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PHILIPS

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Philips Semiconductors

Philips Semiconductors
a North American Philips Company
9201 Pan American Freeway, NE
Albuquerque, New Mexico 87113
(505) 822-7000

MAR 1996
RECEIVED
HAZARDOUS WASTE
PROGRAM

March 4, 1996

Mr. Dale Connover
Hazardous & Radioactive Materials Bureau
NMED
2044 Galisteo
Santa Fe, NM 87505

Federal Express Delivery

SUBJECT: Philips Semiconductors (NMD000709782) - Groundwater Monitoring Wells

Dear Mr. Connover:

Please find enclosed a report prepared by EMCON Associates detailing their installation of groundwater monitoring wells on the Philips site located at 9201 Pan American Frwy. N.E. in Albuquerque, NM. Also enclosed are the groundwater depths measured during regular sampling events.

If you have any questions or need more information, please call me at (505) 822-7634.

Sincerely,

Melanie McKinley

Melanie McKinley
Environmental Engineer

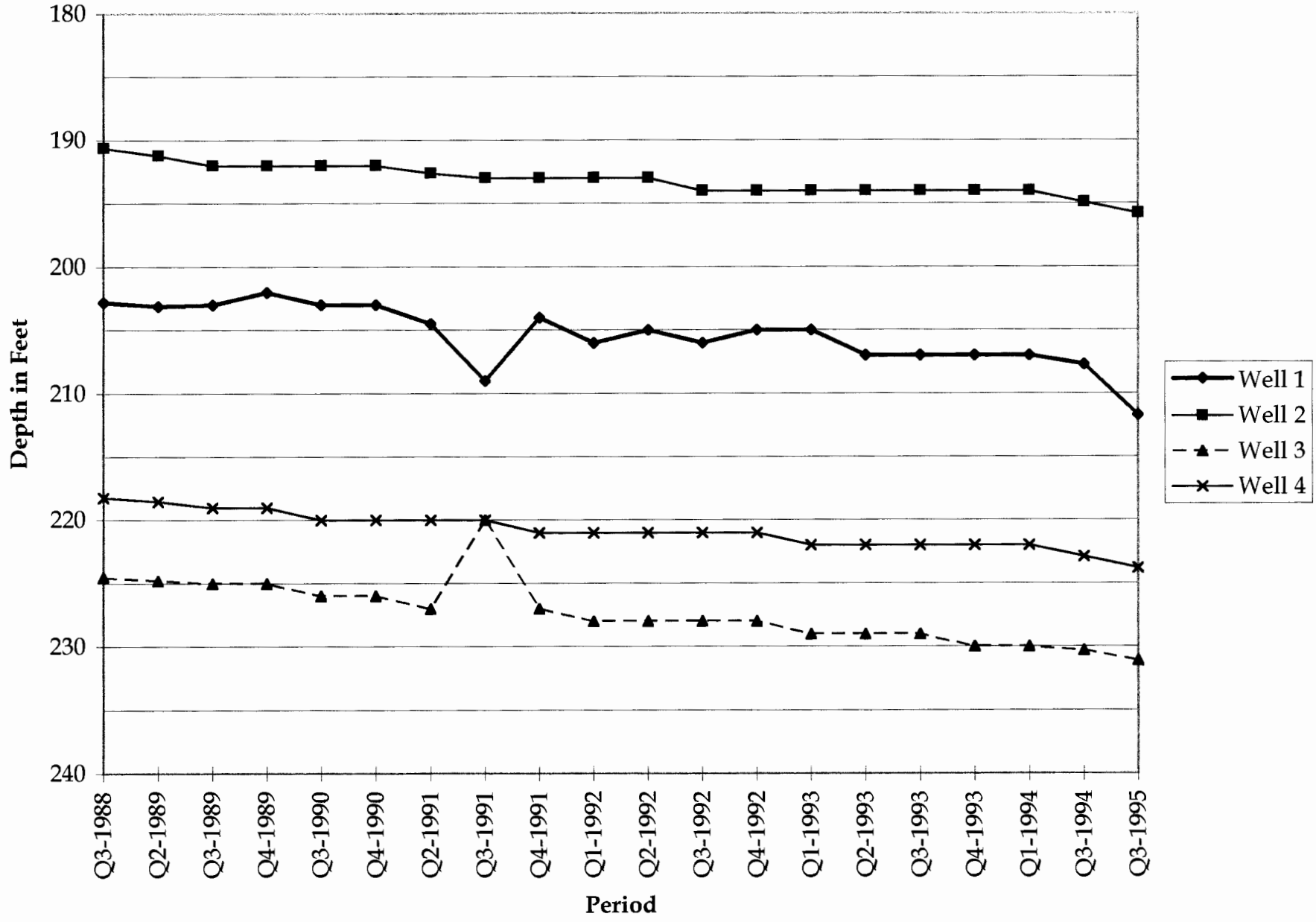
(ENV613)

cc w/o enclosure:
James Cochran, EHS Manager
James Casey, Legal Counsel

* Document is filed in the RCRA library under PS 3i "PS G.W. monitoring wells"

Philips Semiconductors - Albuquerque

Water Table Depth



BASELINE GROUND-WATER INVESTIGATION
SIGNETICS CORPORATION
ALBUQUERQUE, NEW MEXICO

Prepared for

SIGNETICS CORPORATION
June 1987

Prepared by

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Project 377-16.01

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Appendix C - Certified Analytical Reports

INTRODUCTION

This report presents the results of the baseline ground-water investigation of the Signetics Corporation's Albuquerque, New Mexico facility. Work was performed at the site in accordance with EMCON Associates Proposal 8701-27, dated February 13, 1987.

SITE DESCRIPTION

The Signetics facility is located north of Albuquerque in Bernalillo County, New Mexico, on approximately 60 acres of land in Township 11 North, Range 3 East, Section 12 (see Figure 1). The ground surface, which slopes down to the west, ranges in elevation from 5150 to 5190 feet above sea level. Surface-water flow across the site is confined to artificial channels. These drain toward the Rio Grande River, located approximately 2 miles west of the site. Reported mean annual precipitation for the period from 1939 to 1978 is 8.31 inches, with an evaportranspiration rate of 30.9 inches (ERCO, 1981). Depth to ground water ranges from approximately 190 to 225 feet below the ground surface.

BACKGROUND

The Signetics Corporation purchased the Albuquerque site in 1980 for construction of a semiconductor manufacturing plant. Portions of the site are underlain by the Old Coronado Landfill, operated by the City of Albuquerque between 1963 and 1965. Signetics was not informed that the site had once been used for waste disposal until after the decision to purchase the property had been made. In 1980 and 1981, Signetics had several investigations conducted to assess the possible environmental consequences associated with the waste fill which included physical and chemical characterization of the wastes (ERCO, 1981), delineation of the extent of the waste fill (Fox, 1980), and investigation of geologic conditions at the site (Sergeant, Hauskins, and Beckwith, 1981). As part of the geologic investigation, six

exploratory borings were drilled to maximum depths of 95 to 120 feet. Remedial actions taken to date have included excavation and removal of approximately 77,000 tons of waste from the former landfill and installation of a methane gas venting system.

PURPOSE AND SCOPE

In 1984 the State of New Mexico Environmental Improvements Division (SNMEID) conducted an inspection of the old Coronado Landfill as part of a State-wide review of landfills. The inspection consisted of gas and soils testing for metals, pesticides, and solvents. Results did not indicate any hazards but did note that there were no wells to evaluate the ground-water quality.

The primary objective of this investigation is to provide baseline ground-water quality information for the site. Additional objectives are to:

- Determine the nature of the geologic materials in the surface
- Establish the present hydraulic gradient and direction of ground-water flow beneath the site
- Evaluate the potential impact of leachate migration from the waste fill into the ground water

The following tasks were completed for this study:

- Drilling, sampling, and analysis of sediments directly beneath the waste fill in two shallow exploratory borings
- Drilling of four ground-water monitoring wells for sampling ground water beneath the site
- Baseline site hydrogeologic and water quality evaluation

SUMMARY OF RESULTS

Site conditions are characterized by a series of interbedded silts, sands, and gravels in the unsaturated zone and clay and clayey gravel in the saturated zone. Ground-water flows to the east in response to an approximate gradient of 0.0045 foot per foot. Results from soil and ground-water sampling indicate little or no impact from leachate migration into the ground water. Elevated inorganic parameters in upgradient Well MW-1 and trace concentrations of the solvent tetrachloroethene (PCE) in all but one well will require verification monitoring and subsequent interpretation.

FIELD AND LABORATORY PROCEDURES

FIELD PROCEDURES

Locations

Exploratory borings and wells were located with respect to the extent of waste fill as defined by ERCO (1981). One exploratory boring was placed within each of the defined fill areas (Borings EB-1 and EB-2). Two monitoring wells (MW-1 and MW-3) were placed outside former refuse areas and two monitoring wells (MW-2 and MW-4) were placed adjacent to them. Locations relative to existing site features are shown in Figure 2.

Drilling

Boreholes were drilled by air- and mud-rotary methods using a Gardener Denver rotary drilling rig equipped with 5-1/8- and 7-7/8-inch-diameter tricone bits. Before drilling commenced, the equipment was properly steam cleaned and the condition of the equipment was inspected by an EMCON geologist.

Exploratory Borings EB-1 and EB-2 were drilled with a 5-1/8-inch-diameter bit using air-rotary methods. The air compressor was fitted with a special filter to inhibit lubricants from entering the borehole. Monitoring Wells MW-1 through MW-4 were drilled with a 7-7/8-inch-diameter bit using air- and mud-rotary methods. Air was used in the upper portion of the hole. Mud was introduced to stabilize the hole at greater depths and to help lift and remove drilling cuttings. A pure bentonite mud mix was employed during drilling. A series of mud pits was constructed at each well location. Mud viscosity was monitored during drilling by using a Marsh funnel and controlled by adding pure bentonite or water. Water used during drilling and steam cleaning was obtained from the City of Albuquerque distribution system.

Drill rods, bits, casing, samplers, and pipe wrenches were cleaned and inspected so that all visible signs of contamination were removed. A vegetable-based grease was used for lubrication during drilling. A daily log of operations was maintained by an EMCON geologist throughout the drilling program.

Soil Sampling and Geologic Logging

Geologic logs are presented in Appendix A. Soil samples were logged in accordance with the Unified Soil Classification System. Samples of cuttings were obtained from the mud slurry at intervals of 5 to 10 feet for purposes of geologic logging. In addition, core and drive samples were collected for physical and chemical analysis and for geologic logging. Drive samples to be submitted for analysis of chemical and physical parameters were collected with a 2-inch I.D. split-spoon sampler equipped with brass liners. Samples submitted for chemical analysis were retained in the brass liner, covered by Teflon tape, and immediately stored on ice for shipment to the laboratory with appropriate chain-of-custody documentation.

Well Completion and Development

Well completion details, discussed below, are presented in Appendix A and summarized in Table 1. Following completion of drilling, the mud viscosity within the 7-7/8-inch-diameter borehole was reduced by adding water. Well casings consisting of 2-inch-diameter, flush-coupled, Schedule 40 polyvinyl chloride (PVC) pipe were then installed. Each monitoring well contains 30 feet of well screen consisting of 0.02-inch, machine-slotted PVC pipe. Sand pack consisting of clean CSSI 8x12 silica sand was tremmied into the annular spacing to avoid bridging of the material. The sand pack extends from the bottom of the wells to a minimum of 5 feet above the top of well screens. A filter pack consisting of a fine silica mesh was added above the sand pack. The remainder of the well annulus was then sealed by a 5- to 10-foot bentonite plug and backfilled with grout containing 3 percent

Table 1

MONITORING WELL COMPLETION DETAILS

Well	Total Depth (feet)	Screened Interval (feet)	Sand Pack[1] Interval (feet)	Filter Pack[2] Interval (feet)	Seal[3] Interval (feet)	Backfill[4] Interval (feet)
MW-1	247	199.5 to 229.5	180.5 to 247.0	179.0 to 180.5	174.0 to 179.0	0 to 174.0
MW-2	245	199.5 to 229.5	189.0 to 245.0	188.5 to 189.0	180.0 to 188.5	0 to 180.0
MW-3	260	209.5 to 239.5	196.5 to 260.0	194.0 to 196.5	180.0 to 194.0	0 to 180.0
MW-4	260	209.5 to 239.5	199.5 to 260.0	198.5 to 199.5	188.5 to 198.5	0 to 188.5

1. CSSI 8x12 silica sand
2. Fine silica sand
3. Bentonite
4. Grout with 3 percent bentonite

bentonite. A lockable surface casing was then set aboveground in the center of a 2.5-foot-wide concrete pad at the surface. The concrete pads are completed with protective steel posts at each corner.

Wells were developed using both air and mechanical surging, with the exception of Wells MW-1 and MW-3. Well MW-1 was developed by air surging only, whereas Well MW-3 was developed by air surging and bailing. All downhole equipment was steam cleaned and inspected by the EMCON geologist prior to insertion in the well annulus. Wells were developed until water was clear to translucent and free of sand. A small amount of fine suspended matter was noted at the completion of development at Well MW-3.

Well Survey

Well locations and elevations were surveyed by WayJohn Surveying of Albuquerque, New Mexico, on June 4, 1987. Surveyed locations and elevation data are shown in Drawing A-1 of Appendix A. Ground-surface, top of casing, and water-level elevations are summarized below in Table 2.

Table 2

WELL ELEVATION DATA

Well Designation	Ground-Surface Elevation	Top of Casing Elevation	Ground-Water Elevation (6/19/87)
MW-1	5168.17	5168.70	4968.10
MW-2	5158.15	5159.36	4969.70
MW-3	5185.48	5186.43	4963.24
MW-4	5182.46	5182.94	4965.32

Ground-Water Sampling

A dedicated, low-discharge (1/2-gpm) submersible pump constructed of stainless steel, Teflon, and PVC materials was installed in each well. Prior to sampling, each well was purged by removing a minimum of three casing volumes of ground water with the dedicated pump. Purged water was monitored for pH, specific conductance, and temperature until these parameters had stabilized in order to determine that ground water representative of the aquifer had entered the well.

Ground-water samples were collected from the pump's Teflon discharge line into the appropriate EPA-approved containers. All samples were placed on ice and transported directly to the laboratory with appropriate chain-of-custody documentation.

LABORATORY PROCEDURES

Physical and Mechanical Testing

Selected site soils were analyzed for Atterberg Limit determinations and grain-size distribution. The objective of the laboratory programs was to classify and determine physical and mechanical properties of representative site soils. American Society for Testing and Materials (ASTM) standard test methods were used. Results are presented in Appendix B.

Chemical Testing

Soil and ground-water samples were submitted to Anametrix, Inc. and EMCON Associates, both California-certified laboratories, and Western Technologies Laboratory, an Arizona-certified laboratory located in Phoenix, Arizona, for analyses of chemical parameters. The types of analyses are listed below:

- Soil Samples:

Volatile organic compounds	EPA Method 8240
Pesticides	EPA Method 8080
Soil moisture	Weight percent
pH	ASA Method 60-3

- Ground-Water Samples:

Volatile organic compounds	EPA Method 624
Semivolatile organic compounds	EPA Method 625
pH	Field and Laboratory determination
Electrical conductivity	Field and Laboratory determination
Total dissolved solids	EPA Method 160.1
Total Kjeldahl nitrogen	EPA Method 351.3
Total organic carbon	EPA Method 415.1
NO_3-N, chloride, sulfate	EPA Method 300.0
Alkalinity	EPA Method 310.1
Na, Ca, Mg, Pb, Zn, Fe, Cr, (total), Cu, Ni, Mn	Atomic adsorption

In addition, cuttings from Borings EB-1 and EB-2 were analyzed for volatile organic compounds using EPA Method 8240, and a sample of drilling mud was submitted for analysis of volatile organic compounds using EPA Method 624. Certified Analytical Reports are presented in Appendix C.

HYDROGEOLOGIC SETTING

REGIONAL GEOLOGY

The Signetics semiconductor manufacturing facility is located within the Albuquerque-Belen Basin of New Mexico (Kernodle, Miller, and Scott, 1986). The Albuquerque-Belen Basin, a portion of the Rio Grande Rift, is a structural basin bounded on the east and west by faults. The central portion of the Albuquerque-Belen Basin has been downfaulted in relation to the bordering highlands. Materials derived by erosion of the highlands and from sediments transported into the basin by the ancestral Rio Grande River and other streams have filled the basin to a thickness locally in excess of 18,000 feet. The basin fill material, the Santa Fe Group of Tertiary and Quaternary Ages, is the principal aquifer in the Albuquerque-Belen Basin (Kernodle, Miller, and Scott, 1986).

The younger formations within the Santa Fe Group which were encountered in the site investigation include the Upper Buff Formation, the Edith Formation, and Quaternary alluvium. These deposits formed from alluvial and fluvial processes. Alluvial fan deposits form from erosion, transport, and deposition of material derived from the mountain fronts. Fluvial deposits form from the action of the ancestral and present Rio Grande River and its tributary streams. In some areas near the structural axis of the Albuquerque-Belen Basin, such as the location of the Signetics plant, alluvial fan and fluvial deposits interfinger at depth.

REGIONAL HYDROGEOLOGY

The ground-water system in the Albuquerque-Belen Basin is divisible into two subsystems (Kernodle, Miller, and Scott, 1986). The first is the Rio Grande floodplain subsystem, located in the area adjacent to the Rio Grande River. The second consists of the broader regional-flow ground-water subsystem of the basin. The Rio Grande floodplain

system is dominated by the Rio Grande River. Ground-water flow is to the south, parallel to the river.

The regional-flow subsystem is hydraulically connected to the floodplain subsystem, contributing recharge from the adjacent highlands. Components include tributary recharge from streams and mountain front recharge which raise ground-water levels around most of the basin margin.

The regional ground-water flow regime is influenced locally by ground-water withdrawals for irrigation and municipal drinking water supplies. Ground water constitutes a significant portion of Albuquerque's drinking water supply. In areas east of the Rio Grande floodplain, municipal withdrawals caused a decline in ground-water levels of about 20 feet by 1960 and an additional 60 to 80 feet from 1960 to 1980 (Kernodle, Miller, and Scott, 1986). Typically, the radius of influence associated with cones of depression around pumping centers extends outward approximately 1.5 miles (personal communication, C. Walenburg, Engineer's Office). Locally, such as in the vicinity of the Signetics facility, this results in significant reversals in ground-water gradients.

LOCAL HYDROGEOLOGY

Physiographic Setting

The Signetics facility is located approximately 2 miles east of the Rio Grande River on the lower portion of the Sandia piedmont plain, termed the Llano de Sandia (ERCO, 1981). In many places the surface of the Llano de Sandia has been dissected by subparallel, west-flowing streams into a small-scale ridge-and-valley topography with a maximum relief of as much as 20 to 30 feet. The Llano de Sandia forms distinctive terrace deposits 1.5 miles west of the plant, where it has been downcut by the recent Rio Grande floodplain.

RESULTS

GEOLOGY

The results from the subsurface investigation are presented in geologic cross-section A-A shown on Figure 4. As shown in the geologic cross-section, the site is underlain by 70 to 100 feet of Quaternary alluvium, 75 to 110 feet of sands and gravels of the Pleistocene Edith Formation, and over 100 feet of clays, silts, and clayey gravels of the older Quaternary Buff Formation. Specific descriptions of each of these units are presented in the logs presented in Appendix A. A brief summary is provided below.

Quaternary Alluvium

The Quaternary alluvium ranges in thickness from 70 to 100 feet and is composed of material ranging from fine sandy silt to gravel. The fine sandy silt is interpreted to represent overbank deposits of braided stream sediments. Interbedded coarse arkosic sands derived from the nearby Sandia Mountains probably represent aggradations of braided stream channel sediments deposited during flash-flood events. Portions of the Quaternary alluvium may be interbedded with thin beds of the Menaul Formation, a coarse-grained gravelly unit deposited by the ancestral Rio Grande River (ERCO, 1981).

Edith Formation

The Edith Formation consists of an upper coarse-grained unit and a lower fine-grained unit (see Figure 4). The coarse-grained unit is composed of clean, medium- to coarse-grained sands and gravels deposited by the ancestral Rio Grande River. Samples obtained during drilling were non-indurated and appeared to be highly permeable. The fine-grained unit observed in Wells MW-2 and MW-3 is composed of clean, moist sand and clayey to silty sand. The unit appears to consist of floodplain deposits. The Edith Formation is commonly 70 to

110 feet thick beneath the site, except in Well MW-1, where it may be over 180 feet thick.

Upper Buff Formation

The Upper Buff Formation is a very fine-grained unit composed of clay, silty sand, and sand. In contrast to the overlying Edith Formation, the Upper Buff Formation is moderately well indurated and appears less permeable due to the presence of interstitial clays. With the exception of Well MW-1, all wells are screened within the Upper Buff Formation. It is first encountered at a depth of approximately 150 to 200 feet.

HYDROGEOLOGY

Surface-water flow is routed around the site by concrete-lined diversion channels of the Albuquerque Metropolitan Arroyo and Flood Control Administration (SNMEID, 1986). Accordingly, little ground-water recharge is inferred to occur. Minor infiltration may occur from precipitation, runoff, and the on-site sprinkler irrigation system. Ground water lies at depths ranging from approximately 190 to 240 feet beneath the site. The ground-water flow direction in June 1987 was nearly due east, with a hydraulic gradient of 0.0045 foot per foot (see Figure 5). The saturated zone occurs primarily within the Upper Buff Formation.

Under undisturbed conditions of mountain front recharge, ground water would be expected to flow from the west and south, towards the Rio Grande River and to the downgradient (southern) end of the Albuquerque-Belen Basin. However, the ground-water table on site is approximately 20 feet lower than the surface-water elevation of the Rio Grande River, and ground-water flow beneath the site is to the east. This ground-water gradient reversal in the site vicinity is most likely due to the influence of a large cone of depression surrounding the City of Albuquerque pumping center located approximately 1.5 to

3 miles southeast to east-southeast of the site. The most recent records available from the City of Albuquerque (personal communication, Tamara Morgan) indicate that this series of pumping wells withdrew 1,583 acre-feet of water within the first 6 months of 1987. The combined effect of ground-water withdrawal from the southeast and a sustained source of recharge from the Rio Grande River to the west has resulted as east-directed ground-water flow beneath the site.

CHEMISTRY

Soil and ground-water samples were submitted for analyses of parameters listed above. Certified Analytical Reports are presented in Appendix C and summarized in Tables 3 and 4.

Soils Analyses

Previous soils analyses detected concentrations of pesticides and semivolatile compounds in site soils (SNMEID, 1986).

Soil samples were collected from Borings EB-1, EB-2, MW-3, and MW-4. The intent of the soil sampling was to assess the impact of potential leachate migration from the residual trash fill into the underlying substrate. Borings EB-1 and EB-2 penetrated between 20 and 35 feet of fill and trash before encountering basal fill or native materials. Two to three samples were then collected at 5-foot intervals and submitted for analysis. Samples were collected from similar depths in Borings MW-3 and MW-4, which were located outside of the extent of landfill activities. These samples were collected in order to characterize background conditions.

Results of the soils analyses are summarized in Table 3. Soil pH values indicate that fill and native soils are alkaline, with pH values ranging from 7.8 to 9.7. Soil moisture content ranges from 0.9 to 18 percent by weight. With the exception of the sample collected

Table 3

SUMMARY OF ANALYTICAL DATA - SOILS

	Sample Depth (feet)											
	Boring EB-1				Boring EB-2		Boring MW-3			Boring MW-4		
	20	20 (DUP)	27.5	35	35	40	25	30	35	25	30	35
pH	9.5	9.38	9.7	9.8	7.8	8.4	9.2	8.4	8.2	8.8	8.2	8.3
Soil moisture (percent)	5.2	2.7	1.3	1.9	3.8	4.0	3.0	5.4	18.0	7.9	0.9	1.8
Volatile compounds (EPA Method 8240)	ND[1]	ND			ND[1]		ND[1]			ND[1]		
Pesticides (EPA Method 8080)	ND	ND			ND		---			---		

1. Methylene chloride detected (laboratory reagent)

Table 4

SUMMARY OF ANALYTICAL DATA - GROUND WATER

	MW-1	MW-2	MW-3	MW-4	Standard[1]
BASIC WATER QUALITY PARAMETERS					
pH	12.2	7.2	7.0	7.3	--
Electrical Conductivity (umhos/cm)	6,350	680	500	700	1,600
Total Dissolved Solids (mg/L)	4,080	454	326	500	1,100
Total Organic Carbon, (mg/L)	3	2	1	1	--
Total Kjeldahl Nitrogen (mg/L)	220	0.10	0.13	0.94	--
$N\text{-}NH_3$	17	ND	ND	ND	--
INORGANIC PARAMETERS (mg/L)					
Alkalinity as $CaCO_3$	1,550	217	132	298	--
Chloride	13	18	16	21	550
Nitrate-N	0.2	0.4	1.4	0.1	45[2]
Sulfate	63	110	85	150	500
Calcium	560	83	53	120	--
Lead	<0.02	<0.02	<0.02	<0.02	0.05[2]
Manganese	<0.05	<0.05	<0.05	<0.05	0.05
Sodium	120	42	29	43	--
Zinc	<0.05	<0.05	<0.05	<0.05	5.0
Chromium, total	<0.05	<0.05	<0.05	<0.05	0.05
Copper	0.03	0.01	0.01	0.01	1.0

Table 4

SUMMARY OF ANALYTICAL DATA - GROUND WATER
(Continued)

	MW-1	MW-2	MW-3	MW-4	Standard[1]
Nickel	<0.05	<0.05	<0.05	<0.05	--
Iron	<0.05	<0.05	<0.05	<0.05	0.3
Magnesium	0.008	17	11	19	--
VOLATILE ORGANIC COMPOUNDS (ug/L)					
Tetrachloroethene	19	16	ND	11	20[3]
All other VOCs	ND	ND	ND	ND	--
SEMIVOLATILE ORGANIC COMPOUNDS (ug/L)	ND	ND	ND	ND	ND

1. All standards are from the U.S. EPA secondary drinking water standard, except where noted
2. Primary drinking water standard
3. EPA Suggested No-Adverse Response Levels (SNARLs)

ND = Not Detected

from 35 feet in background Boring MW-3, all pH and soil moisture values are consistent with values observed in alkaline soils of semiarid to arid conditions. With the exception of methylene chloride, volatile organic compounds and pesticides were not detected in any of the soils analysis. Methylene chloride is used by the contract laboratory as a laboratory reagent for EPA Methods 624 and 8240.

Ground-Water Analyses

The purpose of the ground-water sampling and analysis was to establish baseline water quality information for the Signetics site and to assess the impact of potential leachate migration on ground-water quality. Ground-water samples were collected following completion and development of Monitoring Wells MW-1, MW-2, MW-3, and MW-4.

Results of the ground-water analyses are summarized in Table 4. Analytical results for most of the basic water quality and inorganic parameters are consistent with the range of values observed in area wells, based upon data supplied by the SNMEID (1986). However, elevated values for several parameters were detected for the sample from Monitoring Well MW-1. Elevated values for pH, electrical conductivity, total dissolved solids, alkalinity, and calcium for Monitoring Well MW-1 are believed to be due to cement grout accidentally introduced into formation water during well construction. The anomolously low magnesium value for Monitoring Well MW-1 is due to the high pH of the water; the solubility of magnesium decreases at high pH. Prolonged purging of the well prior to the next sampling event should cause these parameters to return to normal, or previous, levels.

The elevated values of total Kjeldahl nitrogen (TKN) and ammonia nitrogen for Monitoring Well MW-1 are not believed to be due to the grout contamination. TKN is a measure of organic nitrogen. Common sources of organic nitrogen and ammonia in ground water, such as leachate or raw sewage, also cause elevated levels of total organic

carbon (TOC). As the value of TOC for Monitoring Well MW-1 is not elevated, the levels of TKN and ammonia nitrogen are not due to the common sources. Other potential sources for organic nitrogen and ammonia include synthetic organic compounds; however, no organic compounds capable of causing the indicated levels of TKN and ammonia nitrogen were detected in the analyses for volatile and semivolatile organic compounds. The TKN and ammonia nitrogen results for Monitoring Well MW-1 are anomalous and inconsistent with other analytical results for the well and, thus, may reflect analytical problems.

Trace concentrations of PCE were detected in three monitoring wells (MW-1, MW-2, and MW-4). It is unlikely that the PCE concentrations have resulted from landfill leachate migration. The landfill was closed in 1965, several years prior to the patenting of PCE and at least one decade prior to the widespread use of PCE by industry. There are several potential sources for PCE near the facility which need to be evaluated with respect to the stability of the gradient direction.

SUMMARY AND RECOMMENDATIONS

The Signetics semiconductor manufacturing facility located in Albuquerque, New Mexico, has been sited upon the former location of the City of Albuquerque Coronado Landfill. This landfill was in operation in the early 1960s and accepted primarily municipal and residential waste. A boring and monitoring well installation program has been completed to assess the potential impact of leachate migration from the remaining landfill waste and to establish baseline ground-water quality data for the site.

Two shallow exploratory borings and four deep wells were drilled on the site as part of this program. The shallow borings were drilled in order to collect samples of sediments beneath the waste piles for chemical analysis. The deep wells were drilled in order to establish baseline ground-water quality at the site.

Site conditions are characterized by a series of interbedded silts, sands, and gravels in the unsaturated zone and clay and clayey gravel in the saturated zone. Ground-water withdrawals from a City of Albuquerque pumping center located southeast of the facility appear to have reversed the natural ground-water gradient. The ground-water gradient as determined from site ground-water levels measured in June 1987 is to the east at 0.0045 foot per foot.

Preliminary results from soil and ground-water sampling indicate little or no impact from leachate migration into the substrate. However, upgradient Monitoring Well MW-1 contained anomalous concentrations of several inorganic and organic constituents, and all but one of the four wells contained trace concentrations of the solvent PCE. The analytical results of the baseline ground-water sampling event will need to be verified by subsequent quarterly sampling and analysis.

It is recommended that Signetics Corporation conduct quarterly monitoring of the four site wells. In order to provide verification of the initial results, EMCON recommends analysis of the following site of parameters for the next monitoring event:

- Volatile organic compounds (using EPA Method 624)
- Semivolatile and nonvolatile organic compounds (using EPA Method 625)
- pH
- Electrical conductivity
- Total dissolved solids
- Total organic carbon
- Total Kjeldahl nitrogen
- Ammonia nitrogen
- Chemical oxygen demand
- Alkalinity
- Chloride
- Nitrate nitrogen
- Sulfate
- Calcium
- Sodium
- Magnesium

In addition, Monitoring Well MW-1 should be purged for an extended period of time prior to sampling to remove any remaining cement grout contamination from the well.

After evaluation of the results of the next monitoring event, further reduction of the site parameters to be analyzed quarterly is anticipated. For ongoing quarterly monitoring, the recommended parameter site will most likely include all parameters listed above

with the substitution of EPA Method 601 for EPA Method 624 and the elimination of EPA Method 625.

The following figures and appendices are attached and complete this report:

Figures

Figure 1 - Site Location Map
Figure 2 - Monitoring Well and Boring Location Map
Figure 3 - Regional Ground-Water Contour Map (1961)
Figure 4 - Geologic Cross Section A-A
Figure 5 - Ground-Water Contour Map (June 1987)

Appendices

Appendix A - Boring Logs, Well Construction Details, and Site Well Survey
Appendix B - Site Soils Test Data
Appendix C - Certified Analytical Reports

Respectfully submitted,

EMCON Associates

Dorothy Fisher Atwood

Dorothy Fisher Atwood
Project Manager

Stephen D. James

for R. Lee Dooley
Vice President

REFERENCES

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Appendix A

BORING LOGS, WELL CONSTRUCTION DETAILS, AND SITE WELL SURVEY

Appendix A

BORING LOGS, WELL CONSTRUCTION DETAILS, AND SITE WELL SURVEY

Soils were classified according to the Unified Soil Classification System (see Plates A-1 and A-2). Logs of the soils encountered in Borings MW-1, MW-2, MW-3, MW-4, EB-1, and EB-2 are presented in Plates A-3 through A-8, respectively.

Exploratory Borings MW-1 through MW-4 were converted to monitoring wells to measure ground-water levels at the site and to collect water samples for analysis. Well construction details are presented in Plates A-9 through A-12. A survey of well locations and elevations is shown in Plate A-13.

NOTES: LOGS OF EXPLORATORY BORINGS

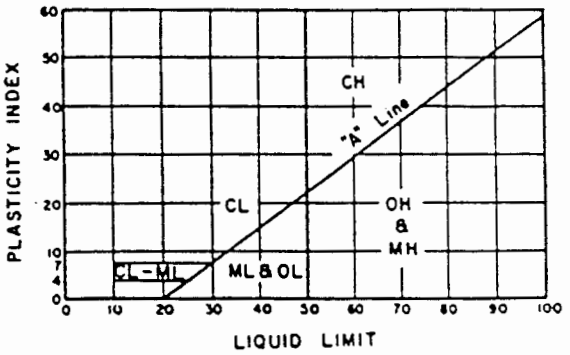
7.5YR, 4/6 (Typ.)	Denotes color according to Munsell Soil Color charts (1975 edition).
☒	Denotes bag sample of cuttings.
■	Denotes interval sampled with split-spoon sampler.
▮	Denotes cored interval.
NR NR	Denotes sample attempted, no recovery.
REC: 12/18	Denotes sample recovery in inches for split-spoon sampler, in feet for core samples.
▽	Denotes depth to first-encountered ground water.
▼	Denotes depth to static ground water.
I	Denotes location of sand pack.
⧗	Denotes location of the screened interval.

MAJOR DIVISIONS		SYMBOLS	TYPICAL SOIL DESCRIPTIONS
COARSE GRAINED SOILS (More than 1/2 of soil > no. 200 sieve size)	GRAVELS (More than 1/2 of coarse fraction > no. 4 sieve size)	GW	Well graded gravels or gravel-sand mixtures, little or no fines
		GP	Poorly graded gravels or gravel-sand mixtures, little or no fines
		GM	Silty gravels, gravel-sand-silt mixtures
		GC	Clayey gravels, gravel-sand-clay mixtures
	SANDS (More than 1/2 of coarse fraction < no. 4 sieve size)	SW	Well graded sands or gravelly sands, little or no fines
		SP	Poorly graded sands or gravelly sands, little or no fines
		SM	Silty sands, sand-silt mixtures
		SC	Clayey sands, sand-clay mixtures
FINE GRAINED SOILS (More than 1/2 of soil < no. 200 sieve size)	SILTS & CLAYS LL < 50	ML	Inorganic silts and very fine sands, rock flour, silty or clayey fine sands or clayey silts with slight plasticity
		CL	Inorganic clays of low to medium plasticity, gravelly clays, sandy clays, silty clays, lean clays
		OL	Organic silts and organic silty clays of low plasticity
	SILTS & CLAYS LL > 50	MH	Inorganic silts, micaceous or diatomaceous fine sandy or silty soils, elastic silts
		CH	Inorganic clays of high plasticity, fat clays
		OH	Organic clays of medium to high plasticity, organic silty clays, organic silts
HIGHLY ORGANIC SOILS		Pt	Peat and other highly organic soils

CLASSIFICATION CHART
(Unified Soil Classification System)

CLASSIFICATION	RANGE OF GRAIN SIZES	
	U.S. Standard Sieve Size	Grain Size in Millimeters
BOULDERS	Above 12"	Above 305
COBBLES	12" to 3"	305 to 76.2
GRAVEL	3" to No. 4	76.2 to 4.76
coarse	3" to 3/4"	76.2 to 19.1
fine	3/4" to No. 4	19.1 to 4.76
SAND	No. 4 to No. 200	4.76 to 0.074
coarse	No. 4 to No. 10	4.76 to 2.00
medium	No. 10 to No. 40	2.00 to 0.420
fine	No. 40 to No. 200	0.420 to 0.074
SILT & CLAY	Below No. 200	Below 0.074

GRAIN SIZE CHART



PLASTICITY CHART

METHOD OF SOIL CLASSIFICATION

EMCON ASSOCIATES

TI 219-71

LOG OF EXPLORATORY BORING

PROJECT NUMBER 377-16.01 BORING NO. MW-1

PROJECT NAME Signetics PAGE 1 OF 7

BY CMF DATE 5/20/87 SURFACE ELEV. 5168.17'

TORVANE (TSF)	POCKET PENETROMETER (TSF)	PENETRATION (Blows/Ft.)	GROUND WATER LEVELS	DEPTH IN FT.	SAMPLES	LITHOGRAPHIC COLUMN	DESCRIPTION
						SM	SILTY SAND; yellowish brown (10YR, 5/4); 15% silt and clay; fine to medium grained; 5% gravel and cobbles; cobbles to 5" diameter; subangular to subrounded sand; rounded gravel and cobbles; quartzose with lithics; loose; dry.
				5	☒		
				10	☒		@10': fine to coarse grained; 10% gravel and cobbles.
				15			
				20	☒		
				25			
				30	☒	GP	SANDY GRAVEL; yellowish brown (10YR, 5/4); 45% coarse sand; 55% fine to coarse gravel; subangular; quartzose and granitic clasts; loose to medium dense.
				35			
				40			

REMARKS

Drilled using air- and mud-rotary drilling methods. Borehole converted to a 2-inch-diameter monitoring well as shown on accompanying Well Details.

LOG OF EXPLORATORY BORING

PROJECT NUMBER 377-16.01 BORING NO. MW-1

PROJECT NAME Signetics PAGE 2 OF 7

BY CMF DATE 5/20/87 SURFACE ELEV. 5168.17'

TORVANE (TSF)	POCKET PENETRO-METER (TSF)	PENETRA-TION (Blows/Ft.)	GROUND WATER LEVELS	DEPTH IN FT.	SAMPLES	LITHO-GRAPHIC COLUMN	DESCRIPTION
				40	☒	SP	GRAVELLY SAND; yellowish brown (10YR, 5/4); trace fines; medium to coarse grained; 30% fine to coarse gravel; subangular to subrounded sand; well rounded gravel; quartzose sand with feldspar and lithic grains; lithic gravel; lithics include granite; basalt, sandstone; loose to medium dense.
				45			
				50	☒		@50': 20% gravel.
				55			
				60	☒		@60': caliche coatings on gravels.
				65			
				70	☒	GP	SANDY GRAVEL; pale brown (10YR, 6/3); trace fines; trace fine sand; 5% medium sand; 25% coarse sand; 70% fine gravel; subangular; predominantly lithics with minor quartzose grains; granitics common; loose to medium dense.
				75			
				80			

REMARKS

LOG OF EXPLORATORY BORING

PROJECT NUMBER 377-16.01 BORING NO. MW-1

PROJECT NAME Signetics PAGE 3 OF 7

BY CMF DATE 5/20/87 SURFACE ELEV. 5168.17'

TORVANE (TSF)	POCKET PENETROMETER (TSF)	PENETRATION (Blows/Ft.)	GROUND WATER LEVELS	DEPTH IN FT.	SAMPLES	LITHOGRAPHIC COLUMN	DESCRIPTION
				80	☒	GP	SANDY GRAVEL (continued). @80': 25-40% coarse sand; 55-70% fine gravel; trace to 5% coarse gravel; subrounded to rounded; variable clast composition including quartz metasedimentary rocks, volcanics, and sedimentary rocks; granitics less common.
				85			
				90	☒		
				95			
				100	☒		
						SP	GRAVELLY SAND; dark brown (10YR, 3/3); medium to coarse grained; 40% fine to coarse gravel; subangular to subrounded sand; subrounded to rounded gravel; quartzose and lithic; loose to medium dense.
				105			
				110	☒	GP	SANDY GRAVEL; yellowish brown (10YR, 5/4); 30% sand; 70% gravel; well rounded; loose to medium dense.
				115		CL	CLAY; light gray (2.5Y, 7/2); medium plasticity; slightly silty; 5% sand; soft; damp.
					☒	GP	SANDY GRAVEL; yellowish brown (10YR, 5/4); (continued on next page)
				120			

REMARKS

LOG OF EXPLORATORY BORING

PROJECT NUMBER 377-16.01 BORING NO. MW-1

PROJECT NAME Signetics PAGE 4 OF 7

BY CMF DATE 5/20/87 SURFACE ELEV. 5168.17'

TORVANE (TSF)	POCKET PENETROMETER (TSF)	PENETRATION (Blows/Ft.)	GROUND WATER LEVELS	DEPTH IN FT.	SAMPLES	LITHOGRAPHIC COLUMN	DESCRIPTION
				120		GP	SANDY GRAVEL (continued). 35% coarse sand; 65% fine gravel; well rounded; variable clast composition; medium dense.
				125			@127': grading sandier.
				130	☒		@130': 45% sand; 55% gravel.
				135			
				140	☒		@140': trace fines; 20% fine to coarse sand; 80% fine to coarse gravel; rounded to well rounded; quartzose and lithics, including sedimentary rocks, granite and gneiss.
				145		SP	
				150	☒		GRAVELLY SAND; brown (7.5YR, 4/2); trace fines; medium to coarse grained; 35% gravel; 10% cobbles; variable clast composition; hard clasts; dense.
				155			
				160			

REMARKS

LOG OF EXPLORATORY BORING

PROJECT NUMBER 377-16.01 BORING NO. MW-1

PROJECT NAME Signetics PAGE 5 OF 7

BY CMF DATE 5/20/87 SURFACE ELEV. 5168.17'

TORVANE (TSF)	POCKET PENETRO-METER (TSF)	PENETRA-TION (Blows/Ft.)	GROUND WATER LEVELS	DEPTH IN FT.	SAMPLES	LITHO-GRAPHIC COLUMN	DESCRIPTION
				160		SP	GRAVELLY SAND (continued).
				165			
	REC: 0/14			170	NR	SP	SAND; brown (7.5YR, 4/2); trace fines; 35% fine gravel; medium dense.
				175			
						GP	SANDY GRAVEL; brown (10YR, 5/3); trace to 3% fines; trace fine sand; 30% medium to coarse sand; 67-70% fine to coarse gravel; subrounded to rounded; highly variable composition; medium dense.
				180			
				185			
				190			
				195			
				200			

REMARKS

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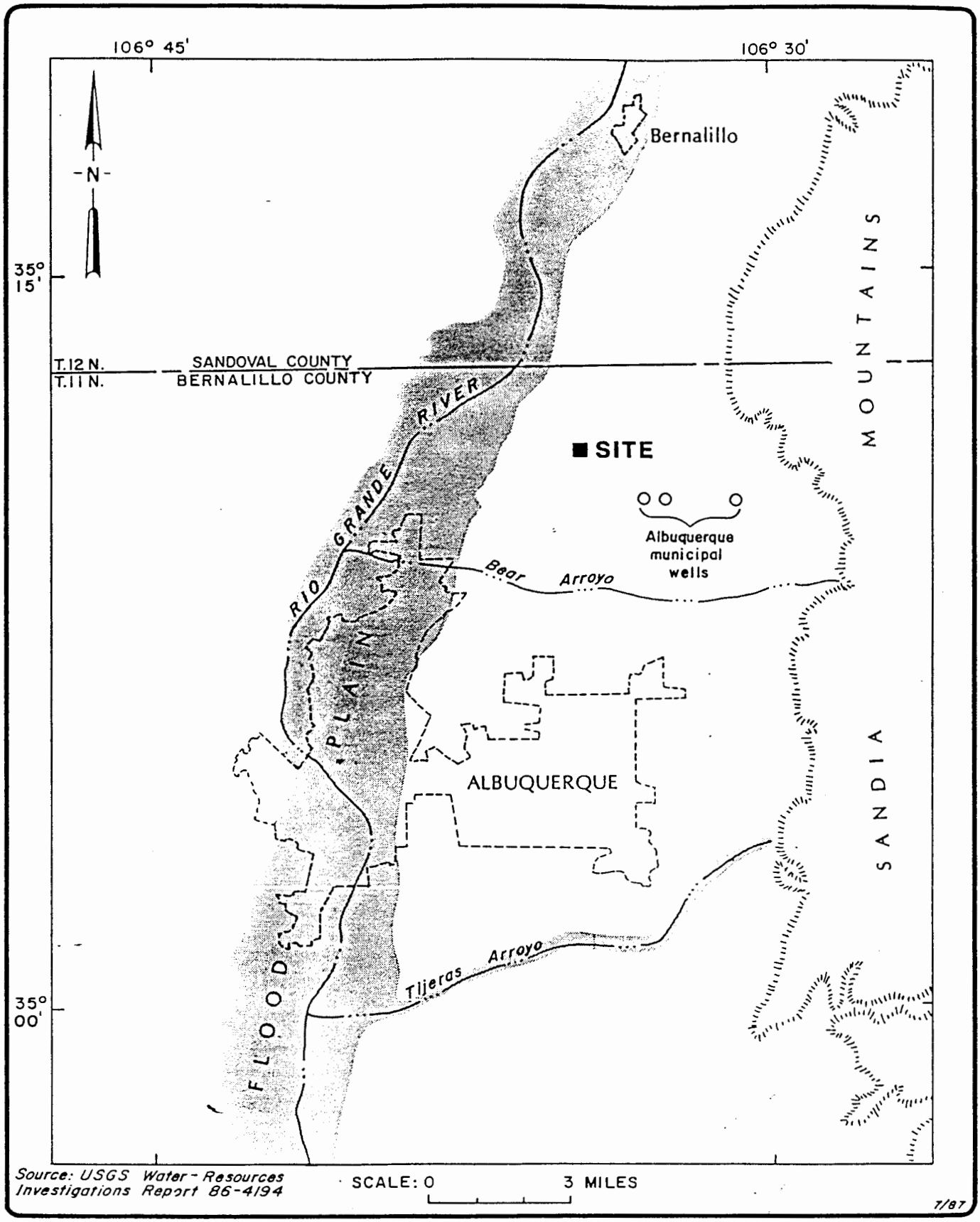

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SIGNETICS CORPORATION
NEW MEXICO FACILITY
ALBUQUERQUE, NEW MEXICO

SITE LOCATION MAP

FIGURE 1

PROJECT NO. 377-16.01

LOG OF EXPLORATORY BORING

PROJECT NUMBER 377-16.01 BORING NO. MW-1

PROJECT NAME Signetics PAGE 5 OF 7

BY CMF DATE 5/20/87 SURFACE ELEV. 5168.17'

TORVANE (TSF)	POCKET PENETRO-METER (TSF)	PENETRA-TION (Blows/Ft.)	GROUND WATER LEVELS	DEPTH IN FT.	SAMPLES	LITHO-GRAPHIC COLUMN	DESCRIPTION
				160		SP	GRAVELLY SAND (continued).
				165			
	REC: 0/14			170	NR	SP	SAND; brown (7.5YR, 4/2); trace fines; 35% fine gravel; medium dense.
				175			
						GP	
				180			SANDY GRAVEL; brown (10YR, 5/3); trace to 3% fines; trace fine sand; 30% medium to coarse sand; 67-70% fine to coarse gravel; subrounded to rounded; highly variable composition; medium dense.
				185			
				190			
				195			
				200			

REMARKS

LOG OF EXPLORATORY BORING

PROJECT NUMBER 377-16.01 | BORING NO. MW-1

PROJECT NAME Signetics | PAGE 6 OF 7

BY CMF DATE 5/20/87 | SURFACE ELEV. 5168.17'

TORVANE (TSF)	POCKET PENETRO-METER (TSF)	PENETRA-TION (Blows/Ft.)	GROUND WATER LEVELS	DEPTH IN FT.	SAMPLES	LITHO-GRAPHIC COLUMN	DESCRIPTION
			6/26/87	200		GP	SANDY GRAVEL (continued).
				205			
				210		GP	SANDY GRAVEL, SILTY; brown (10YR, 5/3); 15% silt and clay; 40% fine to coarse sand; 45% fine to coarse gravel; sub-angular sand; rounded to subrounded gravel; quartzose and lithic, including metamorphic and sedimentary rocks; occasional granitics; surface coatings of clay common; medium dense.
				215			
				220			
				225			
				230			
	REC: 0/10			235			
				NR			
				240			

REMARKS

LOG OF EXPLORATORY BORING

PROJECT NUMBER 377-16.01 | BORING NO. MW-1

PROJECT NAME Signetics | PAGE 7 OF 7

BY CMF DATE 5/20/87 | SURFACE ELEV. 5168.17'

TORVANE (TSF)	POCKET PENETROMETER (TSF)	PENETRATION (Blows/Ft.)	GROUND WATER LEVELS	DEPTH IN FT.	SAMPLES	LITHOGRAPHIC COLUMN	DESCRIPTION
				240		GP	SANDY GRAVEL, SILTY (continued).
				NR			
	REC: 0.5/3			245			
			▽				@247': wet.
							BORING TERMINATED AT 247 FEET.
				250			
				255			
				260			
				265			
				270			
				275			
				280			

REMARKS

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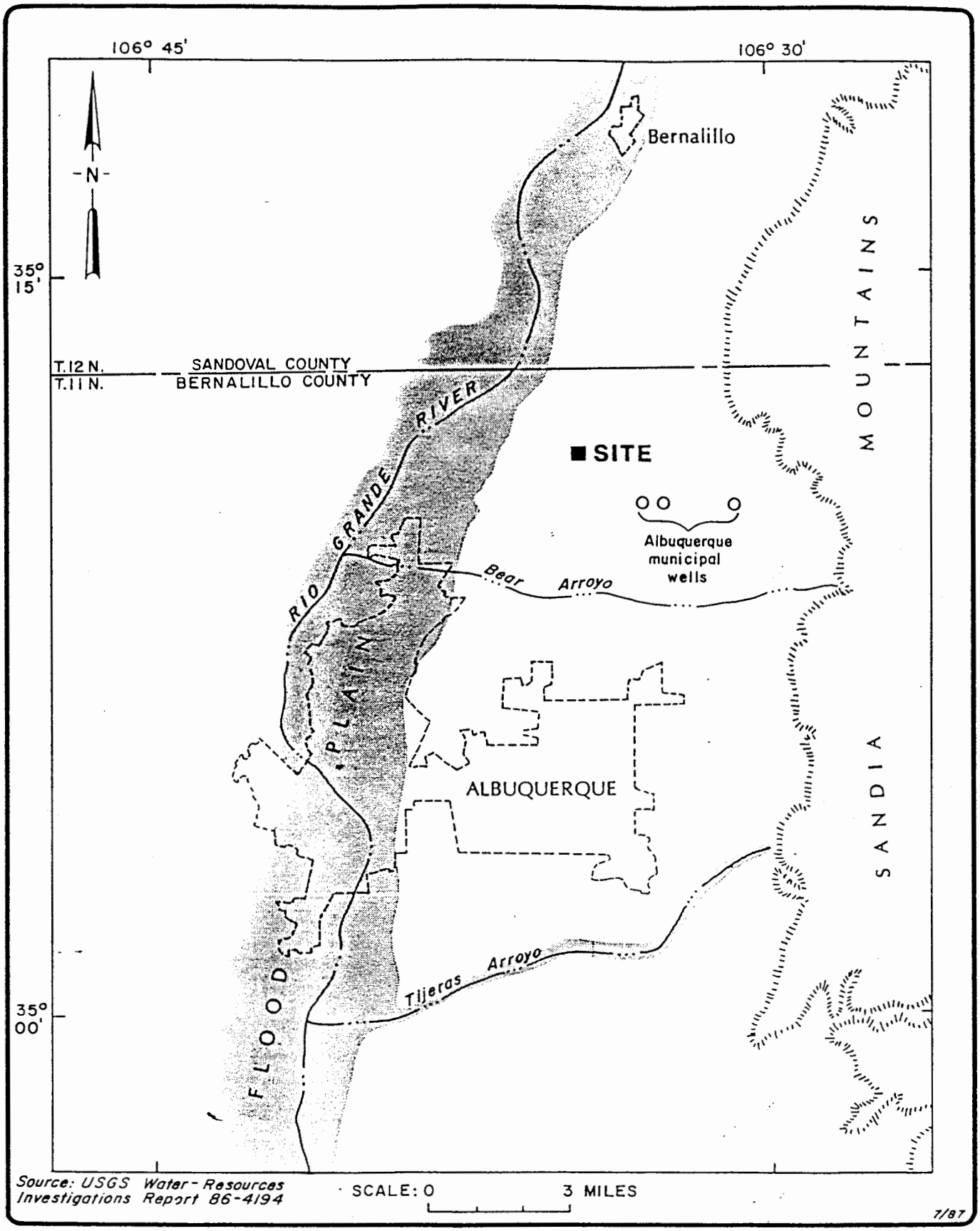

Source: USGS Water-Resources Investigations Report 86-4194

7/87

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ALBUQUERQUE, NEW MEXICO

SITE LOCATION MAP

FIGURE 1

PROJECT NO. 377-16.01

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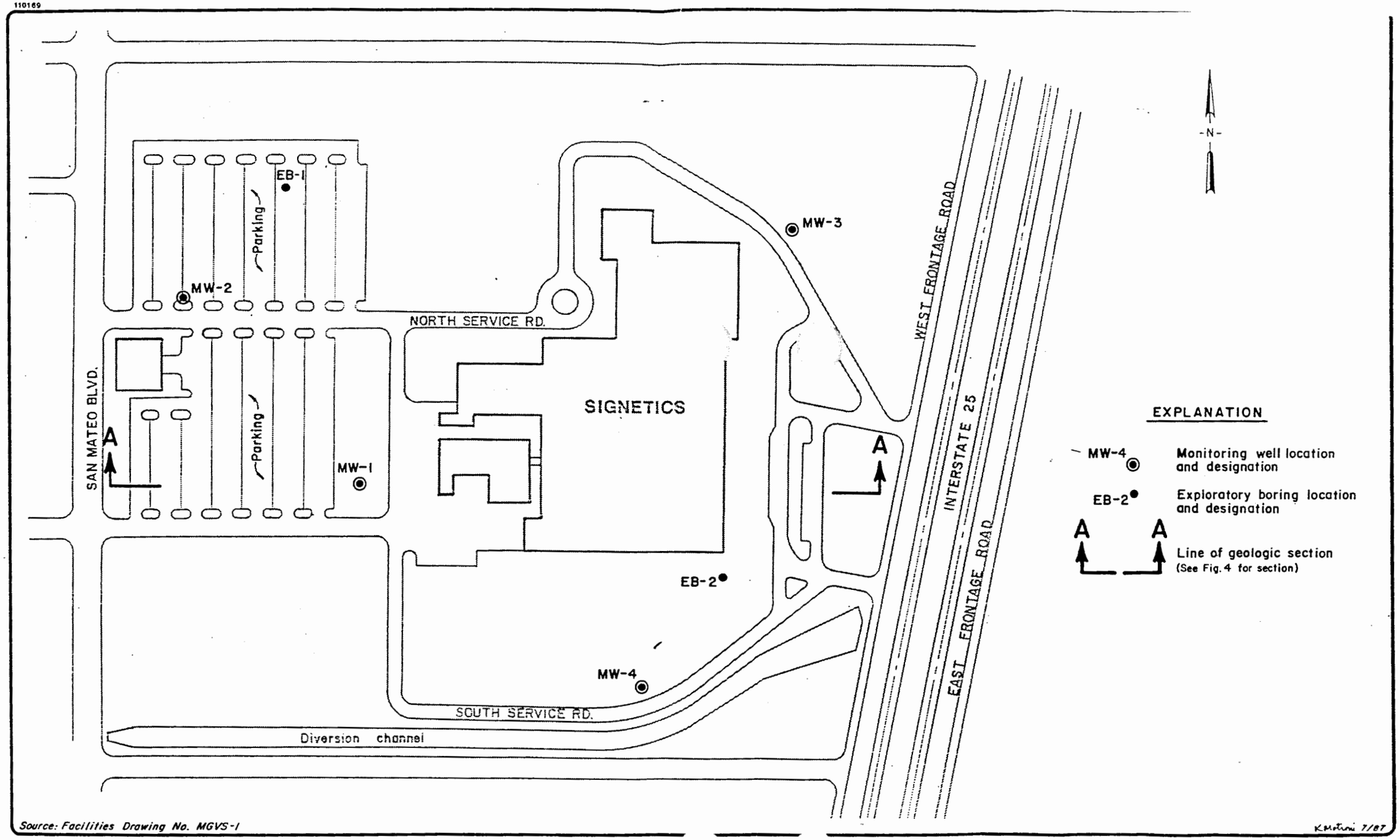

Source: Facilities Drawing No. MGVS-1

K.Martini 7/87

EMCON Associates

Scale: 0 200 400 600 800 Feet

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ALBUQUERQUE, NEW MEXICO

MONITORING WELL AND BORING LOCATION MAP

FIGURE 2

PROJECT NO. 377 - 16.01

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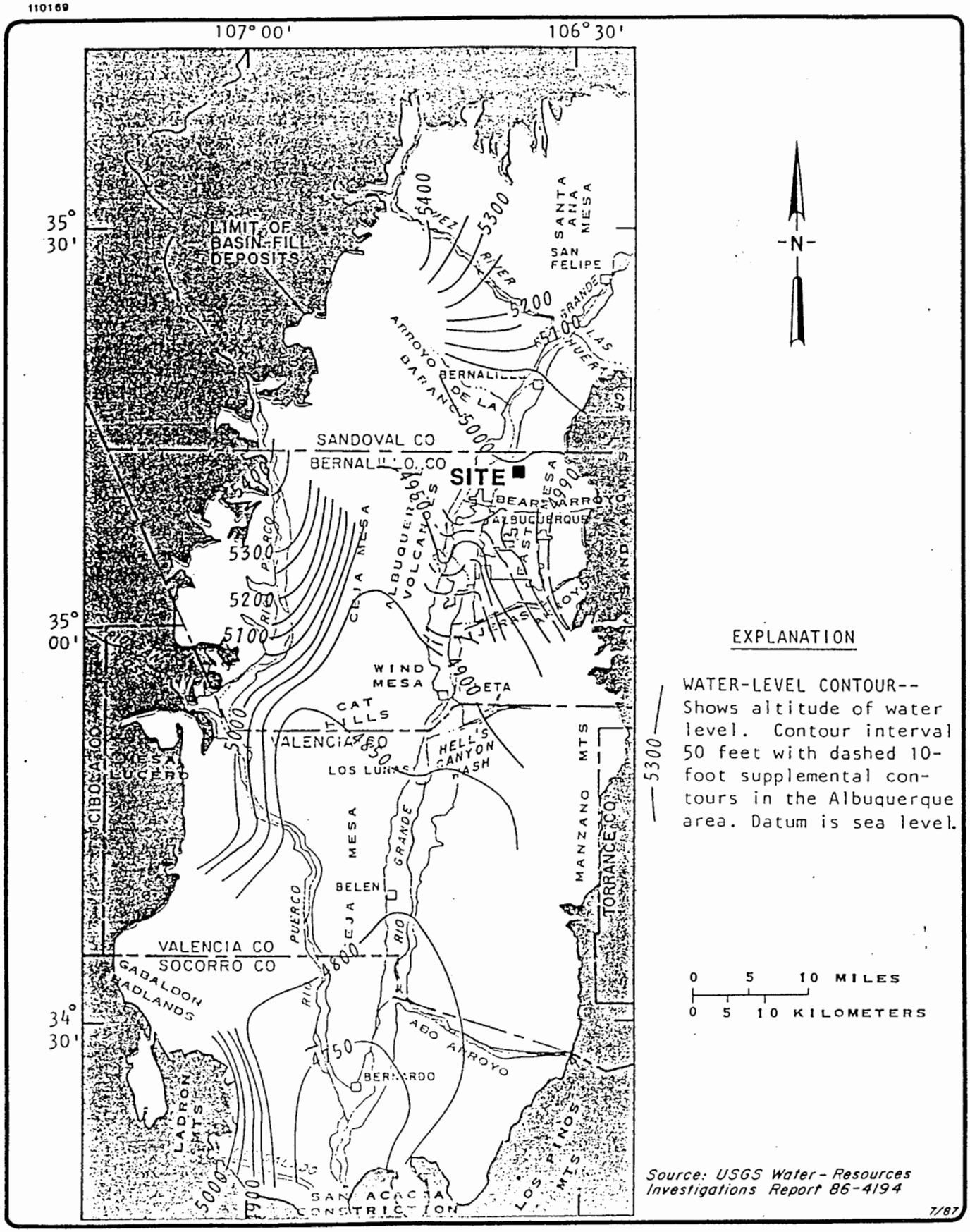

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NEW MEXICO FACILITY
ALBUQUERQUE, NEW MEXICO

REGIONAL GROUND-WATER CONTOUR MAP
1961

FIGURE 3

PROJECT NO. 377-16.01

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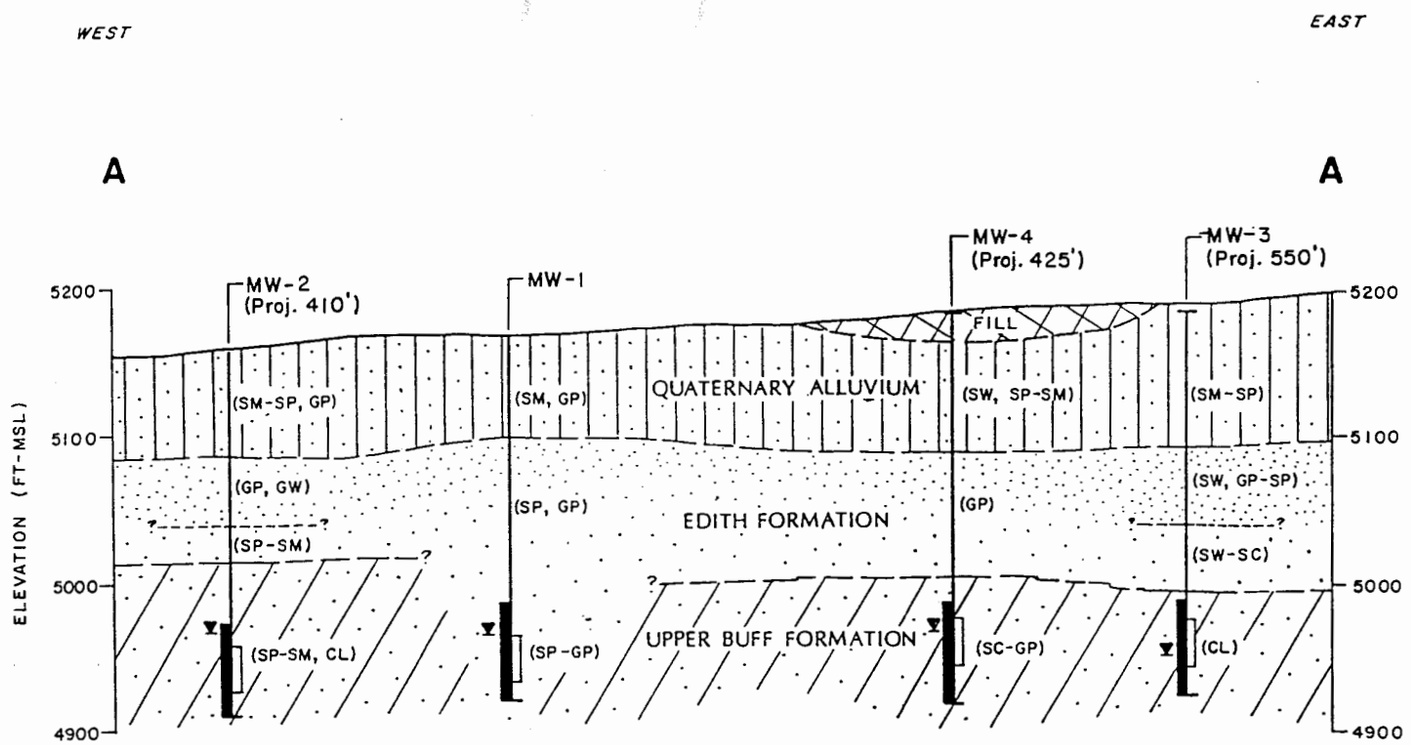

EXPLANATION

QUATERNARY ALLUVIUM – SANDS and GRAVELS (SM-GP)

Upper / Lower — EDITH FORMATION - upper coarse unit of SANDS and GRAVELS (SW-GP); lower fine unit of SANDS (SW-SC)

UPPER BUFF FORMATION – CLAYS and GRAVELS (CL, GP)

MW-1 — Well designation
Borehole
(CL) — USCS classification
Static water level
Screened interval
Gravel pack

NOTE: Formation contacts are inferred by depth, soil color, and general soil characteristics.

Scale: 0 200 400 600 800 Feet (Horizontal)

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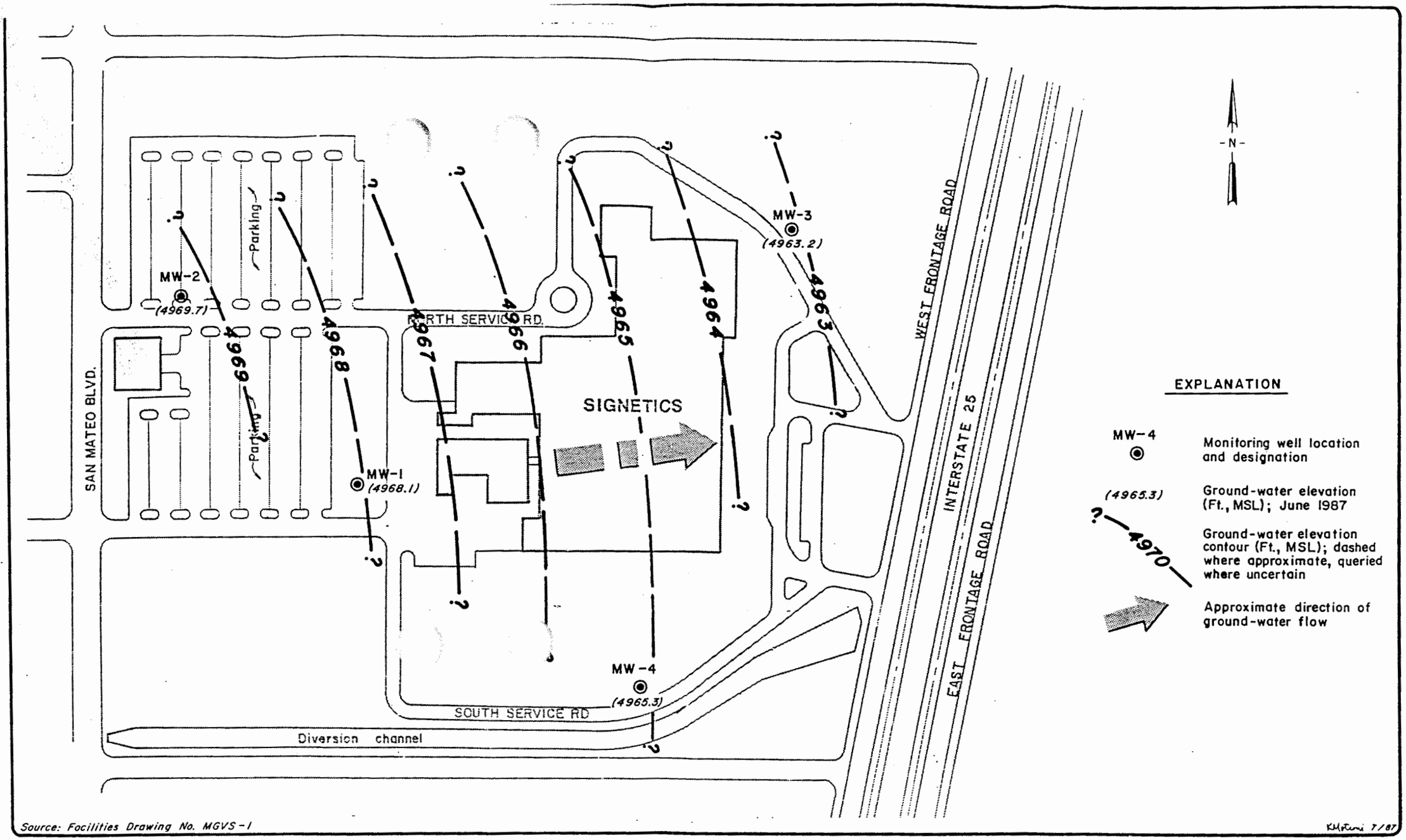
ALBUQUERQUE, NEW MEXICO

GEOLOGIC CROSS SECTION A–A

FIGURE 4

PROJECT NO. 377 – 16.01



Source: Facilities Drawing No. MGVS-1

KH Fine 7/87

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Scale: 0 200 400 600 800 Feet

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NEW MEXICO FACILITY
ALBUQUERQUE, NEW MEXICO

GROUND-WATER CONTOUR MAP
(JUNE 1987)

FIGURE 5

PROJECT NO. 377 - 16.01

LOG OF EXPLORATORY BORING

PROJECT NUMBER 377-16.01 | BORING NO. MW-2

PROJECT NAME Signetics | PAGE 1 OF 7

BY CMF DATE 6/01/87 | SURFACE ELEV. 5158.15'

TORVANE (TSF)	POCKET PENETRO-METER (TSF)	PENETRA-TION (Blows/Ft.)	GROUND WATER LEVELS	DEPTH IN FT.	SAMPLES	LITHO-GRAPHIC COLUMN	DESCRIPTION
						SM	SILTY SAND; dark yellowish brown (10YR, 4/4); 30% non- to slightly plastic silt and clay; fine to medium grained; 2% gravel; subangular to subrounded lithic gravel; very loose to loose; dry to damp.
				5	☒		
				10	☒		
				15	☒		
				20	☒	SP	GRAVELLY SAND; very pale brown (10YR, 7/3); 2% fines; 5% fine grained; 33% medium sand; 30% coarse sand; 30% fine to coarse gravel; subangular sand; rounded to subangular gravel; quartzose and granitic sand and gravel; very loose to loose; dry.
				25			
	REC: 18/18			30	■		
				35		GP	SANDY GRAVEL; yellowish brown (10YR, 5/4) to pale brown (10YR, 5/3); 45% medium to coarse sand; 55% fine to coarse gravel; subangular sand; subangular to rounded gravel; quartzose and granitic sand and gravel; hard clasts; dense.
				40			

REMARKS

Drilled using air- and mud-rotary drilling methods. Borehole converted to a 2-inch diameter monitoring well as shown on accompanying Well Details.

LOG OF EXPLORATORY BORING

PROJECT NUMBER 377-16.01 BORING NO. MW-2

PROJECT NAME Signetics PAGE 2 OF 7

BY CMF DATE 6/01/87 SURFACE ELEV. 5158.15'

TORVANE (TSF)	POCKET PENETROMETER (TSF)	PENETRATION (Blows/Ft.)	GROUND WATER LEVELS	DEPTH IN FT.	SAMPLES	LITHOGRAPHIC COLUMN	DESCRIPTION
				40	☒	GP	SANDY GRAVEL (continued).
				45			
				50	☒		
						SP	GRAVELLY SAND; yellowish brown (10YR, 5/4); medium to coarse grained; 35% fine gravel; subangular sand; subangular to subrounded gravel; quartzose and granitic sand and gravel; loose to medium dense.
				55			
	REC: 12/14			60	■	SP/ SM	SAND AND SILTY SAND-INTERBEDDED; Sand: dark yellowish brown (10YR, 4/4); trace fines; fine to medium grained; trace coarse sand; subangular to subrounded; quartzose with minor feldspar, black and lithic grains; loose; damp. Silty Sand: dark yellowish brown (10YR, 4/6); 30% slightly plastic silt and clay; fine grained; trace medium sand; subangular; quartzose with minor feldspar; black and lithic grains; loose to medium dense; dry.
				65			
				70	☒		
				75		GP	SANDY GRAVEL; yellowish brown (10YR, 5/4) to dark yellowish brown (10YR, 4/4); (continued on next page)
				80			

REMARKS

LOG OF EXPLORATORY BORING

PROJECT NUMBER 377-16.01 | BORING NO. MW-2

PROJECT NAME Signetics | PAGE 3 OF 7

BY CMF DATE 6/01/87 | SURFACE ELEV. 5158.15'

TORVANE (TSF)	POCKET PENETROMETER (TSF)	PENETRATION (Blows/Ft.)	GROUND WATER LEVELS	DEPTH IN FT.	SAMPLES	LITHOGRAPHIC COLUMN	DESCRIPTION
				80	☒	GP	SANDY GRAVEL (continued) 30% medium to coarse sand; 70% fine to coarse gravel; subangular to subrounded sand; rounded to subrounded gravel; sand and gravel: quartzose, granitic, gneissic, metasedimentary, sedimentary, and volcanic; hard clasts; loose to medium dense.
				85			
				90	☒		
				95			
	REC: 0/4			100		SC	CLAYEY SAND; gray (5Y, 6/1); 40% clay and silt; slight to low plasticity; fine to medium grained; subangular; medium dense.
						GW	SANDY GRAVEL; dark yellowish brown (10YR, 4/4); 30% medium to coarse sand; 65% fine to coarse gravel; 5% 3" to 4" cobbles; subangular sand; subrounded to rounded gravel; rounded cobbles; clasts of variable composition; hard clasts; loose to medium dense.
				105			
				110	☒		
				115			
				120	☒	SP-SM	SAND TO SILTY SAND (continued next page)

REMARKS

LOG OF EXPLORATORY BORING

PROJECT NUMBER 377-16.01 BORING NO. MW-2

PROJECT NAME Signetics PAGE 4 OF 7

BY CMF DATE 6/01/87 SURFACE ELEV. 5158.15'

TORVANE (TSF)	POCKET PENETRO-METER (TSF)	PENETRA-TION (Blows/Ft.)	GROUND WATER LEVELS	DEPTH IN FT.	SAMPLES	LITHO-GRAPHIC COLUMN	DESCRIPTION
	REC: 6/6			120		SP-SM	SAND TO SILTY SAND; brown (10YR, 5/3); 11% fines; fine to medium grained; 8% medium to coarse sand; 14% fine to coarse gravel; subrounded sand; rounded gravel; sand: quartzose with minor feldspar and black grains; stratified; iron concretions; loose to moderately dense; moist.
				125			
				130		SP-SM/SM	@120-130': occasional cobble zones.
							SAND TO SILTY SAND AND SILTY SAND, CLAYEY-INTERBEDDED; Sand to Silty Sand: As above. Silty Sand, Clayey: brown (10YR, 5/3); 35-50% silt and clay; slight to low plasticity; 50-65% fine to medium grained; quartzose with minor lithics; loose to medium dense.
				135			
				140			
				145		SP-SM/CL	
	REC: 15/15			150			SAND TO SILTY SAND AND SANDY CLAY-INTERBEDDED; moist. Sand to Silty Sand: brown (10YR, 5/3); 5-10% fines; fine to medium grained; trace coarse sand; 2% fine gravel; quartzose with minor feldspar, mica, lithic and black grains; loose to medium dense; moist. (continued on next page)
				155			
				160			

REMARKS

LOG OF EXPLORATORY BORING

PROJECT NUMBER 377-16.01 BORING NO. MW-2

PROJECT NAME Signetics PAGE 5 OF 7

BY CMF DATE 6/01/87 SURFACE ELEV. 5158.15'

TORVANE (TSF)	POCKET PENETRO-METER (TSF)	PENETRA-TION (Blows/Ft.)	GROUND WATER LEVELS	DEPTH IN FT.	SAMPLES	LITHO-GRAPHIC COLUMN	DESCRIPTION
				160	☒	SP-SM/CL	SAND TO SILTY SAND AND SANDY CLAY-INTERBEDDED (continued). Sandy Clay: pink (5YR, 8/3) to pinkish white (7.5YR, 8/3) to yellowish brown (10YR, 5/6); low to moderate plasticity; pink var. contains 0.05"-diameter rhombic crystals of calcite(?); soft; moist.
				165			
				170	☒		@170': color change to light gray (2.5Y, 7/2) to pale yellow (2.5Y, 8/4).
				175		CL	GRAVELLY CLAY; brown (7.5YR, 5/4).
				180	☒	CL	SANDY CLAY; brown (7.5YR, 5/4); very fine to coarse, subangular to subrounded sand; fine, rounded gravel; clasts: predominately quartzose; firm; moist.
				185			@185': coarsening.
			6/25/87 ▼				
				190	☒		@190': interbed of sandy gravel.
						SP-SM	
				195			SAND TO SILTY SAND; dark grayish brown (10YR, 4/2); 10% fines; 40% fine sand; 45% medium sand; 5% coarse (continued on next page).
			▽	200	☒		

REMARKS

LOG OF EXPLORATORY BORING

PROJECT NUMBER 377-16.01 BORING NO. MW-2

PROJECT NAME Signetics PAGE 6 OF 7

BY CMF DATE 6/01/87 SURFACE ELEV. 5158.15'

TORVANE (TSF)	POCKET PENETRO-METER (TSF)	PENETRA-TION (Blows/Ft.)	GROUND WATER LEVELS	DEPTH IN FT.	SAMPLES	LITHO-GRAPHIC COLUMN	DESCRIPTION
	REC: 3/3			200		SP-SM	SAND TO SILTY SAND (continued). sand to fine gravel; subangular to rounded; quartzose with lithic, feldspar, and black grains; moderately dense; moist to wet.
				205			@200': wet.
				210	☒		@210': interbed of gravelly sand.
				215			
						CL/SP	
	REC: 4/4			220	☒		SILTY CLAY, SANDY AND SAND-INTERBEDDED. Silty Clay, Sandy: reddish brown (5YR, 5/4); low to medium plasticity; 20-23% fine sand; 2% coarse gravel; stiff; moist. Sand: dark grayish brown (10YR, 4/2); trace fines; fine to medium grained; 5% coarse sand; subrounded; quartzose with feldspar, lithic, and black grains; medium dense; wet.
				225			
				230	☒		
				235			
				240			

REMARKS

LOG OF EXPLORATORY BORING

PROJECT NUMBER 377-16.01 BORING NO. MW-2

PROJECT NAME Signetics PAGE 7 OF 7

BY CMF DATE 6/01/87 SURFACE ELEV. 5158.15'

TORVANE (TSF)	POCKET PENETRO-METER (TSF)	PENETRA-TION (Blows/FT.)	GROUND WATER LEVELS	DEPTH IN FT.	SAMPLES	LITHO-GRAPHIC COLUMN	DESCRIPTION
				240	☒	CL/ SP	SILTY CLAY, SANDY AND SAND-INTERBEDDED (continued).
				245			BORING TERMINATED AT 245 FEET.
				250			
				255			
				260			
				265			
				270			
				275			
				280			

REMARKS

LOG OF EXPLORATORY BORING

PROJECT NUMBER 377-16.01 BORING NO. MW-3

PROJECT NAME Signetics PAGE 1 OF 7

BY CMF DATE 5/22/87 SURFACE ELEV. 5185.48'

TORVANE (TSF)	POCKET PENETROMETER (TSF)	PENETRATION (Blows/Ft.)	GROUND WATER LEVELS	DEPTH IN FT.	SAMPLES	LITHOGRAPHIC COLUMN	DESCRIPTION
						SM	SILTY SAND; dark yellowish brown; (10YR, 4/4); 20% silt and clay; fine to coarse grained; trace gravel; quartzose with lithics; rootlets; loose; dry.
				5	☒		
				10	☒		
				15			
				20	☒	SP-SM/SM	
	REC: 18/18			25	■		GRAVELLY SAND TO GRAVELLY SAND, SILTY AND SILTY SAND-INTERBEDDED; yellowish brown (10YR, 5/4). Gravelly Sand to Gravelly Sand, Silty: 8% fines; 10% fine sand; 28% medium sand; 32% coarse sand; 22% fine gravel; subangular; clasts: predominantly quartzose and granitic with minor other lithics, feldspar; trace muscovite; trace black grains; loose to medium dense; dry to damp. Silty Sand: 20% silt and clay; fine to medium grained; trace coarse sand and fine gravel; subrounded; quartzose (continued on next page).
	REC: 18/18			30	■		
	REC: 18/18			35	■		
				40			

REMARKS

Drilled using air- and mud-rotary drilling methods. Borehole converted to a 2-inch-diameter monitoring well as shown on accompanying Well Details.

LOG OF EXPLORATORY BORING

PROJECT NUMBER 377-16.01 BORING NO. MW-3

PROJECT NAME Signetics PAGE 2 OF 7

BY CMF DATE 5/22/87 SURFACE ELEV. 5185.48'

TORVANE (TSF)	POCKET PENETRO-METER (TSF)	PENETRA-TION (Blows/Ft.)	GROUND WATER LEVELS	DEPTH IN FT.	SAMPLES	LITHO-GRAPHIC COLUMN	DESCRIPTION
				40	⊠	SP-SM/SM	GRAVELLY SAND TO GRAVELLY SAND, SILTY AND SILTY SAND-INTERBEDDED (continued). with minor feldspar, lithics, trace muscovite and black grains; medium dense; dry.
				45			
							@35-65': occasional lenses of coarse sand.
				50	⊠		
				55			
				60	⊠		
				65			
				70	⊠		
	REC: 18/18			75	■		@75': Silty Sand: dark yellowish brown (10YR, 4/4); 32% silt and clay; 50% fine sand; 8% medium sand; 4% coarse sand; 6% fine gravel. @75-95': coarsening.
				80			

REMARKS

LOG OF EXPLORATORY BORING

PROJECT NUMBER 377-16.01 BORING NO. MW-3

PROJECT NAME Signetics PAGE 3 OF 7

BY CMF DATE 5/22/87 SURFACE ELEV. 5185.48'

TORVANE (TSF)	POCKET PENETROMETER (TSF)	PENETRATION (Blows/Ft.)	GROUND WATER LEVELS	DEPTH IN FT.	SAMPLES	LITHOGRAPHIC COLUMN	DESCRIPTION
				80		SP-SM/SM	GRAVELLY SAND TO GRAVELLY SAND, SILTY AND SILTY SAND-INTERBEDDED (continued).
				85			
				90			
	REC: 0/6, 0/1			95	NR	GP-SP	SANDY GRAVEL TO GRAVELLY SAND; dark yellowish brown (10YR, 4/4); trace fines; 50% medium to coarse sand; 50% fine to coarse gravel; subangular to subrounded sand; rounded, hard gravel; sand and gravel: quartzose with volcanics, granitics; metamorphics; loose to medium dense.
				100			@96-110': occasional cobble zones.
				105			
				110		SW	GRAVELLY SAND; brown (10YR, 4/3); trace to 5% fines; fine to coarse grained; 35% fine to coarse gravel; subrounded to subangular sand; subrounded to rounded gravel; fine to medium sand; predominately quartzose; coarse sand to gravel; variable lithic composition; medium dense; dry.
				115			
				120			

REMARKS

LOG OF EXPLORATORY BORING

PROJECT NUMBER 377-16.01 BORING NO. MW-3

PROJECT NAME Signetics PAGE 4 OF 7

BY CMF DATE 5/22/87 SURFACE ELEV. 5185.48'

TORVANE (TSF)	POCKET PENETRO-METER (TSF)	PENETRA-TION (Blows/Ft.)	GROUND WATER LEVELS	DEPTH IN FT.	SAMPLES	LITHO-GRAPHIC COLUMN	DESCRIPTION
	REC: 1.2/6			120		SW	GRAVELLY SAND (continued).
				125			
				130			
				135			@135': coarsening.
				140			
						SW/ SC	
				145			GRAVELLY SAND AND CLAYEY SAND, GRAVELLY-INTERBEDDED. Gravelly Sand: as above. Clayey Sand, Gravelly: brown (10YR, 4/3); 15% slightly plastic clay and silt; 50% fine to medium sand; 10% coarse sand; 25% fine to coarse gravel; subrounded to subangular quartzose sand; subrounded to rounded lithic gravel; medium dense.
				150			
				155			
				160			

REMARKS

LOG OF EXPLORATORY BORING

PROJECT NUMBER 377-16.01 BORING NO. MW-3

PROJECT NAME Signetics PAGE 5 OF 7

BY CMF DATE 5/22/87 SURFACE ELEV. 5185.48'

TORVANE (TSF)	POCKET PENETRO-METER (TSF)	PENETRA-TION (Blows/Ft.)	GROUND WATER LEVELS	DEPTH IN FT.	SAMPLES	LITHO-GRAPHIC COLUMN	DESCRIPTION
	REC: 0.6/3			160		SW/ SC	GRAVELLY SAND AND CLAYEY SAND, GRAVELLY-INTERBEDDED (continued).
				165			
				170			
				175			@177-190': occasional cobble and gravel zones.
				180			
				185			
				190		CL	
				195			SILTY CLAY, GRAVELLY; reddish brown (5YR, 5/3) to dark yellowish brown (10YR, 4/6); low plasticity; 15% fine to coarse sand; 25% fine to (continued on next page)
				200			

REMARKS

LOG OF EXPLORATORY BORING

PROJECT NUMBER 377-16.01 BORING NO. MW-3

PROJECT NAME Signetics PAGE 6 OF 7

BY CMF DATE 5/22/87 SURFACE ELEV. 5185.48'

TORVANE (TSF)	POCKET PENETRO-METER (TSF)	PENETRA-TION (Blows/Ft.)	GROUND WATER LEVELS	DEPTH IN FT.	SAMPLES	LITHO-GRAPHIC COLUMN	DESCRIPTION
	REC: 0/6			200	NR	CL	SILTY CLAY, GRAVELLY (continued). coarse gravel; subangular to sub-rounded sand; rounded to subrounded gravel; fine to medium sand: pre-dominately quartzose; coarse sand to gravel: variable lithic composition; firm to stiff; moist.
				205			
				210			
				215			
				220			
			6/25/87				
				225			
				230			
				235			
				240		CL	SILTY CLAY (continued on next page).

REMARKS

LOG OF EXPLORATORY BORING

PROJECT NUMBER 377-16.01 BORING NO. MW-3

PROJECT NAME Signetics PAGE 7 OF 7

BY CMF DATE 5/22/87 SURFACE ELEV. 5185.48'

TORVANE (TSF)	POCKET PENETRO-METER (TSF)	PENETRA-TION (Blows/Ft.)	GROUND WATER LEVELS	DEPTH IN FT.	SAMPLES	LITHO-GRAPHIC COLUMN	DESCRIPTION
	REC: 1.5/3			240		CL	SILTY CLAY; yellowish red (5YR, 4/6); medium plasticity; 15% fine to medium sand; trace coarse sand and fine gravel; coarse sand- to gravel-size calcareous concretions common; firm to stiff; moist to wet; portions damp. @243.5': wet. @247': cobble zone.
				245			
				250			
				255			
				260			BORING TERMINATED AT 260 FEET.
				265			
				270			
				275			
				280			

REMARKS

LOG OF EXPLORATORY BORING

PROJECT NUMBER 377-16.01 | BORING NO. MW-4

PROJECT NAME Signetics | PAGE 1 OF 7

BY CMF DATE 5/25/87 | SURFACE ELEV. 5182.46'

TORVANE (TSF)	POCKET PENETROMETER (TSF)	PENETRATION (Blows/Ft.)	GROUND WATER LEVELS	DEPTH IN FT.	SAMPLES	LITHOGRAPHIC COLUMN	DESCRIPTION
						FILL	FILL, SILTY SAND AND GRAVELLY SAND; yellowish brown (10YR, 4/4); quartzose; loose; dry. Silty Sand: 20% silt and clay; fine to medium grained; 2% fine to coarse gravel; subangular to subrounded. Gravelly Sand: 5% fines; medium to coarse grained; 20% fine gravel; subangular; stratified.
				5			
				10	☒		
				15			
				20	☒	SP	GRAVELLY SAND; light yellowish brown (10YR, 6/4); 5% fines; medium to coarse grained; 20% fine gravel; subangular; quartzose; granitic gravel; loose; dry.
	REC: 13/18			25	■	SM	SILTY SAND; dark yellowish brown (10YR, 4/4); 20% slightly plastic silt and clay; fine to coarse grained; 5% fine gravel; subangular to subrounded; quartzose with minor lithic grains; lithic gravel; loose; dry to damp.
	REC: 18/18			30	■	SW	GRAVELLY SAND; light yellowish brown (10YR, 6/4); 5% fines; 5% fine sand; 12% medium sand; 31% coarse sand; 47% fine to coarse gravel; subangular to angular; predominately granitic with minor quartzose, gneissic, and (continued on next page)
	REC: 18/18			35	■		
				40			

REMARKS

Drilled using air- and mud-rotary drilling methods. Borehole converted to a 2-inch diameter monitoring well as shown on accompanying Well Details.

LOG OF EXPLORATORY BORING

PROJECT NUMBER 377-16.01 BORING NO. MW-4

PROJECT NAME Signetics PAGE 2 OF 7

BY CMF DATE 5/25/87 SURFACE ELEV. 5182.46'

TORVANE (TSF)	POCKET PENETRO-METER (TSF)	PENETRA-TION (Blows/Ft.)	GROUND WATER LEVELS	DEPTH IN FT.	SAMPLES	LITHO-GRAPHIC COLUMN	DESCRIPTION
				40	☒	SW	GRAVELLY SAND (continued). other lithic grains; hard, fresh to weakly weathered grains; medium dense; dry.
				45			
				50	☒		
				55			
				60	☒		
				65			
				70	☒		@70': 45-50% fine gravel; no coarse gravel.
				75			
				80			

REMARKS

LOG OF EXPLORATORY BORING

PROJECT NUMBER 377-16.01 BORING NO. MW-4

PROJECT NAME Signetics PAGE 3 OF 7

BY CMF DATE 5/25/87 SURFACE ELEV. 5182.46'

TORVANE (TSF)	POCKET PENETRO-METER (TSF)	PENETRA-TION (Blows/Ft.)	GROUND WATER LEVELS	DEPTH IN FT.	SAMPLES	LITHO-GRAPHIC COLUMN	DESCRIPTION
				80	☒	SW	GRAVELLY SAND (continued). @80': change in clast composition.
				85			@87-95': gravel and cobble zone.
				90	☒		
				95		GP	SANDY GRAVEL; brown (10YR, 5/3); trace fines; trace fine sand; 20% medium to coarse sand; fine to coarse gravel; rounded to subangular; variable lithic composition; hard, fresh to weakly weathered grains; medium dense.
				100	☒		@100': no coarse gravel.
				105			
				110	☒		@110': coarsening.
				115			
				120			

REMARKS

LOG OF EXPLORATORY BORING

PROJECT NUMBER 377-16.01 BORING NO. MW-4

PROJECT NAME Signetics PAGE 4 OF 7

BY CMF DATE 5/25/87 SURFACE ELEV. 5182.46'

TORVANE (TSF)	POCKET PENETRO-METER (TSF)	PENETRA-TION (Blows/Ft.)	GROUND WATER LEVELS	DEPTH IN FT.	SAMPLES	LITHO-GRAPHIC COLUMN	DESCRIPTION
				120	☒	GP	SANDY GRAVEL (continued).
				125		SP-SM	SAND TO SILTY SAND; dark grayish brown (10YR, 4/2); 8% fines; 30% fine sand; 48% medium sand; 7% coarse sand; 7% fine to coarse gravel; sand: predominately quartzose with minor fledspar, lithic grains; gravel: variable lithic composition; loose; moist to wet.
	REC: 10/14			130	■		
				135		GP	
				140	☒		SANDY GRAVEL; brown (10YR, 5/3); trace fines; trace fine sand; 20% medium to coarse sand; fine to coarse gravel; subrounded to rounded; hard, fresh to weakly weathered grains; variable lithic composition; loose to medium dense.
				145			
				150	☒		@150': no coarse gravel.
				155			
				160			

REMARKS

LOG OF EXPLORATORY BORING

PROJECT NUMBER 377-16.01 BORING NO. MW-4

PROJECT NAME Signetics PAGE 5 OF 7

BY CMF DATE 5/25/87 SURFACE ELEV. 5182.46'

TORVANE (TSF)	POCKET PENETROMETER (TSF)	PENETRATION (Blows/Ft.)	GROUND WATER LEVELS	DEPTH IN FT.	SAMPLES	LITHOGRAPHIC COLUMN	DESCRIPTION
				160	☒	GP	SANDY GRAVEL (continued). @160': decreasing grain size.
				165			
				170	☒		@170': 35% medium to coarse sand.
				175			
				180	☒	SC-GP	CLAYEY SAND TO CLAYEY GRAVEL; dark yellowish brown (10YR, 4/4); fine gravel; variable clast composition.
				185			
	REC: 0.2/3			190	▬	SC	CLAYEY SAND; brown (10YR, 5/3); slight to low plasticity; 30-40% clay and silt; fine to medium grained; 5% coarse sand; 5% fine gravel; soft to firm; moist.
				195			
				200			

REMARKS

LOG OF EXPLORATORY BORING

PROJECT NUMBER 377-16.01 | BORING NO. MW-4

PROJECT NAME Signetics | PAGE 6 OF 7

BY CMF DATE 5/25/87 | SURFACE ELEV. 5182.46'

TORVANE (TSF)	POCKET PENETRO-METER (TSF)	PENETRA-TION (Blows/Ft.)	GROUND WATER LEVELS	DEPTH IN FT.	SAMPLES	LITHO-GRAPHIC COLUMN	DESCRIPTION
				200	☒	SC	CLAYEY SAND (continued).
				205		SC-GP	
				210	☒		CLAYEY SAND, GRAVELLY TO CLAYEY GRAVEL, SANDY; reddish brown (5YR, 5/4) to brown (10YR, 5/3) to gray (10YR, 5/1); slight to low plasticity; variable percentages of clay, silt, sand and gravel; fine to coarse, sub-angular to rounded sand; fine to coarse, rounded gravel; variable gravel composition; predominately sedimentary; medium dense.
				215			
			6/26/87				
	REC: 0/4, 0/3.7			220	NR NR		
				225			
				230	☒		
				235			
				240			

REMARKS

LOG OF EXPLORATORY BORING

PROJECT NUMBER 377-16.01 BORING NO. MW-4

PROJECT NAME Signetics PAGE 7 OF 7

BY CMF DATE 5/25/87 SURFACE ELEV. 5182.46'

TORVANE (TSF)	POCKET PENETRO-METER (TSF)	PENETRA-TION (Blows/Ft.)	GROUND WATER LEVELS	DEPTH IN FT.	SAMPLES	LITHO-GRAPHIC COLUMN	DESCRIPTION
				240		SC-GP	CLAYEY SAND, GRAVELLY TO CLAYEY GRAVEL, SANDY (continued).
	REC: 15/18			245		CL	SANDY CLAY; pinkish white (7.5YR, 8/2) to brown (7.5YR, 5/4); medium plasticity; slightly silty; 25% fine sand; 5% medium to coarse sand; trace gravel; subangular to subrounded sand; sand and gravel: predominately quartzose, trace volcanics, trace surface coatings of manganese oxide; trace carbonaceous material after rootlets; firm to stiff; damp to moist.
				250			
				255			@246': wet.
				260			
				265			BORING TERMINATED AT 265 FEET.
				270			
				275			
				280			

REMARKS

LOG OF EXPLORATORY BORING

PROJECT NUMBER 377-16.01 BORING NO. EB-2

PROJECT NAME Signetics PAGE 1 OF 2

BY CMF DATE 5/19/87 SURFACE ELEV. 5182'±

TORVANE (TSF)	POCKET PENETROMETER (TSF)	PENETRATION (Blows/Ft.)	GROUND WATER LEVELS	DEPTH IN FT.	SAMPLES	LITHOGRAPHIC COLUMN	DESCRIPTION
						FILL	FILL; rubbish, paper, wood, brick; loose; dry.
				5			
				10			
				15			
				20			
							@23': damp; odor.
				25			
				30			
						SM	FILL (?), SILTY SAND; brown (10YR, 5/3); 20% silt and clay; fine to medium grained; 5% coarse sand; 5% fine gravel; trace paper, cloth refuse; quartzose with dark grains; very loose; damp.
	REC: 9/18			35			
	REC: 16/18			40			

REMARKS

Drilled using air-rotary drilling methods. Upon completion, borehole backfilled with cement/bentonite mixture.

LOG OF EXPLORATORY BORING

PROJECT NUMBER 377-16.01 BORING NO. EB-2

PROJECT NAME Signetics PAGE 2 OF 2

BY CMF DATE 5/19/87 SURFACE ELEV. 5182'±

TORVANE (TSF)	POCKET PENETRO-METER (TSF)	PENETRA-TION (Blows/Ft.)	GROUND WATER LEVELS	DEPTH IN FT.	SAMPLES	LITHO-GRAPHIC COLUMN	DESCRIPTION
				40		SM	FILL (?), SILTY SAND (continued).
	REC: 0/18			45	NR		
	REC: 0/18				NR		
				50			BORING TERMINATED AT 48.5 FEET.
				55			
				60			
				65			
				70			
				75			
				80			

REMARKS

LOG OF EXPLORATORY BORING

PROJECT NUMBER 377-16.01 | BORING NO. EB-1

PROJECT NAME Signetics | PAGE 1 OF 1

BY CMF DATE 5/11/87 | SURFACE ELEV. 5158'±

TORVANE (TSF)	POCKET PENETROMETER (TSF)	PENETRATION (Blows/Ft.)	GROUND WATER LEVELS	DEPTH IN FT.	SAMPLES	LITHOGRAPHIC COLUMN	DESCRIPTION
						FILL	FILL; fine to medium sand; paper refuse; dry.
				5			
				10			
				15			
						GP	SANDY GRAVEL TO SANDY GRAVEL, SILTY; yellowish brown (10YR, 5/4); 10% silt and clay; 40% fine to coarse sand; 45% fine to coarse gravel; 5% cobbles to 5" diameter; variable composition including clasts of basalt, conglomerate, and metamorphic rocks; minor caliche coatings; hard, fresh to weakly weathered clasts; loose; dry.
	REC: 8/18			20			
	REC: 14/18						
				25			
	REC: 16/18						
				30			
							GRAVELLY SAND, SILTY; very pale brown (10YR, 7/4); 15% silt and clay; 5% fine sand; 40% medium to coarse sand; 40% fine to coarse gravel; quartzose, granitic and other lithics; hard, fresh to weakly weathered clasts; loose; dry.
	REC: 14/18			35		SP	
				40			BORING TERMINATED AT 35.5 FEET.

REMARKS

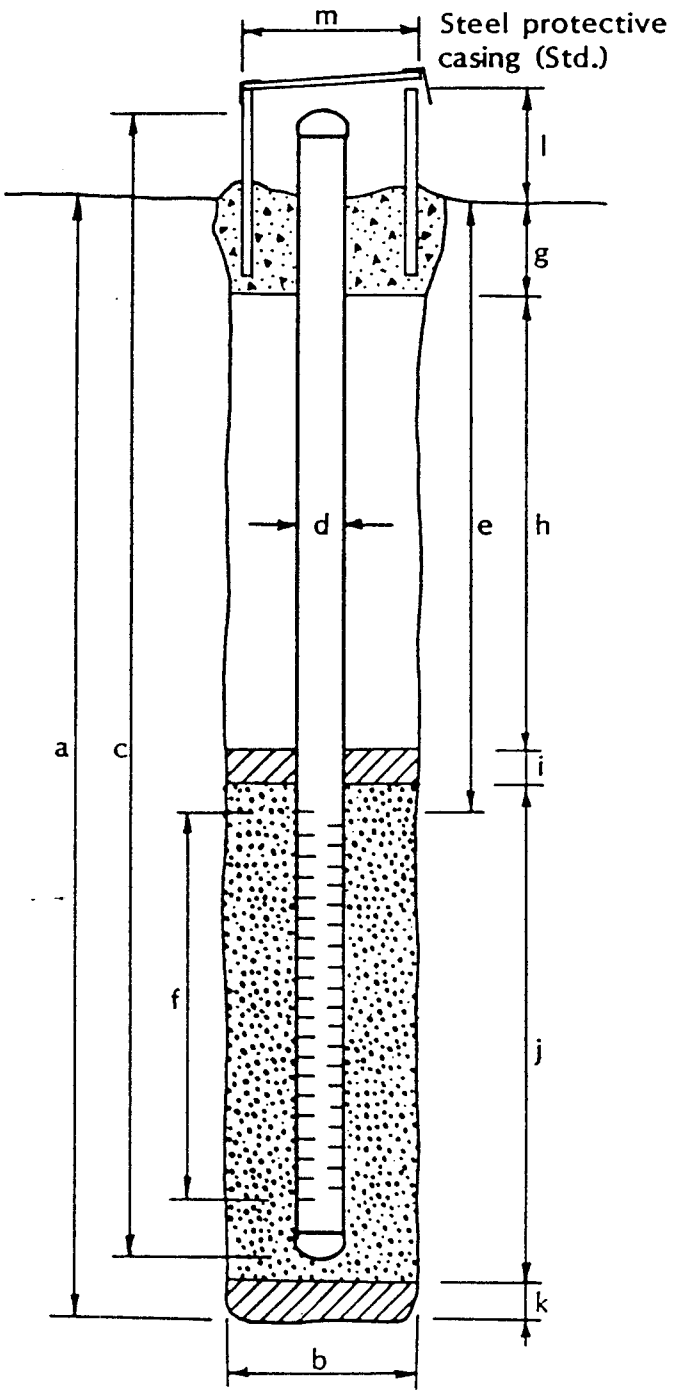
Drilled using air-rotary drilling methods.

Upon completion, borehole backfilled with cement/bentonite mixture.

WELL DETAILS

PROJECT NUMBER 377-16.01
PROJECT NAME Signetics
COUNTY Bernalillo Co., NM
WELL PERMIT NO. N/A

BORING / WELL NO. MW-1
TOP OF CASING ELEV. 5168.70
GROUND SURFACE ELEV. 5168.17
DATUM Mean Sea Level



EXPLORATORY BORING

a. Total depth 247 ft.
b. Diameter 7 7/8 in.
Drilling method Air/Mud Rotary

WELL CONSTRUCTION

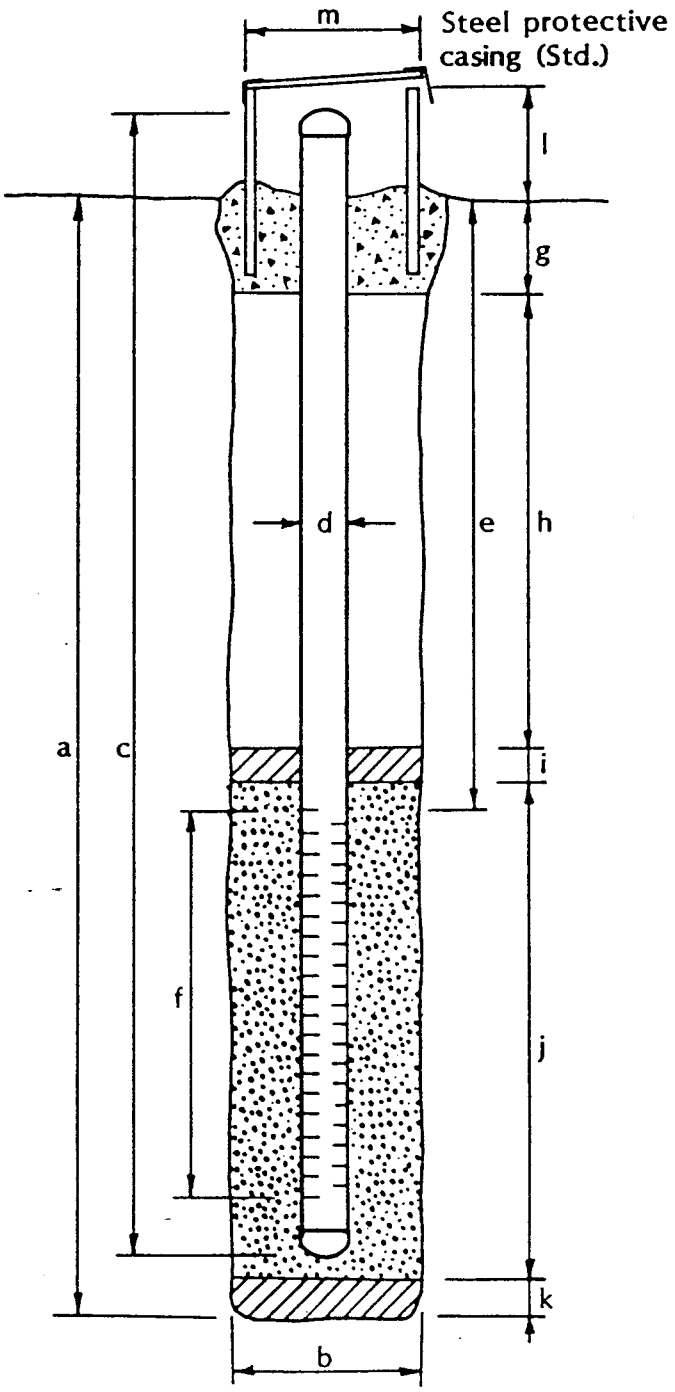
c. Casing length 230 ft.
Material Schedule 40 PVC
d. Diameter 2 in.
e. Depth to top perforations 199.5 ft.
f. Perforated length 30 ft.
Perforated interval from 199.5 to 229.5 ft.
Perforation type Machine Slotted
Perforation size 0.02 inch
g. Surface seal 3 ft.
Seal material Cement w/ 3% Bentonite
h. Backfill 171 ft.
Backfill material Cement w/ 3% Bentonite
i. Seal 5 ft.
Seal material Bentonite
j. Gravel pack ± 68 ft.
Pack material CSSI 8x12 Sand
k. Bottom seal N/A ft.
Seal material N/A
l. Casing height * .5 ft.
m. Protective casing diameter 10 in.

± includes filter pack
* top of PVC casing

WELL DETAILS

PROJECT NUMBER 377-16.01
PROJECT NAME Signetics
COUNTY Bernalillo Co., NM
WELL PERMIT NO. N/A

BORING / WELL NO. MW-2
TOP OF CASING ELEV. 5159.36
GROUND SURFACE ELEV. 5158.15
DATUM Mean Sea Level



EXPLORATORY BORING

a. Total depth 245 ft.
b. Diameter 7 7/8 in.
Drilling method Air/Mud Rotary

WELL CONSTRUCTION

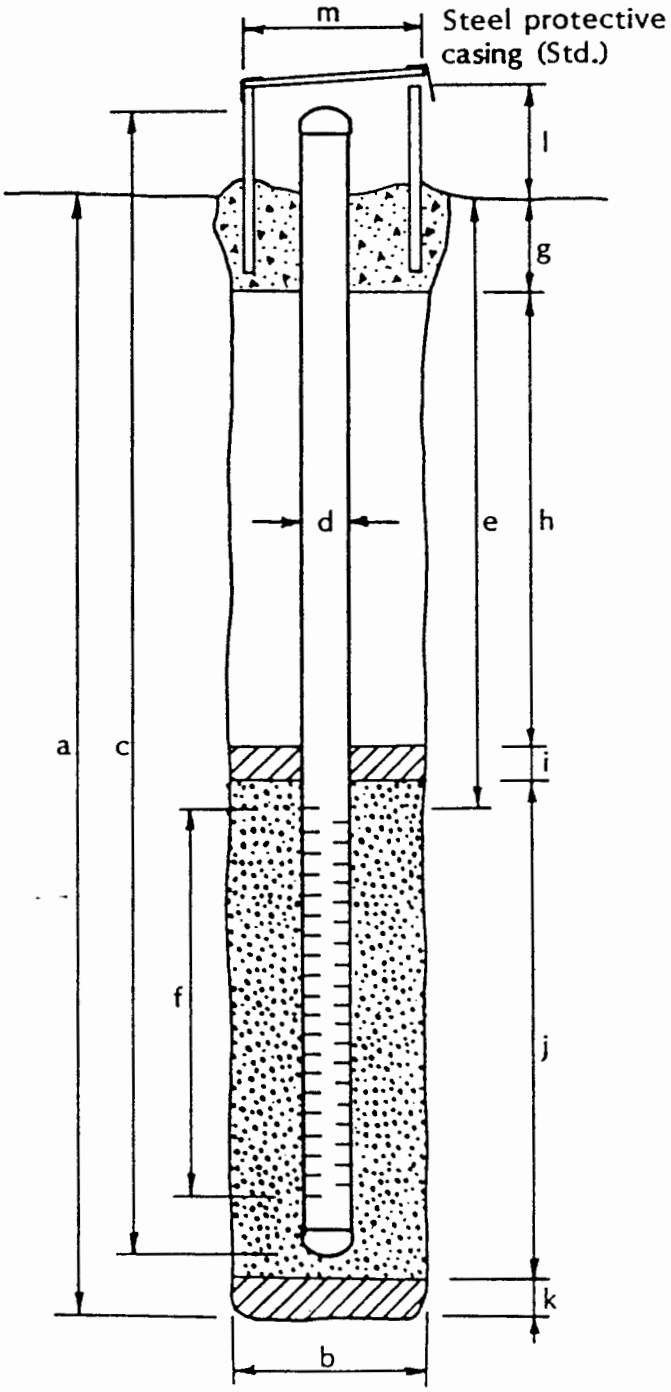
c. Casing length 240 ft.
Material Schedule 40 PVC
d. Diameter 2 in.
e. Depth to top perforations 200 ft.
f. Perforated length 30 ft.
Perforated interval from 200 to 230 ft.
Perforation type Machine Slot
Perforation size 0.02 inch
g. Surface seal 6 ft.
Seal material Grout w/ 3% Bentonite
h. Backfill 174 ft.
Backfill material Grout w/ 3% Bentonite
i. Seal 8.5 ft.
Seal material Volclay Bentonite
j. Gravel pack ± 56.5 ft.
Pack material CSSI 8x12 Sand
k. Bottom seal N/A ft.
Seal material N/A
l. Casing height * 1.0 ft.
m. Protective casing diameter 10 in.

± includes filter pack (.5') and natural pack (9.5')
* top of PVC casing

WELL DETAILS

PROJECT NUMBER 377-16.01
PROJECT NAME Signetics
COUNTY Bernalillo Co., NM
WELL PERMIT NO. N/A

BORING / WELL NO. MW-3
TOP OF CASING ELEV. 5186.43
GROUND SURFACE ELEV. 5185.48
DATUM Mean Sea Level



EXPLORATORY BORING

a. Total depth 260 ft.
b. Diameter 7 7/8 in.
Drilling method Air/Mud Rotary

WELL CONSTRUCTION

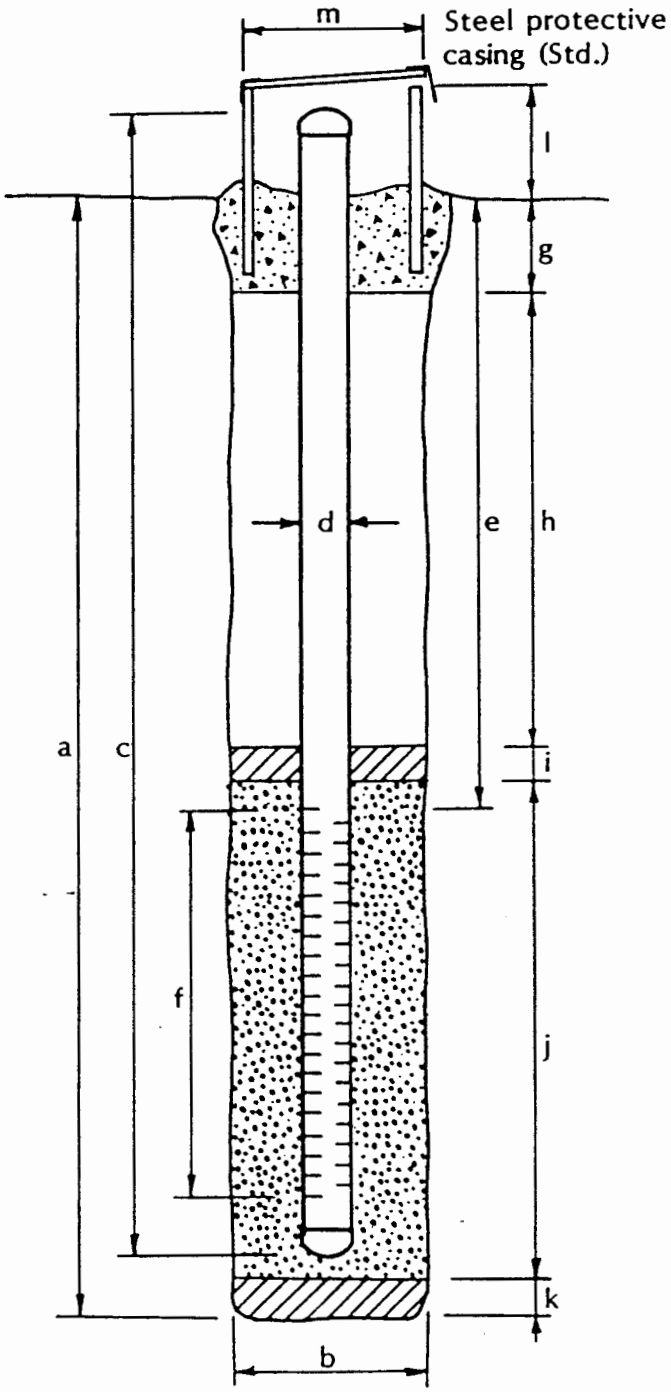
c. Casing length 240.5 ft.
Material Schedule 40 PVC
d. Diameter 2 in.
e. Depth to top perforations 209.5 ft.
f. Perforated length 30 ft.
Perforated interval from 209.5 to 239.5 ft.
Perforation type Machine Slotted
Perforation size 0.02 inch
g. Surface seal 8 ft.
Seal material Cement w/ 3% Bentonite
h. Backfill 172 ft.
Backfill material Cement w/ 3% Bentonite
i. Seal 14 ft.
Seal material Bentonite
j. Gravel pack ± 66 ft.
Pack material CSSI 8x12 Sand
k. Bottom seal N/A ft.
Seal material N/A
l. Casing height * 1.0 ft.
m. Protective casing diameter 10 in.

± includes filter pack (2.5 ft) and natural pack (6 ft)
* top of PVC casing

WELL DETAILS

PROJECT NUMBER 377-16.01
PROJECT NAME Signetics
COUNTY Bernalillo Co., NM
WELL PERMIT NO. N/A

BORING / WELL NO. MW-4
TOP OF CASING ELEV. 5182.94
GROUND SURFACE ELEV. 5182.46
DATUM Mean Sea Level



EXPLORATORY BORING

a. Total depth 260 ft.
b. Diameter 7 7/8 in.
Drilling method Air/Mud Rotary

WELL CONSTRUCTION

c. Casing length 240 ft.
Material Schedule 40 PVC
d. Diameter 2 in.
e. Depth to top perforations 209.5 ft.
f. Perforated length 30 ft.
Perforated interval from 209.5 to 239.5 ft.
Perforation type Machine Slotted
Perforation size 0.02 inch
g. Surface seal 19 ft.
Seal material Cement w/ 3% Bentonite
h. Backfill 169.5 ft.
Backfill material Cement w/3% Bentonite
i. Seal 10 ft.
Seal material Bentonite
j. Gravel pack± 61.5 ft.
Pack material CSSI 8x12 Sand
k. Bottom seal N/A ft.
Seal material N/A
l. Casing height * .5 ft.
m. Protective casing diameter 10 in.

± includes filter pack
* top of PVC casing

Appendix B

SITE SOILS TEST DATA

Appendix B

SITE SOILS TEST DATA

The results of laboratory testing of site soils at the Signetics semiconductor manufacturing facility are summarized in this appendix. The objective of the laboratory program was to classify and determine physical and mechanical properties of representative site soils. Test methods included in this appendix include Atterberg Limit determinations and sieve analysis. ASTM standard test methods were used.

SOILS ANALYSIS REQUEST

EMCON ASSOCIATES

PROJECT NAME SIGNETICS – ALBUQU. PROJECT NO. 377-16.01

DATE OF REQUEST 6/29/87 REQUESTED BY CMF/DFA (CHRIS FRENCH)

SPECIAL INSTRUCTIONS

DO NOT CONDUCT ANALYSIS UNTIL SAMPLES ARE REVIEWED AND APPROVED BY D. ATWOOD...

BORING NO. OR SOURCE	SAMPLE DEPTH	ANALYSES REQUESTED
MW-2	30'	GRAIN SIZE ANALYSIS ~~(SIEVE)~~
MW-2	120'	↓
MW-2	200'	↓
MW-3	25'	↓
MW-3	75'	↓
MW-3	245'	(+ATTERBURG) ↓
MW-4	35'	↓
MW-4	130'	↓
MW-4	245'	(+ATTERBURG) ↓

NOTE : IF CHAIN OF CUSTODIES HAVE NOT ALREADY BEEN SUBMITTED, IT IS IMPORTANT TO INCLUDE THEM WITH THIS FORM.

Appendix B

SITE SOILS TEST DATA

The results of laboratory testing of site soils at the Signetics semiconductor manufacturing facility are summarized in this appendix. The objective of the laboratory program was to classify and determine physical and mechanical properties of representative site soils. Test methods included in this appendix include Atterberg Limit determinations and sieve analysis. ASTM standard test methods were used.

TEST REQUEST SHEET

EMCON ASSOCIATES

PROJECT NAME Signetics Albuquerque PROJECT NO. 2771601 LAB NO. ES87-109

REQUESTED BY C. French / D. Arthurs PROJECT MANAGER APPOVAL D. Flood PAGE ____ OF ____

SAMPLE NUMBER	SAMPLE DEPTH LOCATION AND/OR STATION	VISUAL USCS SYMBOL	MOISTURE CONTENT	DRY DENSITY	ATTERBERG LIMITS	SIEVE ANALYSIS	# 200 WASH	HYDROMETER ANALYSIS	COMPACTION TEST	UNDISTURBED PERMEABILITY	DIRECT SHEAR	UNCONFINED COMPRESSION	REMOLDED PERMEABILITY			DATE REQUESTED	RESULTS DUE BY	DATE COMPLETED	DATE SAMPLE STORED	DATE SAMPLE DISPOSED OF
MW2	50'					X														
MW2	120'					X														
MW2	200					X														
MW3	25					X														
MW3	75					X														
MW3	245				X	X														
MW4	35					X														
MW4	130					X														
MW4	245				X	X														

COMMENTS:

SAMPLES DELIVERED BY ____

SAMPLES RECEIVED BY ____

SPECIAL INSTRUCTIONS:

SOILS ANALYSIS REQUEST

EMCON ASSOCIATES

PROJECT NAME SIGNETICS – ALBUQU. PROJECT NO. 377-16.01

DATE OF REQUEST 6/29/87 REQUESTED BY CMF/DFA (CHRIS FRENCH)

SPECIAL INSTRUCTIONS

DO NOT CONDUCT ANALYSIS UNTIL SAMPLES ARE REVIEWED AND APPROVED BY D. ATWOOD...

BORING NO. OR SOURCE	SAMPLE DEPTH	ANALYSES REQUESTED
MW-2	30'	GRAIN SIZE ANALYSIS ~~(STEVE)~~
MW-2	120'	
MW-2	200'	
MW-3	25'	
MW-3	75'	
MW-3	245'	(+ATTERBURG)
MW-4	35'	
MW-4	130'	
MW-4	245'	(+ATTERBURG)

NOTE : IF CHAIN OF CUSTODIES HAVE NOT ALREADY BEEN SUBMITTED, IT IS IMPORTANT TO INCLUDE THEM WITH THIS FORM.

ATTERBERG LIMITS

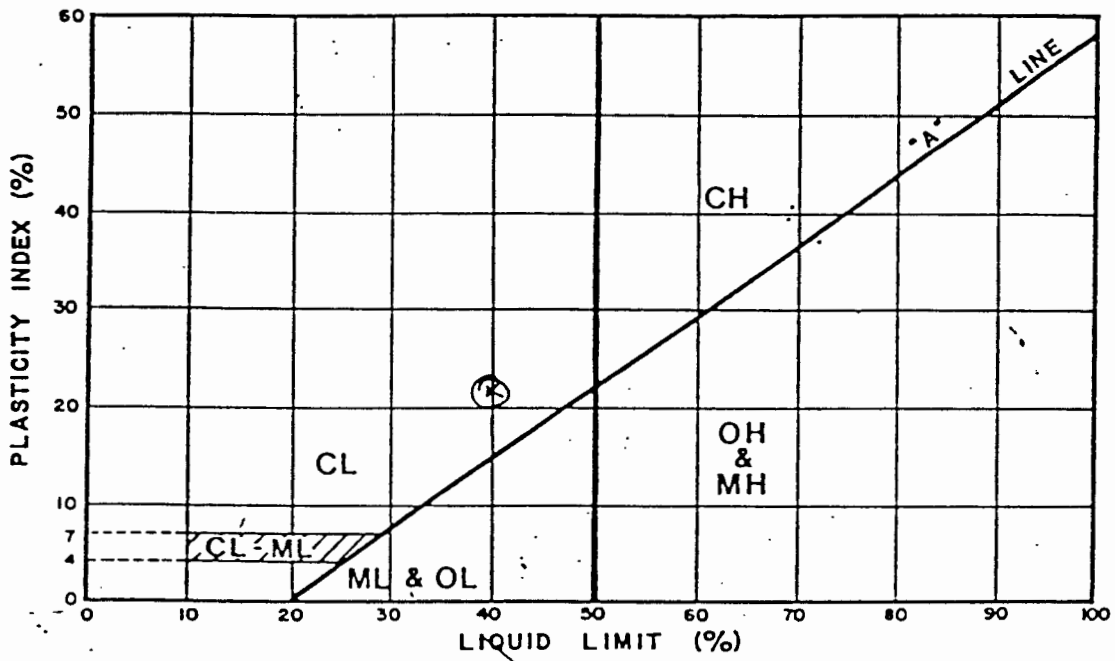
ES 87 109 85

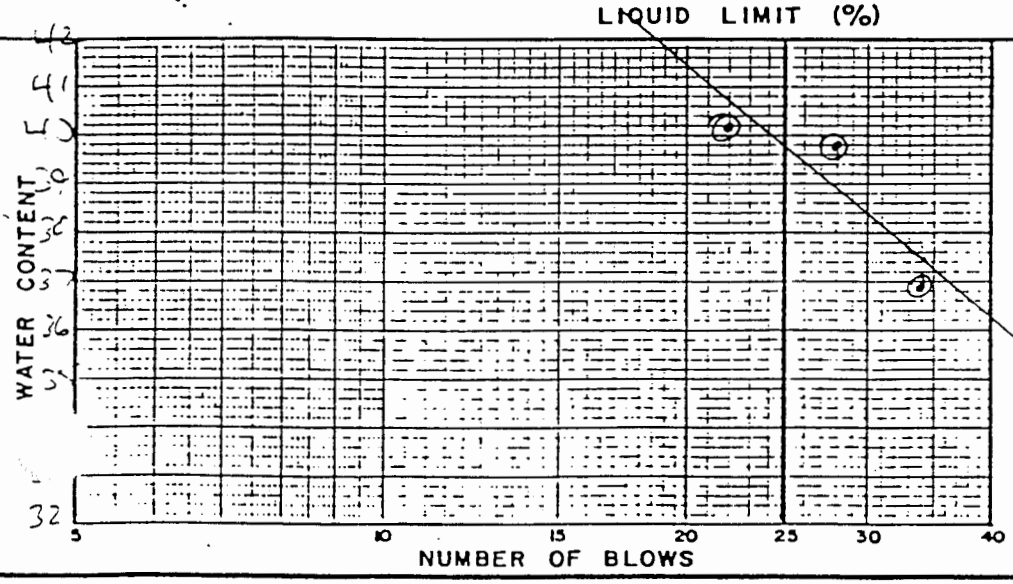
PROJECT NAME Signetics PROJECT NO. _____ DATE 7/1/87

SAMPLE NO. MW3 #12 DEPTH 2.45 TESTED BY Saman

SAMPLE DESCRIPTION Dark brown Reddish gravelly clay CL

	LIQUID LIMIT				PLASTIC LIMIT		
CAN NO.	A39	A22	A61		A3	A66	
WEIGHT OF CAN + WET SOIL (gms)	44.4	45.2	45.5		38.1	40.3	
WEIGHT OF CAN + DRY SOIL (gms)	36.6	36.8	37.1		34.8	36.6	
WEIGHT OF WATER (gms)	7.6	8.4	8.4		3.3	3.7	
WEIGHT OF CAN (gms)	16.0	15.7	16.2		15.1	16.4	
WEIGHT OF DRY SOIL (gms)	20.6	21.1	20.9		19.7	20.2	
WATER CONTENT (%)	36.9	39.8	40.2		16.8	18.3	
NUMBER OF BLOWS	34	28	22				





LIQUID LIMIT 40 %

PLASTIC LIMIT 18 %

PLASTICITY INDEX 22

CL

ATTERBERG LIMITS

88

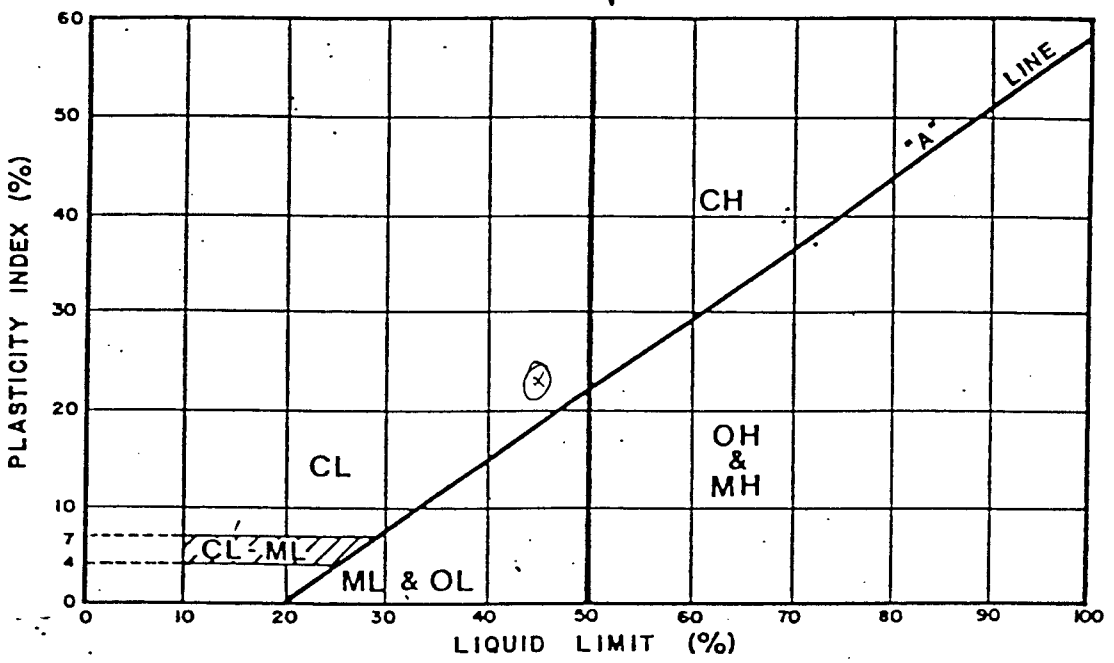
EMCON ASSOCIATES

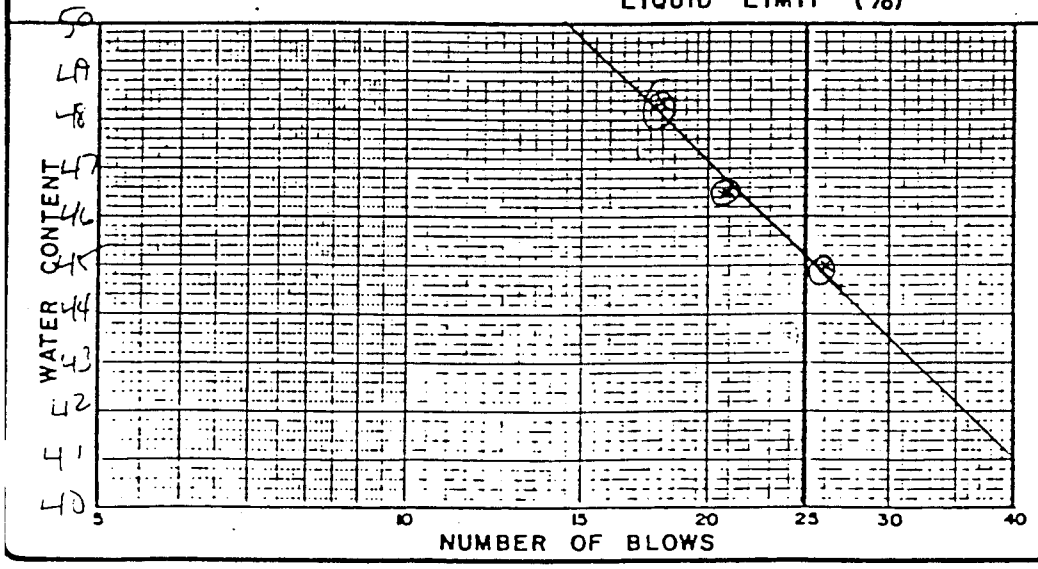
PROJECT NAME Signetics PROJECT NO. ES87109 DATE 7/1/87

SAMPLE NO. mw4 #15 DEPTH 245 TESTED BY Saman

SAMPLE DESCRIPTION Red clayey Sand (CL)

	LIQUID LIMIT				PLASTIC LIMIT		
CAN NO.	A26	A13	A50	A21	A2	A19	
WEIGHT OF CAN + WET SOIL (gms)	44.6	46.3	45.9	43.1	34.6	36.0	
WEIGHT OF CAN + DRY SOIL (gms)	35.7	36.8	36.6	34.3	31.3	32.5	
WEIGHT OF WATER (gms)	8.5	9.5	9.3	8.8	3.3	3.5	
WEIGHT OF CAN (gms)	16.2	15.7	16.6	16.1	16.0	16.2	
WEIGHT OF DRY SOIL (gms)	19.5	21.1	20.0	18.2	15.3	16.3	
WATER CONTENT (%)	43.6	45.0	46.5	48.4	21.6	21.5	
NUMBER OF BLOWS	24	26	21	19			





LIQUID LIMIT 45 %

PLASTIC LIMIT 22 %

PLASTICITY INDEX 23

CL

GRAIN SIZE DISTRIBUTION

EMCON ASSOCIATES

PROJECT NAME Signetics PROJECT NO. 377161 DATE 6/30/87

SAMPLE NO. MW2 A2 DEPTH 30' TESTED BY Sammy

SAMPLE DESCRIPTION GW

MOISTURE CONTENT DETERMINATION

CUP NUMBER 92

CUP + WET SOIL 883.9 (gms)

CUP + DRY SOIL 882.3 (gms)

WEIGHT OF CUP 176.0 (gms)

WEIGHT OF MOISTURE 1.6 (gms)

WEIGHT OF DRY SOIL 706.3 (gms)

MOISTURE CONTENT 0.2 (%)

WET WEIGHT TOTAL SAMPLE _____ (gms)

DRY WEIGHT TOTAL SAMPLE

$= \frac{\text{WET WEIGHT TOTAL SAMPLE}}{1 + (\text{MOISTURE CONTENT})} =$ _____ (gms)

SIEVE SIZE (U.S. STANDARD)	PARTICLE DIAMETER		WEIGHT RETAINED (gms)	ACCUMULATED WGT. RETAINED (gms)	WEIGHT PASSING (gms)	PERCENT PASSING
	INCH	MILLIMETER				
5"						
3"	3.0	76.2				
1½"	1.5	38.1			706.3	
¾"	0.742	18.85	48.1	48.1	658.2	93.2
⅜"	0.371	9.42	31.3	79.4	626.9	88.8
#4	0.185	4.699	124.4	203.8	502.5	71.1
#8	0.093	2.362	191.1	394.9	311.4	44.1
#16	0.046	1.168	161.1	556.0	150.3	21.3
#30	0.0232	0.589	83.7	639.7	66.6	9.4
#50	0.0116	0.295	28.4	668.1	38.2	5.4
#100	0.0058	0.147	10.9	679.0	27.3	3.9
#200	0.0029	0.074	9.0	688.0	18.3	2.6
#270	0.0021	0.053				
PAN			1.5	689.5		
WEIGHT WASHED THROUGH #200				15.9		
TOTAL				705.4		

WEIGHT WASHED THROUGH #200

NUMBER OF PAN _____

WEIGHT PAN + DRY SOIL 866.4 (gms)

WEIGHT OF PAN 176.0 (gms)

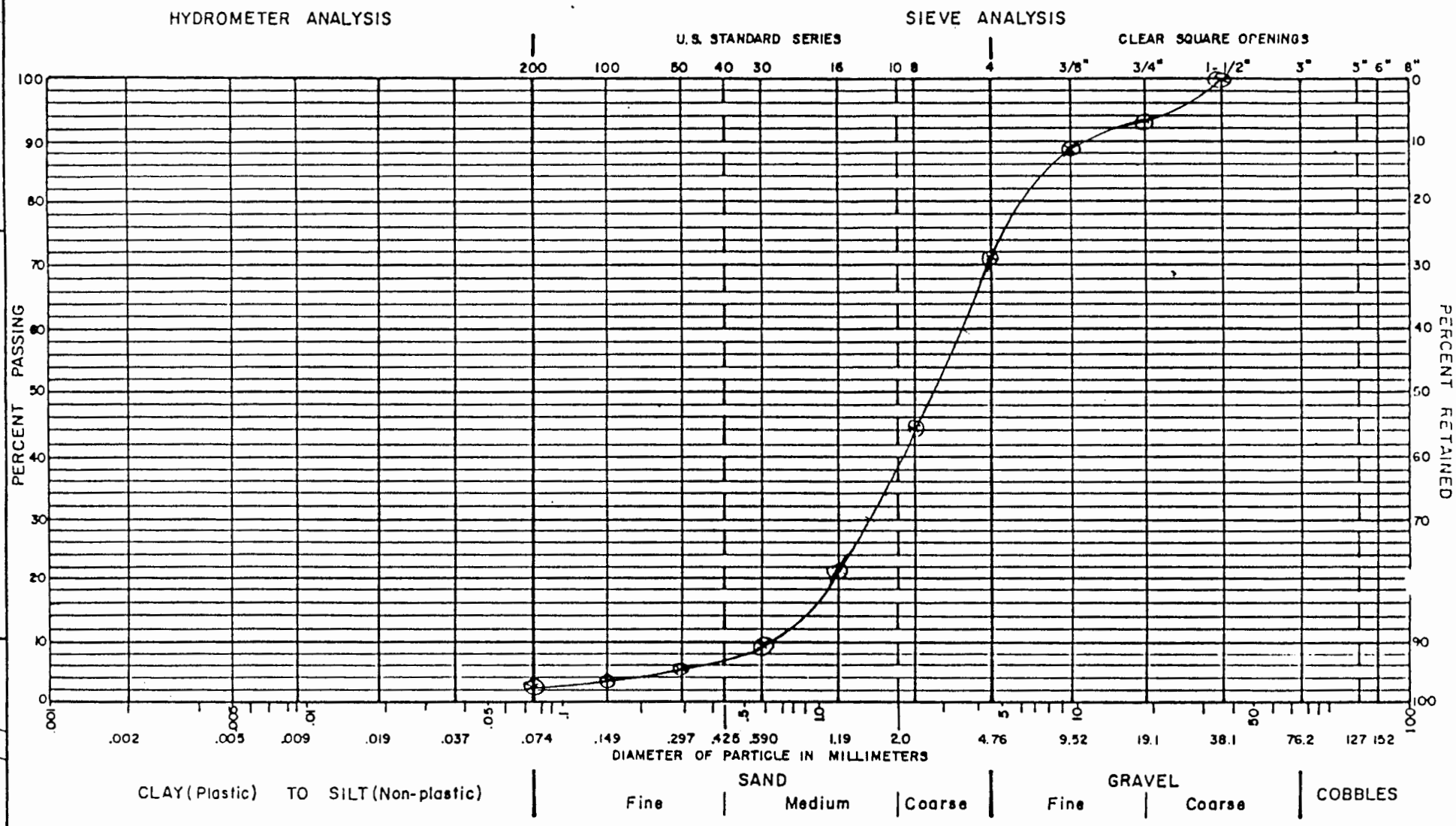
WEIGHT DRY SOIL 690.4 (gms)

ES-87-194

CLASSIF. SYMB.	SP				
SAMPLE NO.	2				
DEPTH IN FT.	30				
BORING NO.	MW-2				

EMCON ASSOCIATES

GRADATION TEST RESULTS



Project name: Signetics

Tested by: PO | SS

Checked by:

Project No. 372-16-01

Date: 7/2/87

PLATE NO.

$C_u \quad \frac{D_{60}}{D_{10}} = \frac{34}{0.62} = 54.8$

GRAIN SIZE DISTRIBUTION

EMCON ASSOCIATES

PROJECT NAME Signetics PROJECT NO. 377160 DATE 6/30/87

SAMPLE NO. MW2 #7 DEPTH 120' TESTED BY Saman

SAMPLE DESCRIPTION Gravelly Sand SP

MOISTURE CONTENT DETERMINATION

CUP NUMBER 94

CUP + WET SOIL 719.6 (gms)

CUP + DRY SOIL 639.7 (gms)

WEIGHT OF CUP 176.0 (gms)

WEIGHT OF MOISTURE 79.9 (gms)

WEIGHT OF DRY SOIL 463.7 (gms)

MOISTURE CONTENT 17.2 (%)

WET WEIGHT TOTAL SAMPLE _____ (gms)

DRY WEIGHT TOTAL SAMPLE

$= \frac{\text{WET WEIGHT TOTAL SAMPLE}}{1 + (\text{MOISTURE CONTENT})} =$ _____ (gms)

SIEVE SIZE (U.S. STANDARD)	PARTICLE DIAMETER		WEIGHT RETAINED (gms)	ACCUMULATED WGT. RETAINED (gms)	WEIGHT PASSING (gms)	PERCENT PASSING
	INCH	MILLIMETER				
5"						
3"	3.0	76.2				
1½"	1.5	38.1			463.7	
¾"	0.742	18.85	22.2	22.2	441.5	95.2
⅜"	0.371	9.42	32.9	55.1	408.6	88.1
#4	0.185	4.699	8.9	64.0	399.7	86.2
#8	0.093	2.362	9.7	73.7	390.0	84.1
#16	0.046	1.168	6.1	79.8	383.9	82.8
#30	0.0232	0.589	8.2	88.0	375.7	81.0
#50	0.0116	0.295	53.6	141.6	322.1	69.5
#100	0.0058	0.147	188.3	329.9	133.8	28.9
#200	0.0029	0.074	83.4	413.3	50.4	10.9
#270	0.0021	0.053				
PAN			1.6	414.9		
WEIGHT WASHED THROUGH #200				48.1		
TOTAL				463.0		

WEIGHT WASHED THROUGH #200

NUMBER OF PAN _____

WEIGHT PAN + DRY SOIL 591.6 (gms)

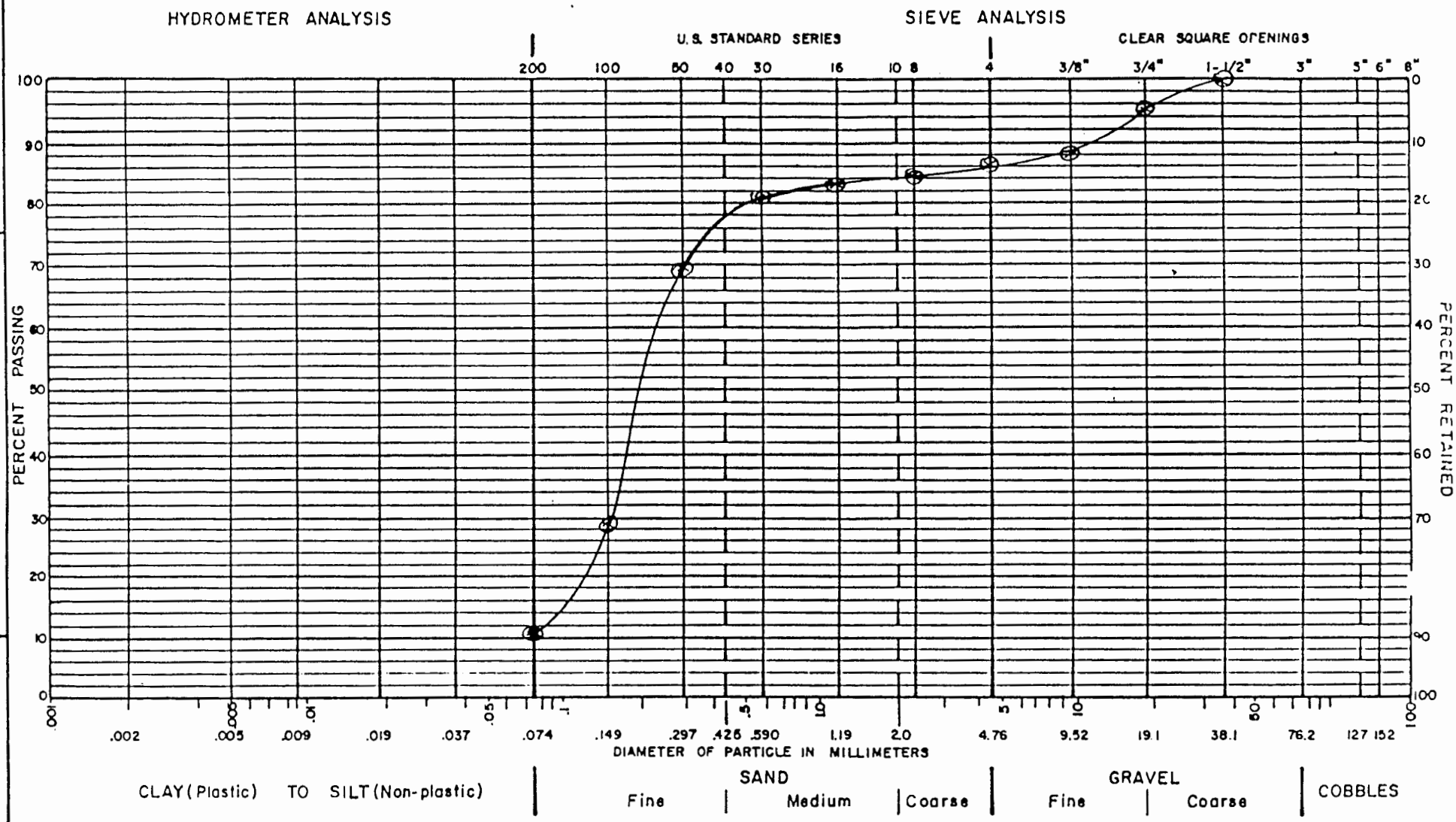
WEIGHT OF PAN 176.0 (gms)

WEIGHT DRY SOIL 415.6 (gms)

GRADATION TEST RESULTS

EMCON ASSOCIATES

CLASSIF. SYMB.	SP-SM				
SAMPLE NO.	1				
DEPTH IN FT.	120				
BORING NO.	MW2				



Project name

Tested by

Checked by

Project No.

Date

PLATE NO.

GRAIN SIZE DISTRIBUTION

EMCON ASSOCIATES

PROJECT NAME Signetics PROJECT NO. 377160 DATE 6/30/87

SAMPLE NO. MW2 DEPTH 200 TESTED BY Saman

SAMPLE DESCRIPTION SP

MOISTURE CONTENT DETERMINATION

CUP NUMBER 90

CUP + WET SOIL 300.7 (gms)

CUP + DRY SOIL 278.5 (gms)

WEIGHT OF CUP 176.9 (gms)

WEIGHT OF MOISTURE 22.2 (gms)

WEIGHT OF DRY SOIL 101.6 (gms)

MOISTURE CONTENT 21.9 (%)

WET WEIGHT TOTAL SAMPLE _____ (gms)

DRY WEIGHT TOTAL SAMPLE

$= \frac{\text{WET WEIGHT TOTAL SAMPLE}}{1 + (\text{MOISTURE CONTENT})} =$ _____ (gms)

SIEVE SIZE (U.S. STANDARD)	PARTICLE DIAMETER		WEIGHT RETAINED (gms)	ACCUMULATED WGT. RETAINED (gms)	WEIGHT PASSING (gms)	PERCENT PASSING
	INCH	MILLIMETER				
5"						
3"	3.0	76.2				
1½"	1.5	38.1				
¾"	0.742	18.85				
⅜"	0.371	9.42				
#4	0.185	4.699			101.6	
#8	0.093	2.362	4.8	4.8	96.8	95.3
#16	0.046	1.168	6.3	11.1	90.5	89.1
#30	0.0232	0.589	17.3	28.4	73.2	72.0
#50	0.0116	0.295	40.7	69.1	32.5	32.0
#100	0.0058	0.147	18.2	87.3	14.3	14.1
#200	0.0029	0.074	5.4	92.7	8.9	8.8
#270	0.0021	0.053				
PAN			0.1	92.8		
WEIGHT WASHED THROUGH #200				8.8		
TOTAL				101.1		

WEIGHT WASHED THROUGH #200

NUMBER OF PAN _____

WEIGHT PAN + DRY SOIL 270.2 (gms)

WEIGHT OF PAN 176.9 (gms)

WEIGHT DRY SOIL 93.3 (gms)

GRADATION TEST RESULTS

EMCON ASSOCIATES

CLASSIF. SYMB.	SP				
SAMPLE NO.	MW2				
DEPTH IN FT.	200				
BORING NO.					

Tested by Saman Soheili

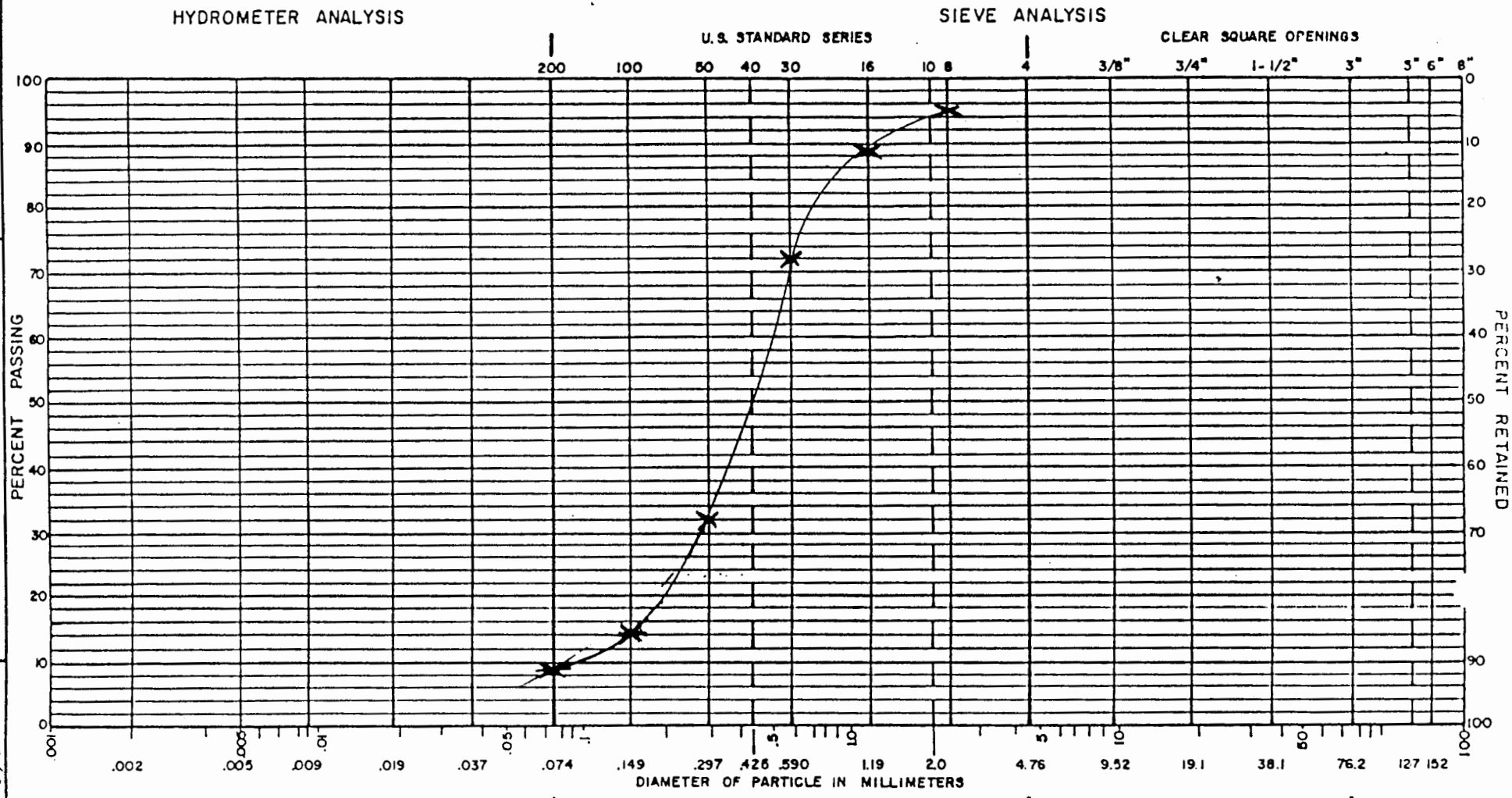
Checked by

Date 7/21/87

Project name SIGNETICS

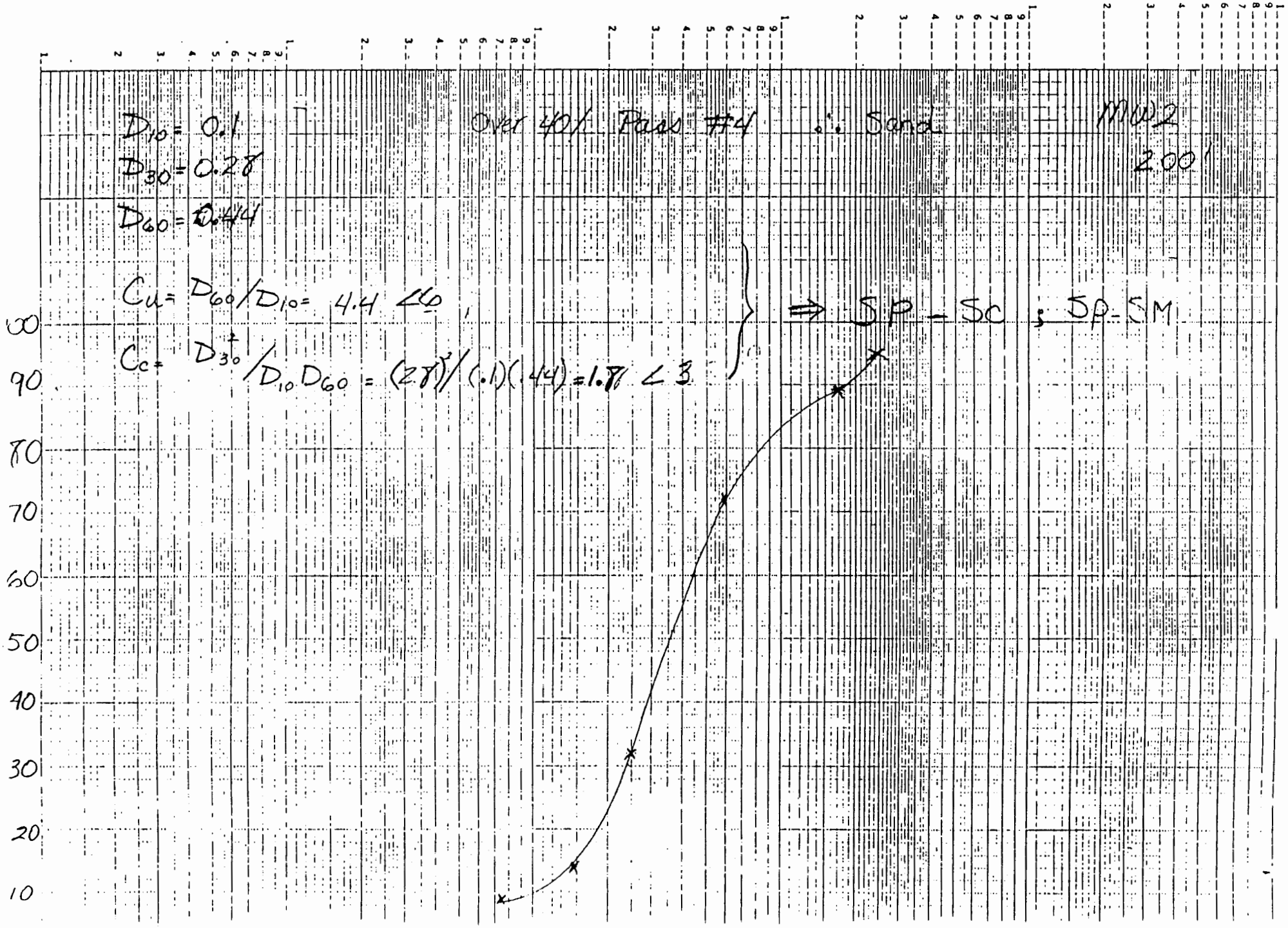
Project No. 3771601

PLATE NO.



K·E SEMI-LOGARITHMIC 5 CYCLES X 70 DIVISIONS
KEUFFEL & ESSER CO. MADE IN U.S.A.

46 6212



GRAIN SIZE DISTRIBUTION 88

EMCON ASSOCIATES

PROJECT NAME SIGNETICS PROJECT NO. 3771601 DATE 7/2/87

SAMPLE NO. MW3 #15 DEPTH ~~24~~ 25 TESTED BY Saman

SAMPLE DESCRIPTION Brown Sandy Gravel

MOISTURE CONTENT DETERMINATION

CUP NUMBER 86

CUP + WET SOIL 419.9 (gms)

CUP + DRY SOIL 399.3 (gms)

WEIGHT OF CUP 78.0 (gms)

WEIGHT OF MOISTURE 20.6 (gms)

WEIGHT OF DRY SOIL 321.3 (gms)

MOISTURE CONTENT 6.4 (%)

WET WEIGHT TOTAL SAMPLE _____ (gms)

DRY WEIGHT TOTAL SAMPLE

$= \frac{\text{WET WEIGHT TOTAL SAMPLE}}{1 + (\text{MOISTURE CONTENT})} =$ _____ (gms)

SIEVE SIZE (U.S. STANDARD)	PARTICLE DIAMETER		WEIGHT RETAINED (gms)	ACCUMULATED WGT. RETAINED (gms)	WEIGHT PASSING (gms)	PERCENT PASSING
	INCH	MILLIMETER				
5"						
3"	3.0	76.2				
1½"	1.5	38.1				
¾"	0.742	18.85			321.3	
⅜"	0.371	9.42	7.4	7.4	313.9	97.7
#4	0.185	4.699	63.6	71.0	250.3	77.9
#8	0.093	2.362	83.7	154.7	166.6	51.9
#16	0.046	1.168	62.4	217.1	104.2	32.4
#30	0.0232	0.589	37.1	254.2	67.1	20.9
#50	0.0116	0.295	18.8	273.0	48.3	15.0
#100	0.0058	0.147	10.4	283.4	37.9	11.8
#200	0.0029	0.074	13.0	296.4	24.9	7.8
#270	0.0021	0.053				
PAN			1.3	297.7		
WEIGHT WASHED THROUGH #200				22.8		
TOTAL				320.5		

SP-SC ; SP-SM

WEIGHT WASHED THROUGH #200

NUMBER OF PAN _____

WEIGHT PAN + DRY SOIL 376.5 (gms)

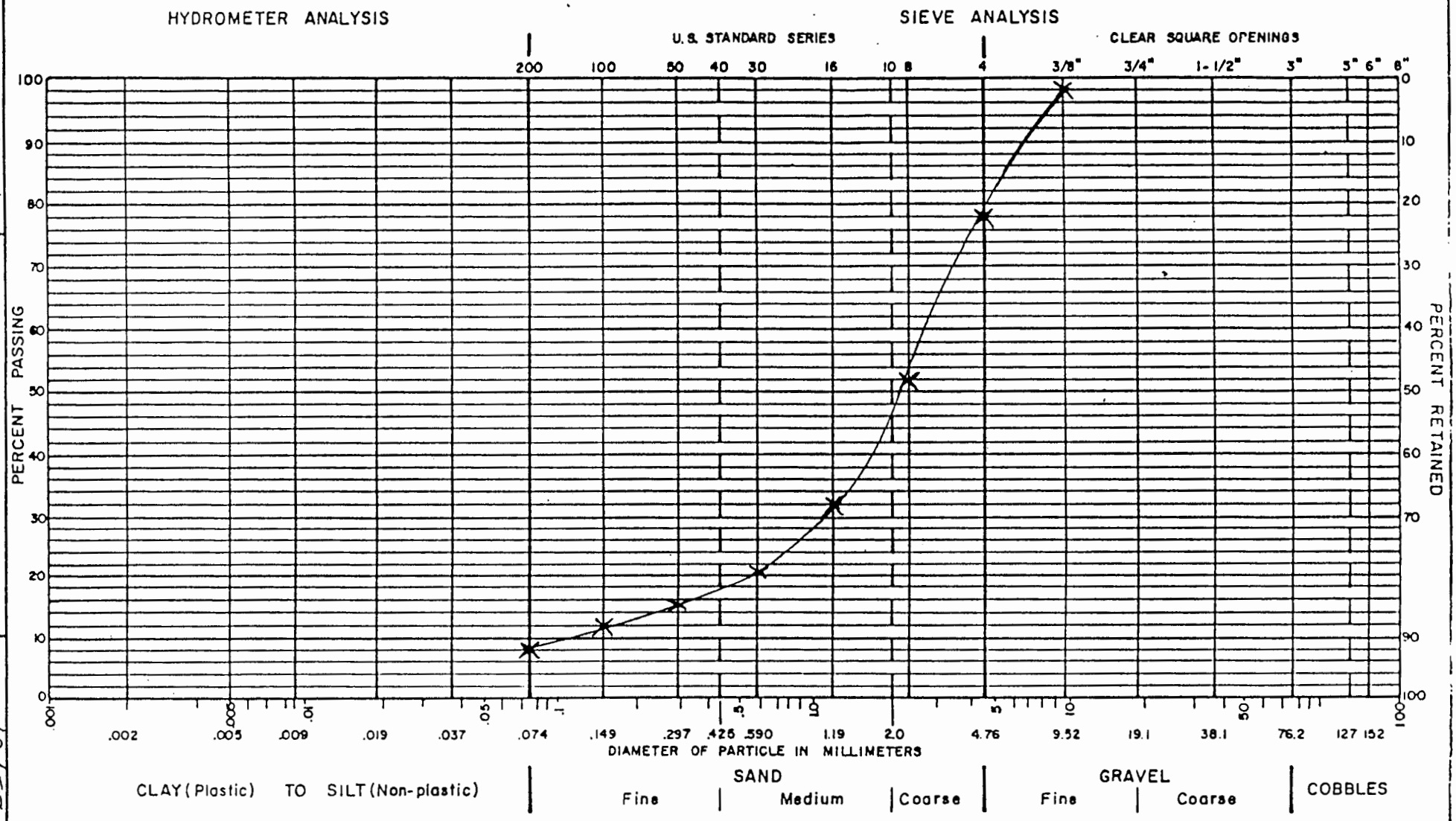
WEIGHT OF PAN 78.0 (gms)

WEIGHT DRY SOIL 298.5 (gms)

GRADATION TEST RESULTS

EMCON ASSOCIATES

CLASSIF. SYMB.					
SAMPLE NO.	MW3 #15				
DEPTH IN FT.	25				
BORING NO.					



Tested by: Saman Sobeih

Checked by:

Project name: SIGNAL TICS

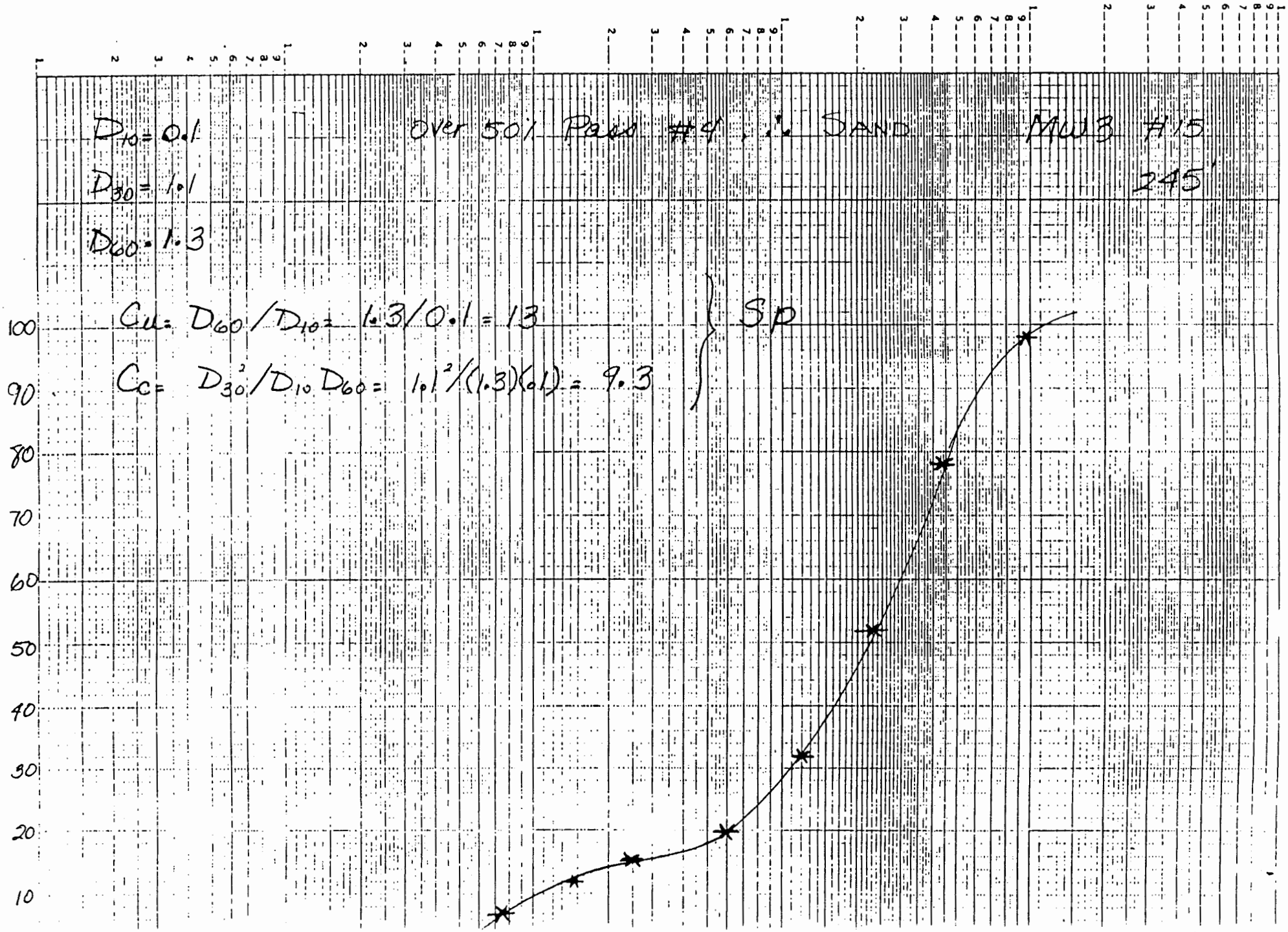
Project No. 377 1601

Date: 7/21/87

PLATE NO.

K•E SEMI-LOGARITHMIC 5 CYCLES X 70 DIVISIONS
KEUFFEL & ESSER CO. MADE IN U.S.A.

46 6212



GRAIN SIZE DISTRIBUTION

EMCON ASSOCIATES

PROJECT NAME Signetics PROJECT NO. 377 1601 DATE 6/30/87

SAMPLE NO. MW3 1125 DEPTH @ 75' TESTED BY Sammn

SAMPLE DESCRIPTION Brown Gravelly Sand

MOISTURE CONTENT DETERMINATION

CUP NUMBER T2

CUP + WET SOIL 633.4 (gms)

CUP + DRY SOIL 580.7 (gms)

WEIGHT OF CUP 76.3 (gms)

WEIGHT OF MOISTURE 52.7 (gms)

WEIGHT OF DRY SOIL 504.4 (gms)

MOISTURE CONTENT 10.4 (%)

WET WEIGHT TOTAL SAMPLE _____ (gms)

DRY WEIGHT TOTAL SAMPLE

$= \frac{\text{WET WEIGHT TOTAL SAMPLE}}{1 + (\text{MOISTURE CONTENT})} =$ _____ (gms)

SIEVE SIZE (U.S. STANDARD)	PARTICLE DIAMETER		WEIGHT RETAINED (gms)	ACCUMULATED WGT. RETAINED (gms)	WEIGHT PASSING (gms)	PERCENT PASSING
	INCH	MILLIMETER				
5"						
3"	3.0	76.2				
1½"	1.5	38.1				
¾"	0.742	18.85			504.4	
⅜"	0.371	9.42	10.0	10.0	494.4	98.0
#4	0.185	4.699	19.2	29.2	475.2	94.2
#8	0.093	2.362	18.8	48.0	456.4	90.5
#16	0.046	1.168	17.8	65.8	438.6	87.0
#30	0.0232	0.589	16.0	81.8	422.6	83.8
#50	0.0116	0.295	22.6	104.4	400.0	79.3
#100	0.0058	0.147	83.5	187.9	316.5	62.7
#200	0.0029	0.074	154.6	342.5	161.9	32.1
#270	0.0021	0.053				
PAN			3.6	346.1		
WEIGHT WASHED THROUGH #200						
TOTAL						

WEIGHT WASHED THROUGH #200

NUMBER OF PAN _____

WEIGHT PAN + DRY SOIL 422.0 (gms)

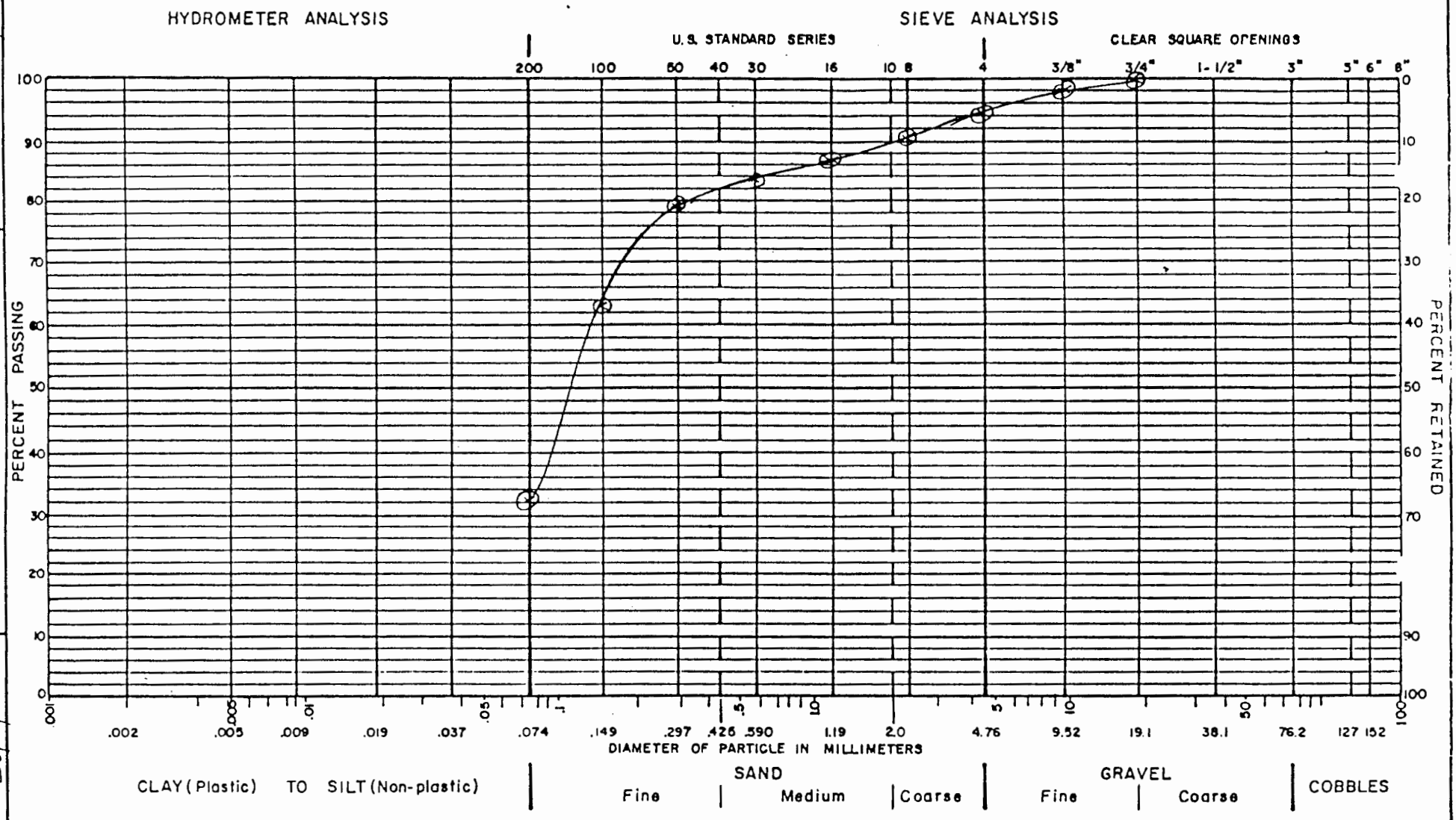
WEIGHT OF PAN 76.3 (gms)

WEIGHT DRY SOIL 345.7 (gms)

GRADATION TEST RESULTS

EMCON ASSOCIATES

CLASSIF. SYMB.	SC-SM				
SAMPLE NO.	5				
DEPTH IN FT.	75				
BORING NO.	MW3				



Project name: Signetics

Project No. 377-16.01

Tested by: PO/SD

Checked by:

Date: 7/2/87

PLATE NO.

GRAIN SIZE DISTRIBUTION ES87-107

EMCON ASSOCIATES

PROJECT NAME Signetics PROJECT NO. 377-60d DATE 6/30/87

SAMPLE NO. MW3, #12 DEPTH 245 TESTED BY PO/SS

SAMPLE DESCRIPTION red brown gravelly, sandy, clay (Hard caliche Nodules)

MOISTURE CONTENT DETERMINATION

CUP NUMBER 84

CUP + WET SOIL 756.6 (gms)

CUP + DRY SOIL 655.6 (gms)

WEIGHT OF CUP 78.0 (gms)

WEIGHT OF MOISTURE 101.0 (gms)

WEIGHT OF DRY SOIL 577.6 (gms)

MOISTURE CONTENT 17.5 (%)

WET WEIGHT TOTAL SAMPLE _____ (gms)

DRY WEIGHT TOTAL SAMPLE

$= \frac{\text{WET WEIGHT TOTAL SAMPLE}}{1 + (\text{MOISTURE CONTENT})} =$ _____ (gms)

SIEVE SIZE (U.S. STANDARD)	PARTICLE DIAMETER		WEIGHT RETAINED (gms)	ACCUMULATED WGT. RETAINED (gms)	WEIGHT PASSING (gms)	PERCENT PASSING
	INCH	MILLIMETER				
5"						
3"	3.0	76.2				
1½"	1.5	38.1			577.6	
¾"	0.742	18.85	52.4	52.4	525.2	90.9
⅜"	0.371	9.42	75.3	127.7	449.9	77.9
#4	0.185	4.699	37.1	164.8	412.8	71.5
#8	0.093	2.362	18.6	183.4	394.2	68.2
#16	0.046	1.168	10.5	193.9	383.7	66.4
#30	0.0232	0.589	6.7	200.6	377.0	65.3
#50	0.0116	0.295	5.5	206.1	371.5	64.3
#100	0.0058	0.147	11.1	217.2	360.4	62.4
#200	0.0029	0.074	55.6	272.8	304.8	52.8
#270	0.0021	0.053				
PAN				275.7		
WEIGHT WASHED THROUGH #200						
TOTAL						

WEIGHT WASHED THROUGH #200

NUMBER OF PAN _____

WEIGHT PAN + DRY SOIL 352.7 (gms)

WEIGHT OF PAN 78.0 (gms)

WEIGHT DRY SOIL 274.7 (gms)

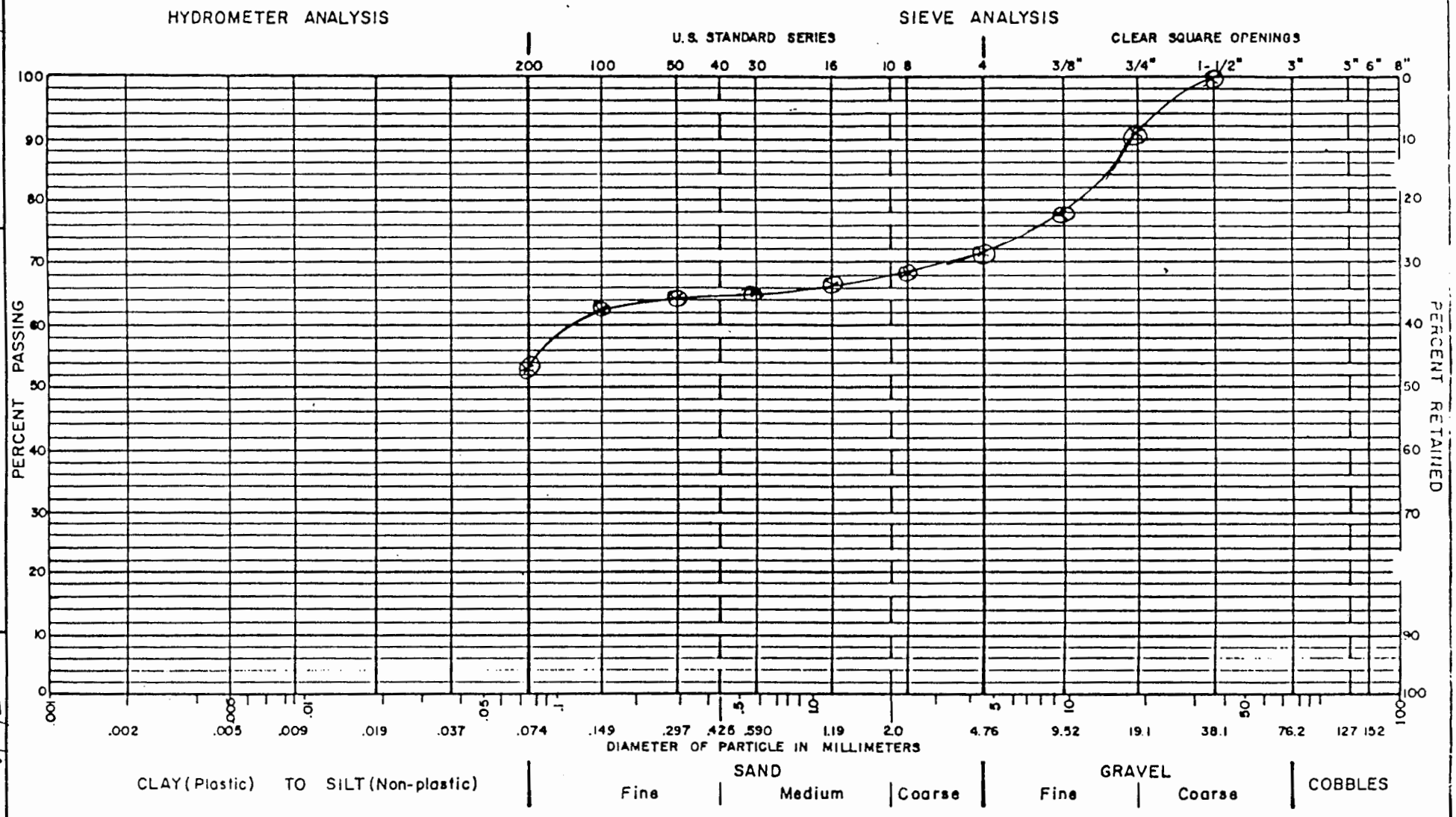
Note: presence of hard caliche nodules which will not break down when saturated could effect Fe results indicating a false coarse fraction

ES-87-109

CLASSIF. SYMB.	CL ML				
SAMPLE NO.	12				
DEPTH IN FT.	245				
BORING NO.	MW 3				

EMCON ASSOCIATES

GRADATION TEST RESULTS



Project name: Signetics

Tested by: PO/SS

Checked by:

Project No. 377-1601

Date: 7/2/87

PLATE NO.

GRAIN SIZE DISTRIBUTION

ES-87-108

EMCON ASSOCIATES

PROJECT NAME Signetics PROJECT NO. 377-1001 DATE 7/1/87

SAMPLE NO. MW-4 #4 DEPTH 35' TESTED BY

SAMPLE DESCRIPTION Sandy gravel GW

MOISTURE CONTENT DETERMINATION

CUP NUMBER Y-7

CUP + WET SOIL 1645.9 (gms)

CUP + DRY SOIL 1630.6 (gms)

WEIGHT OF CUP 56.2 (gms)

WEIGHT OF MOISTURE 15.3 (gms)

WEIGHT OF DRY SOIL 1574.4 (gms)

MOISTURE CONTENT 0.9 (%)

WET WEIGHT TOTAL SAMPLE _____ (gms)

DRY WEIGHT TOTAL SAMPLE

$= \frac{\text{WET WEIGHT TOTAL SAMPLE}}{1 + (\text{MOISTURE CONTENT})} =$ _____ (gms)

SIEVE SIZE (U.S. STANDARD)	PARTICLE DIAMETER		WEIGHT RETAINED (gms)	ACCUMULATED WGT. RETAINED (gms)	WEIGHT PASSING (gms)	PERCENT PASSING
	INCH	MILLIMETER				
5"						
3"	3.0	76.2				
1½"	1.5	38.1			1574.4	
¾"	0.742	18.85	91.5	91.5	1482.9	94.2
⅜"	0.371	9.42	165.9	257.4	1317.0	83.7
#4	0.185	4.699	484.6	742.0	832.4	52.9
#8	0.093	2.362	425.7	1167.7	406.7	25.8
#16	0.046	1.168	178.2	1345.9	228.5	14.5
#30	0.0232	0.589	56.9	1402.8	171.6	10.9
#50	0.0116	0.295	25.2	1428.1	146.3	9.3
#100	0.0058	0.147	22.6	1450.7	123.7	7.8
#200	0.0029	0.074	49.1	1499.8	74.6	4.7
#270	0.0021	0.053				
PAN						
WEIGHT WASHED THROUGH #200				63.6		
TOTAL				1563.4		

subtract up wt

WEIGHT WASHED THROUGH #200

NUMBER OF PAN _____

WEIGHT PAN + DRY SOIL 1567 (gms)

WEIGHT OF PAN 56.2 (gms)

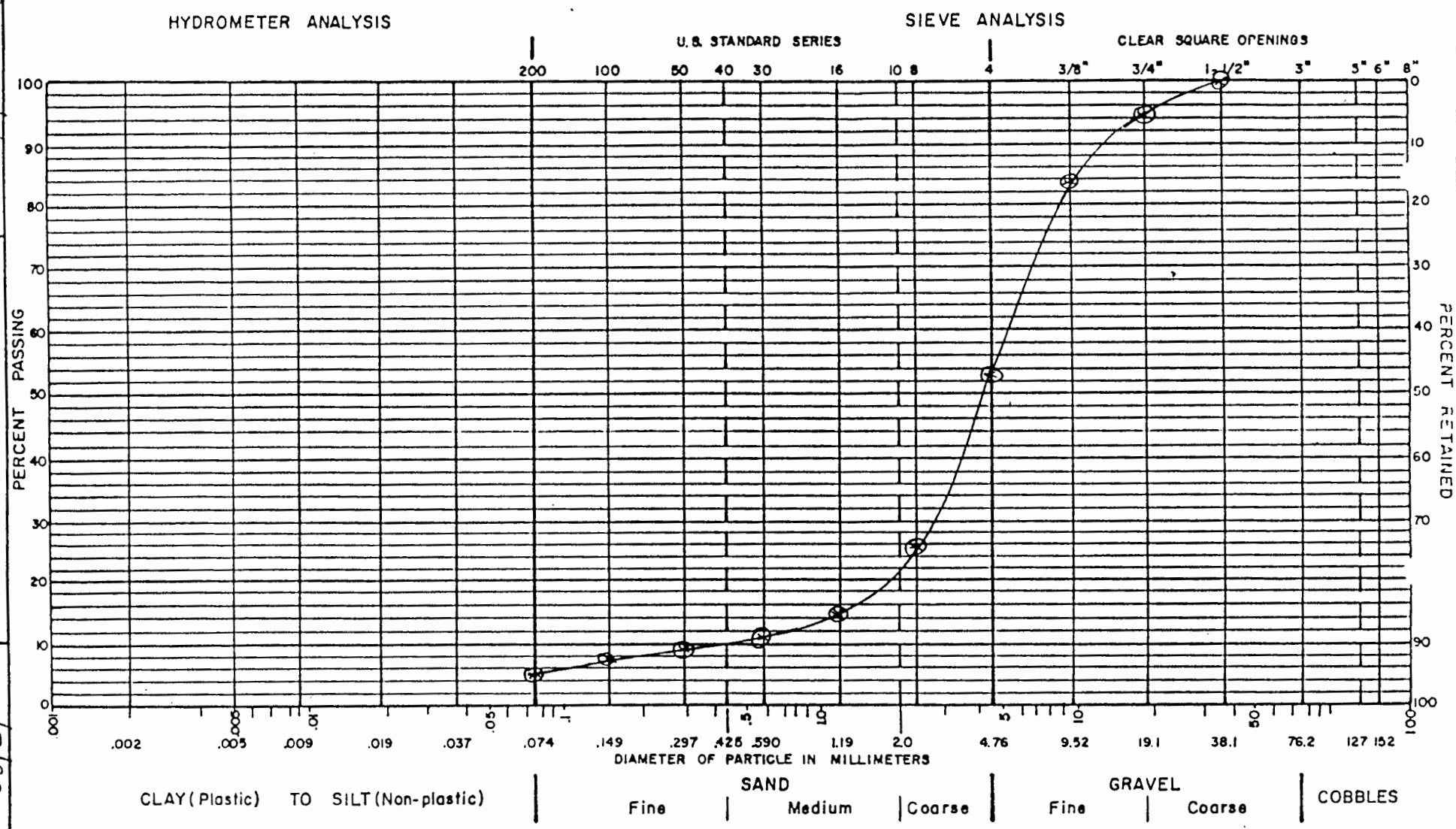
WEIGHT DRY SOIL 1510.8 (gms)

ES-87-109

CLASSIF. SYMB.	SW-GW				
SAMPLE NO.	11				
DEPTH IN FT.	35'				
BORING NO.	MW-4				

EMCON ASSOCIATES

GRADATION TEST RESULTS



Project name: Signetics

Tested by: P. Oswald / S.S.

Checked by:

Project No. 377-1601

Date 7/2/87

PLATE NO.

$$C_u = \frac{D_{60}}{D_{10}} \cdot \frac{5.6}{0.45} = 12.4$$

GRAIN SIZE DISTRIBUTION

ES87-100

EMCON ASSOCIATES

PROJECT NAME Signetics PROJECT NO. 377160/ DATE 6/30/87

SAMPLE NO. MW4 #7 DEPTH 130' TESTED BY Samson

SAMPLE DESCRIPTION gravelly Sand

MOISTURE CONTENT DETERMINATION

CUP NUMBER 80

CUP + WET SOIL 864.9 (gms)

CUP + DRY SOIL 755.1 (gms)

WEIGHT OF CUP 77.5 (gms)

WEIGHT OF MOISTURE 109.8 (gms)

WEIGHT OF DRY SOIL 677.6 (gms)

MOISTURE CONTENT 16.2 (%)

WET WEIGHT TOTAL SAMPLE _____ (gms)

DRY WEIGHT TOTAL SAMPLE

$= \frac{\text{WET WEIGHT TOTAL SAMPLE}}{1 + (\text{MOISTURE CONTENT})} =$ _____ (gms)

SIEVE SIZE (U.S. STANDARD)	PARTICLE DIAMETER		WEIGHT RETAINED (gms)	ACCUMULATED WGT. RETAINED (gms)	WEIGHT PASSING (gms)	PERCENT PASSING
	INCH	MILLIMETER				
5"						
3"	3.0	76.2				
1½"	1.5	38.1				
¾"	0.742	18.85			677.6	
⅜"	0.371	9.42	16.4	16.4	661.2	97.6
#4	0.185	4.699	33.2	49.6	628.0	92.7
#8	0.093	2.362	41.5	91.1	586.5	86.6
#16	0.046	1.168	54.7	145.8	531.8	78.5
#30	0.0232	0.589	154.1	299.9	377.7	55.7
#50	0.0116	0.295	225.8	525.7	151.9	22.4
#100	0.0058	0.147	74.9	600.6	77.0	11.4
#200	0.0029	0.074	19.2	619.8	57.8	8.5
#270	0.0021	0.053				
PAN			2.5	622.3		
WEIGHT WASHED THROUGH #200				50.3		
TOTAL				672.6		

WEIGHT WASHED THROUGH #200

NUMBER OF PAN _____

WEIGHT PAN + DRY SOIL 704.8 (gms)

WEIGHT OF PAN 77.5 (gms)

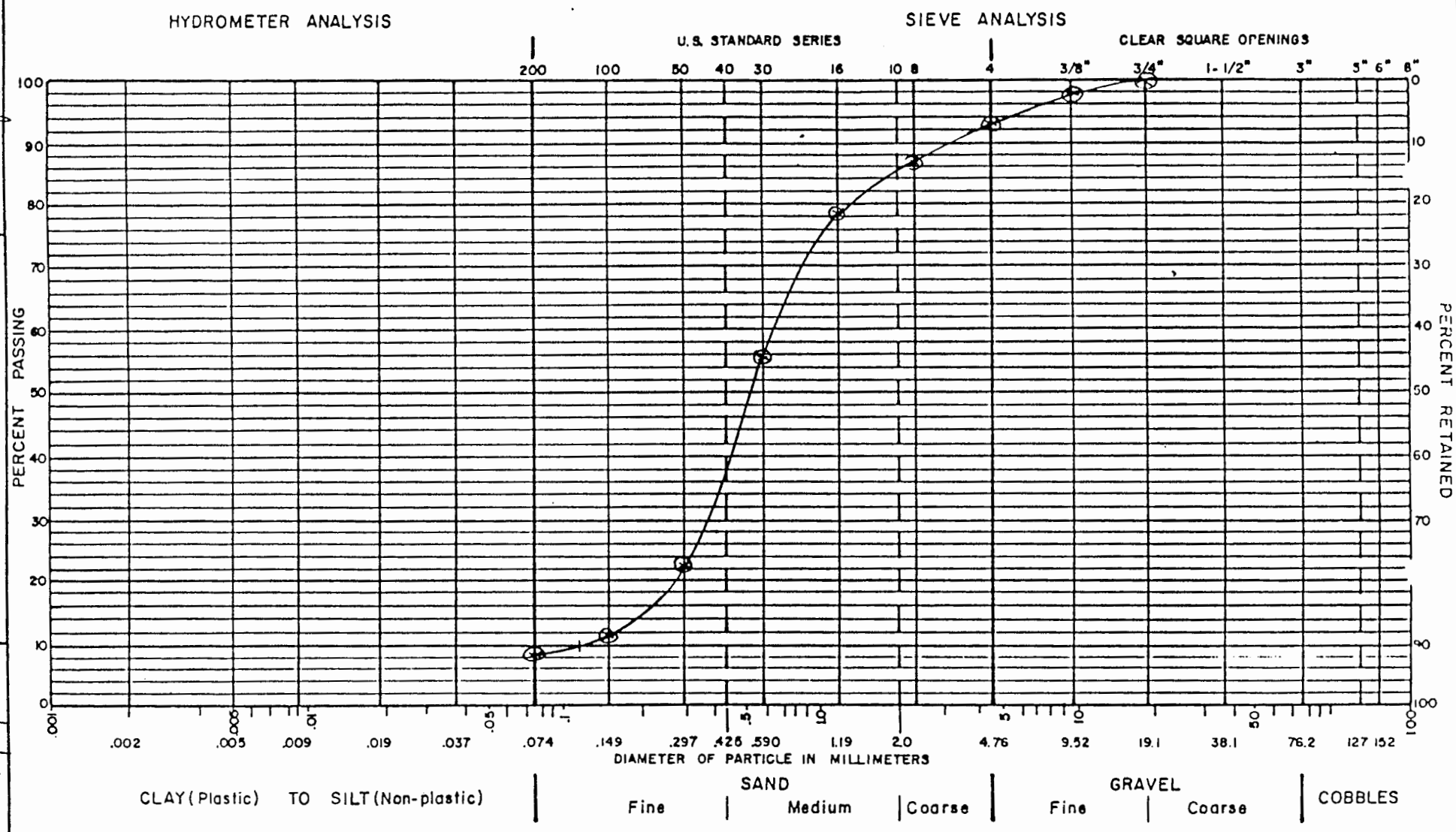
WEIGHT DRY SOIL 627.3 (gms)

ES-87-109

CLASSIF. SYMB.	SP				
SAMPLE NO.	1				
DEPTH IN FT.	130				
BORING NO.	MW4				

EMCON ASSOCIATES

GRADATION TEST RESULTS



Project name: Signetics

Tested by: P. Oswald

Checked by: —

Project No. 377-1601

Date 7/2/87

PLATE NO.

$$C_u = \frac{D_{60}}{D_{10}} = \frac{0.108}{0.12} = 5.7$$

GRAIN SIZE DISTRIBUTION

ES 87109

EMCON ASSOCIATES

PROJECT NAME Signetics PROJECT NO. 87-169 DATE 6/30/87

SAMPLE NO. MW-4 #15 DEPTH 245 TESTED BY

SAMPLE DESCRIPTION Reddish brown f. sand. silty CLAY

MOISTURE CONTENT DETERMINATION

CUP NUMBER 83

CUP + WET SOIL 586.3 (gms)

CUP + DRY SOIL 493.9 (gms)

WEIGHT OF CUP 78.7 (gms)

WEIGHT OF MOISTURE 92.4 (gms)

WEIGHT OF DRY SOIL 415.2 (gms)

MOISTURE CONTENT 22.3 (%)

WET WEIGHT TOTAL SAMPLE _____ (gms)

DRY WEIGHT TOTAL SAMPLE

$= \frac{\text{WET WEIGHT TOTAL SAMPLE}}{1 + (\text{MOISTURE CONTENT})} =$ _____ (gms)

SIEVE SIZE (U.S. STANDARD)	PARTICLE DIAMETER		WEIGHT RETAINED (gms)	ACCUMULATED WGT. RETAINED (gms)	WEIGHT PASSING (gms)	PERCENT PASSING
	INCH	MILLIMETER				
5"						
3"	3.0	76.2				
1½"	1.5	38.1				
¾"	0.742	18.85				
⅜"	0.371	9.42				
#4	0.185	4.699			415.2	
#8	0.093	2.362	4.3	4.3	410.9	99.0
#16	0.046	1.168	2.6	6.9	408.3	98.3
#30	0.0232	0.589	5.2	12.1	403.1	97.1
#50	0.0116	0.295	15.9	28.0	387.2	93.3
#100	0.0058	0.147	30.6	58.6	357.2	86.0
#200	0.0029	0.074	65.9	123.9	291.3	70.2
#270	0.0021	0.053				
PAN				124.6		
WEIGHT WASHED THROUGH #200				292.1		
TOTAL				416.7		

WEIGHT WASHED THROUGH #200

NUMBER OF PAN _____

WEIGHT PAN + DRY SOIL 201.8 (gms)

WEIGHT OF PAN 78.7 (gms)

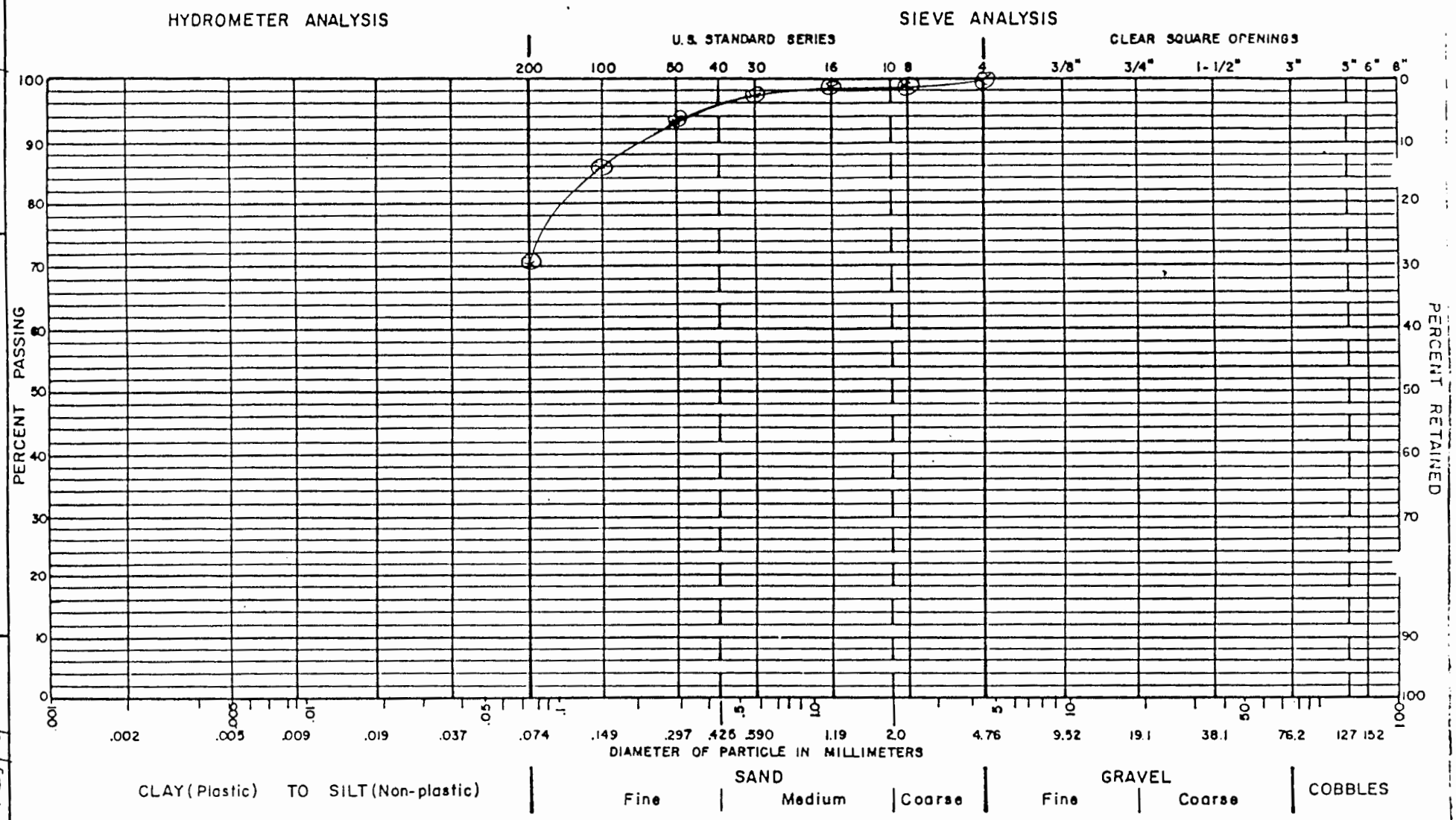
WEIGHT DRY SOIL 123.1 (gms)

ES-87-109

CLASSIF. SYMB.	CL				
SAMPLE NO.	1[illegible]				
DEPTH IN FT.	2-4.5				
BORING NO.	MW-4				

EMCON ASSOCIATES

GRADATION TEST RESULTS



Project name: Signetics

Tested by: SS/PD

Checked by:

Project No. 377-1601

Date: 7/2/87

PLATE NO.

Appendix C

CERTIFIED ANALYTICAL REPORTS

Appendix C

CERTIFIED ANALYTICAL REPORTS

This appendix contains Certified Analytical Reports for the samples of soil, ground-water drill cuttings, and drilling fluid collected on site. Analyses were conducted by California and Arizona State-certified laboratories using established methods.

SOILS ANALYSES

WESTERN TECHNOLOGIES INC.

3737 East Broadway Road
P.O. Box 21387
Phoenix, Arizona 85036
(602) 437-3737

LABORATORY REPORT

EMCON

Client Emcon Associates
1921 Kingwood Avenue
San Jose, CA 95131
Attn: Keoni Murphy

Sample No. 8706438-6445
Job/Invoice No. 3247W022
Date of Report 6/17/87
Reviewed By Fred J. Kent

Project 377-16.01-Signetics

Location Signetic Plant

Material Soil — Sampled By C. French — Date 5/22-26/87

Source -- — Submitted By C. French — Date 5/26/87

Procedure As noted — Authorized By Murphy — Date 5/13/87

RESULTS

Four samples were received for analysis of volatile organic contaminants. Each sample was dispersed into methanol and analyzed using purge and trap gas chromatography/mass spectrometry. The results of this analysis are attached.

GAS CHROMATOGRAPHY/MASS SPECTROMETRY
ORGANIC ANALYSIS DATA SHEET
VOLATILE COMPOUNDS

Sample Number: 8706438
Sample Identification: #2 MW-3-25

CAS NUMBER	COMPOUND	CONCENTRATION mg/kg
71-43-2	Benzene	<1.
75-27-4	Bromodichloromethane	<1.
75-25-2	Bromoform	<1.
74-83-9	Bromomethane	<1.
56-23-5	Carbon tetrachloride	<1.
108-90-7	Chlorobenzene	<1.
75-00-3	Chloroethane	<1.
110-75-8	2-Chloroethylvinyl ether	<1.
67-66-3	Chloroform	<1.
74-87-3	Chloromethane	<1.
124-48-1	Dibromochloromethane	<1.
95-50-1	1,2-Dichlorobenzene	<1.
541-73-1	1,3-Dichlorobenzene	<1.
106-46-7	1,4-Dichlorobenzene	<1.
75-34-3	1,1-Dichloroethane	<1.
107-06-2	1,2-Dichloroethane	<1.
75-35-4	1,1-Dichloroethene	<1.
156-60-5	trans-1,2-Dichloroethene	<1.
78-87-5	1,2-Dichloropropane	<1.
10061-01-5	cis-1,3-Dichloropropene	<1.
10061-02-6	trans-1,3-Dichloropropene	<1.
100-41-4	Ethyl benzene	<1.
75-09-2	Methylene chloride	<10.
79-34-5	1,1,2,2-Tetrachloroethane	<1.
127-18-4	Tetrachloroethene	<1.
108-88-3	Toluene	<1.
71-55-6	1,1,1-Trichloroethane	<1.
79-00-5	1,1,2-Trichloroethane	<1.
79-01-6	Trichloroethene	<1.
75-69-4	Trichlorofluoromethane	<1.
75-01-4	Vinyl Chloride	<1.

GAS CHROMATOGRAPHY/MASS SPECTROMETRY
ORGANIC ANALYSIS DATA SHEET
VOLATILE COMPOUNDS

Sample Number: 8706441
Sample Identification: #2 MW-4-25

CAS NUMBER	COMPOUND	CONCENTRATION mg/kg
71-43-2	Benzene	<1.
75-27-4	Bromodichloromethane	<1.
75-25-2	Bromoform	<1.
74-83-9	Bromomethane	<1.
56-23-5	Carbon tetrachloride	<1.
108-90-7	Chlorobenzene	<1.
75-00-3	Chloroethane	<1.
110-75-8	2-Chloroethylvinyl ether	<1.
67-66-3	Chloroform	<1.
74-87-3	Chloromethane	<1.
124-48-1	Dibromochloromethane	<1.
95-50-1	1,2-Dichlorobenzene	<1.
541-73-1	1,3-Dichlorobenzene	<1.
106-46-7	1,4-Dichlorobenzene	<1.
75-34-3	1,1-Dichloroethane	<1.
107-06-2	1,2-Dichloroethane	<1.
75-35-4	1,1-Dichloroethene	<1.
156-60-5	trans-1,2-Dichloroethene	<1.
78-87-5	1,2-Dichloropropane	<1.
10061-01-5	cis-1,3-Dichloropropene	<1.
10061-02-6	trans-1,3-Dichloropropene	<1.
100-41-4	Ethyl benzene	<1.
75-09-2	Methylene chloride	20.
79-34-5	1,1,2,2-Tetrachloroethane	<1.
127-18-4	Tetrachloroethene	<1.
108-88-3	Toluene	<1.
71-55-6	1,1,1-Trichloroethane	<1.
79-00-5	1,1,2-Trichloroethane	<1.
79-01-6	Trichloroethene	<1.
75-69-4	Trichlorofluoromethane	<1.
75-01-4	Vinyl Chloride	<1.

GAS CHROMATOGRAPHY/MASS SPECTROMETRY
ORGANIC ANALYSIS DATA SHEET
VOLATILE COMPOUNDS

Sample Number: 8706444
Sample Identification: EB-1-TR

CAS NUMBER	COMPOUND	CONCENTRATION mg/kg
71-43-2	Benzene	<1.
75-27-4	Bromodichloromethane	<1.
75-25-2	Bromoform	<1.
74-83-9	Bromomethane	<1.
56-23-5	Carbon tetrachloride	<1.
108-90-7	Chlorobenzene	<1.
75-00-3	Chloroethane	<1.
110-75-8	2-Chloroethylvinyl ether	<1.
67-66-3	Chloroform	<1.
74-87-3	Chloromethane	<1.
124-48-1	Dibromochloromethane	<1.
95-50-1	1,2-Dichlorobenzene	<1.
541-73-1	1,3-Dichlorobenzene	<1.
106-46-7	1,4-Dichlorobenzene	<1.
75-34-3	1,1-Dichloroethane	<1.
107-06-2	1,2-Dichloroethane	<1.
75-35-4	1,1-Dichloroethene	<1.
156-60-5	trans-1,2-Dichloroethene	<1.
78-87-5	1,2-Dichloropropane	<1.
10061-01-5	cis-1,3-Dichloropropene	<1.
10061-02-6	trans-1,3-Dichloropropene	<1.
100-41-4	Ethyl benzene	<1.
75-09-2	Methylene chloride	22.
79-34-5	1,1,2,2-Tetrachloroethane	<1.
127-18-4	Tetrachloroethene	<1.
108-88-3	Toluene	<1.
71-55-6	1,1,1-Trichloroethane	<1.
79-00-5	1,1,2-Trichloroethane	<1.
79-01-6	Trichloroethene	<1.
75-69-4	Trichlorofluoromethane	<1.
75-01-4	Vinyl Chloride	<1.

GAS CHROMATOGRAPHY/MASS SPECTROMETRY
ORGANIC ANALYSIS DATA SHEET
VOLATILE COMPOUNDS

Sample Number: 8706445
Sample Identification: EB-2-TR

CAS NUMBER	COMPOUND	CONCENTRATION mg/kg
71-43-2	Benzene	<1.
75-27-4	Bromodichloromethane	<1.
75-25-2	Bromoform	<1.
74-83-9	Bromomethane	<1.
56-23-5	Carbon tetrachloride	<1.
108-90-7	Chlorobenzene	<1.
75-00-3	Chloroethane	<1.
110-75-8	2-Chloroethylvinyl ether	<1.
67-66-3	Chloroform	<1.
74-87-3	Chloromethane	<1.
124-48-1	Dibromochloromethane	<1.
95-50-1	1,2-Dichlorobenzene	<1.
541-73-1	1,3-Dichlorobenzene	<1.
106-46-7	1,4-Dichlorobenzene	<1.
75-34-3	1,1-Dichloroethane	<1.
107-06-2	1,2-Dichloroethane	<1.
75-35-4	1,1-Dichloroethene	<1.
156-60-5	trans-1,2-Dichloroethene	<1.
78-87-5	1,2-Dichloropropane	<1.
10061-01-5	cis-1,3-Dichloropropene	<1.
10061-02-6	trans-1,3-Dichloropropene	<1.
100-41-4	Ethyl benzene	<1.
75-09-2	Methylene chloride	54.
79-34-5	1,1,2,2-Tetrachloroethane	<1.
127-18-4	Tetrachloroethene	<1.
108-88-3	Toluene	<1.
71-55-6	1,1,1-Trichloroethane	<1.
79-00-5	1,1,2-Trichloroethane	<1.
79-01-6	Trichloroethene	<1.
75-69-4	Trichlorofluoromethane	<1.
75-01-4	Vinyl Chloride	<1.

Copies to: Client (1)

SAMPLING AND ANALYSIS CHAIN OF CUSTODY RECORD

EMCON ASSOCIATES

PROJECT NO. 377 - 16.01 SIGNETICS

EMCON LABORATORY NO. _____

REQUEST			LABORATORY REQUIREMENTS				CHAIN OF CUSTODY							
SAMPLE TYPE								EMCON ASSOCIATES				CONTRACT LABORATORY		
SAMPLE ID	LAB ID	PARAMETERS	BOTTLES	PRES.	LABORATORY	PO #	SAMPL'D BY	DATE	REC'D BY	DATE	COMMENTS	REC'D BY	DATE	COMMENTS
(#2) MW-3-25		EPA 8240 pH, soil moist.					CWF	5/23/97						
(#3) MW-3-30		pH, soil moisture												
(#4) MW-3-35		pH, soil moisture												
(#2) MW-4-25		EPA 8240 pH, soil moist					CWF	5/23/97						
(#3) MW-4-30		pH, soil moist.												
(#4) MW-4-35		pH, soil moist												
EB-1-TR		EPA 8240 pH, soil moist					CWF	5/24/97			FAX COPY OF RESULTS TO ANDREW CLAVERAS, ALB. OFFICE OF WEST TECH.			
EB-2-TR		EPA 8240 pH, soil moist					CWF	5/26/97						

2 WEEK TAT

SIGNATURES:

LABORATORY REPRESENTATIVE _____

RELEASED TO COURIER BY _____ RECEIVED BY COURIER _____

RELEASED TO LABORATORY BY COURIER _____ RECEIVED BY LABORATORY _____

RELEASED TO LABORATORY BY COURIER _____ RECEIVED BY LABORATORY _____

WESTERN TECHNOLOGIES INC.

3737 East Broadway Road
P.O. Box 21387
Phoenix, Arizona 85036
(602) 437-3737

LABORATORY REPORT

Client: Emcon Associates
1921 Kingwood Avenue
San Jose, CA 95131
Attn: Keoni Murphy

Sample No. 8706274-6277
Job/Invoice No. 3247W021
Date of Report 6/22/87
Reviewed By Fred J. Kent

Project: 377-16.01-Signetics

Location: Signetics Plant - Albuquerque, New Mexico

Material: Soil — Sampled By: C. French — Date: 5/19/87

Source: -- — Submitted By: C. French — Date: 5/22/87

Procedure: As noted — Authorized By: K. Murphy — Date: 5/13/87

RESULTS

Two samples were received for analysis of volatile contaminants and chlorinated pesticides. Each sample was dispersed into methanol and analyzed for volatile organic contaminants using gas chromatography/mass spectrometry. Additionally, each sample was extracted into acetone:hexane (1:1) and analyzed for pesticides residues using gas chromatography with an electron capture detector. The results of these analyses are attached.

GAS CHROMATOGRAPHY/MASS SPECTROMETRY
ORGANIC ANALYSIS DATA SHEET
VOLATILE COMPOUNDS

Sample Number: 8706274
Sample Identification: EB-1 #2

CAS NUMBER	COMPOUND	CONCENTRATION mg/kg
107-02-8	Acrolein	<1.
107-13-1	Acrylonitrile	<1.
71-43-2	Benzene	<1.
75-27-4	Bromodichloromethane	<1.
75-25-2	Bromoform	<1.
74-83-9	Bromomethane	<1.
56-23-5	Carbon tetrachloride	<1.
108-90-7	Chlorobenzene	<1.
75-00-3	Chloroethane	<1.
110-75-8	2-Chloroethylvinyl ether	<1.
67-66-3	Chloroform	<1.
74-87-3	Chloromethane	<1.
124-48-1	Dibromochloromethane	<1.
95-50-1	1,2-Dichlorobenzene	<1.
541-73-1	1,3-Dichlorobenzene	<1.
106-46-7	1,4-Dichlorobenzene	<1.
75-34-3	1,1-Dichloroethane	<1.
107-06-2	1,2-Dichloroethane	<1.
75-35-4	1,1-Dichloroethene	<1.
156-60-5	trans-1,2-Dichloroethene	<1.
78-87-5	1,2-Dichloropropane	<1.
10061-01-5	cis-1,3-Dichloropropene	<1.
10061-02-6	trans-1,3-Dichloropropene	<1.
100-41-4	Ethyl benzene	<1.
75-09-2	Methylene chloride	18.
79-34-5	1,1,2,2-Tetrachloroethane	<1.
127-18-4	Tetrachloroethene	<1.
108-88-3	Toluene	<1.
71-55-6	1,1,1-Trichloroethane	<1.
79-00-5	1,1,2-Trichloroethane	<1.
79-01-6	Trichloroethene	<1.
75-69-4	Trichlorofluoromethane	<1.
75-01-4	Vinyl Chloride	<1.

GAS CHROMATOGRAPHY/MASS SPECTROMETRY
ORGANIC ANALYSIS DATA SHEET
VOLATILE COMPOUNDS

Sample Number: 8706277
Sample Identification: EB-2 #1

CAS NUMBER	COMPOUND	CONCENTRATION mg/kg
107-02-8	Acrolein	<1.
107-13-1	Acrylonitrile	<1.
71-43-2	Benzene	<1.
75-27-4	Bromodichloromethane	<1.
75-25-2	Bromoform	<1.
74-83-9	Bromomethane	<1.
56-23-5	Carbon tetrachloride	<1.
108-90-7	Chlorobenzene	<1.
75-00-3	Chloroethane	<1.
110-75-8	2-Chloroethylvinyl ether	<1.
67-66-3	Chloroform	<1.
74-87-3	Chloromethane	<1.
124-48-1	Dibromochloromethane	<1.
95-50-1	1,2-Dichlorobenzene	<1.
541-73-1	1,3-Dichlorobenzene	<1.
106-46-7	1,4-Dichlorobenzene	<1.
75-34-3	1,1-Dichloroethane	<1.
107-06-2	1,2-Dichloroethane	<1.
75-35-4	1,1-Dichloroethene	<1.
156-60-5	trans-1,2-Dichloroethene	<1.
78-87-5	1,2-Dichloropropane	<1.
10061-01-5	cis-1,3-Dichloropropene	<1.
10061-02-6	trans-1,3-Dichloropropene	<1.
100-41-4	Ethyl benzene	<1.
75-09-2	Methylene chloride	18.
79-34-5	1,1,2,2-Tetrachloroethane	<1.
127-18-4	Tetrachloroethene	<1.
108-88-3	Toluene	<1.
71-55-6	1,1,1-Trichloroethane	<1.
79-00-5	1,1,2-Trichloroethane	<1.
79-01-6	Trichloroethene	<1.
75-69-4	Trichlorofluoromethane	<1.
75-01-4	Vinyl Chloride	<1.

GAS CHROMATOGRAPHY
ORGANIC ANALYSIS DATA SHEET
PESTICIDE COMPOUNDS

Sample Number: 8706274
Sample Identification: EB-1 #2

COMPOUND	CONCENTRATION mg/kg
Aldrin	<0.02
α - BHC	<0.02
γ - BHC	<0.02
β - BHC	<0.02
δ - BHC (Lindane)	<0.02
Chlordane	<0.02
4,4' - DDD	<0.02
4,4' - DDE	<0.02
4,4' - DDT	<0.02
Dieldrin	<0.02
Endosulfan I	<0.02
Endosulfan II	<0.02
Endosulfan sulfate	<0.02
Endrin	<0.02
Endrin aldehyde	<0.02
Heptachlor	<0.02
Heptachlor epoxide	<0.02
Methoxychlor	<0.02
Toxaphene	<0.02
PCB - 1016	<0.02
PCB - 1221	<0.02
PCB - 1232	<0.02
PCB - 1242	<0.02
PCB - 1248	<0.02
PCB - 1254	<0.02
PCB - 1260	<0.02

GAS CHROMATOGRAPHY
ORGANIC ANALYSIS DATA SHEET
PESTICIDE COMPOUNDS

Sample Number: 8706277
Sample Identification: EB-2 #1

COMPOUND	CONCENTRATION mg/kg
Aldrin	<0.02
α - BHC	<0.02
γ - BHC	<0.02
β - BHC	<0.02
δ - BHC (Lindane)	<0.02
Chlordane	<0.02
4,4' - DDD	<0.02
4,4' - DDE	<0.02
4,4' - DDT	<0.02
Dieldrin	<0.02
Endosulfan I	<0.02
Endosulfan II	<0.02
Endosulfan sulfate	<0.02
Endrin	<0.02
Endrin aldehyde	<0.02
Heptachlor	<0.02
Heptachlor epoxide	<0.02
Methoxychlor	<0.02
Toxaphene	<0.02
PCB - 1016	<0.02
PCB - 1221	<0.02
PCB - 1232	<0.02
PCB - 1242	<0.02
PCB - 1248	<0.02
PCB - 1254	<0.02
PCB - 1260	<0.02

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WESTERN TECHNOLOGIES INC.

3737 East Broadway Road
P.O. Box 21387
Phoenix, Arizona 85036
(602) 437-3737

LABORATORY REPORT

Client: Emcon Associates
1921 Kingwood Avenue
San Jose, CA 95131
Attn: Keoni Murphy

Sample No. 8706273-6278
Job/Invoice No. 3247W021
Date of Report 6/22/87
Reviewed By Anita Gari

Project 377-16.01-Signetics

Location Signetics Plant - Albuquerque, New Mexico

Material Soil — Sampled By C. French — Date 5/19/87

Source -- — Submitted By C. French — Date 5/22/87

Procedure -- — Authorized By K. Murphy — Date 5/13/87

RESULTS

Sample Number	Client Identification	pH, S.U. (1:1 Extract)	Water Content %
8706273	EB-1 No. 1	9.5	5.2
8706275	EB-1 No. 3	9.7	1.3
8706276	EB-1 No. 4	9.8	1.9
8706277	EB-2 No. 1	7.8	3.8
8706278	EB-2 No. 2	8.4	4.0

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SAMPLING AND ANALYSIS CHAIN OF CUSTODY RECORD

EMCON ASSOCIATES

PROJECT NO. 377 - 16.01
SIGNETICS

EMCON LABORATORY NO. _____

REQUEST			LABORATORY REQUIREMENTS				CHAIN OF CUSTODY							
SAMPLE TYPE Soil									EMCON ASSOCIATES			CONTRACT LABORATORY		
SAMPLE ID	LAB ID	PARAMETERS	BOTTLES	PRES.	LABORATORY	PO #	SAMPL'D BY	DATE	REC'D BY	DATE	COMMENTS	REC'D BY	DATE	COMMENTS
EB-1 No 1		Soil Moist pH					CMF	5/19						
EB-1 No. 2		EPA 8240 EPA 8080												
EB-1 No. 3 (DUPLICATE)		EPA 8240 EPA 8080 Soil Moist pH									SEND TO SAN JOSE			
EB-1 No. 3		Soil Moist pH												
EB-1 No 4		Soil Moist pH												
EB-2 No 1		EPA 8240 EPA 8080 Soil Moist pH												
EB-2 No. 2		Soil Moist pH												

SIGNATURES:

LABORATORY REPRESENTATIVE _____

RELEASED TO COURIER BY FIELD PERSONNEL Christopher M. Paul 5/20/87

RECEIVED BY COURIER _____

RELEASED TO LABORATORY BY COURIER _____

RECEIVED BY LABORATORY K. W. Hyde

RELEASED TO LABORATORY BY COURIER _____

RECEIVED BY LABORATORY M. M. Clark

EMCON ASSOCIATES • CHEMICAL LABORATORIES

Analysis • Consultation • Research • Environmental Studies
State Approved Water Laboratory

EMCON

CERTIFIED ANALYTICAL REPORT

Report to:

Project Number: 377-16.0

Signetics Corp.
811 E. Arques Ave.
Sunnyvale, Ca 94088-3409

Location: ALBUQUERQUE NM

Sample Type: SOIL

Sample Designation:	EB1-N02
Field Date:	06/01/87
Laboratory Number:	E87-0527
Moisture (percent)	2.7%
pH	9.38

Reported by: Leon A Murphy Date: June 18, 1987

1921 RINGWOOD AVENUE, SAN JOSE, CALIFORNIA 95131 TELEPHONE (408) 275-1444

These results were obtained by following standard laboratory procedures; the liability of the corporation shall not exceed the amount paid for this report.

Date: 17 JUN 87
Project Number: 377-16.01

Signetics Corp.
811 E. Arques Ave.
Sunnyvale, Ca 94088-3409

Location: ALBUQUERQUE NM

METHODS OF ANALYSIS

Sample Type: SOIL

PARAMETER	METHOD
pH	9042

GROUND-WATER ANALYSES

EMCON

JUL 01 1987

ANAMETRIX, INC.
GC/MS SPECIALISTS
ENVIRONMENTAL • ANALYTICAL SERVICES
2754 AIELLO DRIVE • SAN JOSE CA 95111 • (408) 223-1132

June 30, 1987
Work Order Number 8706103
Date Received 6/27/87
PO No. NA

Keoni Murphy
Emcon Associates
1921 Ringwood Avenue
San Jose, CA 95131

Four water samples were received for analysis of priority pollutants by GC/MS, using the following EPA method(s):

ANAMETRIX I.D.	SAMPLE I.D.	METHOD(S)
8706103-01	377-16.01 MW01	624/625
-02	MW02	"
-03	MW03	"
-04	MW04	"

RESULTS

See enclosed data sheets, Forms 1-1 thru 2-4b.

EXTRA COMPOUNDS

None detected.

QUALITY ASSURANCE REPORTS

See enclosed data sheet, Form 5-1.

If there is any more that we can do, please give us a call. Thank you for using ANAMETRIX, INC.

Sincerely,

BURT SUTHERLAND

Burt Sutherland
Laboratory Manager

BWS/qp

ORGANICS ANALYSIS DATA SHEET - VOLATILE COMPOUNDS

Sample I.D. : 377-16.01 MW01
Matrix : WATER
Date sampled : 6-25-87
Date analyzed : 6-29-87
Dilution : NONE

Anametrix I.D. : 8706100-0
Analyst : KM
Supervisor : BWS
Date released : 6-30-87

CAS #	Compound Name	Det. Limit (ug/l)	(ug/l)	Q
74-87-3	* Chloromethane	7		U
74-83-9	* Bromomethane	7		U
75-01-4	* Vinyl Chloride	7		U
75-00-3	* Chloroethane	7		U
75-09-2	* Methylene Chloride	2		U
67-64-1	**Acetone	10		U
79-69-4	* Trichlorofluoromethane	2		U
75-15-0	**Carbondisulfide	2		U
75-35-4	* 1,1-Dichloroethene	2		U
75-34-3	* 1,1-Dichloroethane	2		U
156-60-5	* Trans-1,2-Dichloroethene	2		U
156-59-2	* Cis-1,2-Dichloroethene	2		U
67-66-3	* Chloroform	2		U
76-13-1	# Trichlorotrifluoroethane	2		U
107-06-2	* 1,2-Dichloroethane	2		U
78-93-3	**2-Butanone	10		U
71-55-6	* 1,1,1-Trichloroethane	2		U
56-23-5	* Carbon Tetrachloride	2		U
108-05-4	**Vinyl Acetate	10		U
75-27-4	* Bromodichloromethane	2		U
78-87-5	* 1,2-Dichloropropane	2		U
10061-02-6	* Trans-1,3-Dichloropropene	2		U
79-01-6	* Trichloroethene	2		U
124-48-1	* Dibromochloromethane	2		U
79-00-5	* 1,1,2-Trichloroethane	2		U
71-43-2	* Benzene	2		U
10061-01-5	* cis-1,3-Dichloropropene	2		U
110-75-8	* 2-Chloroethylvinylether	2		U
75-25-2	* Bromoform	2		U
591-78-6	**2-Hexanone	10		U
108-10-1	**4-Methyl-2-Pentanone	10		U
127-18-4	* Tetrachloroethene	2	19	+
79-34-5	* 1,1,2,2-Tetrachloroethane	2		U
108-88-3	* Toluene	2		U
108-90-7	* Chlorobenzene	2		U
100-41-4	* Ethylbenzene	2		U
100-42-5	**Styrene	2		U
	**Total Xylenes	2		U
541-73-1	* 1,3-Dichlorobenzene	2		U
95-50-1	* 1,2-Dichlorobenzene	2		U
106-46-7	* 1,4-Dichlorobenzene	2		U

* A 624/8240 approved compound (Federal Register, 10/26/84)
** A compound on the U.S. EPA CLP Hazardous Substance List (HSL)
\# A compound added by Anametrix, Inc.

For reporting purposes, the following qualifiers (Q) are used:
+ : A value greater than or equal to the method detection limit.
U : The compound was analyzed for but was not detected.

Form 1-1.

ORGANICS ANALYSIS DATA SHEET - VOLATILE COMPOUNDS

Sample I.D. : 377-16.01 MW02
Matrix : WATER
Date sampled : 6-25-87
Date analyzed : 6-29-87
Dilution : NONE

Anametrix I.D. : 8706103-[illegible]
Analyst : MH
Supervisor : BWS
Date released : 6-30-87

CAS #	Compound Name	Det. Limit (ug/l)	(ug/l)	Q
74-87-3	* Chloromethane	7		U
74-83-9	* Bromomethane	7		U
75-01-4	* Vinyl Chloride	7		U
75-00-3	* Chloroethane	7		U
75-09-2	* Methylene Chloride	2		U
67-64-1	**Acetone	10		U
79-69-4	* Trichlorofluoromethane	2		U
75-15-0	**Carbondisulfide	2		U
75-35-4	* 1,1-Dichloroethene	2		U
75-34-3	* 1,1-Dichloroethane	2		U
156-60-5	* Trans-1,2-Dichloroethene	2		U
156-59-2	* Cis-1,2-Dichloroethene	2		U
67-66-3	* Chloroform	2		U
76-13-1	# Trichlorotrifluoroethane	2		U
107-06-2	* 1,2-Dichloroethane	2		U
78-93-3	**2-Butanone	10		U
71-55-6	* 1,1,1-Trichloroethane	2		U
56-23-5	* Carbon Tetrachloride	2		U
108-05-4	**Vinyl Acetate	10		U
75-27-4	* Bromodichloromethane	2		U
78-87-5	* 1,2-Dichloropropane	2		U
10061-02-6	* Trans-1,3-Dichloropropene	2		U
79-01-6	* Trichloroethene	2		U
124-48-1	* Dibromochloromethane	2		U
79-00-5	* 1,1,2-Trichloroethane	2		U
71-43-2	* Benzene	2		U
10061-01-5	* cis-1,3-Dichloropropene	2		U
110-75-8	* 2-Chloroethylvinylether	2		U
75-25-2	* Bromoform	2		U
591-78-6	**2-Hexanone	10		U
108-10-1	**4-Methyl-2-Pentanone	10		U
127-18-4	* Tetrachloroethene	2	16	+
79-34-5	* 1,1,2,2-Tetrachloroethane	2		U
108-88-3	* Toluene	2		U
108-90-7	* Chlorobenzene	2		U
100-41-4	* Ethylbenzene	2		U
100-42-5	**Styrene	2		U
	**Total Xylenes	2		U
541-73-1	* 1,3-Dichlorobenzene	2		U
95-50-1	* 1,2-Dichlorobenzene	2		U
106-46-7	* 1,4-Dichlorobenzene	2		U

* A 624/8240 approved compound (Federal Register, 10/26/84)
** A compound on the U.S. EPA CLP Hazardous Substance List (HSL)
\# A compound added by Anametrix, Inc.

For reporting purposes, the following qualifiers (Q) are used:
+ : A value greater than or equal to the method detection limit.
U : The compound was analyzed for but was not detected.

Form 1-2.

ORGANICS ANALYSIS DATA SHEET - VOLATILE COMPOUNDS

Sample I.D. : 377-16.01 MW03
Matrix : WATER
Date sampled : 6-25-87
Date analyzed : 6-29-87
Dilution : NONE

Anametrix I.D. : 8706103-0
Analyst : HH
Supervisor : BWS
Date released : 6-30-87

CAS #	Compound Name	Det. Limit (ug/l)	(ug/l)	Q
74-87-3	* Chloromethane	7		U
74-83-9	* Bromomethane	7		U
75-01-4	* Vinyl Chloride	7		U
75-00-3	* Chloroethane	7		U
75-09-2	* Methylene Chloride	2		U
67-64-1	**Acetone	10		U
79-69-4	* Trichlorofluoromethane	2		U
75-15-0	**Carbondisulfide	2		U
75-35-4	* 1,1-Dichloroethene	2		U
75-34-3	* 1,1-Dichloroethane	2		U
156-60-5	* Trans-1,2-Dichloroethene	2		U
156-59-2	* Cis-1,2-Dichloroethene	2		U
67-66-3	* Chloroform	2		U
76-13-1	# Trichlorotrifluoroethane	2		U
107-06-2	* 1,2-Dichloroethane	2		U
78-93-3	**2-Butanone	10		U
71-55-6	* 1,1,1-Trichloroethane	2		U
56-23-5	* Carbon Tetrachloride	2		U
108-05-4	**Vinyl Acetate	10		U
75-27-4	* Bromodichloromethane	2		U
78-87-5	* 1,2-Dichloropropane	2		U
10061-02-6	* Trans-1,3-Dichloropropene	2		U
79-01-6	* Trichloroethene	2		U
124-48-1	* Dibromochloromethane	2		U
79-00-5	* 1,1,2-Trichloroethane	2		U
71-43-2	* Benzene	2		U
10061-01-5	* cis-1,3-Dichloropropene	2		U
110-75-8	* 2-Chloroethylvinylether	2		U
75-25-2	* Bromoform	2		U
591-78-6	**2-Hexanone	10		U
108-10-1	**4-Methyl-2-Pentanone	10		U
127-18-4	* Tetrachloroethene	2		U
79-34-5	* 1,1,2,2-Tetrachloroethane	2		U
108-88-3	* Toluene	2		U
108-90-7	* Chlorobenzene	2		U
100-41-4	* Ethylbenzene	2		U
100-42-5	**Styrene	2		U
	**Total Xylenes	2		U
541-73-1	* 1,3-Dichlorobenzene	2		U
95-50-1	* 1,2-Dichlorobenzene	2		U
106-46-7	* 1,4-Dichlorobenzene	2		U

* A 624/8240 approved compound (Federal Register, 10/26/84)
** A compound on the U.S. EPA CLP Hazardous Substance List (HSL)
\# A compound added by Anametrix, Inc.

For reporting purposes, the following qualifiers (Q) are used:
+ : A value greater than or equal to the method detection limit.
U : The compound was analyzed for but was not detected.

Form 1-3.

ORGANICS ANALYSIS DATA SHEET - VOLATILE COMPOUNDS

Sample I.D. : 377-16.01 MW04
Matrix : WATER
Date sampled : 6-26-87
Date analyzed : 6-29-87
Dilution : NONE

Anametrix I.D. : 8706103-0
Analyst : KM
Supervisor : BWS
Date released : 6-30-87

CAS #	Compound Name	Det. Limit (ug/l)	(ug/l)	Q
74-87-3	* Chloromethane	7		U
74-83-9	* Bromomethane	7		U
75-01-4	* Vinyl Chloride	7		U
75-00-3	* Chloroethane	7		U
75-09-2	* Methylene Chloride	2		U
67-64-1	**Acetone	10		U
79-69-4	* Trichlorofluoromethane	2		U
75-15-0	**Carbondisulfide	2		U
75-35-4	* 1,1-Dichloroethene	2		U
75-34-3	* 1,1-Dichloroethane	2		U
156-60-5	* Trans-1,2-Dichloroethene	2		U
156-59-2	* Cis-1,2-Dichloroethene	2		U
67-66-3	* Chloroform	2		U
76-13-1	# Trichlorotrifluoroethane	2		U
107-06-2	* 1,2-Dichloroethane	2		U
78-93-3	**2-Butanone	10		U
71-55-6	* 1,1,1-Trichloroethane	2		U
56-23-5	* Carbon Tetrachloride	2		U
108-05-4	**Vinyl Acetate	10		U
75-27-4	* Bromodichloromethane	2		U
78-87-5	* 1,2-Dichloropropane	2		U
10061-02-6	* Trans-1,3-Dichloropropene	2		U
79-01-6	* Trichloroethene	2		U
124-48-1	* Dibromochloromethane	2		U
79-00-5	* 1,1,2-Trichloroethane	2		U
71-43-2	* Benzene	2		U
10061-01-5	* cis-1,3-Dichloropropene	2		U
110-75-8	* 2-Chloroethylvinylether	2		U
75-25-2	* Bromoform	2		U
591-78-6	**2-Hexanone	10		U
108-10-1	**4-Methyl-2-Pentanone	10		U
127-18-4	* Tetrachloroethene	2	11	+
79-34-5	* 1,1,2,2-Tetrachloroethane	2		U
108-88-3	* Toluene	2		U
108-90-7	* Chlorobenzene	2		U
100-41-4	* Ethylbenzene	2		U
100-42-5	**Styrene	2		U
	**Total Xylenes	2		U
541-73-1	* 1,3-Dichlorobenzene	2		U
95-50-1	* 1,2-Dichlorobenzene	2		U
106-46-7	* 1,4-Dichlorobenzene	2		U

* A 624/8240 approved compound (Federal Register, 10/26/84)
** A compound on the U.S. EPA CLP Hazardous Substance List (HSL)
\# A compound added by Anametrix, Inc.

For reporting purposes, the following qualifiers (Q) are used:
+ : A value greater than or equal to the method detection limit.
U : The compound was analyzed for but was not detected.

Form 1-4.

ORGANIC ANALYSIS DATA SHEET -- SEMIVOLATILE COMPOUNDS

Sample I.D. : 377-16.01 MW01
Matrix : WATER
Date sampled : 6-25-87
Date extracted : 6-29-87
Date analyzed : 6-29-87
Volume extracted : 990 ML

Anametrix I.D. : 8706103-C
Analyst : PG
Supervisor : Bus
Date released : 6-30-87

CAS #	Compound Name	Det. Limit (ug/l)	(ug/l)	Q
62-75-9	* N-Nitrosodimethylamine	2		U
108-95-2	* Phenol	2		U
62-53-3	**Aniline	2		U
111-44-4	* bis(-2-Chloroethyl)Ether	2		U
95-57-8	* 2-Chlorophenol	2		U
541-73-1	* 1,3-Dichlorobenzene	2		U
106-46-7	* 1,4-Dichlorobenzene	2		U
100-51-6	**Benzyl Alcohol	2		U
95-50-1	* 1,2-Dichlorobenzene	2		U
95-48-7	**2-Methylphenol	2		U
39638-32-9	**bis(2-chloroisopropyl)Ether	2		U
106-44-5	**4-Methylphenol	2		U
621-64-7	* N-Nitroso-Di-n-Propylamine	2		U
67-72-1	* Hexachloroethane	2		U
98-95-3	* Nitrobenzene	2		U
78-59-1	* Isophorone	2		U
88-75-5	* 2-Nitrophenol	2		U
105-67-9	* 2,4-Dimethylphenol	2		U
65-85-0	**Benzoic Acid	10		U
111-91-1	* bis(-2-Chloroethoxy)Methane	2		U
120-83-2	* 2,4-Dichlorophenol	2		U
120-82-1	* 1,2,4-Trichlorobenzene	2		U
91-20-3	* Naphthalene	2		U
106-47-8	**4-Chloroaniline	2		U
87-68-3	* Hexachlorobutadiene	2		U
59-50-7	* 4-Chloro-3-Methylphenol	2		U
91-57-6	**2-Methylnaphthalene	2		U
77-47-4	* Hexachlorocyclopentadiene	2		U
88-06-2	* 2,4,6-Trichlorophenol	2		U
95-95-4	**2,4,5-Trichlorophenol	10		U
91-58-7	* 2-Chloronaphthalene	2		U
88-74-4	**2-Nitroaniline	10		U
131-11-3	* Dimethyl Phthalate	2		U
208-96-8	* Acenaphthylene	2		U
99-09-2	**3-Nitroaniline	10		U

* A 625 approved compound (Federal Register, 10/26/84)
** A compound on the U.S. EPA CLP Hazardous Substance List (HSL)

For reporting purposes, the following qualifiers (Q) are used :
+ : A value greater than or equal to the method detection limit.
U : The compound was analyzed for but was not detected.

Form 2-1a.

ORGANIC ANALYSIS DATA SHEET -- SEMIVOLATILE COMPOUNDS

Sample I.D. : 377-16.01 MW01
Matrix : WATER
Date sampled : 6-25-87
Date extracted : 6-29-87
Date analyzed : 6-29-87
Volume extracted : 990 ML

Anametrix I.D. : 8706103-0
Analyst : PG
Supervisor : [illegible]
Date released : 6-30-87

CAS #	Compound Name	Det. Limit (ug/l)	(ug/l)	Q
83-32-9	* Acenaphthene	2		U
51-28-5	* 2,4-Dinitrophenol	10		U
100-02-7	* 4-Nitrophenol	10		U
132-64-9	**Dibenzofuran	2		U
121-14-2	* 2,4-Dinitrotoluene	2		U
606-20-2	* 2,6-Dinitrotoluene	2		U
84-66-2	* Diethylphthalate	2		U
7005-72-3	* 4-Chlorophenyl-phenylether	2		U
86-73-7	* Fluorene	2		U
100-01-6	**4-Nitroaniline	10		U
534-52-1	**4,6-Dinitro-2-Methylphenol	10		U
86-30-6	* N-Nitrosodiphenylamine	2		U
122-66-7	**1,2-Diphenylhydrazine	2		U
101-55-3	* 4-Bromophenyl-phenylether	2		U
118-74-1	* Hexachlorobenzene	2		U
87-86-5	* Pentachlorophenol	10		U
85-01-8	* Phenanthrene	2		U
120-12-7	* Anthracene	2		U
84-74-2	* Di-n-Butylphthalate	2		U
206-44-0	* Fluoranthene	2		U
92-87-5	* Benzidine	10		U
129-00-0	* Pyrene	2		U
85-68-7	* Butylbenzylphthalate	2		U
91-94-1	* 3,3'-Dichlorobenzidine	5		U
56-55-3	* Benzo(a)Anthracene	2		U
117-81-7	* bis(2-Ethylhexyl)Phthalate	2		U
218-01-9	* Chrysene	2		U
117-84-0	* Di-n-Octyl Phthalate	2		U
205-99-2	* Benzo(b)Fluoranthene	2		U
207-08-9	* Benzo(k)Fluoranthene	2		U
50-32-8	* Benzo(a)Pyrene	2		U
193-39-5	* Indeno(1,2,3-cd)Pyrene	2		U
53-70-3	* Dibenz(a,h)Anthracene	2		U
191-24-2	* Benzo(g,h,i)Perylene	2		U

* A 625 approved compound (Federal Register, 10/26/84)
** A compound on the U.S. EPA CLP Hazardous Substance List (HSL)

For reporting purposes, the following qualifiers (Q) are used :
+ : A value greater than or equal to the method detection limit.
U : The compound was analyzed for but was not detected.

Form 2-1b.

ORGANIC ANALYSIS DATA SHEET -- SEMIVOLATILE COMPOUNDS

Sample I.D. : 377-16.01 MW02
Matrix : WATER
Date sampled : 6-25-87
Date extracted : 6-29-87
Date analyzed : 6-29-87
Volume extracted : 990 ML

Anametrix I.D. : 8706103-02
Analyst : PG
Supervisor : BWS
Date released : 6-30-87

CAS #	Compound Name	Det. Limit (ug/l)	(ug/l)	Q
62-75-9	* N-Nitrosodimethylamine	2		U
108-95-2	* Phenol	2		U
62-53-3	**Aniline	2		U
111-44-4	* bis(-2-Chloroethyl)Ether	2		U
95-57-8	* 2-Chlorophenol	2		U
541-73-1	* 1,3-Dichlorobenzene	2		U
106-46-7	* 1,4-Dichlorobenzene	2		U
100-51-6	**Benzyl Alcohol	2		U
95-50-1	* 1,2-Dichlorobenzene	2		U
95-48-7	**2-Methylphenol	2		U
39638-32-9	**bis(2-chloroisopropyl)Ether	2		U
106-44-5	**4-Methylphenol	2		U
621-64-7	* N-Nitroso-Di-n-Propylamine	2		U
67-72-1	* Hexachloroethane	2		U
98-95-3	* Nitrobenzene	2		U
78-59-1	* Isophorone	2		U
88-75-5	* 2-Nitrophenol	2		U
105-67-9	* 2,4-Dimethylphenol	2		U
65-85-0	**Benzoic Acid	10		U
111-91-1	* bis(-2-Chloroethoxy)Methane	2		U
120-83-2	* 2,4-Dichlorophenol	2		U
120-82-1	* 1,2,4-Trichlorobenzene	2		U
91-20-3	* Naphthalene	2		U
106-47-8	**4-Chloroaniline	2		U
87-68-3	* Hexachlorobutadiene	2		U
59-50-7	* 4-Chloro-3-Methylphenol	2		U
91-57-6	**2-Methylnaphthalene	2		U
77-47-4	* Hexachlorocyclopentadiene	2		U
88-06-2	* 2,4,6-Trichlorophenol	2		U
95-95-4	**2,4,5-Trichlorophenol	10		U
91-58-7	* 2-Chloronaphthalene	2		U
88-74-4	**2-Nitroaniline	10		U
131-11-3	* Dimethyl Phthalate	2		U
208-96-8	* Acenaphthylene	2		U
99-09-2	**3-Nitroaniline	10		U

* A 625 approved compound (Federal Register, 10/26/84)
** A compound on the U.S. EPA CLP Hazardous Substance List (HSL)

For reporting purposes, the following qualifiers (Q) are used :
+ : A value greater than or equal to the method detection limit.
U : The compound was analyzed for but was not detected.

Form 2-2a.

ORGANIC ANALYSIS DATA SHEET -- SEMIVOLATILE COMPOUNDS

Sample I.D. : 377-16.01 MW02
Matrix : WATER
Date sampled : 6-25-87
Date extracted : 6-29-87
Date analyzed : 6-29-87
Volume extracted : 990 ML

Anametrix I.D. : 8706103-02
Analyst : PG
Supervisor : BWS
Date released : 6-30-87

CAS #	Compound Name	Det. Limit (ug/l)	(ug/l)	Q
83-32-9	* Acenaphthene	2		U
51-28-5	* 2,4-Dinitrophenol	10		U
100-02-7	* 4-Nitrophenol	10		U
132-64-9	**Dibenzofuran	2		U
121-14-2	* 2,4-Dinitrotoluene	2		U
606-20-2	* 2,6-Dinitrotoluene	2		U
84-66-2	* Diethylphthalate	2		U
7005-72-3	* 4-Chlorophenyl-phenylether	2		U
86-73-7	* Fluorene	2		U
100-01-6	**4-Nitroaniline	10		U
534-52-1	**4,6-Dinitro-2-Methylphenol	10		U
86-30-6	* N-Nitrosodiphenylamine	2		U
122-66-7	**1,2-Diphenylhydrazine	2		U
101-55-3	* 4-Bromophenyl-phenylether	2		U
118-74-1	* Hexachlorobenzene	2		U
87-86-5	* Pentachlorophenol	10		U
85-01-8	* Phenanthrene	2		U
120-12-7	* Anthracene	2		U
84-74-2	* Di-n-Butylphthalate	2		U
206-44-0	* Fluoranthene	2		U
92-87-5	* Benzidine	10		U
129-00-0	* Pyrene	2		U
85-68-7	* Butylbenzylphthalate	2		U
91-94-1	* 3,3'-Dichlorobenzidine	5		U
56-55-3	* Benzo(a)Anthracene	2		U
117-81-7	* bis(2-Ethylhexyl)Phthalate	2		U
218-01-9	* Chrysene	2		U
117-84-0	* Di-n-Octyl Phthalate	2		U
205-99-2	* Benzo(b)Fluoranthene	2		U
207-08-9	* Benzo(k)Fluoranthene	2		U
50-32-8	* Benzo(a)Pyrene	2		U
193-39-5	* Indeno(1,2,3-cd)Pyrene	2		U
53-70-3	* Dibenz(a,h)Anthracene	2		U
191-24-2	* Benzo(g,h,i)Perylene	2		U

* A 625 approved compound (Federal Register, 10/26/84)
** A compound on the U.S. EPA CLP Hazardous Substance List (HSL)

For reporting purposes, the following qualifiers (Q) are used :
+ : A value greater than or equal to the method detection limit.
U : The compound was analyzed for but was not detected.

ORGANIC ANALYSIS DATA SHEET -- SEMIVOLATILE COMPOUNDS

Sample I.D. : 377-16.01 MW03
Matrix : WATER
Date sampled : 6-25-87
Date extracted : 6-29-87
Date analyzed : 6-29-87
Volume extracted : 1 L

Anametrix I.D. : 8706103-0
Analyst : PG
Supervisor : BWS
Date released : 6-30-87

CAS #	Compound Name	Det. Limit (ug/l)	(ug/l)	Q
62-75-9	* N-Nitrosodimethylamine	2		U
108-95-2	* Phenol	2		U
62-53-3	**Aniline	2		U
111-44-4	* bis(-2-Chloroethyl)Ether	2		U
95-57-8	* 2-Chlorophenol	2		U
541-73-1	* 1,3-Dichlorobenzene	2		U
106-46-7	* 1,4-Dichlorobenzene	2		U
100-51-6	**Benzyl Alcohol	2		U
95-50-1	* 1,2-Dichlorobenzene	2		U
95-48-7	**2-Methylphenol	2		U
39638-32-9	**bis(2-chloroisopropyl)Ether	2		U
106-44-5	**4-Methylphenol	2		U
621-64-7	* N-Nitroso-Di-n-Propylamine	2		U
67-72-1	* Hexachloroethane	2		U
98-95-3	* Nitrobenzene	2		U
78-59-1	* Isophorone	2		U
88-75-5	* 2-Nitrophenol	2		U
105-67-9	* 2,4-Dimethylphenol	2		U
65-85-0	**Benzoic Acid	10		U
111-91-1	* bis(-2-Chloroethoxy)Methane	2		U
120-83-2	* 2,4-Dichlorophenol	2		U
120-82-1	* 1,2,4-Trichlorobenzene	2		U
91-20-3	* Naphthalene	2		U
106-47-8	**4-Chloroaniline	2		U
87-68-3	* Hexachlorobutadiene	2		U
59-50-7	* 4-Chloro-3-Methylphenol	2		U
91-57-6	**2-Methylnaphthalene	2		U
77-47-4	* Hexachlorocyclopentadiene	2		U
88-06-2	* 2,4,6-Trichlorophenol	2		U
95-95-4	**2,4,5-Trichlorophenol	10		U
91-58-7	* 2-Chloronaphthalene	2		U
88-74-4	**2-Nitroaniline	10		U
131-11-3	* Dimethyl Phthalate	2		U
208-96-8	* Acenaphthylene	2		U
99-09-2	**3-Nitroaniline	10		U

* A 625 approved compound (Federal Register, 10/26/84)
** A compound on the U.S. EPA CLP Hazardous Substance List (HSL)

For reporting purposes, the following qualifiers (Q) are used :
+ : A value greater than or equal to the method detection limit.
U : The compound was analyzed for but was not detected.

Form 2-3a.

ORGANIC ANALYSIS DATA SHEET -- SEMIVOLATILE COMPOUNDS

Sample I.D. : 377-16.01 MW03
Matrix : WATER
Date sampled : 6-25-87
Date extracted : 6-29-87
Date analyzed : 6-29-87
Volume extracted : 1 L

Anametrix I.D. : 8706103-0
Analyst : PG
Supervisor : BWS
Date released : 6-30-87

CAS #	Compound Name	Det. Limit (ug/l)	(ug/l)	Q
83-32-9	* Acenaphthene	2		U
51-28-5	* 2,4-Dinitrophenol	10		U
100-02-7	* 4-Nitrophenol	10		U
132-64-9	**Dibenzofuran	2		U
121-14-2	* 2,4-Dinitrotoluene	2		U
606-20-2	* 2,6-Dinitrotoluene	2		U
84-66-2	* Diethylphthalate	2		U
7005-72-3	* 4-Chlorophenyl-phenylether	2		U
86-73-7	* Fluorene	2		U
100-01-6	**4-Nitroaniline	10		U
534-52-1	**4,6-Dinitro-2-Methylphenol	10		U
86-30-6	* N-Nitrosodiphenylamine	2		U
122-66-7	**1,2-Diphenylhydrazine	2		U
101-55-3	* 4-Bromophenyl-phenylether	2		U
118-74-1	* Hexachlorobenzene	2		U
87-86-5	* Pentachlorophenol	10		U
85-01-8	* Phenanthrene	2		U
120-12-7	* Anthracene	2		U
84-74-2	* Di-n-Butylphthalate	2		U
206-44-0	* Fluoranthene	2		U
92-87-5	* Benzidine	10		U
129-00-0	* Pyrene	2		U
85-68-7	* Butylbenzylphthalate	2		U
91-94-1	* 3,3'-Dichlorobenzidine	5		U
56-55-3	* Benzo(a)Anthracene	2		U
117-81-7	* bis(2-Ethylhexyl)Phthalate	2		U
218-01-9	* Chrysene	2		U
117-84-0	* Di-n-Octyl Phthalate	2		U
205-99-2	* Benzo(b)Fluoranthene	2		U
207-08-9	* Benzo(k)Fluoranthene	2		U
50-32-8	* Benzo(a)Pyrene	2		U
193-39-5	* Indeno(1,2,3-cd)Pyrene	2		U
53-70-3	* Dibenz(a,h)Anthracene	2		U
191-24-2	* Benzo(g,h,i)Perylene	2		U

* A 625 approved compound (Federal Register, 10/26/84)
** A compound on the U.S. EPA CLP Hazardous Substance List (HSL)

For reporting purposes, the following qualifiers (Q) are used :
+ : A value greater than or equal to the method detection limit.
U : The compound was analyzed for but was not detected.

Form 2-3b.

ORGANIC ANALYSIS DATA SHEET -- SEMIVOLATILE COMPOUNDS

Sample I.D. : 377-16.01 MW04
Matrix : WATER
Date sampled : 6-26-87
Date extracted : 6-29-87
Date analyzed : 6-29-87
Volume extracted : 1 L

Anametrix I.D. : 8706103-2
Analyst : PG
Supervisor : BWS
Date released : 6-30-87

CAS #	Compound Name	Det. Limit (ug/l)	(ug/l)	Q
62-75-9	* N-Nitrosodimethylamine	2		U
108-95-2	* Phenol	2		U
62-53-3	**Aniline	2		U
111-44-4	* bis(-2-Chloroethyl)Ether	2		U
95-57-8	* 2-Chlorophenol	2		U
541-73-1	* 1,3-Dichlorobenzene	2		U
106-46-7	* 1,4-Dichlorobenzene	2		U
100-51-6	**Benzyl Alcohol	2		U
95-50-1	* 1,2-Dichlorobenzene	2		U
95-48-7	**2-Methylphenol	2		U
39638-32-9	**bis(2-chloroisopropyl)Ether	2		U
106-44-5	**4-Methylphenol	2		U
621-64-7	* N-Nitroso-Di-n-Propylamine	2		U
67-72-1	* Hexachloroethane	2		U
98-95-3	* Nitrobenzene	2		U
78-59-1	* Isophorone	2		U
88-75-5	* 2-Nitrophenol	2		U
105-67-9	* 2,4-Dimethylphenol	2		U
65-85-0	**Benzoic Acid	10		U
111-91-1	* bis(-2-Chloroethoxy)Methane	2		U
120-83-2	* 2,4-Dichlorophenol	2		U
120-82-1	* 1,2,4-Trichlorobenzene	2		U
91-20-3	* Naphthalene	2		U
106-47-8	**4-Chloroaniline	2		U
87-68-3	* Hexachlorobutadiene	2		U
59-50-7	* 4-Chloro-3-Methylphenol	2		U
91-57-6	**2-Methylnaphthalene	2		U
77-47-4	* Hexachlorocyclopentadiene	2		U
88-06-2	* 2,4,6-Trichlorophenol	2		U
95-95-4	**2,4,5-Trichlorophenol	10		U
91-58-7	* 2-Chloronaphthalene	2		U
88-74-4	**2-Nitroaniline	10		U
131-11-3	* Dimethyl Phthalate	2		U
208-96-8	* Acenaphthylene	2		U
99-09-2	**3-Nitroaniline	10		U

* A 625 approved compound (Federal Register, 10/26/84)
** A compound on the U.S. EPA CLP Hazardous Substance List (HSL)

For reporting purposes, the following qualifiers (Q) are used :
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U : The compound was analyzed for but was not detected.

Form 2-4a.

ORGANIC ANALYSIS DATA SHEET -- SEMIVOLATILE COMPOUNDS

Sample I.D. : 377-16.01 MW04
Matrix : WATER
Date sampled : 6-26-87
Date extracted : 6-29-87
Date analyzed : 6-29-87
Volume extracted : 1 L

Anametrix I.D. : 8706103-C
Analyst : PG
Supervisor : BWS
Date released : 6-30-87

CAS #	Compound Name	Det. Limit (ug/l)	(ug/l)	Q
83-32-9	* Acenaphthene	2		U
51-28-5	* 2,4-Dinitrophenol	10		U
100-02-7	* 4-Nitrophenol	10		U
132-64-9	**Dibenzofuran	2		U
121-14-2	* 2,4-Dinitrotoluene	2		U
606-20-2	* 2,6-Dinitrotoluene	2		U
84-66-2	* Diethylphthalate	2		U
7005-72-3	* 4-Chlorophenyl-phenylether	2		U
86-73-7	* Fluorene	2		U
100-01-6	**4-Nitroaniline	10		U
534-52-1	**4,6-Dinitro-2-Methylphenol	10		U
86-30-6	* N-Nitrosodiphenylamine	2		U
122-66-7	**1,2-Diphenylhydrazine	2		U
101-55-3	* 4-Bromophenyl-phenylether	2		U
118-74-1	* Hexachlorobenzene	2		U
87-86-5	* Pentachlorophenol	10		U
85-01-8	* Phenanthrene	2		U
120-12-7	* Anthracene	2		U
84-74-2	* Di-n-Butylphthalate	2		U
206-44-0	* Fluoranthene	2		U
92-87-5	* Benzidine	10		U
129-00-0	* Pyrene	2		U
85-68-7	* Butylbenzylphthalate	2		U
91-94-1	* 3,3'-Dichlorobenzidine	5		U
56-55-3	* Benzo(a)Anthracene	2		U
117-81-7	* bis(2-Ethylhexyl)Phthalate	2		U
218-01-9	* Chrysene	2		U
117-84-0	* Di-n-Octyl Phthalate	2		U
205-99-2	* Benzo(b)Fluoranthene	2		U
207-08-9	* Benzo(k)Fluoranthene	2		U
50-32-8	* Benzo(a)Pyrene	2		U
193-39-5	* Indeno(1,2,3-cd)Pyrene	2		U
53-70-3	* Dibenz(a,h)Anthracene	2		U
191-24-2	* Benzo(g,h,i)Perylene	2		U

* A 625 approved compound (Federal Register, 10/26/84)
** A compound on the U.S. EPA CLP Hazardous Substance List (HSL)

For reporting purposes, the following qualifiers (Q) are used :
+ : A value greater than or equal to the method detection limit.
U : The compound was analyzed for but was not detected.

WATER VOLATILE/SEMIVOLATILE SURROGATE RECOVERY SUMMARY

ANAMETRIX WORKORDER# : 8706103 SUPERVISOR : E
CLIENT PROJECT# : 377-16.01 ANALYST : P

#	SAMPLE ID	VO1 (DCE)	VO2 (TOL)	VO3 (BFB)	A1 (2FP)	A2 (PHL)	A3 (TBP)	BN1 (NBZ)	BN2 (FBH)	BN3 (TPH)	TOTAL OUT
01	MW01	103	96	82	31	25	89	48	50	77	0
02	MW02	118	108	92	29	21	78	41	42	71	0
03	MW03	108	102	84	34	25	81	49	51	72	0
04	MW04	97	91	73	26	20	62	39	40	71	0
05											
06											
07											
08											
09											
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30											

ANAMETRIX PERCENT RECOVERY LIMITS
(generated from sample data)

VO1	(DCE)	= 1,2-DICHLOROETHANE-D4	81-124%
VO2	(TOL)	= TOLUENE-D8	85-118%
VO3	(BFB)	= BROMOFLUOROBENZENE	72-115%
A1	(2FP)	= 2-FLUOROPHENOL	18-71%
A2	(PHL)	= PHENOL-D5	20-75%
A3	(TBP)	= 2,4,6-TRIBROMOPHENOL	23-118%
BN1	(NBZ)	= NITROBENZENE-D5	28-104%
BN2	(FBH)	= 2-FLUOROBIPHENYL	36-97%
BN3	(TPH)	= TERPHENYL-D14	37-133%

WESTERN TECHNOLOGIES INC.

3737 East Broadway Road
P.O. Box 21387
Phoenix, Arizona 85036
(602) 437-3737

PROJECT NUMBER: 377-16.01

LABORATORY REPORT

Client: Emcon Associates
1921 Ringwood Avenue
San Jose, CA 95131
Attn: Chris French

Sample No. 8708062-8065
Job/Invoice No. 3247W030
Date of Report 7/14/87
Reviewed By Anita Jain

Project: 377 - 16.01 - Signetics

Location: Signetics Plant - Albuquerque, New Mexico

Material: Water — Sampled By: EA/Personnel — Date: 6/25&26/87

Source: -- — Submitted By: EA/Personnel — Date: 6/26/87

Procedure: -- — Authorized By: -- — Date: --

RESULTS

Sample Number	8708062	8708063
Client Identification	MW01	MW02
Dissolved Metals, mg/L		
Calcium	560.	83.
Lead	<0.02	<0.02
Manganese	<0.05	<0.05
Sodium	120.	42.
Zinc	<0.05	<0.05
Alkalinity as $CaCO_3$, mg/L	1550.	217.
Chloride, mg/L	13.	18.
Conductivity, umhos/cm	6350.	680.
Nitrate-N, mg/L	0.2	0.4
pH, S.U.	12.2	7.2
Sulfate, mg/L	63.	110.
Total Dissolved Solids, mg/L	4080.	454.
Total Organic Carbons, mg/L	3.	2.
Total Kjeldahl Nitrogen, mg/L	220.	<0.10

Emcon Associates
Invoice Number 3247W030
Sample Numbers 8708062 - 8708065

Sample Number	8708064	8708065
Client Identification	MW03	MW04
Dissolved Metals, mg/L		
Calcium	53.	120.
Lead	<0.02	<0.02
Manganese	<0.05	<0.05
Sodium	29.	43.
Zinc	<0.05	<0.05
Alkalinity as $CaCO_3$, mg/L	132.	298.
Chloride, mg/L	16.	21.
Conductivity, umhos/cm	500.	700.
Nitrate-N, mg/L	1.4	0.1
pH, S.U.	7.0	7.3
Sulfate, mg/L	85.	150.
Total Dissolved Solids, mg/L	326.	500.
Total Organic Carbons, mg/L	1.	1.
Total Kjeldahl Nitrogen, mg/L	0.13	0.94

om

WESTERN TECHNOLOGIES INC.

3737 East Broadway Road
P.O. Box 21387
Phoenix, Arizona 85036
(602) 437-3737

LABORATORY REPORT

Client: Emcon Associates
1921 Kingwood Avenue
San Jose, CA 95131
Attn: Keoni Murphy

Sample No. 8706472
Job/Invoice No. 3247W021
Date of Report 6/19/87
Reviewed By Fred J. Kent

Project: 377-16.01-Signetics

Location: Signetic Plant

Material	Water	Sampled By	C. French	Date	5/22/87
Source	Drilling Fluid	Submitted By	C. French	Date	5/26/87
Procedure	GC/MS	Authorized By	Murphy	Date	5/13/87

RESULTS

One sample was analyzed for volatile organic contaminants using combined gas chromatography/mass spectrometry. Results are given on the enclosed summary sheets.

GAS CHROMATOGRAPHY/MASS SPECTROMETRY
ORGANIC ANALYSIS DATA SHEET
VOLATILE COMPOUNDS

Sample Number: 8706472
Sample Identification: 377 - 16.01

CAS NUMBER	COMPOUND	CONCENTRATION ug/L
71-43-2	Benzene	<10.
75-27-4	Bromodichloromethane	<10.
75-25-2	Bromoform	<10.
74-83-9	Bromomethane	<10.
56-23-5	Carbon tetrachloride	<10.
108-90-7	Chlorobenzene	<10.
75-00-3	Chloroethane	<10.
110-75-8	2-Chloroethylvinyl ether	<10.
67-66-3	Chloroform	<10.
74-87-3	Chloromethane	<10.
124-48-1	Dibromochloromethane	<10.
95-50-1	1,2-Dichlorobenzene	<10.
541-73-1	1,3-Dichlorobenzene	<10.
106-46-7	1,4-Dichlorobenzene	<10.
75-34-3	1,1-Dichloroethane	<10.
107-06-2	1,2-Dichloroethane	<10.
75-35-4	1,1-Dichloroethene	<10.
156-60-5	trans-1,2-Dichloroethene	<10.
78-87-5	1,2-Dichloropropane	<10.
10061-01-5	cis-1,3-Dichloropropene	<10.
10061-02-6	trans-1,3-Dichloropropene	<10.
100-41-4	Ethyl benzene	<10.
75-09-2	Methylene chloride	<10.
79-34-5	1,1,2,2-Tetrachloroethane	<10.
127-18-4	Tetrachloroethene	<10.
108-88-3	Toluene	<10.
71-55-6	1,1,1-Trichloroethane	<10.
79-00-5	1,1,2-Trichloroethane	<10.
79-01-6	Trichloroethene	<10.
75-69-4	Trichlorofluoromethane	<10.
75-01-4	Vinyl Chloride	<10.

SAMPLING AND ANALYSIS CHAIN OF CUSTODY RECORD

EMCON ASSOCIATES

PROJECT NO. 377 - 16.01 SIGNETICS

EMCON LABORATORY NO. _____

REQUEST			LABORATORY REQUIREMENTS				CHAIN OF CUSTODY							
SAMPLE TYPE WATER								EMCON ASSOCIATES			CONTRACT LABORATORY			
SAMPLE ID	LAB ID	PARAMETERS	BOTTLES	PRES.	LABORATORY	PO #	SAMPL'D BY	DATE	REC'D BY	DATE	COMMENTS	REC'D BY	DATE	COMMENTS
MW-1-14		EPA 624					CMF	5/22/87						
~~MAIL RESULTS TO~~														
FAX RESULTS TO ANDREW CUADERES OF WESTERN TECHNOLOGIES ALBUQUERQUE, NM.														
MAIL ORIGINAL TO CHRIS FRENCH @ EMCON ASSOCIATES 1921 RINGWOOD AVE SAN JOSE CA 95131														

SIGNATURES:

LABORATORY REPRESENTATIVE _____

RELEASED TO COURIER BY [illegible] — RECEIVED BY COURIER

RELEASED TO LABORATORY BY COURIER — RECEIVED BY LABORATORY

RELEASED TO LABORATORY BY COURIER — RECEIVED BY LABORATORY

EMCON ASSOCIATES • CHEMICAL LABORATORIES

Analysis • Consultation • Research • Environmental Studies

State Approved Water Laboratory

EMCON

)1

CERTIFIED ANALYTICAL REPORT

t :

Project Number: 377-16.01

Signetics Corp.
811 E. Arques Ave.
Sunnyvale, Ca 94088-3409

Location: ALBUQUERQUE NM

Sample Type: WATER
Units: mg/l

Sample Designation:	MW01	MW02	MW03	MW04
Field Date:	06/25/87	06/25/87	06/25/87	06/26/87
Laboratory Number:	E87-0740	E87-0740	E87-0740	E87-0740
Chromium, Total	<0.05	<0.05	<0.05	<0.05
Copper	0.03	0.01	0.01	0.01
Nickel	<0.05	<0.05	<0.05	<0.05
Iron	<0.05	<0.05	<0.05	<0.05
Magnesium	0.008	17	11	19

f 2

Reported by: Karen Dougherty Date: July 13, 1987

RII iWOOD AVENUE, SAN JOSE, CALIFORNIA 95131 TELEPHONE (408) 275-1444

These results were obtained by following standard laboratory procedures; the liability of the corporation shall not exceed the amount paid for this report

DUPLICATE ANALYSES

ANAMETRIX, INC.
GC/MS SPECIALISTS
ENVIRONMENTAL • ANALYTICAL SERVICES
2754 AIELLO DRIVE • SAN JOSE CA 95111 • (408) 629-1133

EMCON
EMCON

June 22, 1987
Work Order Number 8706055
Date Received 6/15/87
PO No. 14591

Keoni Murphy
Emcon Associates
1921 Ringwood Avenue
San Jose, CA 95131

One water sample was received for analysis of priority pollutants by GC/MS, using the following EPA method(s):

ANAMETRIX I.D.	SAMPLE I.D.	METHOD(S)
8706055-01	377-16.01 XDUP1	624/625

RESULTS

See enclosed data sheets, Forms 1-1 thru 2-1b.

EXTRA COMPOUNDS

None detected.

QUALITY ASSURANCE REPORTS

See enclosed data sheet, Form 5-1.

If there is any more that we can do, please give us a call. Thank you for using ANAMETRIX, INC.

Sincerely,

Burt Sutherland

Burt Sutherland
Laboratory Manager

BWS/lar

ORGANICS ANALYSIS DATA SHEET - VOLATILE COMPOUNDS

Sample I.D. :377-16.01 XDUP1
Matrix :WATER
Date sampled :6/12/87
Date analyzed :6/18/87
Dilution :NONE

Anametrix I.D. :8706055-01
Analyst : WH
Supervisor : BWS
Date released :6/22/87

CAS #	Compound Name	Det. Limit (ug/l)	(ug/l)	Q
74-87-3	* Chloromethane	7		U
74-83-9	* Bromomethane	7		U
75-01-4	* Vinyl Chloride	7		U
75-00-3	* Chloroethane	7		U
75-09-2	* Methylene Chloride	2		U
67-64-1	**Acetone	10		U
79-69-4	* Trichlorofluoromethane	2		U
75-15-0	**Carbondisulfide	2		U
75-35-4	* 1,1-Dichloroethene	2		U
75-34-3	* 1,1-Dichloroethane	2		U
156-60-5	* Trans-1,2-Dichloroethene	2		U
156-59-2	* Cis-1,2-Dichloroethene	2		U
67-66-3	* Chloroform	2		U
76-13-1	# Trichlorotrifluoroethane	2		U
107-06-2	* 1,2-Dichloroethane	2		U
78-93-3	**2-Butanone	10		U
71-55-6	* 1,1,1-Trichloroethane	2		U
56-23-5	* Carbon Tetrachloride	2		U
108-05-4	**Vinyl Acetate	10		U
75-27-4	* Bromodichloromethane	2		U
78-87-5	* 1,2-Dichloropropane	2		U
10061-02-6	* Trans-1,3-Dichloropropene	2		U
79-01-6	* Trichloroethene	2		U
124-48-1	* Dibromochloromethane	2		U
79-00-5	* 1,1,2-Trichloroethane	2		U
71-43-2	* Benzene	2		U
10061-01-5	* cis-1,3-Dichloropropene	2		U
110-75-8	* 2-Chloroethylvinylether	2		U
75-25-2	* Bromoform	2		U
591-78-6	**2-Hexanone	10		U
108-10-1	**4-Methyl-2-Pentanone	10		U
127-18-4	* Tetrachloroethene	2	6	+
79-34-5	* 1,1,2,2-Tetrachloroethane	2		U
108-88-3	* Toluene	2		U
108-90-7	* Chlorobenzene	2		U
100-41-4	* Ethylbenzene	2		U
100-42-5	**Styrene	2		U
	**Total Xylenes	2		U
541-73-1	* 1,3-Dichlorobenzene	2		U
95-50-1	* 1,2-Dichlorobenzene	2		U
106-46-7	* 1,4-Dichlorobenzene	2		U

* A 624/8240 approved compound (Federal Register, 10/26/84)
** A compound on the U.S. EPA CLP Hazardous Substance List (HSL)
\# A compound added by Anametrix, Inc.

For reporting purposes, the following qualifiers (Q) are used:
+ : A value greater than or equal to the method detection limit.
U : The compound was analyzed for but was not detected.

Form 1-1.

ORGANIC ANALYSIS DATA SHEET -- SEMIVOLATILE COMPOUNDS

Sample I.D. :377-16.01 XDUP1
Matrix :WATER
Date sampled :6/12/87
Date extracted :6/16/87
Date analyzed :6/16/87
Volume extracted :990 ml

Anametrix I.D. :8706055-01
Analyst : CP
Supervisor : BWS
Date released :6/22/87

CAS #	Compound Name	Det. Limit (ug/l)	(ug/l)	Q
62-75-9	* N-Nitrosodimethylamine	2		U
108-95-2	* Phenol	2		U
62-53-3	**Aniline	2		U
111-44-4	* bis(-2-Chloroethyl)Ether	2		U
95-57-8	* 2-Chlorophenol	2		U
541-73-1	* 1,3-Dichlorobenzene	2		U
106-46-7	* 1,4-Dichlorobenzene	2		U
100-51-6	**Benzyl Alcohol	2		U
95-50-1	* 1,2-Dichlorobenzene	2		U
95-48-7	**2-Methylphenol	2		U
39638-32-9	**bis(2-chloroisopropyl)Ether	2		U
106-44-5	**4-Methylphenol	2		U
621-64-7	* N-Nitroso-Di-n-Propylamine	2		U
67-72-1	* Hexachloroethane	2		U
98-95-3	* Nitrobenzene	2		U
78-59-1	* Isophorone	2		U
88-75-5	* 2-Nitrophenol	2		U
105-67-9	* 2,4-Dimethylphenol	2		U
65-85-0	**Benzoic Acid	10		U
111-91-1	* bis(-2-Chloroethoxy)Methane	2		U
120-83-2	* 2,4-Dichlorophenol	2		U
120-82-1	* 1,2,4-Trichlorobenzene	2		U
91-20-3	* Naphthalene	2		U
106-47-8	**4-Chloroaniline	2		U
87-68-3	* Hexachlorobutadiene	2		U
59-50-7	* 4-Chloro-3-Methylphenol	2		U
91-57-6	**2-Methylnaphthalene	2		U
77-47-4	* Hexachlorocyclopentadiene	2		U
88-06-2	* 2,4,6-Trichlorophenol	2		U
95-95-4	**2,4,5-Trichlorophenol	10		U
91-58-7	* 2-Chloronaphthalene	2		U
88-74-4	**2-Nitroaniline	10		U
131-11-3	* Dimethyl Phthalate	2		U
208-96-8	* Acenaphthylene	2		U
99-09-2	**3-Nitroaniline	10		U

* A 625 approved compound (Federal Register, 10/26/84)
** A compound on the U.S. EPA CLP Hazardous Substance List (HSL)

For reporting purposes, the following qualifiers (Q) are used :
+ : A value greater than or equal to the method detection limit.
: The compound was analyzed for but was not detected.

Form 2-1a.

ORGANIC ANALYSIS DATA SHEET -- SEMIVOLATILE COMPOUNDS

Sample I.D. :377-16.01 XDUP1
Matrix :WATER
Date sampled :6/12/87
Date extracted :6/16/87
Date analyzed :6/16/87
Volume extracted :990 ml

Anametrix I.D. :8706055-01
Analyst : CP
Supervisor : BWS
Date released :6/22/87

CAS #	Compound Name	Det. Limit (ug/l)	(ug/l)	Q
83-32-9	* Acenaphthene	2		U
51-28-5	* 2,4-Dinitrophenol	10		U
100-02-7	* 4-Nitrophenol	10		U
132-64-9	**Dibenzofuran	2		U
121-14-2	* 2,4-Dinitrotoluene	2		U
606-20-2	* 2,6-Dinitrotoluene	2		U
84-66-2	* Diethylphthalate	2		U
7005-72-3	* 4-Chlorophenyl-phenylether	2		U
86-73-7	* Fluorene	2		U
100-01-6	**4-Nitroaniline	10		U
534-52-1	**4,6-Dinitro-2-Methylphenol	10		U
86-30-6	* N-Nitrosodiphenylamine	2		U
122-66-7	**1,2-Diphenylhydrazine	2		U
101-55-3	* 4-Bromophenyl-phenylether	2		U
118-74-1	* Hexachlorobenzene	2		U
87-86-5	* Pentachlorophenol	10		U
85-01-8	* Phenanthrene	2		U
120-12-7	* Anthracene	2		U
84-74-2	* Di-n-Butylphthalate	2		U
206-44-0	* Fluoranthene	2		U
92-87-5	* Benzidine	10		U
129-00-0	* Pyrene	2		U
85-68-7	* Butylbenzylphthalate	2		U
91-94-1	* 3,3'-Dichlorobenzidine	5		U
56-55-3	* Benzo(a)Anthracene	2		U
117-81-7	* bis(2-Ethylhexyl)Phthalate	2		U
218-01-9	* Chrysene	2		U
117-84-0	* Di-n-Octyl Phthalate	2		U
205-99-2	* Benzo(b)Fluoranthene	2		U
207-08-9	* Benzo(k)Fluoranthene	2		U
50-32-8	* Benzo(a)Pyrene	2		U
193-39-5	* Indeno(1,2,3-cd)Pyrene	2		U
53-70-3	* Dibenz(a,h)Anthracene	2		U
191-24-2	* Benzo(g,h,i)Perylene	2		U

* A 625 approved compound (Federal Register, 10/26/84)
** A compound on the U.S. EPA CLP Hazardous Substance List (HSL)

For reporting purposes, the following qualifiers (Q) are used :
+ : A value greater than or equal to the method detection limit.
U : The compound was analyzed for but was not detected.

Form 2-1b.

WATER VOLATILE/SEMIVOLATILE SURROGATE RECOVERY SUMMARY

AN''ETRIX WORKORDER# : 8706055 SUPERVISOR : Bu
C T PROJECT# : 377-16.01 E87-0610 ANALYST : Pj

#	SAMPLE ID	VO1 (DCE)	VO2 (TOL)	VO3 (BFB)	A1 (2FP)	A2 (PHL)	A3 (TBP)	BN1 (NBZ)	BN2 (FBH)	BN3 (TPH)	TOTAL OUT
01	XDUP1	87	96	79	32	22	54	49	59	72	0
02											
03											
04											
05											
06											
07											
08											
09											
10											
11											
12											
13											
14											
15											
16											
17											
18											
1											
22											
23											
24											
25											
26											
27											
28											
29											
30											

ANAMETRIX PERCENT RECOVERY LIMITS
(generated from sample data)

VO1	(DCE)	= 1,2-DICHLOROETHANE-D4	81-124%
VO2	(TOL)	= TOLUENE-D8	85-118%
VO3	(BFB)	= BROMOFLUOROBENZENE	72-115%
A1	(2FP)	= 2-FLUOROPHENOL	18-71%
A2	(PHL)	= PHENOL-D5	20-75%
A3	(TBP)	= 2,4,6-TRIBROMOPHENOL	23-118%
BN1	(NBZ)	= NITROBENZENE-D5	28-104%
BN2	(FBH)	= 2-FLUOROBIPHENYL	36-97%
BN3	(TPH)	= TERPHENYL-D14	37-133%

WESTERN TECHNOLOGIES INC.

3737 East Broadway Road
P.O. Box 21387
Phoenix, Arizona 85036
(602) 437-3737

LABORATORY REPORT

Client: Emcon Associates
1921 Ringwood Avenue
San Jose, CA 95131
Attn: Chris French

Sample No. 8708065
Job/Invoice No. 3247W030
Date of Report 7/14/87
Reviewed By Fred J. Kent

Project: 377 - 16.01 - Signetics

Location: Signetics Plant - Albuquerque, New Mexico

Material: Water — Sampled By: EA/Personnel — Date: 6/25&26/87

Source: -- — Submitted By: EA/Personnel — Date: 6/26/87

Procedure: As Noted — Authorized By: -- — Date: --

RESULTS

One sample was received for analysis of specified organic parameters. The sample was analyzed for volatile and semi-volatile extractable organic contaminants using combined gas chromatography/mass spectrometry. The results of these analyses are attached.

GAS CHROMATOGRAPHY/MASS SPECTROMETRY
ORGANIC ANALYSIS DATA SHEET
BASE/NEUTRAL EXTRACTABLE COMPOUNDS

Sample Number: 8708065
Sample Identification: MW04

CAS NUMBER	COMPOUND	CONCENTRATION ug/L
83-32-9	Acenaphthene	<1.9
208-96-8	Acenaphthylene	<3.5
120-12-7	Anthracene	<1.9
56-55-3	Benzo (a) anthracene	<7.8
205-99-2	Benzo (b) fluoranthene	<4.8
207-08-9	Benzo (k) fluoranthene	<2.5
50-32-8	Benzo (a) pyrene	<2.5
191-24-2	Benzo (ghi) perylene	<4.1
85-68-7	Benzyl butyl phthalate	<2.5
111-44-4	Bis (2-chloroethyl) ether	<5.7
111-91-1	Bis (2-chloroethoxy) methane	<5.3
117-81-7	Bis (2-ethylhexyl) phthalate	<2.5
108-60-1	Bis (2-chloroisopropyl) ether	<5.7
101-55-3	4-Bromophenyl phenyl ether	<1.9
[illegible]-58-7	2-Chloronaphthalene	<1.9
7005-72-3	4-Chlorophenyl phenyl ether	<4.2
218-01-9	Chrysene	<2.5
53-70-3	Dibenzo (a,h) anthracene	<2.5
84-74-2	Di-n-butylphthalate	<2.5
541-73-1	1,3-Dichlorobenzene	<1.9
95-50-1	1,2-Dichlorobenzene	<1.9
106-46-7	1,4-Dichlorobenzene	<4.4
91-94-1	3,3'-Dichlorobenzidine	<16.5
84-66-2	Diethyl phthalate	<22.
131-11-3	Dimethyl phthalate	<1.6
121-14-2	2,4-Dinitrotoluene	<5.7
606-20-2	2,6-Dinitrotoluene	<1.9
117-84-0	Di-n-octylphthalate	<2.5
206-44-0	Fluoranthene	<2.2
86-73-7	Fluorene	<1.9
118-74-1	Hexachlorobenzene	<1.9
87-68-3	Hexachlorobutadiene	<1.0
67-72-1	Hexachloroethane	<1.6
193-39-5	Indeno (1,2,3-cd) pyrene	<3.7
78-59-1	Isophorone	<2.2
91-20-3	Naphthalene	<1.6
98-95-3	Nitrobenzene	<1.9
621-64-7	N-Nitrosodi-n-propylamine	<10.
85-01-8	Phenanthrene	<5.4
[illegible]9-00-0	Pyrene	<1.9
[illegible]0-82-1	1,2,4-Trichlorobenzene	<1.9

Gas Chromatography/Mass Spectrometry
Organic Analysis Data Sheet
Pesticide Compounds

Sample Number: 8708065

Sample Identification: MW04

CAS Number	Compound	Concentration ug/L
309-00-2	Aldrin	<1.9
319-85-7	δ-BHC	<4.2
319-86-8	β-BHC	<3.1
57-74-9	Chlordane	<10.
72-54-8	4,4'-DDD	<2.8
72-55-9	4,4'-DDE	<5.6
50-29-3	4,4'-DDT	<4.7
60-57-1	Dieldrin	<2.5
1031-07-8	Endosulfan sulfate	<5.6
7421-93-4	Endrin aldehyde	<10.
76-44-8	Heptachlor	<1.9
1024-57-3	Heptachlor epoxide	<2.2
12674-11-2	PCB-1016	<10.
11104-28-2	PCB-1221	<30.
11141-16-5	PCB-1232	<10.
53469-21-9	PCB-1242	<10.
12672-29-6	PCB-1248	<10.
11097-69-1	PCB-1254	<36.
11096-82-5	PCB-1260	<10.
8001-35-2	Toxaphene	<10.

GAS CHROMATOGRAPHY/MASS SPECTROMETRY
ORGANIC ANALYSIS DATA SHEET
ACID EXTRACTABLE COMPOUNDS

Sample Number: 8708065
Sample Identification: MW04

CAS NUMBER	COMPOUND	CONCENTRATION ug/L
59-50-7	4-Chloro-3-methylphenol	<3.0
95-57-8	2-Chlorophenol	<3.3
120-83-2	2,4-Dichlorophenol	<2.7
150-67-9	2,4-Dimethylphenol	<2.7
51-28-5	2,4-Dinitrophenol	<42.
34-52-1	2-Methyl-4,6-dinitrophenol	<24.
88-75-5	2-Nitrophenol	<3.6
100-02-7	4-Nitrophenol	<2.4
87-86-5	Pentachlorophenol	<3.6
108-95-2	Phenol	<1.5
88-06-2	2,4,6-Trichlorophenol	<2.7

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GAS CHROMATOGRAPHY/MASS SPECTROMETRY
ORGANIC ANALYSIS DATA SHEET
VOLATILE COMPOUNDS

Sample Number: 8708065
Sample Identification: MW04

CAS NUMBER	COMPOUND	CONCENTRATION ug/L
107-02-8	Acrolein	<10.
107-13-1	Acrylonitrile	<10.
71-43-2	Benzene	<4.4
75-27-4	Bromodichloromethane	<2.2
75-25-2	Bromoform	<4.7
74-83-9	Bromomethane	<10.
56-23-5	Carbon tetrachloride	<2.8
108-90-7	Chlorobenzene	<6.0
75-00-3	Chloroethane	<10.
110-75-8	2-Chloroethylvinyl ether	<10.
67-66-3	Chloroform	<1.6
74-87-3	Chloromethane	<10.
124-48-1	Dibromochloromethane	<3.1
95-50-1	1,2-Dichlorobenzene	<10.
541-73-1	1,3-Dichlorobenzene	<10.
106-46-7	1,4-Dichlorobenzene	<10.
75-34-3	1,1-Dichloroethane	<4.7
107-06-2	1,2-Dichloroethane	<2.8
75-35-4	1,1-Dichloroethene	<2.8
156-60-5	trans-1,2-Dichloroethene	<1.6
78-87-5	1,2-Dichloropropane	<6.0
10061-01-5	cis-1,3-Dichloropropene	<10.
10061-02-6	trans-1,3-Dichloropropene	<5.0
100-41-4	Ethyl benzene	<7.2
79-34-5	1,1,2,2-Tetrachloroethane	<6.9
127-18-4	Tetrachloroethene	<4.1
108-88-3	Toluene	<6.0
71-55-6	1,1,1-Trichloroethane	<3.8
79-00-5	1,1,2-Trichloroethane	<5.0
79-01-6	Trichloroethene	<1.9
75-69-4	Trichlorofluoromethane	<10.
75-01-4	Vinyl Chloride	<10.

ANAMETRIX, INC.
GC/MS SPECIALISTS
ENVIRONMENTAL • ANALYTICAL SERVICES
2754 AIELLO DRIVE • SAN JOSE, CA 95111 • (408) 629-1132

June 3, 1987
Work Order Number 8705076
Date Received 5/26/87
PO No. 14519

Keoni Murphy
Emcon Associates
1921 Ringwood Avenue
San Jose, CA 95131

One soil sample was received for analysis of VOLATILE ORGANICS by GC/MS, using the following EPA method(S):

ANAMETRIX I.D.	SAMPLE I.D.	METHOD(S)
8705076-01	377-16.01 EB-1 NO. 2	8240

RESULTS

See enclosed data sheets, Forms 1-1 thru 1-2.

EXTRA COMPOUNDS

See enclosed data sheets, Forms 2-1 thru 2-2.

QUALITY ASSURANCE REPORTS

See enclosed data sheet, Form 4-2.

If there is any more that we can do, please give us a call. Thank you for using ANAMETRIX, INC.

Sincerely,

Burt Sutherland

Burt Sutherland
Laboratory Manager

ORGANICS ANALYSIS DATA SHEET - VOLATILE COMPOUNDS

Sample I.D.	:377-16.01 EB-1 NO.2	Anametrix I.D.	:8705076-01
Matrix	:SOIL	Analyst	: CP
Date sampled	:5/19/87	Supervisor	: BWS
Date analyzed	:6/01/87	Date released	:6/03/87
Dilution	:NA		

CAS #	Compound Name	Det. Limit (ug/kg)	(ug/kg)	Q
74-87-3	* Chloromethane	7		U
74-83-9	* Bromomethane	7		U
75-01-4	* Vinyl Chloride	7		U
75-00-3	* Chloroethane	7		U
75-09-2	* Methylene Chloride	2		U
67-64-1	**Acetone	10		U
79-69-4	* Trichlorofluoromethane	2		U
75-15-0	**Carbondisulfide	2		U
75-35-4	* 1,1-Dichloroethene	2		U
75-34-3	* 1,1-Dichloroethane	2		U
156-60-5	* Trans-1,2-Dichloroethene	2		U
156-59-2	* Cis-1,2-Dichloroethene	2		U
67-66-3	* Chloroform	2		U
76-13-1	# Trichlorotrifluoroethane	2		U
107-06-2	* 1,2-Dichloroethane	2		U
78-93-3	**2-Butanone	10		U
71-55-6	* 1,1,1-Trichloroethane	2		U
56-23-5	* Carbon Tetrachloride	2		U
108-05-4	**Vinyl Acetate	10		U
75-27-4	* Bromodichloromethane	2		U
78-87-5	* 1,2-Dichloropropane	2		U
10061-02-6	* Trans-1,3-Dichloropropene	2		U
79-01-6	* Trichloroethene	2		U
124-48-1	* Dibromochloromethane	2		U
79-00-5	* 1,1,2-Trichloroethane	2		U
71-43-2	* Benzene	2		U
10061-01-5	* cis-1,3-Dichloropropene	2		U
110-75-8	* 2-Chloroethylvinylether	2		U
75-25-2	* Bromoform	2		U
591-78-6	**2-Hexanone	10		U
108-10-1	**4-Methyl-2-Pentanone	10		U
127-18-4	* Tetrachloroethene	2		U
79-34-5	* 1,1,2,2-Tetrachloroethane	2		U
108-88-3	* Toluene	2		U
108-90-7	* Chlorobenzene	2		U
100-41-4	* Ethylbenzene	2		U
100-42-5	**Styrene	2		U
	**Total Xylenes	2		U
541-73-1	* 1,3-Dichlorobenzene	2		U
95-50-1	* 1,2-Dichlorobenzene	2		U
106-46-7	* 1,4-Dichlorobenzene	2		U

* A 624/8240 approved compound (Federal Register, 10/26/84)
** A compound on the U.S. EPA CLP Hazardous Substance List (HSL)
\# A compound added by Anametrix, Inc.

For reporting purposes, the following qualifiers (Q) are used:
+ : A value greater than or equal to the method detection limit.
U : The compound was analyzed for but was not detected.

ORGANICS ANALYSIS DATA SHEET - VOLATILE COMPOUNDS

Sample I.D. :377-16.01 EB-1 NO.2
Matrix :SOIL - DUPLICATE
Date sampled :5/19/87
Date analyzed :6/02/87
Dilution :NA

Anametrix I.D. :8705076-01
Analyst : CP
Supervisor : BWS
Date released :6/03/87

CAS #	Compound Name	Det. Limit (ug/kg)	(ug/kg)	Q
74-87-3	* Chloromethane	7		U
74-83-9	* Bromomethane	7		U
75-01-4	* Vinyl Chloride	7		U
75-00-3	* Chloroethane	7		U
75-09-2	* Methylene Chloride	2		U
67-64-1	**Acetone	10		U
79-69-4	* Trichlorofluoromethane	2		U
75-15-0	**Carbondisulfide	2		U
75-35-4	* 1,1-Dichloroethene	2		U
75-34-3	* 1,1-Dichloroethane	2		U
156-60-5	* Trans-1,2-Dichloroethene	2		U
156-59-2	* Cis-1,2-Dichloroethene	2		U
67-66-3	* Chloroform	2		U
76-13-1	# Trichlorotrifluoroethane	2		U
107-06-2	* 1,2-Dichloroethane	2		U
78-93-3	**2-Butanone	10		U
71-55-6	* 1,1,1-Trichloroethane	2		U
56-23-5	* Carbon Tetrachloride	2		U
108-05-4	**Vinyl Acetate	10		U
75-27-4	* Bromodichloromethane	2		U
78-87-5	* 1,2-Dichloropropane	2		U
10061-02-6	* Trans-1,3-Dichloropropene	2		U
79-01-6	* Trichloroethene	2		U
124-48-1	* Dibromochloromethane	2		U
79-00-5	* 1,1,2-Trichloroethane	2		U
71-43-2	* Benzene	2		U
10061-01-5	* cis-1,3-Dichloropropene	2		U
110-75-8	* 2-Chloroethylvinylether	2		U
75-25-2	* Bromoform	2		U
591-78-6	**2-Hexanone	10		U
108-10-1	**4-Methyl-2-Pentanone	10		U
127-18-4	* Tetrachloroethene	2		U
79-34-5	* 1,1,2,2-Tetrachloroethane	2		U
108-88-3	* Toluene	2		U
108-90-7	* Chlorobenzene	2		U
100-41-4	* Ethylbenzene	2		U
100-42-5	**Styrene	2		U
	**Total Xylenes	2		U
541-73-1	* 1,3-Dichlorobenzene	2		U
95-50-1	* 1,2-Dichlorobenzene	2		U
106-46-7	* 1,4-Dichlorobenzene	2		U

* A 624/8240 approved compound (Federal Register, 10/26/84)
** A compound on the U.S. EPA CLP Hazardous Substance List (HSL)
\# A compound added by Anametrix, Inc.

Reporting purposes, the following qualifiers (Q) are used:
\+ : A value greater than or equal to the method detection limit.
U : The compound was analyzed for but was not detected.

Form 1-2.

ORGANICS ANALYSIS DATA SHEET
Tentatively Identified Extra Compounds

CLIENT ID:377-16.01 EB-1 NO.2 DUPLICATE ANAMETRIX NO: 8705076-01

SCAN #	NAME	UG/KG
206	HEXANE	<5

FORM 2-2