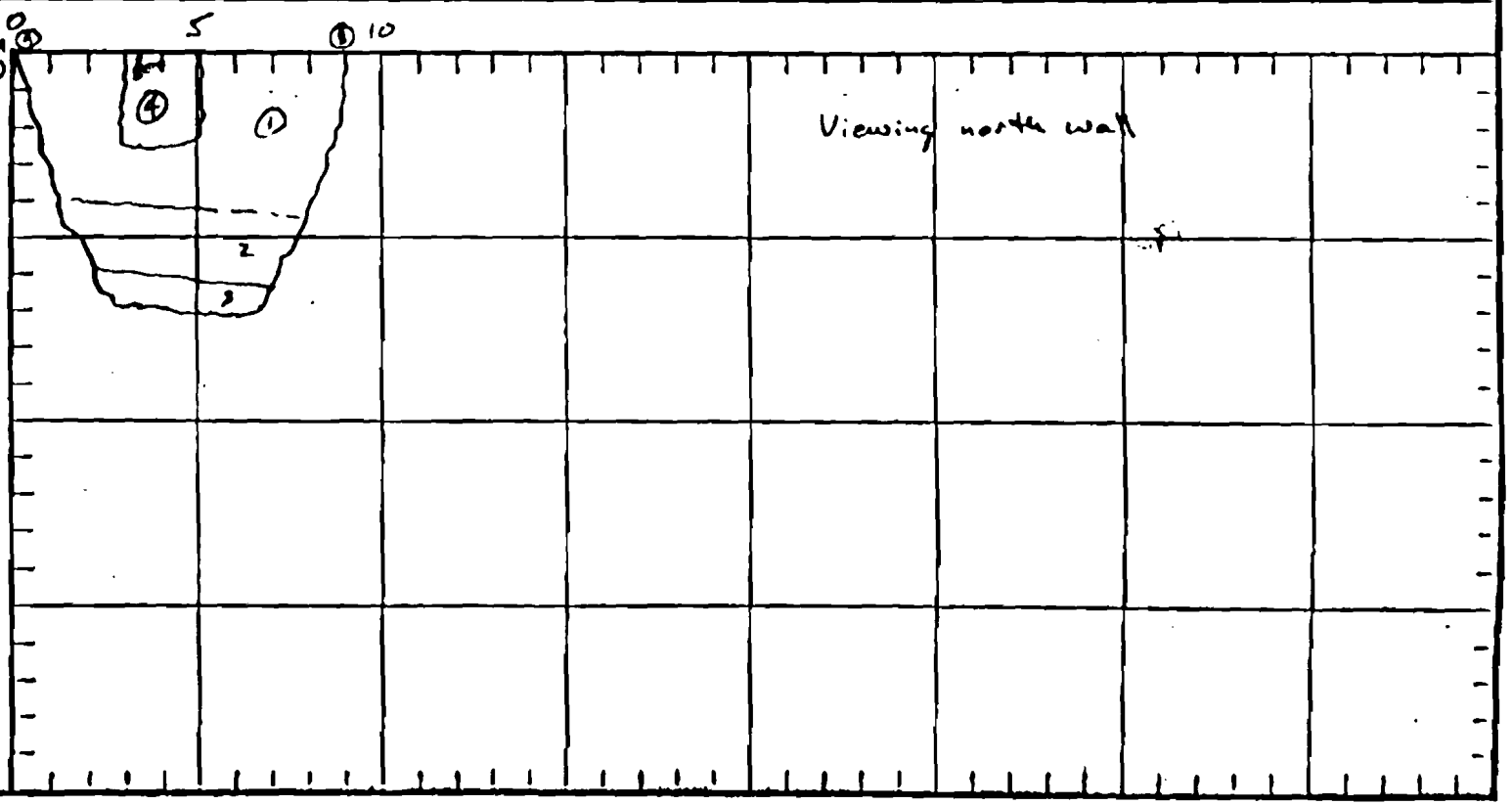
DEPTH (EL.)

17 Feb 98
DATE

P.T.S.
LOGGED BY

SCALE, FT.

085
BEARING



Wahler Associates

PALO ALTO • CALIFORNIA

UC DAVIS - LEHR

PROJECT NO. UCD 101 M

DATE Feb 88

FIGURE NO.

GRAPHIC TRENCH LOG

TRENCH NO. 2

SHEET 1 OF 1

LOCATION: UC DAVIS LEHR

NOTES:

DEPTH	UNITS NO.	DESCRIPTION	STRUCTURE NO.	STRIKE	DIP	TYPE
	1	CLAYEY SAND: as TP-1				
	2	SILTY SAND/GRAVEL: Fill, slight roots				
	3	GRAVEL/SANDY SILTY: Burial debris, bones, wood,				

STATION → 0 5 10 15

DEPTH (EL.) 5 10

17 Feb 88
DATE

P.J.S.
LOGGED BY

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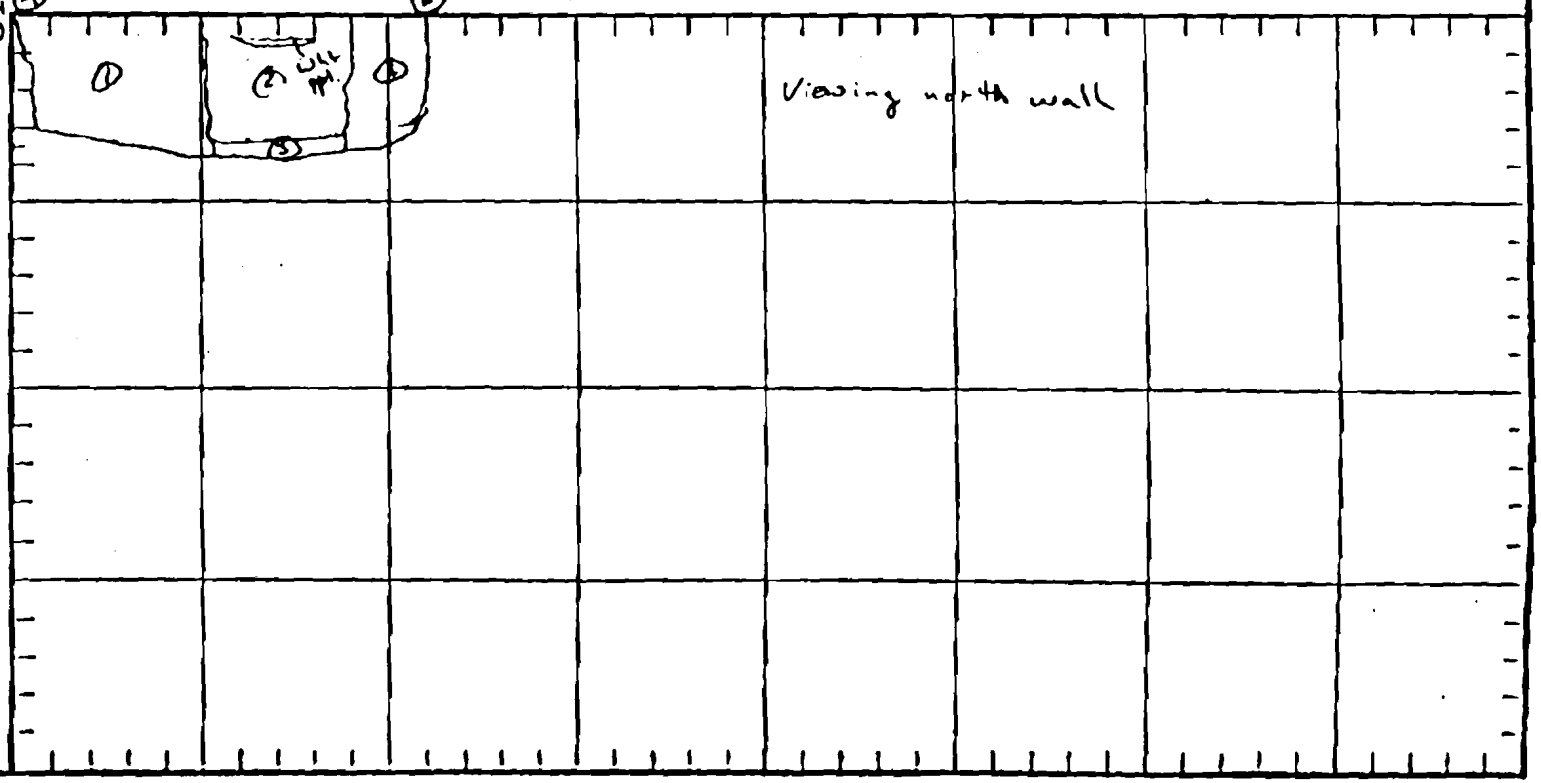
SCALE, FT.

090
BEARING



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PALO ALTO • CALIFORNIA

UC DAVIS - LEHR

UCD 105 H

Feb 88

GRAPHIC TRENCH LOG

PROJECT NO.

DATE

FIGURE NO.

TRENCH NO. 3

SHEET 1 OF 1

LOCATION: UC DAVIS LEHR

NOTES:

UNITS			STRUCTURE			
DEPTH	NO.	DESCRIPTION	NO.	STRIKE	DIP	TYPE
	1	CLAYEY SAND: As TP-1 ; roots				
	2	SANDY GRAVEL: Dog pen gravel, loose				
	3	Fill ; top cover, gravelly				
	4	SILTY SAND: loose				

STATION →

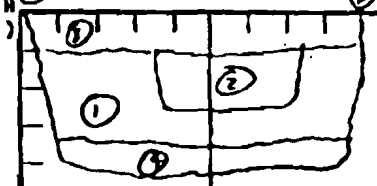
DEPTH (EL.)

17 Feb 88
DATE

G.S.
LOGGED BY

SCALE, FT.

080
BEARING



Viewing north wall

Wahler Associates

PALO ALTO • CALIFORNIA

UC DAVIS - LEHR

PROJECT NO. UCD 101 H

DATE Feb 88

FIGURE NO.

GRAPHIC TRENCH LOG

TRENCH NO. 4

SHEET 1 OF 1

LOCATION: UC DAVIS LEHR

NOTES:

UNITS			STRUCTURE			
DEPTH	NO.	DESCRIPTION	NO.	STRIKE	DIP	TYPE
	1	CLAYEY SAND: As TP-1, some roots, some silty zones				
	2a,b	SANDY GRAVEL: Dogpen gravel, slight wht. ppt.				
	3	SILTY SAND: loose				

STATION →

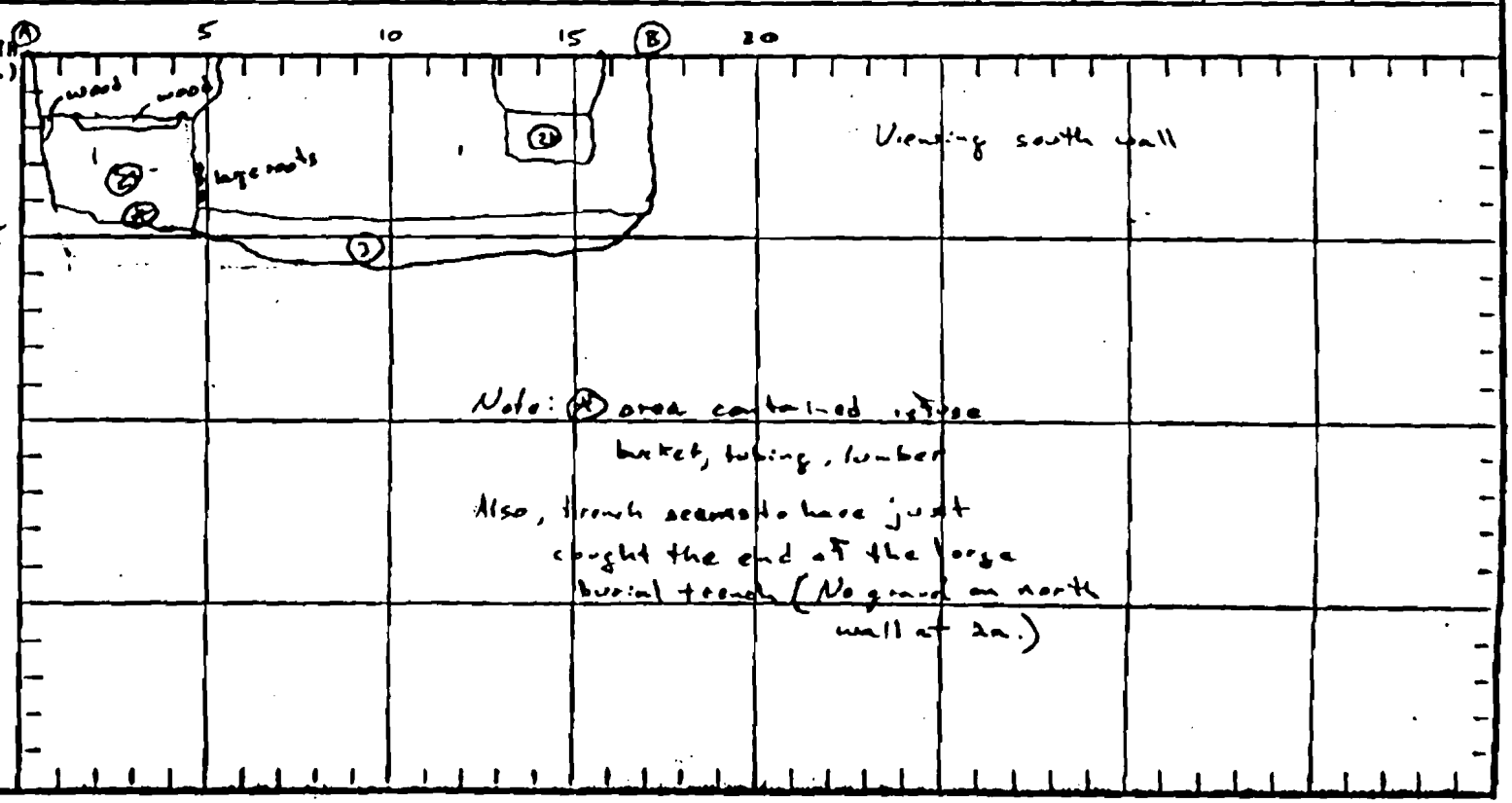
DEPTH (EL.)

17 Feb 88
DATE

P.J.S.
LOGGED BY

SCALE, FT.

095
BEARING



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PALO ALTO • CALIFORNIA

UC DAVIS - LEHR

PROJECT NO. UCD 101 H

DATE Feb 88

FIGURE NO.

GRAPHIC TRENCH LOG

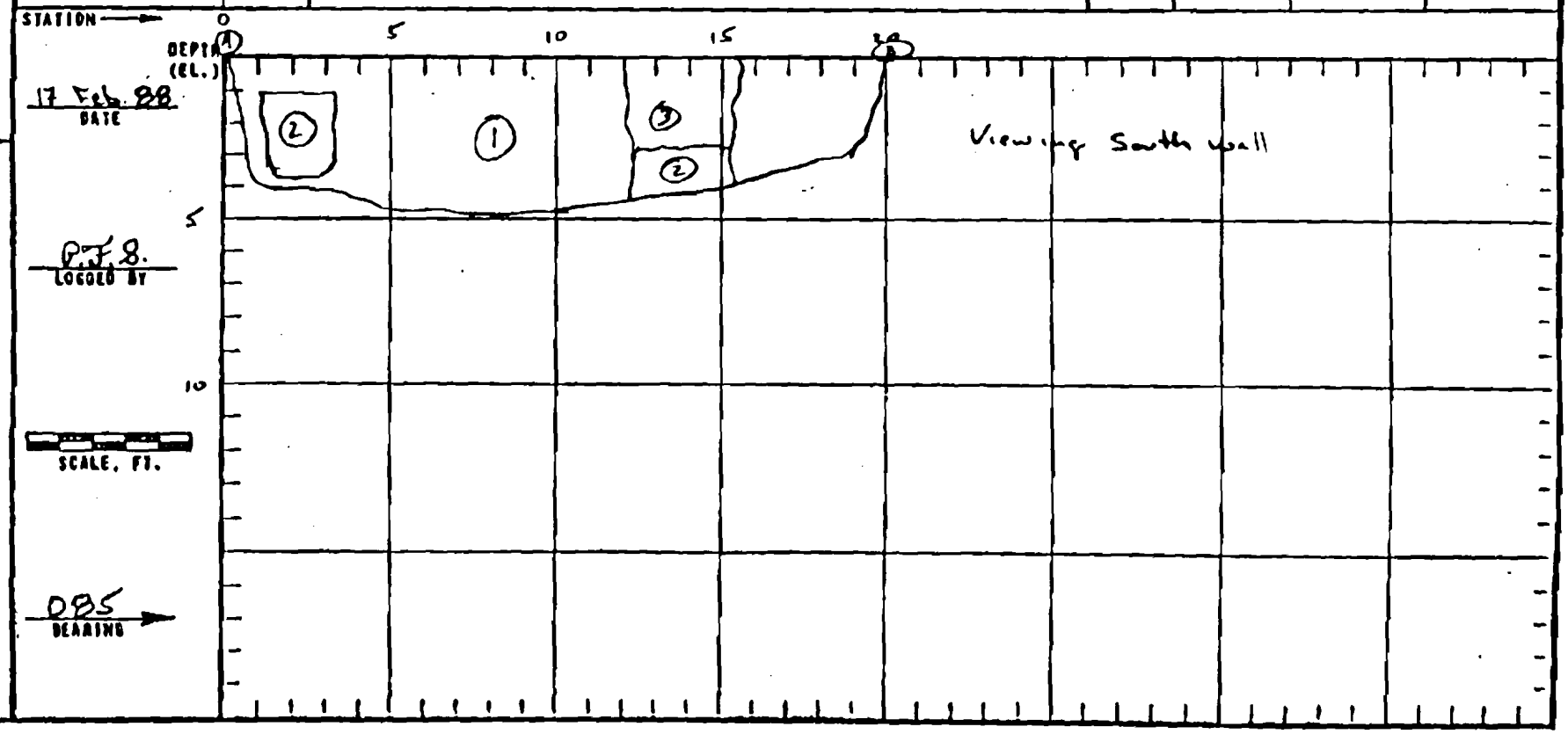
TRENCH NO. 5

SHEET 1 OF 1

LOCATION: UC DAVIS LEHR

NOTES:

UNITS			STRUCTURE			
DEPTH	NO.	DESCRIPTION	NO.	STRIKE	DIP	TYPE
	1	CLAYEY SILTY SAND: As TP-1, abundant roots				
	2	SANDY GRAVEL: Dog pen gravel				
	3	Fill: silty gravelly sand				



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UC DAVIS - LEHR

PROJECT NO. UCD 401 M

DATE Feb 88

FIGURE NO.

GRAPHIC TRENCH LOG

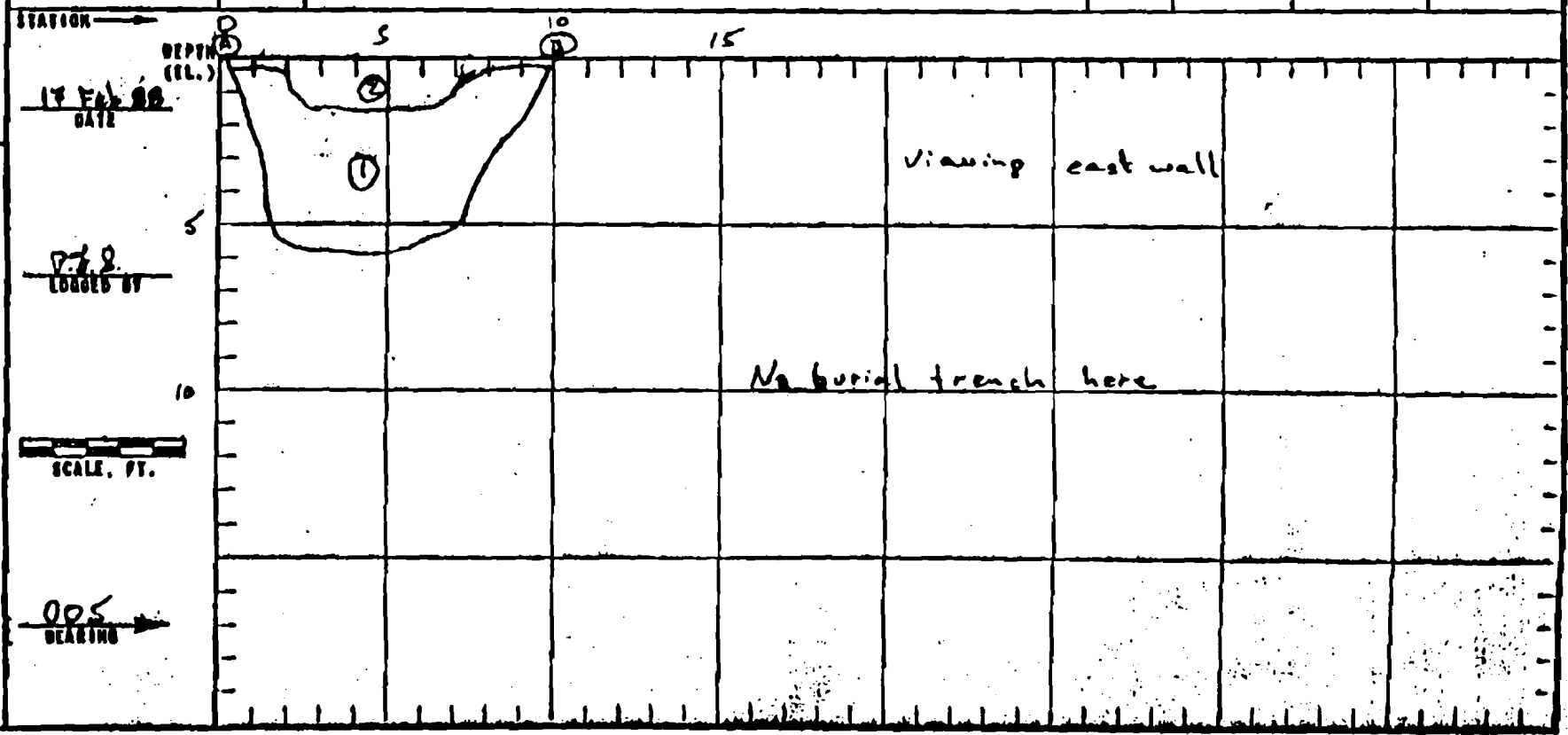
TRENCH NO. 6

SHEET 1 OF 1

LOCATION: UC Davis LEHR

NOTES:

UNITS			STRUCTURE			
DEPTH	NO.	DESCRIPTION	NO.	STRIKE	DIP	TYPE
	1	SILTY CLAYEY SAND: As TP-1				
	2	GRAVEL: surface cover, not burial gravel				



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PALO ALTO • CALIFORNIA

UC DAVIS - LEHR

UCD 101 H

Feb 88

GRAPHIC TRENCH LOG

PROJECT NO.

DATE

FIGURE NO.

TRENCH NO. 7

SHEET 1 OF 1

LOCATION: UC Davis LEHR

NOTES:

UNITS			STRUCTURE			
DEPTH	NO.	DESCRIPTION	NO.	STRIKE	DIP	TYPE
	1	SILTY SAND: As TP-1				
	2	GRAVEL: clean, coarse				

STATION

DEPTH (FT.)

0 5 10

5

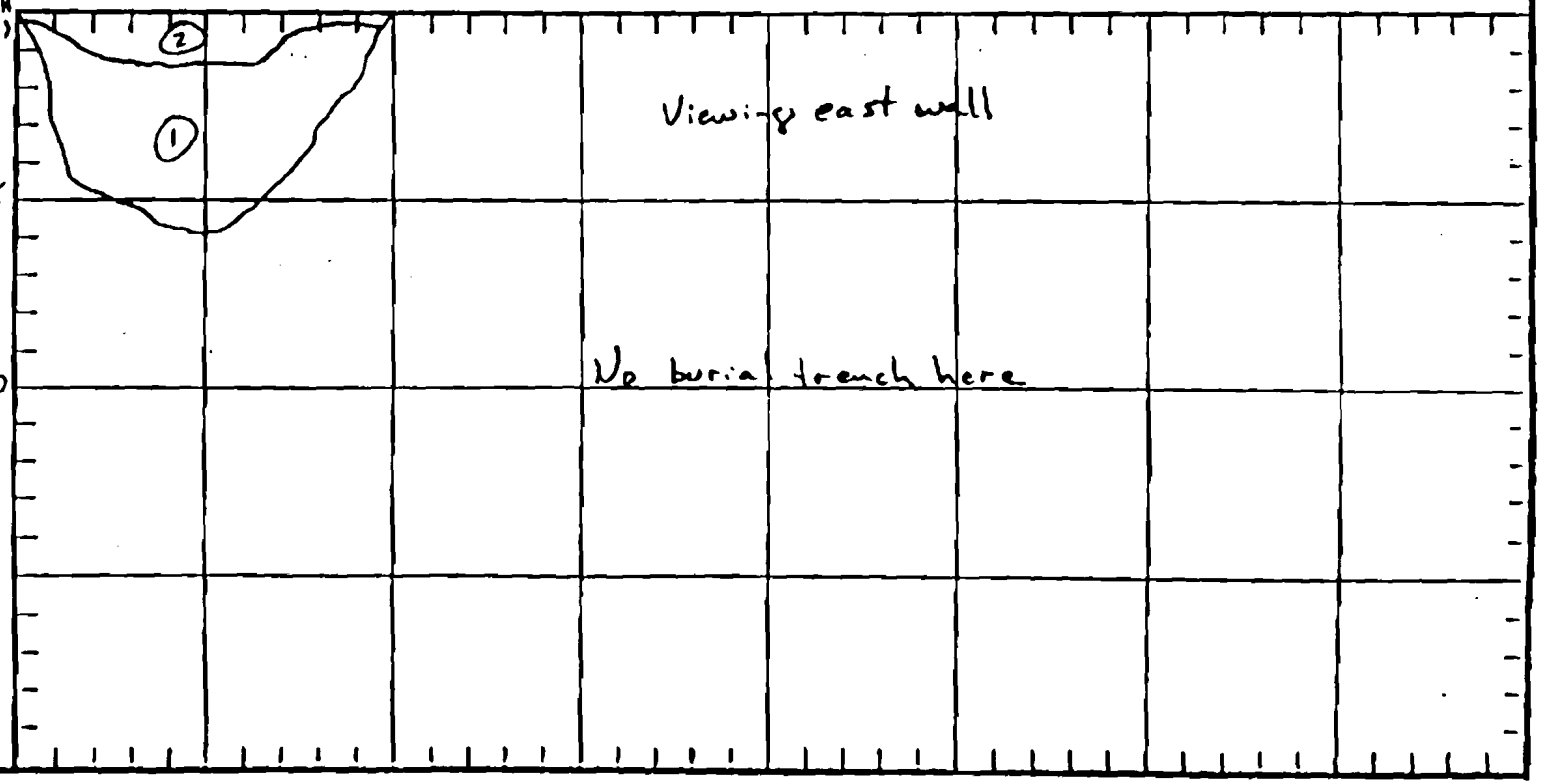
10

17 Feb 88
DATE

P.G.L.
LOGGED BY

SCALE, FT.

015°
BEARING



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PALO ALTO • CALIFORNIA

UC DAVIS - LEHR

UCD 101 H

Feb 88

GRAPHIC TRENCH LOG

PROJECT NO.

DATE

FIGURE NO.

TRENCH NO. 8

SHEET 1 OF 1

LOCATION: UC DAVIS LEHR

NOTES:

UNITS			STRUCTURE			
DEPTH	NO.	DESCRIPTION	NO.	STRIKE	DIP	TYPE
	1	SILTY SAND: As TP-1				
	2	Gravel; clean; slight sand; some cobbles				
	3	Cobbles, rounded (could be drainage rock)				

STATION → 0 5 10

DEPTH (EL.)

17 Feb 88
DATE

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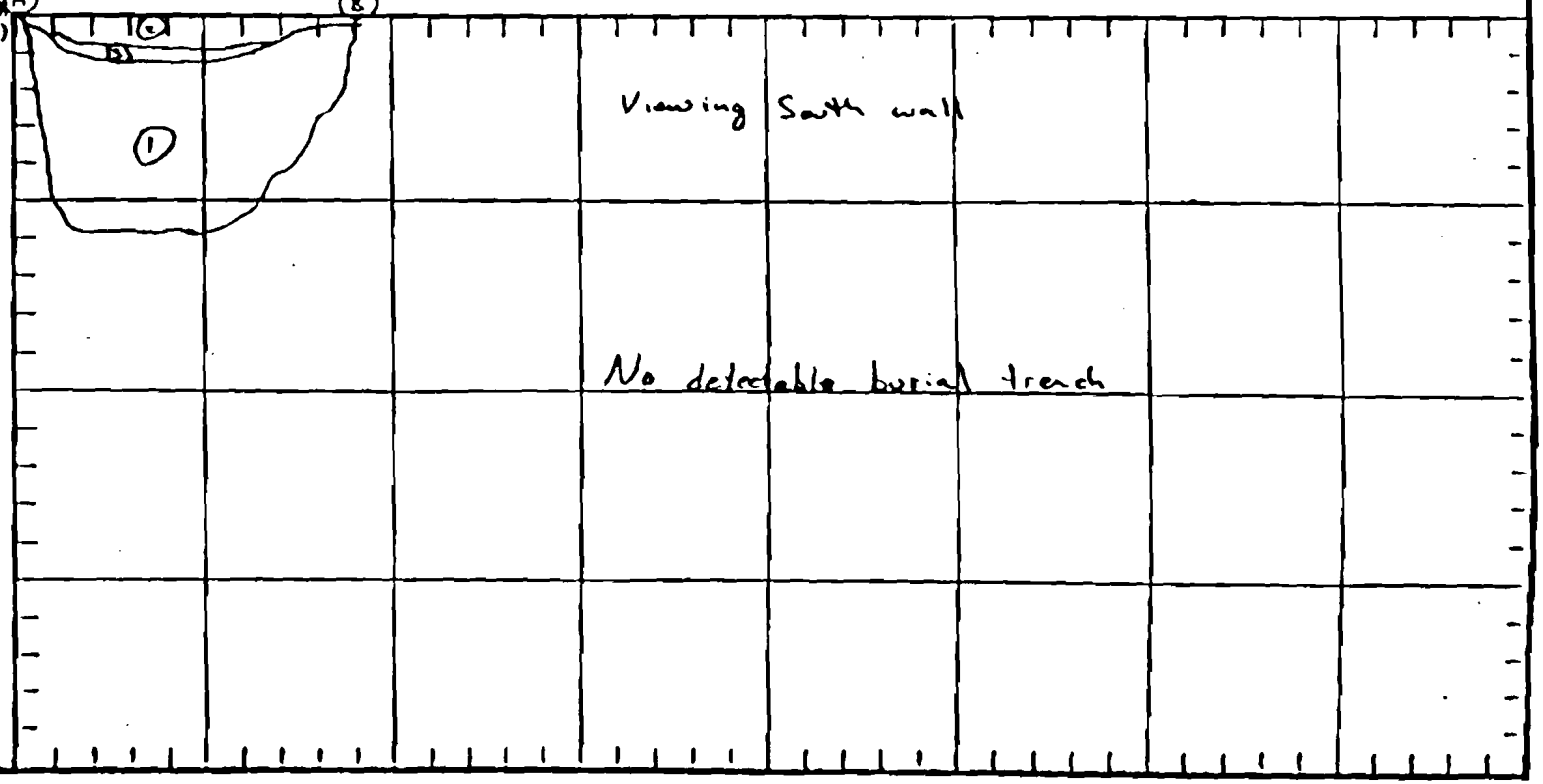
LOGGED BY

SCALE, FT.

105°
BEARING



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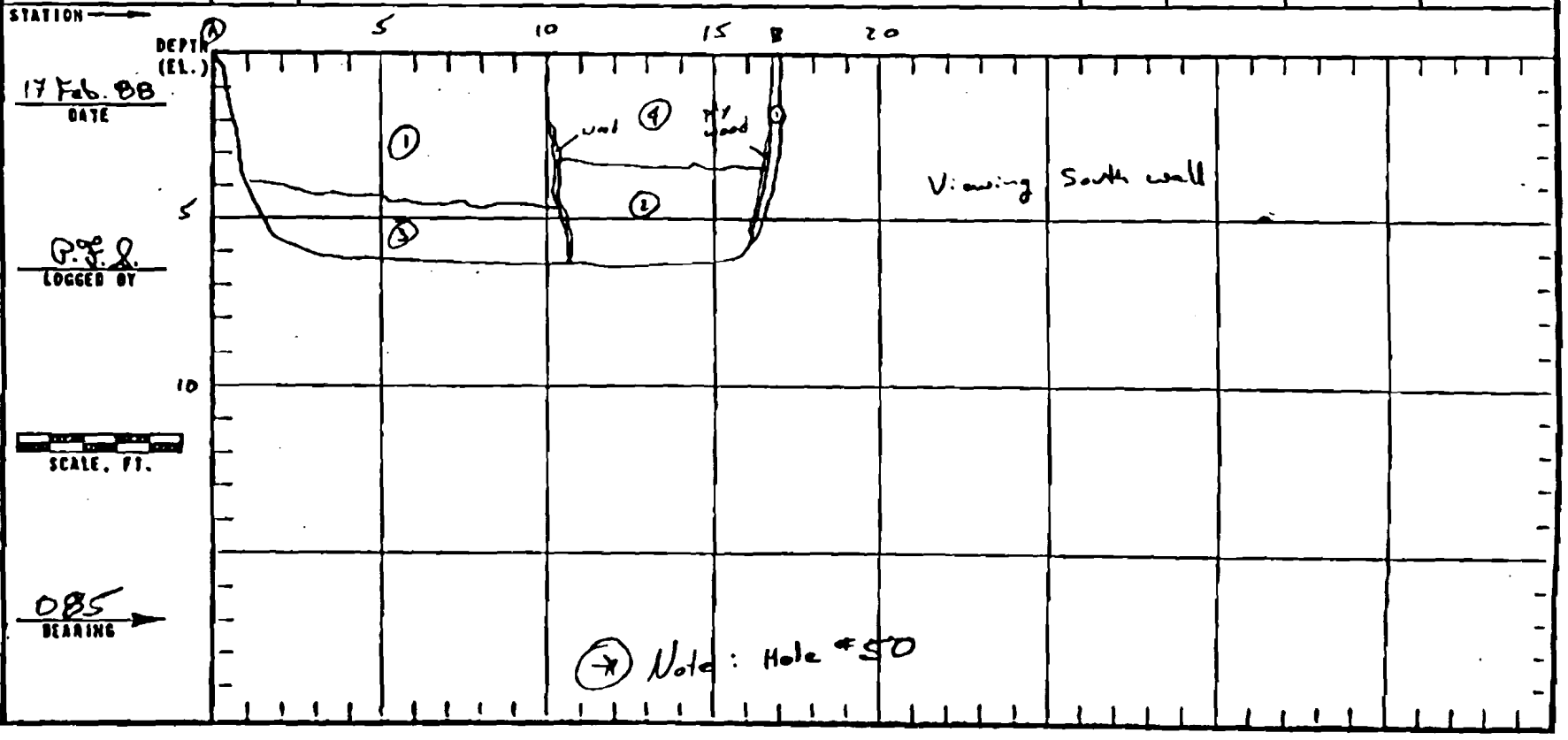
TRENCH NO. 9

SHEET 1 OF 1

LOCATION: UC Davis LEHR

NOTES:

UNITS			STRUCTURE			
DEPTH	NO.	DESCRIPTION	NO.	STRIKE	DIP	TYPE
	1	Silty SAND: As TP-1, with clayey fines				
	2	GRAVEL: Dog pen gravel, plastic bags, test tube, etc				
	3	SILTY SAND/SAND:				
	4	Fill; silty sand; slight wood.				



17 Feb. 88
DATE

P.J.S.
LOGGED BY

SCALE, FT.

085
BEARING

UC DAVIS - LEHR

PALO ALTO • CALIFORNIA

GRAPHIC TRENCH LOG

PROJECT NO. UCD 403 H

DATE Feb 88

FIGURE NO.

Wahler Associates

TRENCH NO. 10

SHEET 1 OF 1

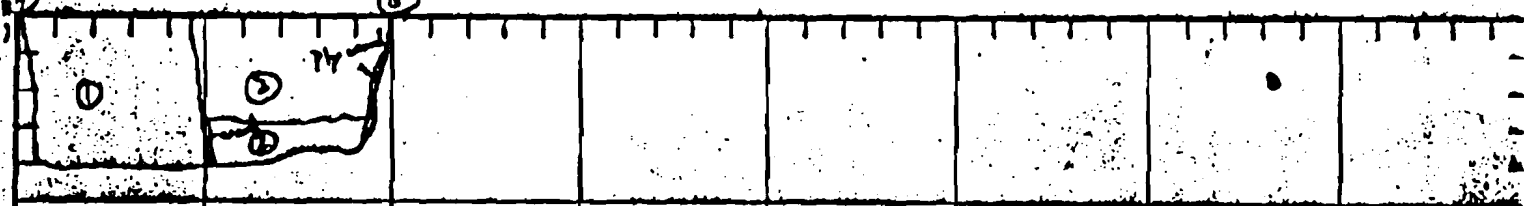
LOCATION: UC Davis LEHR

NOTES:

DEPTH	UNITS NO.	DESCRIPTION	STRUCTURE NO.	STRIKE	DIP	TYPE
	1	CLAYEY SILTY SAND: AcTP-1				
	2	GRAVEL: Day Pan gravel; syringes, plastic bags.				
	3	FILL: Sandy SILT, some small roots				

STATION → 0 5 10

DEPTH (EL.) 0 5 10



DATE 17 Feb 88

LOGGED BY Pg 8

SCALE, FT. 5 10

BEARING 235°

UC DAVIS - LEHR

FILE NO. • CALIFORNIA

GRAPHIC TRENCH LOG

PROJECT NO. UCD 101 M

DATE Feb 88

FIGURE NO.

8/83

Wahler Associates

PALO ALTO • CALIFORNIA

UC DAVIS – BURIALS

UCD 201 H

PROJECT NO.

DATE

FIGURE NO.

GRAPHIC TRENCH LOG

TRENCH NO. 11 LOCATION:

SHEET 1 OF 1 NOTES:

UNITS			STRUCTURE			
DEPTH	NO.	DESCRIPTION	NO.	STRIKE	DIP	TYPE
	1	GRAVEL: Dog pen gravel, slight sand; loose; fine; angular				
	2	Gravel: coarse, rounded				
	3	SANDY SILTY GRAVEL:				
	4	FILL SILTY CLAYEY SAND: DK brn; roots				

STATION →

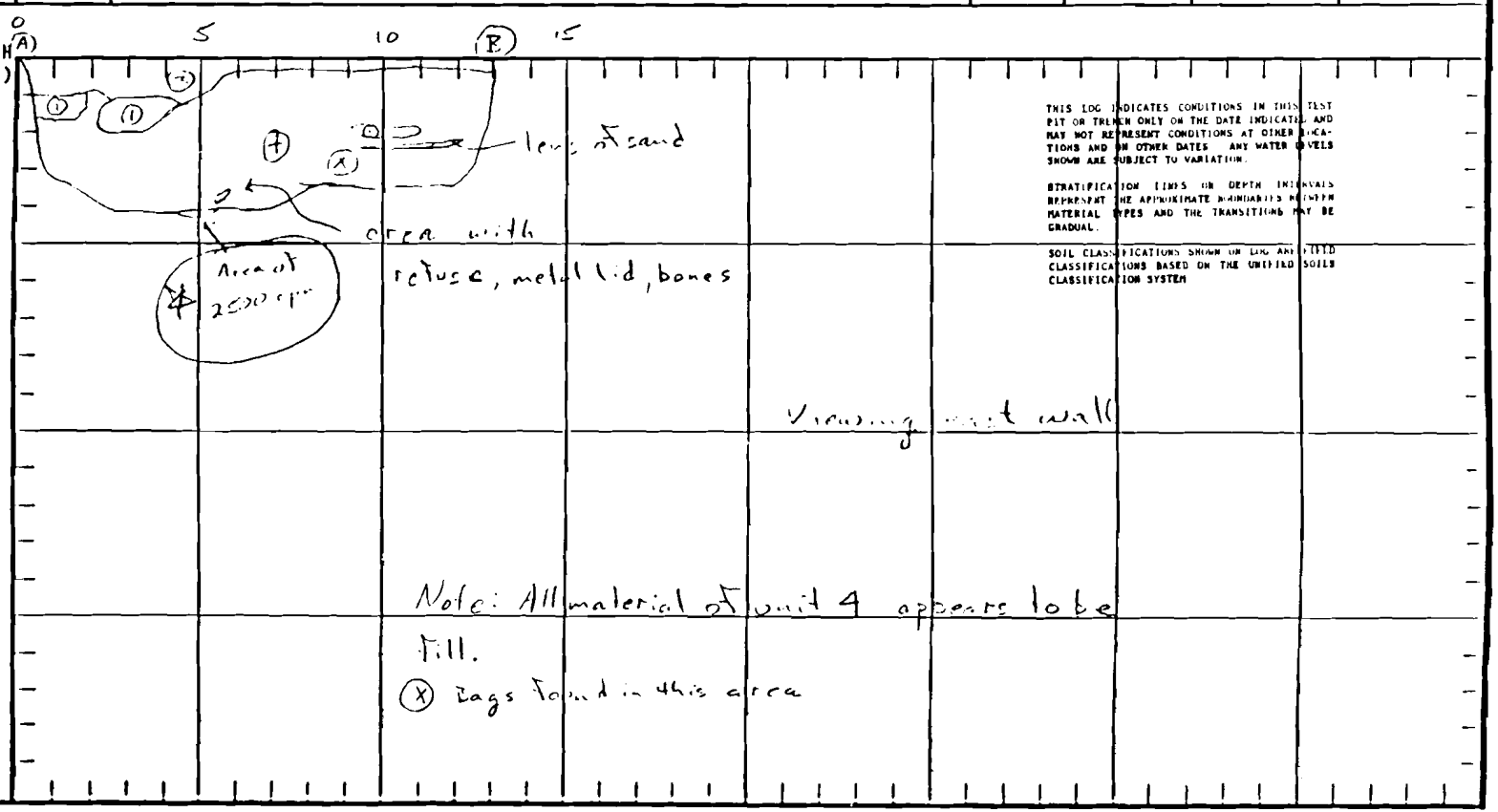
DEPTH (EL.)

16 Feb 88
DATE

Guy Q
LOGGED BY

SCALE, FT.

015
BEARING



THIS LOG INDICATES CONDITIONS IN THIS TEST PIT OR TRENCH 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.

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

SOIL CLASSIFICATIONS SHOWN ON LOG ARE VISUAL CLASSIFICATIONS BASED ON THE UNIFIED SOILS CLASSIFICATION SYSTEM.