CERTIFIED
COPY

UNITED STATES DISTRICT COURT

CENTRAL DISTRICT OF CALIFORNIA

ROCKWELL INTERNATIONAL
CORPORATION, a corporation,

Plaintiff,

v.

JANSS INVESTMENT CORPORATION, a
corporation; CITY CENTER
CORPORATION, a corporation; JANSS
CORPORATION, a corporation; EDWIN
GREGSON; PATRICIA GREGSON
MILLINGTON; WESTINGHOUSE-ELECTRIC
CORPORATION, a corporation;
TELLER INDUSTRIES, INC., a
corporation; XTEL, INC., a
corporation; and
MICROSEMICONDUCTOR CORPORATION,
a corporation,

Defendant.

AND RELATED CLAIMS

Case No.
89-60370 MRP (GHK)

DEPOSITION TRANSCRIPT

M. KEVIN KILCOYNE
2/20/92

Deposition of M. KEVIN KILCOYNE, taken by the Plaintiff Rockwell, at 200 East Carrillo Street, Third Floor, Santa Barbara, California, commencing at 9:30 a.m., Thursday, February 20, 1992.

ANDERSON & ASSOCIATES
6112 GOODLAND AVENUE
NO. HOLLYWOOD, CA 91606
(LOS ANGELES)
TELEPHONE: (213) 877-0412

REPORTED BY:
ELIZABETH J. ANDERSON
C.S.R. NO. 2693
R.P.R. AND NOTARY PUBLIC
FAX: (213) 877-1724

was always done under a hood, of course. And it was typically a little hand aspirator bottle in a chemical sink.

And they had these dual-drained sinks, with one sink at each end. One was for organics and one was for acids. I think I mentioned that. No, I didn't mention it.

Q. Well, you've mentioned it now. So let me ask you about that.

When you say they had a dual drain system, how did that work?

MR. MC CANN: It lacks foundation.

BY THE WITNESS:

A. In each sink there were two --

In each hood there were two sinks. All right? And the one sink in which it was permissible to pour acids was connected to the city drain line. The other -- Or I should say county in that area, because they aren't in the city.

The other sink was connected through a series of plastic pipes to a solvent recovery tank, which was periodically pumped by a chemical waste company.

MR. MC CANN: Move to strike as non responsive and clearly providing speculation. Lacks foundation.

BY MR. LUNDBERG:

Q. You said there were two sinks in each hood. Tell me what a "hood" is.

A. Well, a hood is simply an area that contains a work space, you know, a tabletop work space, with sinks in it, very similar to something in your kitchen. Only these were typically stainless steel or chemical polypropylene or material like that. And stainless steel wasn't really practical for a lot where there were a lot of acids and things around. So usually it was a plastic type sink. Typically polypropylene.

And these sinks were -- There were a sink in each end of the thing to work with, to contain any beakers or anything of sort that were being used, for acids and things like that.

Q. Was there an acids-related sink at one end and an organics-related sink at the other end?

A. Typically. My memory says typically it was that way.

Q. How big were these hood setups you described?

A. Well, they could vary from six feet wide to 12 feet wide, depending.

And then they all had overhead exhaust systems on them, and they maintained a certain front face velocity to avoid any fumes bothering the workers.

Q. When you say they were six or 12 feet wide, were you talking about how wide they were as you faced them?

A. Yes.

Q. And how deep were they?

A. Oh, typically probably 30 to 36 inches. 30 inches most of the time I think.

Q. How many of these hoods were there at the Hillcrest facility when Westinghouse was there?

MR. MC CANN: Lacks foundation.

BY THE WITNESS:

A. I would say, in my memory, probably six to eight. Someplace in that range.

BY MR. LUNDBERG:

Q. You personally saw these hoods set up and used, I take it?

A. Yes. I was in the facility an awfully lot. Okay? So I would say there were various hoods and sinks around for the wafer process, for cleaning, for photoresist applications, and for various types of etching processes, and those types of --

Q. A lot of fancy hotels have two sinks, but I suspect for a different reason.

Why was it that you had to use a different sink for acids than for organics?

MR. MC CANN: Lacks foundation. Calls for speculation.

BY THE WITNESS:

A. It was pretty obvious to me. There are a lot of reasons.

One is that the organics didn't decompose readily. And there were rules, even in those days -- probably not as restrictive as now -- for containing those, collecting them, and taking care of them in terms of not disposing of them, but having them -- We had them pumped by a chemical company who came and pumped the tanks.

Most of the acids, general acids, could be neutralized or diluted to a level that was perhaps permissible, then just dumping in the drain.

BY MR. LUNDBERG:

Q. By "the drain" you mean the city sewer?

A. The city sewer.

Q. Or the county sewer, as the case may be?

A. Or whatever. Right.

Q. Was it your understanding that there were restrictions imposed, either by the people who owned the sewer or by someone else, as to the discharge of organics into the sewer at that time?

A. That does call for speculation. I don't know what the rules were at the time. Except that I do know that we were required to put all of our organics into a recoverable, trapped drain system that went to a holding tank.

Q. Do you know who you were required by?

MR. MC CANN: Vague and ambiguous as to "who."

BY THE WITNESS:

A. I would say we were required internally. The rules were set up by industrial engineering, and they knew what the outside requirements were, and always assured that we had things like explosion-proof cabinets to house, you know, chemicals that might be volatile, and all that sort of thing.

BY MR. LUNDBERG:

Q. You referred to a recoverable trapped drainage system or draining system. What --

A. What does that mean?

Q. Yes. What does that mean?

A. Well, they had a large tank outside -- I'm not sure what it was made out of. Some plastic tank. It looked like fibrêglass, but I'm not sure what it was. -- that a lot of the chemicals were accumulated in and then pumped out by a, as I said, a chemical company. And that tank was largely underground. And it was, I believe, mainly a gravity-feed system.

Q. So that if you poured something down a sink on Exhibit 1 there.

A. Yes.

Q. You indicated there was some type of port on that tank that permitted it to be pumped out. Can you describe that port for me?

A. I wish I could. But I -- It's been so long ago and I wasn't doing it, and so I really can't. I'm sure there was an access to it and the chemical guys got in with their pumping systems and pumped the fluids directly into their truck. I didn't pay a lot more attention to it than that at that time. I mean --

Q. Did you ever see it pumped out?

A. Yes, I saw trucks out there pumping it.

Q. More than once?

A. Well, I know we used the same pump trucks at our plant up at the other building. Okay? At the Lawrence Drive building. So I'm sure it was regularly pumped. You know. Probably every month or -- at the most. It was done pretty consistently. Very -- I think Westinghouse was very, as far as I was concerned, diligent in trying to handle things properly.

Q. Do you remember it ever being discussed at Westinghouse whether it was a good idea to have wastes that included organic solvents being stored in a fibreglass tank or a plastic tank?

A. You mean other than this tank we are referring to here?

Q. No. I mean that's the tank I am talking about.

MR. MC CANN: I think that misstates his testimony.

BY THE WITNESS:

A. I don't recall anything like that.

BY MR. LUNDBERG:

Q. Is there something that makes you think that it is more likely this tank that we have been discussing was made out of fibreglass than out of, say, polypropylene or PVC?

MR. MC CANN: Leading.

BY THE WITNESS:

A. No.

BY MR. LUNDBERG:

Q. Do you know who made the tank?

A. No.

Q. Would it refresh your recollection if I suggested it was Owens Corning?

A. No it wouldn't, in that case. I had nothing to do with the purchase of any tank or -- And so I wouldn't know who made it.

Q. Is it your understanding that the tank we've been discussing was something that was installed as part of the building modifications by Westinghouse?

MR. MC CANN: Lacks foundation.

BY THE WITNESS:

A. That's a good question. It was probably a requirement with the type of chemicals that they were using, and the industrial engineering people probably felt it was a necessary thing.

We had a similar tank at the other building. So it would be not unusual to see one there.

BY MR. LUNDBERG:

Q. When you say "a similar tank," you mean a tank to capture the waste in the organic side of the sink?

A. Right. That's right.

We had smaller scale operations going on at the other building, but we had similar type things. So I would be a little surprised if it wasn't there.

MR. MC CANN: Would you read back his response to the previous question, please? The descriptive response he gave.

(Record read.)

MR. MC CANN: I move to strike that response as non responsive to the question that called for his knowledge. And it was clearly speculation as so stated.

BY MR. LUNDBERG:

Q. Referring back to trichloroethylene and acetone

Exhibit F

California Regional Water Quality Control Board
Los Angeles Region

320 W. 4th Street, Suite 200, Los Angeles, California 90013
Phone (213) 576-6600 FAX (213) 576-6640 - Internet Address: http://www.waterboards.ca.gov/losangeles

Linda S. Adams
Cal/EPA Secretary

Arnold Schwarzenegger
Governor

October 22, 2007

Mr. Ernest A. Diaz
Senior Environmental Engineer
Skyworks Solutions, Inc.
2427 W. Hillcrest Dr.
Newbury Park, California 91320

CERTIFIED MAIL
RETURN RECEIPT REQUESTED
CLAIM NO. 7006 3450 0002 4641 9197

CALIFORNIA WATER CODE SECTIONS 13267 AND 13304 – ORDER TO COMPLETE SOIL, SOIL GAS, AND GROUNDWATER ASSESSMENT; ADDITIONAL REQUIREMENTS FOR GROUNDWATER MONITORING AND CLEANUP FOR SKYWORKS SOLUTIONS, INC, 2427 WEST HILLCREST DRIVE, NEWBURY PARK, CALIFORNIA (SLIC FILE NO. 423, SITE ID NO. 2040053, CI-8498)

Dear Mr. Diaz:

The California Regional Water Quality Control Board, Los Angeles Region (Regional Board) has reviewed: 1) your letter dated April 19, 2007, requesting use of groundwater monitoring well S-7 as a substitute for groundwater monitoring well S-2 to satisfy the current Monitoring and Reporting Program No. CI-8498; 2) Soil Assessment Report dated September 29, 2003, prepared by your consultant Haley & Aldrich (H&A); and 3) 2006 Annual Monitoring Report (CI-8498) dated February 26, 2007, prepared by (H&A). In addition, Regional Board staff has reviewed available information contained in our files. On August 23, 2007, Regional Board staff met with you at Skyworks Solutions, Inc. (site) and discussed current site status. This letter provides Regional Board's requirements for conducting site characterization, groundwater monitoring, and groundwater treatment evaluation.

BACKGROUND

The site consists of two separate structures, Buildings 886 and 887 (Figure 1). Building 886 was built in 1961 and occupants included Westinghouse (1961-1969), Teller Industries (1969-1972), XTEL (1972-1975), Rockwell (1976-1999), Conexant Systems (1999-2002) and Skyworks Solutions (2002-present). Building 887 was constructed in 1985 by Rockwell with a basement. Due to the shallow groundwater table, a dewatering system (French drain) was installed to prevent basement flooding. Chlorinated volatile organic compounds (cVOCs) were detected in groundwater samples collected from the French drain system in October 1986.

Groundwater from the French drain system has been treated using granular activated carbon since at least January 1987. The Regional Board became involved with the site since 1988, when a National Pollutant Discharge Elimination System (NPDES) permit was issued to regulate the discharge of the treated groundwater into the storm drain. The NPDES permit was in effect from 1988 to 2002. In 1992, a recharge well field was installed on the upgradient east side of the Skyworks facility to create a hydraulic barrier to prevent migration of impacted groundwater into the treatment system. From 1992 to 2002, municipal water was used for recharge purposes at the Site.

In June 2003, a *General Waste Discharge Requirements (WDR) for Groundwater Remediation at Petroleum Hydrocarbon Fuel and/or Volatile Organic Compound Impacted Sites R4-2002-0030 (Series No. 016)* was issued by this Regional Board. Under this WDR, groundwater from the French drain system is being treated using granular activated carbon before it is injected into the recharge wells in lieu of municipal water. Since 2003, four groundwater monitoring wells have been sampled under the groundwater monitoring program established by the WDR.

The facility is located near the center of the Conejo Valley. The Conejo Valley is a small basin filled with alluvial sediments over a thick sequence of volcanic rocks. The alluvial sediments are comprised primarily of finer grained clays and silts with interbedded layers/lenses of sand and gravel. The volcanic rocks have been designated the Conejo Volcanics of Tertiary age and are reportedly in excess of several thousand feet thick.

The analytical results from the soil and groundwater investigations conducted at the Site confirmed that the soil and groundwater have been impacted with cVOCs, such as trichloroethylene (TCE), 1,1,1-trichloroethane (TCA), 1,1-dichloroethylene (DCE), and tetrachloroethylene (PCE) due to industrial operations conducted at the Site. Highest detected soil gas concentrations in micrograms per liter (μg/L) were 3,876, 1,174, 762 and 14 for TCE, DCE, TCA and PCE, respectively. Highest detected soil matrix concentrations in micrograms per kilogram (μg/Kg) were 700, 140, 69, and less than 5 for TCE, DCE, TCA and PCE, respectively. The potential source of contamination on the Site is believed to be the two solvent containing underground concrete tanks formerly located in the corridor between Buildings 887 and 886. According to the records, the tanks were abandoned in place in 1984 under the direction of the Ventura County Environmental Health Department.

Since 1987, a total of seventeen groundwater monitoring wells have been installed to assess the extent of groundwater contamination. These wells are screened in the fine grained alluvium sediment. Fourteen of those wells are considered shallow and reach a maximum depth of 40 feet below ground surface (bgs). The deep wells reach a maximum depth of 121 feet bgs. Groundwater depth beneath the site has ranged from 8 to 30 feet bgs. TCE and DCE have been detected in groundwater at a maximum concentration of 8,700 and 840 μg/L, respectively. Currently, only monitoring wells S-2, S-10, S-12 and S-13 are sampled annually under the WDR.

COMMENTS AND REQUIREMENTS

Based on the information reviewed, soil and groundwater contamination have not been fully characterized at the site. Data gaps in soil, soil gas, and groundwater assessment exist in the Central Plant Area (corridor between Buildings 887 and 886) and the former Hazardous Waste Storage area (northeast of Building 886). The concentrations of cVOCs detected in soil matrix and soil vapor continue to act as an ongoing source of contaminants impacting shallow groundwater underlying the site, as well as a potential threat to human health from soil vapor intrusion into indoor air. Therefore, you are directed to comply with the following requirements:

1. Develop a Work Plan for a complete soil gas assessment of cVOCs and submit it to this Regional Board for approval by **November 30, 2007**. The Work Plan must include the

collection of soil gas samples beneath the building slab to determine the potential for soil vapor migration into indoor air. Follow the guidelines on the "Advisory – Active Soil Gas Investigations" dated January 28, 2003, issued by the California Department of Toxic Substances Control and this Regional Board (Copy attached).

2. Develop a Work Plan for complete assessment of chemicals of concern in soil matrix by **November 30, 2007**, including but not limited to the following:

    a) Verify the extent of the impact of petroleum hydrocarbons in soil adjacent to boring V-B-16.

    b) It is our understanding that polychlorinated biphenyls (PCBs), and semivolatile organic compounds (sVOCs) were tested during previous soil analyses; however, Regional Baord was not provided with the analytical results of PCBs and SVOCs sampling. 1,4-dioxane results in soil are of particular importance, since this chemical has been detected in groundwater. Therefore, include these analytical results in the Work Plan and propose additional characterization, if necessary.

3. Currently, only a limited number of groundwater wells are sampled under the WDR. You are required to initiate a separate quarterly groundwater monitoring program for all the available wells at the site. The groundwater monitoring reports shall be submitted according to the following schedule, with the first report due on **January 15, 2008**.

Monitoring Period	Report Due Date
January – March	April 15
April – June	July 15
July – September	October 15
October – December	January 15

Analyze groundwater samples for cVOCs using EPA Method 8260B and 1,4-dioxane using EPA Method 8270C.

The quarterly groundwater monitoring report shall include at a minimum: a) a summary table of historical groundwater depths, groundwater elevations, and major cVOCs concentrations (TCE, DCE, Freon 113); b) a map with isopleths showing groundwater elevation and groundwater flow direction at the site; c) dissolved phase iso-concentration contour maps for the major cVOCs (TCE, DCE and Freon 113); d) hydrographs showing historical trends of groundwater elevation and concentrations of major cVOCs (TCE, DCE and Freon 113); and f) Groundwater well completion summary table.

4. The emergent chemical 1,4-dioxane has been detected at increasing concentrations in the influent and effluent of the granular activated carbon treatment system. The latest detected concentration of 1,4-dioxane in the effluent was 54 µg/L. This chemical needs to be removed before re-injecting groundwater into the recharge wells. Evaluate and propose the use of an appropriate technology for the treatment of 1,4-dioxane. Submit the results of your evaluation in a report by **November 30, 2007** for our review.

5. Submit a Work Plan for the vertical characterization of groundwater in the area adjacent to groundwater monitoring wells S-4, S-6 and S-11 by **November 30, 2007**.
6. The injection of treated groundwater from the French drain system into the hydraulic barrier wells has been operating since 2004. Perform an evaluation of the effects of groundwater treatment and re-injection system on the distribution of chemicals of concern in groundwater and submit a report for our review by **November 30, 2007**.
7. Upon completion of supplemental site characterization, remediation may be required.
8. At this time, you are authorized to use monitoring well S-7 as a substitute for S-2 to satisfy the current WDR monitoring requirements. Provide well destruction record of well S-2 for our review by **November 30, 2007**. Additional wells may be required upon completion of groundwater characterization.

Pursuant to Section 13268 of the California Water Code (CWC), failure to submit the required reports or documents in items 1 to 6, by the due dates may result in civil liability administratively imposed by the Regional Board in an amount up to one thousand dollars ($1,000) for each day the report or document is not received. These civil liabilities can be assessed by the Regional Board at any time after above due date(s), and without further warning.

Pursuant to Section 13304 of the CWC, you shall comply with cleanup and abate the soil and groundwater pollution and threatened pollution caused by the historic operations conducted at the site.

Failure to comply with the terms or conditions of this Order may result in imposition of civil liabilities, either administratively by the Regional Board or judicially by the Superior Court in accordance with Section 13350 of the CWC, and/or referral to the Attorney general of the State of California for such action as he may deem appropriate.

Pursuant to CWC section 13320, the responsible parties may seek review of this California Water Code Section 13267 letter by filing a petition with the States Water Resources Control Board (State Board). Such petition must be sent to the State Board, located at P.O. Box 100, 1001 I Street, Sacramento, California 95814, within 30 days of receipt of this California Water Code Section 13267 letter.

If you have any questions, please contact **Mrs. Angelica Castaneda at (213) 576-6737** or **Mr. Adnan S. Siddiqui at (213) 576-6812**.

Sincerely,

Tracy J. Egoscue
Executive Officer

cc:
Mr. Troy D. Schulze, Skyworks Solutions, Inc.
Mr. Craig A. Moyer, Manatt, Phelps & Phillips, LLP
Mr. Kurt Souza, Cal. DHS, Region 5 - So Cal. Branch, Drinking Water Field Operation
Ms. Barbara Councal, County of Ventura, Watershed Protection District
Mr. Doug Beach, Ventura County Environmental Health Division, Ventura County
Ms. Joanne Kelly, Resource Division Manager, City of Thousand Oaks
Mr. Kurt J. Blust, Haley & Aldrich, Inc.

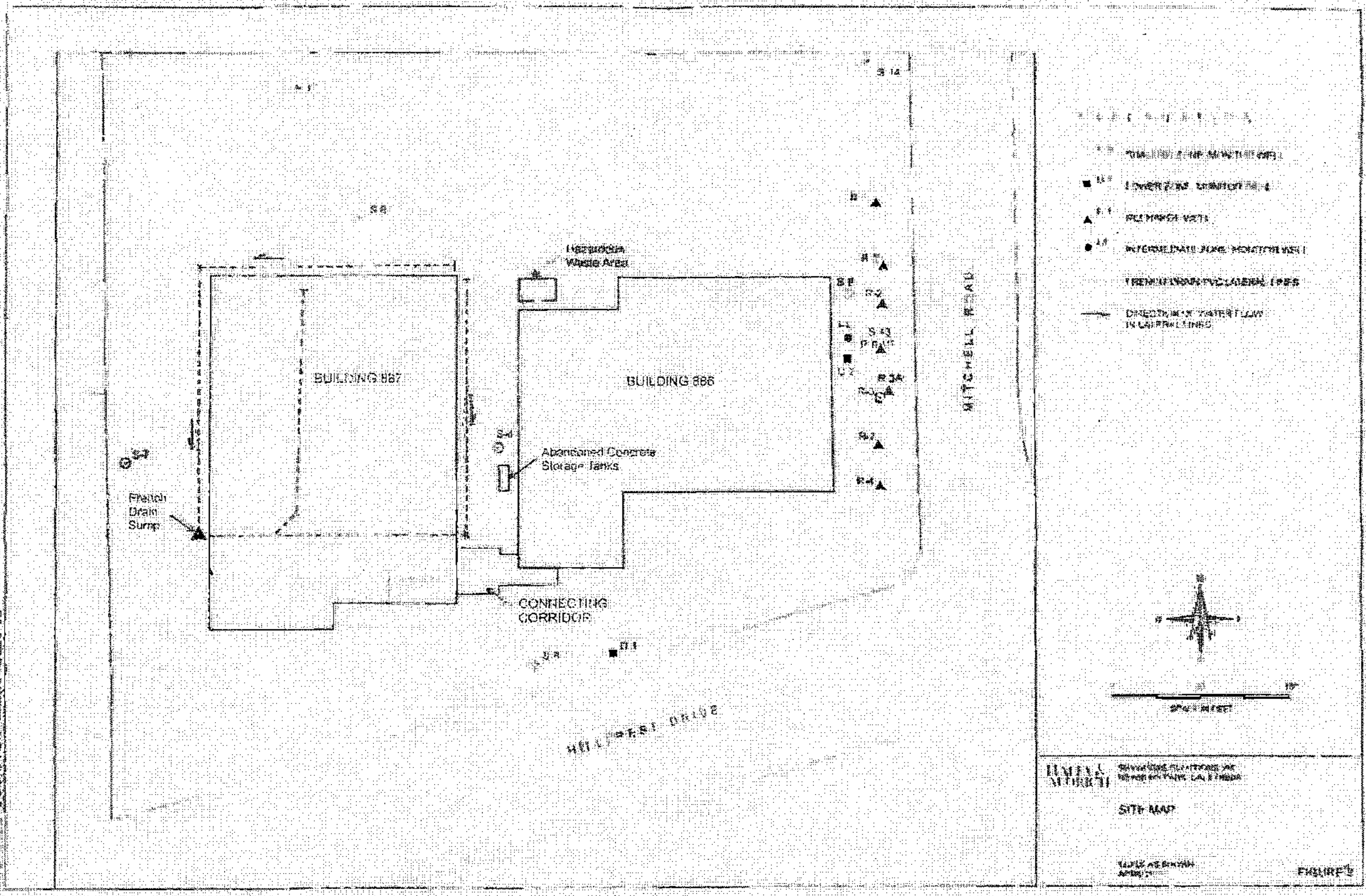
S-14
S-8
BUILDING 887
BUILDING 886
Hazardous Waste Area
Abandoned Concrete Storage Tanks
French Drain Sump
CONNECTING CORRIDOR
MITCHELL ROAD
HILLCREST DRIVE
R-2
R-3A
R-4
S-13
INTERMEDIATE ZONE MONITOR WELL
DIRECTION OF WATER FLOW IN LATERAL LINES
SITE MAP
FIGURE 2

Exhibit G

State of California
CALIFORNIA REGIONAL WATER QUALITY CONTROL BOARD
LOS ANGELES REGION

ORDER NO. 96-048

NPDES NO. CA0060348

WASTE DISCHARGE REQUIREMENTS
for
ROCKWELL INTERNATIONAL CORPORATION
(Hillcrest Facility, Newbury Park)

The California Regional Water Quality Control Board, Los Angeles Region finds:

1. Rockwell International Corporation (Rockwell) discharges wastes under waste discharge requirements contained in Order No. 88-29, adopted by this Board on March 28, 1988.

2. Rockwell has filed a Report of Waste Discharge (ROWD) and has applied for renewal of its waste discharge requirements and National Pollutant Discharge Elimination System (NPDES) permit.

3. Rockwell owns and operates a semiconductor die manufacturing plant at 2427 West Hillcrest Drive in Newbury Park. The facility consists of buildings 886 and 887. Building 887 was constructed in 1985 with a groundwater collection trench and dewatering system to prevent flooding of the basement area of the building. Ground water, collected in a sump, is intermittently discharged to a storm drain by a water level control pump.

   Figure 1 shows the location of the facility.

4. Groundwater samples collected from the dewatering system revealed that the soil and ground water beneath the building were contaminated with volatile organic compounds (VOCs): trichloroethylene (TCE), 1,1-dichloroethylene (DCE), and 1,1,1-trichloroethane (TCA). The groundwater contamination appears to have originated from two abandoned concrete tanks located on the west side of building 886. These tanks were reportedly used for temporary storage of chemical wastes by the previous owners or lessee of the property. Rockwell never used these tanks. The tanks were closed in 1984 under the direction of the Ventura County Environmental Health Department.

5. Results of analyses for groundwater samples collected during 1995 indicated that VOCs were present in monitoring wells at concentrations exceeding 1,000 μg/L for shallow groundwater.

May 10, 1996
Revised: June 10, 1996

6. Ground water is treated with granular activated carbon (GAC) absorption and air stripping (if needed) to remove the volatile organics. Federal law stipulates that NPDES permits require the use of Best Available Technology (BAT) economically achievable to treat these wastes. GAC filters and air stripping towers have been used extensively for clean up contaminated groundwater, particularly for the removal of volatile organic compounds. These methods are currently considered to be the BAT economically achievable.

7. Rockwell currently treats the contaminated groundwater and discharges up to 21,600 gallons per day (gpd) of treated ground water into a storm drain located at the intersection of Hillcrest Drive and Lawrence Drive, tributary to the South Branch of Arroyo Conejo, through Discharge Serial No. 001 (Latitude 34°24'04" and Longitude 118°54'13"). The South Branch of Arroyo Conejo is tributary to Conejo Creek, Calleguas Creek, and Mugu Lagoon, a water of the United States, above the estuary, and is part of the Calleguas Creek Watershed Management Area.

8. The ROWD characterizes the waste discharge as follows:

Constituent	Unit	Daily Maximum
Flow	gpd	21,600
pH	pH units	7.3
Temperature	°C	20
BOD_5 20 °C	mg/L	Not detected (ND)
Suspended solids	mg/L	ND
Total organic carbon	mg/l	ND

9. Effluent monitoring data during previous discharges indicated that several constituents included in the previous monitoring program were consistently not detectable or detected at low levels. The minimum monitoring frequency for these constituents has appropriately been reduced in this order.

10. The storm water requirements for the general NPDES permit, for storm water discharges associated with industrial activity, shall be incorporated into this Order.

11. The Board adopted a revised Water Quality Control Plan (Basin Plan) for the Coastal Watersheds of Los Angeles and Ventura Counties on June 13, 1994. The Basin Plan contains beneficial uses and water quality objectives for the Arroyo Simi and other tributaries of Calleguas Creek and for the South Las Posas and North Las Posas ground water basins.

12. The beneficial uses of the receiving waters are:

Arroyo Conejo - Hydro Unit No. 403.64
- potential: municipal and domestic supply;
- existing: ground water recharge, freshwater replenishment, contact and non-contact

water recreation, warm freshwater habitat, wildlife habitat, and preservation of rare, threatened or endangered species;

Conejo Creek - Hydro Unit No. 403.63
- potential: municipal and domestic supply;
- existing: ground water recharge, freshwater replenishment, contact and non-contact water recreation, warm freshwater habitat, and wildlife habitat;

Calleguas Creek - Hydro Unit No. 403.12
- potential: municipal and domestic supply;
- existing: industrial service supply, industrial process supply, agricultural supply, ground water recharge, contact and non-contact water recreation, warm freshwater habitat, and wildlife habitat;

Calleguas Creek - Hydro Unit No. 403.11
- potential: municipal and domestic supply;
- existing: agricultural supply, groundwater recharge, freshwater replenishment, contact and non-contact water recreation, warm freshwater habitat, cold freshwater habitat, wildlife habitat, rare, threatened or endangered species, and wetland habitat;

Calleguas Creek Estuary - Hydro Unit No. 403.11
- potential: navigation, water contact recreation;
- existing: non-contact water recreation, commercial and sport fishing, estuarine habitat, wildlife habitat, rare, threatened or endangered species, migration of aquatic organisms, spawning, reproduction, and/or early development, and wetland habitat.

Mugu Lagoon - Hydro Unit No. 403.11
- potential: water contact recreation;
- existing: navigation, non-contact water recreation, commercial and sport fishing, estuarine habitat, marine habitat, preservation of biological habitats, wildlife habitat, rare, threatened or endangered species, migration of aquatic organisms, spawning, reproduction, and/or early development, shellfish harvesting, and wetland habitat.

13. The 1996 State Water Resources Control Board's (SWRCB) Water Quality Assessment (WQA) identified the water quality conditions of water bodies in the state. Within the Calleguas Creek Watershed the following water bodies are classified as impaired water bodies: Mugu Lagoon, tributaries from duck ponds to Mugu lagoon, Calleguas Creek (Estuary to Arroyo Las Posas), Revolon Slough and Beardsley Channel/Wash, Conejo Creek/ Arroyo Conejo North Fork, Arroyo Las Posas, and Arroyo Simi. Impaired waters do not support beneficial uses..

Water quality problems associated with this watershed are: sedimentation, pesticides, nitrogen, nitrate and nitrite, algae, total dissolved solids (TDS), chloride, sulfate, ammonia, metals, and organic chemicals. Known and/or suspected pollution sources include: urban and agricultural runoff, septic tanks, abandoned wells, seawater intrusion, mining operations, and storm water.

14. The issuance of waste discharge requirements for this discharge is exempt from provisions of chapter 3 (commencing with Section 21100) of Division 13 of the Public Resources Code in accordance with Water Code Section 13389.

The Board has notified the discharger and interested agencies and persons of its intent to issue waste discharge requirements for this discharge and has provided them with an opportunity to submit their written views and recommendations.

The Board in a public hearing heard and considered all comments pertaining to the discharge and to the tentative requirements.

This Order shall serve as a National Pollutant Discharge Elimination System permit pursuant to Section 402 of the Federal Clean Water Act, or amendments thereto, and shall take effect at the end of ten days from the date of its adoption, provided the Regional Administrator, EPA, has no objections.

IT IS HEREBY ORDERED that Rockwell International Corporation, in order to meet the provisions contained in Division 7 of the California Water Code and regulations adopted thereunder, and the provisions of the Federal Clean Water Act and regulations and guidelines adopted thereunder, shall comply with the following:

I. EFFLUENT LIMITATIONS

A. Wastes discharged shall be limited to treated ground water only, as proposed.

B. The discharge of an effluent from Discharge Serial No. 001 with constituents in excess of the following limits is prohibited:

		Discharge Limitations		
Constituent	Units	30-day Average	Daily Maximum	
Turbidity	NTU	50	75	Monthly
Settleable solids	mL/L	0.1	0.2	Quarterly
Suspended solids	mg/L lbs/day[1]	50 9.01	75 13.5	Quarterly
Residual chlorine[2]	mg/L	---	0.1	Quarterly

Rockwell International Corporation
(Hillcrest Facility, Newbury Park)
Order No. 96-048

CA0060348

		Discharge	Limitations	
Constituent	Units	30-day Average	Daily Maximum	
✓ Oil and grease	mg/L lbs/day[1/]	10 1.80	15 2.70	Q
✓ BOD$_5$20°C	mg/L lbs/day[1/]	20 3.60	30 5.40	Q
✓ Total dissolved solids	mg/L lbs/day[1/]	— —	850 153	Q
✓ Sulfate	mg/L lbs/day[1/]	— —	250 45.0	Q
✓ Chloride	mg/L lbs/day[1/]	— —	150 27.0	Q
✓ Boron	mg/L lbs/day[1/]	— —	1.0 0.18	Q
✓ Nitrate + Nitrite (as Nitrogen)	mg/L lbs/day[1/]	— —	10 1.80	Q
Sulfides	mg/L	—	1.0	No Frequency Given
Phenols	mg/L	—	1.0	No Frequency Given
Phenolic compounds (chlorinated)	µg/L	—	1.0	No Frequency Given
✓ Benzene	µg/L	—	1.0	Q
✓ Toluene	µg/L	—	10	Q
Xylene	µg/L	—	10	No Frequency Given
✓ Ethylbenzene	µg/L	—	10	Q
✓ Carbon tetrachloride	µg/L	—	0.5	Q
1,1-Dichloroethane	µg/L	—	5.0	No Frequency Given
✓ 1,2-Dichloroethane	µg/L	—	0.5	M

		Constituent	Units	Discharge Limitations Daily Maximum	
	✓	1,1,1-Trichloroethane	µg/L	5.0	M
	✓	1,1-Dichloroethylene	µg/L	6.0	M
	✓	Trichloroethylene	µg/L	5.0	M
	✓	Tetrachloroethylene	µg/L	5.0	M
	✓	Vinyl chloride	µg/L	0.5	Q
*Exempt		Arsenic	µg/L	50	Q
Exempt		Cadmium	µg/L	10	Q
	✓	Chromium	µg/L	50	M
	✓	Lead	µg/L	50	M
Exempt		Mercury	µg/L	2.0	Q
Exempt		Selenium	µg/L	10	Q
Exempt.		Silver	µg/L	50	Q

1/ Based on the maximum waste flow rate of 21,600 gpd.
2/ If chlorine is used.

* See page T-2 of permit.

C. Acute Toxicity Limitation:

The acute toxicity of the effluent shall be such that the average survival in undiluted effluent for any three (3) consecutive 96-hour static or continuous flow bioassay tests shall be at least 90%, with no single test producing less than 70% survival.

If the discharge consistently exceeds the acute toxicity limitation, a toxicity reduction evaluation (TRE) is required. The TRE shall include all reasonable steps to identify the sources of toxicity. Once the sources of toxicity are identified, the discharger shall take all reasonable steps necessary to reduce toxicity to the required level.

II. REQUIREMENTS AND PROVISIONS

A. Discharge of wastes to any point other than specifically described in this order is prohibited and constitute a violation thereof.

B. This Order includes the attached "Standard Provisions and General Monitoring and Reporting Requirements". If there is any conflict between provisions stated hereinbefore and attached "Standard Provisions", those provisions stated hereinbefore prevail.

C. This Order includes the attached Monitoring and Reporting Program. If there is conflict between provisions stated in the Monitoring and Reporting Program and the Standard Provisions, those provisions stated in the former prevail.

D. This Order includes the attached "Storm Water Pollution Prevention Plan" (Attachment A).

E. This Order may be modified, revoked and reissued or terminated in accordance with the provisions of 40 CFR Part 122.44, 122.62, 122.63, 122.64, 125.62, and 125.64.

III. EXPIRATION DATE

This Order expires on May 10, 2001.

The discharger must file a Report of Waste Discharge in accordance with Title 23, California administrative Code, not later than 180 days in advance of such date as application for issuance of new waste discharge requirements.

IV. RESCISSION

Order No. 88-29, adopted by this Board on March 28, 1988, is hereby rescinded.

I, Robert P. Ghirelli, Executive Officer, do hereby certify that the foregoing is a full, true and correct copy of an Order adopted by the California Regional Water Quality Control Board, Los Angeles Region on June 10, 1996.

Robert P. Ghirelli

ROBERT P. GHIRELLI, D.Env.
Executive Officer
/HDN

FIGURE 1

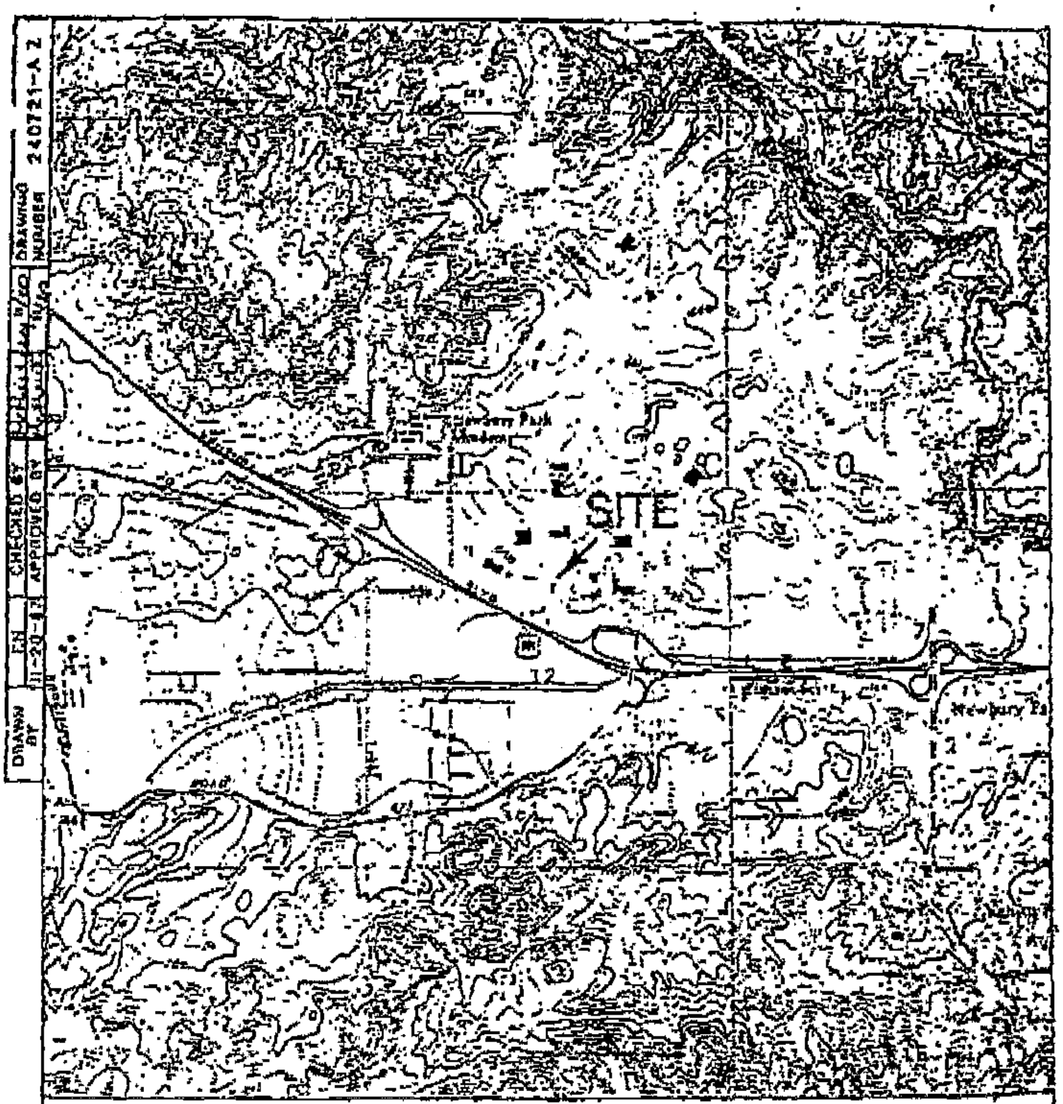

FIGURE 1

NEWBURY PARK QUADRANGLE
CALIFORNIA-VENTURA CO.
7.5 MINUTE SERIES (TOPOGRAPHIC)
NW/4 TRIUNFO PASS 15' QUADRANGLE

SITE LOCATION MAP

PREPARED FOR

ROCKWELL INTERNATIONAL
NEWBURY PARK, CALIFORNIA

INTERNATIONAL
TECHNOLOGY
CORPORATION

*Do Not Scale This Drawing

State of California
CALIFORNIA REGIONAL WATER QUALITY CONTROL BOARD
LOS ANGELES REGION

MONITORING AND REPORTING PROGRAM NO. CI 6808
for
ROCKWELL INTERNATIONAL CORPORATION
(Hillcrest Facility, Newbury Park)
(CA0060348)

I. REPORTING REQUIREMENTS

The discharger shall implement this monitoring program from the effective date of this order. The first monitoring report under this program is due by October 15, 1996.

Monitoring reports shall be submitted by the dates in the following schedule:

Reporting Period	Report Due
January - March	April 15
April - June	July 15
July - September	October 15
October - December	January 15
Annual Report	March 1

If there is no discharge, the report shall so state.

II. EFFLUENT MONITORING REQUIREMENTS

A. A sampling station shall be established for each point of discharge and shall be located where representative samples of that effluent can be obtained. In the event that waste streams from sources are combined for treatment or discharge, representative sampling stations shall be at that place to ensure that the quantity of each pollutant or pollutant property attributable to each waste source regulated by effluent limitations can be determined.

B. The detection limits employed for effluent analyses shall be lower than the permit limits established for a given parameter, unless the discharger can demonstrate that a particular detection limit is not attainable and obtains approval for a higher detection limit from the Executive Officer. At least once a year, the discharger shall submit a list of the analytical methods employed for each test and associated laboratory quality assurance/quality control procedures.

May 10, 1996
Revised: June 10, 1996

C. This Regional Board shall be notified in writing of any change in the sampling stations once established or in the methods for determining the quantities of pollutants in the individual waste streams.

D. Quarterly effluent analyses shall be performed during the months of February, May, August and November. Semiannual effluent analyses shall be performed during the months of February and August. Annual effluent analyses shall be performed during the month of February. Results of quarterly, semiannual and annual analyses shall be reported in the appropriate monthly monitoring report.

E. Effluent Monitoring Program

The following shall constitute the effluent monitoring program for the final effluent:

Constituent	Units	Type of Sample	Minimum Frequency of Analysis
Total waste flow	gal/day	—	weekly
Temperature	°F	grab	weekly
pH	pH units	grab	weekly
Turbidity	NTU	grab	monthly
Residual chlorine[1]	mg/L	grab	monthly
Tetrachloroethylene	µg/L	grab	monthly
Trichloroethylene	µg/L	grab	monthly
1,2-Dichloroethane	µg/L	grab	monthly
1,1-Dichloroethylene	µg/L	grab	monthly
1,1,1-Trichloroethane	µg/L	grab	monthly
Chromium	µg/L	grab	monthly
Lead	µg/L	grab	monthly
*Remaining EPA metals and volatile organic compounds (see attachment T-1)	µg/L	grab	quarterly[2]
Settleable solids	mL/L	grab	quarterly
Suspended solids	mg/L	grab	quarterly
Oil and grease	mg/L	grab	quarterly
Chloride	mg/L	grab	quarterly
Sulfate	mg/L	grab	quarterly
Total dissolved solids	mg/L	grab	quarterly
Nitrate + Nitrite (as N)	mg/L	grab	quarterly
Boron	mg/L	grab	quarterly
BOD$_5$ 20°C	mg/L	grab	quarterly
Toxicity - Acute[3]	% survival	grab	annually[4]

Exempt - See 98 annual report - 3-1-99. Had 3 consecutive reports of non-detect -

---

1/ A statement certified that no chlorine is used may be submitted in lieu of an analysis.

2/ If the result of the analyses for the constituents listed in Attachment T-1 is "non detect", for three consecutive quarterly reporting periods, the Discharger may discontinue monitoring them for the lifetime of the permit.

3/ By the method specified in "Methods for Measuring the Acute Toxicity of Effluents to Freshwater and Marine Organisms" - March 1985 (EPA/600/4-85/013). Submission of bioassay results should include the information noted on pages 45-49 of the "Methods". The fathead minnow (Pimephales Promelas) shall be used as the test species.

4/ If the result of the annual toxicity test yields a result of non-compliance with the limitations then the frequency of analysis shall increase to monthly until at least three consecutive test results have been obtained and full compliance with Effluent Limitations I-3 have been demonstrated, after which the frequency of analysis shall revert to annually. Results of toxicity tests shall be included in the first monitoring report following sampling.

Ordered by: Robert P. Ghirelli
ROBERT P. GHIRELLI, D.Env.
Executive Officer

Date: June 10, 1996

/HDN

ATTACHMENT T-1

PRIORITY POLLUTANTS

(Remaining Metals and Volatile Organic Compounds)

Metals

Antimony
Arsenic
Beryllium
Cadmium
Copper
Mercury
Nickel
Selenium
Silver
Thallium
Zinc

Acid Extractibles

2,4,6-trichlorophenol
P-chloro-m-cresol
2-chlorophenol
2,4-dichlorophenol
2,4-dimethylphenol
2-nitrophenol
4-nitrophenol
2,4-dinitrophenol
4,6-dinitro-o-cresol
Pentachlorophenol
Phenol

Volatile Organics

Acrolein
Acrylonitrile
Benzene
Carbon tetrachloride
Chlorobenzene
1,1-dichloroethane
1,1,2-trichloroethane
1,1,2,2-tetrachloroethane
Chloroethane
Chloroform
1,2-trans-dichloroethylene
1,2-dichloropropane
1,3-dichloropropylene
Ethylbenzene
Methylene chloride
Methyl chloride
Methyl bromide
Bromoform
Bromodichloromethane
Dibromochloromethane
Toluene
Vinyl chloride
2-chloroethyl vinyl ether

Exhibit H

enviropro inc.

[illegible]

Mark D.

DECEMBER 1990 GROUNDWATER MONITORING PROGRAM

Conducted for:

Semtech Corporation
652 Mitchell Road
Newbury Park, CA 91320

Prepared for:

Mr. Mark Danzo
Production Manager
Semtech Corporation
652 Mitchell Road
Newbury Park, CA 91320

January 29, 1991

DEPO Ex. No. 254
33 Pages • Date 3-31-92
E. Anderson, N.P. Wit SEMTECH

Enviropro, Inc. Project No. 51901

Enviropro Inc • 9765 Eton Avenue, Chatsworth, CA 91311 • Tel: (818) 998-7197

enviropro inc.
[illegible]

January 29, 1991

Mr. Mark Danzo
Production Manager
Semtech Corporation
652 Mitchell Road
Newbury Park, CA 91320

Project No. 51901

Dear Mr. Danzo:

Please find enclosed Enviropro, Inc.'s "December 1990 Groundwater Monitoring Program" conducted at Semtech Corporation located at 652 Mitchell Road in Newbury Park, California.

If you have any questions, please call Ms. Lisette Bauersachs or Dr. Michael Uziel at (818) 998-7197.

Sincerely,

ENVIROPRO, INC.

Lisette Bauersachs
Lisette Bauersachs, M.S.
Sr. Environmental Engineer

Michael M. Uziel by LS
Michael M. Uziel, Ph.D.
Principal Engineer

LB/elh

Enviropro Inc • 9765 Eton Avenue Chatsworth, CA 91311 • Tel (818) 998-7197

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List of Drawings

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1.0 EXECUTIVE SUMMARY

Enviropro, Inc. was authorized by Semtech Corporation, (Semtech), to supervise the December 1990 groundwater monitoring program conducted by Groundwater Resources Consultants, Inc., (GRC). Split groundwater samples were obtained from all four groundwater monitoring wells located on-site at the Semtech facility at 652 Mitchell Road, Newbury Park. Refer to Drawing 1 for the Semtech site plot plan. This report presents the chemical analysis results obtained and the groundwater gradient surveyed during December 1990. This report meets all the specified requirements requested in the California Regional Water Control Board's (CRWQCB) letter dated November 30, 1990.

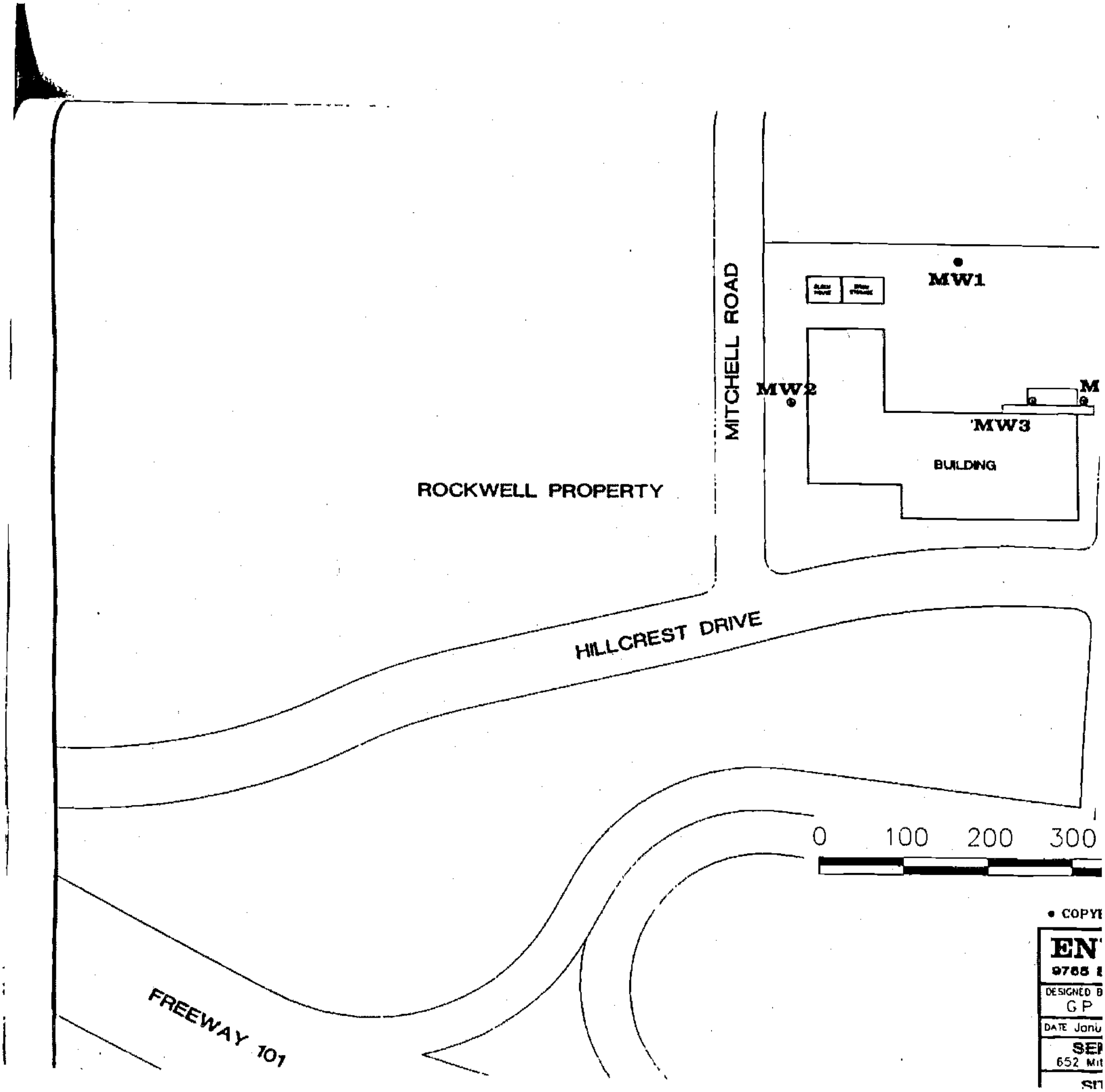
2.0 INTRODUCTION

On December 20, 1990, Enviropro, Inc. supervised the portion of GRC's groundwater sampling program conducted on the Semtech property. GRC is the environmental consultant for Rockwell International Corporation (Rockwell) - the adjacent property owners to Semtech. Rockwell has installed twelve shallow and two deep groundwater monitoring wells to access the contamination plume existing beneath their facility. Elevated levels of 1,1-dichloroethene, trichloroethene and Freon 113 have been documented in the groundwater beneath Rockwell's facility since 1986.

The presence of shallow groundwater beneath the Rockwell facility necessitated the installation of a permanent French-drain type dewatering system during the construction of the basement area of one of Rockwell's buildings in 1985. Degraded groundwater collected from the dewatering system is pumped through a series of carbon canisters and then discharged to the local storm drain pursuant to NPDES discharge criteria.

French-drain extraction volumes during the July through September 1990 reporting period were low. The low French-drain extraction flow volumes were a result of regional lowering of the shallow groundwater table and inoperation of the French-drain extraction system during part of the monitoring period. The French-drain extraction system was shut down by Rockwell personnel for a period from late August to September 1990.

When the system was shut down in September 1990, the elevation in well MW2 on the Semtech property decreased to 628.43 (feet above MSL) and the groundwater elevation in well S-9 on Rockwell property was 629.20 (feet above MSL). Therefore, when Rockwell's pumping operations are stopped, the groundwater gradient shifts to an easterly direction;


MW1
MITCHELL ROAD
MW2
M
MW3
BUILDING
ROCKWELL PROPERTY
HILLCREST DRIVE
FREEWAY 101
0
100
200
300
• COPY
EN
9765
DESIGNED B
G P
DATE Janu
SE
652 Mit
SI

groundwater flows from the Rockwell property to the Semtech property. In this same month when pumping operations were stopped, the TCE concentration in the Semtech well MW2 jumped to 3,900 ppb. This data is obtained from GRC's October 30, 1990 Quarterly Monitoring Report. Rockwell's well S-4 and their French-drain influent also experienced a sharp jump in TCE concentrations in September 1990. TCE concentrations jumped from 2,900 and 650 ppb in well S-4 and the influent, respectively, in June 1990 to 8,700 and 1,900 ppb in September 1990.

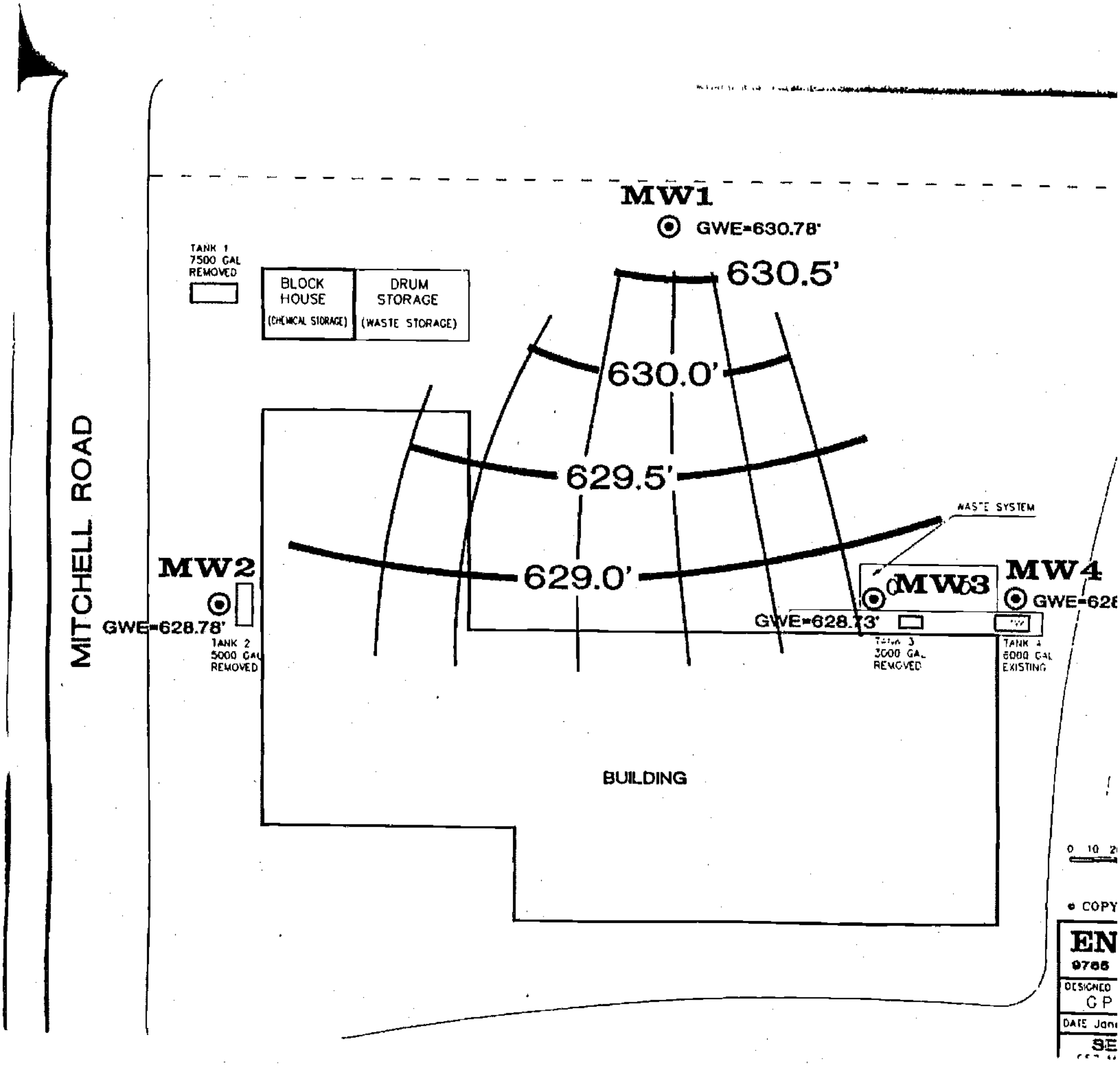
Semtech has been manufacturing semiconductor devices at this location for thirty years. There were formerly four underground storage tanks on-site; currently only Tank #4 exists. Tank 4 has not been in use since September 1989. In September 1989, the tank was hydroblasted and cleaned thoroughly. Drawing 2 presents the tank locations as well as chemical and waste storage areas. Various materials are purchased in containers and stored in the Block House. These materials have included acids, alkalies, alcohol, and other solvents. TCE has never been used in any Semtech manufacturing process. Adjacent to the Block House is a drum storage area for waste storage.

Tank #1 was used to catch any potential drips or spills from the Block House. Upon its removal, Tank #1 was described as a metal tank containing an oil and water mixture. The soil beneath the tank was chemically analyzed for oil and grease. No oil or grease was detected beneath Tank #1.

Tank #2 was a concrete unit containing metal hydroxide sludge and liquid. Tank #3 was also a concrete unit that contained fluoride and nitrate salts. Both were neutralization tanks for process waste. Tanks #2 and #3 were removed. Tank #4 is a neutralization tank and currently exists on-site.

All previous site investigations conducted on the Semtech property were performed by ERT Consultants. Full details and results are presented in ERT's December 1987 report entitled "Site Chlorinated Hydrocarbon Concentration Assessment" and ERT's November 1987 report entitled "Site Fluoride Concentration Assessment".

Mr. George Pavlov, Sr. Hydrogeologist at Enviropro, Inc., supervised GRC's activities on-site. Split groundwater samples were obtained from Ms. Georgia Doyle, project hydrogeologist at GRC on December 20, 1990. The four groundwater monitoring wells that were sampled and surveyed are located on the Semtech property as illustrated in Drawing 1.


MITCHELL ROAD
MW1
GWE=630.78'
630.5'
630.0'
629.5'
629.0'
TANK 1
7500 GAL
REMOVED
BLOCK HOUSE
(CHEMICAL STORAGE)
DRUM STORAGE
(WASTE STORAGE)
WASTE SYSTEM
MW2
GWE=628.78'
TANK 2
5000 GAL
REMOVED
MW3
GWE=628.73'
TANK 3
3000 GAL
REMOVED
MW4
GWE=628
TANK 4
6000 GAL
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BUILDING
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3.0 GROUNDWATER MONITORING PROCEDURES

3.1 Groundwater Elevation Measurement

The elevation of each well was determined by surveying the wellheads from the closest benchmark. Beck Engineering and Surveying Company, Inc. was subcontracted by GRC in July 1989 to obtain the elevation of each well. The depth to groundwater was measured with an electronic water level indicator. Table 1 presents the groundwater elevation measurements obtained in December 1990.

Drawing 2 presents the groundwater gradient map for the Semtech Facility. The flow direction at the time of measurement is towards the south. This same direction was also documented by ERT Consultants in their December 1987 report entitled "Site Chlorinated Hydrocarbon Concentration Assessment" at the Semtech facility.

GRC documents in their October 1990 Quarterly Sampling Report that when the system was shut down in September 1990, the elevation in well MW2 on the Semtech property decreased to 628.43 (feet above MSL) and the groundwater elevation in well S-9 on Rockwell property was measured at 629.20 (feet above MSL). The resulting gradient was easterly from the Rockwell property to the Semtech property when the pumping operations stopped.

3.2 Groundwater Sampling Procedures

Groundwater wells MW1, MW2, and MW4 were purged and sampled with a manually driven TriLoc pump. MW3 was developed with a battery-operated Fultz pump and sampled with a teflon bailer. Both pumps were suspended several feet above the bottom of the well.

A total of 30 gallons of groundwater were withdrawn from well MW1. The well recharged very slowly. It was pumped several times to near dryness. For the diameter of the well, 30 gallons was adequate for purging and collecting a representative sample from the aquifer.

A total of 90 gallons of groundwater was extracted from well MW2; well MW2 had a fast recovery rate.

Well MW3 had restricted access due to an above ground tank located on top of it. For purging and sampling of MW3, a portable, battery driven Fultz pump was employed. A total of about 80 gallons was withdrawn during the purging of well MW3.

Well MW4 had a very slow recovery rate. After pumping 5 gallons, the well was dry. After the well recovered, it was pumped near dryness several more times for a total of 13 gallons of groundwater extracted. Well MW4 was not purged properly by GRC. The turbidity measurement obtained for MW4, 160 ntu, demonstrates that it was not sufficiently purged.

All groundwater samples were collected through the TriLoc pump with the exception of well MW3 which required a teflon bailer. All pumping and sampling equipment were cleaned with TSP detergent and tap water.

Table 1

Groundwater Elevation Measurements
Semtech Corporation
625 Mitchell Road, Newbury Park, CA
Date of Survey: December 19, 1990

Well No.	Wellhead Elevation	Measured Depth Groundwater	Groundwater Elevation
MW1	662.60	31.82	630.78
MW2	655.95	27.18	628.78
MW3	655.14	26.41	628.73
MW4	654.91	26.40	628.51

The groundwater samples were placed on ice and transported to American Analytics and Golden State Laboratory, California State Department of Health Services Certified laboratories.

3.3 Chemical Analysis Procedures

All samples were placed on ice and cooled to 4°C. Samples were preserved according to established EPA protocols. The four groundwater samples were analyzed for the following compounds:

Volatile Organics Compounds
CAM Metal Series
Total Cyanide
Anions Scan
General Mineral Scan
Total Fluoride
Boron
Silica
pH measurement
Turbidity Measurement

4.0 CHEMICAL ANALYSIS RESULTS

Tables 2, 3 and 4 present the chemical analysis results obtained for the December 1990 Sampling Program.

5.0 DISCUSSION

The extreme jump in the TCE concentration in well MW2 directly coincides with the TCE jump in Rockwell's French-drain influent and well S-4 during September 1990. When the system was shut down in September 1990, the direction of flow on the eastern portion of the Rockwell property shifted easterly to flow to the Semtech property.

In GRC's July 27, 1990 letter to Rockwell, it is apparent that GRC did not analyze any of Rockwell's groundwater wells for nitrate levels in 1990. They simply compared the 1986 nitrate levels found on the Rockwell property to 1990 nitrate levels from Semtech. This is a scientifically invalid comparison and has no scientific meaning. GRC's resulting contour map of 1986 and 1990 nitrate levels is a misrepresentation of scientific data.

The December 1990 chemical analyses results are presented below. Cyanide was not detected in all four monitoring wells on the Semtech property. The CAM metal analysis results revealed that no metals were detected in wells MW1 and MW2. MW3 revealed only one metal, Zinc, at 0.08 ppm. This value is well below the established action level for Zinc in drinking water. MW4 possessed the following metals: Barium, Cadmium, Chromium, Copper, Mercury, Nickel, and Silver. Copper and Nickel were present at concentrations below established action levels; the remaining metals exist above the action levels.

MW4 was not properly developed. This is demonstrated in the turbidity measurement of 160 ntu for MW4. This fact serves as a possible explanation to the elevated metal and general mineral concentrations detected.

The action level for fluoride in drinking water ranges from 1.4 to 2.4 ppm, depending on the water temperature. Wells MW1, MW2, MW3, and MW4 possessed fluoride concentrations of 0.22 ppm, 2.6 ppm, 3.5 ppm, and 240 ppm, respectively. The nitrate levels in all four wells ranged from 75 to 170,000 ppm as compared to the nitrate action level of 45 ppm.

about MW2?

The five volatile organic compounds detected in MW1 all exist in concentrations below established action levels. MW3 and MW4 only possessed one volatile organic compound above the action levels: trichloroethene (TCE) at 640 ppb and 110 ppb, respectively; the action level for TCE is 5 ppb. Groundwater sampled from well MW2 only contained three organic compounds at concentrations above the established drinking water action levels: carbon tetrachloride at 2.4 ppb, 1,1-dichloroethene at 8.3 ppb, and TCE at 2700 ppb. The action levels are .5 ppb, 6 ppb, and 5 ppb, respectively.

Table 2

Groundwater Chemical Analysis Results
CAM Metals and Cyanide (ppm)
Semtech Corporation
December 20, 1990

Compound	MW1	MW2	MW3	MW4	Report
Antimony	nd	nd	nd	nd	0.50
Arsenic	nd	nd	nd	nd	0.02
Barium ✓	nd	nd	nd	2.0	0.20
Beryllium	nd	nd	nd	nd	0.05
Cadmium ✓	nd	nd	nd	0.09	0.05
Chromium ✓	nd	nd	nd	0.29	0.20
Cobalt	nd	nd	nd	nd	0.20
Copper	nd	nd	nd	0.32	0.05
Lead	nd	nd	nd	nd	0.20
Mercury ✓	nd	nd	nd	0.04	0.01
Molybdenum	nd	nd	nd	nd	0.40
Nickel	nd	nd	nd	0.81	0.20
Selenium	nd	nd	nd	nd	0.02
Silver ✓	nd	nd	nd	0.25	0.05
Thallium	nd	nd	nd	nd	0.20
Vanadium	nd	nd	nd	nd	0.50
Zinc	nd	nd	0.08	nd	0.05
Cyanide	nd	nd	nd	nd	0.02

Table 3

Groundwater Chemical Analysis Results
General Mineral Scan
Semtech Corporation
December 20, 1990

Compound	MW1	MW2	MW3	MW4	Report
Alkalinity (Hydroxide 0%) (Carbonate 0%) (Bicarbonate 100%)	22	120	74	810	1.0 mg/
Boron	nd	nd	nd	nd	0.05 m
Calcium	25	220	320	13000	0.20 m
Chlorides	78	300	230	2200	0.10 m
Fluoride	0.22	2.6	3.5	240	0.10 m
Hardness	110	870	1200	35000	1.0 m
Iron	nd	0.33	0.13	nd	0.10 m
Magnesium	12	80	100	700	0.01 m
Manganese	nd	0.38	0.23	7.6	0.05 m
Nitrate	75	2900	2300	170000	0.10 m
Nitrite	nd	nd	nd*	nd*	0.10 m
pH	6.81	6.83	7.13	5.97	N/A
Phosphate	nd	nd	nd	nd	0.50 m
Potassium	1.2	4.0	4.7	53	0.10 m
Silica	58	53	53	26	1.0 m
Sodium	52	870	140	10000	0.01 m
Specific Conductance	800	4050	4000	12000	1.0 um
Sulfate	14	160	140	1900	1.0 m
Surfactants	nd	nd	nd	nd	0.50 m
Total Dissolved Solids	420	5100	3900	230000	1.0 m

ACTION LEVEL 45

* Reporting Limit is 5.0 mg/L

Table 4

Groundwater Chemical Analysis Results
Volatile Organic Compounds - EPA Method 624 (ppb)
Semtech Corporation
December 20, 1990

Compound	MW1	MW2		MW3	MW4	Detect Limits
Trichlorofluoromethane	3.8	6.0		3.4	nd	.
Acetone	73	84	ACT. LEVEL	13	1300	1
1,1-Dichloroethene	4.2	8.3	6	2.0	nd	.
1,1,1-Trichloroethane	6.3	nd		nd	nd	.
Trichloroethene	3.5	2700	5	640	110	.
Trans-1,2-dichloroethene	nd	1.5		nd	nd	.
Chloroform	nd	1.7		3.4	nd	.
Carbon Tetrachloride	nd	2.4	0.5	nd	nd	.
Tetrachloroethene	nd	2.5		nd	nd	.
Bromodichloromethane	nd	nd		.8	nd	.
Methylene Chloride	nd	nd		nd	.6	.

The groundwater gradient for the Semtech property differs from previous GRC reports. The December 1990 gradient determined was in a southward direction. This southward groundwater gradient is supported by ERT's published report of December 1987. The groundwater flow does not seem to be affected by any faults that may exist on the Semtech property as suggested by GRC.

6.0 RECOMMENDATIONS

Enviropro, Inc. recommends purging MW4 properly to obtain a more representative groundwater sample for chemical analysis. All four wells should be resampled on a periodic basis to confirm the groundwater quality beneath the Semtech property.

Tank 4 should be removed. Since this concrete tank is attached to the footing of the adjacent building, Enviropro, Inc. recommends removing the entire tank except the south wall of the tank. The following is the conclusion of Lockmart Associates, as stated in their May 23, 1990 letter to the County of Ventura, Environmental Health Division:

> " The following paragraphs itemize our reasons for insisting that the south wall of the underground concrete tank, located below the building, be left in place during the tank removal and closure:
>
> 1) The southern wall of the buried concrete tank is about 2 feet thick. According to the best available As-Built plans, the south wall of the tank is located about 18 inches from the footing at the northeast corner of the existing building. The removal of the south wall of the tank may seriously impair the supportive strength of the soil adjacent to the footing, possibly causing structural stress to the footing and soil failure. This could result in structural damage to the building at that corner.
>
>   As clear thinking engineers, we recognize the potential damage that could result from removing the south wall of the tank. We cannot recommend removing the wall without providing cost prohibitive shoring and underpinning to the building footing during removal. Shoring and underpinning will cost at least $50,000, which is substantially greater than the cost to actually remove the tank. Semtech has already spent $80,000 removing three other underground tanks at the facility and installing groundwater monitoring wells. The company has also spent approximately $125,000 updating and retrofitting their waste treatment system to comply with city, county, state and federal regulations.

> The cost to remove and backfill the 6,000 gallon concrete tank is $21,000 if the south wall of the tank can be left in place. If the south wall of the tank is required to be removed, Semtech will be unable to meet the additional cost and the tank will have to remain in the ground."

Upon removal of Tank 4, the soil will be sampled at 5 foot intervals down to the groundwater table. Chemical analyses for volatile organics and the CAM metal series will be performed.

APPENDIX A

Laboratory Reports, Chain-of-Custody Records, and QA/QC documents (December 1990)

GOLDEN STATE
Analytical Services, Inc.
15735-1 Strathern St. • Van Nuys • CA 91406
Tel: (818) 376-1122 • Fax: (818) 781-8128

JAN 14 1991

Client:	Enviropro	Matrix:	Water
Project Name:	Semtech	Date Received:	12/20/90
Project#:	51901	Date Analyzed:	12/20/90-01/07/91
P.O.#:	3639-P51901	GSAS Job#:	6045

Summary of Analytical Data

Client Sample#:	MW1		MW2		Reporting
GSAS Sample#:	GS-0191-546		GS-0191-547		Limits
Alkalinity	22 mg/L		120 mg/L		1.0 mg/L
(Hydroxide 0%)					
(Carbonate 0%)					
(Bicarbonate 100%)					
		RW		RW	
Boron	BRL	ND	BRL	ND	1.0 mg/L
Calcium	25 mg/L	35	220 mg/L	205	0.05 mg/L
Chlorides	78 mg/L	92.8	300 mg/L	288	0.20 mg/L
Fluoride	0.22 mg/L	.31	2.6 mg/L	0.8	0.10 mg/L
Hardness	110 mg/L		870 mg/L		1.0 mg/L
Iron	BRL	ND	0.33 mg/L	ND	0.10 mg/L
Magnesium	12 mg/L	24	80 mg/L	161	0.01 mg/L
Manganese	BRL	ND	0.38 mg/L	0.249	0.05 mg/L
Nitrate	75 mg/L	195	2900 mg/L	3101	0.10 mg/L
pH	6.81	7.3	6.83	7.2	N/A
Phosphate	BRL		BRL		0.50 mg/L
Potassium	1.2 mg/L	0.7	4.0 mg/L	0.9	0.10 mg/L
Silica	58 mg/L	54	53 mg/L	46	1.0 mg/L
Sodium	52 mg/L	108	870 mg/L	940	0.01 mg/L
Specific Conductance	800 umhos/cm	1100	4050 umhos/cm	6400	1.0 umhos/cm
Sulfate	14 mg/L	18	160 mg/L	140	1.0 mg/L
Surfactants	BRL		BRL		0.50 mg/L
Total Dissolved Solids	420 mg/L	900	5100 mg/L	4725	1.0 mg/L

BRL: Below Reporting Limit

Approved By: Dr. B. Gene Bennett

JAN 14 1991

GOLDEN STATE
Analytical Services, Inc.

15735-1 Strathern St. • Van Nuys • CA 91406
Tel: (818) 376-1122 • Fax: (818) 781-8128

Client:	Enviropro	Matrix:	Water
Project Name:	Semtech	Date Received:	12/20/90
Project#:	51901	Date Analyzed:	12/20/90-01-07-91
P.O.#:	3639-P51901	GSAS Job#:	6045

Summary of Analytical Data

Client Sample#: GSAS Sample#:	MW3 GS-0191-548		MW4 GS-0191-549			Reporting Limits
Alkalinity	74 mg/L		810 mg/L			1.0 mg/L
(Hydroxide 0%)						
(Carbonate 0%)						
(Bicarbonate 100%)						
		RW		RW		
Boron	BRL	ND	BRL	ND		1.0 mg/L
Calcium	320 mg/L	212	13000 mg/L	11800		0.05 mg/L
Chlorides	230 mg/L	218	2200 mg/L	2014		0.20 mg/L
Fluoride	3.5 mg/L	3.4	240 mg/L	0,09		0.10 mg/L
Hardness	1200		35000 mg/L			1.0 mg/L
Iron	0.13 mg/L	ND	BRL	ND		0.10 mg/L
Magnesium	100 mg/L	133	700 mg/L	6600		0.01 mg/L
Manganese	0.23 mg/L	ND	7.6 mg/L	4.1	[illegible]	0.05 mg/L
Nitrate	2300 mg/L	1329	170,000 mg/L	177,200	1100	0.10 mg/L
pH	7.13	7.1	5.97	6.2		N/A
Phosphate	BRL		BRL			0.50 mg/L
Potassium	4.7 mg/L	1.5	53 mg/L	30		0.10 mg/L
Silica	53 mg/L	50	26 mg/L	20		1.0 mg/L
Sodium	140 mg/L	105	10000 mg/L	41,000		0.01 mg/L
Specific Conductance	4000 umhos/cm	3500	12000 umhos/cm	53,410		1.0 umhos/cm
Sulfate	140 mg/L	132	1900 mg/L	1300		1.0 mg/L
Surfactants	BRL		BRL			0.50 mg/L
Total Dissolved Solids	3900 mg/L	2160	230000 mg/L	234,000		1.0 mg/L

BRL: Below Reporting Limit

Approved By: Dr. B. Gene Bennett

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JAN 14 1991

Client:	Enviropro	Matrix:	Water
Project Name:	Semtech	Date Received:	12/20/90
Project#:	51901	Date Analyzed:	01/02/91
P.O.#:	3639-P51901	GSAS Job#:	6045

CAM Metals & Cyanide

mg/L (ppm)

Client Sample#:	MW1		MW2		Reporting
GSAS Sample#:	GS-1290-546		GS-1290-547		Limits
		RW		RW	
Antimony	BRL		BRL		0.50
Arsenic	BRL		BRL		0.02
Barium	BRL	ND	BRL	ND	0.20
Beryllium	BRL		BRL		0.05
Cadmium	BRL	ND	BRL	ND	0.05
Chromium	BRL	ND	BRL	ND	0.20
Cobalt	BRL		BRL		0.20
Copper	BRL	ND	BRL	ND	0.05
Lead	BRL	ND	BRL	ND	0.20
Mercury	BRL	ND	BRL	ND	0.01
Molybdenum	BRL		BRL		0.40
Nickel	BRL	ND	BRL	ND	0.20
Selenium	BRL		BRL		0.02
Silver	BRL	ND	BRL	ND	0.05
Thallium	BRL		BRL		0.20
Vanadium	BRL		BRL		0.50
Zinc	BRL		BRL		0.05
Cyanide	BRL	ND	BRL	0.04 mg/L (ppm)	0.02

BRL: Below Reporting Limit

Approved By: Dr. B. Gene Bennett

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JAN 14 1991

Client:	Enviropro	Matrix:	Water
Project Name:	Semtech	Date Received:	12/20/90
Project#:	51901	Date Analyzed:	01/02/91
P.O.#:	3639-P51901	GSAS Job#:	6045

CAM Metals & Cyanide

mg/L (ppm)

Client Sample#:	MW3		MW4		Reporting Limits
GSAS Sample#:	GS-1290-548		GS-1290-549		
		RW		RW	
Antimony	BRL		BRL		0.50
Arsenic	BRL		BRL		0.02
Barium	BRL	130 mg/L.	2.0	1.7	0.20
Beryllium	BRL		BRL		0.05
Cadmium	BRL	ND	0.09	0.02	0.05
Chromium	BRL	ND	0.29	ND	0.20
Cobalt	BRL		BRL		0.20
Copper	BRL	ND	0.32	ND	0.05
Lead	BRL	ND	BRL	0.032	0.20
Mercury	BRL	ND	0.04	0.02	0.01
Molybdenum	BRL		BRL		0.40
Nickel	BRL	ND	0.81	0.485	0.20
Selenium	BRL		BRL		0.02
Silver	BRL	ND	0.25	ND	0.05
Thallium	BRL		BRL		0.20
Vanadium	BRL		BRL		0.50
Zinc	0.08		BRL		0.05
Cyanide	BRL	0.04	BRL	2.75	0.02

BRL: Below Reporting Limit

Approved By: Dr. B. Gene Bennett

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JAN 2 5 1991

Client:	Enviropro	Matrix:	Water
Project Name:	Semtech	Date Received:	12/20/90
Project#:	51901	Date Analyzed:	01/02/91
P.O.#:	3639-P51901	GSAS Job#:	6045

Nitrite (300.0) (NO_2^{2-})
mg/L (ppm)

Client Sample#	GSAS Sample#	Amount Detected	Reporting Limits
MW 1	GS-0191-546	BRL	0.1
MW 2	GS-0191-547	BRL	0.1
MW 3 **	GS-0191-548	BRL	5.0
MW 4 **	GS-0191-549	BRL	5.0

** Reporting Limit has been raised due to matrix interferences.

BRL: Below Reporting Limit

Approved By: Dr. B. Gene Bennett

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CAL. ENV. 991-1542

Client:	Enviropro	Matrix:	Water
Project Name:	Semtech	Date Received:	12/20/90
Project#:	51901	Date Analyzed:	01/02/91
P.O.#:	3639-P51901	GSAS Job#:	6045

Total Fluoride (340.1)

mg/L (ppm)

Client Sample#	GSAS Sample#	Amount Detected	Reporting Limits
MW 1	GS-0191-546	0.22	0.10
MW 2	GS-0191-547	2.8	0.10
MW 3	GS-0191-548	3.5	0.10
MW 4	GS-0191-549	275	0.10

JAN 23 1991

BRL: Below Reporting Limit

Approved By: Dr. B. Gene Bennett

Dr. B. Gene Bennett

AMERICAN ANALYTICS
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LABORATORY ANALYSIS RESULTS

Client: Enviropro, Inc.
Project No.: 51901
Project Name: SEMTECH
Sample Matrix: Water
AA I.D.: 2626
Client I.D.: MW1
Method: EPA 624

DOHS Certified #: 265
Date Sampled: 12/19/90
Date Received: 12/20/90
Date Analyzed: 12/20/90
Units: µg/L
Dilution Factor: 1
Date Reported: 12/21/90

Compounds	**Results**		**Detection Limits (ppb)**
Chloromethane	--		0.5
Vinyl chloride	--		0.5
Bromomethane	--		0.5
Chloroethane	--		0.5
Trichlorofluoromethane	3.8	<5	0.5
Acetone	73	<200	10
1,1-Dichloroethene	4.2	<5	0.5
Carbon disulfide	--		0.5
Methylene chloride	--		0.5
trans-1,2-Dichloroethene	--		0.5
1,1-Dichloroethane	--		0.5
2-Butanone (MEK)	--	90	10
Chloroform	--		0.5
1,1,1-Trichloroethane	6.3	7.0	0.5
Carbon tetrachloride	--		0.5
1,2-Dichloroethane	--		0.5
Bromodichloromethane	--		0.5
Benzene	--		0.5
Trichloroethene	3.5	5	Action limit = 5 ppb. 0.5
1,2-Dichloropropane	--		0.5
cis-1,3-Dichloropropene	--		0.5
trans-1,3-Dichloropeopene	--		0.5
1,1,2-Trichloroethane	--		0.5
Dibromochloromethane	--		0.5
Bromoform	--		0.5
4-Methyl-2-pentanone	--		10
Toluene	--		0.5
2-Hexanone	--		10
Tetrachloroethene	--		0.5
Chlorobenzene	--		0.5
Ethylbenzene	--		0.5
Total xylenes	--		0.5
Styrene	--		0.5
1,1,2,2-Tetrachloroethane	--		0.5
1,3-Dichlorobenzene	--		0.5
1,4-Dichlorobenzene	--		0.5
1,2-Dichlorobenzene	--		0.5

--: Below detection limit.

Eric C.C. Lu, Ph.D.
Technical Director

Eddy Y. Zeng
Chemist

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LABORATORY ANALYSIS RESULTS

Client: Enviropro, Inc.
Project No.: 51901
Project Name: SEMTECH
Sample Matrix: Water
AA I.D.: 2627
Client I.D.: MW2
Method: EPA 624

DOHS Certified #: 265
Date Sampled: 12/19/90
Date Received: 12/20/90
Date Analyzed: 12/20/90
Units: µg/L
Dilution Factor: 1,100
Date Reported: 12/21/90

Compounds	Results		Detection Limits (ppb)
Chloromethane	--		0.5
Vinyl chloride	--		0.5
Bromomethane	--		0.5
Chloroethane	--		0.5
Trichlorofluoromethane	6.0	<50	0.5
Acetone	84	<2	10
1,1-Dichloroethene	8.3	<50	0.5
Carbon disulfide	--		0.5
Methylene chloride	--		0.5
trans-1,2-Dichloroethene	1.5	<50	0.5
1,1-Dichloroethane	--		0.5
2-Butanone	--		10
Chloroform	1.7	<50	0.5
1,1,1-Trichloroethane	--		0.5
Carbon tetrachloride	2.4	<50	0.5
1,2-Dichloroethane	--		0.5
Bromodichloromethane	--		0.5
Benzene	--		0.5
Trichloroethene	2700	2600	50
1,2-Dichloropropane	--		0.5
cis-1,3-Dichloropropene	--		0.5
trans-1,3-Dichloropeopene	--		0.5
1,1,2-Trichloroethane	--		0.5
Dibromochloromethane	--		0.5
Bromoform	--		0.5
4-Methyl-2-pentanone	--		10
Toluene	--		0.5
2-Hexanone	--		10
Tetrachloroethene	2.5	<50	0.5
Chlorobenzene	--		0.5
Ethylbenzene	--		0.5
Total xylenes	--		0.5
Styrene	--		0.5
1,1,2,2-Tetrachloroethane	--		0.5
1,3-Dichlorobenzene	--		0.5
1,4-Dichlorobenzene	--		0.5
1,2-Dichlorobenzene	--		0.5

--: Below detection limit.

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LABORATORY ANALYSIS RESULTS

Client: Enviropro, Inc.
Project No.: 51901
Project Name: SEMTECH
Sample Matrix: Water
AA I.D.: 2628
Client I.D.: MW3
Method: EPA 624

DOHS Certified #: 265
Date Sampled: 12/19/90
Date Received: 12/20/90
Date Analyzed: 12/20/90
Units: µg/L
Dilution Factor: 1,100
Date Reported: 12/21/90

Compounds	**Results**		**Detection Limits (ppb)**
Chloromethane	--		0.5
Vinyl chloride	--		0.5
Bromomethane	--		0.5
Chloroethane	--		0.5
Trichlorofluoromethane	3.4	<50	0.5
Acetone	13	<500	10
1,1-Dichloroethene	2.0	<10	0.5
Carbon disulfide	--		0.5
Methylene chloride	--		0.5
trans-1,2-Dichloroethene	--		0.5
1,1-Dichloroethane	--		0.5
2-Butanone	--		10
Chloroform	3.4	<10	0.5
1,1,1-Trichloroethane	--		0.5
Carbon tetrachloride	--		0.5
1,2-Dichloroethane	--		0.5
Bromodichloromethane	0.8	<10	0.5
Benzene	--		0.5
Trichloroethene	640	760	50
1,2-Dichloropropane	--		0.5
cis-1,3-Dichloropropene	--		0.5
trans-1,3-Dichloropeopene	--		0.5
1,1,2-Trichloroethane	--		0.5
Dibromochloromethane	--		0.5
Bromoform	--		0.5
4-Methyl-2-pentanone	--		10
Toluene	--		0.5
2-Hexanone	--		10
Tetrachloroethene	--		0.5
Chlorobenzene	--		0.5
Ethylbenzene	--		0.5
Total xylenes	--		0.5
Styrene	--		0.5
1,1,2,2-Tetrachloroethane	--		0.5
1,3-Dichlorobenzene	--		0.5
1,4-Dichlorobenzene	--		0.5
1,2-Dichlorobenzene	--		0.5

--: Below detection limit.

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LABORATORY ANALYSIS RESULTS

Client: Enviropro, Inc.
Project No.: 51901
Project Name: SEMTECH
Sample Matrix: Water
AA I.D.: 2629
Client I.D.: MW4
Method: EPA 624

DOHS Certified #: 265
Date Sampled: 12/19/90
Date Received: 12/20/90
Date Analyzed: 12/20/90
Units: µg/L
Dilution Factor: 1,100
Date Reported: 12/21/90

Compounds	**Results**		**Detection Limits (ppb)**
Chloromethane	--		0.5
Vinyl chloride	--		0.5
Bromomethane	--		0.5
Chloroethane	--		0.5
Trichlorofluoromethane	--		0.5
Acetone	1300	2000	1000
1,1-Dichloroethene	--		0.5
Carbon disulfide	--		0.5
Methylene chloride	0.6	<20	0.5
trans-1,2-Dichloroethene	--		0.5
1,1-Dichloroethane	--		0.5
2-Butanone	--		10
hloroform	--		0.5
,1,1-Trichloroethane	--		0.5
Carbon tetrachloride	--		0.5
1,2-Dichloroethane	--		0.5
Bromodichloromethane	--		0.5
Benzene	--		0.5
Trichloroethene	110	120	0.5
1,2-Dichloropropane	--		0.5
cis-1,3-Dichloropropene	--		0.5
trans-1,3-Dichloropeopene	--		0.5
1,1,2-Trichloroethane	--		0.5
Dibromochloromethane	--		0.5
Bromoform	--		0.5
4-Methyl-2-pentanone	--		10
Toluene	--		0.5
2-Hexanone	--		10
Tetrachloroethene	--		0.5
Chlorobenzene	--		0.5
Ethylbenzene	--		0.5
Total xylenes	--		0.5
Styrene	--		0.5
1,1,2,2-Tetrachloroethane	--		0.5
1,3-Dichlorobenzene	--		0.5
1,4-Dichlorobenzene	--		0.5
1,2-Dichlorobenzene	--		0.5

--: Below detection limit.

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LABORATORY ANALYSIS RESULTS

Client: Enviropro, Inc.
Project No.: 51901
Project Name: SEMTECH
Sample Matrix: Water
AA I.D.: 2630
Client I.D.: TB ?
Method: EPA 624

DOHS Certified #: 265
Date Sampled: 12/19/90
Date Received: 12/20/90
Date Analyzed: 12/20/90
Units: µg/L
Dilution Factor: 1
Date Reported: 12/21/90

Compounds	Results	Detection Limits (ppb)
Chloromethane	--	0.5
Vinyl chloride	--	0.5
Bromomethane	--	0.5
Chloroethane	--	0.5
Trichlorofluoromethane	--	0.5
Acetone	--	10
1,1-Dichloroethene	--	0.5
Carbon disulfide	--	0.5
Methylene chloride	--	0.5
trans-1,2-Dichloroethene	--	0.5
1,1-Dichloroethane	--	0.5
2-Butanone	--	10
hloroform	--	0.5
,1,1-Trichloroethane	--	0.5
Carbon tetrachloride	--	0.5
1,2-Dichloroethane	--	0.5
Bromodichloromethane	--	0.5
Benzene	--	0.5
Trichloroethene	--	0.5
1,2-Dichloropropane	--	0.5
cis-1,3-Dichloropropene	--	0.5
trans-1,3-Dichloropeopene	--	0.5
1,1,2-Trichloroethane	--	0.5
Dibromochloromethane	--	0.5
Bromoform	--	0.5
4-Methyl-2-pentanone	--	10
Toluene	--	0.5
2-Hexanone	--	10
Tetrachloroethene	--	0.5
Chlorobenzene	--	0.5
Ethylbenzene	--	0.5
Total xylenes	1.9	0.5
Styrene	--	0.5
1,1,2,2-Tetrachloroethane	--	0.5
1,3-Dichlorobenzene	--	0.5
1,4-Dichlorobenzene	--	0.5
1,2-Dichlorobenzene	--	0.5

--: Below detection limit.

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LABORATORY ANALYSIS RESULTS

Client: Enviropro, Inc.
Sample Matrix: Water
Method: EPA 8240, QC, Spike
Spike Concentration: 50 ppb

DOHS Certified #: 265
Date Analyzed: 12/20/90
Dilution Factor: 1
Date Reported: 12/21/90

Compounds	**Spike Recovery %**	**Acceptance Criteria %**
1,1-Dichlorothene	223	D-234
Benzene	94	37-151
Trichloroethene	107	71-157
Toluene	111	47-150
Chlorobenzene	99	37-160

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LABORATORY ANALYSIS RESULTS

Client: Enviropro, Inc.
Sample Matrix: Water
Method: EPA 8240, QC, Spike/Duplicate
Spike Concentration: 50 ppb

DOHS Certified #: 265
Date Analyzed: 12/20/90
Dilution Factor: 1
Date Reported: 12/21/90

Compounds	**Spike Recovery %**	**Acceptance Criteria %**
1,1-Dichlorothene	99	D-234
Benzene	94	37-151
richloroethene	87	71-157
Toluene	88	47-150
Chlorobenzene	95	37-160

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LABORATORY ANALYSIS RESULTS

Client: Enviropro, Inc.
Project No.: 51901
Project Name: SEMTECH
Sample Matrix: Water
Dilution: 1
Method: EPA 9040 (pH Measurement)

DOHS Certified #: 265
Date Sampled: 12/19/90
Date Received: 12/20/90
Date Analyzed: 12/20/90
Date Reported: 12/21/90

AA ID #	Client ID	pH
2626	MW1	6.3
2627	MW2	6.5
2628	MW3	6.7
2629	MW4	5.8

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LABORATORY ANALYSIS RESULTS

Client: Enviropro, Inc.	**DOHS Certified #:** 265
Project No.: 51901	**Date Sampled:** 12/19/90
Project Name: SEMTECH	**Date Received:** 12/20/90
Sample Matrix: Water	**Date Analyzed:** 12/20/90
Dilution Factor: 1	**Units:** NTU
Method: Turbidity Measurement	**Date Reported:** 12/21/90

AA I.D. #	Client ID	Results
2626	MW1	40
2627	MW2	20
2628	MW3	5
2629	MW4	160

Eric C.C. Lu, Ph.D.
Technical Director

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AMERICAN ANALYTICS CHAIN-OF-CUSTODY REC

9765 ETON AVE., CHATSWORTH, CA 91311

(818) 998-5547 (818) 998-5548 1-800-533-TEST 1-800-533-8378 FAX (818) 998-7258 DATE: 12

Client	SEMTECH
Site Address	625 Mitchell Rd Newbury Park
Sampler's Name	George Pavlov
Sampler's Signature	
Project Name	SEMTECH
Project N	
Project Manager	L Bauersachs
Phone	
Project Manager's Signature	L Bauersachs
P.O. No.	

ANALYSIS REQUIRED

Detection Limits

AA ID #	Client's ID	Date	Time	Sample Type	Number of Containers	CAM Metals	General Mineral	Total Cyanide	Anion Scan	Total Fluoride	Boron	Silica			Test
1290 546	MW1	12/19/94	16:30	Water		X	✓	✓	✓	✓	X	✓			
-547	MW2	"	11:45	"		X	X	✓	X	✓	X	X			
-548	MW3	"	13:30	"		✓	X	✓	X	X	X	X			need
549	MW4	"	17:00	"		✓	✓	✓	✓	X	X	X			
															A series
															B series
															C series

SAMPLE INTEGRITY-TO BE FILLED IN BY RECEIVING LAB

Samples Intact Yes ______ No ______

Samples Properly Cooled Yes ______ No ______

Samples Accepted Yes ______ No ______

If Not, Why. ____________________

Samples Placed In Lab Refrigerator Prior To Analysis

Yes ______ No ______

Relinquished by	Date / Time	Received
George Pavl	12-19 / 18:10	Em
Cold Storage L Bauersach	12/20/94 / 9:00 am	
	12/20/94 / 9:7.	

AMERICAN ANALYTICS C N-OF-CUSTODY RE

9765 ETON AVE., CHATSWORTH, CA 91311

(818) 998-5547 (818) 998-5548 1-800-533-TEST 1-800-533-8378 FAX (818) 998-7258 DATE: 1

Client	SEMTECH	Project Name	SEMTECH Project
Site Address	625 Mitchell Rd Newbury Park	Project Manager	L Bauersachs Phone
		Project Manager's Signature	L Bauersachs P.O. No.
Sampler's Name	George Pavlov		
Sampler's Signature	George Pavlov		

ANALYSIS REQUIRED

Detection Limits: .5ppb

A.A. I.D #	Client's I.D	Date	Time	Sample Type	Number of Containers	602	Turbidity	pH							Te
2626	MW1	12/19/90	16:30	Water		X	X	X							
2627	MW2	↓	11:45	↓		X	X	X							7 d
2628	MW3		13:30			X	X	X							
2629	MW4	↓	17:00	↓		X	X	X							fu
2630	TB	12/19/90		Water		X									
															.S

SAMPLE INTEGRITY-TO BE FILLED IN BY RECEIVING LAB

Samples Intact Yes ✓ No ✓

Samples Properly Cooled Yes ✓ No ✓

Samples Accepted Yes ✓ No ✓

If Not, Why

Samples Placed In Lab Refrigerator Prior To Analysis

Yes ✓ No

Relinquished by:	Date / Time		Receive
George Pavlov	12-9-90	18:00	Er
Cold Storage L Bauersachs	9⁰⁰ am	12/20/9	E

Exhibit I

CHAPARRAL ASSOCIATES

9452 Telephone Road, #153
Ventura, California 93004
Phone (805) 659-5191
Fax (805) 659-2128

REVIEW AND ANALYSIS OF ENVIRONMENTAL CONDITIONS AND HISTORY OF LAND USE

Regarding the Property Located at:

652 Mitchell Drive
Newbury Park, CA 91320
(Semtech Site)

For:

Mr. Joseph Leggett
LYNN SHADOWS PARTNERSHIP
301 East Wilbur Road
Thousand Oaks, CA 91360

Prepared by:

CHAPARRAL ASSOCIATES
9452 Telephone Road, #153
Ventura, CA 93004

John T. Conlan
Registered Environmental Assessor

JOHN T CONLAN
No. 04060
Expires 6/96

October 9, 1995

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6.0 SUMMARY OF MAJOR ENVIRONMENTAL CONDITIONS AT THE 652 MITCHELL DRIVE SITE

1.0. SITE DESCRIPTION AND HISTORY

1.1 Site Description

The property at 652 Mitchell Drive is located at an elevation of 650 feet above sea level in the western end of the Conejo Valley within the Rancho Conejo light industrial area. The site is approximately 3.3 acres in area and currently has a large, one story block building which is occupied by the Semtech Corporation, a semiconductor manufacturer, and a small chemical storage building. The Semtech building occupies the southern portion of the property and most of the northern portion of the site is taken up with a large asphalt parking lot. The property slopes gently to the southwest. Most of the properties located in close proximity to the site are occupied by industrial firms. The geology at the site consists of interbedded alluvial sands, clays and gravels to a depth of approximately 175 feet, at which depth the basalts of the Conejo Volcanics are encountered. Groundwater occurs under unconfined and confined conditions within the alluvium and in the fractured volcanic rock. The depth to groundwater beneath the site ranges from 25 to 30 feet beneath the site. The unconfined, shallow groundwater flows generally to the southeast under natural conditions. Active groundwater pumping and recharge activities being conducted by the Rockwell Corporation at the property immediately to the west of the site causes dramatic changes in the direction of groundwater flow at the Semtech site.

Soil contamination and shallow groundwater contamination (solvents, acid residues and toxic metals) is known to exist at the subject site. Underground tanks are known to have leaked at the property and these leaks have caused soil and groundwater contamination at specific locations of the site. Solvent contamination is known to be present in the soil and groundwater at several properties in close proximity to the subject site and the groundwater contamination originating from one or more of these neighboring sites appears to have commingled with onsite contamination beneath the subject property. Deeper, confined groundwater aquifers beneath the site do not appear to be contaminated. A sketch depicting the site at 652 Mitchell Drive is included on the following page.

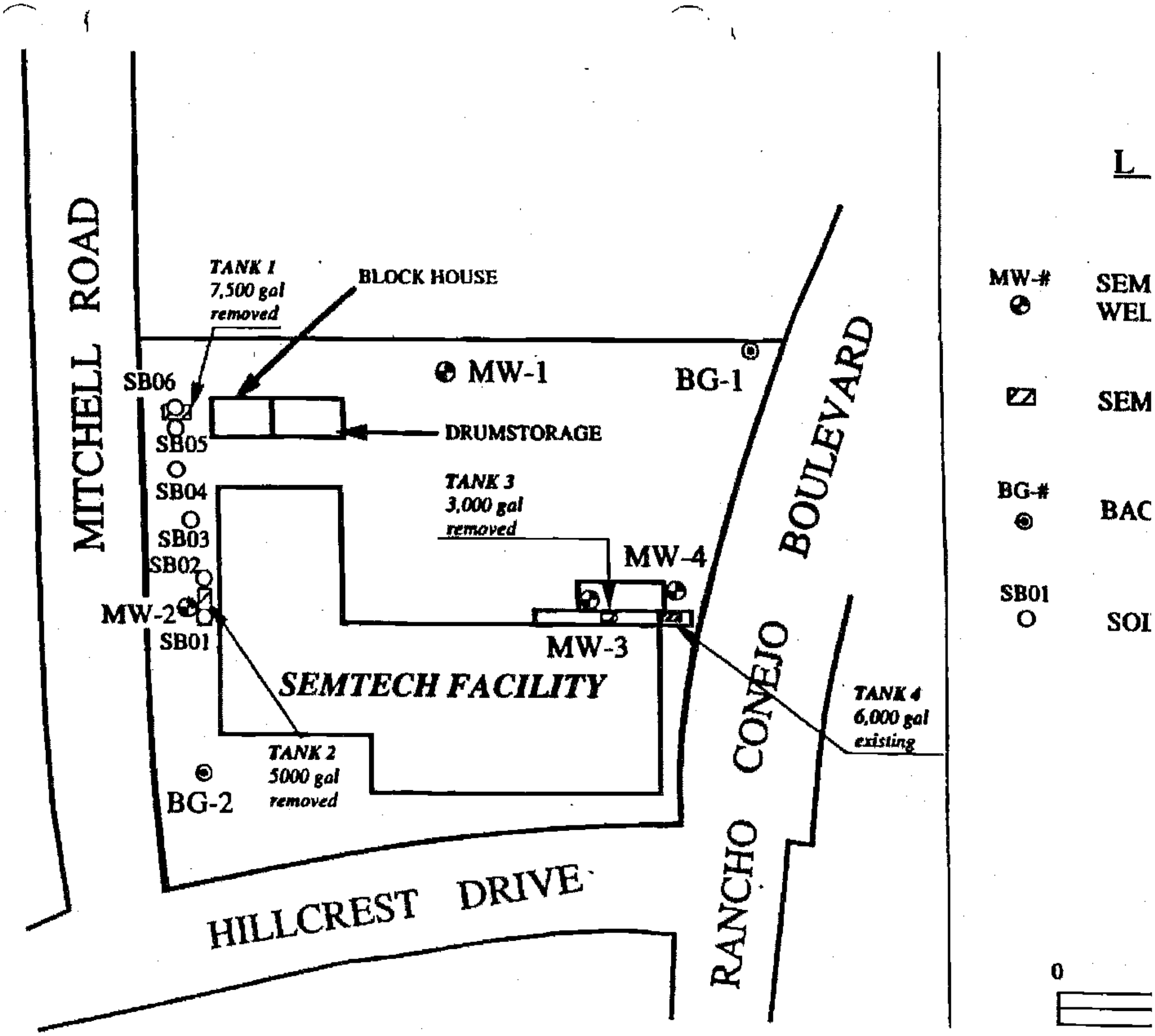


FIGURE 2
SITE MAP WITH BORING LOCATIONS
SEMTECH CORPORTATION
NEWBURY PARK, CALIFORNIA

1.2 History of Land Use at the Site

The property appears to have been first developed as a light industrial site in 1960. On September 30, 1960, a lease was initiated between Conejo Valley Corporation (CVC) and Westinghouse Electric Corporation (WEC) covering 10,160 sq. ft. of the 20,400 sq. ft. building that was on the site at the time. On January 16, 1961 CVC leased the remaining portion of the building to American Semiconductor Corporation (ASC). Lease documents indicate that, on August 8, 1961, ASC changed its name to Semtech Corporation (Semtech). Both WEC and ASC were manufacturers of electronic equipment.

The Janss Corporation acquired title to the property from CVC sometime after the Semtech name change and appears as the lessor on a May 28, 1963 lease with Semtech which provided for a 10,000 sq. ft. addition to the building for the benefit of Semtech, raising their total leased space to 19,160 sq. ft. WEC was still leasing the western portion of the building at that time.

In August of 1965, a small chemical storage building was built on the site and this building was leased to both Semtech and WEC (WEC had a 61% share of this building). Interestingly, WEC's five year lease expired that same month and WEC vacated the premises. Semtech then leased the portion of the large building that had formerly been occupied by WEC, increasing their leased square footage to 29,320 sq. ft. (and 502 sq. ft. of the chemical storage building). Documents from the LARWQCB indicate that WEC occupied a building at 2427 West Hillcrest Drive (immediately to the west of the subject property) during the period from 1961 through 1969.

On May 9, 1967, Janss Corporation entered into a new lease with Semtech which encompassed the entire large building (30,400 sq. ft.) and an addition of 23,800 sq. ft. From this time to the present the square footage of the large building has been listed as 55,608 sq. ft. and Semtech has been the lessee of the entire premises. Also in 1967, WEC relinquished their leasehold on the chemical storage building and the entire storage building was included in Semtech's lease.

The subject property appears to have had only two tenants, Semtech and WEC, for the past 35 years since it was first developed. The property is currently owned by the Lynn Shadows Partnership.

2.0. SOIL AND GROUNDWATER CONTAMINATION IN THE VICINITY OF 652 MITCHELL DRIVE

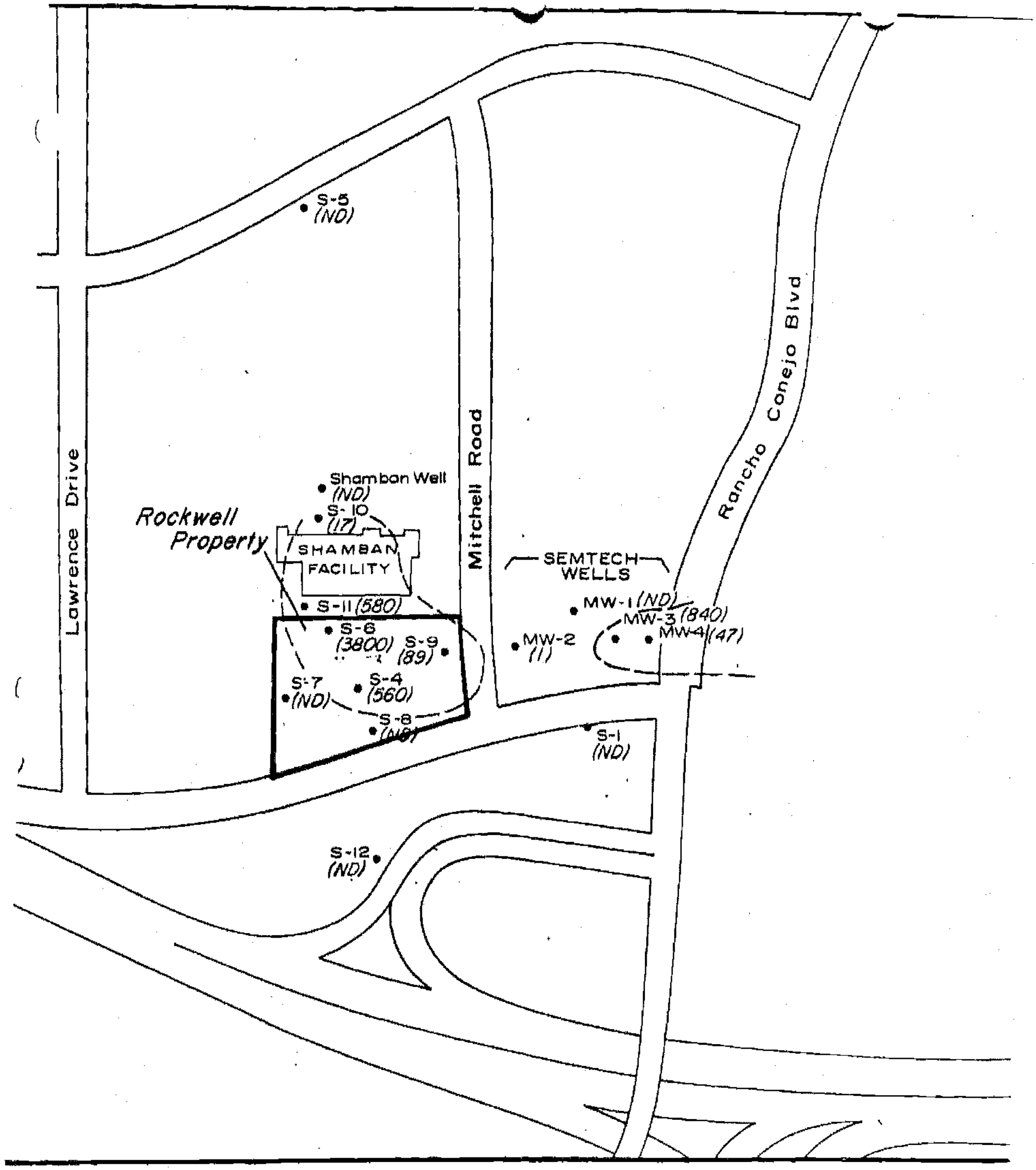
2.1 Environmental Conditions in the Vicinity of the 652 Mitchell Drive Site

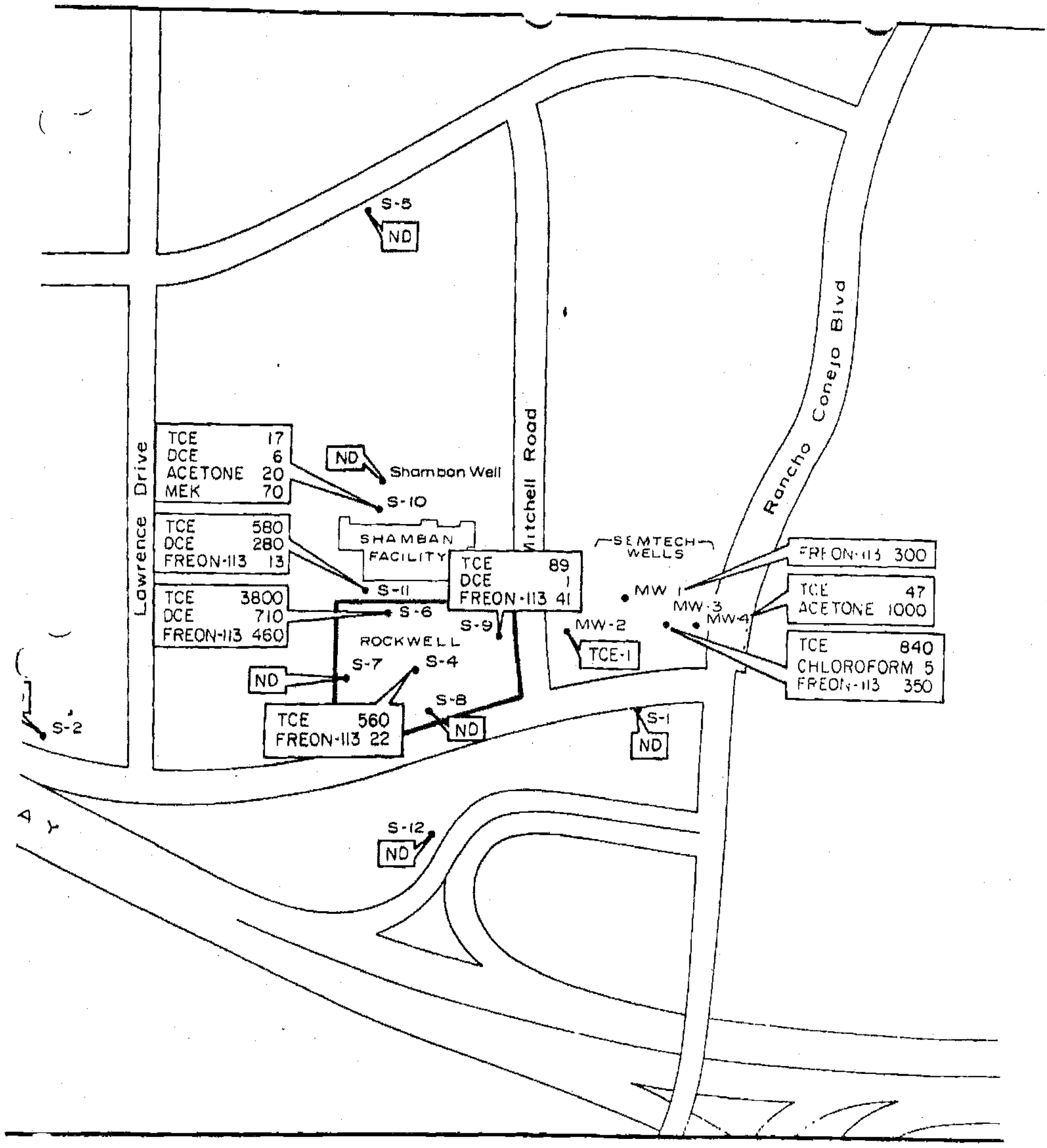
Several sites in fairly close proximity to the property at 652 Mitchell Drive are known to be locations where soil and groundwater contamination has occurred. The closest of these sites are; the Rockwell site at 2427 Hillcrest Drive (immediately to the west of the subject site), the W.S. Shamban facility at 711 Mitchell Drive (to the northwest of the site), and the former site of a UNOCAL service station (immediately to the south of the subject site).

The service station site to the south of 652 Mitchell Drive is known to have had underground fuel tank leaks and groundwater monitoring is now being conducted at the location. We did not review VCEHD or RWQCB files for the service station site. However, it does not appear likely that any groundwater contamination present at the service station is migrating toward the Semtech site since the prevailing direction of groundwater flow in the vicinity is to the south west, the direction away from Semtech. The Rockwell and Shamban sites are known to be sites where the manufacturing of electronic components has taken place for the past 35 years and both sites are known to have soil and groundwater contamination (primarily solvents).

We conducted a review of the RWQCB files for the Rockwell site and found that the RWQCB has been aware since at least the mid-1980's of the contamination at the Rockwell, Shamban and Semtech sites and that a commingled groundwater contamination plume exists beneath these sites. Both the Rockwell and Shamban sites appear to be located upgradient from the Semtech site in terms of the prevailing direction of local, shallow groundwater flow. RWQCB file entries dating back to 1989 indicated that RWQCB staff suspected that contamination that originated from the Rockwell and Shamban sites might have migrated to the south and southeast toward (and under) the Semtech site and that groundwater pumping activities at the Rockwell site might have a significant effect on the migration of contaminants. While other contaminated sites are known to exist in the Rancho Conejo area, our review of available file information did not bring to light any information that would indicate that contamination originating from these more distant sites has migrated to the site at 652 Mitchell drive.

A diagram showing the Rockwell, Shamban and Semtech sites is included on the following pages.


Lawrence Drive
Mitchell Road
Rancho Conejo Blvd
S-5
(ND)
Shambon Well
(ND)
S-10
(17)
Rockwell
Property
SHAMBAN
FACILITY
S-11 (580)
S-6
(3800)
S-9
(89)
S-7
(ND)
S-4
(560)
S-8
(ND)
SEMTECH
WELLS
MW-1 (ND)
MW-3 (840)
MW-4 (47)
MW-2
(1)
S-1
(ND)
S-12
(ND)

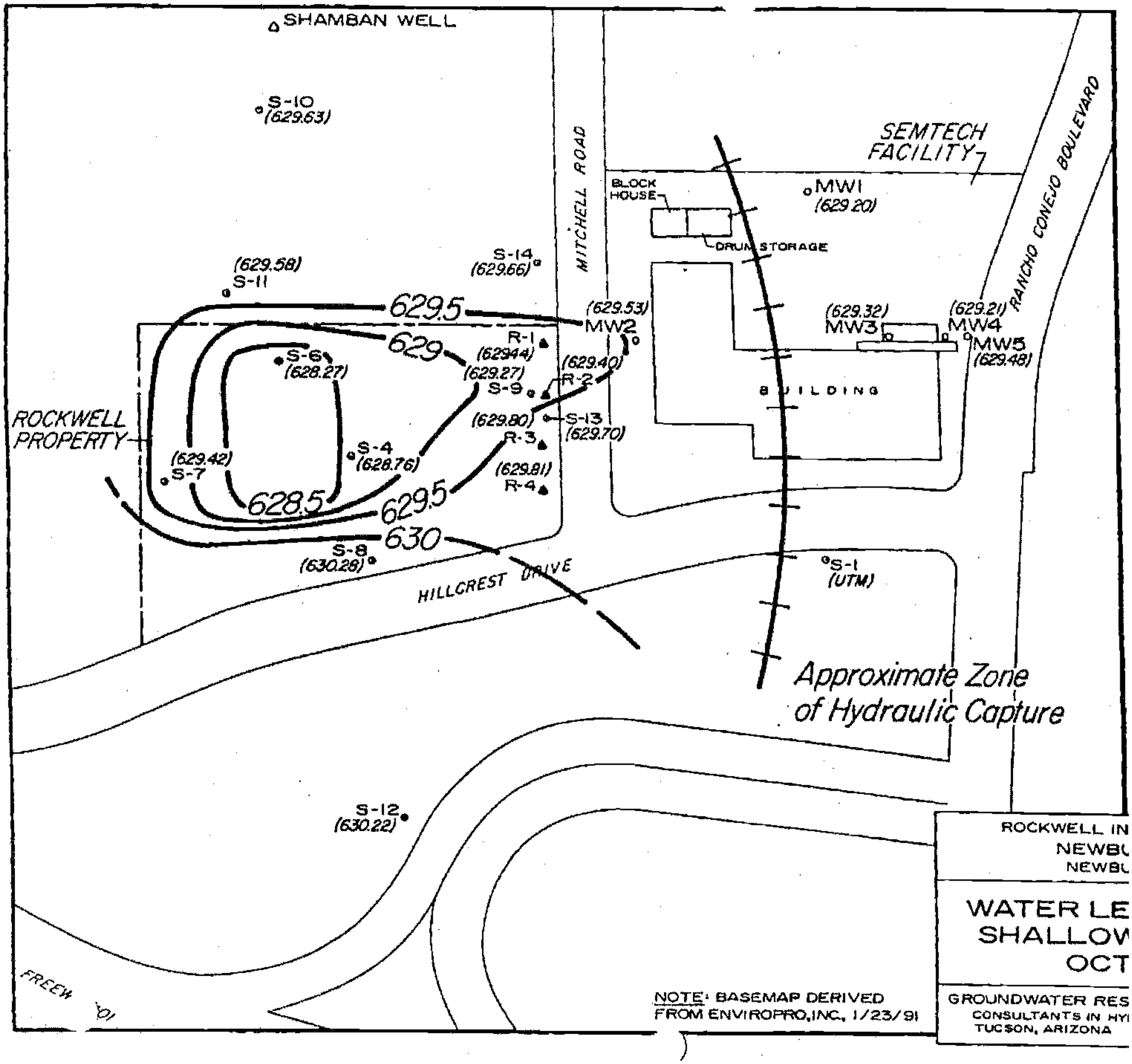

S-5
ND
Lawrence Drive
Mitchell Road
Rancho Conejo Blvd
TCE 17
DCE 6
ACETONE 20
MEK 70
ND
Shamban Well
S-10
SHAMBAN FACILITY
TCE 580
DCE 280
FREON-113 13
S-11
TCE 3800
DCE 710
FREON-113 460
S-6
TCE 89
DCE 1
FREON-113 41
S-9
ROCKWELL
ND
S-7
S-4
TCE 560
FREON-113 22
S-8
ND
S-2
SEMTECH WELLS
MW 1
MW-2
TCE-1
MW-3
MW-4
FREON-113 300
TCE 47
ACETONE 1000
TCE 840
CHLOROFORM 5
FREON-113 350
S-1
ND
S-12
ND
A Y

[redacted]

2.2 The Rockwell Site (2427 West Hillcrest Drive)

In 1984 the Rockwell facility at 2427 Hillcrest Drive closed (abandoned in place) two underground concrete tanks. Unlike the underground tanks at the Semtech site which were used as wastewater neutralization tanks, the tanks at the Rockwell site appear to have been used during the 1960's, 1970's and early 1980's to store solvent wastes. Solvent contamination was discovered in the soil and groundwater beneath the Rockwell site and this contamination is believed to have originated from leaks in these tanks. A new building was constructed at the Rockwell site in 1985 (Building #887) and a "French Drain" dewatering system was installed to keep shallow groundwater from flooding the lower portions of the building. Due to the solvent contamination present in the groundwater, the French Drain system was equipped with an air stripping system to remove solvents from the extracted groundwater prior to its disposal. Several groundwater monitoring wells were installed at the Rockwell site and quarterly groundwater monitoring of these wells (and groundwater wells at sites neighboring the Rockwell facility, including the Semtech site) has been conducted by Rockwell and has been reported to the RWQCB since the mid 1980's.

The groundwater monitoring reports that Rockwell has submitted to the RWQCB have consistently shown that substantial solvent contamination (primarily Trichloroethylene (TCE), 1,1-Dichloroethylene (DCE) and 1,1,1-Trichloroethane (TCA)) is present in the groundwater beneath the Rockwell site and beneath the Semtech site. This solvent contamination appears to have originated primarily on the Rockwell site near the underground tank locations and to have migrated toward the south and east.



NOTE: BASEMAP DERIVED FROM ENVIROPRO,INC., 1/23/91

ROCKWELL IN
NEWBU
NEWBU

WATER LE
SHALLOV
OCT

GROUNDWATER RES
CONSULTANTS IN HY
TUCSON, ARIZONA

DISCUSSION OF HAZARDOUS CHEMICALS, HAZARDOUS WASTES AND WASTEWATER DISCHARGES AT THE SITE

1 Introduction

s was mentioned in the previous section, the subject property has been occupied for the past 35 ars by a manufacturer of silicon-composite semiconductors (and, in the early 1960's, by an ectronics manufacturer). Semiconductor manufacturing is a chemical-intensive industry, and most miconductor plants utilize large volumes of acids, caustics, toxic metal solutions, toxic solvents d other regulated, hazardous compounds.

2 Process Chemicals Employed by Semtech

r review of site records has revealed that the operations conducted by Semtech have historically nployed (and continue to employ) the large volumes of hazardous chemicals that are aracteristically utilized in the manufacture of silicon semiconductors. Available file records for the e show that Semtech has operated a 1,400 sq. ft. chemical storage building and that the process eas of the large building at the site contain many large tanks and process vessels. The miconductor manufacturing processes used by Semtech involve the use of various etchants (high rength mineral acids), masking agents, solvents, degreasers, metal plating agents and neutralizing lutions (usually caustics). Records from the TOUD and references in the RWQCB file indicate that e following hazardous materials have probably been used by Semtech:

Nitric Acid
Hydrochloric Acid
ilfuric Acid
Hydrofluoric Acid
Ammonium Chloride
Potassium Cyanide
Fluoroboric Acid
Sodium Persulfate
Sodium Hydroxide
Calcium Hydroxide
Sodium Sulfamate
Arsenic Trioxide
Copper-Containing Plating Solutions

- Nickel-Fluoroborate
- Nickel Sulfate
- Silver-Cyanide
- Isopropyl Alcohol (IPA)
- Methylethylketone (MEK)
- Acetone
- Trichlorotrifluoroethane (FREON 113)
- 1,1,1-Trichloroethane (TCA)
- "Isoprep" and "Labtone" (proprietary cleaners - could contain chlorinated solvents)
- Trichloroethylene (TCE)
- Xylene

everal of the compounds listed above (and/or derivatives of them) have been detected in the soil d groundwater beneath the subject site. Acetone, Freon 113, 1,1,1-Trichloroethane, ichloroethylene (TCE), Nitrate, Sulfate and Fluoride have all been detected in the groundwater at e site. One of the more prevalent groundwater contaminants at the site is Trichloroethylene (TCE). emtech has claimed that TCE was never used in large quantities at their facility. It was not ssible to confirm this or to rule it out based on the information contained in the files that we viewed.

emtech has recently notified Lynn Shadows that a hazardous materials "Business Plan" listing the ecific types and volumes of chemicals that are present at their facility is available for LSP's review. e did not review this Business Plan during the course of this investigation. A copy of the cument could be obtained from Semtech, or from the VCEHD Hazardous Materials Group, in to verify the current chemical inventory at the Semtech. Unfortunately, the Business Plan information would only list the current chemical inventory and would not shed any light on past chemical usage at the site.

3.3 Industrial Wastewater Treatment/Wastewater Discharge Permit Issues

Semtech has operated a wastewater treatment system at their facility since they first began operations at the site 35 years ago. The early treatment systems consisted of underground concrete holding tanks in which acidic, metal-laden solutions were neutralized and allowed to settle prior to discharging the clarified, neutralized wastewater to the city sewer. The records at the City of Thousand Oaks Utilities Department (TOUD) indicate that Semtech replaced the underground neutralization tanks with an aboveground water treatment system in 1987. Information from the TOUD files indicated that Semtech's wastewater quality has often not met the quality requirements listed in their permit. The TOUD has, on several occasions (both prior to and subsequent to the wastewater treatment system upgrade), exhibited a high level of concern regarding the efficacy of Semtech's wastewater pre-treatment system because of wastewater discharge permit exceedances for various water pollutants including: Fluoride, Copper, Nickel, Silver and Total Dissolved Solids. The TOUD also expressed concern about the potential presence of Toxic Organic Compounds (solvents and degreasers) in the wastewater. The TOUD appears to be requiring that Semtech monitor their wastewater for certain metals and other compounds and "self-certify" that toxic organics are not being discharged. More detailed and specific information regarding the history of wastewater discharge violations might be available from TOUD inspectors.

3.4 Hazardous Wastes/Hazardous Waste Disposal Issues

TOUD records indicate that, for at least the past 15 years, thousands of gallons of hazardous wastes of various types have been generated and shipped to disposal facilities annually by Semtech. These hazardous wastes include: Waste Acetone (D001, F003), Waste Isopropanol (D001, F003), Waste Arsenic Trioxide (D004), Non-RCRA Hazardous Waste (Liquid), Non-RCRA Hazardous Waste (Solid), Neutralized Acid, Waste Freon, Waste Oil, and "Degreaser". Some of the waste appears to have been shipped to the (now closed) Casmalia Resources Disposal Site which is under EPA review as a potential National Priorities List ("Superfund") site. Semtech may be considered a "Potentially Responsible Party" (PRP) by the EPA for any future cleanup of the Casmalia site.

Only summary reports of hazardous waste shipments were present in the files so we did not review the actual hazardous waste manifests that would have been submitted to The California EPA. Copies of these manifests can be obtained from CAL-EPA and detailed information concerning each waste shipment could be derived from these manifest records. Test data and lab analyses of the waste shipments may be retrievable from the waste disposal facilities that received the shipments. These records might reveal additional detail concerning the type of solvents and degreasers utilized by Semtech.

4.0 UNDERGROUND PROCESS TANKS/UNDERGROUND TANK LEAKS

There were once at least 5 underground tanks located on the subject property. Site documents indicated that four of these tanks were operated by Semtech. One of these tanks was utilized as a catch basin for the chemical storage building on the northern portion of the property. The remaining three of the documented tanks were located at points adjacent to the large building at the property and were once used by Semtech as neutralization vessels in which the pH of acidic wastes from their processes was adjusted and toxic sludges were allowed to settle prior to discharging wastewater to the city sewer. All four of the "Semtech" tanks were found to have leaked contaminants into the soil at the subject site. All of these "Semtech" tanks have been removed from the site, the last removal taking place this year. Soil and groundwater contamination caused by the tank leaks still remains at the site, most notably at the eastern end of the property.

The fifth, "undocumented" tank remains in place at the site. We were able to locate construction drawings for only one of the tanks - Tank #4. These drawings were found in the archives of the Ventura County Department of Public Works, Building and Safety Annex Office in Simi Valley. A copy of these drawings has been obtained and forwarded to LSP. A diagram of the site, showing the location of all five of the underground tanks, is included on the following page.

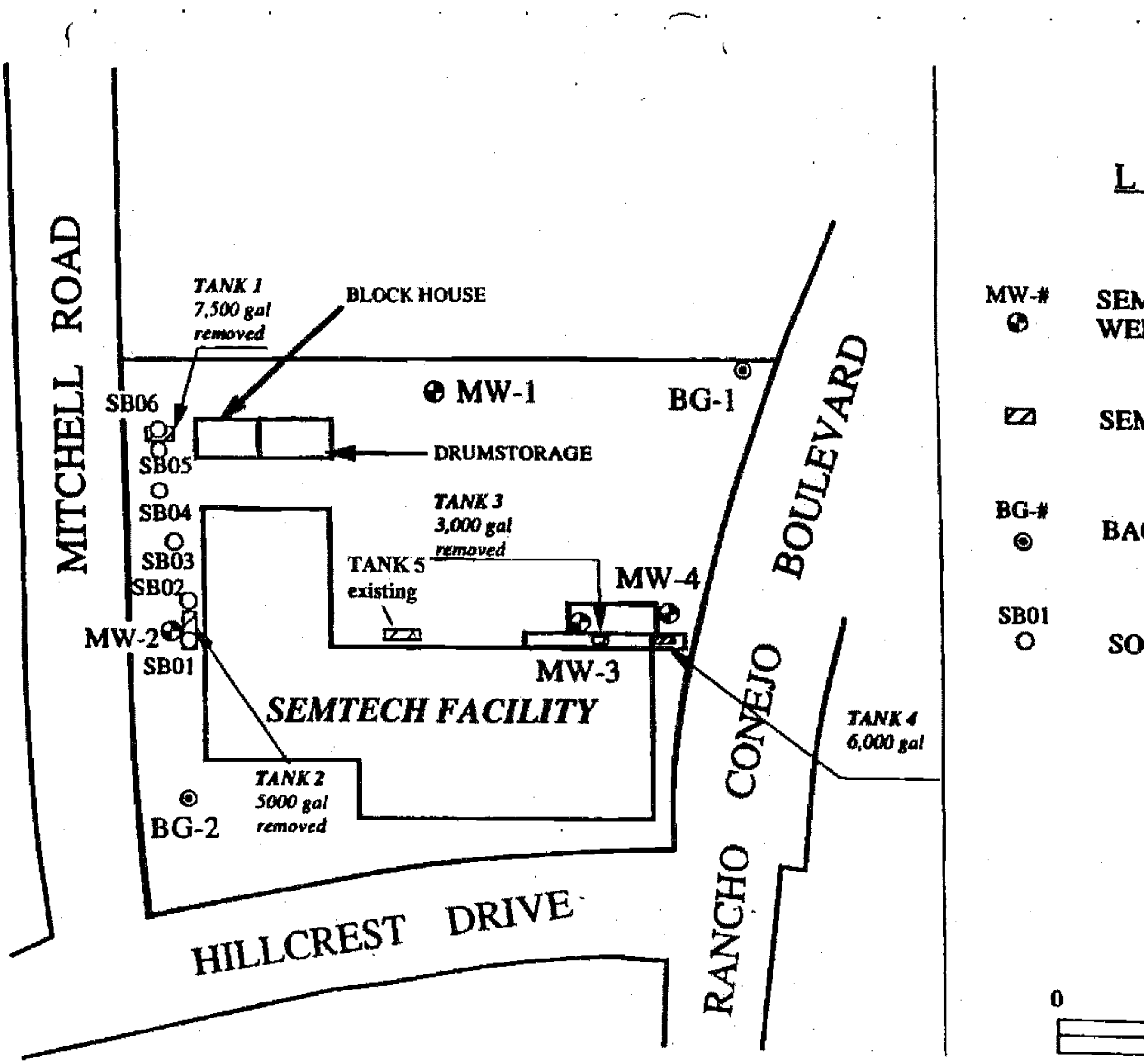


FIGURE 2
SITE MAP WITH BORING LOCATIONS
SEMTECH CORPORTATION
NEWBURY PARK, CALIFORNIA

4.1 Removal of Underground Tanks/Discovery of Soil Contamination

RWQCB file records indicate that, in 1987, Semtech removed three of the underground tanks from the site (Tank #1 - a metal tank which was a catch basin for the chemical storage building at the site; Tank #2 - a concrete process neutralization tank at the western side of the large building; and Tank #3 - a concrete process neutralization tank at the northeastern side of the large building). Semtech's contractor, Hazard Technologies, who removed Tank #1, reported that they found no soil contamination, and backfilled the excavation. Hazard Technologies then removed Tanks #2 and #3 and reported that Fluoride, Nitrates, Copper, Silver and Nickel were all detected in the excavations.

The Ventura County Environmental Health Department (VCEHD) appears to have considered the contamination levels significant and required that further site assessment (including an investigation of conditions at the other underground tank known to be present at the site; Tank #4 - a concrete process neutralization tank at the eastern side of the large building) be conducted in order to determine the extent of the contamination. Semtech complied with the VCEHD directives and their lawyers engaged the services of ERT, Inc. to perform this assessment work, which is described in Section 5.1 of this report.

4.2 Tank #4 Contamination/Removal of Tank #4

Tank #4 was originally scheduled by Semtech for removal at the same time that Tanks #1, #2 and #3 were removed in 1987. The discovery of significant soil and groundwater contamination in the vicinity of Tanks #2 and #3 during their removal prompted the VCEHD and the RWQCB to meet with Semtech, tour the subject site and subsequently direct Semtech to more thoroughly assess the extent of contamination at the site, including a determination of whether the soil beneath Tank #4 was contaminated. A site assessment workplan was proposed to the VCEHD and RWQCB, the workplan was approved and, in July 1987, ERT, Inc. performed a site assessment focusing on the underground tank locations at the site. This assessment discovered both soil and groundwater contamination beneath Tank #4. The discovery of this contamination appears to have derailed Semtech's plans to remove Tank #4 and the tank appears to have been left in service for an additional two years. It was cleaned, sandblasted and taken out of service in 1989.

In 1993 Semtech's consultant, Montgomery Watson (MW) proposed a workplan for defining the extent of contamination at the Tank #4 location and for removing the tank. The RWQCB approved the assessment portion of the proposal and, in late 1993 or early 1994, MW performed several soil borings, installed an additional groundwater monitoring well (MW-5) and conducted additional groundwater sampling at the Tank #4 location which confirmed that the location was heavily contaminated with metals and various salts (neutralized acid residue). The findings of this assessment and a specific workplan for removing Tank #4 and some of the contaminated soil were presented to the RWQCB by Semtech on April 14, 1994. The workplan was approved by RWQCB on April 20, 1994. After a delay of over one year, Semtech directed their consultants to remove Tank #4. Apparently, this was done this past summer. We have not seen any documentation of this tank removal action.

A diagram showing the location of Tank #4 and a diagram depicting the distribution of the soil contamination beneath the Tank #4 location are included on the following pages.

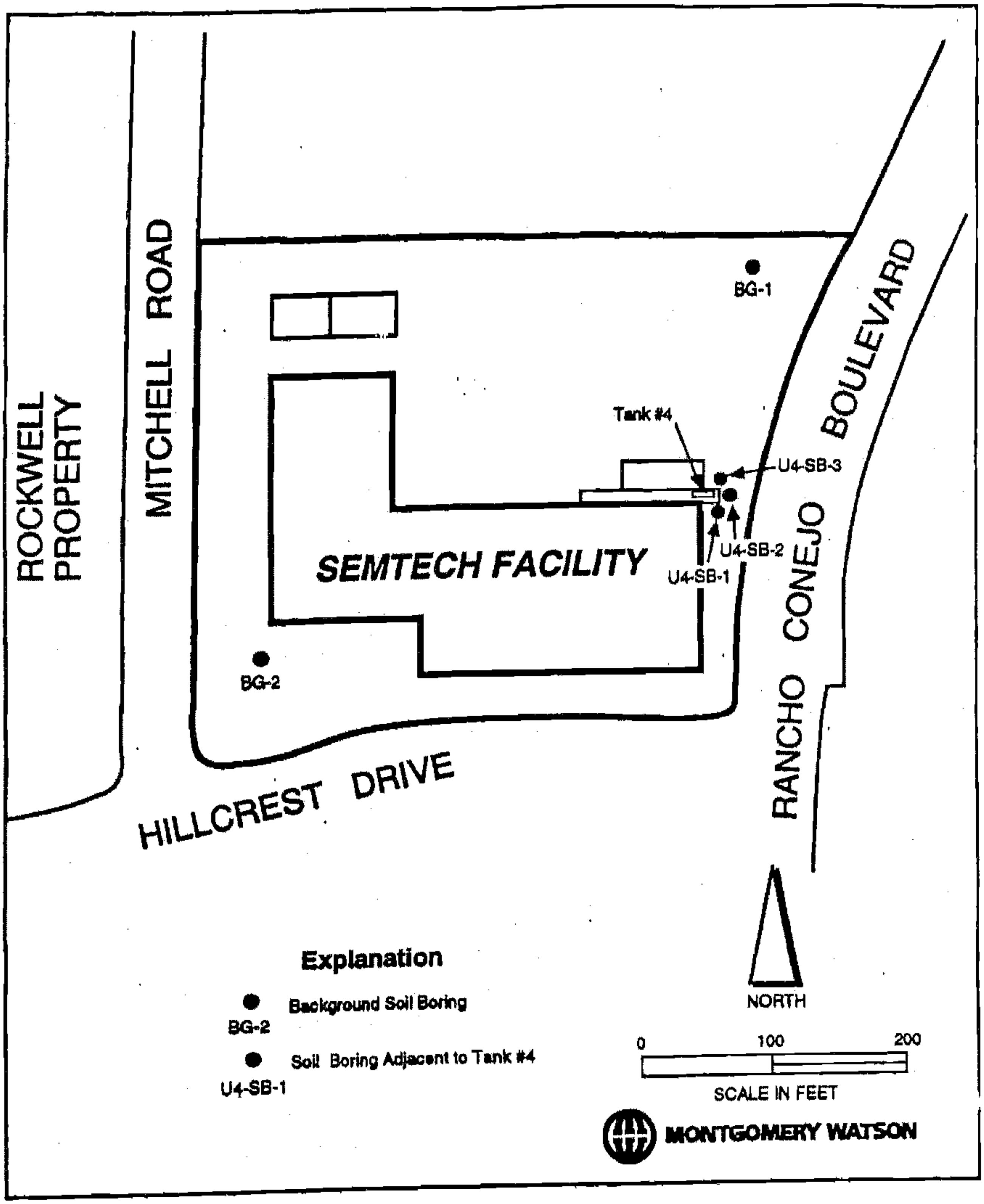


FIGURE 2
BORING LOCATIONS - TANK 4 INVESTIGATION
SEMTECH CORPORATION, NEWBURY PARK, CALIFORNIA

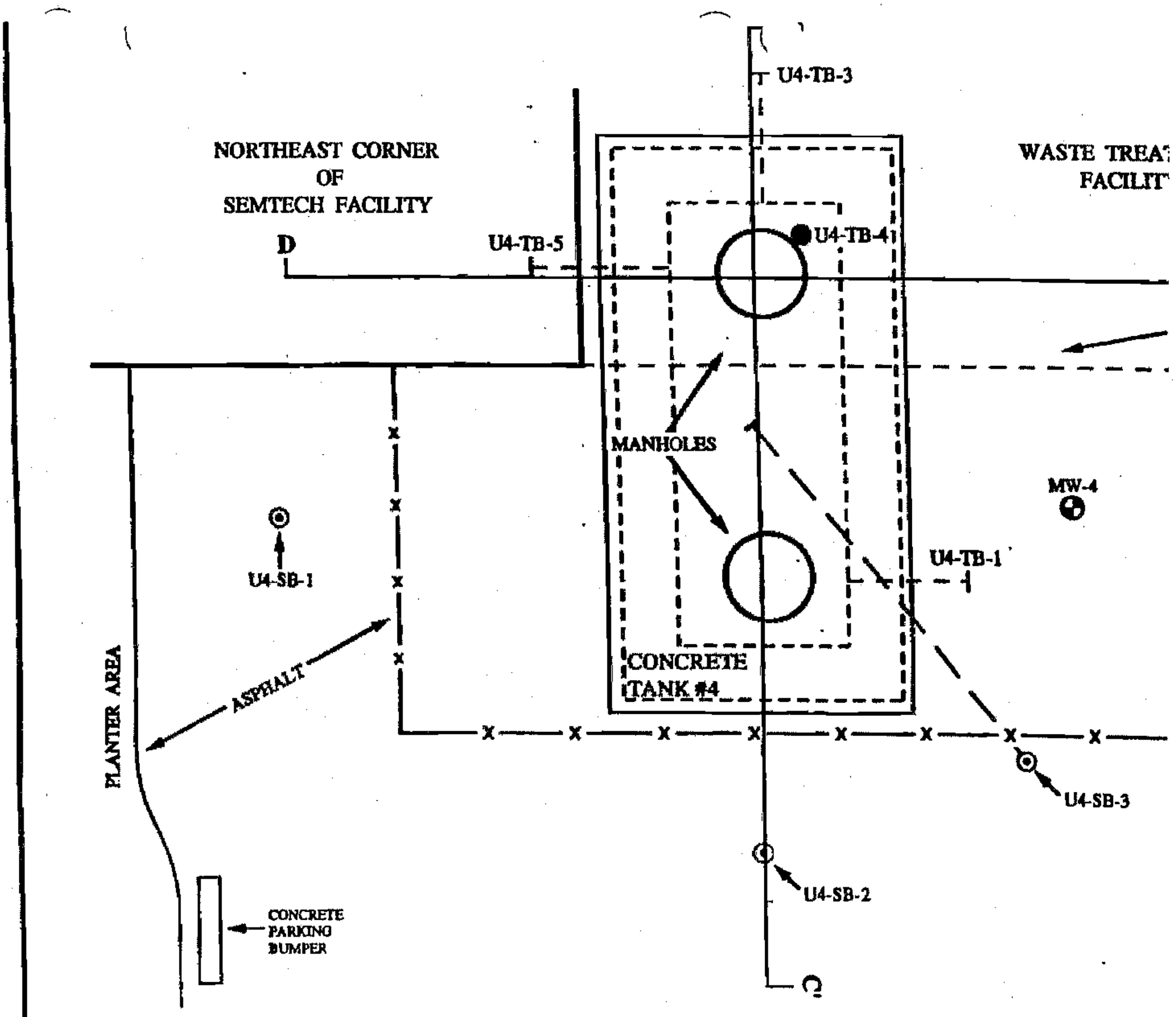
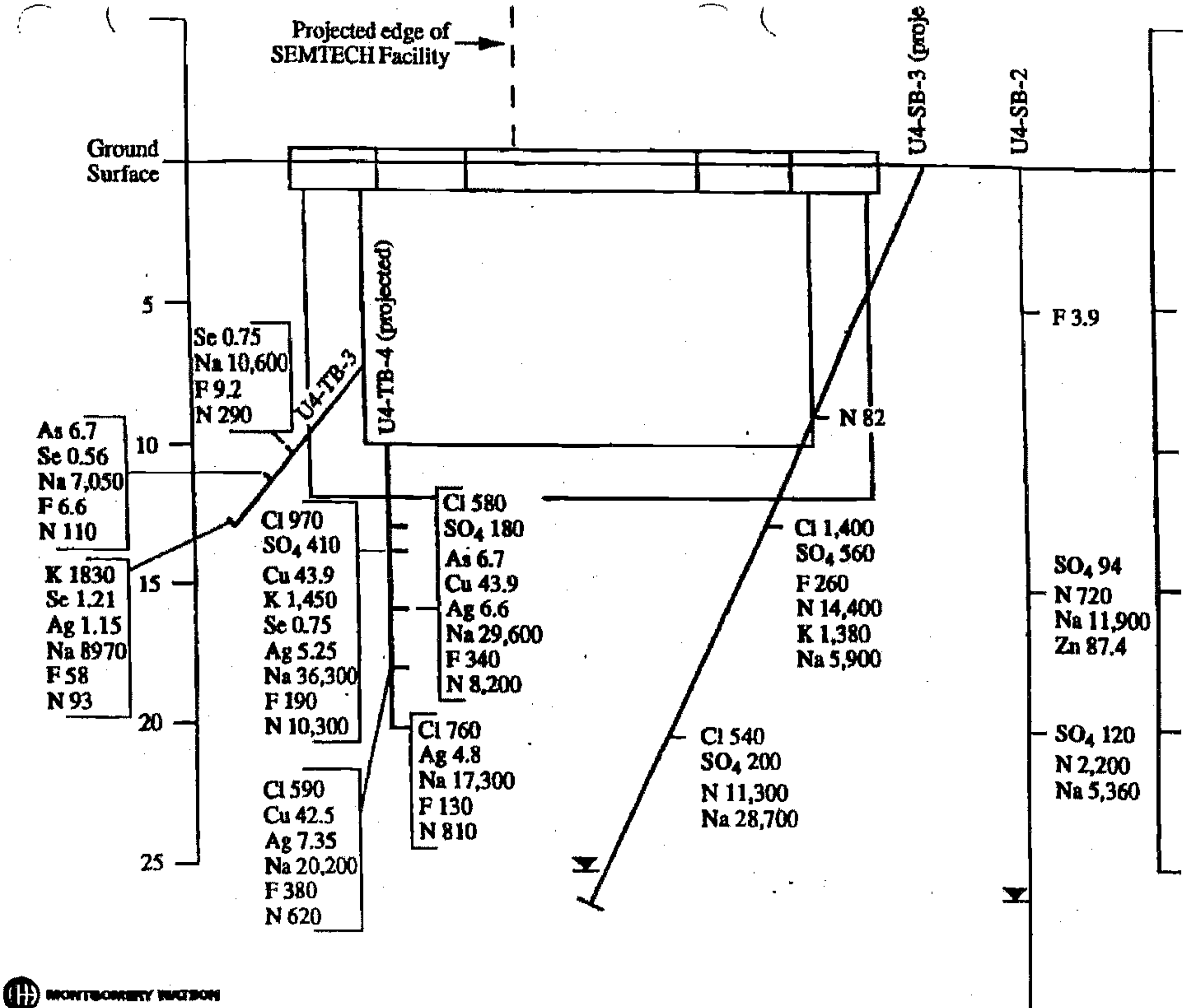
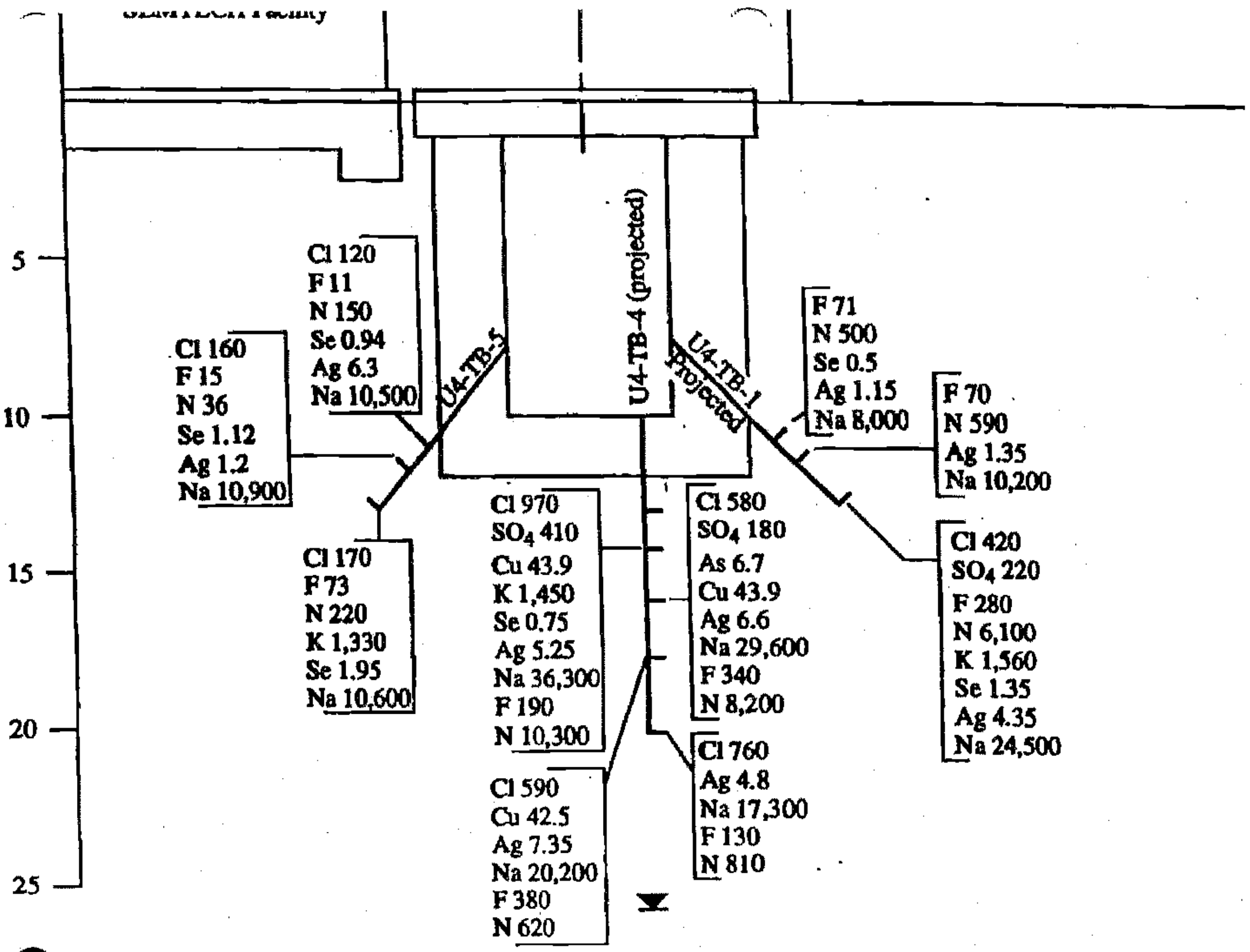


FIGURE 6
LOCATION MAP OF SOIL AND HAND AUGER BORINGS
SEMTECH CORPORATION, NEWBURY PARK, CALIFORNIA



MONTGOMERY WATSON

FIGURE 7
SECTION C-C'
SEMTECH CORPORATION, NEWBURY PARK, CALIFORNIA



MONTGOMERY WATSON

FIGURE 8
SECTION D-D'
SEMTECH CORPORATION, NEWBURY PARK, CALIFORNIA

4.3 Discovery of "Tank #5"

Earlier this year (1995), a fifth underground tank (which, for convenience, we have designated as "Tank #5"), not previously documented in any of the site files that we reviewed, was detected by Semtech's consultant MW at a point adjacent to the north side of the large building. This tank was examined in an investigation jointly sponsored by Semtech and LSP. Semtech management claims that Semtech did not install or ever operate this tank. They have suggested that the tank may have been installed and operated by Westinghouse Electric Company while they were tenants at the site. So far, we have been unable to locate any building plans or lease documentation that would clarify the origins and purpose of this tank.

On May 12, 1995, the soil overlying this tank was partially removed and the tank was found to be a concrete structure approximately 2000 gallons in volume. This tank appears to have been used in the past as a process neutralization tank similar to Tanks #2, #3 and #4. The tank hatches were opened and samples of liquid and sludge from inside this tank were analyzed and found to contain residues of toxic solvents and metals (TCE, Tetrachloroethene, Xylenes, Ethyl benzene, Silver and other compounds). The tank remains in place at the site and no testing of the soil beneath it has been conducted. Semtech has suggested that Tank #5 is a potential source of TCE contamination at the subject site and could have contributed to the TCE contamination now present in the groundwater beneath the site.

A diagram depicting the location of Tank #5 is shown on the following page.

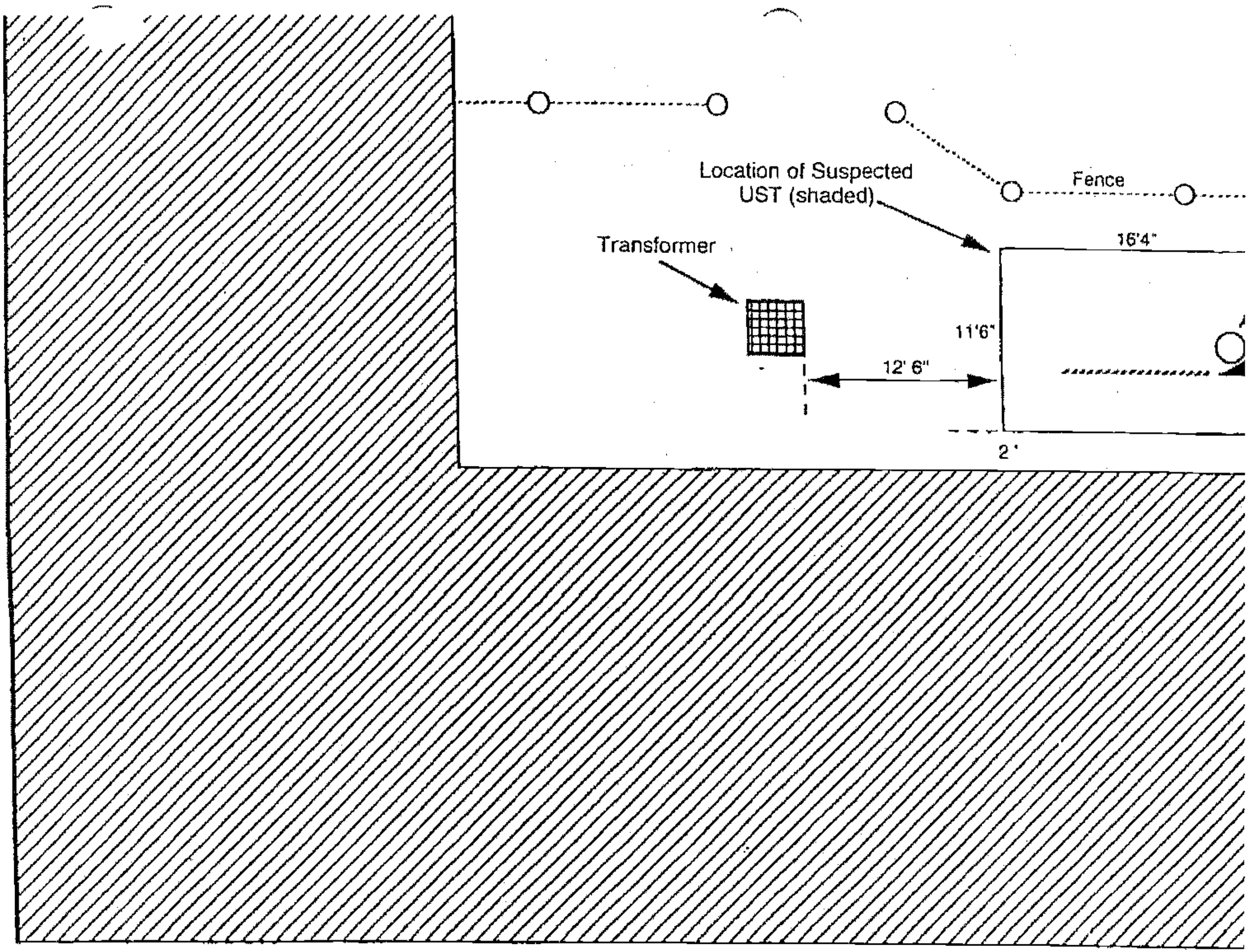


FIGURE 1
SITE MAP
SEMTECH CORP.
GEOPHYSICAL UST SURVEY

MONTGOMERY WATSON

UMMARY OF DOCUMENTED ENVIRONMENTAL SITE ASSESSMENT ACTIVITIES AT MITCHELL DRIVE

on to the environmental site work and investigations discussed above (i.e.: the removal of 1, #2 and #3 in 1987 by Hazard Technologies, the Tank #4 Investigation performed by nery Watson in 1993, the removal of Tank #4 by Montgomery Watson or others in 1995 and stigation of Tank #5 by Montgomery Watson in 1995) our review revealed that there has considerable amount of further information developed regarding environmental conditions at Mitchell Drive site.

987 ERT, Inc. "Fluoride" and "Chlorinated Hydrocarbon" Site Assessment Studies

nse to directives from the VCEHD, Semtech's lawyers engaged the services of ERT, Inc. to an investigation of the soil and groundwater beneath the tanks that were known (in 1987) to nt at the site. ERT developed a site assessment workplan designed to determine the depth dwater, the groundwater gradient, and the concentration and extent of any Fluoride and contamination present at the site.

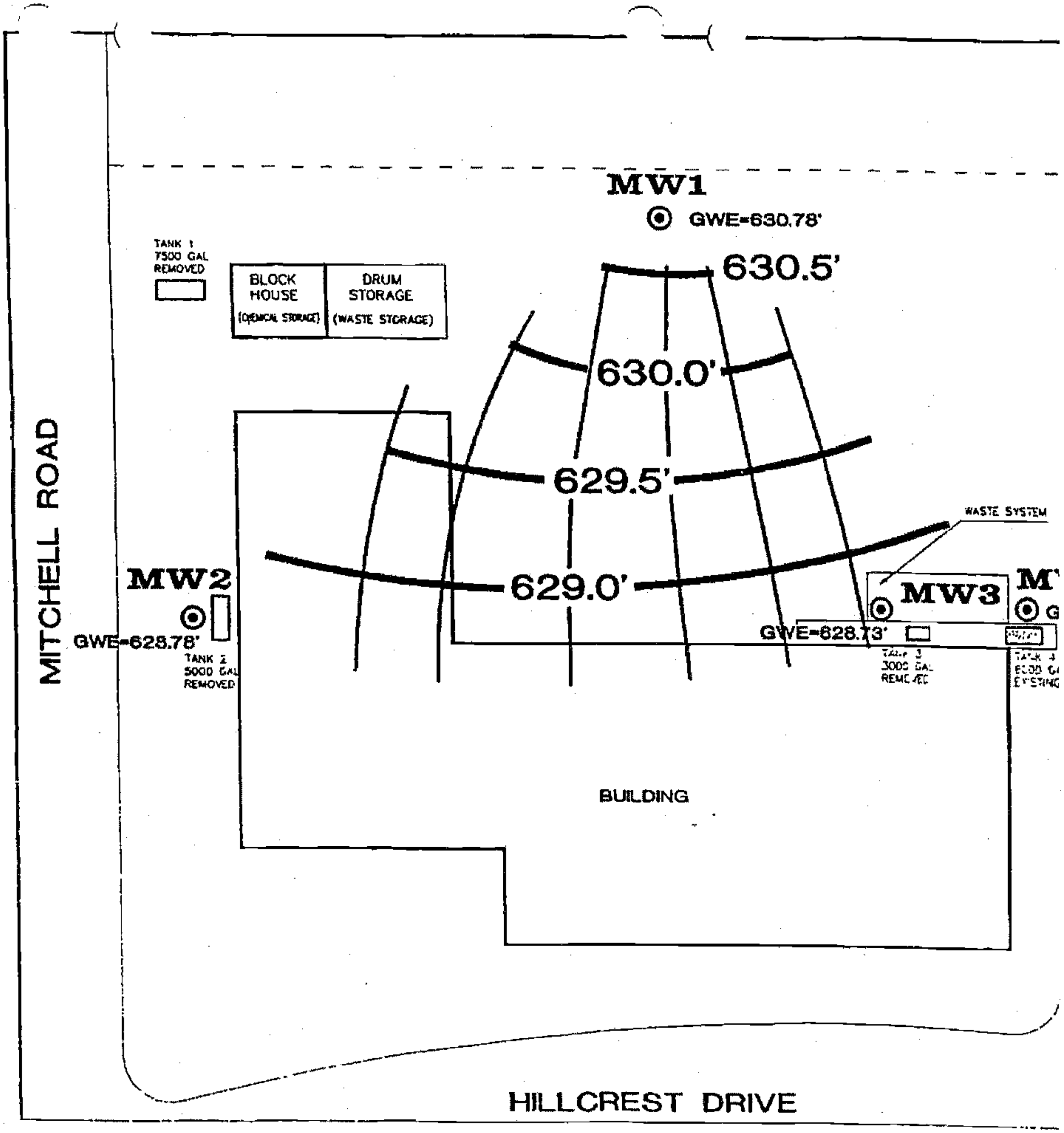
nber of 1987, ERT issued two separate (but strikingly similar) reports of the site assessment t they performed. Four soil borings were drilled to depths of 33 to 48 feet below the surface te near the locations (or former locations) of the four then-known underground tanks at the il samples were collected at five foot intervals from each of these borings and the soil were checked for organic vapor emissions with a field meter and were sent to a laboratory de analysis. No laboratory analyses for any other contaminants were performed on the soil

borings were completed as groundwater monitoring wells (MW-1 through MW-4 with each ion number corresponding to that of the closest underground tank). Groundwater samples lected from these wells and analyzed for Fluorides and Volatile Organic Contaminants.

centrations of Fluorides (1.3 to 9.7mg/kg) were detected in soil samples from all four of the and in the groundwater at all four boring locations. The highest Fluoride levels were found in collected from MW-2, MW-3 and MW-4 and in the groundwater samples collected from MW- MW-4. No solvent vapors were detected in the soil samples using the field meter. ethylene (TCE) was detected at moderately high concentrations (300 to 490 ug/L) in the ater collected from MW-2, MW-3 and MW-4. FREON 113 was also detected in a sample l from MW-3.

itoring wells installed during this investigation were left in place and have been used since for the purpose of collecting groundwater samples. RWQCB records for the Rockwell site Hillcrest Drive indicate that Rockwell's consultants have been collecting and analyzing ater samples from MW-1 through MW-4 on a quarterly basis since June of 1988. In 1990, QCB apparently concurred with a voluntary groundwater monitoring program proposed by l.

m showing the locations of the monitoring wells installed during this study is included on the page.


MW1
GWE=630.78'
630.5'
630.0'
629.5'
629.0'
TANK 1
7500 GAL
REMOVED
BLOCK
HOUSE
(CHEMICAL STORAGE)
DRUM
STORAGE
(WASTE STORAGE)
MITCHELL ROAD
MW2
GWE=628.78'
TANK 2
5000 GAL
REMOVED
WASTE SYSTEM
MW3
GWE=628.73'
TANK 3
3000 GAL
REMOVED
M
G
TANK 4
6000 G
EXISTING
BUILDING
HILLCREST DRIVE

5.2 Quarterly Sampling of Groundwater Monitoring Wells

As was mentioned previously, groundwater samples have been collected from Semtech's MW-2 (the closest well to Rockwell) by Rockwell's consultants on a quarterly basis since mid-1988. Rockwell's consultants have also sampled the other Semtech monitoring wells on an intermittent basis. Rockwell's records of this testing appear to show that, when groundwater levels are relatively high (normal rainfall years), the levels of TCE and other solvents in the groundwater from MW-2 are extremely low. This correlates with a groundwater flow regime where shallow groundwater at the western end of the Semtech flows to the west toward the Rockwell French Drain groundwater extraction system. During drought conditions, such as those that existed in 1989, 1990 and 1991, the TCE concentrations were observed to increase sharply in the MW-2 groundwater from trace levels to as high as 3,900 ug/L as the prevailing groundwater level dropped close to the depth at which the French Drain System draws groundwater. The volume of groundwater extracted by the French Drain is greatly reduced under these conditions and the groundwater flow regime is generally to the east from Rockwell toward Semtech.

In late 1990, apparently out of concern for the fact that Rockwell's consultants had reported that high concentrations of TCE had appeared in groundwater from MW-2, Semtech engaged Enviropro, Inc. to conduct groundwater sampling of the four wells at their site.

Enviropro reported that the groundwater quality varied dramatically at the four monitoring well locations. Samples collected from the MW-2 at the western end of the property showed a high concentration of TCE (2,700 ug/L) and detectable (but fairly low) concentrations of several other toxic organic compounds including FREON 113, Acetone, 1,1-DCE and several other compounds. Significant concentrations of Nitrates (2,900 mg/L) were also detected in MW-2 but no significant concentrations of hazardous metals were found. MW-1, at the northern end of the site, showed the best water quality but still contained detectable levels of several toxic organic compounds and a Nitrate concentration above the regulatory action levels. The most degraded groundwater quality was found to exist at the eastern end of the site at MW-3 and MW-4. A high concentration of Acetone (1,300 ug/L) was found in MW-4 and moderately high levels of TCE and several other solvents were detected in both MW-3 and MW-4. The groundwater in MW-4 was found to contain extremely high levels of Nitrates, metals and other salts.

Enviropro expressed concern that continued seepage of contamination from the soil surrounding Tank #4 was causing the groundwater degradation found in MW-4 and recommended that Tank #4 be removed as soon as possible. They also stated their opinion that Rockwell's consultants were misrepresenting site data regarding the distribution of Nitrate contamination in the vicinity of the Rockwell and Semtech sites.

RWQCB records indicated that, in 1992, Semtech retained the services of Montgomery Watson to conduct quarterly sampling of the groundwater monitoring wells at their site. Montgomery Watson has apparently conducted sampling of the groundwater at the site on a quarterly basis since then up to the present. The data generated as a result of these sampling activities seem to bear out the original general observations made by Enviropro in their 1990 report regarding the nature of the water quality at the respective monitoring wells at the site. The groundwater quality at the eastern end of the property in the vicinity of Tank #4 is extremely degraded with acetone, acid residues and metals and that the groundwater quality at the western end of the facility (MW-2) was much better but subject to occasional excursions of high TCE levels which appear to coincide with situations where the prevailing direction of groundwater flow is to the southeast.

We reviewed groundwater sampling reports from the Rockwell site. The data contained in these reports revealed that substantial solvent contamination (TCE, FREON 113 and 1,1-DCE) exists in the groundwater at the site and that the concentrations at which these contaminants are present are fairly high (approximately 500 ug/L to 3,800 ug/L) and that the concentrations remain fairly consistent over time. The data do appear to indicate that the TCE contamination has originated at the Rockwell site and has migrated to the east to the Semtech site. The correspondence in the RWQCB file for the Rockwell site indicates that Rockwell and their consultants are denying that the TCE contamination now present in the groundwater beneath the Semtech site has originated from the Rockwell property.

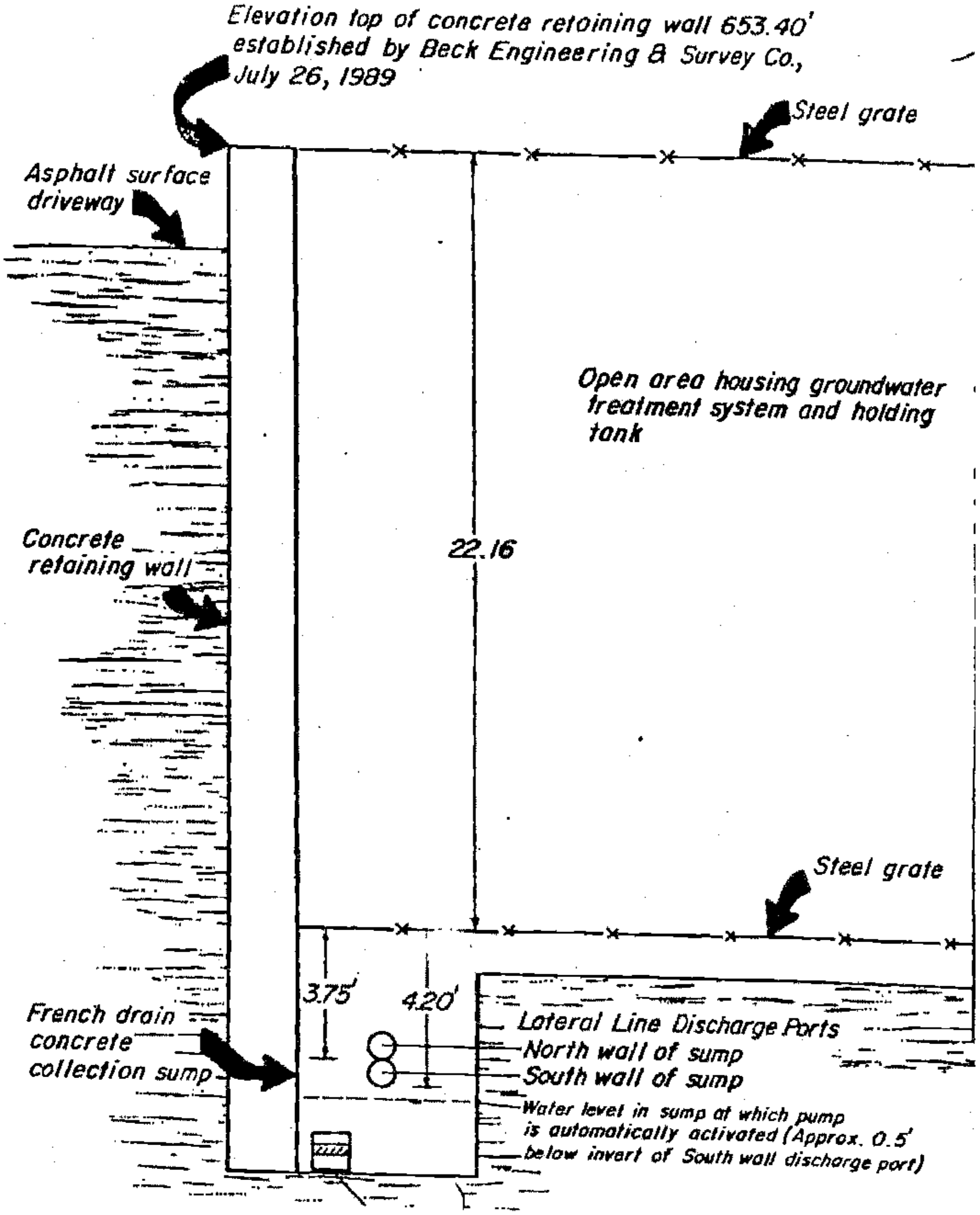
5.3 Rockwell's French Drain Groundwater Extraction System

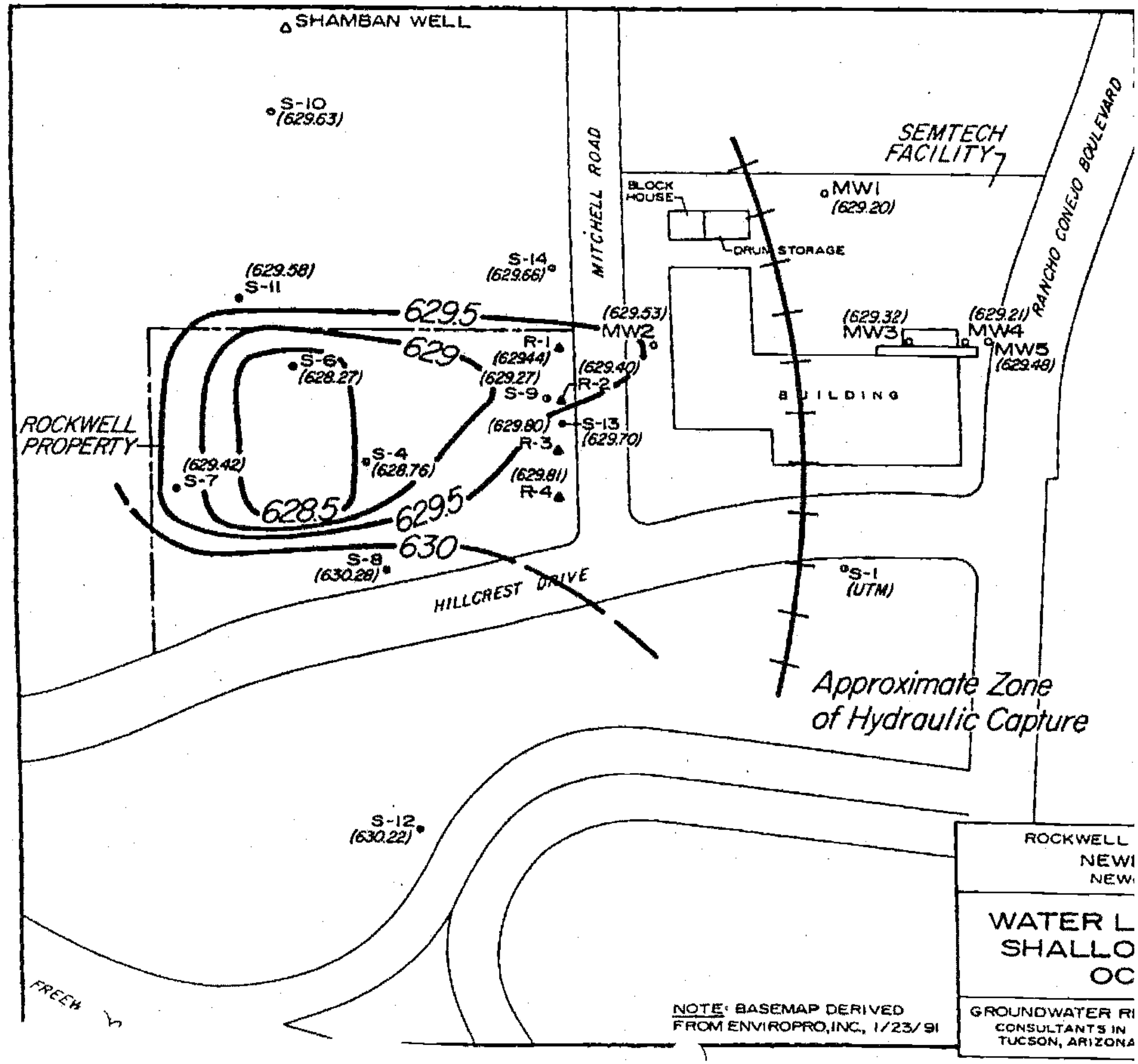
The French Drain groundwater extraction system at the Rockwell site has, since 1985, complicated the groundwater flow regime in the vicinity of the Rockwell and Semtech sites by creating a "zone of groundwater depression" which alters the prevailing (apparently southeasterly) direction of groundwater flow and has caused the shallow groundwater in the vicinity of the Rockwell site (including the groundwater beneath the western portion of the Semtech site) to flow toward Rockwell's French Drain.

The fact that the French Drain has, in effect, reversed the direction of groundwater flow under portions of the Rockwell and Semtech sites from its normal course for most of the past 10 years makes it difficult to clearly identify the actual, original source(s) of the solvent contamination in the groundwater on the basis of shape and composition of the contamination plumes beneath the properties. Further complicating the historical groundwater flow picture at the site is the fact that the French Drain has apparently been shut down for several weeks on at least two separate occasions. During these shutdowns the shallow groundwater flow beneath the Semtech site appears to resumed its natural, southeasterly course. It is important to keep in mind that most, if not all of the releases of contamination at the Rockwell and Semtech sites probably took place prior to the 1985 startup date of the French Drain system.

Diagrams depicting the impact of the French Drain system on groundwater flow and a cross-sectional view of the French Drain system are included on the following pages.

⑥


Elevation top of concrete retaining wall 653.40' established by Beck Engineering & Survey Co., July 26, 1989
Steel grate
Asphalt surface driveway
Open area housing groundwater treatment system and holding tank
22.16
Concrete retaining wall
Steel grate
3.75'
4.20'
French drain concrete collection sump
Lateral Line Discharge Ports
North wall of sump
South wall of sump
Water level in sump at which pump is automatically activated (Approx. 0.5' below invert of South wall discharge port)

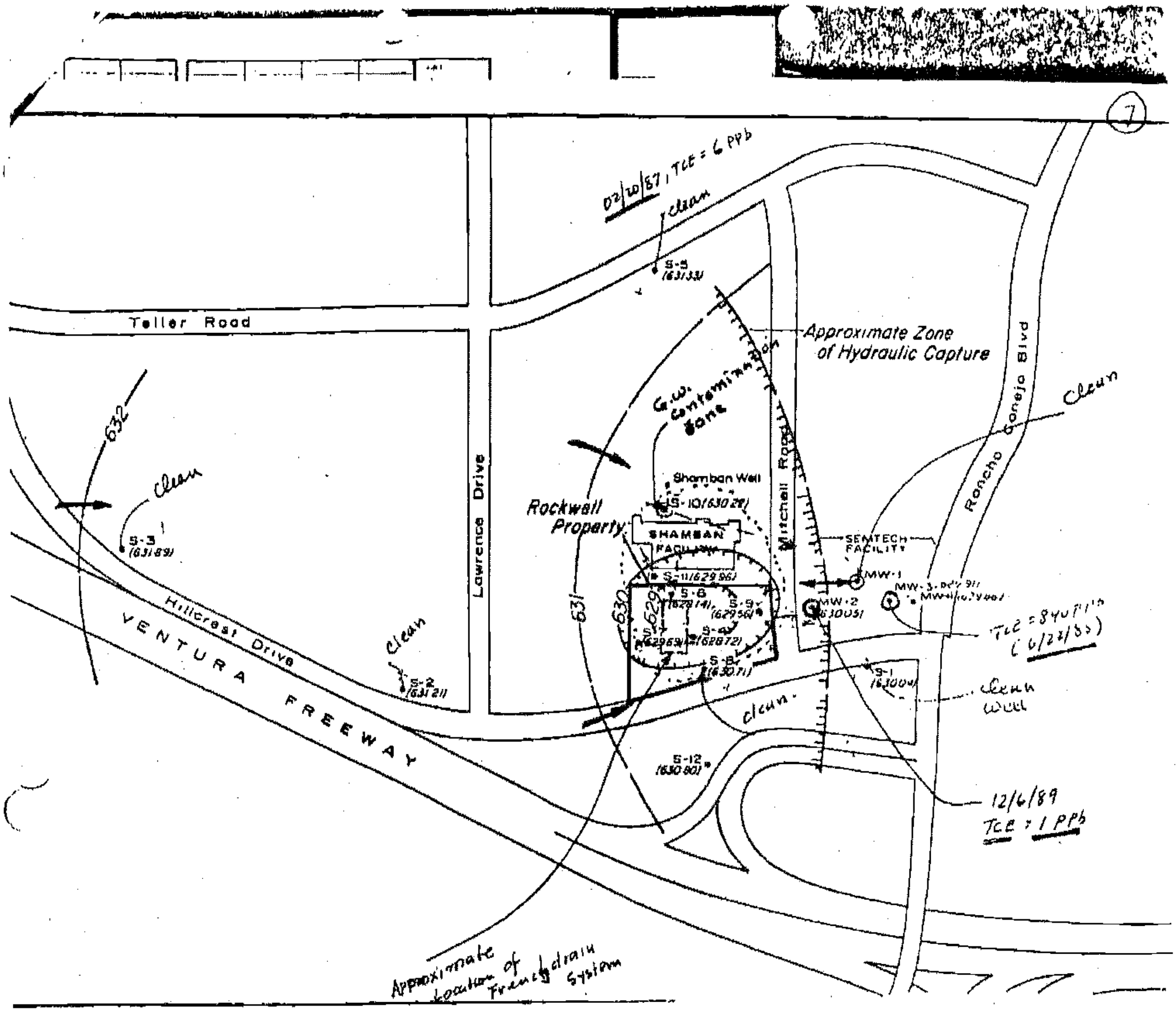


NOTE: BASEMAP DERIVED FROM ENVIROPRO, INC., 1/23/91

ROCKWELL
NEWI
NEW

WATER L
SHALLO
OC

GROUNDWATER RI
CONSULTANTS IN
TUCSON, ARIZONA



Freon S6 (high - 700 ppb)

S9 (41 ppb)

S4 (50 ppb)

S11 " 15)

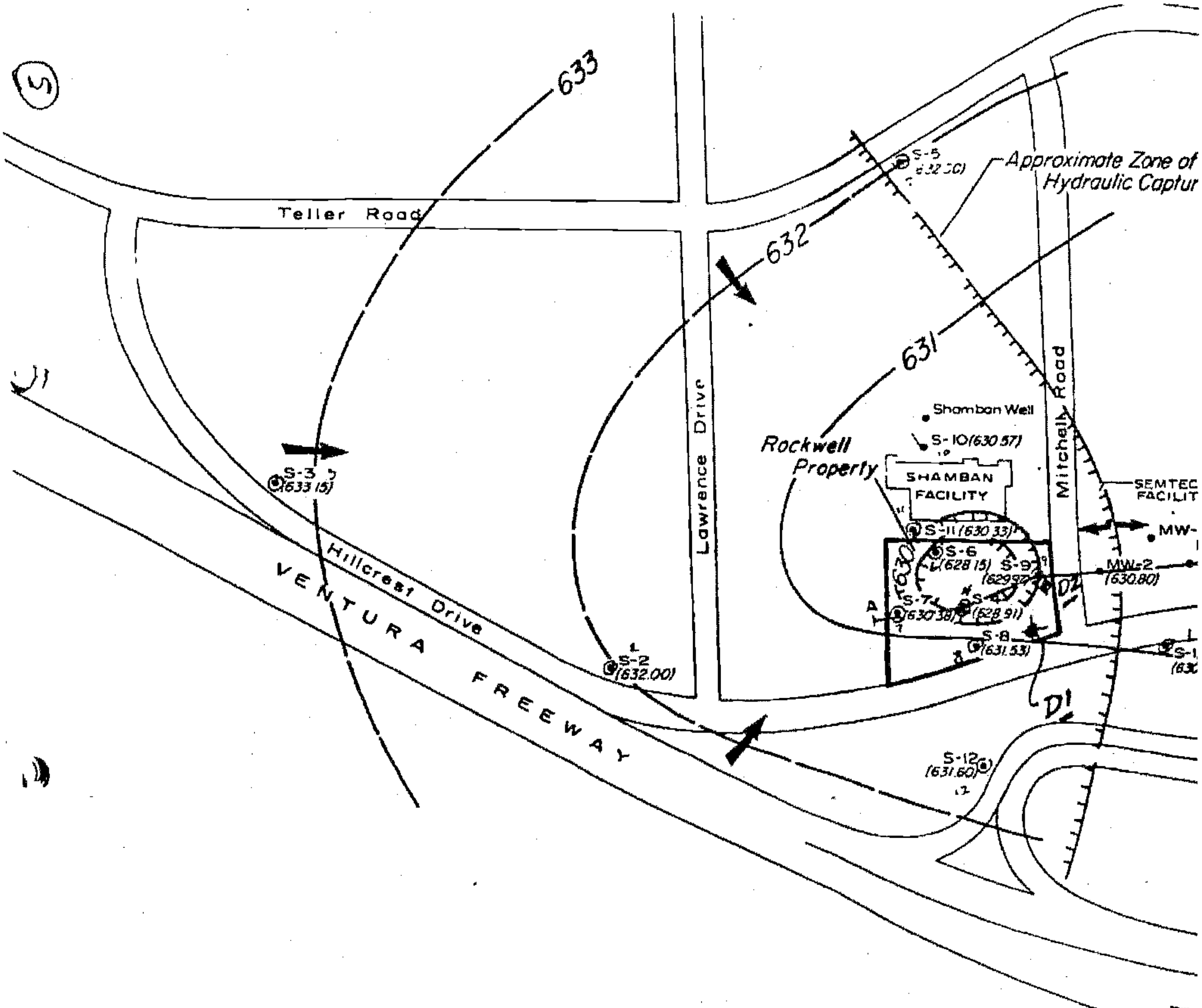
MW1 (450 / MW3 (350)

MW2 24)

MW4

influent

⑤



D1 & D2 - Location of deep monitoring Wells.

5.4 Montgomery Watson Analysis of Potential Rockwell Recharge Wellfield Effects on Groundwater

We found documents in the RWQCB file dating back to April of 1992 in which Semtech was writing to RWQCB staff protesting Rockwell's intentions to install a groundwater recharge system at the eastern end of their 2427 Hillcrest Drive site (see discussion of this recharge system in Section 5.5). In late 1992, to bolster their arguments, Semtech commissioned Montgomery Watson to perform an analysis of the potential deleterious effects that this proposed groundwater recharge system would have on the groundwater quality at the Semtech site. Montgomery Watson issued a report in January of 1993 in which they presented a painstakingly detailed analysis of the existing hydrological and groundwater contaminant data for the Semtech and Rockwell sites and proposed a complex site hypothesis to explain the manner in which groundwater flows were behaving and the manner in which contaminants were currently distributed in the groundwater at the two sites. Montgomery Watson also presented three scenarios that were developed as a result of computer modeling of the "fate and transport" of groundwater contaminants if the Rockwell groundwater recharge system were to be started up and operated.

Montgomery Watson's analysis predicted that Rockwell's proposed recharge system would not be entirely successful in confining solvent contamination within the boundaries of the Rockwell site and that the solvent contamination would be forced to the east toward and under the Semtech site if the recharge system were to be started up. The RWQCB staff apparently discounted the predictions contained in the analysis as evidenced by the fact that they ultimately allowed Rockwell to install the recharge system and begin operating it in early October of last year.

Groundwater sampling that has been conducted following the startup of the Rockwell recharge system appears to show the type of groundwater degradation beneath the western portion of the Semtech site that was predicted in Montgomery Watson's analysis.

This analysis document, in my opinion, presents an excellent compilation of data concerning the Semtech site, puts forward a very plausible hydrogeologic model and illustrates probable site conditions using some excellent diagrams. Some of these diagrams are presented on the following pages.

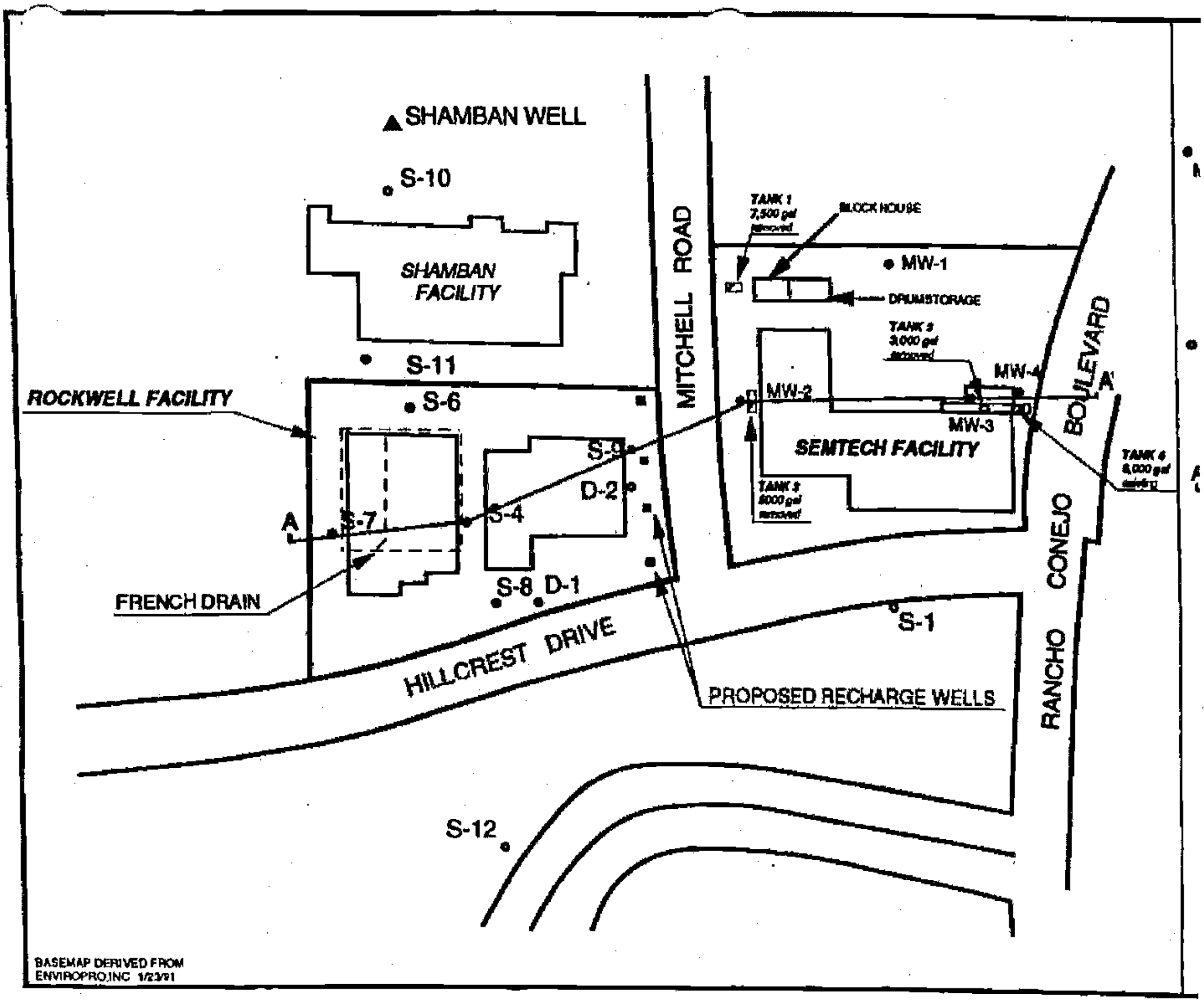
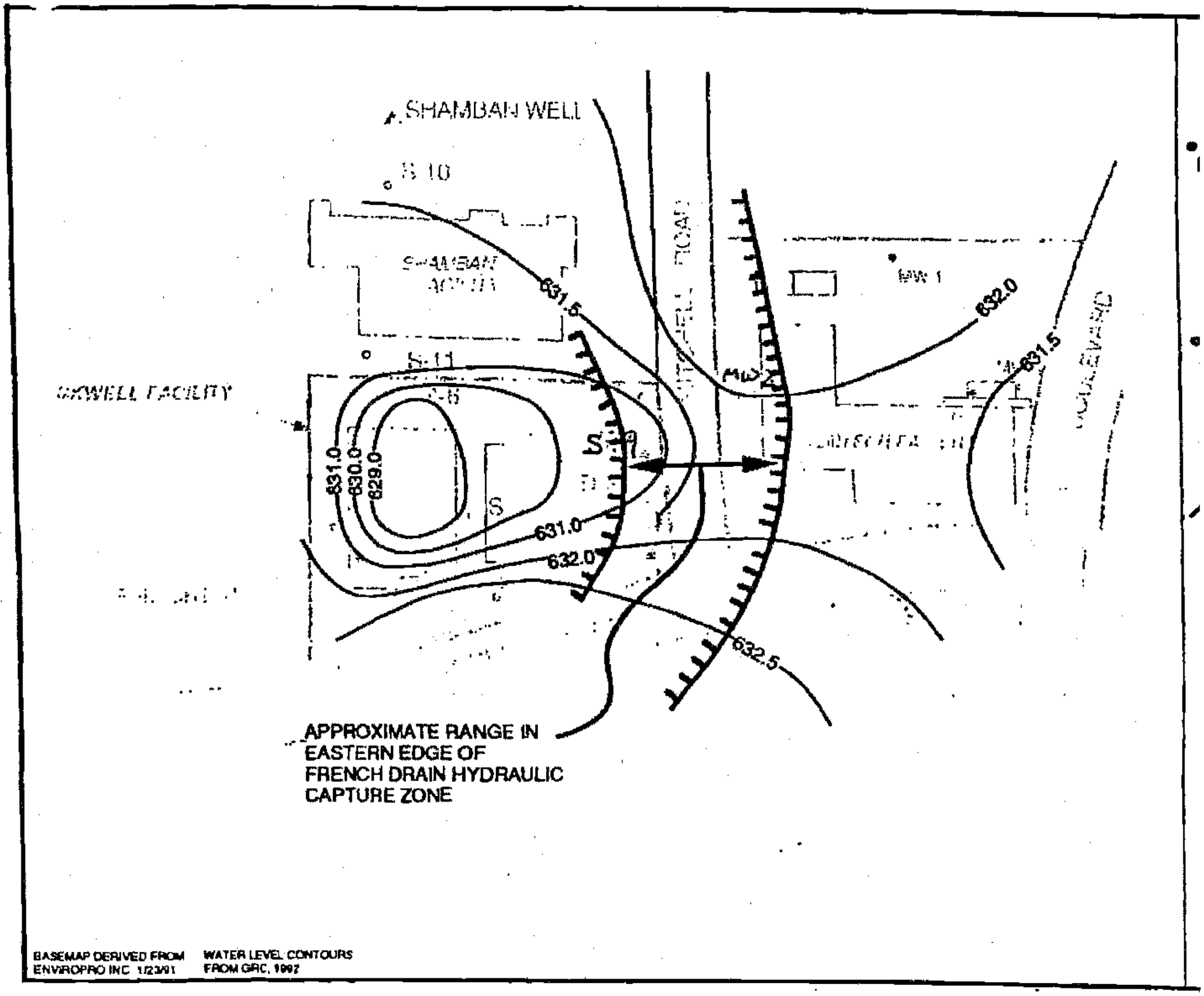


FIGURE 1
LOCATION MAP
SEMTECH CORPORTATION
NEWBURY PARK, CALIFORNIA



BASEMAP DERIVED FROM
ENVIROPRO INC 1/23/91

WATER LEVEL CONTOURS
FROM GRC, 1992

FIGURE 2
WATER ELEVATIONS OF SHALLOW GROUNDWATER, JUNE 1992
SEMTECH CORPORATION
NEWBURY PARK, CALIFORNIA

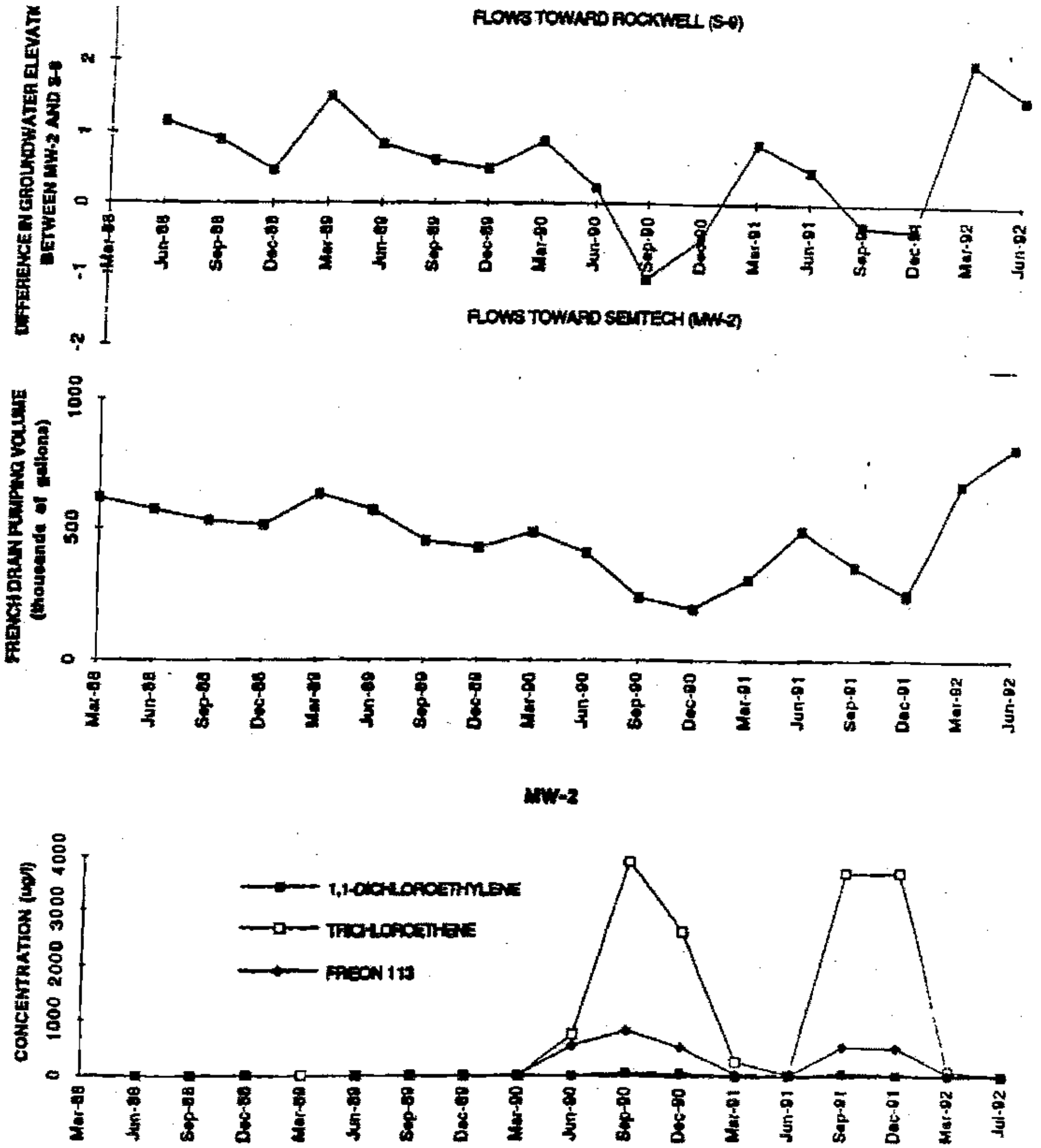


FIGURE 3
COMPARISON OF GRADIENT AND
CONTAMINANT CHANGES BETWEEN S-9 AND MW-2
SEMTECH CORPORATION
NEWBURY PARK, CALIFORNIA

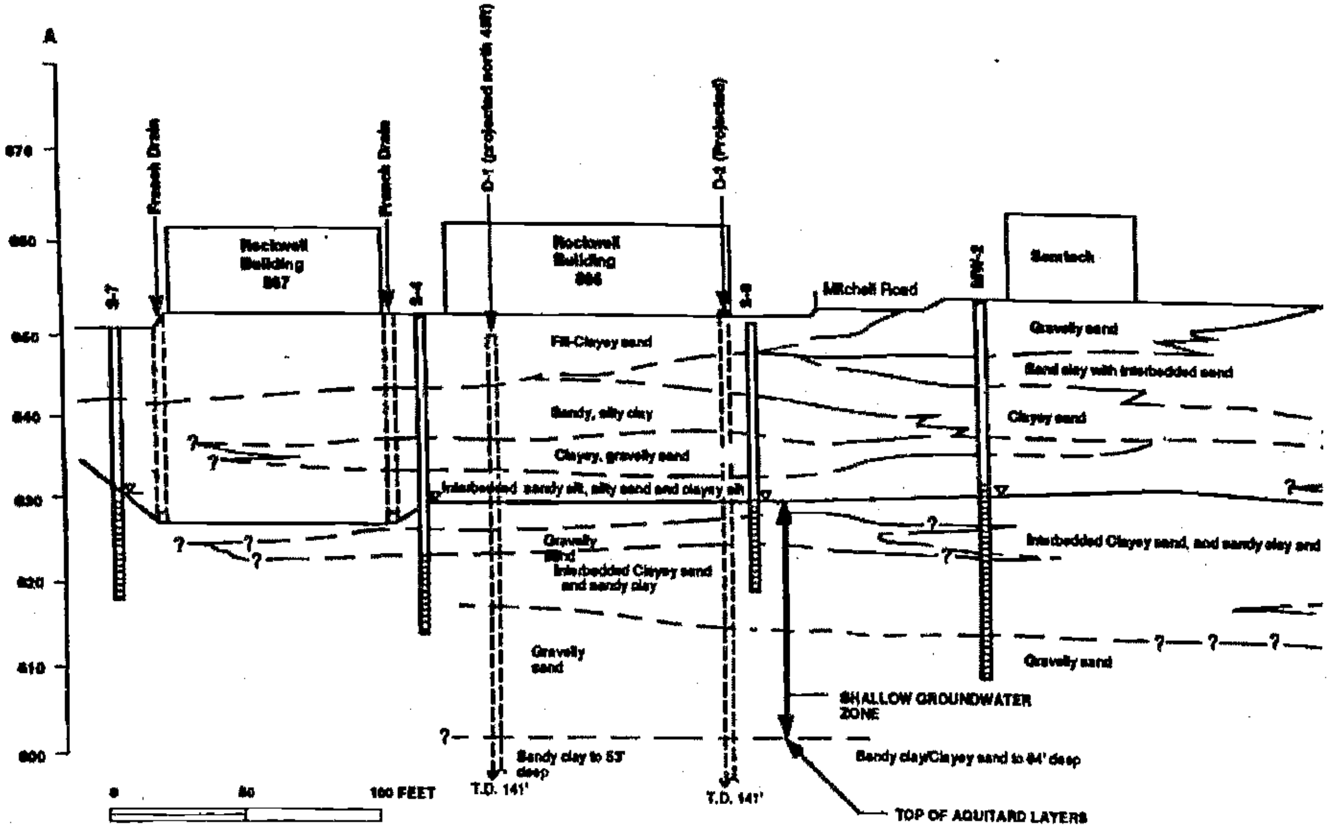


FIGURE 4
HYDROGEOLOGIC SECTION A-A'

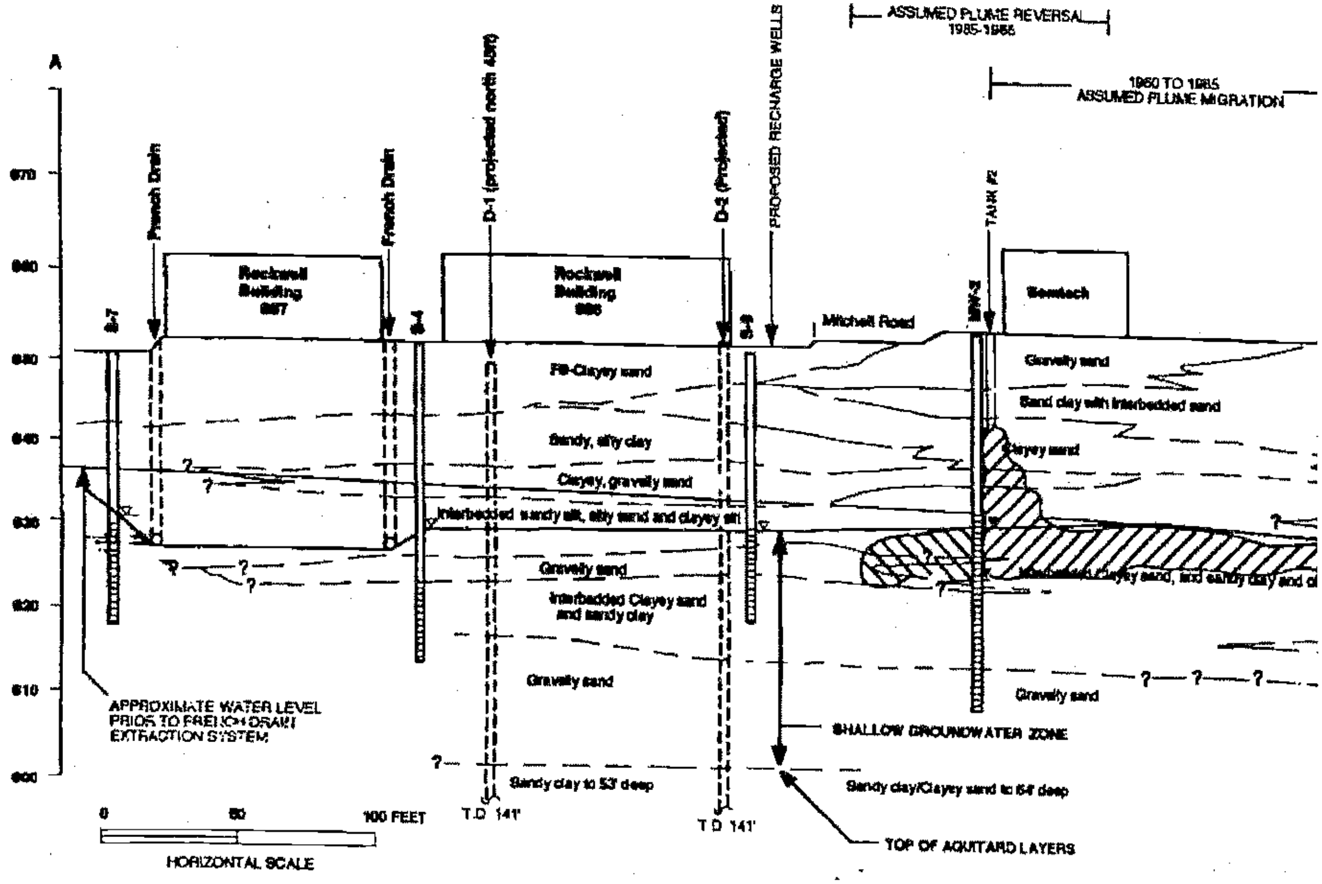


FIGURE 5
HYDROGEOLOGIC SECTION A-A'
SCENARIO #1

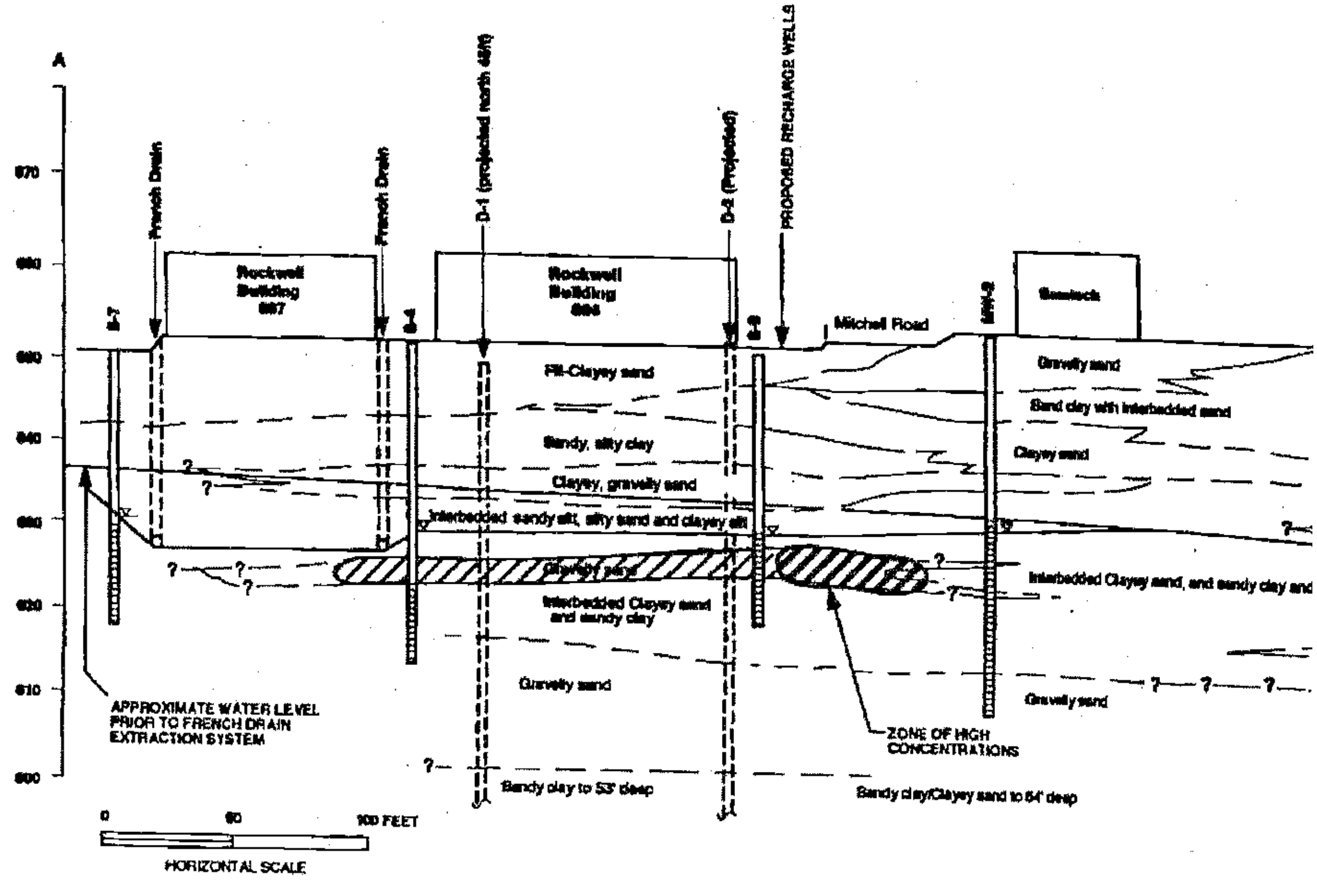


FIGURE 6
HYDROGEOLOGIC SECTION A-A'
SCENARIO #2

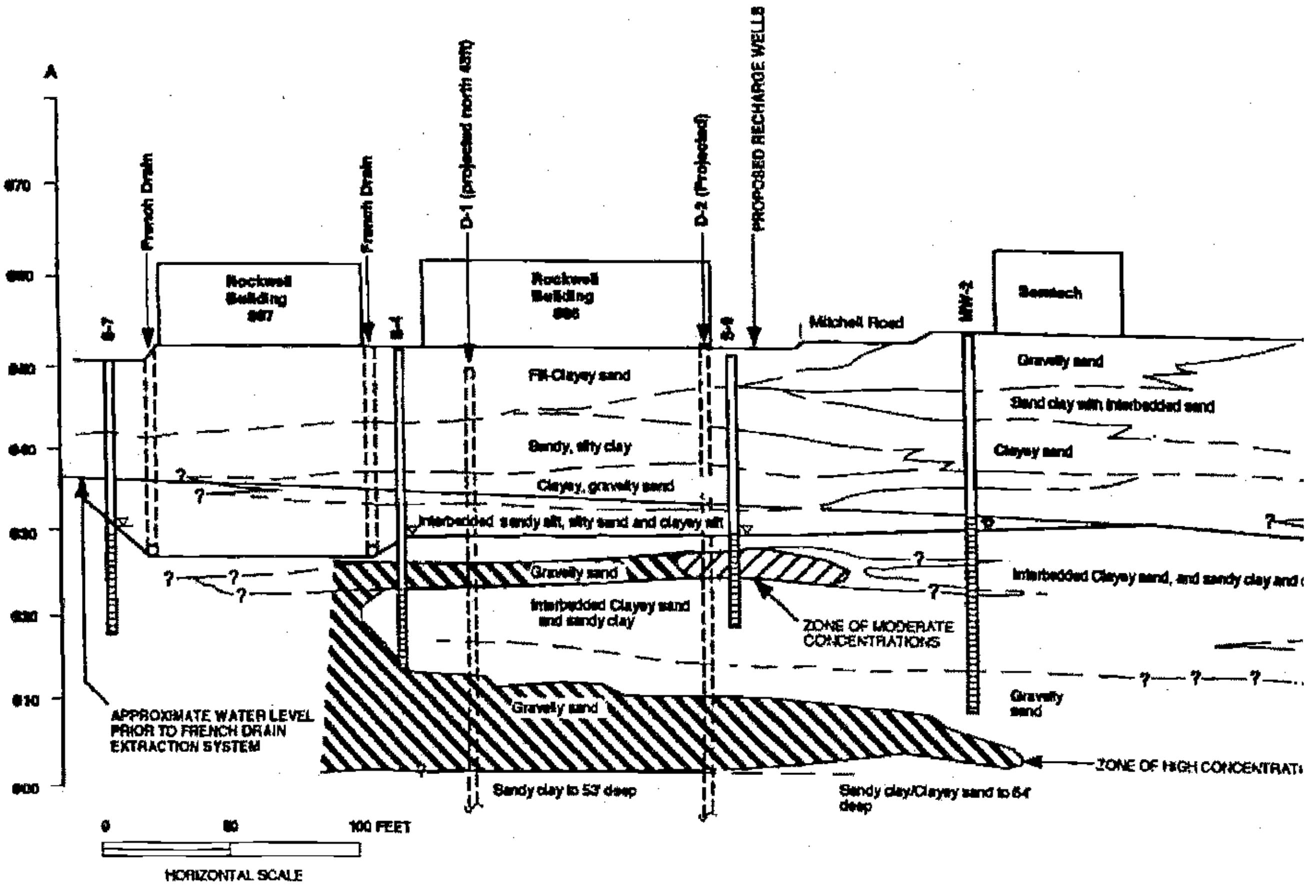


FIGURE 7
HYDROGEOLOGIC SECTION A-A'
SCENARIO #3

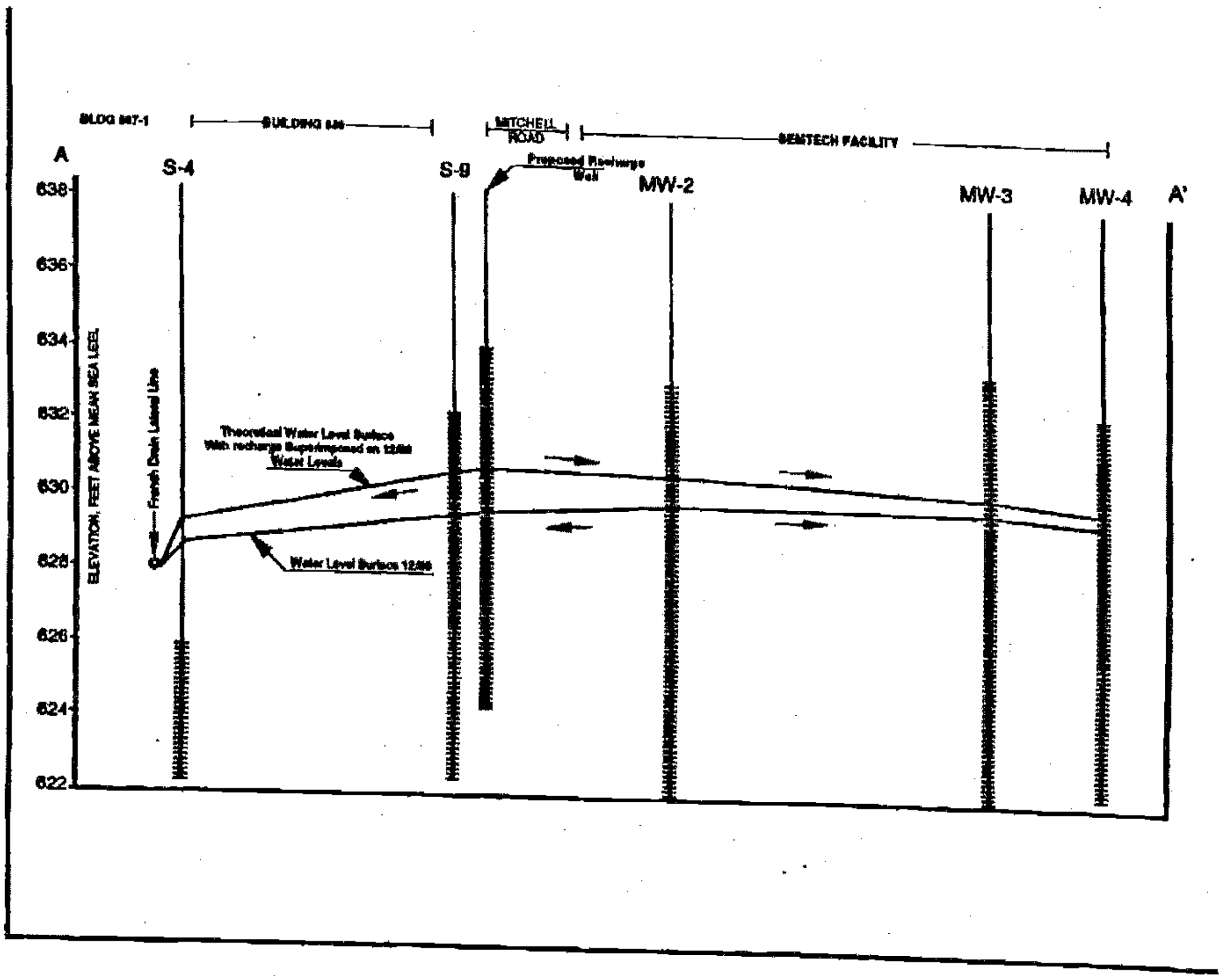


FIGURE 8
CHANGES TO GROUNDWATER ELEVATIONS FROM PROPOSED WELL
SEMTECH CORPORATION
NEWBURY PARK, CALIFORNIA

5.5 Rockwell Groundwater Recharge Wellfield

In 1991 Rockwell proposed to the RWQCB that the operation of the French Drain system, while effective in confining the migration of groundwater contamination at their site, was having the undesirable side effect of drawing groundwater contaminated with metals and inorganic salts from beneath the Semtech site onto the Rockwell property. Rockwell stated that they feared that the metals and salts would eventually reach the French Drain system and cause the quality of the extracted groundwater to degrade in a manner that could not be treated using air stripping and activated carbon extraction. To prevent the "Semtech contamination" from reaching the French Drain, Rockwell proposed to install a shallow groundwater recharge system at the eastern end their property. This recharge system would be designed to extract clean groundwater from a deep aquifer by means of water wells and inject this clean water into several shallow wells at the eastern end of the property to create an elevated "groundwater mound" in the unconfined shallow groundwater aquifer. The "groundwater mound" would have the effect of overcoming the groundwater depression being caused by the French Drain and to prevent any groundwater from beneath the Semtech site from migrating toward the Rockwell site.

Semtech and their consultants learned of this plan and expressed their concern to the RWQCB staff (Harry Patel and Al Novack) that the "groundwater mound" created by Rockwell's proposed recharge system would have the undesirable side effect of sweeping a large quantity of groundwater contamination from beneath the Rockwell property eastward toward the Semtech site.

Apparently, after a protracted debate between Semtech and Rockwell in which a considerable amount of technical data was developed by the respective consultants and reported to the RWQCB, the RWQCB staff disregarded Semtech's objections to the recharge system and approved Rockwell's proposal. Rockwell installed the recharge system and started it up on October 4, 1994. Monitoring well sampling data collected by both Rockwell and Semtech since the time that the recharge system was started up, appear to indicate that the recharge system has, indeed, caused solvent-contaminated to migrate onto the Semtech site.

The debate between Semtech and Rockwell over the effects of the recharge system has continued and no apparent resolution to the dispute is at hand. Rockwell's argument is presented fairly bluntly in a letter that they sent to the RWQCB on January 17, 1995 in which they argue that the TCE increases that have occurred beneath Semtech's monitoring well MW-2 are not attributable to the operation of the Rockwell recharge system and that the TCE increases in MW-2 are caused by seasonal rainfall impacts on groundwater at the site. Semtech and MW have argued that the TCE increases are directly and clearly attributable to the operation of the Rockwell recharge system and that they are not due to seasonal rainfall impacts.

Based on our review of the RWQCB files, it appears that Semtech's consultant, Montgomery Watson (MW), has done a fairly good job of generating geological and hydrological information concerning both the Semtech and the Rockwell sites and that they have raised many good technical points in support of the contention that most, if not all of the TCE contamination present in the groundwater has originated from the Rockwell site and that the Rockwell recharge system is moving it onto the Semtech site. There is a remarkable coincidence between the date that the Rockwell system was started up (10/4/94) and the subsequent date (10/20/94) upon which sharp increases in TCE concentrations were observed in MW-2.

Semtech has so far experienced an apparent lack of success in persuading the RWQCB staff to block Rockwell's recharge activities. It appears that MW's technical information may not have been presented to the RWQCB as effectively as it could have been. Specifically, it appears that MW's information has been presented to the Board staff in a somewhat ad hoc manner and that it has been communicated mainly in the form of written technical reports which were mailed to the Board staff and not presented directly. We consider it important to note that Rockwell appears to have entered into a cost recovery agreement with the RWQCB to fund the RWQCB's oversight of the remedial actions at the 2427 Hillcrest Drive property. Semtech has not entered into such an agreement with regard to the 652 Mitchell Drive site. The RWQCB tends to carry out its mission on a case-by-case basis and may have more familiarity and sympathy for the Rockwell position simply because the RWQCB staff can (literally) afford to spend more time reviewing the Rockwell correspondence.

5.6 Montgomery Watson Soil Boring Study - Western Portion of Site

In response to claims by Rockwell and their consultants that most, if not all of the TCE now present beneath the western portion of the Semtech site had originated from TCE releases at the Semtech site, Semtech authorized Montgomery Watson to conduct an investigation of soil conditions at this portion of the property. This investigation consisted of six soil borings approximately 25 feet in depth drilled along the western end of the Semtech site. Four of these borings were drilled at the former locations of the two underground tanks that Semtech had formerly operated at the western end of the site (Tanks #1 and #2).

The soil investigation detected no significant solvent or metal contamination in any of the borings. A diagram showing the locations of these borings is included on the following page.

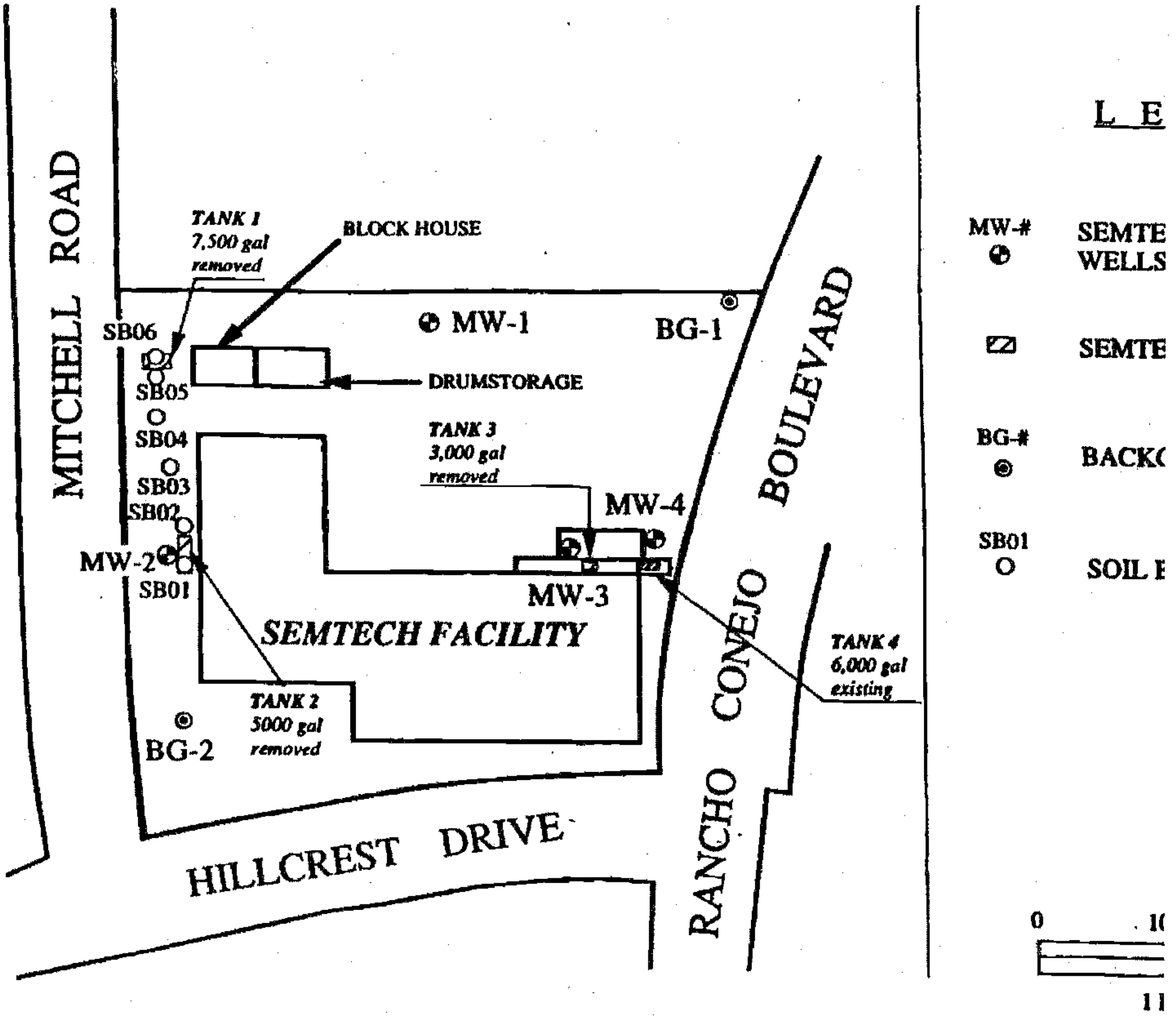


FIGURE 2
SITE MAP WITH BORING LOCATIONS
SEMTECH CORPORTATION
NEWBURY PARK, CALIFORNIA

5.7 Montgomery Watson Analysis of the Short Term Impact of the Rockwell Recharge System

Montgomery Watson compared the quality of the groundwater in MW-2 at the western end of the Semtech site on October 4, 1994 (prior to the startup of the Rockwell recharge system) with the quality of the groundwater on October 20, 1994 (approximately two weeks after the recharge system was started up) and on November 22, 1994 (approximately six weeks after startup). This comparison revealed that the predicted degradation had, in fact, occurred. No TCE whatsoever was detected in the October 4, 1994 MW-2 groundwater taken prior to recharge system startup. TCE was detected at a concentration of 580 ug/L in the post startup October 22, 1994 sample and at a concentration of 6,400 ug/L in the November 22, 1994 sample. More recent sampling of MW-2 conducted on April 27, 1995 has revealed that the TCE concentration has declined to (200 ug/L) from the November high but still remains present at levels far higher than those detected during the months prior to the startup of the recharge system.

SUMMARY OF MAJOR ENVIRONMENTAL CONDITIONS AT THE 652 MITCHELL DRIVE SITE

Ve found that the environmental conditions of primary concern at 652 Mitchell Drive were the ollowing:

Fairly extensive contamination of the groundwater at the western end of the site with TCE. This contamination appears to have, in large part, originated from the Rockwell property to the west at 2427 Hillcrest Drive.

A groundwater recharge system being operated by Rockwell, ostensibly to prevent the westward migration of groundwater contaminants from the 652 Mitchell Drive site. This recharge appears to be actually having the effect of forcing contamination originating from beneath Rockwell to the east, toward the subject site.

Localized soil contamination by solvents, acid residues, and metals at the eastern end of the property at the former location of an underground process neutralization tank (Tank #4). This site condition is in the process of being addressed by Semtech at the present but we have not yet been apprised of the outcome of their action.

Localized groundwater contamination at the eastern end of the site that appears to have been primarily caused by leaks from two underground process neutralization tanks that Semtech formerly operated.

The presence of a large underground concrete tank in the center of the property that appears to have once been utilized as a process neutralization tank. TCE and metal-contaminated liquid sludge was found inside this tank and it could represent a potential source of TCE contamination at the subject site.

mportant unresolved environmental issues at the subject site in addition to the conditions listed above include the following:

Although the RWQCB has been issuing directives to Semtech regarding activities at the property, there appears to be no formally designated site oversight agency reviewing and approving assessment and remediation activities in an organized manner.

Although extensive assessment activity has been conducted at the site, no comprehensive review of the environmental conditions at the site appears to have been conducted by any environmental agency. In the absence of such an agency-approved assessment, there appears to be no firm basis for determining the "cost to cure" the environmental problems at the property.

Rockwell appears to have adopted an adversarial stance with regard to the solvent contamination in the groundwater beneath the western portion of the site and has been making pointed arguments to the RWQCB staff advocating for their position that they are not responsible for the contamination beneath the Semtech site.

Exhibit J

SEMTECH

February 15, 2011

Mr. Samuel Unger
California Regional Water Quality Control Board
Los Angeles Region
320 West 4th Street, Suite 200
Los Angeles, California 90013

Subject: **Submittal of Soil and Groundwater Additional Assessment Report**
652 Mitchell Road, Newbury Park, California

Dear Mr. Unger:

Semtech Corporation is pleased to submit the enclosed subject document. Should you have any questions, please feel free to contact me at (805) 480-2153.

I, Randall H. Holliday, do hereby declare, under penalty of perjury under the laws of State of California, that I am Vice President for Semtech Corporation, that I am authorized to attest to the veracity of the information contained in the Soil and Groundwater Soil Additional Assessment Report of February 15, 2011 is true and correct, and that this declaration was executed at Semtech Corporation's Camarillo Facility, located in Camarillo, California, on February 15, 2011.

Sincerely,

Semtech Corporation

R. Holliday

Randall H. Holliday
Vice President, General Counsel, and Secretary

cc: Dr. Angelica Castaneda, RWQCB
Jeff Ortega, RWQCB
Bryan Brown, Bingham McCutchen LLP
Michael Flaugher, MWH
File

200 Flynn Road, Camarillo, CA 93012-8790 • (805) 498-2111 • Fax (805) 498-3804
www.semtech.com

Prepared for

Semtech Corporation
Camarillo, CA

Soil and Groundwater Additional Assessment Report
652 Mitchell Road, Newbury Park, CA

February 15, 2011

MWH

SOIL AND GROUNDWATER ADDITIONAL ASSESSMENT REPORT

652 MITCHELL ROAD
NEWBURY PARK, CALIFORNIA
(RWQCB File No. 204EY00)

Prepared For

SEMTECH CORPORATION
Camarillo, California

Project Number 1007829

February 15, 2011

Prepared by

MWH AMERICAS, INC.
618 Michillinda Avenue, Suite 200
Arcadia, California 91007
(626) 798-9141

Michael Flaugher, P.G. No. 7626
Project Manager

Joan Dolmat
Joan Dolmat
Project Geologist

MICHAEL FLAUGHER
No. 7626
EXP. 8/31/11

MWH

EXECUTIVE SUMMARY

This Soil and Groundwater Additional Assessment Report (Report) presents chemistry results from subsurface sampling at 24 soil boring and HydroPunch locations completed during December 2010 through January 2011 at the property located at 652 Mitchell Road in Newbury Park, California (Site). The Report documents these field activities and presents an interpretation of the distribution of impacted soil and groundwater and potential sources of contamination, based on the historical and recently collected data.

The soil and groundwater additional assessment was completed by MWH Americas, Inc. (MWH) on behalf of Semtech Corporation (Semtech) in response to the August 3, 2010 (RWQCB, 2010) Los Angeles Regional Water Quality Control Board (RWQCB) letter sent to Semtech and SPT Investments, Inc. (SPT Investments [aka Amgen Inc.]). The letter requested additional soil, soil gas, and groundwater assessment to further evaluate the nature and extent of constituents of potential concern (COPCs) in the subsurface. Semtech retained MWH to complete the soil and groundwater additional assessment as summarized in this Report. SPT Investments documented the soil gas assessments, completed by another consultant retained by SPT Investments, in separate reports in 2009 and 2011.

Soil and groundwater sampling were completed by MWH in general accordance with the Los Angeles RWQCB-approved work plans (MWH, 2010b and 2010c). This Report summarizes the soil and groundwater assessment results of both the original assessment (November/December 2009, March 2010) and the additional sampling (December 2010/January 2011).

Based on the evaluation of the 57 former Site operational features which were associated with suspected chemical use or storage, 21 were selected for soil and/or groundwater sampling, based on the historical activities and reported uses of these features, chemical usage history, and potential to cause impacts to the subsurface.

The results of the assessment were as follows:

- Shallow unconfined groundwater is encountered beneath the site at approximately 25 feet below ground surface, depending on seasonal fluctuations. Shallow groundwater flow direction is predominately easterly.
- The current distribution of COPCs that were detected at the Site above regulatory standards include trichloroethene (TCE), arsenic, and total petroleum hydrocarbons (TPH) in soil and 1,1-dichloroethene (DCE), benzene, carbon tetrachloride, tetrachloroethene (PCE), arsenic, TPH, TCE, 1,4-dioxane, and nitrate (as nitrogen) in groundwater.
- Based on the collected data, some of these COPCs (1,1-DCE, benzene, carbon tetrachloride, PCE, antimony and arsenic), were reported sporadically or at concentrations below background levels and are not deemed to be significant secondary sources.
- Soil and groundwater have been impacted at the Site by TCE, TPH, 1,4-dioxane, and nitrate (as nitrogen).
- The Report presents a graphical summary of soil and groundwater chemistry results on chemical distribution and isoconcentration contour maps using the data collected from this assessment for TCE and 1,4-dioxane.

- Low concentrations of 1,4-dioxane (2.7 to 28 micrograms per liter [µg/L]) within a higher concentration plume of TCE in groundwater appear to migrate onto the Site along the western boundary from an historical off-Site source.
- This TCE/1,4-dioxane plume commingles with TCE and TPH releases from a former Site feature, Tank 5, which was not part of Semtech's operations.
- Concentrations of TCE in the vadose zone soils at former Tank 5 range from 1.9 to 89,000 J µg/kg and concentrations of TPH range from 52 to 20,000 milligrams per kilogram (mg/kg). TCE concentrations increase with depth within the vadose zone, suggesting a historical release and the vertical migration of constituents beneath the Tank 5. These constituents are likely sorbed at higher concentrations in the finer-grained hydrostratigraphic units. With seasonal fluctuations of the groundwater elevation, these constituents can desorb and create a possible 'smear' zone over time. The higher relative concentrations within the deeper vadose zone may also represent possible off-gassing of VOCs from the dissolved phase in groundwater. The vertical and lateral extent of these COPC detections have been defined and appear localized to the Tank 5 source area.
- Concentrations of TCE in groundwater samples from the former Tank 5 vicinity were detected significantly above the MCL of 5 µg/L, at concentrations ranging from 29,000 to 300,000 µg/L at the 35 foot depth, and from 6,600 to 11,000 µg/L at the 50 foot depth. These groundwater chemistry results were from HydroPunch samples collected above the low permeability materials that comprise the previously described aquitard layer (JMM, 1993) (at depths ranging from approximately 50 to 80 feet bgs). TCE concentrations in groundwater were observed to decrease with depth; ranging from 59 to 6,200 µg/L at 65 and 85 feet bgs (within the aquitard layer) and were reported at 1,200 µg/L at 100 feet bgs (below the aquitard layer). TCE concentrations significantly decrease below 100 feet bgs, ranging between 3.9 to 14 µg/L. These elevated TCE soil and groundwater chemistry results, in addition to the previous soil chemistry results obtained during the UST removal activity, suggest that the former Tank 5 was a historical source of TCE impacts to the subsurface.
- Low concentrations of TCE are present in the groundwater above drinking water standards near the hydraulically down-gradient Site boundary, however, these concentrations appear to attenuate to below reporting limits at the locations of the groundwater samples collected immediately off-Site. Therefore, the TCE plume is laterally defined.
- Soil and groundwater does not appear to be significantly impacted by other areas of historical on-Site chemical and/or waste handling or storage.

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ACRONYMS AND ABBREVIATIONS

bgs	Below Ground Surface
Calscience	Calscience Environmental Laboratories, Inc.
CDPH	California Department of Public Health
COPC	Chemicals of Potential Concern
DCE	Dichloroethene
EPA	United States Environmental Protection Agency
ESL	RWQCB Environmental Screening Level for TPH in Groundwater
IDW	Investigation Derived Waste
JMM	James M. Montgomery (predecessor of MWH)
Meq/L	Milli-Equivalents per Liter
mg/kg	Milligrams per Kilograms
mg/L	Milligrams per Liter
MBAS	Methyl Blue Active Surfactant
MCL	Maximum Contaminant Level
MSD	Matrix Spike Duplicate
MWH	MWH Americas, Inc.
PCB	Polychlorinated Biphenyl
PCE	Tetrachloroethene
PRG	EPA Region IX Preliminary Remediation Goal
QA/QC	Quality Assurance/Quality Control
Report	Soil and Groundwater Additional Assessment Report
RWQCB	Regional Water Quality Control Board, Los Angeles Region
Semtech	Semtech Corporation
Site	652 Mitchell Road, Newbury Park, California
SPT Investment	SPT Investment Inc.
SSL	RWQCB Soil Screening Levels for TPH in Soil
SVOC	Semi-Volatile Organic Compound
TCA	Trichloroethane
TCE	Trichloroethene
TDS	Total Dissolved Solids
TPH	Total Petroleum Hydrocarbon
µg/kg	Micrograms per Kilograms
µg/L	Micrograms per Liter
USA	Underground Service Alert
UST	Underground Storage Tank
VCEHD	Ventura County Environmental Health Department
VOCs	Volatile Organic Compounds

SECTION 1.0

INTRODUCTION AND BACKGROUND

This *Soil and Groundwater Additional Assessment Report* (Report) has been prepared by MWH Americas, Inc. (MWH) on behalf of Semtech Corporation (Semtech) for the property located at 652 Mitchell Road in Newbury Park, California (Site) (Figure 1). A Work Plan (MWH, 2009) was submitted in response to the November 25, 2008 letter entitled, *California Water Code Sections 13267 Order to Complete Soil, Soil Gas, and Groundwater Assessment* sent from the Regional Water Quality Control Board (RWQCB, 2008a) to Semtech and SPT Investments, Inc. (SPT Investments [aka Amgen Inc]). The Work Plan describes soil and groundwater sampling activities to evaluate the nature and extent of constituents of potential concern (COPCs) in the subsurface. The Work Plan was approved by the RWQCB in a letter dated September 17, 2009 (RWQCB, 2009).

Based on the preliminary results from the assessment, additional sampling was proposed to better delineate impacts to the subsurface at the Site. This request was approved by RWQCB in a letter dated March 18, 2010 (RWQCB, 2010a). The results of these assessments were reported in the *Soil and Groundwater Assessment Report* (MWH, 2010a)

Semtech and SPT Investments received a letter entitled, *Additional Requirements Pursuant to California Water Code Sections 13267 – Former Semtech Corporation Facility at 652 Mitchell Road, Newbury Park California 91320 (Site Cleanup No. 0422, Site ID No. 204EY00)* from the RWQCB (RWQCB, 2010b) dated August 3, 2010 that requested additional soil and groundwater assessment at the Site. A Work Plan (MWH, 2010b) was submitted to RWQCB describing soil and groundwater sampling activities to evaluate volatile organic compound (VOC) and nitrate delineation requirements specified in comments (a) through (e) of the August 3, 2010 RWQCB letter. The additional groundwater monitoring well installation to assess down-gradient conditions, required by the RWQCB with comment (f) of the same letter, was addressed in the *Groundwater Monitoring Well Installation Work Plan Addendum* (MWH, 2010c) and was submitted to the RWQCB under separate cover.

The Work Plans were approved by the RWQCB in a letter dated October 26, 2010 (RWQCB, 2010c). The proposed groundwater monitoring wells will be installed at a later date based on the data presented herein and RWQCB approval, therefore, they are not discussed in this report.

The additional soil gas investigation work plan requested by the RWQCB in the August 3, 2010 subject letter was to be submitted to the RWQCB on behalf of the current Site owners by their consultant, under separate cover.

This Report summarizes the additional soil and groundwater assessment results of the RWQCB approved Work Plans and incorporates the results from the soil and groundwater investigations previously reported by MWH.

1.1 PURPOSE AND OBJECTIVES

The purpose of this Report is to document the procedures and results of soil and groundwater sampling and analysis to assess the nature and extent of COPCs. Specifically, this Report complies with items (a) through (f) of the August 3, 2010 RWQCB letter which requested assessment of the remaining soil data gaps and to delineate the vertical and horizontal extent of the contaminant plume originating from the Site. This report further satisfies the completion of the subsequent Work Plans approved by the RWQCB in October, 2010 (RWQCB, 2010c). The objectives of the additional assessment were to further evaluate former Site features that were historically associated with chemical use or storage, to assess if those former features may have impacted the subsurface, and to delineate the lateral and/or vertical extent of groundwater impacts.

1.2 REPORT ORGANIZATION

This Report consists of six sections, as described below:

Section 1.0 Introduction, describes the regulatory requirements for the Site, the purpose and objectives, and the Report organization.

Section 2.0 Site Assessment Activities, describes the methodology for conducting the assessment.

Section 3.0 Results, presents the analytical chemistry results for the soil and groundwater sampling completed in November/December 2009, March 2010 and December 2010/January 2011.

Section 4.0 Discussion, describes impacted media and the conditions that may have led to the migration of COPCs to impact media at the Site.

Section 5.0 Conclusions, presents conclusions based on soil and groundwater chemistry results.

Section 6.0 References, provides the references cited in this Report.

Additional background regarding the facility history, Site descriptions, previous investigations and activities, and physical setting are presented in the *Soil and Groundwater Assessment Report* (MWH, 2010a). However, Tables 1 and 2 provide a brief chronology of previous investigations (1987-1996) remedial actions and Site features at the Site and Figures 2 through 4 show the facility layout and the Site features for reference.

SECTION 2.0

ADDITIONAL SITE ASSESSMENT ACTIVITIES

Additional soil and groundwater sampling was completed between December 14, 2010 and January 3, 2011. Field assessment activities included permitting, utility clearance, soil and groundwater sampling, geophysical investigation of the QA Lab pipeline and investigation derived waste (IDW) management. The field activities were completed in general accordance with the Work Plans (MWH, 2010b and 2010c) and the October 26, 2010 RWQCB approval letter (RWQCB, 2010c), the Site-Specific Health and Safety Plan (MWH, 2009), and under the direct supervision of a California Professional Geologist.

2.1 PERMITS AND UTILITY CLEARANCE

Prior to field activities, groundwater monitoring well permits were obtained from the County of Ventura – Watershed Protection District and an encroachment permit was obtained from the City of Thousand Oaks Public Works Department for the off Site HydroPunch locations within the public right-of-way. Copies of the permits are provided in Appendix A. Underground Service Alert (USA) was notified prior to drilling and sampling activities at each borehole location, to mark utilities that enter the Site (Ticket No. A03420568). Facility maps were reviewed for on-Site utility locations. In addition, geophysical clearance of subsurface utilities in the general vicinity of each boring location was completed on December 15, 2010 by Underground Location Service, a geophysical company subcontracted by MWH. The geophysical survey was completed to identify known and potentially unknown subsurface structures and detectable utilities in the vicinity of the boring locations. Final sampling locations were modified based on field observations, USA, and geophysical clearances. In addition, each boring was hand augured to a depth of 5 feet below ground surface to identify potential unknown underground utilities that were not detected during the geophysical survey, as an added precaution.

2.2 SUBSURFACE SOIL ASSESSMENT

For this additional assessment, 49 primary and 4 duplicate soil samples were collected from 11 soil boring locations (B-49 through B-53, B-56 through B-59 and, B-62 and B-63 as shown on Figure 5) at former Site features to fulfill the RWQCB request to address data gaps. The drilling and subsurface soil sampling was completed by Gregg Drilling and Testing, Inc., a drilling company subcontracted by MWH. Soil borings were advanced either using a direct-push sampling rig or a hollow-stem auger drill rig, depending upon access to the sampling locations. Soil sample depths are summarized in Table 3. Soil samples were collected using either clean stainless steel sample rings or new acetate sample liners. Samples were field-screened using headspace analyses (disaggregating soils in a re-sealable plastic bag, letting the soil vapors equilibrate and collecting a headspace sample using a photo-ionization detector). Once the soil samples were removed from the sampler, an aliquot of soil sample was collected using three En Core® sampling devices for VOCs chemical analyses. The sample retainer was immediately sealed with Teflon® film and plastic end caps for shipment to the laboratory for additional analyses. Soil samples were then sealed, labeled, placed in plastic resealable bags, registered into chain-of-custody protocol, and placed in an ice-chilled cooler. Sample handling and chain-of-custody procedures were conducted in general accordance with U.S. Environmental Protection Agency (EPA) SW-846 protocol. Soil samples were delivered for chemical analyses to

Calscience Environmental Laboratories, Inc. (Calscience) of Garden Grove, California, a state-certified laboratory.

Soil samples were also used for soil classification and geologic logging, in accordance with the Unified Soil Classification System as presented in the American Society for Testing and Materials Standard D2488, and classified by color using a Munsell Color Chart. Geologic logs for soil borings are presented in Appendix B. Soil borings were abandoned using hydrated bentonite chips to just below surface grade, then capped at the surface with concrete, asphalt, or dirt to match the existing surface grade.

The soil sampling equipment was cleaned with a non-phosphate detergent, rinsed with tap water, twice-rinsed with deionized water, and air dried. Drill rig augers were steam cleaned before and between borings. The equipment was handled in a manner intended to prevent cross-contamination.

Table 3 summarizes the soil assessment sampling and chemical analysis program. Analytical methods may have included:

- VOCs using EPA Method 8260B and using EPA 5035 EN CORE™ – preparation method;
- General Minerals (Nitrate as N) using EPA Method 300.0; and/or
- General Minerals (Fluoride) using Standard Method 4500 F C MOD.

2.3 GROUNDWATER ASSESSMENT

Twenty-four (24) primary and 3 duplicate groundwater samples were collected from 14 HydroPunch sampling locations ([B-53,through B-55, B-60, B-61, B-64, and B-67 on-Site] and [B-68 through B-72 off-Site]), to assess current groundwater quality at the Site and immediately east of the Site, and to fulfill the RWQCB request in the August 3, 2010 letter to further assess horizontal and vertical impacts of COPC at the Site. Groundwater sampling was completed by Gregg Drilling and Testing, inc under subcontract to MWH. Figure 5 depicts groundwater sampling locations at the Site.

Table 3 summarizes the groundwater assessment sampling and chemical analysis program. Analytical methods may have included:

- VOCs using EPA Method 8260B;
- Title 22 CAM metals using EPA Methods 6010B and 7471A (mercury);
- TPH-cc using Modified EPA Method 8015;
- General Minerals (Fluoride/Nitrate as N) using EPA Method 300.0;
- Potassium using EPA 200.7;
- Total Dissolved Solids using EPA Method 160.1; and/or
- 1,4-Dioxane using EPA Method 8270C-MOD.

<u>HydroPunch Groundwater Sampling</u>

The HydroPunch groundwater sampler is a sealed-screen sampler consisting of a short screen nested within a sealed, water-tight tool body. Because the screen is not exposed to the formation as the sampler is advanced thought the auger annulus and into the subsurface, the screen does not become plugged or damaged. In addition, the potential for cross contamination is greatly reduced and a depth-discrete sample that is representative of the target sampling zone can be collected. To collect the sample, the sealed-screen sampler is advanced to the target sampling depth in native materials, ahead of the bottom of the auger drill stem, and the protective outer rod is retracted, exposing the screen to groundwater. Groundwater flows through the screen under the hydraulic head conditions that exist at that depth and into the drive rods or sample chamber. O-ring seals placed between the drive tip and the tool body help keep the sampler water tight as it is driven to the target sampling interval.

Drilling was advanced at each of the groundwater sampling locations using a hollow-stem auger drill rig to approximately 4-feet above the desired groundwater sampling depth. The driller then drove the HydroPunch sampling device approximately 4-feet into undisturbed materials below the bottom of the borehole. The driller then pulled back the sampling device to expose a stainless steel screen to allow groundwater to flow into the device. After sufficient time for groundwater to enter into the sampler, groundwater samples were collected using a ¾-inch diameter disposable plastic bailer that was lowered down inside the HydroPunch sampling device. Groundwater from the bailer was transferred to sample bottles provided by Calscience. Groundwater samples were capped, labeled, placed in a plastic resealable bag, entered into chain-of-custody protocol, and placed in an ice-chilled cooler. Sample handling and chain-of-custody procedures were conducted in general accordance with EPA SW-846 protocol. Samples were delivered to Calscience.

Except at off-Site locations B-69 through B-72, soils were also used for soil classification and geologic logging, in accordance with the Unified Soil Classification System as presented in American Society for Testing and Materials Standard D2488, and classified by color using a Munsell Color Chart. Geologic logs for HydroPunch borings are presented in Appendix B. The borings were abandoned using bentonite grout to just below surface grade, then capped at the surface with concrete, asphalt, or dirt to match the existing surface grade.

The sampling equipment was cleaned with a non-phosphate detergent, rinsed with tap water, twice-rinsed with deionized water, and air dried. Drill rig augers were steam cleaned before and between borings. The equipment was handled in a manner intended to prevent cross-contamination.

2.4 QA LAB PIPELINE INVESTIGATION

A riser pipe on the floor in the QA Lab (see Figure 5 for location) was investigated to determine the possibility of direct connection with the former Tank 5. Geophysical methods were used by Underground Location Service, a geophysical company subcontracted by MWH, in an attempt to non-destructively trace the potential presence and direction of the subsurface extension of the riser pipe. In addition, shallow subsurface soil samples from B-62 and B-63 were collected in proximity to the subsurface pipe to assess the potential impacts to the subsurface in the vicinity of this site feature (Figure 5).

2.5 INVESTIGATION DERIVED WASTE (IDW) MANAGEMENT

Soil cuttings, decontamination water, used personal protective equipment, and disposable sampling equipment generated during field activities were appropriately stored at the Site in either labeled 55-gallon drums or soil bins. Semtech directly contracted for the transportation and disposal of the IDW, using Semtech's licensed contractor at an off-site disposal facility, following receipt of sample results (see Appendix C for investigation derived transportation and waste manifests).

2.6 QUALITY ASSURANCE/QUALITY CONTROL (QA/QC)

The overall QA/QC objective for field activities and laboratory analyses was to produce data of sufficient quality to support an evaluation of the environmental conditions. Standard operating procedures were conducted so that known and sufficiently acceptable levels of accuracy, precision, completeness, representativeness, and comparability were achieved for the data. The soil and groundwater data collected were evaluated for data adequacy and a report summarizing these activities is presented in Appendix E and is further discussed in Section 2.6.4, below.

2.6.1 Field QA/QC Samples

To verify laboratory results, duplicate soil and groundwater samples were collected at an approximate frequency of one sample for every 10 primary samples collected. One equipment rinsate sample was collected each day in the field to verify decontamination procedures by pouring laboratory-grade, organic-free water onto decontaminated sampling equipment and into sample containers. Duplicate and equipment rinsate samples were analyzed for the same constituents as their primary samples. In addition, one trip blank sample was sent to the lab with every cooler that contained samples for VOC analysis. Trip blanks were analyzed for VOCs.

2.6.2 Laboratory QA/QC

EPA mandated sample holding times and preservation were observed. Specific requirements were followed, including field and reagent blanks, calibration check standards, matrix-spiked duplicates (MSD), total recoveries, and laboratory QC samples.

2.6.3 Data Management and Adequacy Assessment

A Level II data adequacy procedure was utilized to obtain an adequate level of confidence in the data presented. A Level II data review includes a cursory review of laboratory data for precision, accuracy, representativeness, completeness, and comparability. QC data was reviewed for laboratory instrument precision and accuracy from laboratory control samples, duplicate recoveries, relative percent differences, matrix spike (MS)/MSD sample recoveries, and relative percent differences. Samples were evaluated for representativeness of laboratory and site conditions based on review of method and field blanks. The results were reviewed for completeness and comparability based on the analytical methods used, sample preservation and holding time criteria specified for each method, and the laboratory reporting limits.

2.6.4 Data Validation Summary

Results were reviewed in accordance with the appropriate methods listed above. In addition, the EPA Contract Laboratory Program National Functional Guidelines for Organic (EPA, 1999) and Inorganic (EPA, 2004) Data Review were used to provide overall guidance for the data adequacy evaluation process. The data review included an evaluation of the following quality control parameters based on standard performance criteria presented in these documents.

- Analytical holding times/sample preservation.
- Method blanks and field blanks
- Surrogate percent recovery
- MS/MSD sample performance
- Field duplicate comparison
- Detection limits

SECTION 3.0

RESULTS

The following sections describe the Site geology and results of laboratory analyses for soil and groundwater samples collected during the assessments completed between November 2009 through January 2011. The soil and groundwater analytical sampling summary is presented in Table 3. Analytical laboratory report results are presented on a CD in Appendix E. Where analytical results are presented throughout this section, they are presented with data qualifiers and are flagged, as appropriate (e.g., J denotes an estimated value detected above the method detection limit, but below the reporting limit). The data submitted for this project are of known and acceptable quality as qualified, based on laboratory-established control limits and the data quality objectives. These data are considered acceptable for their intended purposes. The Data Adequacy Reports are included in Appendix D.

3.1 SITE SPECIFIC GEOLOGY

Figures 6 and 7 present two geologic cross sections constructed from historic and current boring logs. Based on the stratigraphic and lithologic descriptions noted on these boring logs, the hydrostratigraphy and geology is reasonably consistent with the site specific hydrostratigraphy and geology observed in prior investigations and presented in previous reports. Andesitic bedrock (weathered, fine-grained, extensively fractured, volcanic rock) was encountered at approximately 140 feet below ground surface (bgs). The andesitic bedrock was observed to become less weathered at approximately 185 feet bgs to the total depth of boring B-60, at 200 feet bgs. Additionally, the hydrostratigraphic unit of lower hydraulic permeability (sandy clay/clayey sand) that has been observed with relative lateral continuity across the site at depths of approximately 50 to 80 feet bgs in the western and central portions of the site, thinning slightly to the east, may correlate to the noted regional aquitard layer (JMM, 1993). This unit appears to maintain a more uniform thickness from north to south across the site. Figure 8 depicts the shallow groundwater flow direction (from fourth quarter 2010) as easterly.

3.2 ANALYTICAL RESULTS

The following sections describe soil and groundwater chemistry analytical results that were reported above analytical reporting limits. The results were compared to various Federal and/or State standards, as described below.

3.2.1 Regulatory Standards

The detected concentrations in both soil and groundwater were compared against various Federal and/or State standards, as tabulated in Tables 4 through 16. Descriptions of each of these criteria are provided below:

- **Soil:** Detected soil concentrations were compared to EPA Region IX Risk-Based Preliminary Remediation Goals (PRGs) for VOCs, SVOCs, metals, PCBs, and general chemistry (EPA, 2010), the RWQCB soil clean-up screening level (based on the maximum attenuation factors) for VOCs (RWQCB, 1996), the California background concentrations for metals (Bradford et al, 1996), and the RWQCB maximum soil screening levels (SSLs) for TPH (RWQCB, 1996).

  - EPA PRGs are risk-based tools for evaluating and cleaning up contaminated sites using the industrial scenario.
  - RWQCB soil clean-up screening levels are soil cleanup criteria for VOCs that are based on site physical properties. The soil clean-up levels of VOC contaminants are maximum concentrations which can be retained in the soil above groundwater for protection of groundwater.
  - *Background Concentrations of Trace and Major Elements in California Soils* documents the comprehensive, scientific database on anthropogenic and natural causes of elevated trace element concentrations in California soils. Detected metal concentrations were compared to background concentrations from samples noted in the report. The closest samples in the report to the Site are from the Santa Barbara Area.
  - RWQCB SSLs are numerical soil screening levels to evaluate the need for remediation of soils impacted by petroleum hydrocarbons, based on soils less than 20 feet above groundwater; since groundwater is approximately 25 feet bgs.

- **Groundwater:** Detected groundwater concentrations were compared to the California Department of Public Health (CDPH) primary Maximum Contaminant Levels (MCLs) and Notification Levels for VOCs, SVOCs, metals, and general chemistry (CDPH, 2010) and the RWQCB Environmental Screening Levels (ESLs) for TPH (RWQCB, 2008b).
  - CDPH MCLs are drinking water standards that are listed in the Title 22 of the California Code of Regulations. Primary MCLs were used to evaluate impacts to groundwater (CDPH, 2010). Notification Levels are health-based advisory levels established by CDPH. Though Notification Levels are not enforceable, they are monitored when exceeded. The Notification Level was used for 1,4-dioxane.
  - RWQCB ESLs from the San Francisco RWQCB were used to compare TPH concentrations.

3.2.2 Soil Chemistry Results

The following sections describe soil chemistry analytical results that were reported above analytical reporting limits. Soil analytical results and Federal and State regulatory standards are tabulated in Tables 4 through 10. Results reported at concentrations above the reporting limits are referred to as "detected" in the discussion below. The results on Tables 4 through 16 also present the reporting limit for results that were reported by the analytical laboratory as not detected above the reporting limit.

3.2.2.1 Volatile Organic Compounds (VOCs)

Soil chemistry results for VOCs are summarized on Table 4. Soil chemistry results for TCE are presented graphically on Figure 9.

- 1,1,2-Trichloro-1,2,2-trifluoroethane (Freon 113) was detected in one sample from B-42 at 30 feet bgs at a concentration of 28 micrograms per kilogram (μg/kg).

- 1,1-Dichloroethene (DCE) was detected in 13 samples at concentrations ranging from 1.3 to 13 µg/kg.
- 1,2,4-Trimethylbenzene (5.2 µg/kg), 1,3,5-trimethylbenzene (2.4 µg/kg), isopropylbenzene (1.8 µg/kg), n-butylbenzene (2.3 µg/kg), n-propylbenzene (2.5 µg/kg), p-isopropyltoluene (1.3 µg/kg), and sec-butylbenzene (1.6 µg/kg) were all detected in one sample from B-16 at 20 feet bgs.
- Acetone was detected in one sample from B-16 at 25 feet bgs at a concentration of 78 µg/kg.
- Benzene was detected in 12 soil samples at concentrations ranging from 0.99 to 2.6 µg/kg.
- cis-1,2-DCE was detected in 23 samples at concentrations ranging from 1 to 20 µg/kg.
- Carbon Tetrachloride was detected in 11 samples at concentrations ranging from 1.6 to 26 µg/kg.
- Chloroform was detected in seven samples at concentrations ranging from 1.3 to 3.6 µg/kg.
- Ethylbenzene was detected in five samples at concentrations ranging from 1.8 to 45 µg/kg.
- o-Xylene was detected in five soil samples at concentrations ranging from 2.8 to 79 µg/kg.
- p/m-Xylene was detected in four soil samples at concentrations ranging from 7.2 to 25 µg/kg.
- t-1,2-DCE was detected in eight samples at concentrations ranging from 0.93 to 6.1 µg/kg.
- Tetrachloroethene (PCE) was detected in 13 samples at concentrations ranging from 1.5 to 180 µg/kg.
- Toluene was detected in 12 samples at concentrations ranging from 0.96 to 1.4 µg/kg.
- Trichloroethene (TCE) was detected in 50 samples at concentrations ranging from 1.9 to 89,000 J µg/kg.
- No other constituents were reported above analytical reporting limits in the 169 soil samples chemically analyzed for VOCs.

Of the 169 soil samples analyzed for VOC analysis, only TCE was detected above the PRG for industrial land use and the soil clean-up screening level in B-16, B-42, B-44, and B-45. These borings are located adjacent to the historical feature, Tank 5.

3.2.2.2 Semi-Volatile Organic Compounds (SVOCs)

Soil chemistry results for SVOCs are summarized in Table 5.

- Bis(2-Ethylhexyl) Phthalate was detected in one duplicate sample from B-16 at 10.5 feet bgs at a concentration of 2,700 µg/kg.
- Butyl Benzyl Phthalate was detected in one sample from B-14 at 25 feet bgs at a concentration of 650 µg/kg.
- No other constituents were reported above analytical reporting limits in the 51 samples chemically analyzed for SVOCs.

Of the 51 soil samples analyzed for SVOC analysis, none were reported at concentrations exceeding a PRG for industrial land use.

3.2.2.3 Metals

Soil chemistry results for metals are summarized on Table 6.

- Aluminum was detected in all 120 samples that were analyzed for metals at concentrations ranging from 2,280 to 26,800 milligrams per kilogram (mg/kg).
- Antimony was not reported above analytical reporting limits in any of the 120 samples.
- Arsenic was detected in 112 samples at concentrations ranging from 0.798 to 3.87 mg/kg.
- Barium was detected in all samples at concentrations ranging from 21.6 to 126 mg/kg.
- Beryllium was detected in 114 soil samples at concentrations ranging from 0.252 to 0.612 mg/kg.
- Cadmium was not reported above analytical reporting limits in any of the 120 samples.
- Chromium was detected in all samples at concentrations ranging from 2.44 to 106 mg/kg.
- Hexavalent chromium was not reported above analytical reporting limits in any of the 6 samples analyzed for hexavalent chromium.
- Cobalt was detected in all samples at concentrations ranging from 1.97 to 24.1 mg/kg.
- Copper was detected in all samples at concentrations ranging from 2.62 to 81.7 mg/kg.
- Iron was detected in all samples at concentrations ranging from 3,370 to 26,900 mg/kg.
- Lead was detected in all samples at concentrations ranging from 0.914 to 5.19 mg/kg.

- Manganese was detected in all samples at concentrations ranging from 60.2 to 985 mg/kg.
- Mercury was detected in the 10 soil samples at concentrations ranging from 0.0838 to 1.97 mg/kg.
- Molybdenum was detected in 26 samples at concentrations ranging from 0.27 to 1.62 mg/kg.
- Nickel was detected in all samples at concentrations ranging from 2.52 to 80.6 mg/kg.
- Selenium was not reported above analytical reporting limits in any of the 120 samples.
- Silver was detected in one sample from B-17 at 15 feet bgs at a concentration of 0.69 mg/kg.
- Thallium was not reported above analytical reporting limits in any of the 120 samples.
- Vanadium was detected in all samples at concentrations ranging from 6.03 to 102 mg/kg.
- Zinc was detected in all samples at concentrations ranging from 10.9 to 68.4 mg/kg.

Of the 120 soil samples analyzed for metals compounds, only arsenic was detected above a PRG for industrial land use of 1.6 mg/kg in most samples, but below the background concentration of 4.5 mg/kg (Bradford et al, 1996).

3.2.2.4 Total Petroleum Hydrocarbons (TPH)

Soil chemistry results for TPH are summarized on Table 7. Soil chemistry results for TPH are presented graphically on Figure 10.

- Gasoline range organics (Carbons C6-C12) were detected in one of the 79 samples at a concentration of 6.9 mg/kg (B-16 at 20 feet bgs), below the SSL of 100 mg/kg.
- Diesel range organics (C13-C22) were detected in six of the 79 samples at concentrations ranging from 0.09 to 450 mg/kg. Only one sample, duplicate sample from B-16 at 10.5 feet bgs, was detected above the SSL of 100 mg/kg. Deeper samples from B-16 were not reported above analytical reporting limits.
- Motor oil range organics (C23-C44) were detected in five of the 79 samples at concentrations ranging from of 0.087 to 20,000 mg/kg. Only one sample, duplicate B-16 at 10.5 feet bgs was detected above the SSL of 1,000 mg/kg. Deeper samples from B-16 were 48.3 mg/kg (15-foot), 21.7 mg/kg (20-foot), and <2.4 mg/kg (25-foot bgs).

3.2.2.5 Other Analyses

Soil chemistry results for PCBs are summarized on Table 8. Soil chemistry results for 1,4-Dioxane are summarized on Table 9.

- PCBs were not detected above analytical reporting limits in any of the 6 soil samples chemically analyzed for PCBs.
- 1,4-Dioxane was not detected above analytical reporting limits in any of the 29 soil samples chemically analyzed for 1,4-dioxane.

3.2.2.6 General Chemistry

Soil chemistry results for general chemistry parameters [including calcium, chloride, fluoride, magnesium, nitrate (as N), potassium, sodium, sulfate and pH] are summarized in Table 10.

- Calcium concentrations ranged from 1,020 to 5,610 mg/kg.
- Chloride concentrations ranged from 1.2 to 360 mg/kg.
- Fluoride concentrations ranged from 0.2 to 960 mg/kg.
- Magnesium concentrations ranged from 986 to 14,000 mg/kg.
- Nitrate (as Nitrogen) concentrations ranged from 0.06 to 240 mg/kg.
- Potassium concentrations ranged from 331 to 1,550 mg/kg.
- Sodium concentrations ranged from 91 to 11,400 mg/kg.
- Sulfate concentrations ranged from 3.4 J to 500 mg/kg.
- pH ranged from 5.48 to 10.99.

Of the 120 soil samples (142 soil samples for Nitrate and Fluoride) analyzed for general chemistry analysis, none were reported at concentrations exceeding a PRG for industrial land use.

3.2.3 Groundwater Chemistry Results

The following section describes groundwater chemistry analytical results that were reported above analytical reporting limits. These results are tabulated in Tables 11 through 16.

3.2.3.1 Volatile Organic Compounds

Groundwater chemistry results for VOCs are summarized on Table 11. Groundwater chemistry results for VOCs are presented graphically on Figure 11. Graphical isocontours of TCE concentrations in groundwater at the 35-foot, 50-foot and 65 to 200-foot depth regions are presented graphically on Figures 12 through 14.

- Freon 113 was detected in 29 samples at concentrations ranging from 14 to 780 μg/L, below the MCL of 1,200 micrograms per liter (μg/L).
- 1,1-DCE was detected in 21 samples at concentrations ranging from 2.1 to 35 μg/L). Samples collected from B-31 (35 feet bgs), B-46 (35 feet bgs), B-61 (35 feet bgs), B-65 (35 feet bgs), B-66 (35 feet bgs), MW-1, and MW-3 were detected above the MCL of 6 μg/L.
- Benzene was detected in six samples at concentrations ranging from 0.52 to 1.1 μg/L. The groundwater sample collected from B-48 (65 feet bgs) was detected above the MCL of 1.0 μg/L.

- Carbon Tetrachloride was detected in one sample in B-34 at 35 feet bgs, at a concentration of 0.53 µg/L, above the MCL of 0.5 µg/L.
- Chloroform was detected in nine samples at concentrations ranging from 1.1 to 5.2 µg/L (no established primary MCL for chloroform).
- Ethylbenzene was detected in one sample in B-40 at 35 feet bgs, at a concentration of 1 µg/L, below the MCL of 300 µg/L.
- o-Xylene was detected in B-46 (35 feet bgs) and B-40 (35 feet bgs) at a concentration of 1.3 and 2.3 µg/L, respectively, below the MCL of 1,750 µg/L.
- p/m-Xylene was detected in four samples at concentrations ranging from 1 to 5.5 µg/L, below the MCL of 1,750 µg/L.
- trans-1,2-DCE was detected in one sample in B-34 at 35 feet bgs at a concentration of 1 µg/L, below the MCL of 10 µg/L.
- PCE was detected in B-34 (35 feet bgs) and MW-2 (duplicate) samples at a concentration of 6.7 and 1 µg/L, respectively. The groundwater sample collected from B-34 exceeded the MCL of 5 µg/L.
- Toluene was detected in four samples at concentrations ranging from 1.4 to 6.5 µg/L, below the MCL of 150 µg/L.
- TCE was detected in 70 samples at concentrations ranging from 1.9 to 300,000 µg/L. Forty-eight (48) of the 70 detected samples exceeded the MCL of 5 µg/L.
- No other constituents were reported above analytical reporting limits in the 108 groundwater samples chemically analyzed for VOCs.

Of the 108 groundwater samples analyzed for VOC analysis, 1,1-DCE, benzene, carbon tetrachloride, and PCE were sporadically detected above the MCL. TCE was detected above the MCL in most groundwater samples.

3.2.3.2 Semi-Volatile Organic Compounds (SVOCs)

Groundwater chemistry results for SVOCs are summarized on Table 12.

- 4-Nitrophenol was detected in B-16 (35 feet bgs) at a concentration of 14 µg/L (no established MCL for 4-Nitrophenol).
- No other constituents were reported above analytical reporting limits in the 29 groundwater samples analyzed for SVOCs.

3.2.3.3 Metals

Groundwater chemistry results for dissolved metals are summarized on Table 13.

- Aluminum was detected in seven samples at concentrations ranging from 50 to 171 µg/L, below the MCL of 1,000 µg/L.
- Antimony was detected in MW-6 at a concentration of 28.7 µg/L, above the MCL of 6 µg/L.
- Arsenic was detected in MW-6 at a concentration of 10 µg/L, at the MCL of 10 µg/L.

- Barium was detected in 65 samples at concentrations ranging from 15.3 to 534 µg/L, below the MCL of 1,000 µg/L.
- Beryllium and cadmium were not reported above analytical reporting limits in any of the 67 samples analyzed for metals.
- Chromium (total) was detected in the duplicate sample in B-43 (35 feet bgs) and in B-48 (35 foot bgs) at a concentration of 10.7 and 13.7 µg/L, respectively, below the MCL of 50 µg/L.
- Chromium (hexavalent) was detected in 20 samples at concentrations ranging from 0.26 to 4.3 µg/L, below the MCL of 50 µg/L.
- Cobalt was detected in four samples at concentrations ranging from 10.8 to 26.6 µg/L. No established primary MCL for cobalt.
- Copper was detected in MW-3 at a concentration of 14 µg/L, below the MCL of 1,300 µg/L.
- Iron was detected in four samples at concentrations ranging from 114 to 316 µg/L. No established primary MCL for iron.
- Lead was not reported above analytical reporting limits in any of the 67 samples analyzed for metals.
- Manganese was detected in 62 samples at concentrations ranging from 5.07 to 2,450 µg/L. No established primary MCL for manganese.
- Mercury was not reported above analytical reporting limits in any of the 67 samples analyzed for metals.
- Molybdenum was detected in 36 samples at concentrations ranging from 10.3 to 163 µg/L. No established MCL for molybdenum.
- Nickel was detected in 34 samples at concentrations ranging from 10.6 to 67.5 µg/L, below the MCL of 100 µg/L.
- Selenium was detected in two samples at concentrations of 16.2 and 25.5 µg/L, below the MCL of 50 µg/L .
- Silver was detected in one sample at a concentration of 7.83 µg/L. No established primary MCL for silver.
- Thallium was not reported above analytical reporting limits in any of the 67 samples analyzed for metals.
- Vanadium was detected in 19 samples at concentrations ranging from 10.9 to 16.3 µg/L. No established MCL for vanadium.
- Zinc was detected in 17 samples analyzed at concentrations ranging from 11.4 to 147 µg/L. No established primary MCL for zinc.

Of the 67 groundwater samples analyzed for dissolved metals, only antimony and arsenic were detected at or above the MCL in one sample from MW-6.

3.2.3.4 TPH

Groundwater chemistry results for TPH are summarized on Table 14. TPH and BTEX concentrations in groundwater are presented graphically on Figure 15.

- Gasoline range organics (C6-C12) were detected in nine samples at concentrations ranging from 17.6 to 24,000 µg/L. Samples collected from B-16, B-41, and B-43 were detected above the ESL of 100 µg/L.
- Diesel range organics (C13-C28) were detected in 18 samples at concentrations ranging from 6.6 to 800 µg/L. Samples collected from B-43 and B-64 were detected above the ESL of 100 µg/L.
- Motor oil range organics (C29-C44) was detected in 15 samples at concentrations ranging from 12 to 580 µg/L. Samples collected from B-43 and B-64 were detected above the ESL of 100 µg/L.

3.2.3.5 General Chemistry

Groundwater chemistry results for general chemistry parameters [including alkalinity (total as $CaCO_3$), bicarbonate (as $CaCO_3$), carbonate (as $CaCO_3$), calcium, chloride, fluoride, magnesium, MBAS, nitrate (as N), potassium, sodium (total dissolved), sulfate and pH] are summarized in Table 15. Nitrates (as nitrogen) concentrations in groundwater are presented graphically on Figure 16. Groundwater chemistry results for general chemistry parameters were also used to develop Stiff Diagrams, which are presented graphically on Figure 17.

- Bicarbonate alkalinity concentrations ranged from 34,000 to 415,000 µg/L.
- Carbonate alkalinity was not reported above analytical reporting limits in any of the 65 samples.
- Calcium concentrations ranged from 21,900 to 855,000 µg/L.
- Chloride concentrations ranged from 29,000 to 1,100,000 µg/L.
- Fluoride concentrations ranged from 130 to 17,000 µg/L.
- Magnesium concentrations ranged from 14,000 to 508,000 µg/L.
- Methyl Blue Active Surfactants concentrations ranged from 100 to 830 µg/L.
- Nitrate (as nitrogen) concentrations ranged from 210 to 1,500,000 µg/L, above the MCL of 1,000 µg/L.
- Potassium concentrations ranged from 585 to 6,440 µg/L.
- Sodium concentrations ranged from 40,900 to 1,390,000 µg/L.
- Total dissolved solids concentrations ranged from 114,000 to 10,900,000 µg/L.
- Sulfate concentrations ranged from 3,900 to 280,000 µg/L.
- pH ranged from 6.26 to 7.48 µg/L.

Of the 65 samples analyzed for general chemistry (93 samples analyzed for nitrate [as nitrogen]), only nitrate (as nitrogen) was detected above the MCL.

3.2.3.6 1,4-Dioxane

Groundwater chemistry results for 1,4-Dioxane are summarized on Table 16. Groundwater chemistry results for 1,4-Dioxane are presented graphically on Figure 15. Graphical isocontours of 1,4-Dioxane concentrations in groundwater at the 35-foot, 50-foot and 65 to 100-foot depth regions are presented graphically on Figures 19 through 21.

- 1,4-Dioxane was detected in 36 groundwater samples at concentrations ranging from 2.1 to 28 µg/L. Twenty-three (23) samples were detected above the Notification Level of 3.0 µg/L.

3.3 QA LAB PIPELINE INVESTIGATION RESULTS

Geophysical methods were used by Underground Location Service, a geophysical company subcontracted by MWH, in an attempt to non-destructively trace the presence and direction of the subsurface extension of the riser pipe located in the QA Lab. A metal fish tape was inserted as far as possible into the pipe. Direct connection to the fish tape with a transmitter was made. A signal was found trending directly north from the exposed pipe to the north wall of building. Attempts to locate the signal outside of the building were unsuccessful. A pipe depth reading of approximately 18 inches was made inside the building at the north wall. After removal of the fish tape the length of the fish tape matched the distance to the north wall. Ground penetrating radar (GPR) transects were performed both the inside the QA Lab and outside. No GPR response was noted outside the building however there was response noted inside the QA Lab consistent with electromagnetic insertion signal location. The pipeline investigation report is included as Appendix F.

SECTION 4.0

DISCUSSION

This section discusses the current understanding regarding the nature and extent of impacts in soil and groundwater at the Site. It describes the former Site features that may represent historical sources and current distribution of COPCs identified during the assessment.

4.1 DISCUSSION OF COPCs IN SUBSURFACE SOILS

Constituents are present in the vadose zone and the distributions of constituents in soil are presented in Tables 4 through 10, referencing the boring locations and depths. The COPCs that were detected above EPA PRGs, RWQCB soil clean-up screening levels, background, or RWQCB SSLs include TCE and TPH (diesel and motor oil ranges). Other constituents that were detected in Site soils, were below the regulatory standards and are therefore not considered to be COPCs.

<u>TCE:</u> – TCE was detected in samples collected from 14 soil borings from the former drum storage area, the doping area, the former air compressor area, and the former Tank 5 area. Concentrations of TCE in soil samples from the former drum storage area, QA lab, the doping area, and the former air compressor area were detected at a maximum concentration of 12 µg/kg, well below the PRG of 14,000 µg/kg and the soil clean-up screening level of 725 µg/kg (Figure 9). Therefore the former drum storage area, the doping area, and the former air compressor area are not considered to be significant historical sources for TCE contamination.

Concentrations of TCE in soil samples from the QA lab and the former Tank 5 area were detected at concentrations ranging from 25 to 89,000 µg/kg, above the PRG and the soil clean-up screening level. Concentrations exceed the regulatory standards starting at 15 feet bgs to depths of approximately 25-30 feet bgs, within the saturated zone. In general, TCE concentrations tend to be higher in the vadose and shallow saturated zone, close to former Tank 5, suggesting a historical release and the vertical migration of constituents beneath the Tank. These constituents are likely sorbed at higher concentrations in the finer-grained hydrostratigraphic units. With seasonal fluctuations of the groundwater elevation, these constituents can desorb and create a possible 'smear' zone over time. The higher relative concentrations within the deeper vadose zone may also represent possible off-gassing of VOCs from the dissolved phase in groundwater, which may also explain why VOCs have been reported soil gas samples collected and analyzed from other areas at the Site. In addition, TCE concentrations in soil in the QA lab area appear to decrease in concentration with distance away from the former Tank 5 area, suggesting that the QA lab area may have been impacted from the elevated concentrations of TCE that appears beneath the former Tank 5 location. Therefore, the former Tank 5 appears to be the most likely historical source of TCE impacts to soils at the Site.

<u>TPH:</u> TPH-diesel was detected in one sample (duplicate of B-16-10, Table 7) collected from one boring location at the former Tank 5 area (Figure 10). The concentration of TPH-diesel was 450 mg/kg, above the SSL of 100 mg/kg. Soil chemistry results from deeper sample locations at B-16 were not reported above analytical reporting limits. The lateral and vertical extent of this historical source area has been delineated and is interpreted to be a localized area impacted with TPH-diesel in the vicinity of the former Tank 5 area. Therefore,

subsurface materials in the former Tank 5 vicinity do not appear to be a significant historical source of TPH-diesel impacts to the soils at the Site.

TPH-motor oil was detected in samples collected from six soil borings from the Block House, the machine shop, the former air compressor area, the pad-mounted transformer, and the former Tank 5 area. Concentrations of TPH-motor-oil in soil samples from the Block House, the machine shop, the former air compressor area, and the pad-mounted transformer were detected at a maximum concentration of 12 mg/kg, well below the SSL of 1,000 mg/kg. Therefore, the Block House, the machine shop, the former air compressor area, and the pad-mounted transformer are not considered to be significant historical sources for TPH-motor oil contamination.

Concentrations of TPH-motor oil in soil samples from the former Tank 5 area were detected at concentrations ranging from 10 to 19,100 mg/kg. Concentrations exceed the SSL in one sample, duplicate B-16 at 10.5 feet bgs (the original sample in B-16 at 10 feet bgs was non-detect). Deeper samples from B-16 were 48.3 mg/kg (15-foot), 21.7 mg/kg (20-foot), and non-detect (25-foot bgs), below the SSL. The lateral and vertical extent of this historical source area has been delineated and is interpreted to be a localized area impacted with TPH-motor oil impacts. Therefore, the former Tank 5 appears to be a local historical source of TPH-motor oil impacts to soils at the Site.

4.2 DISSCUSSION OF COPCs IN SITE GROUNDWATER

Constituents related to past Site operations are present in the saturated zone and the distributions of constituents in groundwater are presented in Tables 11 through 16. The COPCs that were detected above CDPH MCLs and Notification Levels, and RWQCB ESLs include VOCs, antimony, arsenic, TPH (gasoline, diesel, and motor oil ranges), 1,4-dioxane, and nitrate (as nitrogen). Other constituents that were detected in Site groundwater chemical analyses were below regulatory standards and are therefore not considered COPCs.

VOCs: 1,1-DCE, benzene, carbon tetrachloride, and PCE were detected sporadically in samples collected from 11 HydroPunch sampling locations, and groundwater monitoring wells MW-1, MW-2, and MW-3 (Figure 11), above the aquitard layer (lower permeable zone located at depths of approximately 50 to 80 feet bgs) (JMM, 1993). Some groundwater chemistry results for these COPCs were above MCLs. In deeper groundwater samples, 1,1-DCE, benzene, carbon tetrachloride, and PCE were not reported above analytical reporting limits. Historically, 1,1-DCE has been sporadically detected above the reporting limit in MW-1, MW-2, and MW-3. These sporadic groundwater chemistry results and their locations across the Site do not suggest a historical source of these constituents to the groundwater. Therefore, groundwater does not appear to be impacted significantly by 1,1-DCE, benzene, carbon tetrachloride, and PCE at the Site. The source of these sporadic detections is unknown.

TCE was detected in 68 groundwater samples at concentrations ranging from 1.2 to 300,000 µg/L in samples from 35 to 200 feet bgs (Figure 11), 56 samples were above the MCL of 5 µg/L. Concentrations exceed the MCL consistently along the northern portion of the Site and more significantly in the vicinity of the former Tanks 2 and 5. Furthermore, TCE concentrations in groundwater may reflect a contribution of TCE flowing onto the Site from up-gradient, off-site sources, as discussed previously in Section 3.1.

- Former Tank 2: Based on historical data, former Tank 2 was not used as a solvent storage tank, rather, it was used for acid neutralization as part of the older underground wastewater treatment system at the Site. Additionally, a Semtech employee with historic knowledge about chemical purchases noted that TCE was not a chemical that was purchased in bulk form for the Site. Previous soil sampling data from SB-1, SB-2, and SB-3 (see Figure 4 for locations and Table 2 for summary of concentrations detected) did not report detections of TCE. In addition, TCE was not reported above analytical reporting limits in soil samples from B-7 or B-8, suggesting that TCE impacts to the subsurface did not occur at this location. Higher TCE concentrations in the vicinity of the former Tank 2 may either derive from the former Tank 5 source spreading westward toward the Mitchell Road when the Rockwell extraction system was operating or from hydraulically up-gradient sources commingling onto the Site from the west, when the Rockwell recharge wellfield was in operation. TCE concentrations in the vicinity of MW-2 and B-34 area are elevated above the MCL, with lesser concentrations in the B-2 and B-46 areas, as discussed further below. Therefore, the former Tank 2 does not appear to be a historical source of TCE impacts to groundwater at the Site.

- Former Tank 5: Concentrations of TCE in groundwater samples from the former Tank 5 area were detected at concentrations ranging from 29,000 to 300,000 µg/L at the 35 foot depth (Figure 12) and from 6,600 to 11,000 µg/L at the 50 foot depth (Figure 13). These concentrations at 35- and 50-foot depths were all detected above the low permeability materials that comprise the previously described aquitard layer (JMM, 1993) (at depths ranging from approximately 50 to 80 feet bgs). TCE concentrations were observed to decrease with depth; ranging from 59 to 6,200 µg/L at 65 and 85 feet bgs (within the aquitard layer) and were reported at 1,200 µg/L at 100 feet bgs (below the aquitard layer) (Figure 14). TCE concentrations significantly decrease below 100 feet bgs, ranging between 3.9 to 14 µg/L. The groundwater chemistry results for samples collected in the immediate area around former Tank 5 were above the MCL of 5 µg/L. These elevated TCE soil and groundwater chemistry results, in addition to the previous soil chemistry results obtained during the UST removal activity, suggest that the former Tank 5 was a historical source of TCE impacts to the subsurface. Therefore, the former Tank 5 appears to be the predominant source of TCE impacts to groundwater at the Site.

- Potential Impacts from historical Off-Site Sources: Although a current assessment of potential off-Site sources was not conducted during this assessment, it is known that an adjacent and hydraulically up-gradient VOC and 1,4-dioxane source exists west of the Site. Groundwater chemistry results for TCE from samples collected from shallow groundwater sample locations (B-2, B-34, B-46, and MW-2) along the hydraulically up-gradient, western boundary of the Site ranged from 16 to 2,200 J µg/L. It is possible that the remedial activities related to the off-site source may have spread the TCE concentrations westerly across the Site from former Tank 5 towards former Tank 2 during the time of Rockwell's groundwater extraction system (started in 1985). The predominant shallow groundwater flow direction changed gradients to easterly when the Rockwell recharge system began operations in 1994. The TCE concentration in a groundwater sample from groundwater monitoring well MW-2 (located between the western Site boundary and former Tank 5) was reported to be 1 µg/L in 1988. The TCE concentration in groundwater samples collected and chemically analyzed from this well increased to a maximum detection of 4,100 mg/L during the timeframe the off-site recharge wellfield operation began in 1994. The TCE groundwater results for samples collected and analyzed from MW-2 has slowly decreased since that time, suggesting local variations in groundwater movement may have caused the elevated concentration in MW-2. TCE groundwater chemistry results from samples collected from MW-2 are starting to decrease, based on recent quarterly sampling results (currently at 120 µg/L during fourth quarter 2010 [MWH, 2010d]).

Antimony and Arsenic: Dissolved antimony and arsenic were detected in one groundwater sample collected from MW-6 during the 3Q10 and the 1Q10 sampling event at a concentration of 28.7 µg/L (the MCL is 6 µg/L) and 10 µg/L (the MCL is 10 µg/L), respectively. Dissolved antimony and arsenic were not reported above analytical reporting limits in the other groundwater samples collected during the additional groundwater assessment. Historically antimony and arsenic were not reported in previous groundwater monitoring reports to be a COPC at the Site. Therefore, groundwater does not appear to be impacted significantly by antimony and arsenic at the Site.

TPH: TPH (total) was detected at concentrations ranging from 59 to 25,000 µg/L, above the ESL of 100 µg/L (Figure 15). The highest concentrations were detected in the vicinity of former Tanks 1 and 5.

- Former Tank 1: TPH was detected at a concentration of 2,000 µg/L in the groundwater sample collected and chemically analyzed from the 35-foot depth groundwater sample from B-02. Since TPH was not reported above analytical reporting limits in the soil samples collected from the former Tank 1 area, this groundwater chemistry result, though above the ESL, doesn't suggest that this feature is a historical source for TPH. Similarly, groundwater chemistry results from samples collected in the vicinity of nearby former Site features (the Block House and former drum storage area) did not report results above analytical reporting limits for TPH nor were there significant benzene/toluene/ethylbenzene/xylenes constituents reported in soil samples (Figure 15). Therefore, the former Tank 1 does not appear to be a historical source of TPH impacts to groundwater at the Site. The source of the detection is unknown since the former Site features have been investigated in this area.

- Former Tank 5: Higher groundwater concentrations of TPH (in the gasoline-, diesel-, and motor-oil ranges) were detected in and around former Tank 5, at concentrations exceeding the ESL. TPH concentrations appear to decrease within the lower permeability aquitard zone, as compared to the groundwater concentrations at the shallower depths. The higher TPH concentrations (above 1,000 µg/L) are reflective of gasoline-range hydrocarbons, where as the remaining detections have diesel and motor-oil signatures. These elevated TPH concentrations in groundwater along with the elevated TPH concentrations in soil suggest that the former Tank 5 is a historical source. Therefore, the former Tank 5 appears to be the predominant historical source of TPH impacts to groundwater at the Site.

1,4-Dioxane: 1,4-Dioxane was detected in 36 groundwater samples at concentrations ranging from 2.1 to 28 µg/L, above the Notification Level of 3.0 µg/L (i.e. not a primary MCL) (Figure 18). Concentrations exceed the Notification Level along the western half of the Site with highest concentrations near former Tank 5 and along the western boundary (downgradient from Skyworks) as shown in Figures 19 through 21. Historically, 1,4-Dioxane was typically used by solvent manufacturers as a stabilizer in 1,1,1-trichloroethane (TCA) and TCE after 1960. In addition, 1,4-dioxane was used in vapor degreasers associated with pre-1989 plating operations and in photographic film cleaning processes after 1970 when the use of carbon tetrachloride was banned, neither of which process was reported to have been conducted at the Site. 1,1,1-TCA was not detected in soil or groundwater samples collected during this assessment. Additionally, 1,4-dioxane was not detected above the reporting limit in soil samples collected in and around former Tank 5 area, suggesting that a 1,4-dioxane historical source does not exist at the former Tank 5. It is known that the off-Site location (former Rockwell facility) had detections of 1,4-dioxane, historically. As such, the detections of 1,4-dioxane may be related to that off-site source. Considering these observations, groundwater does appear to be impacted by a 1,4-dioxane at the Site, however, the source of the 1,4-dioxane is unknown.

Nitrate: Nitrate (as nitrogen) concentrations ranged from 210 to 1,500,000 µg/L, above the MCL of 1,000 µg/L (Figure 16). The highest concentrations of nitrate were detected in and around former underground treatment system Tanks 2, 3, and 4, and around former Tank 5. Nitrate was detected in soil samples from these former Site features and others, however, below the PRG for industrial land-use. Historically groundwater samples from the wells across the Site have detected nitrate above the MCL, with higher concentrations detected along the eastern boundary of the Site in former groundwater monitoring well MW-4 (adjacent to former Tank 4) at 75,000,000 µg/L. Considering these, groundwater does appear to be impacted by nitrate (as nitrogen) at the Site.

4.3 DISCUSSION OF GENERAL MINERAL WATER QUALITY

Common inorganic ion chemistry can indicate distinct water types in groundwater. The ionic composition of groundwater samples is represented by the Stiff diagram (Stiff, 1951). Stiff diagrams are used to compare the ionic composition of water samples between different locations, depths, or aquifers, or changes in water composition within the same location, depth, or aquifer over time. The Stiff diagram is a polygon created from three horizontal axes extended on both sides of a vertical axis. Cations are plotted on the left side of the axis and anions are plotted on the right side, both in milli-equivalents per liter (meq/L). A greater distance from the vertical axis represents a larger ionic concentration. The horizontal axis units are the same on all Stiff diagrams to aid comparisons between different sampling locations and groundwater zones. Because the concentrations are shown in meq/L, the area of the left (cation) and right (anion) side of the plot will be equal, except for unusual cases where ions such as nitrate are not included in the standard Stiff plot format. The ions used in computation of percentage composition are considered as 'conservative' in the groundwater environment, although sulfate and nitrate does undergo decomposition under microbiological action. The results of general mineral groundwater quality analyses are presented in Table 17 and the areal distribution of Stiff diagrams constructed for water samples are shown in Figure 17.

As indicated in Table 17, the general mineral analyses may be grouped into six ionic water types: (1) mixed, (2) mixed bicarbonate, (3) mixed sodium, (4) mixed chloride, (5) mixed nitrate, and (6) sodium nitrate. Note that although some of the water types are dominated by nitrate, nitrate is typically not one of the ions plotted on a Stiff diagram.

Mixed, mixed-bicarbonate, and mixed-sodium waters appear to be representative of background groundwater quality. These water types generally occur along the site margins and/or at depths below the uppermost sampled zone (i.e., below 35 ft bgs). These waters have total dissolved solids (TDS) concentrations of 1,000 milligrams per liter (mg/L) or less and pH values near 7 or greater.

Mixed-chloride water occurs in the shallow zone (35 ft bgs) along the western site margin near former Tanks 1 and 2 (borings B-2, B-31, B-46, and B-47) and in the site's north-central area (B-30 and B-40). Elevated chloride concentrations ranging up to 900 mg/L cause TDS concentrations to exceed 1,000 mg/L. The pH values of these samples are generally below 7.

Mixed-nitrate and sodium-nitrate waters occur in the shallow zone near former Tank 2 (B-34), former Tank 4 (B-28), and former Tank 5 (B-16 and B-43). Samples from monitoring well MW-3 near former Tank 3 and MW-6 north of former Tank 4 are also characterized by these water types. Elevated nitrate concentrations range from nearly 1,000 to more than 6,000 mg/L (as nitrate; or approximately 200 to 1,500 mg/L as nitrogen). Among these samples, TDS concentrations generally range from nearly 2,000 to greater than 10,000 mg/L and pH values are generally near 7 or lower.

Although not dominating the ionic water type, elevated nitrate also occurs in the deeper zones of several borings (B-28, B-29, B-34, B-35, and B-43) and in MW-2. Similarly, elevated chloride also occurs in MW-6.

4.4 CONCEPTUAL SITE MODEL

The Site consists of a manufacturing and testing facility in an industrial area. The Main Building is currently vacant. The facility is covered by asphalt, concrete, buildings, or landscaped areas. Current potential human receptors at the Site are limited to SPT Investment representatives, who spend limited time on-Site and are not exposed to groundwater or subsurface soils. There is a public water supply well located approximately ¼ to ½ mile hydraulically down-gradient of the Site.

A conceptual model of the nature and extent of COPCs at the Site is illustrated on Figure 22. The conceptual site model graphically illustrates the following features:

- Low concentrations of 1,4-dioxane (2.8 to 28 µg/L) within a higher concentration of TCE in groundwater appears to migrate onto the Site along the western boundary from an historical off-Site source.
- This TCE/1,4-dioxane plume comingles with a TCE and TPH releases from one former Site feature Tank 5, which was not part of Semtech's operations.
- Concentrations of TCE in the vadose zone at former Tank 5 range from 25 to 89,000 J µg/kg and concentrations of TPH range from 52 to 20,000 mg/kg. These detections have been defined and are deemed localized.
- TCE concentrations in soil samples increase with depth within the vadose zone, toward the saturated zone, suggesting a historical release and the vertical migration of constituents beneath the Tank 5. These constituents are likely sorbed at higher concentrations in the finer-grained hydrostratigraphic units. With seasonal fluctuations of the groundwater elevation, these constituents can desorb and create a possible 'smear' zone over time. The higher relative concentrations within the deeper vadose zone may also represent possible off-gassing of VOCs from the

dissolved phase in groundwater, which may also explain why VOCs have been reported soil gas samples collected and analyzed from other areas at the Site.

- Soil and groundwater does not appear to be significantly impacted by other areas of historical chemical and/or waste handling or storage.
- Low concentrations of TCE are present in the groundwater above drinking water standards at the down-gradient Site boundary, however groundwater chemistry results from the HydroPunch locations installed immediately east of the Site demonstrate that the lateral extent of the TCE plume has been defined.
- Impacts of nitrate (as nitrogen) in groundwater occur at the Site.

SECTION 5.0

CONCLUSIONS

Based on an evaluation of data generated during the soil and groundwater assessment completed between November 2009 through January 2011, the following conclusions can be made:

- The soil chemistry results from 169 primary soil samples, collected from 46 soil borings installed at or adjacent to the 21 former Site features, suggest that subsurface materials at 20 of the 21 former Site features did not contain a secondary source of contamination, or where residual impacts were present, the concentration of residual contamination in the vadose zone was below the preliminary remediation goals for Industrial land use scenarios, were within the soil clean-up levels (based on attenuation factors) to be protective of groundwater, were below published background concentrations of metals, and/or were below the soil screening levels to evaluate the potential need for cleanup, based on depth to groundwater.
- One of the 21 former Site features, Former Tank 5, appears to be a secondary source of impacts to the subsurface. TCE, TPH, and 1,4-dioxane vadose zone impacts at this former Site feature are impacting groundwater quality. However, groundwater impacts remain predominantly within the site boundary and the size of the plume attenuates with depth.
- The impacts to potential human receptors are limited at the Site since the facility is limited to SPT Investment representatives spending limited time on-Site, the Site is located in an industrial area, and the closest public water supply well is located approximately ¼ to ½ mile downgradient of the Site.
- The groundwater chemistry data (1,4-Dioxane and general ion chemistry) may suggest that shallow groundwater along the western portion of the Site differs from the rest of the site. The hydraulic gradient flows in an easterly direction. This suggests that on-Site groundwater quality may be affected by historical off-Site sources and is consistent with historical knowledge. The historical Site features have been sufficiently investigated to determine their potential to cause impacts of COPCs to the subsurface.
- The 46 soil borings, 4 groundwater monitoring wells, 25 on-Site HydroPunch groundwater sample locations and five off-Site HydroPunch groundwater sample locations have sufficiently delineated the lateral and vertical extent of groundwater impacts, considering current site use and the site conceptual model.

LIMITATIONS

In conducting this assessment, MWH's services were completed in a manner consistent with the level of care and skill ordinarily exercised by members of the profession currently practicing in the same locality under similar conditions. Information provided to MWH by client representatives and site contacts has been accepted in good faith and is assumed to be accurate unless written documentation or visual observations present contradictions. MWH's findings are based on observations and data collected at specific points in time. A change in any of these factors may alter the findings and conclusions expressed by MWH.

This report was limited to the areas of concern which were prioritized by discussions with Semtech and subject to the defined scope of services, budget and project schedule as set forth in the Contract. The information contained in this report reflects MWH's professional judgment based on the above limitations and subject to information reasonably available at the time of Report preparation. National and local laws and regulations, if referenced in this report, are provided for information purposes and should not be construed as legal opinion or recommendation. The negotiated scope of work inherently imposed limitations on the collection and interpretation of evidence. The degree of uncertainty was deemed acceptable to the client.

This Report was prepared for the exclusive use of Semtech. Any third party use of this report, or any reliance on or decisions made on the basis of this report, are the sole responsibility of such third party. MWH accepts no responsibility for any damages suffered by a third party as a result of decisions made or actions taken based on this report.

SECTION 6.0

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Exhibit K

6/16

To: Al Novak
From: Harry Patel, 2/17/94
Subject: Semtech Corporation
652 Mitchell Road, Newbury Park, CA 91320

BACKGROUND: This site was referred to the RWQCB by the Ventura County Environmental Health Department. This was originally a fluoride case and now is a metals case.

1. The correspondence for this case started on March 31, 1987, via semtech's letter to the VCEHD regarding the removal of four existing underground storage tanks (UST). The UST schedule is as described below:
Tank T1 - Single wall steel - 7,500 gal - stored various oils and greases and drips from an above ground 55-gal, drum storage
Tank T2 - Single wall concrete - 5,000 gal - stored various metal hydroxides
Tank T3 - Single wall concrete - 3,000 gal - stored mostly nitric acid and hydrofluoric acid, residues were nitrates and fluorides
Tank T4 - single wall concrete - 6,000 gal - stored various sludges and hydroxides before the sludge is filter pressed and disposed of. This tank has been used for acid neutralization process.

Tanks T1, T2 and T3 were removed in February 1987 via excavation and offsite disposal. Verification soil samples were collected from underneath the tank inverts. Laboratory analyses of the soil samples indicated that the soils underneath tanks T1 and T2 were clean. The soils underneath tank T3 indicated the presence to fluoride levels above the CRWQCB standard, but below the MCL per title 22 of california code of regulations.

2. VCEHD asked semtech to collect additional soil samples from underneath tank T3, but the samples could not be collected due to a hard shale layer. Soil samples were collected at 5 feet below ground surface four feet from the edge of tank T3 excavation. These soil samples indicated very low levels of fluorides.

3. After consultation with the RWQCB-LA, VCEHD asked semtech to install four groundwater monitoring wells, to determine the GW quality. Semtech did the work but very reluctantly. At this time the soil and GW samples were also asked to be analyzed for solvents as historically semtech has used trichloroethane and methylethylketone.

4. Four GW monitoring wells (MW1-MW4) were installed onsite. MW1, MW2, MW3, and MW4 were installed next to former tanks T1, T2, T3 and T4 respectively. Soil samples were collected at the time of drilling but not analyzed for TCE due to non detectable levels of volatiles measured with HNu in the field. GW samples indicated high levels of nitrates and fluorides. TCE and Freon 113 were also detected in MW2. Subsurface lithology consists of interbedded layers of clayey sand, sand, sandyclay and clay from 0-40' bgs underlain by a coarse sand layer from 40'-70' bgs which is underlain by a silty clay layer. The GW is under unconfined

conditions and flows in an uneven pattern with variations in southerly to easterly directions. The GW flow rate has not been determined. An aquifer test has not been performed by semtech (may not be necessary). This could be due to the GW pump and treat system in operation at the Rockwell facility.

5. In a letter to the VCEHD, semtech stated that they have never stored TCE onsite and as yet only 4-10 gallons of TCE was used for a lab test. This TCE was disposed offsite in a proper manner.

6. In a letter dated June 21, 1988, VCEHD gave permission to semtech to build a new above ground waste treatment system.

7. In a letter dated August 20, 1990, VCEHD transferred the case to RWQCB, as TCE was detected in well MW2.

8. Tank T4 was cleaned and sandblasted in September 1989. It has not been used since. Semtech is in the process of removing the tank and collecting verification soil samples.

9. Due to the presence of TCE and freon 113 in the GW, semtech was asked to perform quarterly GW monitoring. At the end of four quarterly GW monitoring events it became evident that the fluoride contamination was not a problem and need not be regulated, however, very high levels of nitrates and metals above drinking water levels were detected. In a "Quarterly Groundwater Monitoring", report dated April, 1993, the consultant for semtech recommended that tank T4 be removed and two additional GW monitoring wells be installed downgradient from tank T4.

10. The TCE contamination seems to have migrated onsite form the Rockwell facility located across the street. Rockwell has been performing a pump and treat technology to treat the GW. For this purpose a French drain is used to collect the GW. The GW is than pumped through a series of carbon canisters and the treated water is discharged (under an NPDES permit) to the storm drain.

11. Currently negotiations are ongoing between Rockwell and Semtech to remove the TCE contamination underneath the Semtech site. Both the parties have their own versions of cleanup technologies. Recently, Rockwell suggested installing water injection wells to act as a barrier between the two properties. This may not be a feasible option until a determination is made about the origin of the TCE contamination plume.

12. On May 12, 1993, "Potential Effects of a Proposed Offsite Wellfield on Groundwater Quality at Semtech Corporation", prepared by James M. Montgomery Engineering, Inc. was submitted to the RWQCB describing three scenarios of TCE contamination plume migration. In this report it was recommended that the wellfield (water barrier) is not a suitable option as this will cut off the TCE plume and drive it away from the Rockwell property.

13. In a work plan dated July 7, 1993, semtech proposes to abandon tank T4 via excavation and offsite disposal. The south wall of tank T4 is two feet off the footing of the building, thus semtech proposes to leave the south wall of the tank T4 in place. In order to delineate the lateral and vertical extent of contamination, semtech has proposed to install three soil borings to a maximum depth of 30 feet bgs, and on down gradient GW monitoring well east of tank T4.

14. This morning I talked with Mr. Mark Danzo of semtech regarding the removal of tank T4. He stated that the tank has not been removed as yet, but he is meeting his consultant today and will finalize the plans soon and than let me know the schedule for tank pull and additional soil and GW sampling.

CONCLUSIONS AND RECOMMENDATIONS: The GW quality underneath the site has contamination from metal, TCE and Freon 113. The metal contamination is from semtech. The source of TCE and Freon contamination has not been determined. Semtech is in the process of removing tank T4. Additional soil and GW sampling is planned to define the extent of soil and GW contamination. The treatment technology at Rockwell has a significant impact on the GW gradient on the semtech property. Cleanup method at Rockwell may not be suitable to remove the heavier chlorinated hydrocarbons that generally sink in a water bearing formation. I recommend that semtech's workplan to remove tank T4, perform additional soil and GW sampling be approved. Once the results of the proposed activity have been reviewed a determination can be made as to cleanup of the GW and any soil contamination if encountered.

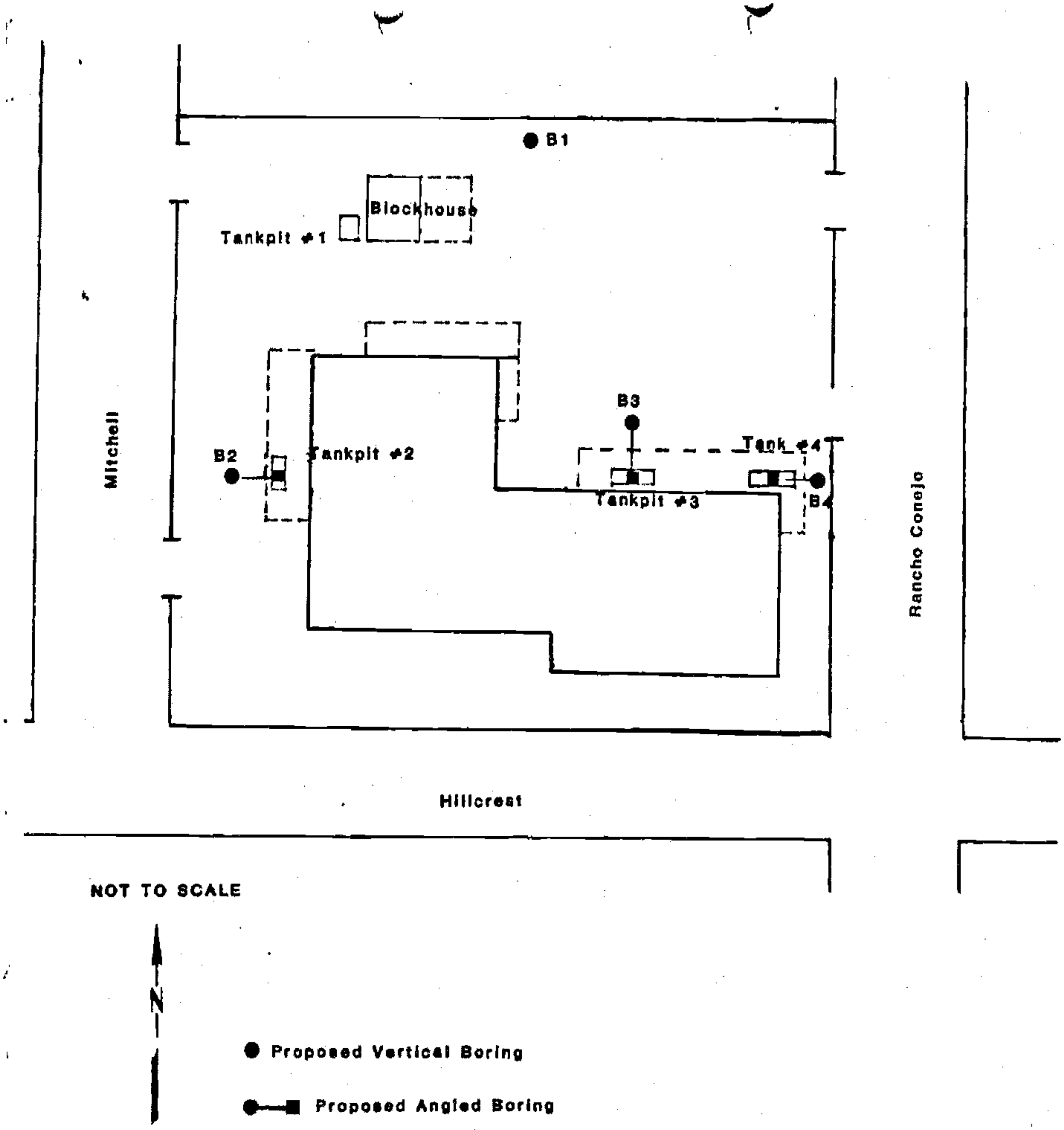

Figure 2. Plot Plan

ERT PROJECT P-E927

Semtech Corporation

Newbury Park, California

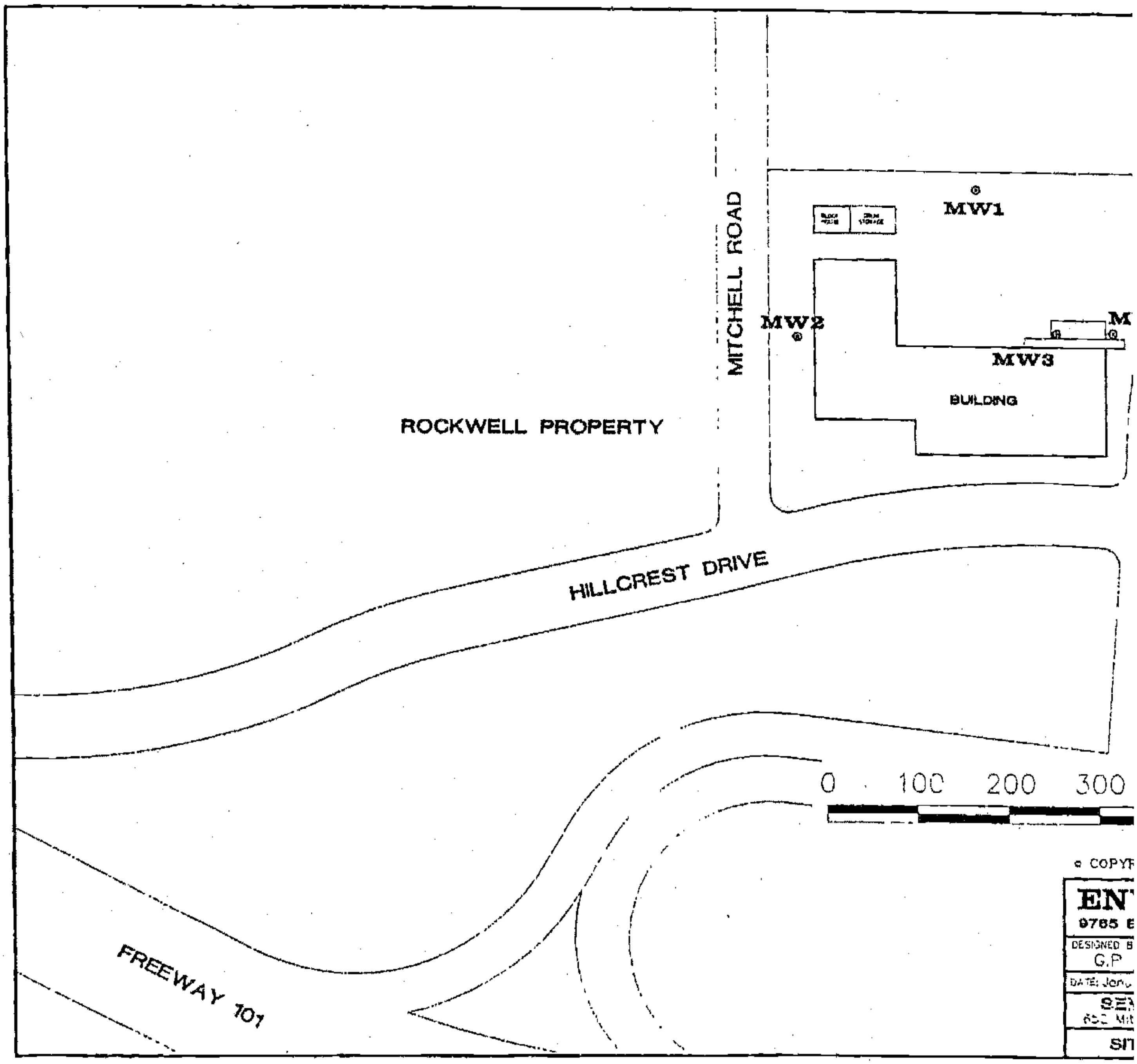
MITCHELL ROAD
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TABLE 3

SUMMARY OF GROUNDWATER MONITORING
LABORATORY RESULTS, JULY THROUGH DECEMBER 1992
SEMTECH CORPORATION, NEWBURY PARK, CALIFORNIA

pH

pH units	*MCL*	Jul-92	Sep-92	Dec-92
MW-1	*NR*	6.9	7	6.8
MW-2	*NR*	7.2	7.2	7.1
MW-3	*NR*	7	7.3	7.2
MW-4	*NR*	6.2	6.1	6.2

CONDUCTIVITY

µmhos/cm	*MCL*	Jul-92	Sep-92	Dec-92
MW-1	*900-1600-2200 (a)*	800	812	821
MW-2	*900-1600-2200 (a)*	1,330	1,300	1,230
MW-3	*900-1600-2200 (a)*	5,250	5,800	5,250
MW-4	*900-1600-2200 (a)*	272,000	110,000	113,000

TDS

mg/l	*MCL*	Jul-92	Sep-92	Dec-92
MW-1	*500-1000-1500 (a)*	602	221	520
MW-2	*500-1000-1500 (a)*	903	858	900
MW-3	*500-1000-1500 (a)*	3,910	7,639	3,690
MW-4	*500-1000-1500 (a)*	290,000	270,000	229,000

CHLORIDE

mg/l	*MCL*	Jul-92	Sep-92	Dec-92
MW-1	*250-500-600 (a)*	112	155	124
MW-2	*250-500-600 (a)*	138	177	148
MW-3	*250-500-600 (a)*	172	212	174
MW-4	*250-500-600 (a)*	2,910	2,990	3,220

SULFATE

mg/l	*MCL*	Jul-92	Sep-92	Dec-92
MW-1	*250-500-600 (a)*	41.4	47.4	38.3
MW-2	*250-500-600 (a)*	119	106	106
MW-3	*250-500-600 (a)*	147	156	139
MW-4	*250-500-600 (a)*	2340	1960	1510

FLUORIDE

mg/l	*MCL*	Jul-92	Sep-92	Dec-92
MW-1	*1.6(b)*	0.26	0.24	0.31
MW-2	*1.6-1.8(b)*	0.46	0.37	0.40
MW-3	*1.6-1.8(b)*	4.0	4.1	0.14
MW-4	*1.6-1.8(b)*	0.13	<0.10	4.4

NITRATE AS N

mg/l	*MCL*	Jul-92	Sep-92	Dec-92
MW-1	*10*	5.75	10	10
MW-2	*10*	6.41	8.7	7.1
MW-3	*10*	<0.03	510	52
MW-4	*10*	<0.03	27,000	32,000

(a) The three numbers represent an MCL range for long term and short term contamination. For example, Chloride has a short-term MCL range from 500 to 600 mg/l and a long-term MCL range from 250 to 500 mg/l. Determination of the appropriate range is left to the discretion of the field engineer.

(b) temperature dependent,<53.7°F = 2.4 mg/l, 53.8 to 58.3°F = 2.2 mg/l, 58.4 to 63.8°F = 2.0 mg/l 63.9 to 70.6°F = 1.8 mg/l, 70.7 to 79.2°F = 1.6 mg/l, 79.3 to 90.5°F = 1.4 mg/l

MCL: maximum contaminant level as designated by the State of California

NR: No reporting level

TABLE 3 (Continued)

SUMMARY OF GROUNDWATER MONITORING LABORATORY RESULTS, JULY THROUGH DECEMBER 1992 SEMTECH CORPORATION, NEWBURY PARK, CALIFORNIA

MBAS as LAS (c)				
mg/l	*MCL*	**Jul-92**	**Sep-92**	**Dec-92**
MW-1	*0.5*	<0.025	<0.05	<0.1
MW-2	*0.5*	0.18	<0.05	<0.1
MW-3	*0.5*	0.46	0.29	1.1
MW-4	*0.5*	2.4	0.12	<0.1
BARIUM				
mg/l	*MCL*	**Jul-92**	**Sep-92**	**Dec-92**
MW-1	*1*	0.10	0.18	0.11
MW-2	*1*	<0.1	0.04	0.04
MW-3	*1*	<0.1	0.26	0.22
MW-4	*1*	1.52	1.59	0.98
CADMIUM				
mg/l	*MCL*	**Jul-92**	**Sep-92**	**Dec-92**
MW-1	*0.01*	<0.01	<0.01	<0.01
MW-2	*0.01*	<0.01	<0.01	<0.01
MW-3	*0.01*	<0.01	<0.01	<0.01
MW-4	*0.01*	0.07	0.09	0.04
IRON				
mg/l	*MCL*	**Jul-92**	**Sep-92**	**Dec-92**
MW-1	*0.3*	3.94	0.87	0.4
MW-2	*0.3*	0.07	0.21	0.08
MW-3	*0.3*	<0.01	1.26	0.41
MW-4	*0.3*	0.99	0.36	0.53
MANGANESE				
mg/l	*MCL*	**Jul-92**	**Sep-92**	**Dec-92**
MW-1	*0.05*	0.27	0.97	0.43
MW-2	*0.05*	0.05	<0.01	0.03
MW-3	*0.05*	0.05	0.3	0.29
MW-4	*0.05*	11.4	8.18	7.28
MERCURY				
mg/l	*MCL*	**Jul-92**	**Sep-92**	**Dec-92**
MW-1	*0.002*	<0.0005	<0.0005	<0.0005
MW-2	*0.002*	<0.0005	<0.0005	<0.0005
MW-3	*0.002*	<0.0005	<0.0005	<0.0005
MW-4	*0.002*	0.13	0.7	0.07

MCL: maximum contaminant level as designated by the State of California

NR: No reporting level

(c) MBAS as LAS: foaming agents

TABLE 3 (Continued)

SUMMARY OF GROUNDWATER MONITORING LABORATORY RESULTS, JULY THROUGH DECEMBER 1992 SEMTECH CORPORATION, NEWBURY PARK, CALIFORNIA

NICKEL

mg/l	*MCL*	Jul-92	Sep-92	Dec-92
MW-1	*0.1*	0.03	0.04	<0.03
MW-2	*0.1*	<0.03	<0.03	<0.03
MW-3	*0.1*	<0.03	0.04	<0.03
MW-4	*0.1*	1.09	0.95	0.71

SILVER

mg/l	*MCL*	Jul-92	Sep-92	Dec-92
MW-1	*0.05*	<0.02	<0.02	<0.02
MW-2	*0.05*	<0.02	<0.02	<0.02
MW-3	*0.05*	<0.02	<0.02	<0.02
MW-4	*0.05*	0.06	0.09	0.08

ACETONE

ug/l	*MCL*	Jul-92	Sep-92	Dec-92
MW-1	*NR*	<10	<10	<10
MW-2	*NR*	<10	<10	<10
MW-3	*NR*	<10	<50	<50
MW-4	*NR*	5,600	900	1,800

4-METHYL-2-PENTANONE

ug/l	*MCL*	Jul-92	Sep-92	Dec-92
MW-1	*NR*	<10	<10	<10
MW-2	*NR*	<10	<10	<10
MW-3	*NR*	7	<50	<50
MW-4	*NR*	<10	<50	<10

TRICHLOROETHENE

ug/l	*MCL*	Jul-92	Sep-92	Dec-92
MW-1	*5*	<5	<5	<5
MW-2	*5*	8	<5	<5
MW-3	*5*	450	450	480
MW-4	*5*	50	46	53

FREON 113

ug/l	*MCL*	Jul-92	Sep-92	Dec-92
MW-1	*1200*	230	150	200
MW-2	*1200*	10	<10	<10
MW-3	*1200*	370	400	370
MW-4	*1200*	10	<50	<10

MEK (2-BUTANONE)

ug/l	*MCL*	Jul-92	Sep-92	Dec-92
MW-1	*NR*	<10	150	<10
MW-2	*NR*	<10	<10	<10
MW-3	*NR*	80	400	<50
MW-4	*NR*	<10	<50	38

MCL: maximum contaminant level as designated by the State of California

NR: No reporting level

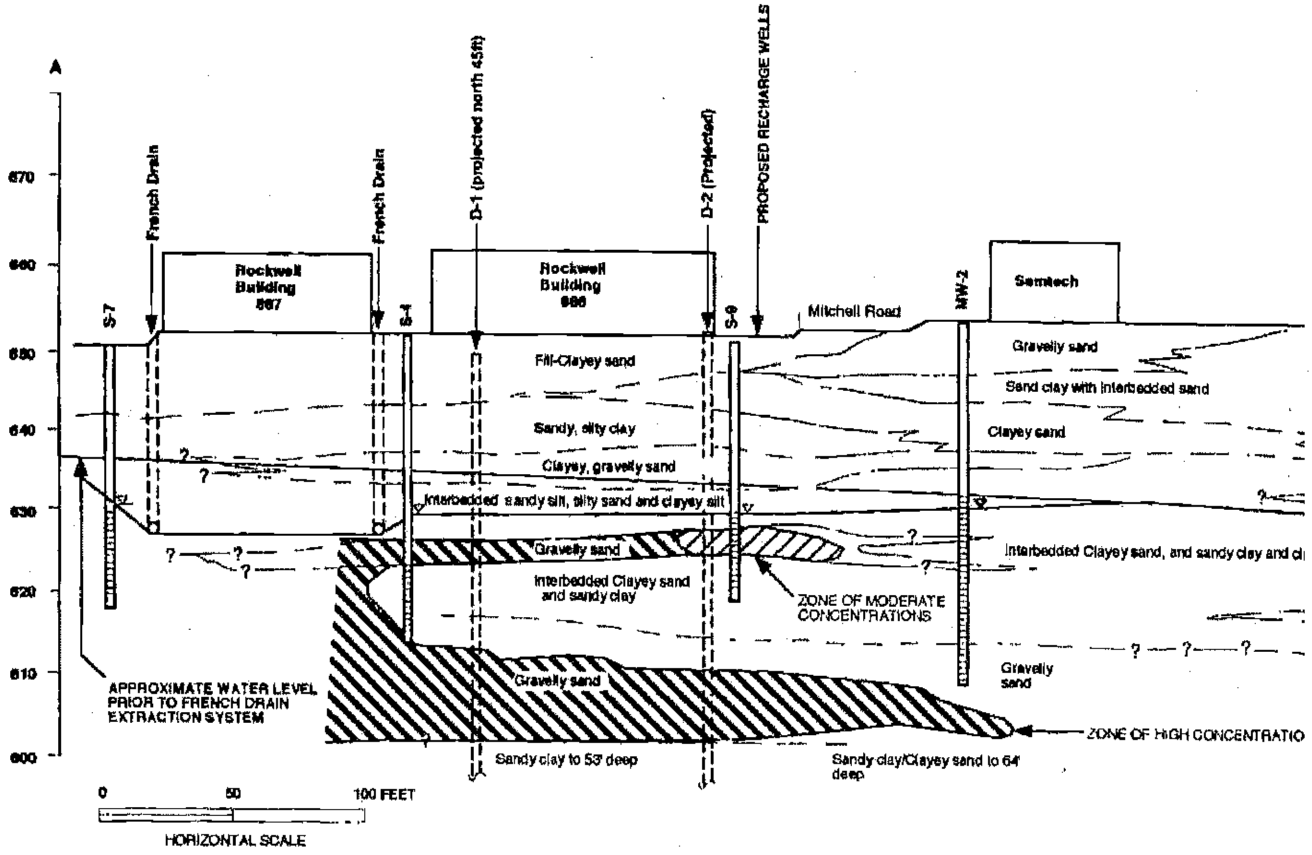


FIGURE 7
HYDROGEOLOGIC SECTION A-A'
SCENARIO #3

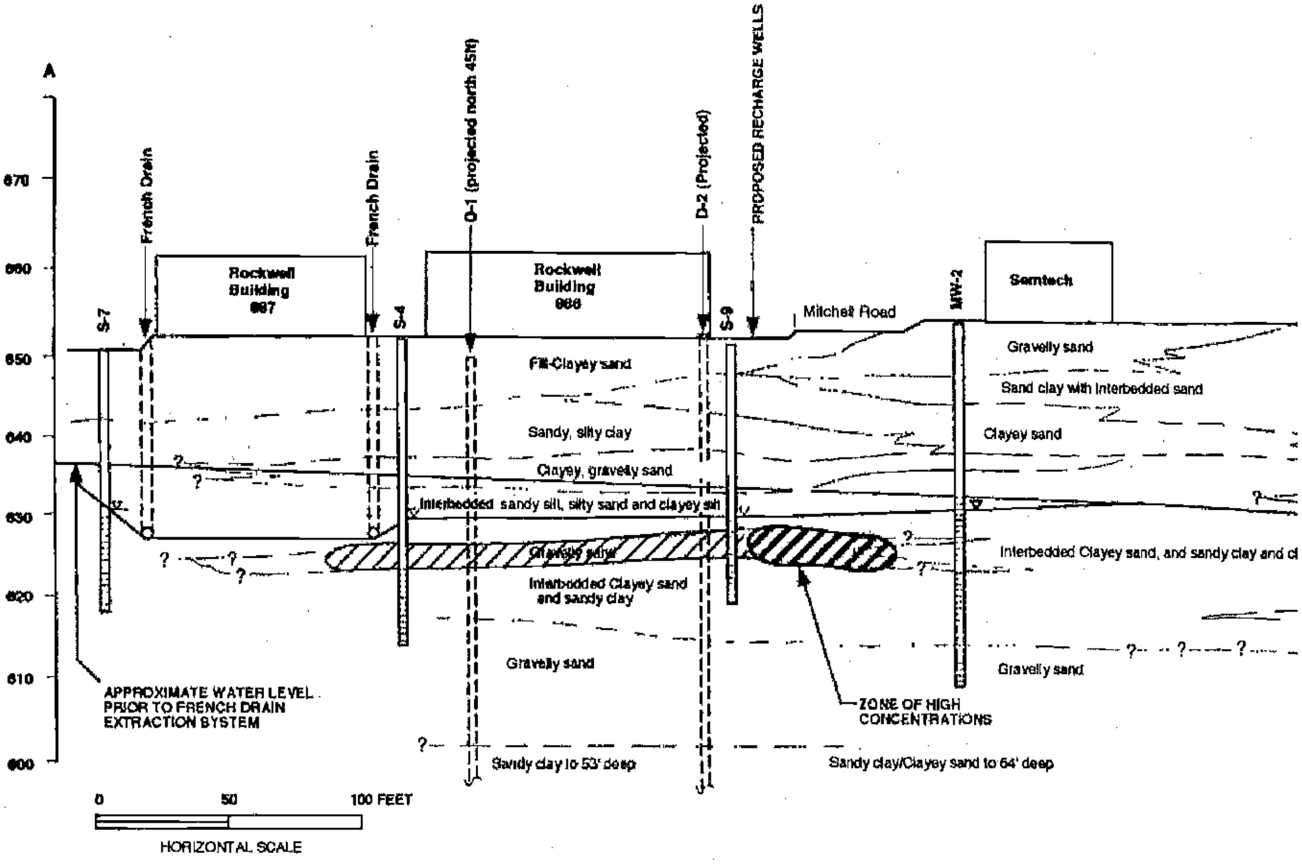


FIGURE 6
HYDROGEOLOGIC SECTION A-A'
SCENARIO #2

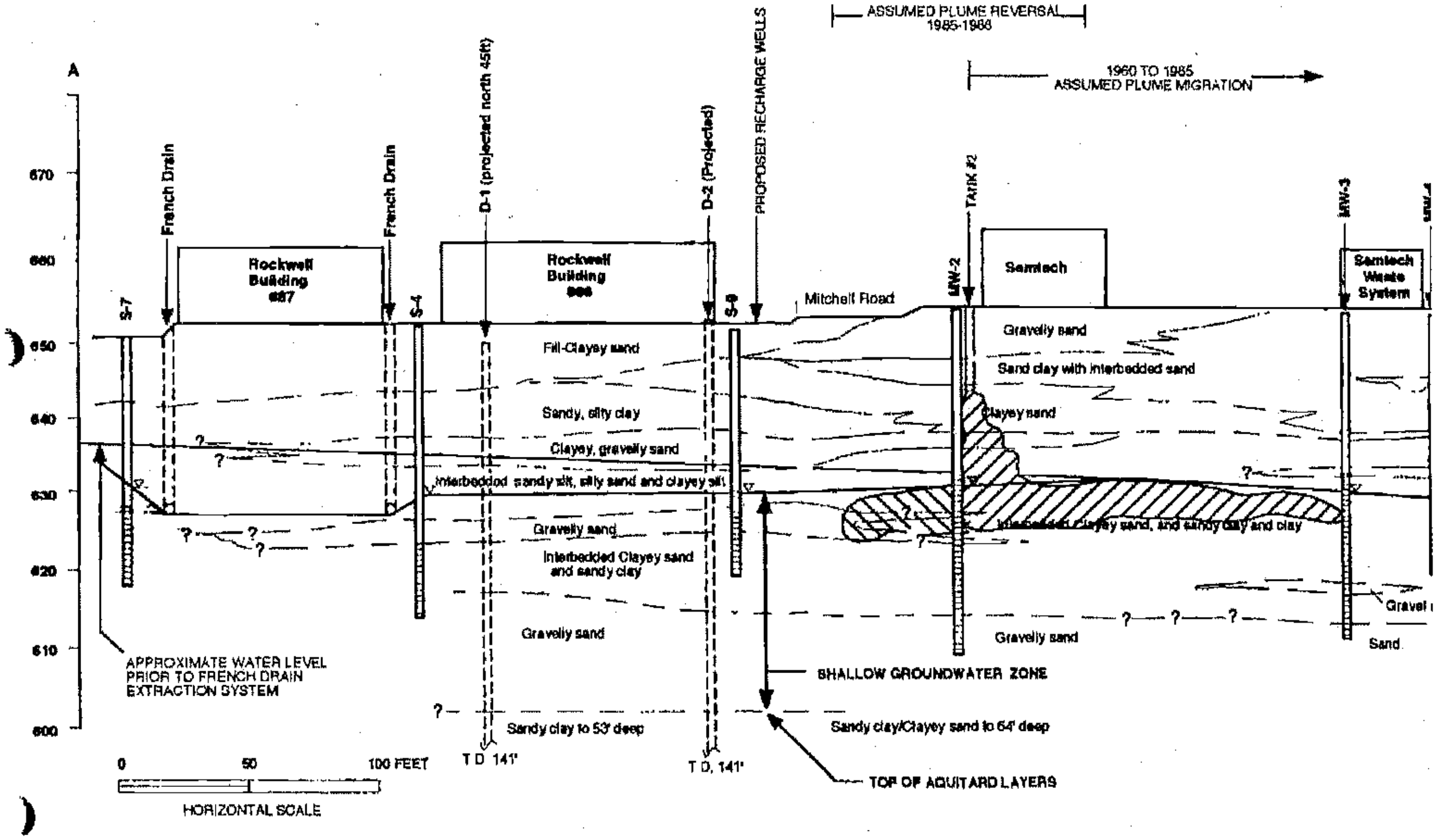


FIGURE 5
HYDROGEOLOGIC SECTION A-A'
SCENARIO #1

[redacted]

Exhibit L

SITE-WIDE SOIL GAS SURVEY

Prepared for:
SPT Investments, Inc.
One Amgen Center Drive, M/S 28-1-A
Thousand Oaks, California 91320-1799

Project Site:
652 Mitchell Road, Thousand Oaks, California 91320
Site Cleanup No.422
Site ID No. 204EY00

December 16, 2009

Thomas McDonnell
Project Scientist

Jeff Richeson
Geologist I

James K. Nguyen

James K. Nguyen, PE
Project Manager

BROWN AND CALDWELL

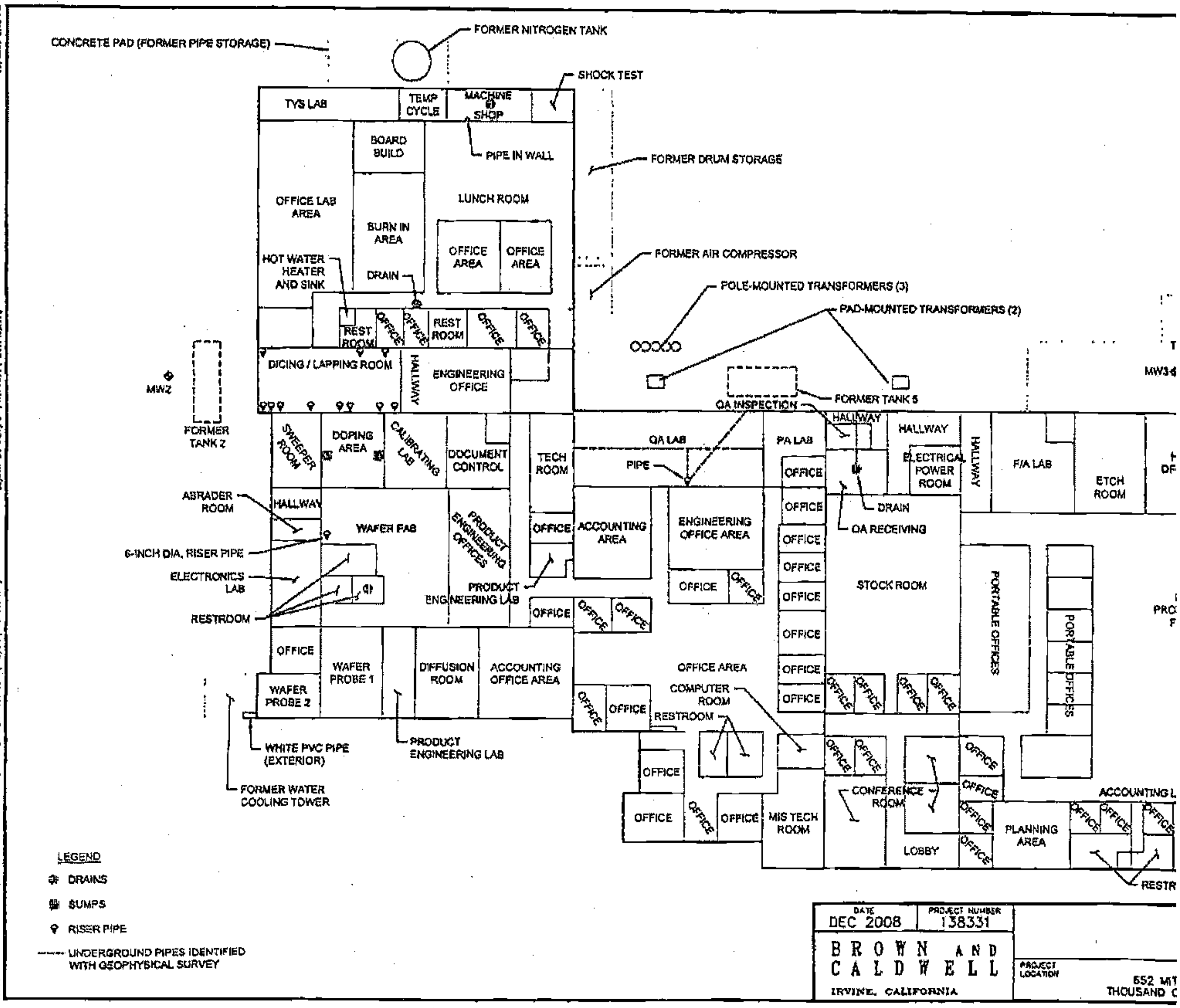
400 Exchange, Suite 100
Irvine, California 92602

Exhibit L

6. SUMMARY OF FINDINGS

This section presents a summary of the Site-wide soil gas survey. More specifically, this section summarizes the main VOCs detected, the location of detections (both lateral and vertical), and physical subsurface conditions discovered during the investigation.

- A total of 24 VOCs were detected. VOCs detected with more than a 5 percent frequency included TCE, PCE, carbon tetrachloride, 1,1,1-trichloroethane, 4-isopropyltoluene, m,p-xylenes, Freon 11, Freon 113, 1,1-dichloroethene, benzene, and toluene.
- Three VOCs (TCE, PCE, and carbon tetrachloride) were detected at the highest frequency with concentrations exceeding the CHHSLs. The other 21 VOCs were below the CHHSLs with the exception of benzene which had concentrations slightly above the CHHSLs.
- TCE was the most prevalent compound detected at the Site. TCE was detected in 100 of 152 soil gas samples, 44 of which were greater than the CHHSL (1.77 μg/L). The maximum concentration was detected at 28,000 μg/L with an average concentration of 690 μg/L.
- PCE was the second most prevalent compound detected at the Site. PCE was detected in 39 of 152 soil gas samples collected during this investigation, 16 of which were greater than the CHHSL (0.603 μg/L). The maximum concentration was detected at 63 μg/L with an average concentration of 2.9 μg/L.
- Carbon tetrachloride was the third most prevalent compound detected at the Site. Carbon tetrachloride was detected in 14 of 152 soil gas samples collected during this investigation, seven of which were greater than the CHHSL (0.33 μg/L). The maximum concentration was detected at 33 μg/L with an average concentration of 4.52 μg/L.
- VOCs (mainly TCE, PCE, and carbon tetrachloride) were prominently detected in four areas. These areas include: (1) the location of the former Tank 5 which includes the QA Lab room; (2) the block house and the adjacent drum storage area; (3) the Machine Shop room and the adjacent drum storage area; and (4) the Dicing/Lapping room next to the former Tank 2. The highest concentrations of TCE, PCE, and carbon tetrachloride were detected from soil gas samples collected in the QA Lab room and near the former Tank 5. Figures 5, 6, 7, and 8 illustrate the estimated areas of impact.
- VOCs (mainly TCE, PCE, and carbon tetrachloride) were detected vertically at all three sampled depths (5, 10, and 15 feet bgs). Concentrations of VOCs were highest at depths at the location of the former Tank 5 and QA lab room. For example, concentrations of TCE were detected at 10,000 and 25,000 μg/L from samples collected at 15 feet bgs. Concentrations of TCE were much lower (less than 13 μg/L) at depths at the other three areas. Figures 5, 6, 7 and 8 illustrate the estimated vertical areas of impact.
- Underground pipes were identified with the geophysical survey in the QA Lab room. The pipes may have been routed from the QA Lab room to the former Tank 5.
- Groundwater was not encountered to a depth of 15 feet bgs; however, saturated soil was observed at approximately 8 feet bgs near the former Tank 2 area. This was suspected to be a perched feature that had accumulated in the backfill area of former Tank 2.



DATE	PROJECT NUMBER
DEC 2008	138331

BROWN AND
CALDWELL
IRVINE, CALIFORNIA

PROJECT LOCATION

652 MIT
THOUSAND C