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GEOMATRIX

5 April 1991
Project 1459.05

Mr. John Adams, Project Manager
Kaiser Foundation Health Plan
1950 Franklin Street, 11th Floor
Oakland, California 94612-2998

Subject: Site Characterization and Remediation
Mineral Spirits in Soil
Kaiser Permanente Medical Center
280 West MacArthur Boulevard
Oakland, California

Dear Mr. Adams:

Enclosed is the subject report for characterization and remediation of soil affected by mineral spirits at the Kaiser Permanente Medical Center construction site behind the hospital on Broadway. A copy of this report should be sent to Ms. Susan Hugo at the Alameda County Department of Health Services and to Mr. Lester Feldman at the California Regional Water Quality Control Board.

We appreciate the opportunity to provide our consulting engineering services to Kaiser. Please contact either of the undersigned, if you have any questions or require further information.

Sincerely yours,

GEOMATRIX CONSULTANTS, INC.

Cheri D. Young
Project Geologist

Pamela H. Reyfor
Thomas E. Graf, P.E.
Vice President

CDY/TEG/cvr

Enclosure

cc: Ms. Fonda Karelitz - Kaiser Foundation Health Plan
Mr. Ken Ayers - Kaiser Permanente Medical Center
Mr. Mark Zemelman - McCutchen, Doyle, Brown & Enersen
Mr. Tom Wilkes - Kaiser Permanente Medical Center
Mr. Larry Swafford - Kaiser Permanente Construction Services

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GEOMATRIX

SITE CHARACTERIZATION AND REMEDIATION MINERAL SPIRITS IN SOIL

Kaiser Permanente Medical Center
280 West MacArthur Boulevard
Oakland, California

Prepared for

Kaiser Foundation Health Plan
1950 Franklin Street, 11th Floor
Oakland, California 94612

5 April 1991
Project 1459.05

Geomatrix Consultants

GEOMATRIX

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Kaiser Permanente Medical Center
Oakland, California

1.0 INTRODUCTION

1.1 PURPOSE

At the request of Kaiser Foundation Health Plan (Kaiser), Geomatrix Consultants, Inc. (Geomatrix), conducted several investigations to characterize the extent of mineral spirits in soil and groundwater and excavated affected soil behind Kaiser Permanente Medical Center (Kaiser Hospital) at 280 West MacArthur Boulevard in Oakland, California (Figures 1 and 2). Previous investigations and results are summarized in a report dated May 1990 and titled Site Characterization Report, Mineral Spirits in Soil (Geomatrix, 1990a).

In response to the results presented in the May 1990 report, affected soil was excavated in June 1990, six monitoring wells were installed and sampled between November 1990 and March 1991, and soil borings were drilled and sampled between November 1990 and February 1991. This report summarizes the activities conducted at the site between June 1990 and March 1991; describes the assessed distribution of mineral spirits in soil at the site and the potential for migration of mineral spirits to groundwater; and presents a recommended monitoring program for the site. To provide background for the work described in this report, the following introductory sections (Sections 1.2 through 1.4) describe the site's surface conditions, previous investigations conducted at the site, and the scope of work that was developed to complete the site characterization and remove soil affected by mineral spirits.

1.2 SURFACE CONDITIONS

The Oakland Kaiser Hospital is located on the northeast corner of the intersection of West MacArthur Boulevard and Broadway. The affected soil and vicinity, herein referred to as the "site," covers an area approximately 100 by 120 feet north of the hospital tower. The site is entered from a driveway on Broadway, as shown on Figures 2 and 3. The site includes a driveway, an adjacent small landscaped hillside, various hospital mechanical facilities, and the hospital linen and boiler rooms in the basement of the hospital tower. The ground surface elevation is highly variable across the small site; the hillside in the northeast corner of the site rises to approximately 20 feet above the driveway grade, and the linen room on the south edge of the site is in a basement approximately 10 feet below the driveway grade. Permanent structures on the site, shown on Figure 3, include a mechanical building that currently is being expanded, two cooling towers that were built in Fall 1990 to replace an outdated cooling tower, and an emergency water tank. A Kaiser Construction Services office trailer currently is also on site.

1.3 PREVIOUS INVESTIGATIONS

In March 1989, during excavation of a new sewer line trench between the mechanical and linen buildings at the site, construction workers noted an unusual odor. Kaiser retained Geomatrix to collect soil samples from the trench to identify the odors. A soil sample was collected from below the trench backfill near a rusty joint in a drain line leading from a paint clean-up basin. The former basin and paint shed are shown on Figure 3. Laboratory analysis of the sample detected mineral spirits, benzene, and toluene at concentrations of 2600, 0.4, and 1.0 milligrams per kilogram (mg/kg), respectively. These results were submitted to Kaiser in a letter report dated 12 April 1989. Based on this finding, Kaiser requested Geomatrix to assess the extent of mineral spirits in the soil in this area.

Delineation of the extent of mineral spirits in soil near the mechanical building began in November 1989. Six soil borings (B1 through B6) were drilled to depths of 10 to 15 feet near the mechanical building (Figure 3); the results were submitted to Kaiser in a letter

report dated 30 November 1989. Three of four samples per boring were analyzed for total fuel hydrocarbons and benzene, toluene, ethylbenzene, and xylenes (BTEX). Mineral spirits were detected in only one boring, B-2, located near the intersection of the mechanical and linen buildings, at a maximum concentration of 80 mg/kg at a depth of 9.5 feet.

Excavation of soil containing mineral spirits was initiated on 12 February 1990 just west of the former mechanical building near the paint basin discharge line (Figure 3 - excavation No. 1). Geomatrix obtained soil samples from the walls and floor of the excavation. Sample analysis revealed no mineral spirits, except in the area directly below the former mechanical building and at the floor of the excavation near the linen room building.

Kaiser Construction Services halted excavation west of the mechanical building, and Geomatrix conducted drilling and soil sampling within and around the mechanical building to assess the extent of mineral spirits in this area. Between 27 February and 2 March 1990, Geomatrix drilled six borings within the mechanical building (MB-1 through MB-6) and 13 borings along the east and north sides of the building (B-7 through B-19), as shown on Figure 3. On 16 March 1990, additional soil borings (B-27 through B-31) were drilled on the north and east sides of the original excavation No. 1 near the mechanical building to confirm the absence of mineral spirits in these areas. Boring locations are shown on Figure 3.

Concurrent with Geomatrix's drilling program to delineate mineral spirits in soil within and around the mechanical building, Kaiser Construction Services began excavating the hillside northeast of the mechanical building (Figure 3). The soil on the hillside also contained detectable concentrations of mineral spirits. Geomatrix conducted drilling and soil sampling on the hillside to assess the extent of soil containing mineral spirits in this area. Between 12 and 16 March 1990, Geomatrix drilled eight borings (B-20 through B-26, and B-32) around the hillside excavation, as shown on Figure 3.

The results of sampling excavation No. 1 and the results of the drilling program to assess the lateral extent of mineral spirits in the soil were reported to Kaiser in our Site Characterization Report dated May 1990; soil results are summarized in Table 1. Mineral spirits were reported on the hillside and below the mechanical building. The lateral distributions were similar to those shown on Figure 3, but included the area later removed by mineral spirits excavation No. 2.

In February 1990, while excavating soil affected by mineral spirits, Kaiser Construction Services unexpectedly encountered a damaged 55-gallon drum containing pentachlorophenol (PCP). The resulting excavation to remove PCP-affected soil on the hillside was described in a report dated November 1990 and titled Soil Remediation--Pentachlorophenol and Related Compounds (Geomatrix, 1990b). Approximately 160 cubic yards of soil was removed from the hillside between 6 March and 4 April 1990, and the excavation was considered complete when PCP was not detected above 1 mg/kg in samples collected from the floor and walls of the excavation. Because the excavation targeted removal of PCP, final excavation samples were not analyzed for mineral spirits.

1.4 SCOPE OF WORK

The Site Characterization Report proposed two phases of additional soil excavation to remove mineral spirits: phase I entailed excavating soil at the base of the hillside (mineral spirits excavation No. 2), and phase II entailed excavating on the hillside and under the mechanical building. Excavation No. 2, which was completed in June 1990, is described in Section 2.0. However, the phase II excavation was not performed because of the limited vertical extent of mineral spirits, the lack of any observable impact to groundwater, and the logistical difficulties associated with additional excavation. To document that the remaining mineral spirits-affected soil is not impacting groundwater, shallow monitoring wells were installed on site, and additional soil samples were collected and analyzed.

Between 7 November 1990 and 27 January 1991, six monitoring wells were installed in the shallowest groundwater zone. Groundwater from five of the wells was sampled twice for analysis of mineral spirits and BTEX and was sampled at least once for volatile and semivolatile organic compounds. Groundwater from one well (MW-4) was sampled only once because of the absence of groundwater until early March 1991.

Additional borings were drilled on the hillside to refine the assessment of the extent of mineral spirits that remain in the hillside soil and to assess whether mineral spirits had migrated through the clay that underlies the shallow groundwater zone. On 20 November 1990, three shallow borings (SB-1A, SB-1B, and SB-1C) were hand-augered to obtain near-surface samples; on 14 and 15 January 1991, three borings (B-33, B-34, and B-35) were drilled to depths of 16 to 25 feet to obtain soil samples at various depths below the hillside (Figure 2).

On 15 January 1991, three soil samples (S-1, S-2, and S-3) were acquired from the surface soil in the former picnic area north of the hillside. The samples were composited for analysis of mineral spirits. The hillside was recently graded, and slope soils were used to create approximately 1 foot of fill above the former picnic area.

Two additional borings (MB-7 and MB-8, Figure 2) were drilled within the mechanical building to assess the average concentration of mineral spirits in soil proposed to be left in place. On 25 February 1991, these borings were drilled with a hand auger to depths of 5 and 13.5 feet in areas known to be affected by mineral spirits.

2.0 SOIL EXCAVATION

Approximately 300 cubic yards of soil in the hillside area that contained mineral spirits was excavated and disposed of, as follows:

- Approximately 60 cubic yards was removed from the entire hillside surface before beginning the PCP excavation.
- Approximately 160 cubic yards was excavated from parts of the hillside to remove PCP (reported in Soil Remediation--Pentachlorophenol and Related Compounds; Geomatrix, 1990b).
- Approximately 80 cubic yards was excavated from the base of the slope during excavation No. 2 (reported below).

The lateral extents of these excavations are shown on Figure 3. Excavation No. 1 and the PCP excavation are described briefly in Section 1.3 and were originally reported elsewhere (Geomatrix, 1990a; 1990b). The mineral spirits excavation No. 2 is described below.

Mineral spirits excavation No. 2 was initiated on 12 June 1990 and was completed on 13 June 1990. Soil was removed by Kaiser construction personnel using a backhoe and bulldozer. The excavation was bounded on the north by the hillside and fence, on the east by the emergency water tank, on the south by the stairs, and on the west by the cooling tower (Figure 4). Soil removal started at the south side of the excavation and continued north. The excavation was completed to a depth of 5 feet on the south side and 3.5 feet on the north end. Soil removed was mostly sand interspersed with blue/green lenses of clay. Geomatrix used a photoionization detector (PID) to monitor the soil being removed from the excavation. The sandy soil produced readings of from 10 to 20 parts per million (ppm) on the PID; the clayey soil showed readings of up to 200 ppm.

A total of 12 soil samples were collected on 12 and 13 June 1990 from the floor and walls of the excavation to confirm that soil affected by mineral spirits had been removed (Figure 4). Summarized in Appendix A are the field methods used to collect samples and screen soil during excavation activities. All soil samples collected for chemical analysis from the excavation were delivered to BC Analytical of Emeryville, California, under Geomatrix chain-of-custody procedures. Samples were analyzed for total petroleum hydrocarbons as mineral spirits by modified EPA Method 8015, as well as for BTEX by modified EPA Method 8020. The excavation was considered complete when mineral spirits were not detected above 10 ppm in soil samples from the walls and floor of the excavation. The excavation was completed in all directions except for the east edge, which is adjacent to the part of the hillside planned for excavation during phase II. All samples collected from the floor and walls of the excavation had concentrations of mineral spirits that were below the detection limit. The excavation samples and analytical results are summarized in Table 2; laboratory reports and chain-of-custody records are included in Appendix D.

Approximately 80 cubic yards of soil affected by mineral spirits was removed from excavation no. 2 and delivered to Nevada Hydrocarbon of Reno, Nevada, for thermal treatment. Hazardous Materials Services arranged to transport the soil to Nevada Hydrocarbon; the bills of lading and burn certificates are presented in Appendix B.

3.0 FIELD INVESTIGATION

Summarized in Appendix A are the field methods used for the work initiated in May 1990, which include the following activities:

- observation and sampling of excavation No. 2
- hand-augering of borings on the hillside and in the mechanical building
- sampling of near-surface soil in the former picnic area
- drilling and sampling of exploratory borings on the hillside and borings for monitoring wells
- installation and development of monitoring wells
- groundwater sampling.

Logs for borings drilled to characterize the site and well completion drawings are presented in Appendix C. Monitoring well construction details are summarized in Table 3. All soil samples collected for chemical analysis from the excavation and borings were delivered to BC Analytical under chain-of-custody procedures. Samples were analyzed for total petroleum hydrocarbons as mineral spirits by modified EPA Method 8015. Selected samples were also analyzed for BTEX by EPA Method 8020.

All groundwater samples collected for chemical analysis from the monitoring wells were picked up by a courier from Anametrix, Inc., analytical laboratory of San Jose, California, under chain-of-custody procedures. The monitoring wells were sampled at least twice; the samples were analyzed for mineral spirits and BTEX by EPA Methods 8015/8020 in series. The samples were also analyzed for volatile and semivolatile compounds by EPA Methods 8240 and 8270. If any of these compounds was detected, the well was resampled and the appropriate analysis was repeated approximately one month later to confirm the original results.

Water levels were measured monthly in all project monitoring wells beginning in November 1990. The depths to water relative to the top of casing, measuring point elevations (City of Oakland Datum), and the water surface elevations are presented in Table 4 for all project monitoring wells completed at the time measurements were made.

4.0 FINDINGS

This section describes the hydrogeology, stratigraphy, and patterns of groundwater movement at the site and vicinity. It also summarizes analytical results for soil and groundwater samples.

4.1 HYDROGEOLOGY

The hydrogeology for the region and site are described below.

4.1.1 Regional Hydrogeologic Setting

The project site is located on the East Bay Plain, on the eastern flank of the San Francisco Bay structural trough.

The structural depression that underlies the San Francisco Bay has accumulated up to 1100 feet of poorly consolidated sediment (Alameda County, 1988). Near the site, the trough is filled with approximately 950 feet of alluvial fan deposits, characterized by lenticular beds of poorly sorted gravel, sand, silt, and clay that exhibit wide variations in bed thickness and grain size over short distances.

The alluvial and marine sediments filling the structural basin underlying the San Francisco Bay have been sub-divided based on their dominant modes of deposition and geologic age. In general, these sediments include Bay Mud, the Merritt Sand, and Younger and Older Alluvium. However, fluvially deposited sediments predominate at on the upper portions of the East Bay Plain, and are generally characterized by thin sheets of younger, Holocene fluvial and interfluvial basin deposits underlain by older alluvium of Pleistocene age.

Although moderately permeable, the younger alluvium may not yield much water because these deposits are usually thin, poorly interconnected, and often lie above the saturated zone. Most of the groundwater in the East Bay occurs in the older alluvium. Because of

the inherent variability of these sediments, groundwater in the older alluvium may flow under either unconfined, semi-confined, or fully confined conditions.

Under natural conditions, groundwater flows westward through the older alluvial sediments, from recharge areas along the Hayward Fault toward the San Francisco Bay. In addition, a vertical component of groundwater flow exits within the older alluvium. Near the Hayward fault, vertical flow is probably predominantly downward, recharging the deeper portions of this groundwater reservoir. However, near the bay, historical records documented flowing springs, suggesting upward vertical flow of groundwater through the sediments. However, decades of pumping may have reversed the groundwater gradient in this portion of the older alluvium. In addition, local pumping may greatly influence the direction of flow within the older alluvium.

4.1.2 Site Stratigraphy

The stratigraphy of the near-surface sediments beneath the site has been interpreted on the basis of project boring logs (Appendix C). A geologic fence diagram, prepared using the boring logs, depicts the relative distribution of sediments at the site (Figure 5).

The sediments beneath the project site exhibit gradational changes in texture laterally and vertically. The geologic fence diagram simplifies the observed stratigraphy by grouping the various sediment textures into the following categories, based on relative estimated permeability:

- very low permeability, including silty clay, clayey silt, sandy clay, and gravelly clay
- low permeability, including sandy silt, silt with sand, clayey sand
- moderate permeability, including silty sand, sand with clay, and sandy gravel with clay
- high permeability, including sand, sand with gravel, gravelly sand, sandy gravel

Simplifying the stratigraphy according to these classifications illustrates the important features of the local site stratigraphy, including the major contacts within the shallow sediments.

The shallow stratigraphy at the site consists of complexly interfingered layers of gravel, sand, silt, and clay. Fine-grained sediments dominate the stratigraphy between elevations of about 80 and 100 feet (relative to the City of Oakland Datum). This elevation interval corresponds to the hillside in the northeast part of the site. Except for a 6-foot-thick silty sand interval encountered in well MW-3, the ridge is composed of fine-grained deposits. These fine-grained sediments may be either alluvial or colluvial in origin.

Subrounded to angular sand, sandy gravel, and sandy silt predominate in the shallow sediments found between elevations of about 63 and 80 feet. These sediments, which suggest a predominantly alluvial history of deposition, may have been deposited as stream-channel or overbank sand and gravel, with associated finer-grained overbank deposits.

A locally continuous silty clay appears to underlie the sand at an elevation of about 62 to 65 feet. The contact between the overlying coarse-grained deposits and the silty clay appears to dip shallowly toward the south but may be undulatory or irregularly shaped. The silty clay, which appears to be 6 to 8 feet thick, is underlain by a complex sequence of coarse-grained and fine-grained deposits.

4.1.3 Occurrence and Movement of Groundwater

Groundwater at the site flows under unconfined conditions within the coarser-grained deposits. Monthly water-level measurements indicate that the water table elevation at the project site usually varied between about 61 and 67 feet (approximately 5 to 40 feet below the ground surface) during each measuring round. Groundwater elevations in monitoring wells MW-2, MW-3, and MW-4 rose by approximately 1 foot between 26 November 1990 and 7 March 1991. Groundwater elevations in wells MW-5 and MW-6 which were

installed in late January 1991, rose approximately 0.5 to 1 foot between 7 February and 7 March 1991. Well MW-4 was dry from November 1990 when it was installed until early March 1991.

Groundwater elevations measured in monitoring wells screened within or near the coarsest sediments beneath the site (such as at monitoring wells MW-2, MW-3, and MW-4) were consistently lower than the groundwater elevations measured in wells screened in finer-grained deposits (such as at monitoring wells MW-1 and MW-6). This suggests that shallow groundwater beneath the site flows toward the areas composed of coarse-grained sediment, such as near monitoring well MW-2. In addition, the 7 March 1991 water-level data (Table 4) indicate that groundwater flows from the area near monitoring well MW-4 toward monitoring well MW-2 as shown on Figure 6.

The 7 March 1991 water-level data (Table 4) and the logs for monitoring wells MW-2 and MW-4 (Appendix C) suggest that the saturated thickness of the shallow coarse-grained deposits at monitoring well MW-2 is only a few inches, while at monitoring well MW-4 the shallow saturated thickness may be less than 18 inches. The logs for these two monitoring wells imply that flow within the shallow coarse-grained deposits occurs directly above the contact between these shallow deposits and the locally continuous silty clay layer that underlies the project site. Because groundwater flow occurs through such thin saturated zones, the shape of the contact between the shallow coarse-grained deposits and the silty clay may control the direction of flow within the shallow water-bearing zone. However, the hydraulic head distribution within the shallow coarse-grained deposits, as measured at the monitoring wells, indicates that groundwater flows toward the coarse-grained sediments near monitoring wells MW-2 and MW-4 and that flow within the sandiest sediments generally is toward the south, from MW-4 to MW-2. Thus, the sediments near monitoring wells MW-2 and MW-4 may act as a drain, collecting groundwater beneath the site and channeling it toward the south.

Well MW-5 is screened approximately 7 feet below well MW-6, and the water-level difference between the wells on 7 March 1991 was 4.0 feet. It is unknown at this time if the interval screened by MW-5 is in hydraulic communication with the interval screened by the other wells on-site. However, the water-level in well MW-5 is similar to the water-levels in wells MW-2 and MW-3, suggesting there may be hydraulic communication between these wells.

4.2 DISTRIBUTION OF CHEMICALS IN SOIL

Presented below are findings based on chemical analysis of soil samples from the areas of the hillside and the mechanical building.

4.2.1 Hillside Area

Analytical results for soil samples collected from the hillside during this phase of work are summarized in Table 5. Results indicate that mineral spirits remain only in small localized areas in shallow soils. The highest concentrations found are near the surface, and concentrations decrease rapidly with depth. After excavation of PCP-affected soil, mineral spirits at concentrations greater than 20 mg/kg were not detected in any samples deeper than 2.5 feet. Only one deeper sample (boring B-35, 6.5-foot depth) contained mineral spirits (15 mg/kg). The approximate lateral extent of shallow soil that contains detectable mineral spirits is shown on Figure 3. Concentrations of mineral spirits in the upper 2 feet of soil ranges from 33 mg/kg at a depth of 2 feet in boring B-21 to 12,000 mg/kg at a depth of 1 foot in boring SB-1B. The depth of soils containing mineral spirits concentrations greater than 100 mg/kg is estimated to be less than 5 feet. Soil samples acquired from the new fill in the former picnic area indicate no detectable mineral spirits in this vicinity. The total volume of soil that remains on the hillside and contains mineral spirits concentrations greater than 100 mg/kg is estimated to be less than 150 cubic yards. 12,000 mg/kg max

Samples collected while drilling monitoring wells MW-1, MW-2, MW-3, and MW-4 revealed no mineral spirits in these areas. Soil samples in borings B-33 and B-34 from the

first encountered significant clay zone below the affected hillside area indicated that mineral spirits had not reached or permeated this clay, which is 15 to 21 feet below the ground surface. Analytical results for soil from the soil and monitoring well borings completed for this phase of work are summarized in Table 5, and the laboratory reports and chain-of-custody are included in Appendix D.

4.2.2 Mechanical Building Area

Soil that contains mineral spirits beneath the old mechanical building appears to be limited to depths of less than 13 feet in a relatively small area (approximately 15 by 25 feet). Soil samples acquired from borings MB-1 through MB-8 within the mechanical building revealed concentrations of mineral spirits that ranged from 90 to 1800 mg/kg within the upper 5 feet of soil in the affected zone, and the soil with detectable mineral spirits ranges in depth from less than 5 feet to less than 13 feet. The total volume of soil that remains below the building and contains mineral spirits concentrations greater than 100 mg/kg is estimated to be less than 60 cubic yards.

1800 mg/kg max. ?

No mineral spirits were detected in soil samples from the two monitoring wells installed in the linen building south of the mechanical building. Analytical results for soil samples near the mechanical building are summarized in Table 6; laboratory reports and chains-of-custody are included in Appendix D.

4.3 DISTRIBUTION OF CHEMICALS IN GROUNDWATER

Table 7 presents the results for groundwater samples collected from the six on-site monitoring wells. Mineral spirits were not detected in groundwater samples from any of the wells. These results were confirmed during a second sampling of all wells except MW-4, which was dry until 11 March 1991 (after significant rainfall). Benzene, toluene, ethylbenzene, and xylenes (BTEX) were not detected in any groundwater samples, except the 27 November 1990 sample from well MW-3, which indicated xylenes and toluene at concentrations of 2.3 and 0.6 micrograms per liter (μg/l), respectively. BTEX were not

detected when well MW-3 was resampled on 7 February 1991, nor were they detected in any other wells in confirmation analyses.

The groundwater sample collected from well MW-1 on 20 November 1990 was reported by BC Analytical to have 150 mg/kg of a nonfuel hydrocarbon. The sample was sent to Friedman and Bruya, Inc., of Seattle, Washington, an analytical laboratory that specializes in petroleum hydrocarbons. Using a fingerprint characterization method based on gas chromatography, they characterized the compound as a naturally occurring biogenic hydrocarbon.

EPA Method 8270 detected no semivolatile organics in any of the six wells. EPA Method 8240 detected no volatile organics in wells MW-3 or MW-6, but detected trace concentrations in wells MW-1, MW-2, MW-4, and MW-5. Chloroform was detected in well MW-1 on 4 January 1990 at a concentration of 6.0 µg/l, but was not detected in the confirmation sampling on 7 February 1991; however, 1,1-dichloroethane (1,1-DCA) was detected at 8.0 µg/l in the confirmation sampling. Tetrachloroethane (PCE) and trichloro-fluoromethane (Freon 11) were reported at concentrations of 7.0 µg/l each in the 3 January 1991 sample from well MW-2, but were not detected on 7 February 1991. Freon 11 was reported at a concentration of 25 µg/l in the 1 February 1991 sample from well MW-5. The detection limit for these EPA Method 8240 compounds was 5 µg/l. Groundwater sample results are summarized in Table 7, and the laboratory reports and chain-of-custody are in Appendix E.

These results suggest that mineral spirits from the hillside area and below the mechanical building have not impacted groundwater at the site. Although toluene and xylenes were detected in one on-site well (MW-3), the reported concentrations were trace amounts that were not found in the confirmation sample. The volatile organic compounds reported, chloroform, 1,1 DCA, PCE, and Freon 11, also were detected only at very low concentrations.

5.0 CONCLUSIONS

Based on the limited distribution of mineral spirits in shallow soil and the absence of mineral spirits in the groundwater at the site, it appears that mineral spirits are trapped in near-surface soils and are unlikely to migrate to groundwater. The maximum concentration of mineral spirits detected in the hillside occurs within the upper 2 feet; most likely the mineral spirits already have migrated to their maximum distance. Mineral spirits are long-chain hydrocarbons that have a relatively low solubility in water and therefore are trapped easily in pore spaces of the soil matrix and do not tend to be transported downward by percolating groundwater. The concentration of mineral spirits in soil decreases rapidly with depth, and mineral spirits have not been detected within 5 feet of the saturated zone.

Near both the hillside and the mechanical building, the bulk of the soil that contains high concentrations of mineral spirits has been removed, reducing the potential for future migration of significant concentrations of mineral spirits. In addition, biodegradation of petroleum hydrocarbons in soil is a natural, pervasive process that probably is occurring at the site, especially in the uppermost, aerated soil. This bioremediation is evident in the greenish color of the affected soil.

The six monitoring wells on-site provide an adequate groundwater sample distribution with which to characterize the shallow groundwater quality at the site. Since mineral spirits have not been detected in any groundwater samples, it is apparent that shallow groundwater has not been affected by the release of mineral spirits to the soil. Because the distribution of mineral spirits in soil is very limited and groundwater has not been affected, no additional excavation or remediation is recommended for the site.

6.0 RECOMMENDATIONS

To document these conclusions, we recommend that three more quarterly sampling rounds be conducted to complete a full year of quarterly groundwater sampling. Groundwater samples would be collected from all six monitoring wells and analyzed for total petroleum hydrocarbons as mineral spirits by modified EPA Method 5030/8015. Benzene, toluene, ethylbenzene, and xylenes would be analyzed by EPA Method 8020. Samples from wells MW-1, MW-2, MW-4, and MW-5 would also be analyzed for volatile organic compounds using EPA Method 8010. Water levels of all wells would be measured monthly. These water levels would be used to assess the seasonal variability of the groundwater gradient.

If no mineral spirits are detected in project monitoring wells and the concentrations of other compounds remain relatively low after a complete year of quarterly sampling, the sampling program should be terminated and the wells abandoned. If mineral spirits are detected in groundwater samples, or if the concentrations of other compounds significantly increase, the monitoring program should be reevaluated after completing the year of quarterly sampling.

7.0 REFERENCES

Alameda County, Flood Control and Water Conservation District, 1988. Geohydrology and Groundwater - Quality Overview, of the East Bay Plain Area, Alameda County, California, June.

Geomatrix, 1990a, Site Characterization Report, Mineral Spirits in Soil: Report to Kaiser Foundation Health Plan, May.

Geomatrix, 1990b, Soil Remediation--Pentachlorophenol and Related Compounds: Report to Kaiser Foundation Health Plan, November.

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TABLE 1

ANALYTICAL RESULTS OF PREVIOUS SOIL ASSESSMENTS FOR MINERAL SPIRITS[1]

Kaiser Permanente Medical Center
Oakland, California

Concentrations in milligrams per kilogram (mg/kg) or parts per million (ppm)

Sampling Date	Boring No.	Sample Depth (ft.)	Mineral Spirits	Benzene	Toluene	Xylenes	Ethyl-benzene
Excavation Near Mechanical Building							
2/12/90	E-1	4.5	<10	<0.3	<0.3	<0.3	<0.3
2/12/90	E-2	3.5	<10	<0.3	<0.3	<0.3	<0.3
2/12/90	E-3	3.5	<10	<0.3	<0.3	<0.3	<0.3
2/12/90	E-4	3.5	<10	<0.3	<0.3	<0.3	<0.3
2/12/90	E-5	4.0	<10	<0.3	<0.3	<0.3	<0.3
Borings in Mechanical Building							
2/27/90	MB-1	18.5	<10	<0.3	<0.3	<0.3	<0.3
2/28/90	MB-2	10.0	<10	<0.3	<0.3	<0.3	<0.3
		15.0	Held				
		18.0	<10	<0.3	<0.3	<0.3	<0.3
2/28/90	MB-3	10.0	<10	<0.3	<0.3	<0.3	<0.3
2/28/90	MB-4	10.0	<10	<0.3	<0.3	<0.3	<0.3
2/28/90	MB-5[2]	--	--	--	--	--	--
3/2/90	MB-6	8.5	<10	<0.3	<0.3	<0.3	<0.3
		15.0	<10	<0.3	<0.3	<0.3	<0.3
Borings Behind Mechanical Building							
2/27/90	B-8	15.0	<10	<0.3	<0.3	<0.3	<0.3
2/27/90	B-9	15.0	<10	<0.3	<0.3	<0.3	<0.3
2/27/90	B-10	15.0	<10	<0.3	<0.3	<0.3	<0.3
2/27/90	B-11	15.0	<10	<0.3	<0.3	<0.3	<0.3
3/1/90	B-12	5.0	34	0.6	0.6	1.4	0.6
		15.0	Held				
3/1/90	B-13	5.0	<10	<0.3	<0.3	<0.3	<0.3
		15.0	Held				
3/1/90	B-14	6.5	<10	<0.3	<0.3	<0.3	<0.3
3/1/90	B-15	13.5	Held				

TABLE 1

ANALYTICAL RESULTS OF SOIL ASSESSMENTS FOR MINERAL SPIRITS

Concentrations in milligrams per kilogram (mg/kg) or parts per million (ppm)

Sampling Date	Boring No.	Sample Depth (ft.)	Mineral Spirits	Benzene	Toluene	Xylenes	Ethyl-benzene
Borings Behind Mechanical Building (cont'd)							
		17.5	<10	<0.3	<0.3	<0.3	<0.3
3/1/90	B-16	5.5	<10	<0.3	<0.3	<0.3	<0.3
3/1/90	B-17	5.5	<10	<0.3	<0.3	<0.3	<0.3
3/1/90	B-18	6.0	Held				
3/1/90	B-19	5.5	<10	<0.3	<0.3	<0.3	<0.3
Borings on Hillside							
3/12/90	B-20	10.5	<10	<0.3	<0.3	<0.3	<0.3
		25.5	Held				
3/12/90	B-21	2.0	33	<0.3	<0.3	<0.3	<0.3
		14.0	<10	<0.3	<0.3	<0.3	<0.3
3/12/90	B-22	6.0	<10	<0.3	<0.3	<0.3	<0.3
3/13/90		16.0	Held				
3/13/90	B-23	6.0	<10	<0.3	<0.3	<0.3	<0.3
3/13/24	B-24	6.0[3]	<10/<10	<0.3	<0.3	<0.3/0.4	<0.3
		31.0	<10	<0.3	<0.3	<0.3	<0.3
3/15/90	B-25	10.5	<10	<0.3	<0.3	<0.3	<0.3
3/15/90	B-26	6.0	<10	<0.3	<0.3	<0.3	<0.3
		23.5	<10	<0.3	<0.3	<0.3	<0.3

[1] All chemical analysis performed by BC Analytical of Emeryville, California, by modified EPA Methods 8015/8020 for mineral spirits, benzene, toluene, ethylbenzene, and xylenes.

[2] Borings MB-5, and B-27 through B-32: Soil samples read with PID only.

[3] This sample also analyzed by EPA Methods 8240 and 8270 by BC Analytical; no compounds were detected.

GEOMATRIX

TABLE 2

ANALYTICAL RESULTS FOR MINERAL SPIRITS EXCAVATION NO. 2[1]

Kaiser Permanente Medical Center
Oakland, California

Concentrations in milligrams per kilogram (mg/kg) or parts per million (ppm)

Sampling Date	Sample No. 2[2]	Sample Depth (ft.)	Mineral Spirits	Benzene	Toluene	Xylenes	Ethyl-Benzene
6/12/90	F1	2.0	<10	<0.3	<0.3	<0.3	<0.3
6/12/90	F2	1.0	<10	<0.3	<0.3	<0.3	<0.3
6/12/90	W3	3.0	<10	<0.3	<0.3	<0.3	<0.3
6/12/90	W4	1.5	<10	<0.3	<0.3	<0.3	<0.3
6/12/90	W5	2.0	<10	<0.3	<0.3	<0.3	<0.3
6/12/90	F6	4.0	<10	<0.3	<0.3	<0.3	<0.3
6/13/90	F7	3.5	<10	<0.3	<0.3	<0.3	<0.3
6/13/90	W8	2.5	<10	<0.3	<0.3	<0.3	<0.3
6/13/90	W9	2.0	<10	<0.3	<0.3	<0.3	<0.3
6/13/90	W10	1.75	<10	<0.3	<0.3	<0.3	<0.3
6/13/90	F11	3.5	<10	<0.3	<0.3	<0.3	<0.3
6/13/90	W12	1.5	<10	<0.3	<0.3	<0.3	<0.3

[1] All samples analyzed by BC Analytical of Emeryville by EPA Methods modified 8015 and 8020.

[2] F = floor sample
W = wall sample

GEOMATRIX

TABLE 3

MONITORING WELL CONSTRUCTION DATA
Kaiser Permanente Medical Center
Oakland, California

Well No.	Completion Date	Elevation of Top of Casing[1]	Total Depth (ft. below ground surface)	Screened Interval (ft. below ground surface)	Screened Interval (elevation in ft.[1])
MW-1	11/8/90	71.78	7.5	3.5-7.5	68.3-64.3
MW-2	11/8/90	82.10	21	11.0-21.0	71.1-61.1
MW-3	11/15/90	102.04	41	38.0-41.0	62.5-59.5
MW-4	11/16/90	82.57	20.5	10.5-20.5	72.1-62.1
MW-5	1/27/91	71.81	16	12.0-16.0	59.7-55.7
MW-6	1/27/91	71.82	9	4.0-9.0	67.8-62.8

[1] Elevation based on City of Oakland datum.

GEOMATRIX

TABLE 4

WATER-LEVEL MEASUREMENTS
Kaiser Permanente Medical Center
Oakland, California

Date	Well I.D.	Measuring Point Elevation (ft.)	Depth to Water (ft.)	Groundwater Elevation (ft.)
11/19/90	MW-1	71.78	5.19	66.59
	MW-2	82.10	20.70	61.40
	MW-3	102.04	40.52	61.52
	MW-4	82.57	dry	--
11/20/90	MW-1	71.78	5.20	66.58
	MW-2	82.10	20.42	61.68
	MW-3	102.04	41.08	60.96
	MW-4	82.57	dry	--
11/26/90	MW-1	71.78	4.73	67.05
	MW-2	82.10	20.34	61.76
	MW-3	102.04	40.25	61.79
	MW-4	82.57	dry	--
1/2/91	MW-1	71.78	5.13	66.65
	MW-2	82.10	20.15	61.95
	MW-3	102.04	40.11	61.93
	MW-4	82.57	dry	--
2/7/91	MW-1	71.78	5.67	66.11
	MW-2	82.10	19.96	62.14
	MW-3	102.04	40.07	61.97
	MW-4	82.57	dry	--
	MW-5	71.81	10.62	61.19
	MW-6	71.82	6.29	65.53
3/7/91	MW-1	71.78	5.40	66.38
	MW-2	82.10	19.70	62.40
	MW-3	102.04	39.55	62.49
	MW-4	82.57[1]	18.39	64.18
	MW-5	71.81	9.76	62.05
	MW-6	71.82	5.77	66.05

[1] Top of casing cracked.

GEOMATRIX

TABLE 5

MINERAL SPIRITS IN SOIL - HILLSIDE AREA[1]

Kaiser Permanente Medical Center
Oakland, California

Concentrations in milligrams per kilogram (mg/kg) or parts per million (ppm)

Sampling Date	Well or Boring No.	Sample I.D.	Sample Depth (ft.)	Mineral Spirits (mg/kg)
Hillside Area				
11/7/90	MW-1	S-1-1	3.5	<10
11/7/90	MW-1	S-1-2	8.0	<10
11/7/90	MW-1	S-1-4	18.0	<10
11/8/90	MW-2	S-2-3	14.0	<10
11/8/90	MW-2	S-2-4	17.5	<10
11/15/90	MW-3	S-3-5	27.0	<10
11/15/90	MW-3	S-3-6	32.0	<10
11/15/90	MW-3	S-3-7	38.5	<10
11/15/90	MW-3	S-3-8	43.5	<10
11/16/90	MW-4	S-4-3	15.0	<10
11/16/90	MW-4	S-4-4	20.0	<10
11/16/90	MW-4	S-4-5	22.0	<10
11/20/90	SB-1A	SB-1A	1	610
11/20/90	SB-1B	SB-1B	1	12,000
11/20/90	SB-1C	SB-1C	2	<10
1/15/91	S-1,2,3	S-1,2,3	0.5	<10
1/14/91	B-33	B-33-1	2.5	<10
1/14/91	B-33	B-33-2	6.5	<10
1/14/91	B-33	B-33-3	11.0	<10
1/14/91	B-33	B-33-4	16.0	<10
1/14/91	B-33	B-33-5	21.5	<10
1/14/91	B-33	B-33-6	23.5	<10
1/14/91	B-33	B-33-7	24.5	<10

TABLE 5

MINERAL SPIRITS IN SOIL - HILLSIDE AREA

Concentrations in milligrams per kilogram (mg/kg) or parts per million (ppm)

Sampling Date	Well or Boring No.	Sample I.D.	Sample Depth (ft.)	Mineral Spirits (mg/kg)
Hillside Area (cont'd)				
1/14/91	B-34	B-34-1	2.5	< 10
1/15/91	B-34	B-34-2	6.5	< 10
1/15/91	B-34	B-34-3	11.5	< 10
1/15/91	B-34	B-34-4	16.5	< 10
1/15/91	B-35	B-35-1	2.5	1600
1/15/91	B-35	B-35-2	6.5	15
1/15/91	B-35	B-35-3	11.0	< 10
1/15/91	B-35	B-35-4	16.5	< 10

[1] All samples analyzed by BC Analytical of Emeryville by modified EPA Method 8015.

GEOMATRIX

TABLE 6

MINERAL SPIRITS IN SOIL - MECHANICAL BUILDING AREA

Kaiser Permanente Medical Center
Oakland, California

Concentrations in milligrams per kilogram (mg/kg) or parts per million (ppm)

Sampling Date	Sample I.D.	Well or Boring No.	Sample Depth (ft)	Mineral Spirits
1/26/91	MW5-2	MW-5	6.5	<10
1/26/91	MW5-3	MW-5	9.5	<10
1/26/91	MW5-4	MW-5	12.0	<10
1/27/91	MW6-1	MW-6	6.5	<10
1/27/91	MW6-3	MW-6	10.0	<10
2/25/91	MB7-2[2]	MB-7	2.5	1800
2/25/91	MB7-3[2]	MB-7	5.0	90
2/25/91	MB7-4[2]	MB-7	10.0	240
2/25/91	MB7-5[2]	MB-7	13.5	<10
2/25/91	MB8-1[2]	MB-8	1.5	200
2/25/91	MB8-2[2]	MB-8	5.0	<10

[1] All samples analyzed by BC Analytical of Emeryville by modified EPA Method 8015 for mineral spirits.

[2] These samples were also analyzed by BC Analytical by using EPA Method 8020 for benzene, toluenes, xylenes, and ethylbenzene. Xylenes were detected in samples MW7-2, MW7-3, MW7-4, and MB8-2 at concentrations of 5.5, 2.0, 3.3, and 0.03 ppm, respectively. Ethylbenzene was detected in sample MW7-2 at a concentration of 3.3 ppm.

GEOMATRIX

TABLE 7

SUMMARY OF ANALYTICAL RESULTS FOR GROUNDWATER[1]

Kaiser Permanente Medical Center
Oakland, California

Concentrations in micrograms per liter (µg/l) or parts per billion (ppb)

Well No.	Date Sampled	Mineral Spirits	Benzene	Toluene	Ethyl-benzene	Xylenes	EPA Method 8240 Compounds Detected[2]	EPA Method 8270 Compounds Detected
MW-1	11/20/90	<1000[3]	<0.5	<0.5	<0.5	<0.5	--[4]	--
	1/2/91	--	--	--	--	--	--	None
	1/4/91	--	--	--	--	--	6.0 Chloroform	--
	2/7/91	<50	<0.5	<0.5	<0.5	<0.5	8.0 1,1,-DCA (5)	--
	3/7/91	<50	--	--	--	--	--	--
MW-2	11/29/90	<50	<0.5	<0.5	<0.5	<0.5	--	--
	1/3/91	--	--	--	--	--	7.0 PCE 7.0 Freon 11	--
	1/4/91	--	--	--	--	--	--	None[5]
	2/7/91	<50	<0.5	<0.5	<0.5	<0.5	None	--
	3/7/91	<50	--	--	--	--	--	None
MW-3	11/27/90	<50	<0.5	0.6	<0.5	2.3	--	--
	1/3/91	--	--	--	--	--	None	None
	2/7/91	<50	<0.5	<0.5	<0.5	<0.5	--	--
MW-4	3/11/91	<50	<0.5	<0.5	<0.5	<0.5	9.0 PCE (5)	--[7]
MW-5	2/1/91	<50	--[6]	--[6]	--[6]	--[6]	25 Freon 11	None
	2/25/91	--	<0.5	<0.5	<0.5	<0.5	--	--
	3/7/91	<50	<0.5	<0.5	<0.5	<0.5	24 Freon 11	--
MW-6	2/1/91	<50	--[6]	--[6]	--[6]	--[6]	--	--
	3/7/91	<50	<0.5	<0.5	<0.5	<0.5	None	--[7]

[1] Total petroleum hydrocarbons as mineral spirits were analyzed by EPA Methods 5030/8015; benzene, toluene, ethylbenzene, and xylenes (BTEX) was analyzed by modified EPA Method 8020. All samples were analyzed by Anametrix, Inc., except the MW-1 sample on 11/20/90, which was analyzed by BC Analytical. Laboratory reports including detection limits are included in Appendix E.

[2] 1,1-DCA = 1,1-Dichloroethane; PCE = Tetrachloroethane; Freon 11 - Trichlorofluoromethane.

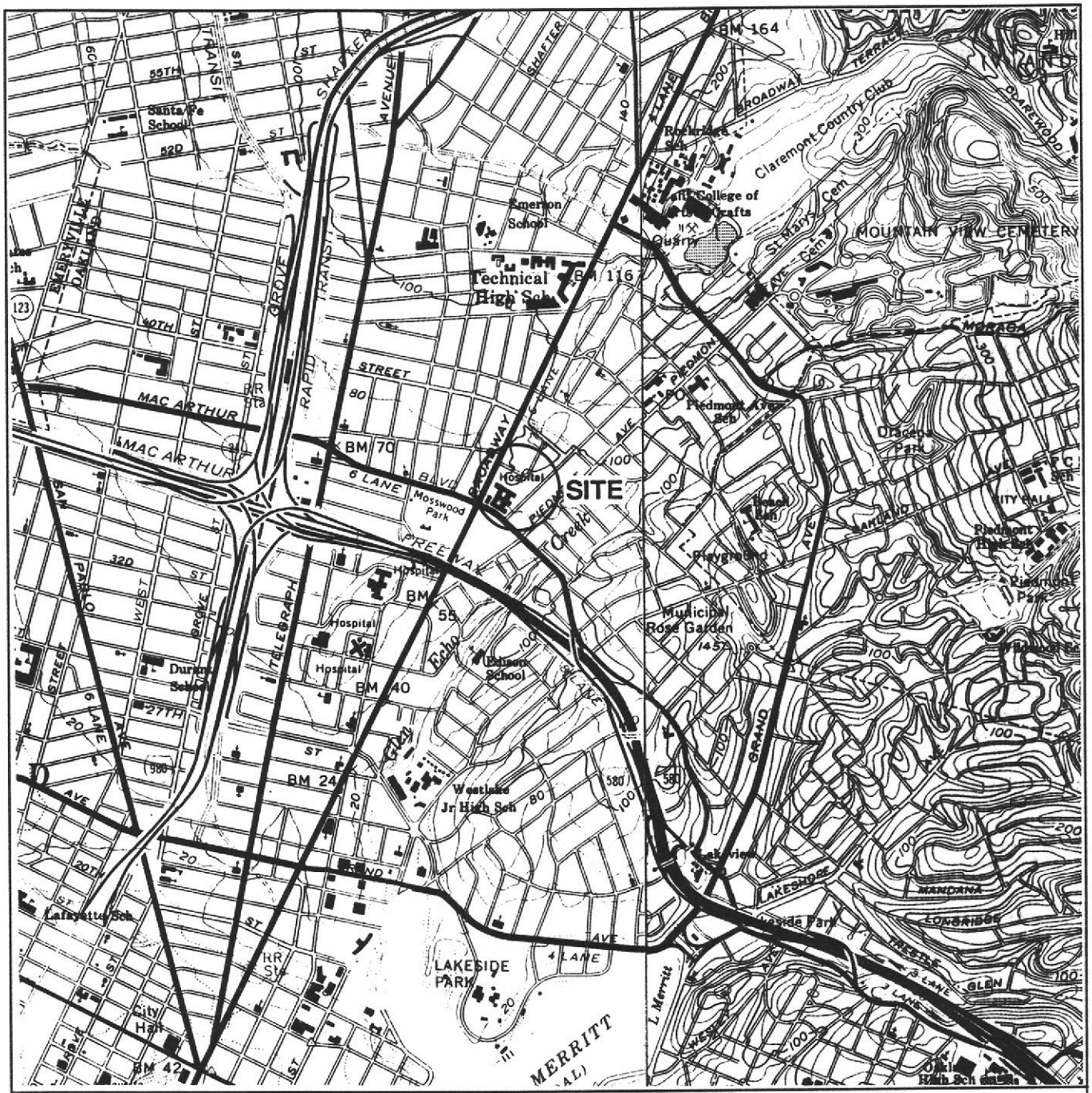
[3] A hydrocarbon was detected in the sample at a concentration of 150 mg/l or ppm by BC Analytical. Friedman and Bruya, Inc., characterized the compound as a naturally occurring biogenic hydrocarbon by a fingerprint characterization using gas chromatography, and did not identify any mineral spirits in the sample.

[4] -- not analyzed

[5] Sample volume was 400 ml instead of 1000 ml because of limited well recharge. Detection limits therefore ranged from 25 to 120 ppb instead of 10 to 50 ppb as is typical with EPA Method 8270 analyses.

[6] Analyzed four days after the 14-day holding time, with no BTEX detected.

[7] Insufficient water available for this analysis.



Source: USGS 7.5' Quadrangle Map Series,
Oakland West and Oakland East Sheets

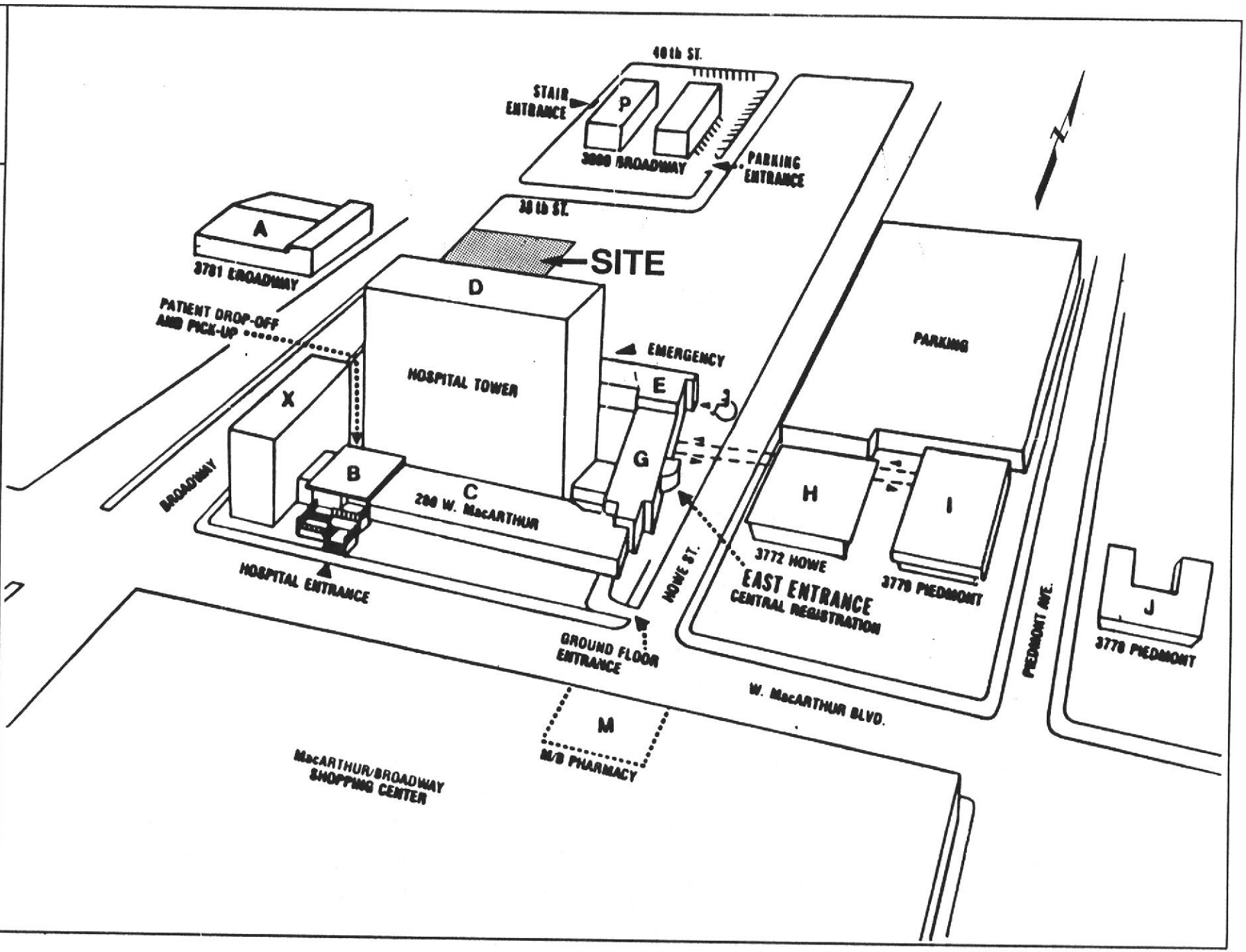
0 2000 Feet

GEOMATRIX

LOCATION MAP
Kaiser Permanente Medical Center
Oakland, California

Figure
1

Project No.
1459.05

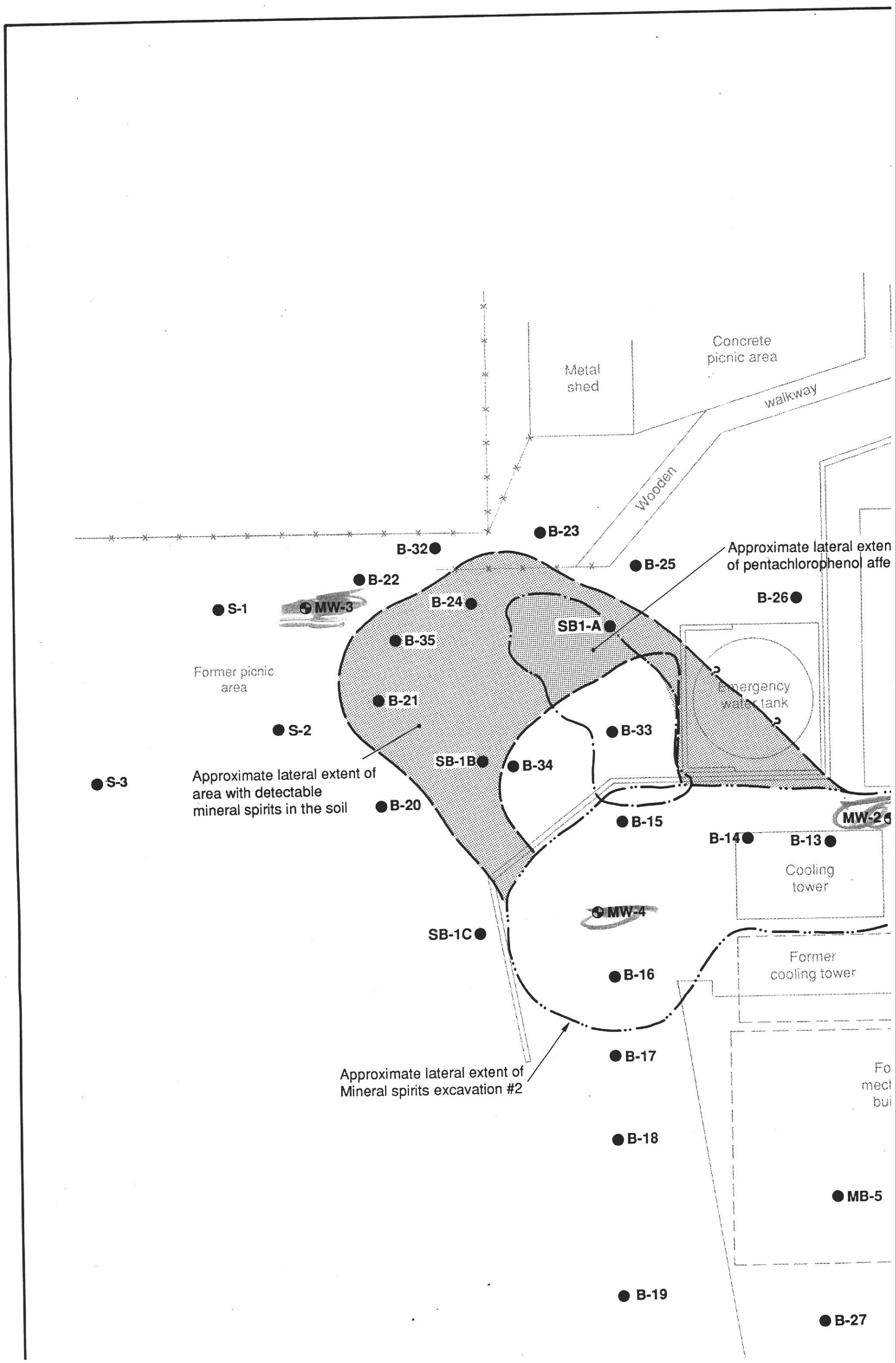


GEOMATRIX

SITE LOCATION
Kaiser Hospital
Oakland, California

Figure 2

Project No. 1459.05


Concrete
picnic area
Metal
shed
walkway
Wooden
B-23
B-32
B-25
Approximate lateral exten
of pentachlorophenol affe
B-22
B-26
S-1
MW-3
B-24
SB1-A
B-35
Former picnic
area
Emergency
water tank
B-21
S-2
B-33
SB-1B
B-34
S-3
Approximate lateral extent of
area with detectable
mineral spirits in the soil
B-20
B-15
MW-2
B-14
B-13
Cooling
tower
MW-4
SB-1C
Former
cooling tower
B-16
B-17
Approximate lateral extent of
Mineral spirits excavation #2
Fo
mec
bui
B-18
MB-5
B-19
B-27

Mechanical building

Approximate lateral e
Mineral spirits excav

● B-31

● B-30

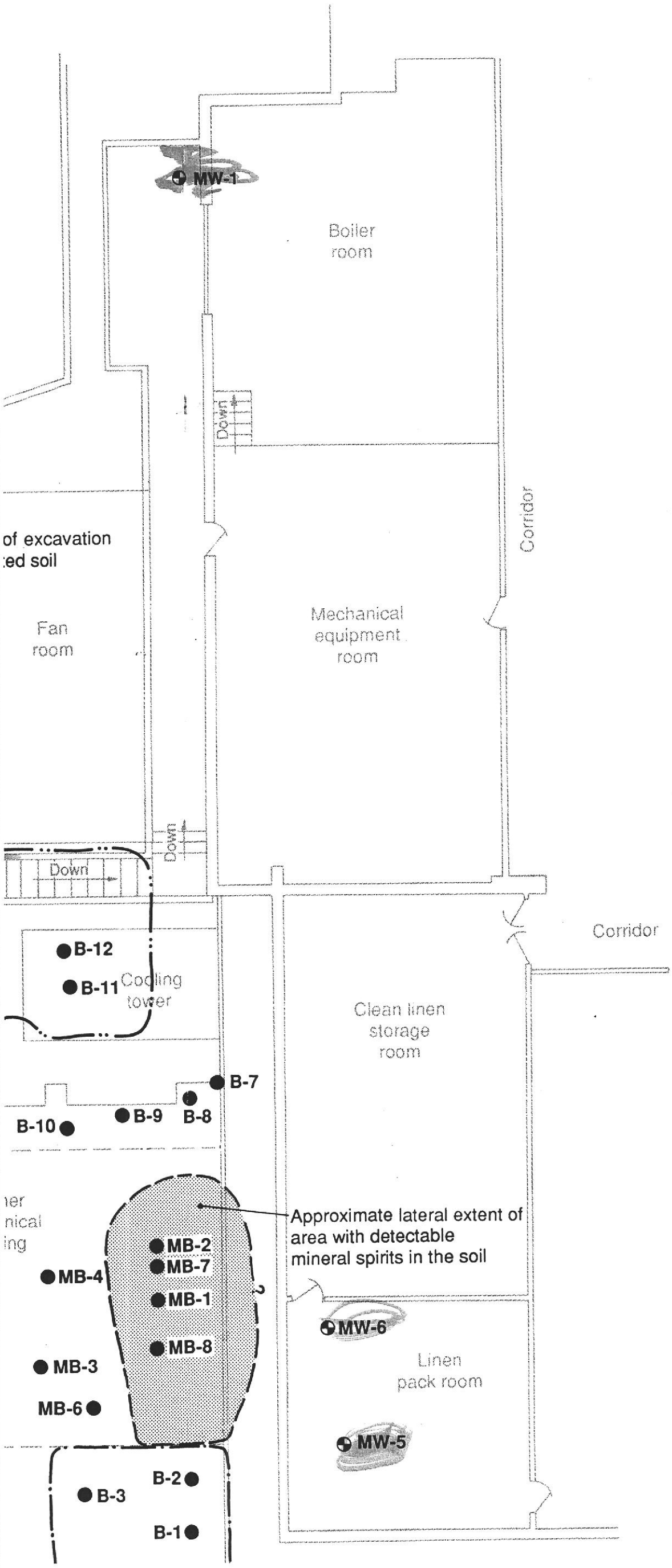
EXPLANATION

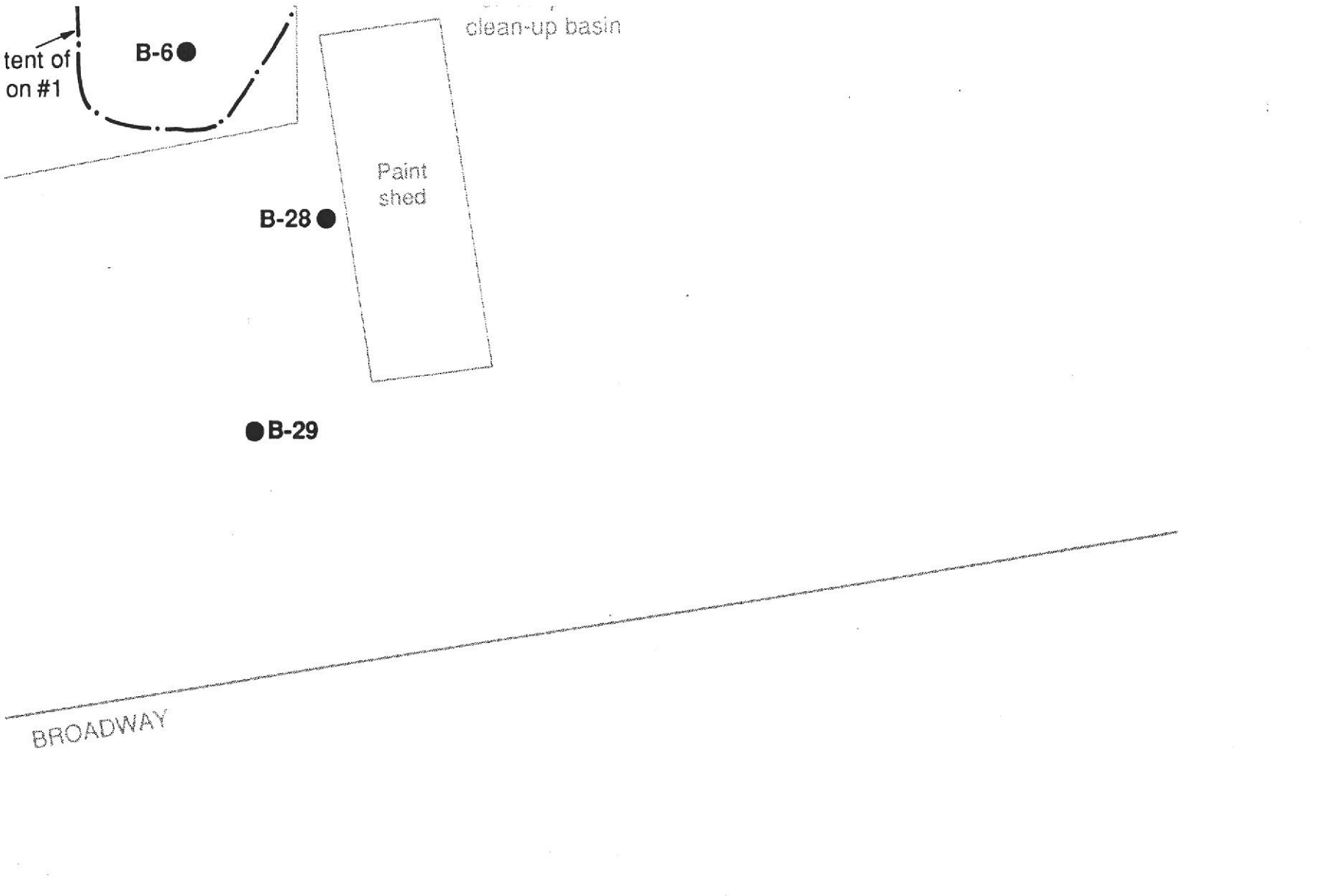
B-1 ● Soil boring

MW-1 ⊕ Monitoring well

Notes

1. Map depicts site and new construction as appeared in January, 1991
2. All soil boring locations are approximate
3. Base map figure source: Oakland Medica Center, Central Utility Plant, Existing Topography Sheet, C1, 8/17/89. Addition are approximate


MW-1
Boiler room
Down
Corridor
of excavation
ed soil
Fan room
Mechanical equipment room
Down
Down
Corridor
B-12
B-11
Cooling tower
Clean linen storage room
B-7
B-9
B-8
B-10
ner
nical
ing
Approximate lateral extent of area with detectable mineral spirits in the soil
MB-2
MB-7
MB-4
MB-1
MB-8
MB-3
MB-6
MW-6
Linen pack room
MW-5
B-2
B-3
B-1



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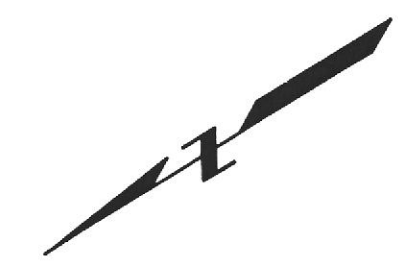
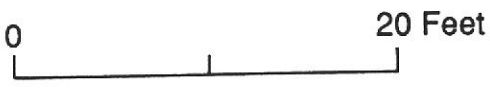




SITE PLAN: LOCATION OF BORINGS AND EXCAVATIONS
Kaiser Permanente Medical Center
Oakland, California

GEOMATRIX	Project No.	Figure
	1459.05	3

Metal shed

Wooden walkway

Fan room

Emergency water tank

W-9 2.0'

W-5 2.0'

F-1 2.0'

F-7 3.5'

F-6 4.0'

W-3 3.0'

F-11 3.5'

Down

F-2 1.0'

W-8 2.5'

W-4 1.5'

W-10 1.75'

W-12 1.5'

Cooling tower

Linen rooms

Soil bin

Soil bin

Approximate lateral extent of Mineral spirits excavation No. 2

Mechanical building

KEY

W3, F-1 ● Approximate location of confirmation soil sample.Samples with a "W" prefix are located in the wall of the excavation; those with an "F" prefix denote floor sample. Depth of sample below grade is indicated by the accompanying number

3.0

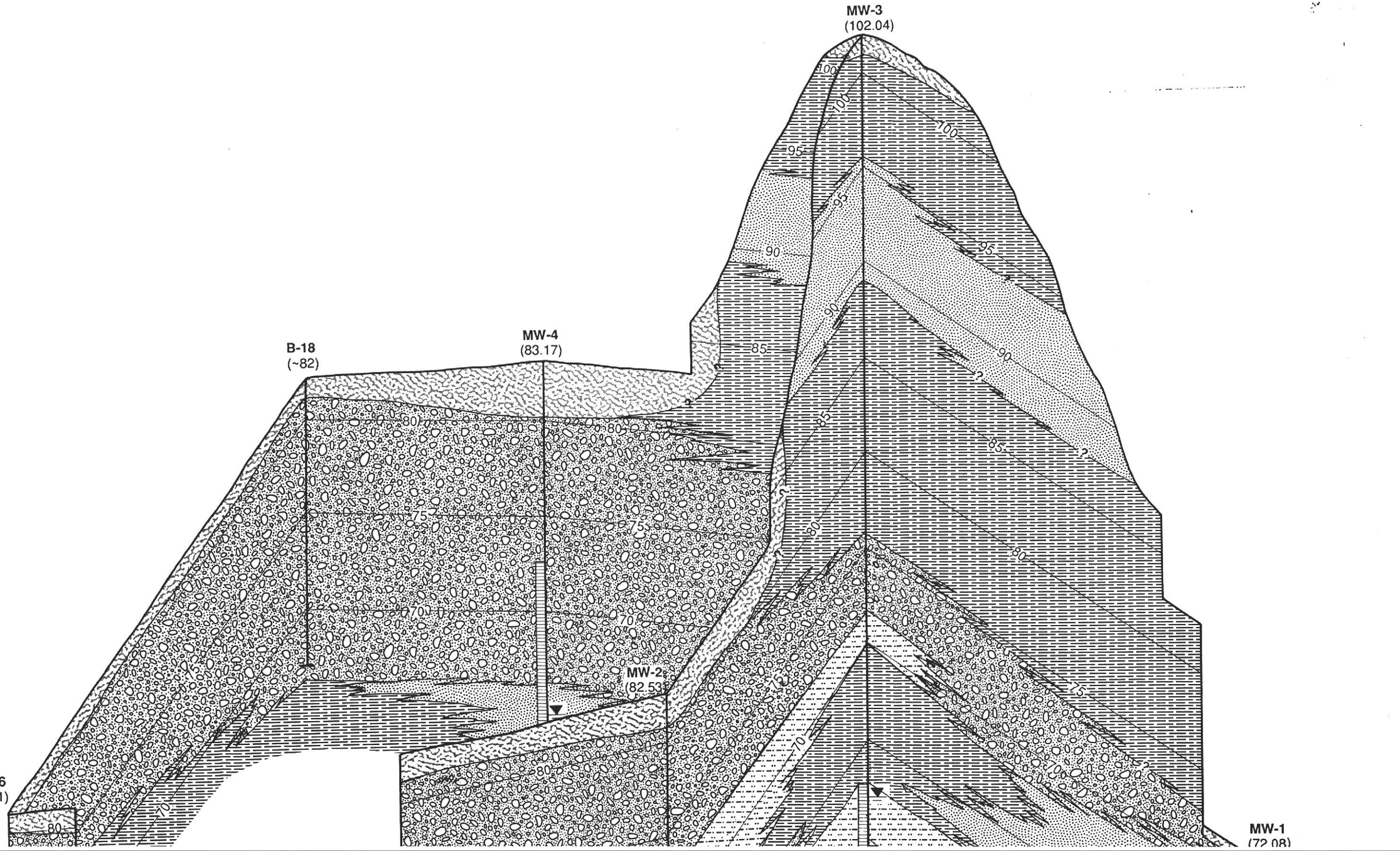
Note

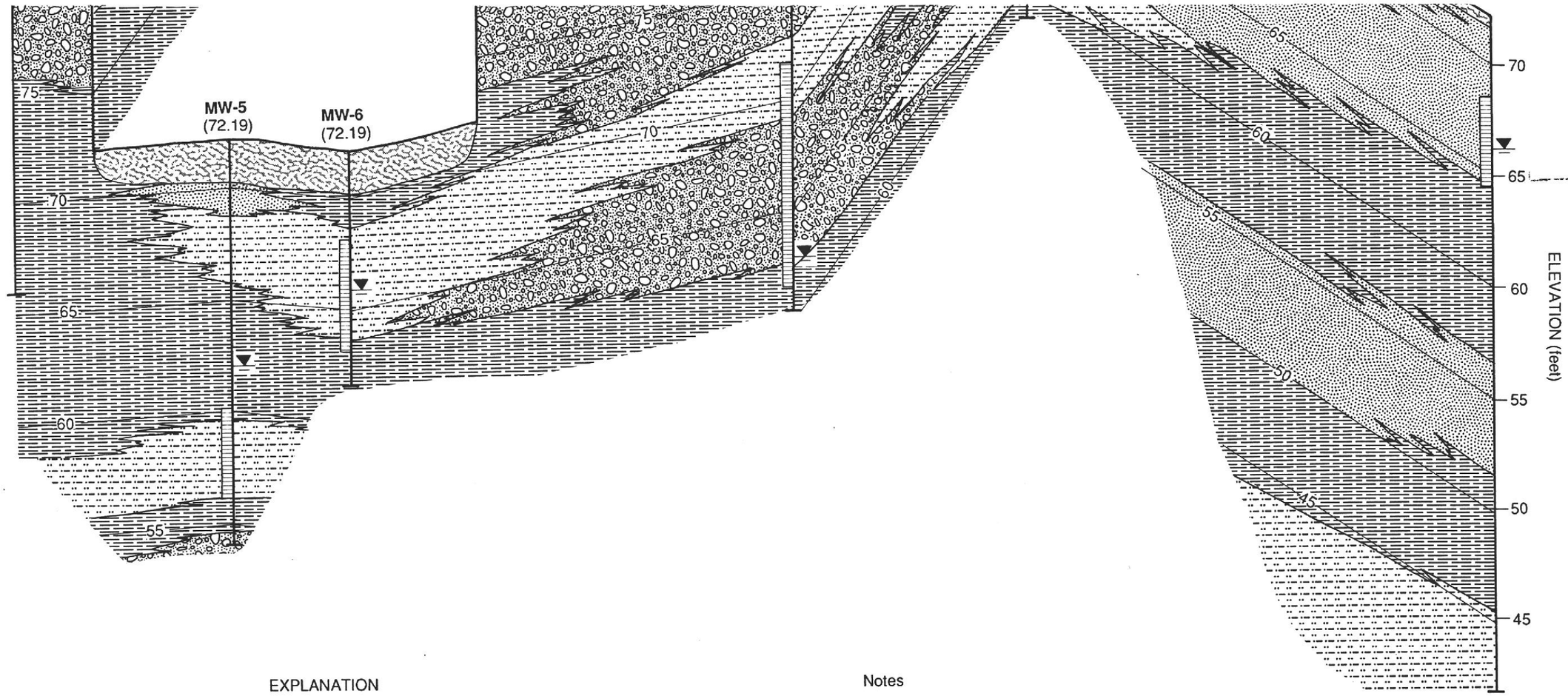
Map depicts fences, buildings, and other site conditions at the time of excavation (June, 1990).

0 10 Feet

MINERAL SPIRITS EXCAVATION NO. 2
Kaiser Permanente Medical Center
Oakland, California

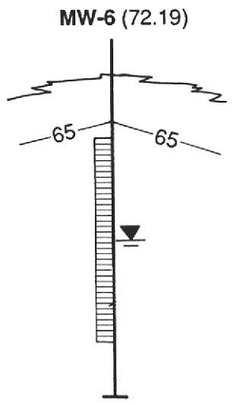
GEOMATRIX	Project No. 1459.05	Figure 4


MW-3
(102.04)
MW-4
(83.17)
B-18
(~82)
MW-2
(82.53)
B-6
(~81)
MW-1
(72.08)
100
95
90
85
80
75
70



EXPLANATION

- Fill, concrete
- Silty clay, sandy clay, gravelly clay
- Silt, sandy silt, silt with sand, clayey sand, clayey silt, clayey gravel with sand
- Silty sand, sand with clay, sandy gravel with clay
- Sand, sand with gravel, gravelly sand, sandy gravel



- Well identification and elevation relative to City of Oakland datum
- Geologic contact (queried where uncertain)
- Line of equal elevation (feet)
- 7 March 1991 Groundwater elevation
- Screen interval
- Bottom of boring

Notes

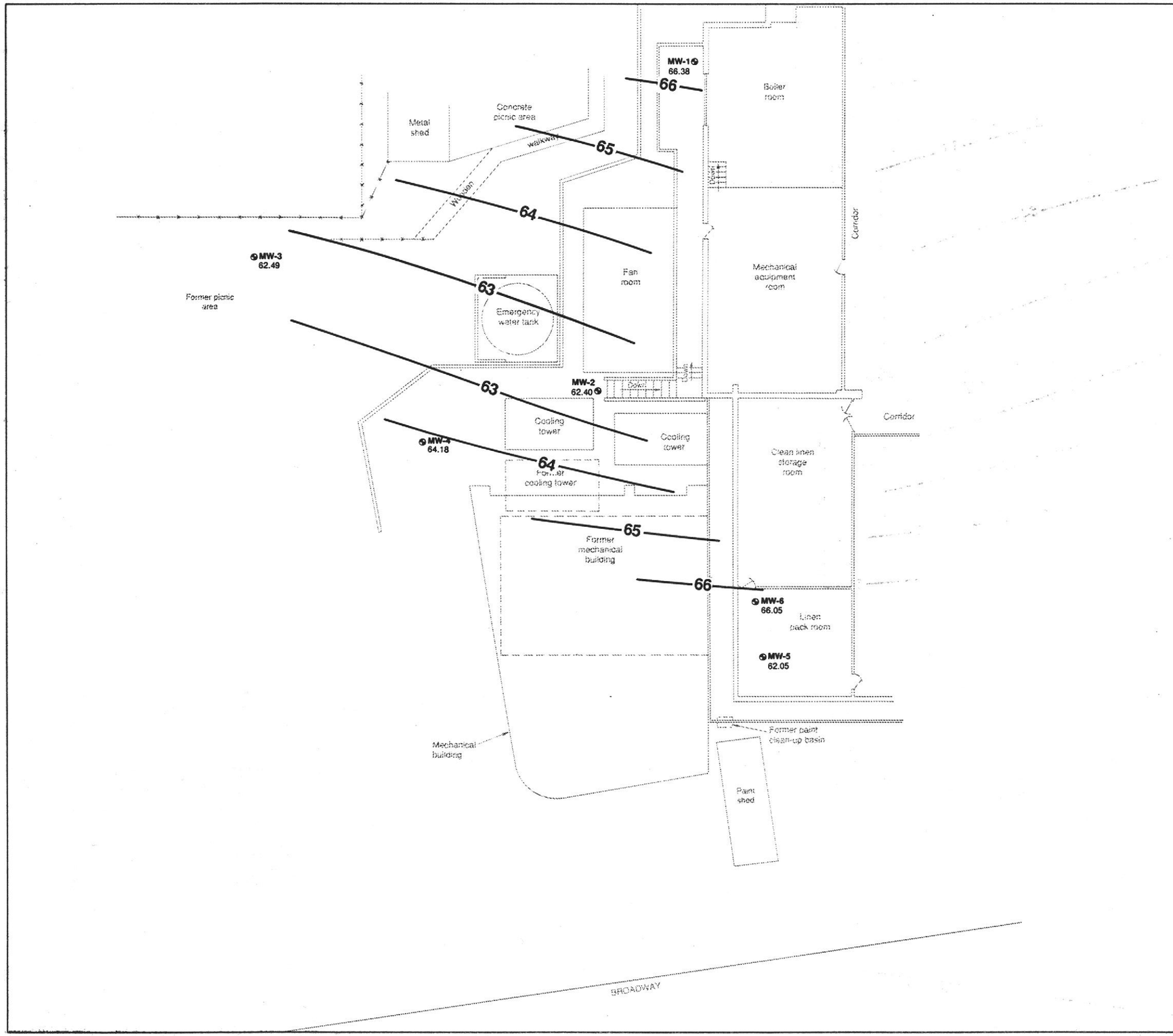
1. Diagram shows simplified geology based on interpretation between borings. Geologic contacts between units are shown as solid lines for clarity, and are not meant to imply certainty.
2. View is N35E, 60° from horizontal.
3. See Figure 2 for well and boring locations.

GEOLOGIC FENCE DIAGRAM
Kaiser Permanente Medical Cente
Oakland, California

GEOMATRIX

Project No.
1459.05

Figu
5



EXPLANATION

63 —— Line of equal elevation of groundwater on 7 March 1991 in first encountered groundwater zone

MW-4 ⊕ 64.18 Groundwater monitoring well with groundwater elevation on 7 March 1991

0 20 Feet

POTENTIOMETRIC SURFACE MAP
7 MARCH 1991
Kaiser Permanente Medical Center
Oakland, California

GEOMATRIX	Project No. 1459.05	Figure 6

APPENDIX A

FIELD METHODS

A.1 Photoionization Detector Screening

A photoionization detector (PID) provides a preliminary estimate of the relative concentration of volatile compounds in soil. A PID was used to screen soil samples during soil excavation and drilling and to monitor the breathing space during excavation and drilling operations.

During this project, the PID was calibrated daily with an isobutylene calibration gas at a concentration of 80 parts per million. The PID was zeroed each morning after a short warm-up and was rechecked after each reading. The PID returned to zero after being allowed time to purge and required no rezeroing during use.

To screen soil samples for volatile compounds during drilling, a small amount of sediment was obtained from a soil sampler or from soil cuttings and was placed in a Zip-lock plastic bag for about 5 minutes. The plastic bag was placed in direct sunlight or in the warmest spot available to maximize the volatilization of any compounds in the sample. After approximately 5 minutes, the vapor within the Zip-lock bag was analyzed by opening the bag just enough to allow the PID probe inside. The PID reading was then noted on the soil boring log. The PID readings have the most significance when they exceed 100 parts per million because low readings may be triggered by water vapor and may not be indicative of organic compounds.

A.2 Mineral Spirits Excavation No. 2 - Monitoring and Soil Sampling

As soil was excavated, it was screened with the PID. Soil in the backhoe bucket was screened by scraping away a few inches of soil and immediately bringing the PID probe within 1/4 inch of the soil. Soil that gave high PID reads was stockpiled and later transported to Nevada Hydrocarbon, Inc., landfill of Reno, Nevada, for incineration.

Twelve soil samples were collected from the sides and floor of the excavation to confirm the absence of mineral spirits in these areas (Figure 4). Soil samples were collected by driving a clean brass liner into the soil with a hammer sampler, then covering the liner ends with aluminum foil, a plastic cap, and PVC tape. The soil samples were placed on ice immediately and at the end of the day were delivered to BC Analytical under chain-of-custody procedures.

A.3 Hand-Augered Borings and Surface Samples

On 20 November 1990, a hand auger was used to drill shallow borings SB-1A, SB-1B, and SB-1C on the hillside to depths of 1 to 2 feet. At the bottom of each boring, one soil sample was collected by pushing a clean brass liner directly into the soil in the auger.

On 25 February 1991, a hand auger was used to drill borings MB-7 and MB-8 inside the mechanical building to depths of 13.5 and 5 feet, respectively. Samples for chemical analysis were collected in clean brass liners directly from the auger approximately every 5 feet. In addition, samples were collected approximately every 2 feet and screened using the PID.

On 15 January 1991, soil samples S-1, S-2, and S-3 were acquired from the surface of the former picnic area by scraping away the top few inches of soil and driving a clean brass liner into the soil. These samples were composited by the laboratory before analysis.

Brass liners containing samples were covered with aluminum foil, capped, taped, placed on ice, and delivered under chain-of-custody procedures to BC Analytical for chemical analysis. The chain-of-custody records are included in Appendix D. Soil boring locations are shown on Figure 3.

A.4 Drilling and Soil Sampling

On 14 and 15 January, borings B-33, B-34, and B-35 were drilled on the hillside to depths of 25, 16.5, and 16.5 feet, respectively. Under the supervision of a Geomatrix geologist, HEW Drilling of East Palo Alto drilled these borings using a tractor-mounted, gasoline-powered "Ferret" drillrig. The drillrig was fitted with hollow-stem augers having an 8-inch outside diameter, (O.D.) and the augers were steam-cleaned between borings. Soil samples for chemical analysis were collected in clean brass liners approximately every 5 feet using a 2.0 or 2.5 inch diameter modified California split-spoon sampler. The sampler was cleaned with Alconox and water before being loaded with clean brass liners. Below a depth of 10 feet, soil samples were collected continuously for lithologic descriptions. Brass liners containing samples were handled as described in Section A.3. These borings were backfilled with neat cement after drilling. The laboratory reports and chain-of-custody records are included in Appendix D.

A.5 Monitoring Well Installation and Development

A total of six monitoring wells were installed at the project site from November 1990 through January 1991. Monitoring wells MW-1, MW-5, and MW-6 were installed inside the hospital building, and wells MW-2, MW-3, and MW-4 were installed at the top and base of the hillside. All monitoring wells were constructed with 2-inch PVC casing and were screened to monitor the first encountered groundwater.

Monitoring wells MW-1 and MW-2 were drilled and installed by Clearheart Construction Company on 7 and 8 November 1990 and were logged by a Geomatrix geologist. These wells were drilled using a portable agricultural drill rig using 6-inch O.D. hollow stem augers and a hydraulic hammer. Soil samples for analysis were collected approximately every 5 feet using a 2-inch split-spoon sampler. Soil samples were collected continuously for lithologic description using 2.0 and 2.5 inch split-spoon samplers and a standard penetration sampler.

A second pair of monitoring wells, MW-3 and MW-4, was installed by Weeks Drilling on 15 and 16 November 1990 and were logged by a Geomatrix geologist. These wells were drilled with a Mobile drill rig using 8-inch O.D. hollow-stem augers. Soil samples for chemical analysis (collected approximately every 5 feet) and soil samples collected for lithologic description (collected continuously) were obtained during drilling using a 2.5-inch diameter California sampler and a 140-pound hammer falling 30 inches.

The final pair of monitoring wells was installed on 26 and 27 January 1991 by HEW Drilling under Geomatrix direction. These monitoring wells were drilled inside the hospital's linen room using a portable, diesel powered drillrig using 8-inch O.D. hollow-stem augers. Soil samples for chemical analysis were collected approximately every 5 feet using a 2-inch-diameter Modified California sampler. Soil samples for lithologic description were collected continuously with the 2-inch-diameter modified California sampler and a standard penetration sampler. Both types of samplers were driven by hand using a 35-pound hammer.

All of the monitoring wells at the site were constructed of 2-inch-diameter schedule 40 PVC casing. Each monitoring well was constructed using a screen that has a 0.020-inch slot size. Screen lengths varied from 3 feet to 10 feet, depending on the geologic formation in which the well was completed. All wells were constructed by lowering the casing through a hollow-stem auger, then placing the sand pack and surface seal. Lonestar No. 3 sand was used to form the sand filter pack around the screened portion of each well. The surface seal in each well consisted of a 0.5 to 1.5 foot thick layer of hydrated bentonite pellets below a neat cement slurry. Traffic-rated Christy boxes were installed to protect the tops of the wells except MW-3 which has stovepipe. A watertight surface casing plug was installed in each well to prevent water from entering the well casings, and the wells are kept locked for security.

Completed depths of the monitoring wells range from 7.5 feet at monitoring well MW-1 (located in the hospital basement) to 41 feet at monitoring well MW-3 (installed at the top of the ridge on the northeastern area of the site). However, the monitoring wells were completed so that all well screens were located at approximately the same elevation (Table 1), except monitoring well MW-5, which was screened at a slightly lower elevation than the other wells.

Each monitoring well was developed within a few days of installation, except well MW-4, which was dry at the time of installation. The monitoring wells were developed using a stainless steel bailer. A surge block was also used in wells that encountered an appreciably saturated portion of the aquifer. Monitoring wells MW-1 and MW-5 recharged quickly during well development and were purged until the discharge water was no longer turbid, or until at least 10 to 15 casing volumes of water had been removed. The remaining wells did not recharge quickly enough to purge more than a few casing volumes of water.

The depth to water was measured after completing each monitoring well. Monitoring wells MW-3 and MW-4 were dry immediately after being installed. Water appeared in monitoring well MW-3 within a few days of drilling; however, well MW-4 remained dry months after being installed. The 7 March 1991 water-level measurements were the first to encounter water in monitoring well MW-4.

A.6 Groundwater Sampling

Before groundwater was sampled, a stainless steel bailer was used to purge each well of standing water. If possible, at least three casing volumes were purged. Slow recharge rates in wells MW-2 and MW-3 required sampling after purging one casing volume. Temperature, pH, and specific conductance were measured periodically with field equipment that was calibrated on site. Samples from wells MW-1, MW-3, MW-5, and MW-6 were collected only when these parameters reached relatively constant values. Wells MW-2 and MW-4 did not generate enough water to test parameters to stabilize. A monitoring well

sampling record was used to record the amount of water purged from each well and the results of parameter testing.

The wells were sampled using a Teflon bailer that had been cleaned with Alconox and water immediately before sampling. Groundwater was transferred from the bailer through a Teflon stopcock directly to a sample bottle that had been obtained from the analytical laboratory. Sample bottles were labeled appropriately and stored in an ice-cooled chest until picked up by a courier from Anametrix, Inc., under chain-of-custody procedures. The laboratory reports and chain-of-custody records are in Appendix E.

GEOMATRIX

APPENDIX B

BILLS OF LADING AND BURN CERTIFICATES FOR MINERAL SPIRITS EXCAVATION NO. 2

NEVADA HYDROCARBON INC.
P.O. BOX 9927 RENO, NEV. 89507 (702) 342-0200

August 28, 1990

M Powers/k Jones
Kaiser Hospital
280 W Macarthur Blvd
Oakland, CA 94611

Dear M,

This letter is to certify that all waste materials shipped to Nevada Hydrocarbon, Inc. on Bill of Lading number C5-1 through C5-4 have been thermally treated by Nevada Hydrocarbon, Inc.

An analysis of the treated material was conducted by an independent laboratory using US EPA Method 8015. A certificate of analysis showing a non-detectable level of hydrocarbon in the treated material is enclosed for your permanent records.

The final disposition of all soil treated at the NHI facility is available on request. Since the soils we process are blended to create a uniform feed stock, one generator may have several final destinations. If a list of final destinations is requested, a new list will be sent whenever an update is created.

We thank you for this opportunity to be of service to you. Should you have any further questions, please feel free to call me at any time.

Sincerely,

Gene Botts

Gene Botts
Operations

Alpha Analytical, Inc.

255 Glendale Avenue, Suite 21
Sparks, Nevada 89431
(702) 355-1044

413 W. Jefferson, Suite 4
Boise, Idaho 83701
(208) 336-4145

2810 W. Charleston, Suite G67
Las Vegas, Nevada 89102
(702) 386-6747

ANALYTICAL REPORT

Nevada Hydrocarbons, Inc
P.O. Box 9927
Reno, NV 89507

Job#: FP
Phone: 342-0200
Attn: Gene Botts

Sampled: 8/9/90 Received: 8/9/90 Analyzed: 8/16/90

Matrix: [X] Soil [ ] Water [ ] Waste

Analysis Requested: TPH - Total Petroleum Hydrocarbons

Methodology: TPH - Modified 8015

Results:

Client ID/ Lab ID	Parameter	Concentration mg/Kg	Detection Limit mg/Kg
BA3,BA5,AAB,AA5, C5,AA4,AA6,BAY, C3 10:50 8/9/90 /NHC080990-01	TPH	ND	10

ND - Not Detected

Approved By: Roger L. Scholl Date: 8/20/90
Roger L. Scholl, Ph.D.
Laboratory Director

No. 1

NON-HAZARDOUS WASTE DATA FORM

TO BE COMPLETED BY GENERATOR

NAME Kaiser Permanente Medical Center
EPA ID NO NA
ADDRESS 280 W. McArthur Blvd
CITY, STATE, ZIP Oakland, CA 94611
PHONE NO (415) 596-6831
CONTAINERS: No 1 truck VOLUME 20 yd³ WEIGHT 25 tons
TYPE: ☐ TANK TRUCK ☒ DUMP TRUCK ☐ DRUMS ☐ CARTONS ☐ OTHER
WASTE DESCRIPTION Hydrocarbon contam. Soil/Non Haz GENERATING PROCESS NA

COMPONENTS OF WASTE	PPM		COMPONENTS OF WASTE	PPM
1. Mineral Spirits	10-100 ppm		5.	
2.			6.	
3.			7.	
4.			8.	

PROPERTIES: pH ____ ☒ SOLID ☐ LIQUID ☐ SLUDGE ☐ SLURRY ☐ OTHER
HANDLING INSTUCTIONS: gloves

THE GENERATOR CERTIFIES THAT THE WASTE AS DESCRIBED IS 100% NON-HAZARDOUS.

C. L. Loftis C. L. Loftis 6/12/90
TYPED OR PRINTED FULL NAME & SIGNATURE DATE

TRANSPORTER

NAME Keeling Trucking
EPA ID NO NA
ADDRESS 19720 West Grant Line Rd
SERVICE ORDER NO
CITY, STATE, ZIP Tracy, CA 95376
PICK UP DATE 6/12/90
PHONE NO 209 835-8770
TRUCK, UNIT, ID NO
MIKSHAN MONTE [signature] 6-12-90
TYPED OR PRINTED FULL NAME & SIGNATURE DATE

TSD FACILITY

NAME Nevada Hydrocarbon, Inc.
EPA ID NO NA
ADDRESS 2600 E. Mustang Rd
DISPOSAL METHOD ☐ OTHER
CITY, STATE, ZIP Sparks, NV 89434
PHONE NO 702 342-0200
TYPED OR PRINTED FULL NAME & SIGNATURE DATE

GEN	OLD/NEW	L A	TONS	
TRANS		S B		
C/O		RT/CD	HWDF NONE	DISCREPANCY

No. * 2

NON-HAZARDOUS WASTE DATA FORM

TO BE COMPLETED BY GENERATOR

NAME Kaiser Permanente Medical Center
EPA ID NO N/A
ADDRESS 280 W. McArthur Blvd.
CITY, STATE, ZIP Oakland, CA 94611
PHONE NO (415) 596-6851

CONTAINERS: No 1 truck VOLUME 20 yds³ WEIGHT 25 tons

TYPE: ☐ TANK TRUCK ☒ DUMP TRUCK ☐ DRUMS ☐ CARTONS ☐ OTHER

WASTE DESCRIPTION Non-Haz Hydrocarbon Contam. Soils GENERATING PROCESS

COMPONENTS OF WASTE	PPM		COMPONENTS OF WASTE	PPM
1. Mineral Spirits	10-100 ppm		5.	
2.			6.	
3.			7.	
4.			8.	

PROPERTIES: pH ____ ☒ SOLID ☐ LIQUID ☐ SLUDGE ☐ SLURRY ☐ OTHER

HANDLING INSTUCTIONS

THE GENERATOR CERTIFIES THAT THE WASTE AS DESCRIBED IS 100% NON-HAZARDOUS.

C.L. Loftis C.L. Loftis 6/12/9
TYPED OR PRINTED FULL NAME & SIGNATURE DATE

TRANSPORTER

NAME Keeling Trucking
EPA ID NO N/A
ADDRESS 19720 West Grant Line Rd
SERVICE ORDER NO
CITY, STATE, ZIP Tracy, CA 95376
PICK UP DATE
PHONE NO 209-835-8770
Ronald Kuttis
TRUCK, UNIT, I D NO. TYPED OR PRINTED FULL NAME & SIGNATURE DATE

TSD FACILITY

NAME Nevada Hydrocarbon, Inc.
EPA ID NO N/A
ADDRESS 2600 E. Mustang Rd
DISPOSAL METHOD
☐ OTHER
CITY, STATE, ZIP Sparks, NV 89434
PHONE NO. 207 342-0200

TYPED OR PRINTED FULL NAME & SIGNATURE DATE

GEN.	OLD/NEW	L A	TONS	
TRANS		S B		
C/Q		RT/CD	HWDF NONE	DISCREPANCY

No. * 3

NON-HAZARDOUS WASTE DATA FORM

TO BE COMPLETED BY GENERATOR

NAME Kaiser Permanente Medical Center
EPA I.D. NO. NA
ADDRESS 280 W. McArthur Blvd
CITY, STATE, ZIP Oakland, CA 94611
PHONE NO (415) 596-6831
CONTAINERS: No 1 truck VOLUME 20 yd³ WEIGHT 25 tons

TYPE: ☐ TANK TRUCK ☒ DUMP TRUCK ☐ DRUMS ☐ CARTONS ☐ OTHER

WASTE DESCRIPTION Non-Haz. Hydrocarbon contaminated soil
GENERATING PROCESS

COMPONENTS OF WASTE	PPM	COMPONENTS OF WASTE	PPM
1. Mineral Spirits	10-100 ppm	5.	
2.		6.	
3.		7.	
4.		8.	

PROPERTIES: pH ____ ☒ SOLID ☐ LIQUID ☐ SLUDGE ☐ SLURRY ☐ OTHER

HANDLING INSTUCTIONS:

THE GENERATOR CERTIFIES THAT THE WASTE AS DESCRIBED IS 100% NON-HAZARDOUS.

Larry Swafford — 6/13/90
TYPED OR PRINTED FULL NAME & SIGNATURE — DATE

TRANSPORTER

NAME Keeling Trucking
EPA I.D. NO. NA
ADDRESS 19725 West Grant Line Rd
SERVICE ORDER NO.
CITY, STATE, ZIP Tracy, CA 95376
PICK UP DATE
PHONE NO 209 835-8770
TRUCK, UNIT, ID NO 84-4A
Pat McGregor — 6 13 90
TYPED OR PRINTED FULL NAME & SIGNATURE — DATE

TSD FACILITY

NAME Nevada Hydrocarbon, Inc
EPA I.D. NO. NA
ADDRESS 2600 E. Mustang Rd
DISPOSAL METHOD ☐ OTHER
CITY, STATE, ZIP Sparks, NV 89434
PHONE NO 207 342-0200

TYPED OR PRINTED FULL NAME & SIGNATURE — DATE

GEN.	OLD/NEW	L A	TONS
TRANS		S B	
C/O		RT/CD	HWDF NONE

DISCREPANCY

No. * 4

NON-HAZARDOUS WASTE DATA FORM

TO BE COMPLETED BY GENERATOR

NAME Kaiser Permanente Medical Center
EPA I.D. NO. N/A
ADDRESS 280 W. McArthur Blvd.
CITY, STATE, ZIP Oakland, CA 94611
PHONE NO (415) 596-683

CONTAINERS: No. 1 truck VOLUME 20 yds³ WEIGHT 25 tons

TYPE: ☐ TANK TRUCK ☒ DUMP TRUCK ☐ DRUMS ☐ CARTONS ☐ OTHER

WASTE DESCRIPTION Non-Haz Hydrocarbon Contam. Soils GENERATING PROCESS

COMPONENTS OF WASTE	PPM		COMPONENTS OF WASTE	PPM	
1. Mineral Spirits	10-100 ppm		5.		
2.			6.		
3.			7.		
4.			8.		

PROPERTIES: pH ____ ☒ SOLID ☐ LIQUID ☐ SLUDGE ☐ SLURRY ☐ OTHER

HANDLING INSTUCTIONS:

THE GENERATOR CERTIFIES THAT THE WASTE AS DESCRIBED IS 100% NON-HAZARDOUS.

Sherry Swafford Sherry Swafford 6-13-90
TYPED OR PRINTED FULL NAME & SIGNATURE DATE

TRANSPORTER

NAME Keeling Trucking EPA I.D. NO. N/A
ADDRESS 19720 West Grant Line Rd. SERVICE ORDER NO.
CITY, STATE, ZIP Tracy, CA 95376 PICK UP DATE
PHONE NO 209, 835-8770 Ray Rostand 6-13-90
TRUCK, UNIT, I.D. NO. 34-4A TYPED OR PRINTED FULL NAME & SIGNATURE DATE

TSD FACILITY

NAME Nevada Hydrocarbon, Inc. EPA I.D. NO. N/A
ADDRESS 2600 E. Mustang Rd. DISPOSAL METHOD ☐ OTHER
CITY, STATE, ZIP Sparks, NV 89434
PHONE NO. 207 342-0200

TYPED OR PRINTED FULL NAME & SIGNATURE DATE

GEN	OLD/NEW	L A	TONS	
TRANS		S B		
C/O		RT/CD	HWDF NONE	DISCREPANCY

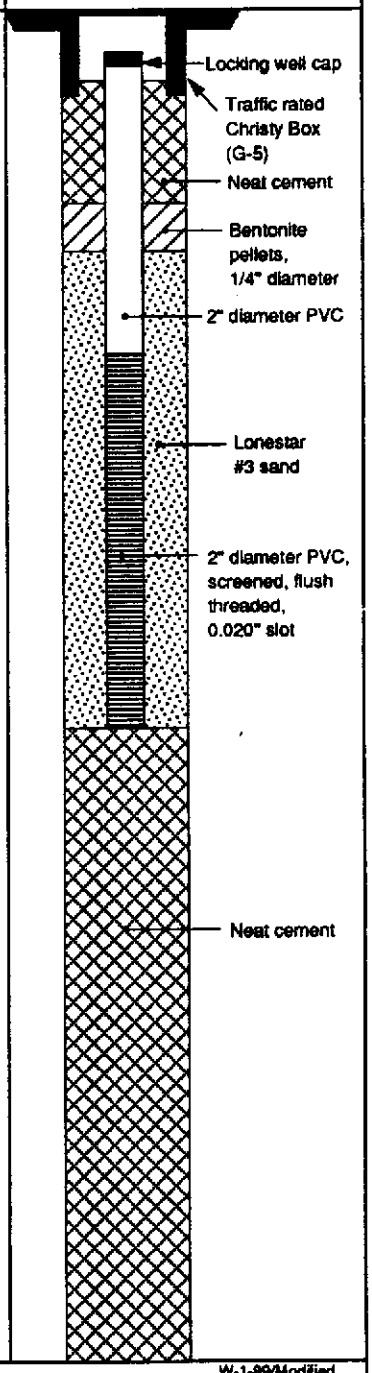
PROJECT: KAISER
Oakland, California

Log of Well No. MW-1

BORING LOCATION: End of corridor, boiler room	ELEVATION AND DATUM: 71.78 feet City of Oakland	
DRILLING CONTRACTOR: Clearheart	DATE STARTED: 11/7/90	DATE FINISHED: 11/8/90
DRILLING METHOD: 6" Hollow stem auger	TOTAL DEPTH: 30 feet	SCREEN INTERVAL: 3.5 - 7.5
DRILLING EQUIPMENT: Giddings Probe	DEPTH TO WATER ATD: 6 1/2 feet	CASING: 2" diameter SCH 40 PVC
SAMPLING METHOD: 2 1/2" California (CA), 2" split-spoon (2"), standard pen (p)	LOGGED BY: D. Wuthrich	
HAMMER WEIGHT: 140 lbs. / DROP: 30 inches	RESPONSIBLE PROFESSIONAL: J.D. Gallinatti	REG. NO. CEG 1335

DEPTH (feet)	SAMPLES: Sample No.	SAMPLES: Sample	SAMPLES: Blows/Foot	DESCRIPTION (NAME (USCS Symbol): color, moist, % by wt., plast., density, structure, cementation, react. w/HCl, geo. inter.)	ANALYTICAL RESULTS (ppm)
				Surface Elevation:	
0				6" concrete	
1	CA		4	SAND with CLAY (SW-SC) Brown (7.5 YR 5/4), moist, fine to coarse subangular sand, ~10% clay and silt, ~5% gravel	
2					
3	2" 1-1		6		Mineral spirits <10
4	p		7		
5	CA		33	SANDY GRAVEL with CLAY (GC) Light brown (7.5 YR 6/4), moist, angular medium gravel, (chert, lithic fragments) to 1/2" - 3/4", ~25% medium to coarse sand, ~10% silt and clay	
6				▽	
7	2" 1-2		39		Mineral spirits <10
8				SILTY CLAY (CL) Yellowish brown (10 YR 5/4), dry, no sand	
9	p		24		
10					
11	CA		33	Black mottling	
12					
13	2" 1-3		34		NA
14					

WELL CONSTRUCTION DETAILS



W-1-89/Modified

Geomatrix Consultants	Project No. 1459.05	Figure G1

PROJECT: KAISER
Oakland, California

Log of Well No. MW-1 (cont'd.)

DEPTH (feet)	SAMPLES Sample No.	SAMPLES Sample	SAMPLES Blows/ Foot	DESCRIPTION NAME (USCS Symbol): color, moist, % by wt., plast., density, structure, cementation, react. w/HCl, geo. inter.	ANALYTICAL RESULTS (ppm)	WELL CONSTRUCTION DETAILS
15	P		14	Mottled gray color		
16	CA		41	SILTY SAND (SM) Yellowish brown (10 YR 5/4) with black mottling, dry to moist, very fine to fine subrounded sand, ~25% silt, ~5% clay		
17	2"		29		Mineral spirits <10	
18	1-4					
19	P		20			
20						
21	CA		41	SILTY CLAY (CL) Brown (10 YR 5/3), dry to moist, clay and silt, no sand		Neat cement
22	2"		47			
23	1-5				NA	
24	P		28	5 - 10% angular gravel to 1/4"		
25						
26	CA		49			
27	2"		95 for 11"	CLAYEY GRAVEL with SAND (GC) Reddish brown (2.5 YR 5/4), moist, medium to fine gravel, ~20% clay and 10% medium sand		
28	1-5				NA	
29	P		68			
30				Bottom of hole at 30 feet		
31						

W-2-89/Modified

Geomatrix Consultants	Project No. 1459.05	Figure C1 cont

PROJECT: KAISER
Oakland, California

Log of Well No. MW-2

BORING LOCATION: Top of stairs, at 2 cooling towers

ELEVATION AND DATUM: 82.10 feet City of Oakland

DRILLING CONTRACTOR: Clearheart

DATE STARTED: 11/8/90

DATE FINISHED: 11/8/90

DRILLING METHOD: 6" Hollow stem auger

TOTAL DEPTH: 22 feet

SCREEN INTERVAL: 11 - 21

DRILLING EQUIPMENT: Giddings Probe

DEPTH TO WATER ATD: 19.7 feet

CASING: 2" diameter SCH 40 PVC

SAMPLING METHOD: 2 1/2" California (CA), 2" split-spoon (2"), standard pen (p)

LOGGED BY: D. Wuthrich

HAMMER WEIGHT: 140 lbs.

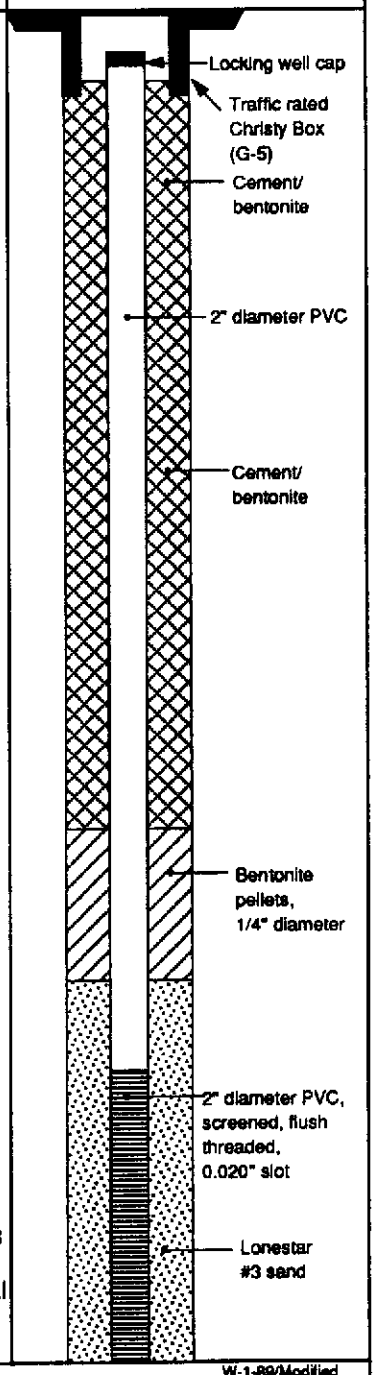
DROP: 30 inches

RESPONSIBLE PROFESSIONAL: J.D. Gallinatti

REG. NO. CEG 1335

DEPTH (feet)	SAMPLES: Sample No.	SAMPLES: Sample	SAMPLES: Blows/Foot	DESCRIPTION (NAME (USCS Symbol): color, moist, % by wt., plast., density, structure, cementation, react. w/HCl, geo. inter.)	ANALYTICAL RESULTS (ppm)
				Surface Elevation:	
0-6	2" 2-1		34	SAND (FILL) (SW) Yellowish brown (10 YR 5/4), moist, fine to coarse, subangular to subrounded sand, 5% silt and clay, ~5% gravel	
3-4	2" 2-1		34	GRAVELLY SAND (SW) Yellowish brown (10 YR 5/6), moist, fine to coarse angular sand, 20% angular gravel to 1/2" (clasts include chert and limestone), less than 10% silt and clay	PID=0 NA
5-6	P		27		
7-8	2" 2-2		38	Increased silt and clay	PID=1.1 NA
9-12				SANDY SILT (ML) Yellowish brown (10 YR 5/6), moist, silt, ~25% fine sand, ~5% clay	
13-14	2" 2-3		37	SAND (SW) Brownish yellow (10 YR 6/6), moist, fine to medium sand, occasional 2 to 4" thick gravel lenses, gravel clasts to 1/2"	PID=0.8 Mineral spirits <10

WELL CONSTRUCTION DETAILS



W-1-89/Modified

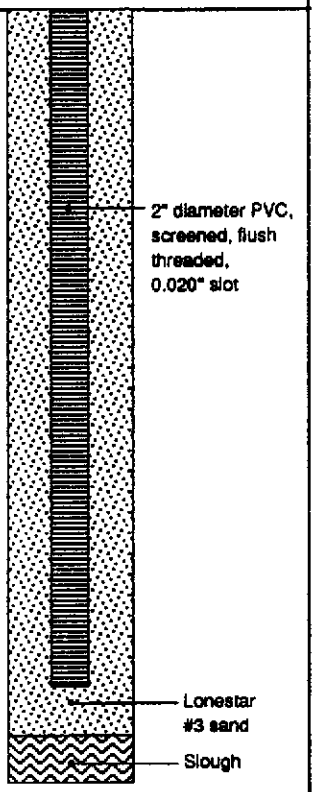
Geomatrix Consultants | Project No. 1459.05 | Figure C2

PROJECT: KAISER
Oakland, California

Log of Well No. MW-2 (cont'd.)

DEPTH (feet)	SAMPLES: Sample No.	SAMPLES: Sample	SAMPLES: Blows/Foot	DESCRIPTION: NAME (USCS Symbol): color, moist, % by wt., plast., density, structure, cementation, react. w/HCl, geo. inter.	ANALYTICAL RESULTS (ppm)
15					
16	CA		44		
17	2"		42	SANDY GRAVEL Yellowish brown (10 YR 5/4), moist, gravel to 1/2", ~30% fine to coarse sand	Mineral spirits <10
	2-4				
18					
19	p		19	SAND (SW) Brownish Yellow (10 YR 6/6), moist, fine to medium angular sand, ~5% silt and clay, ~5% gravel to 1/4" ▽	
20					
21	CA		31	SILTY CLAY (CL) Light yellowish brown 910 yr 6/4), moist, clay and silt, no sand	
22				Bottom of hole at 22 feet	
23					
24					
25					
26					
27					
28					
29					
30					
31					

WELL CONSTRUCTION DETAILS



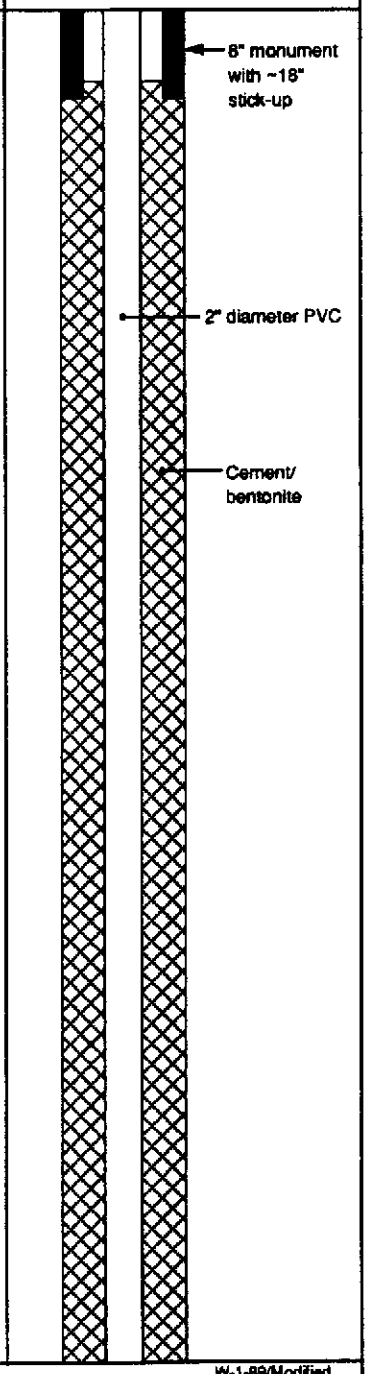
W-2-89/Modified

PROJECT: KAISER
Oakland, California

Log of Well No. MW-3

BORING LOCATION: Picnic area at top of slope	ELEVATION AND DATUM: 102.04 feet City of Oakland	
DRILLING CONTRACTOR: Weeks	DATE STARTED: 11/15/90	DATE FINISHED: 11/15/90
DRILLING METHOD: 8" Hollow stem auger	TOTAL DEPTH: 43.5 feet	SCREEN INTERVAL: 38 - 41
DRILLING EQUIPMENT: Mobil	DEPTH TO WATER ATD: NA	CASING: 2" diameter SCH 40 PVC
SAMPLING METHOD: 2 1/2" California	LOGGED BY: D. Wuthrich	
HAMMER WEIGHT: 140 lbs. / DROP: 30 inches	RESPONSIBLE PROFESSIONAL: J.D. Gallinatti	REG. NO. CEG 1335

DEPTH (feet)	SAMPLES: Sample No.	SAMPLES: Sample	SAMPLES: Blows/Foot	DESCRIPTION (NAME (USCS Symbol): color, moist, % by wt., plast., density, structure, cementation, react. w/HCl, geo. inter.)	ANALYTICAL RESULTS (ppm)
				Surface Elevation:	
0				CLAYEY SAND (FILL) (SW-SC) Fine to medium sand with clay	
1				SILTY CLAY (CH) Dark brown (7.5 YR 3/2), moist, clay and silt	
2					
3					
4					
5			54		
6	3-1				PID=0.6 NA
7				SAND with CLAY (SW-SC) Strong brown (7.5 YR 5/6), moist, fine to medium sand, ~10% clay and silt	
8					
9					
10			40		
11	3-2				PID=0.3 NA
12					
13				GRAVELLY CLAY (CL) Light brown (7.5 YR 6/4), moist, clay and silt, ~20% fine to medium gravel to 1/2"	
14					



WELL CONSTRUCTION DETAILS

W-1-89/Modified

Geomatrix Consultants	Project No. 1459.05	Figure C3

PROJECT: KAISER
Oakland, California

Log of Well No. MW-3 (cont'd.)

DEPTH (feet)	SAMPLES: Sample No.	SAMPLES: Sample	SAMPLES: Blows/Foot	DESCRIPTION	ANALYTICAL RESULTS (ppm)	WELL CONSTRUCTION DETAILS
15						
16	3-3		50	Gradational over 1 foot	PID=0 NA	2" diameter PVC
17				SANDY CLAY (CL) Light brown (7.5 YR 6/4), moist, clay and silt, ~20% fine to medium sand, no gravel		
18						
19						
20				Gradational over 1 foot		
21			65	SILTY CLAY (CL) Light brown (7.5 YR 6/4), moist, clay and silt	PID=0 NA	Cement grout
22	3-4					
23			56			
24						
25			45	~25% fine sand		
26			95 for 11"			
27	3-5			SAND (SP) Light brown (7.5 YR 6/4), moist, fine to medium sand, ~5% silt and clay	Mineral spirits <10	
28			70			
29			55			
30				CLAYEY SAND (SC) Light brown (7.5 YR 6/4), moist, fine, subrounded sand, ~25% to 50% silt and clay		
31						

W-2-89/Modified

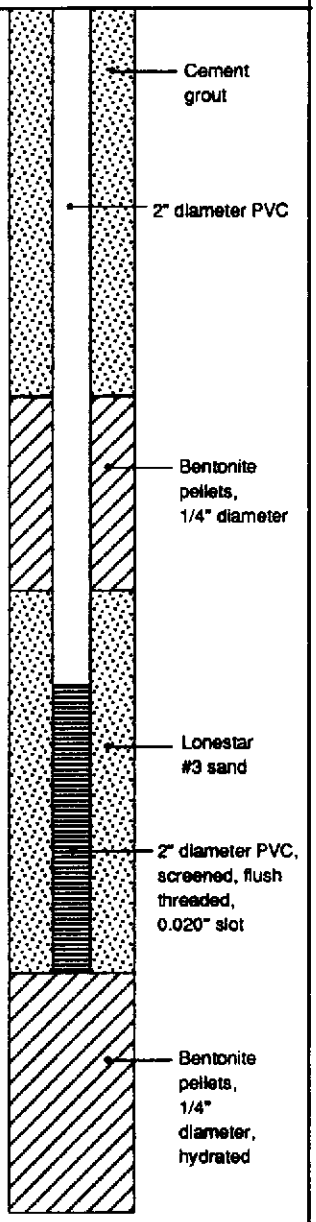
Geomatrix Consultants | Project No. 1459.05 | Figure C3 cont

PROJECT: KAISER
Oakland, California

Log of Well No. MW-3 (cont'd.)

DEPTH (feet)	SAMPLES: Sample No.	SAMPLES: Sample	SAMPLES: Blows/Foot	DESCRIPTION: NAME (USCS Symbol): color, moist, % by wt., plast., density, structure, cementation, react. w/HCl, geo. inter.	ANALYTICAL RESULTS (ppm)
32	3-6		68		PID=0.3 Mineral spirits <10
33			43	SILTY CLAY (CL) Brownish yellow (10 YR 6/6), moist, clay and silt	
34			40		
35					
36			75		
37			40		PID=0
38	3-7			SANDY SILT (ML) Brownish yellow (10 YR 6/6), silt, ~50% fine to very fine sand, ~5% clay	Mineral spirits <10
39			50		
40					
41			90	SILTY CLAY (CL) Brownish yellow (10 YR 6/6), moist, clay and silt	
42			30		
43	3-8				Mineral spirits <10
44				Bottom of hole at 43.5 feet	
45					
46					
47					
48					

WELL CONSTRUCTION DETAILS



W-2-89/Modified

Geomatrix Consultants	Project No. 1459.05	Figure C3 cont

PROJECT: KAISER Oakland, California	**Log of Well No. MW-4**
BORING LOCATION: At northeast end of new building	ELEVATION AND DATUM: 82.57 feet City of Oakland
DRILLING CONTRACTOR: Weeks	DATE STARTED: 11/16/90 / DATE FINISHED: 11/16/90
DRILLING METHOD: 8" Hollow stem auger	TOTAL DEPTH: 22 feet / SCREEN INTERVAL: 10.5 - 20.5
DRILLING EQUIPMENT: Mobil	DEPTH TO WATER ATD: N/A / CASING: 2" diameter SCH 40 PVC
SAMPLING METHOD: 2 1/2" California	LOGGED BY: D. Wuthrich
HAMMER WEIGHT: 140 lbs. / DROP: 30 inches	RESPONSIBLE PROFESSIONAL: J.D. Gallinatti / REG. NO. CEG 1335

DEPTH (feet)	SAMPLES: Sample No.	SAMPLES: Sample	SAMPLES: Blows/Foot	DESCRIPTION	ANALYTICAL RESULTS (ppm)	WELL CONSTRUCTION DETAILS
				Surface Elevation:		
0				GRAVELLY SAND (FILL) (SW) Brown (7.5 YR 4/2), moist, fine to coarse sand, ~25% fine gravel to 1/4", ~5% clay and silt		Locking well cap Traffic rated Christy Box (F-8) Cement/ bentonite
3				SAND with GRAVEL (SW) Yellowish brown (10 YR 5/6), moist, subangular to subrounded, fine to coarse sand, ~10% gravel to 1/2"		2" diameter PVC
5			80		PID=0.9	Cement/ bentonite
6	4-1				NA	
9				Becoming coarser sand		Bentonite pellets, 1/4" diameter
10			88	GRAVELLY SAND (SW) Yellowish brown (10 YR 5/6), moist, medium to coarse subangular to subrounded sand, ~25% fine gravel	PID=0.8	
11						2" diameter PVC, screened, flush threaded, 0.020" slot
12	4-2				NA	
13			60			Lonestar #3 sand
14						

W-1-89/Modified

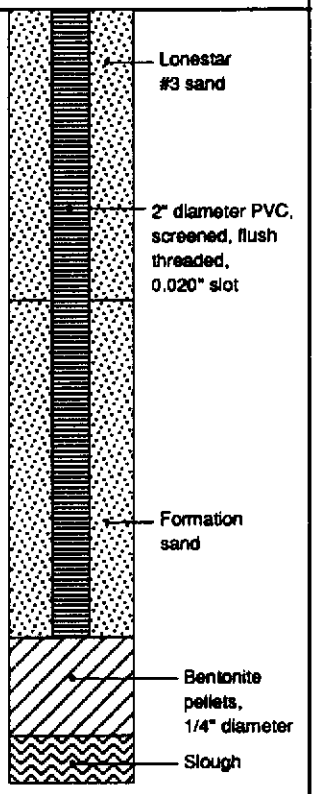
Geomatrix Consultants	Project No. 1459.05	Figure C4

PROJECT: KAISER
Oakland, California

Log of Well No. MW-4 (cont'd.)

DEPTH (feet)	SAMPLES: Sample No.	SAMPLES: Sample	SAMPLES: Blows/Foot	DESCRIPTION: NAME (USCS Symbol): color, moist, % by wt., plast., density, structure, cementation, react. w/HCl, geo. inter.	ANALYTICAL RESULTS (ppm)
15	4-3		65	Subangular gravel to 1/4", ~30% coarse sand	Mineral spirits <10
16			90	Very fine sand, no gravel, ~50% silt	
17			40	SILTY SAND (SW-SM) Light yellowish brown (10 YR 6/4), moist, very fine to fine subrounded sand, ~10 - 25% silt, ~5% clay	
18					
19			48		
20	4-4				Mineral spirits <10
21			73	SILTY CLAY (CL) Pale brown (10 YR 6/3), moist, clay and silt, no sand	
22	4-5				Mineral spirits <10
23				Bottom of hole at 22 feet	
24					
25					
26					
27					
28					
29					
30					
31					

WELL CONSTRUCTION DETAILS



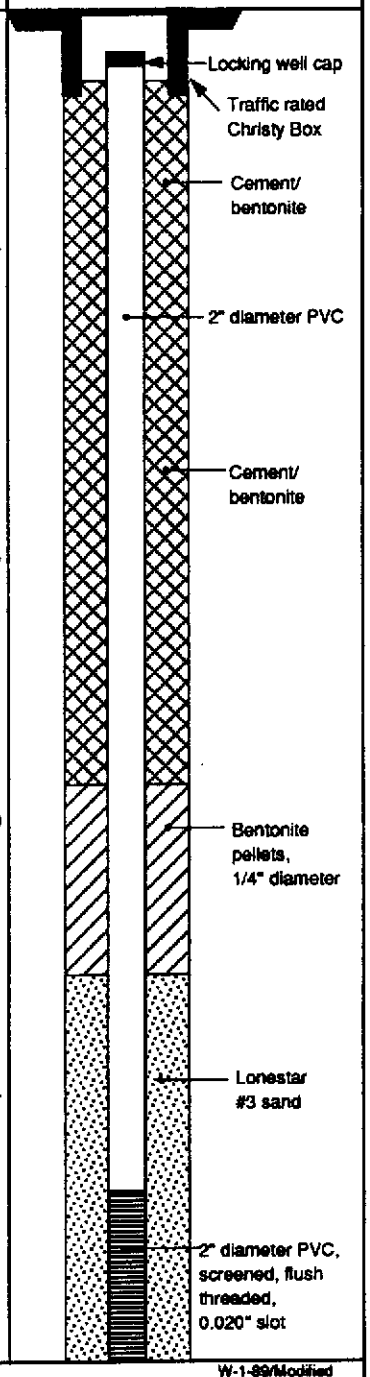
W-2-89/Modified

Geomatrix Consultants | Project No. 1459.05 | Figure C4 cont

PROJECT: KAISER Oakland, California	**Log of Well No. MW-5**
BORING LOCATION: Linen room, nearest west wall	ELEVATION AND DATUM: 72.19 feet City of Oakland
DRILLING CONTRACTOR: HEW/Schick	DATE STARTED: 1/26/91 / DATE FINISHED: 1/27/91
DRILLING METHOD: 8" Hollow stem auger	TOTAL DEPTH: 18 feet / SCREEN INTERVAL: 12 - 16
DRILLING EQUIPMENT: Portable Holester	DEPTH TO WATER ATD: 12 feet / CASING: 2" diameter SCH 40 PVC
SAMPLING METHOD: 2" Modified California (2"), standard pen (p)	LOGGED BY: D. Wuthrich
HAMMER WEIGHT: Manual; ~35 lbs. / DROP: Manual; ~24 inches	RESPONSIBLE PROFESSIONAL: J.D. Gallinatti / REG. NO. CEG 1335

DEPTH (feet)	SAMPLES: Sample No.	SAMPLES: Sample	SAMPLES: Blows/Foot	DESCRIPTION NAME (USCS Symbol): color, moist, % by wt., plast., density, structure, cementation, react. w/HCl, geo. inter.	ANALYTICAL RESULTS (ppm)
				Surface Elevation:	
0				GRAVEL with SAND (FILL) (GP) 4" concrete over coarse, subangular to subrounded gravel clasts to 1 1/2", ~10% medium to coarse sand	
2	2"			SILTY SAND (SM) Pale brown (10 YR 6/3), moist, very fine sand, ~25% silt, ~5% clay	PID=2.7
3	5-1				NA
4				SILT with SAND (ML) Brownish yellow (10 YR 6/6) (with black mottling), moist, weakly laminated silt, ~10% very fine sand and ~10% clay	
5	2"				PID=2.3
6	5-2				Mineral spirits <10
7				SILTY CLAY (CL) Yellowish brown (10 YR 5/4) (with black mottling), moist, clay and silt, ~5% very fine sand	
8	2"				PID=1.9
9	5-3				Mineral spirits <10
10	2"			~50% silt	
11	2"				PID=1.4
12	5-4				Mineral spirits <10
	2"				
13	5-5			CLAYEY SILT (ML) Dark yellowish brown (10 YR 4/6), moist, weakly laminated silt, ~20% clay, ~5% very fine sand	NA
14					

WELL CONSTRUCTION DETAILS



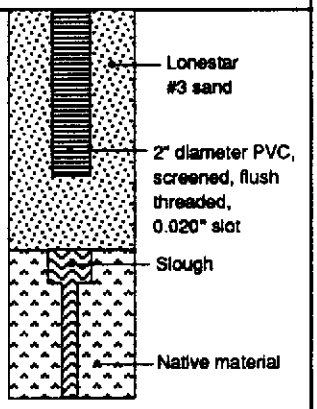
W-1-89/Modified

Geomatrix Consultants	Project No. 1459.05	Figure C5

PROJECT: KAISER
Oakland, California

Log of Well No. MW-5 (cont'd.)

DEPTH (feet)	SAMPLES Sample No.	SAMPLES Sample	SAMPLES Blows/ Foot	DESCRIPTION NAME (USCS Symbol): color, moist, % by wt., plast., density, structure, cementation, react. w/HCl, geo. inter.	ANALYTICAL RESULTS (ppm)	WELL CONSTRUCTION DETAILS
15	P			~10% clay		
16	2"				NA	
17	5-6			SILTY CLAY (CL) Brownish yellow (10 YR 6/6), moist, clay and silt		
18	P			SAND with SILT (SM) Brownish yellow (10 YR 6/6), moist, very fine to fine sand, ~10% silt		
19				Bottom of hole at 18 feet		
20						
21						
22						
23						
24						
25						
26						
27						
28						
29						
30						
31						



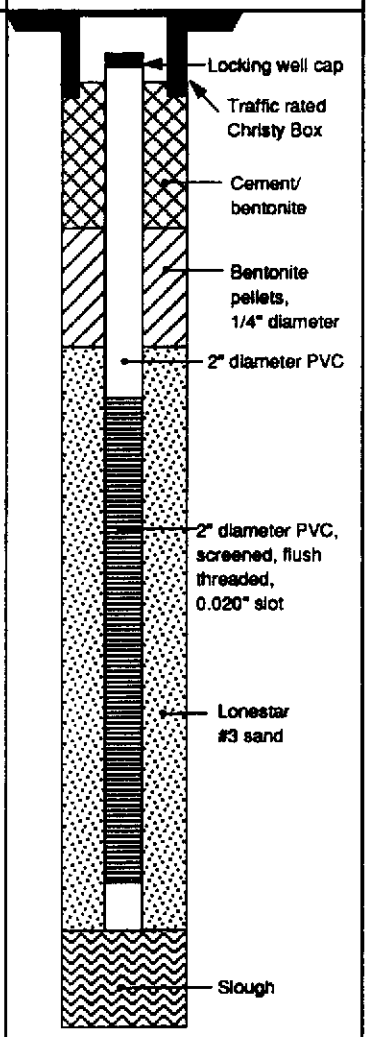
W-2-89/Modified

Geomatrix Consultants | Project No. 1459.05 | Figure C5 cont

PROJECT: KAISER Oakland, California	**Log of Well No. MW-6**
BORING LOCATION: Linen room, nearest east door	ELEVATION AND DATUM: 72.19 feet City of Oakland
DRILLING CONTRACTOR: HEW/Schick	DATE STARTED: 1/27/91 / DATE FINISHED: 1/27/91
DRILLING METHOD: 8" Hollow stem auger	TOTAL DEPTH: 10.5 feet / SCREEN INTERVAL: 4 - 9
DRILLING EQUIPMENT: Portable Holester	DEPTH TO WATER ATD: NA / CASING: 2" diameter SCH 40 PVC
SAMPLING METHOD: 2" Modified California (2"), standard pen (p)	LOGGED BY: D. Wuthrich
HAMMER WEIGHT: Manual; ~35 lbs. / DROP: Manual; ~24 inches	RESPONSIBLE PROFESSIONAL: J.D. Gallinatti / REG. NO. CEG 1335

DEPTH (feet)	SAMPLES: Sample No.	SAMPLES: Sample	SAMPLES: Blows/Foot	DESCRIPTION NAME (USCS Symbol): color, moist, % by wt., plast., density, structure, cementation, react. w/HCl, geo. inter.	ANALYTICAL RESULTS (ppm)
				Surface Elevation:	
1				GRAVEL with SAND (FILL) (GP) 4" concrete over dry, coarse, subangular to subrounded gravel, clasts to 1 1/2", ~10% medium to coarse sand	
2				SILTY CLAY (CH) Brownish yellow (10 YR 5/6), moist, clay and silt	
3					
4				SILT with SAND (ML) Brownish yellow (10 YR 6/6) (with black mottling), moist silt, ~15% very fine, subangular sand, ~15% clay	
5	2"				
6	6-1				PID=1.5 Mineral spirits <10
7	2"			Clay and silt, no sand Silt, ~15% clay, no sand	
8	6-2				NA
9	P 2"			SILTY CLAY (CL) Yellowish brown (10 YR 5/6) (with black mottling), moist, clay and silt, blocky	
10	6-3				Mineral spirits <10
11				Bottom of hole at 10.5 feet	
12					
13					
14					

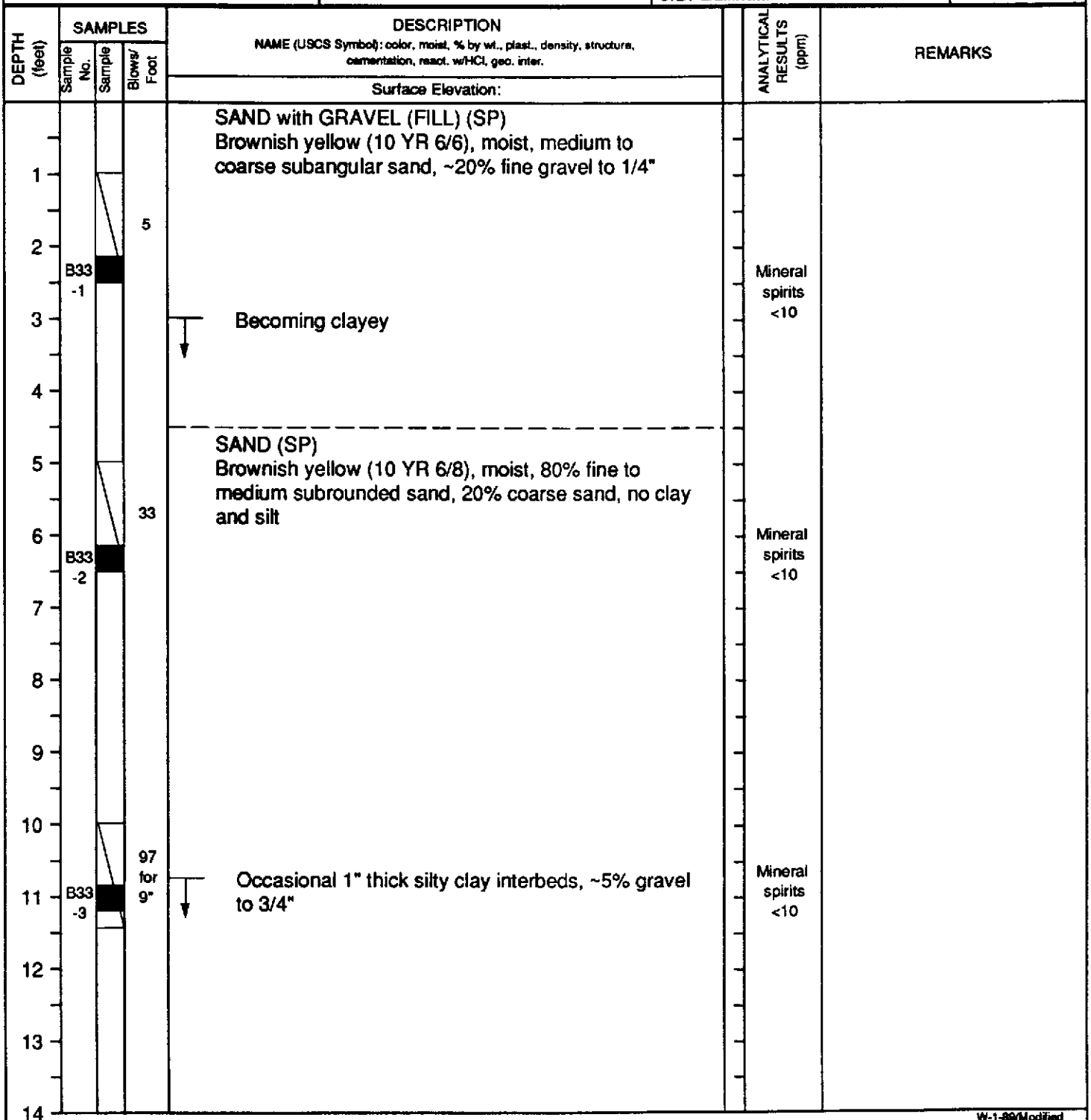
WELL CONSTRUCTION DETAILS



W-1-89/Modified

Geomatrix Consultants	Project No. 1459.05	Figure C6

PROJECT: KAISER Oakland, California	**Log of Boring No. B33**
BORING LOCATION: Near emergency water tank	ELEVATION AND DATUM: N/A
DRILLING CONTRACTOR: HEW	DATE STARTED: 1/14/91 / DATE FINISHED: 1/14/91
DRILLING METHOD: 8" Hollow stem auger/8" solid stem auger	TOTAL DEPTH: 25feet / MEASURING POINT: N/A
DRILLING EQUIPMENT: Ferret	DEPTH TO WATER / FIRST: N/A / COMPL: N/A / 24 HRS: N/A.
SAMPLING METHOD: 2" Modified California	LOGGED BY: D. Wuthrich
HAMMER WEIGHT: 140 lbs. / DROP: 30 inches	RESPONSIBLE PROFESSIONAL: J.D. Gallinatti / REG. NO. CEG 1335



W-1-89/Modified

Geomatrix Consultants	Project No. 1459.05	Figure C7

PROJECT: KAISER
Oakland, California

Log of Boring No. B33 (c

DEPTH (feet)	SAMPLES Sample No.	SAMPLES Sample	SAMPLES Blows/ Foot	DESCRIPTION NAME (USCS Symbol): color, moist, % by wt., plast., density, structure, cementation, react. w/HCl, geo. inter.	ANALYTICAL RESULTS (ppm)	REMAR
15			91 for 9"			
16	B33 -4			GRAVELLY SAND (SW) Yellowish brown (10 YR 5/6), moist, medium to coarse, subrounded sand, ~20% gravel to 1", ~5% silt and clay	Mineral spirits <10	
17						
18						
19				SANDY SILT with CLAY (ML) Light brownish yellow (10 YR 6/4), moist to wet, silt, ~25% very fine sand, ~10% clay, abundant root casts		
20			61			
21	B33 -5				Mineral spirits <10	
22				SILTY CLAY (CL) brownish yellow (10 YR 6/6) (with black mottling), moist to wet, clay and silt		
23	B33 -6		88		Mineral spirits <10	
24			82			
25	B33 -7			SANDY SILT (ML) Brown (10 YR 5/3), moist to wet silt, ~25% very fine to medium sand	Mineral spirits <10	
26				Bottom of hole at 25 feet		
27						
28						
29						
30						
31						

PROJECT: KAISER Oakland, California	**Log of Boring No. B34**
BORING LOCATION: Hillslope behind retaining wall	ELEVATION AND DATUM: N/A
DRILLING CONTRACTOR: HEW	DATE STARTED: 1/14/91 / DATE FINISHED: 1/15/91
DRILLING METHOD: 8" Hollow stem auger	TOTAL DEPTH: 16.5 feet / MEASURING POINT: N/A
DRILLING EQUIPMENT: Ferret	DEPTH TO WATER: FIRST N/A / COMPL N/A / 24 HRS N/A
SAMPLING METHOD: 2" Modified California	LOGGED BY: D. Wuthrich
HAMMER WEIGHT: 140 lbs. / DROP: 30 inches	RESPONSIBLE PROFESSIONAL: J.D. Gallinatti / REG. NO. CEG 1335

DEPTH (feet)	SAMPLES: Sample No.	SAMPLES: Sample	SAMPLES: Blows/Foot	DESCRIPTION NAME (USCS Symbol): color, moist, % by wt., plast., density, structure, cementation, react. w/HCl, geo. inter. Surface Elevation:	ANALYTICAL RESULTS (ppm)	REMARKS
1			50	SILTY SAND (SM) Yellowish brown (10 YR 5/6), moist, very fine to fine sand, ~25% silt, 5% clay		
2	B34 -1			SILTY CLAY (CL) Olive (5Y 5/4), moist, clay and silt, ~5% fine sand	Mineral spirits <10	
3						
4						
5			96 for 11"			
6	B34 -2				Mineral spirits <10	
7				CLAYEY SAND (SC) Light yellowish brown (10 YR 6/4), moist, very fine to fine sand, ~25% clay and silt		
8						
9				SAND (SP) Yellow (10 YR 7/6), moist, fine, subrounded to subangular sand, no clay or silt		
10			84 for 11"			
11	B34 -3				Mineral spirits <10	
12						
13				Increasing silt and clay to ~10%		
14						

W-1-89/Modified

Geomatrix Consultants	Project No. 1459.05	Figure C8

PROJECT: KAISER
Oakland, California

Log of Boring No. B34 (cont'd.)

DEPTH (feet)	SAMPLES: Sample No.	SAMPLES: Sample	SAMPLES: Blows/Foot	DESCRIPTION: NAME (USCS Symbol): color, moist, % by wt., plast., density, structure, cementation, react. w/HCl, geo. inter.	ANALYTICAL RESULTS (ppm)	REMARKS
15			84 for 10"	SILTY CLAY (CL) Yellowish brown (10 YR 5/4) (with black mottling), moist, clay and silt, ~5% sand	Mineral spirits <10	
16	B34 -4			Bottom of hole at 16.5 feet		
17						
18						
19						
20						
21						
22						
23						
24						
25						
26						
27						
28						
29						
30						
31						

W-2-89/Modified

PROJECT: KAISER Oakland, California	**Log of Boring No. B35**
BORING LOCATION: At top of slope, behind retaining wall	ELEVATION AND DATUM: N/A
DRILLING CONTRACTOR: HEW	DATE STARTED: 1/15/91 / DATE FINISHED: 1/15/91
DRILLING METHOD: 8" Hollow stem auger	TOTAL DEPTH: 16.5 feet / MEASURING POINT: N/A
DRILLING EQUIPMENT: Ferret	DEPTH TO WATER: FIRST N/A, COMPL N/A, 24 HRS N/A
SAMPLING METHOD: 2" Modified California	LOGGED BY: D. Wuthrich
HAMMER WEIGHT: 140 lbs. / DROP: 30 inches	RESPONSIBLE PROFESSIONAL: J.D. Gallinatti / REG. NO. CEG 1335

DEPTH (feet)	Sample No.	Sample	Blows/ Foot	DESCRIPTION NAME (USCS Symbol): color, moist, % by wt., plast., density, structure, cementation, react. w/HCl, geo. inter. Surface Elevation:	ANALYTICAL RESULTS (ppm)	REMARKS
0				CLAYEY SAND (FILL) (SW-SC) Fine to medium sand, ~25% clay		
1			36	SILTY CLAY (CL) Dark brown (10 YR 4/3), moist, silt and clay, ~25% organic debris in upper 6 inches, ~5% sand		
2	B35 -1				Mineral spirits [redacted]	
3						
4						
5			32			
6	B35 -2			Abundant rootlets, blocky structure	Mineral spirits [redacted]	
7						
8				SILTY CLAY with SAND (CL) Brownish yellow (10 YR 6/6) (with block mottling), moist, clay and silt, ~10 - 15% very fine to fine sand		
9						
10			77 for 11"			
11	B35 -3				Mineral spirits <10	
12				SAND (SP) Yellowish brown (10 YR 5/6), moist, very fine to fine subrounded sand, ~5% clay		
13						
14						

W-1-89/Modified

Geomatrix Consultants	Project No. 1459.05	Figure C9

PROJECT: KAISER
Oakland, California

Log of Boring No. B35 (cont'd.)

DEPTH (feet)	SAMPLES: Sample No.	SAMPLES: Sample	SAMPLES: Blows/Foot	DESCRIPTION: NAME (USCS Symbol): color, moist, % by wt., plast., density, structure, cementation, react. w/HCl, geo. inter.	ANALYTICAL RESULTS (ppm)	REMARKS
15			66			
16	B35 -4				Mineral spirits <10	
				Bottom of hole at 16.5 feet		
17						
18						
19						
20						
21						
22						
23						
24						
25						
26						
27						
28						
29						
30						
31						

W-2-89/Modified

PROJECT: KAISER HOSPITAL SITE
Oakland, California

Log of Boring No. MB7

BORING LOCATION: Inside mechanical building	ELEVATION AND DATUM: ---			
DRILLING CONTRACTOR: None	DATE STARTED: 2/25/91	DATE FINISHED: 2/25/91		
DRILLING METHOD: Hand auger	TOTAL DEPTH: 13.5'	MEASURING POINT: ---		
DRILLING EQUIPMENT: Hand auger	DEPTH TO WATER	FIRST ---	COMPL. ---	24 HRS. ---
SAMPLING METHOD: Direct from auger	LOGGED BY: M.T. Obloy			
HAMMER WEIGHT: --- DROP: ---	RESPONSIBLE PROFESSIONAL: J.D. Gallinatti		REG. NO. CEG#1335	

DEPTH (feet)	SAMPLES Sample No.	SAMPLES Sample	SAMPLES Blows/ Foot	DESCRIPTION NAME (USCS Symbol): color, moist, % by wt., plast., density, structure, cementation, react. w/HCl, geo. inter.	PID Results (ppm)	Analytical Results for Mineral Spirits (ppm)
				Surface Elevation:		
				3" Asphalt cap		
1	MB7 -1			SAND with CLAY (SW) Dark brown (10 YR 3/2); moist, 85% fine to coarse sand, 15% fines, trace of gravel (Fill)	0	
2	MB7 -2			CLAYEY SAND (SC) Dark brown (10 YR 3/3); moist, 55 - 60% fine sand, 40 - 45% clay	200 Sample = 155	
3				SAND with CLAY (SP) Greenish gray (5 GY 5/1); moist, fine to medium sand, 5% fines, strong hydrocarbon odor	2	
4				Increased clay content, color change to dark yellowish brown (10 YR 4/4)	13	
5	MB7 -3			Gradational contact	85 Sample = 25	
6				SANDY CLAY (CL) Dark yellowish brown (10 YR 4/4) with blue-gray mottling; moist, 70% fines and 30% fine sand, low - medium plasticity, strong hydrocarbon odor	130	
7				Sand with silt interbed; blue-gray	11	
8				Increase sand content to 40%	90	
9					50	
10	MB7 -4				150 Sample = 50	
11				SAND with CLAY (SC) Dark brown (10 YR 3.3); moist, 80 - 90% fine to medium sand, mostly fine, 10 - 20% fines, slight hydrocarbon odor	60	
12				Increasing grain size of sand to mostly medium	20	
13	MB7 -5				20	
14				Bottom of boring at 13.5 feet	15	<10

B-1-99/Modified

Geomatrix Consultants | Project No. 1459.05 | Figure C 10

PROJECT: KAISER HOSPITAL SITE
Oakland, California

Log of Boring No. MB8

BORING LOCATION: Inside mechanical building	ELEVATION AND DATUM: ---		
DRILLING CONTRACTOR: None	DATE STARTED: 2/25/91	DATE FINISHED: 2/25/91	
DRILLING METHOD: Hand auger	TOTAL DEPTH: 5'	MEASURING POINT: ---	
DRILLING EQUIPMENT: Hand auger	DEPTH TO WATER	FIRST ---	COMPL. --- / 24 HRS. ---
SAMPLING METHOD: Direct from auger	LOGGED BY: M.T. Obloy		
HAMMER WEIGHT: --- / DROP: ---	RESPONSIBLE PROFESSIONAL: J.D. Gallinatti	REG. NO. CEG#1335	

DEPTH (feet)	SAMPLES: Sample No.	SAMPLES: Sample	SAMPLES: Blows/Foot	DESCRIPTION (NAME (USCS Symbol): color, moist, % by wt., plast., density, structure, cementation, react. w/HCl, geo. inter.)	PID Results (ppm)	Analytical Results for Mineral Spirits (ppm)
				Surface Elevation:		
0				3" Asphalt cap		
1	MB8 -1			SAND with CLAY (SW) Dark brown (10 YR 3/3); moist, 85% fine to coarse sand, 15% fines		
2				CLAYEY SAND (SC) Dark brown (10 YR 3/3) with blue-gray mottling; moist, 70 - 75% fine to medium sand, 25 - 30% fines, strong hydrocarbon odor	160 Sample = 50 160	[redacted]
3					80	
4					60	
	MB8 -2			Increasing fines to ~40%; less blue-gray mottling, weaker odor		
5				Bottom of boring at 5 feet	40 Sample = 20	<10
6						
7						
8						
9						
10						
11						
12						
13						
14						

B-1-89/Modified

GEOMATRIX

APPENDIX D

ANALYTICAL LABORATORY REPORTS AND CHAIN-OF-CUSTODY RECORDS FOR SOIL SAMPLES

Analytical Report

LOG NO: E90-06-249

Received: 12 JUN 90
Reported: 14 JUN 90

Ms. Debra Favre
Geomatrix Consultants
1 Market Plaza, Spear Tower, Ste.717
San Francisco, California 94105

Project: 1459

REPORT OF ANALYTICAL RESULTS

LOG NO	SAMPLE DESCRIPTION, SOIL SAMPLES	DATE SAMPLED
06-249-1	F1-612	12 JUN 90
06-249-2	F2-612	12 JUN 90
06-249-3	W3-612	12 JUN 90
06-249-4	W4-612	12 JUN 90
06-249-5	W5-612	12 JUN 90

PARAMETER	06-249-1	06-249-2	06-249-3	06-249-4	06-249-5
TPH and BTEX - Modified 8015					
Date Analyzed	06.12.90	06.12.90	06.12.90	06.12.90	06.12.90
Dilution Factor, Times	1	1	1	1	1
Benzene, mg/kg	<0.3	<0.3	<0.3	<0.3	<0.3
Ethylbenzene, mg/kg	<0.3	<0.3	<0.3	<0.3	<0.3
Toluene, mg/kg	<0.3	<0.3	<0.3	<0.3	<0.3
Total Xylene Isomers, mg/kg	<0.3	<0.3	<0.3	<0.3	<0.3
Total Fuel Hydrocarbons, mg/kg	<10	<10	<10	<10	<10
Other TPH and BTEX - Modified 8015	---	---	---	---	---

1255 Powell Street
Emeryville, CA 94608

415/428-2300
Fax: 415/547-3643

BCA *B C Analytical*

Analytical Report

LOG NO: E90-06-249

Received: 12 JUN 90
Reported: 14 JUN 90

Ms. Debra Favre
Geomatrix Consultants
1 Market Plaza, Spear Tower, Ste.717
San Francisco, California 94105

Project: 1459

REPORT OF ANALYTICAL RESULTS

LOG NO	SAMPLE DESCRIPTION, SOIL SAMPLES	DATE SAMPLED
06-249-6	F6-612	12 JUN 90

PARAMETER	06-249-6
TPH and BTEX - Modified 8015	
Date Analyzed	06.12.90
Dilution Factor, Times	1
Benzene, mg/kg	<0.3
Ethylbenzene, mg/kg	<0.3
Toluene, mg/kg	<0.3
Total Xylene Isomers, mg/kg	<0.3
Total Fuel Hydrocarbons, mg/kg	<10
Other TPH and BTEX - Modified 8015	---

Sim D. Lessley, Ph.D., Laboratory Director

1255 Powell Street
Emeryville, CA 94608

415/428-2300
Fax: 415/547-3643

B C Analytical

9006249

GEOMATRIX CONSULTANTS

ONE MARKET PLAZA
SPEAR STREET TOWER SUITE 717
SAN FRANCISCO, CALIFORNIA 94105
(415) 957-9557

Chain of Custody Record

00993

DATE 6-12-90 PAGE 1 OF 1

PROJECT NO. 1459

SAMPLERS: (SIGNATURE) Mike Keim

DATE	TIME	SAMPLE NUMBER	GENERAL MINERAL	PRIORITY POLLUTANT METALS	EPA METHOD 624	EPA METHOD 625	EPA METHOD 601	EPA METHOD 602	EPA METHOD 608	PETROLEUM HYDROCARBONS	8015 BTXE, Mineral Spirits					NUMBER OF CONTAINERS
6-12	10:50	F1-612									X					1
6-12	10:55	F2-612									X					1
6-12	11:00	W3-612									X					1
6-12	11:05	W4-612									X					1
6-12	14:10	W5-612									X					1
6-12	14:20	F6-612									X					1

ANALYSES

REMARKS
(SAMPLE PRESERVATION, HANDLING PROCEDURES, OBSERVATIONS, ETC.)

24 hr. Turnaround
Results by FAX
To Geomatrix
attn. Debra Faure
10 ppm detection
limit

TOTAL NUMBER OF CONTAINERS 6

RELINQUISHED BY:	DATE	RECEIVED BY:
Mike Keim	6/12	Monica Scott
SIGNATURE: Mike Keim	TIME: 15:45	SIGNATURE: Monica Scott
PRINTED NAME: Geomatrix		PRINTED NAME: BCA
COMPANY		COMPANY

RELINQUISHED BY:	DATE	RECEIVED BY:
SIGNATURE	TIME	SIGNATURE
PRINTED NAME		PRINTED NAME
COMPANY		COMPANY

RELINQUISHED BY:	DATE	RECEIVED BY: (LAB)
SIGNATURE	TIME	SIGNATURE
PRINTED NAME		PRINTED NAME
COMPANY		LABORATORY

METHOD OF SHIPMENT:

LABORATORY COMMENTS / OBSERVATIONS

DISTRIBUTION: WHITE, CANARY - LABORATORY, PINK - ORIGINATOR

Analytical Report

LOG NO: E90-06-285

Received: 13 JUN 90
Reported: 14 JUN 90

Ms. Debra Favre
Geomatrix Consultants
1 Market Plaza, Spear Tower, Ste.717
San Francisco, California 94105

Project: 1459

REPORT OF ANALYTICAL RESULTS

LOG NO	SAMPLE DESCRIPTION, SOIL SAMPLES	DATE SAMPLED
06-285-1	F-7-613	13 JUN 90
06-285-2	W8-613	13 JUN 90
06-285-3	W9-613	13 JUN 90
06-285-4	W10-613	13 JUN 90
06-285-5	W11-613	13 JUN 90

PARAMETER	06-285-1	06-285-2	06-285-3	06-285-4	06-285-5
TPH and BTEX - Modified 8015					
Date Analyzed	06.13.90	06.13.90	06.13.90	06.13.90	06.13.90
Dilution Factor, Times	1	1	1	1	1
Benzene, mg/kg	<0.3	<0.3	<0.3	<0.3	<0.3
Ethylbenzene, mg/kg	<0.3	<0.3	<0.3	<0.3	<0.3
Toluene, mg/kg	<0.3	<0.3	<0.3	<0.3	<0.3
Total Xylene Isomers, mg/kg	<0.3	<0.3	<0.3	<0.3	<0.3
Total Fuel Hydrocarbons, mg/kg	<10	<10	<10	<10	<10
Other TPH and BTEX - Modified 8015	---	---	---	---	---

1255 Powell Street
Emeryville, CA 94608

415/428-2300
Fax: 415/547-3643

BCA *B C Analytical*

Analytical Report

LOG NO: E90-06-285

Received: 13 JUN 90
Reported: 14 JUN 90

Ms. Debra Favre
Geomatrix Consultants
1 Market Plaza, Spear Tower, Ste.717
San Francisco, California 94105

Project: 1459

REPORT OF ANALYTICAL RESULTS

LOG NO	SAMPLE DESCRIPTION, SOIL SAMPLES	DATE SAMPLED
06-285-6	W12-613	13 JUN 90

PARAMETER	06-285-6
TPH and BTEX - Modified 8015	
Date Analyzed	06.13.90
Dilution Factor, Times	1
Benzene, mg/kg	<0.3
Ethylbenzene, mg/kg	<0.3
Toluene, mg/kg	<0.3
Total Xylene Isomers, mg/kg	<0.3
Total Fuel Hydrocarbons, mg/kg	<10
Other TPH and BTEX - Modified 8015	---

Sim D. Lessley, Ph.D., Laboratory Director

1255 Powell Street
Emeryville, CA 94608

415/428-2300
Fax: 415/547-3643

B C Analytical

GEOMATRIX CONSULTANTS
ONE MARKET PLAZA
SPEAR STREET TOWER SUITE 717
SAN FRANCISCO, CALIFORNIA 94105
(415) 957-9557

01007

Chain of Custody Record

DATE 6-13-90 PAGE 1 OF 1

PROJECT NO. 1459

SAMPLERS: (SIGNATURE) Mike Keim

DATE	TIME	SAMPLE NUMBER	GENERAL MINERAL	PRIORITY POLLUTANT METALS	EPA METHOD 624	EPA METHOD 625	EPA METHOD 601	EPA METHOD 602	EPA METHOD 608	PETROLEUM HYDROCARBONS	8015 BTXE, Mineral Spirits					NUMBER OF CONTAINERS
6/13	8:00	F7-613									X					1
6/13	8:05	W8-613									X					1
6/13	8:15	W9-613									X					1
6/13	8:55	W10-613									X					1
6/13	10:15	F11-613									X					1
6/13	10:30	W12-613									X					1

REMARKS (SAMPLE PRESERVATION, HANDLING PROCEDURES, OBSERVATIONS, ETC.)

24 hr. Turnaround
Results by FAX
To Geomatrix
attn. Debra Faure
10ppm detection limit

RUSH

TOTAL NUMBER OF CONTAINERS 6

RELINQUISHED BY: Mike Keim
SIGNATURE
MIKE KEIM
PRINTED NAME
GEOMATRIX
COMPANY

DATE

TIME

RECEIVED BY: Kathi Flores
SIGNATURE
KATHI FLORES
PRINTED NAME
BCA
COMPANY

RELINQUISHED BY:
SIGNATURE
PRINTED NAME
COMPANY

DATE

TIME

RECEIVED BY: (LAB)
SIGNATURE
PRINTED NAME
LABORATORY

RELINQUISHED BY:
SIGNATURE
PRINTED NAME
COMPANY

DATE

TIME

RECEIVED BY:
SIGNATURE
PRINTED NAME
COMPANY

METHOD OF SHIPMENT:

LABORATORY COMMENTS / OBSERVATIONS

Log # 9006285

DISTRIBUTION: WHITE, CANARY - LABORATORY, PINK - ORIGINATOR

Analytical Report

LOG NO: E90-11-211

Received: 08 NOV 90
Reported: 16 NOV 90

Ms. Cheri Young
Geomatrix Consultants
1 Market Plaza, Spear Tower, Ste.717
San Francisco, California 94105

Project: 1459.05

REPORT OF ANALYTICAL RESULTS

LOG NO	SAMPLE DESCRIPTION, SOIL SAMPLES	DATE SAMPLED
11-211-1	S-1-1	07 NOV 90
11-211-2	S-1-2	07 NOV 90
11-211-3	S-1-3	07 NOV 90
11-211-4	S-1-4	07 NOV 90
11-211-5	S-1-5	07 NOV 90

PARAMETER	11-211-1	11-211-2	11-211-3	11-211-4	11-211-5
Sample Held, Not Analyzed	---	HELD	HELD	---	HELD
TPH - Modified 8015					
Date Analyzed	11.14.90	---	---	11.14.90	---
Dilution Factor, Times	1	---	---	1	---
Total Fuel Hydrocarbons, mg/kg	<10	---	---	<10	---
Other TPH - Modified 8015	---	---	---	---	---

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BCA *B C Analytical*

Analytical Report

LOG NO: E90-11-211

Received: 08 NOV 90
Reported: 16 NOV 90

Ms. Cheri Young
Geomatrix Consultants
1 Market Plaza, Spear Tower, Ste.717
San Francisco, California 94105

Project: 1459.05

REPORT OF ANALYTICAL RESULTS

LOG NO	SAMPLE DESCRIPTION, SOIL SAMPLES	DATE SAMPLED
11-211-6	S-1-6	07 NOV 90
11-211-7	S-2-1	08 NOV 90
11-211-8	S-2-2	08 NOV 90
11-211-9	S-2-3	08 NOV 90
11-211-10	S-2-4	08 NOV 90

PARAMETER	11-211-6	11-211-7	11-211-8	11-211-9	11-211-10
Sample Held, Not Analyzed	HELD	HELD	HELD	---	---
TPH - Modified 8015					
Date Analyzed	---	---	---	11.14.90	11.14.90
Dilution Factor, Times	---	---	---	1	1
Total Fuel Hydrocarbons, mg/kg	---	---	---	<10	<10
Other TPH - Modified 8015	---	---	---	---	---

This fuel quantification is based on comparison of sample chromatograms with those from a mineral spirit standard.

Hedy J. Ficklin for
Sim D. Lessley, Ph.D., Laboratory Director

1255 Powell Street
Emeryville, CA 94608

415/428-2300
Fax: 415/547-3643

BCA B C Analytical

BATCH QC REPORT: Definitions and Terms

Accuracy	The ability of a procedure to determine the "true" concentration of an analyte
Precision	The reproducibility of a procedure demonstrated by the agreement between analyses performed on either duplicates of the same sample or a pair of duplicate spikes
Batch	A group of samples analyzed sequentially using the same calibration curve, reagents, and instrument
Laboratory Control Standard (LCS)	Laboratory reagent water spiked with known compounds and subjected to the same procedures as the samples. The LCS thus indicates the accuracy of the analytical method and, because it is prepared from a different source than the standard used to calibrate the instrument, it also serves to double-check the calibration
Matrix QC	Quality control tests performed on actual client samples. For most inorganic analyses, the laboratory uses a pair of duplicate samples and a spiked sample. For most organic analyses, the laboratory uses a pair of spiked samples (duplicate spikes)
LC Result	Laboratory result of an LCS analysis
LT Result	Expected result, or true value, of the LCS analysis
R1, R2 Result:	Result of the analysis of replicate aliquots of a sample, with R1 indicating the first analysis of the sample and R2 its corresponding duplicate; used to determine precision
S1, S2 Result	Result of the analysis of replicate spiked aliquots, with S1 indicating one spike of the sample and S2 the second spike; used to determine precision and accuracy
R Bar Result	The average of replicate analysis results
S Bar Result:	The average of spike analysis results
True value	The theoretical, or expected, result of a spike sample analysis
Percent Recovery	The percentage of analyte recovered. For LCS, the percent recovery calculation is: $LC \div LT \times 100$ For spike recoveries, the percent recovery calculatiion is: $\frac{(\text{S Bar} - \text{Sample Concentration})}{\text{Spike Amount}} \times 100$
Relative Percent Difference (RPD)	Calculated using one of the following: $\frac{(R1 - R2) \times 100}{(R1 + R2) \div 2}$ $\frac{(S1 - S2) \times 100}{(S1 + S2) \div 2}$
Blank Result	The result of the analysis of a method blank,which is reagent water that is analysed using the same reagents, instruments and procedures as the samples in a batch; used to determine laboratory contamination
Reporting Detection Limit (RDL)	BCA-assigned limit based on—but not the same as—method detection limits (MDLs) determined using EPA guidelines

: ORDER PLACED FOR CLIENT: Geomatrix Consultants 9011211 :
BC ANALYTICAL : EMVL LAB : 10:18:36 19 NOV 1990 - P. 1 :

SAMPLES...	SAMPLE DESCRIPTION..	DETERM CODE....	DATE.... ANALYZED	METHOD.....	EQUIP.	BATCH	ID.NO
9011211*2	S-1-2	HOLD	11.09.90			1	7356
9011211*3	S-1-3	HOLD	11.09.90			1	7356
9011211*5	S-1-5	HOLD	11.09.90			1	7356
9011211*6	S-1-6	HOLD	11.09.90			1	7356
9011211*7	S-2-1	HOLD	11.09.90			1	7356
9011211*8	S-2-2	HOLD	11.09.90			1	7356
9011211*1	S-1-1	8015	11.14.90	8015	516-08	260	7754
9011211*4	S-1-4	8015	11.14.90	8015	516-08	260	7754
9011211*9	S-2-3	8015	11.14.90	8015	516-08	260	7754
9011211*10	S-2-4	8015	11.14.90	8015	516-08	260	7754

***

Notes: Equipment = BC Analytical identification number for a particular piece of analytical equipment.

ID.NO = BC Analytical employee identification number of analyst.

BC ANALYTICAL

BATCH QC REPORT
ORDER: E9011211

DATE REPORTED : 11/19/90

LABORATORY CONTROL STANDARDS

PARAMETER	DATE ANALYZED	BATCH NUMBER	LC RESULT	LT RESULT	UNIT	PERCENT RECOVERY
TPH - Modified 8015						
Dilution Factor	11.14.90	260	1	1	Times	100
Total Fuel Hydrocarbons	11.14.90	260	100	110	mg/kg	91

BC ANALYTICAL

BATCH QC REPORT
ORDER: E9011211

DATE REPORTED : 11/19/90

MATRIX QC PRECISION (DUPLICATE SPIKES)

PARAMETER	DATE ANALYZED	BATCH NUMBER	S1 RESULT	S2 RESULT	UNIT	RELATIVE %DIFF
TPH - Modified 8015						
Dilution Factor	11.14.90	260	1	1	Times	0
Total Fuel Hydrocarbons	11.14.90	260	110	90	mg/kg	20

BC ANALYTICAL

BATCH QC REPORT
ORDER: E9011211

ATE REPORTED : 11/19/90

MATRIX QC ACCURACY (SPIKES)

PARAMETER	DATE ANALYZED	BATCH NUMBER	SBAR RESULT	TRUE RESULT	RBAR RESULT	UNIT	PERCENT RECOVERY
TPH - Modified 8015							
Total Fuel Hydrocarbons	11.14.90	260	100	110	<10	mg/kg	91

BC ANALYTICAL

BATCH QC REPORT
ORDER: E9011211

ATE REPORTED : 11/19/90

METHOD BLANKS AND REPORTING DETECTION LIMIT (RDL)

PARAMETER	DATE ANALYZED	BATCH NUMBER	BLANK RESULT	RDL	UNIT
TPH - Modified 8015					
Date Analyzed	11.14.90	260	11.14.90	NA	Date
Dilution Factor	11.14.90	260	1	NA	Times
Total Fuel Hydrocarbons	11.14.90	260	0.2	10	mg/kg

GEOMATRIX CONSULTANTS
ONE MARKET PLAZA
SPEAR STREET TOWER SUITE 717
SAN FRANCISCO, CALIFORNIA 94105
(415) 957-9557

04284

Chain of Custody Record

DATE ~~9~~ 11/8/90 PAGE 1 OF 1

PROJECT NO. 1459.05

SAMPLERS: (SIGNATURE) [signature]

DATE	TIME	SAMPLE NUMBER	GENERAL MINERAL	PRIORITY POLLUTANT METALS	EPA METHOD 624	EPA METHOD 625	EPA METHOD 601	EPA METHOD 602	EPA METHOD 608	PETROLEUM HYDROCARBONS	modified 8015				NUMBER OF CONTAINERS
11/7	11^{57}	S 1-1													1
11/7		1-2													1
11/7	13^{15}	1-3													1
11/7	14^{50}	1-4													1
11/7	14^{50}	1-5													1
11/7	16^{00}	1-6													1
11/8	11^{00}	2-1													1
11/8	12^{15}	2-2													1
11/8	13^{10}	2-3													1
11/8	13^{45}	2-4													1

TOTAL NUMBER OF CONTAINERS: 10

REMARKS (SAMPLE PRESERVATION, HANDLING PROCEDURES, OBSERVATIONS, ETC.)

LOG # 9011211

(1) Analyze for Mineral Spirits only

(2) results to Cheri Young

(3) Hold all Samples

RELINQUISHED BY:	DATE	RECEIVED BY:	RELINQUISHED BY:	DATE	RECEIVED BY: (LAB)
SIGNATURE: [signature]	11/8	SIGNATURE	SIGNATURE		SIGNATURE: [signature]
PRINTED NAME: Dennis Wuthrich	TIME 17^05	PRINTED NAME	PRINTED NAME	TIME	PRINTED NAME: [signature]
COMPANY: Geomatrix		COMPANY	COMPANY		LABORATORY: SCA

RELINQUISHED BY:	DATE	RECEIVED BY:
SIGNATURE		SIGNATURE
PRINTED NAME	TIME	PRINTED NAME
COMPANY		COMPANY

METHOD OF SHIPMENT:

LABORATORY COMMENTS/OBSERVATIONS

DISTRIBUTION: WHITE, CANARY - LABORATORY, PINK - ORIGINATOR

Analytical Report

LOG NO: E90-11-399

Received: 16 NOV 90
Reported: 03 DEC 90

Ms. Cheri Young
Geomatrix Consultants
1 Market Plaza, Spear Tower, Ste.717
San Francisco, California 94105

Project: 1459.05

REPORT OF ANALYTICAL RESULTS

LOG NO	SAMPLE DESCRIPTION, SOIL SAMPLES	DATE SAMPLED
11-399-1	3-1	15 NOV 90
11-399-2	3-2	15 NOV 90
11-399-3	3-3	15 NOV 90
11-399-4	3-4	15 NOV 90
11-399-9	4-1	16 NOV 90

PARAMETER	11-399-1	11-399-2	11-399-3	11-399-4	11-399-9
Sample Held, Not Analyzed	HELD	HELD	HELD	HELD	HELD

1255 Powell Street
Emeryville, CA 94608

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Fax: 415/547-3643

B C Analytical

Analytical Report

LOG NO: E90-11-399

Received: 16 NOV 90
Reported: 03 DEC 90

Ms. Cheri Young
Geomatrix Consultants
1 Market Plaza, Spear Tower, Ste.717
San Francisco, California 94105

Project: 1459.05

REPORT OF ANALYTICAL RESULTS

LOG NO	SAMPLE DESCRIPTION, SOIL SAMPLES	DATE SAMPLED
11-399-10	4-2	16 NOV 90

PARAMETER	11-399-10
Sample Held, Not Analyzed	HELD

1255 Powell Street
Emeryville, CA 94608

415/428-2300
Fax: 415/547-3643

BCA *B C Analytical*

Analytical Report

LOG NO: E90-11-399

Received: 16 NOV 90
Reported: 03 DEC 90

Ms. Cheri Young
Geomatrix Consultants
1 Market Plaza, Spear Tower, Ste.717
San Francisco, California 94105

Project: 1459.05

REPORT OF ANALYTICAL RESULTS

LOG NO	SAMPLE DESCRIPTION, SOIL SAMPLES	DATE SAMPLED
11-399-5	3-5	15 NOV 90
11-399-6	3-6	15 NOV 90
11-399-7	3-7	15 NOV 90
11-399-8	3-8	15 NOV 90
11-399-11	4-3	16 NOV 90

PARAMETER	11-399-5	11-399-6	11-399-7	11-399-8	11-399-11
TPH - Modified 8015					
Date Analyzed	11.29.90	11.30.90	11.30.90	11.30.90	11.30.90
Dilution Factor, Times	1	1	1	1	1
Total Fuel Hydrocarbons, mg/kg	<10	<10	<10	<10	<10
Other TPH - Modified 8015	---	---	---	---	---

1255 Powell Street
Emeryville, CA 94608

415/428-2300
Fax: 415/547-3643

BCA *B C Analytical*

Analytical Report

LOG NO: E90-11-399

Received: 16 NOV 90
Reported: 03 DEC 90

Ms. Cheri Young
Geomatrix Consultants
1 Market Plaza, Spear Tower, Ste.717
San Francisco, California 94105

Project: 1459.05

REPORT OF ANALYTICAL RESULTS

LOG NO	SAMPLE DESCRIPTION, SOIL SAMPLES	DATE SAMPLED
11-399-12	4-4	16 NOV 90
11-399-13	4-5	16 NOV 90

PARAMETER	11-399-12	11-399-13	
TPH - Modified 8015			
Date Analyzed	11.30.90	11.30.90	
Dilution Factor, Times	1	1	
Total Fuel Hydrocarbons, mg/kg	<10	<10	
Other TPH - Modified 8015	---	---	

Sim D. Lessley, Ph.D., Laboratory Director

1255 Powell Street
Emeryville, CA 94608

415/428-2300
Fax: 415/547-3643

BCA B C Analytical

GEOMATRIX CONSULTANTS

ONE MARKET PLAZA
SPEAR STREET TOWER SUITE 717
SAN FRANCISCO, CALIFORNIA 94105
(415) 957-9557

04285

Chain of Custody Record

DATE 11/16/87 PAGE 1 OF 1

PROJECT NO. 1453.05

SAMPLERS: (SIGNATURE) Dennis Wuthrich

DATE	TIME	SAMPLE NUMBER	GENERAL MINERAL	PRIORITY POLLUTANT METALS	EPA METHOD 624	EPA METHOD 625	EPA METHOD 601	EPA METHOD 602	EPA METHOD 608	PETROLEUM HYDROCARBONS			Mod. 8015			NUMBER OF CONTAINERS
11/15	10:00	3-1											X			1
	10:17	3-2											X			1
	10:30	3-3											X			1
	10:55	3-4											X			1
	10:57	3-5											X			1
	11:17	3-6											X			1
	11:50	3-7											X			1
	12:17	3-8											X			1
11/16	8:00	4-1											X			1
	8:57	4-2											X			1
	9:00	4-3											X			1
	9:16	4-4											X			1
	9:20	4-5											X			1

ANALYSES

REMARKS (SAMPLE PRESERVATION, HANDLING PROCEDURES, OBSERVATIONS, ETC.)

1. Results to Chori Young
2. analyze for Mineral Spirits ONLY
3. HOLD ALL SAMPLES

TOTAL NUMBER OF CONTAINERS 13

RELINQUISHED BY:	DATE	RECEIVED BY:
SIGNATURE: Dennis Wuthrich		SIGNATURE:
PRINTED NAME: GEOMATRIX	TIME	PRINTED NAME:
COMPANY:		COMPANY:

RELINQUISHED BY:	DATE	RECEIVED BY:
SIGNATURE:		SIGNATURE:
PRINTED NAME:	TIME	PRINTED NAME:
COMPANY:		COMPANY:

RELINQUISHED BY:	DATE	RECEIVED BY: (LAB)
SIGNATURE:		SIGNATURE:
PRINTED NAME:	TIME	PRINTED NAME:
COMPANY:		LABORATORY:

METHOD OF SHIPMENT:

LABORATORY COMMENTS / OBSERVATIONS

Log # 9011399

DISTRIBUTION: WHITE, CANARY - LABORATORY, PINK - ORIGINATOR

Analytical Report

LOG NO: E90-11-458

Received: 19 NOV 90
Reported: 21 NOV 90

Ms. Cheri Young
Geomatrix Consultants
1 Market Plaza, Spear Tower, Ste.717
San Francisco, California 94105

REPORT OF ANALYTICAL RESULTS

LOG NO	SAMPLE DESCRIPTION, SOIL SAMPLES	DATE SAMPLED
11-458-1	S-1-2 (Relog of 9011211-2)	

PARAMETER	11-458-1
TPH - Modified 8015	
Date Analyzed	11.20.90
Dilution Factor, Times	1
Total Fuel Hydrocarbons, mg/kg	<10
Other TPH - Modified 8015	---

Report sent by facsimile to Cheri Young 11/21/90.

Hedy J. Ficklin for
Sim D. Lessley, Ph.D., Laboratory Director

1255 Powell Street
Emeryville, CA 94608

415/428-2300
Fax: 415/547-3643

BCA B C Analytical

Analytical Report

LOG NO: E90-11-467

Received: 20 NOV 90
Reported: 27 NOV 90

Ms. Cheri Young
Geomatrix Consultants
1 Market Plaza, Spear Tower, Ste.717
San Francisco, California 94105

Project: 1459.05

REPORT OF ANALYTICAL RESULTS

LOG NO	SAMPLE DESCRIPTION, SOIL SAMPLES	DATE SAMPLED
11-467-1	SB-1A	20 NOV 90
11-467-2	SB-1B	20 NOV 90
11-467-3	SB-1C	20 NOV 90

PARAMETER	11-467-1	11-467-2	11-467-3
TPH - Modified 8015			
Date Analyzed	11.24.90	11.26.90	11.24.90
Dilution Factor, Times	1	50	1
Carbon Range, .	---		---
Total Fuel Hydrocarbons, mg/kg	610	12000	<10
Other TPH - Modified 8015	---	---	---

Total fuel hydrocarbons were tentatively identified and results were quantified as mineral spirits.

Sim D. Lessley, Ph.D., Laboratory Director

1255 Powell Street
Emeryville, CA 94608

415/428-2300
Fax: 415/547-3643

BCA B C Analytical

BATCH QC REPORT: Definitions and Terms

Accuracy	The ability of a procedure to determine the "true" concentration of an analyte
Precision	The reproducibility of a procedure demonstrated by the agreement between analyses performed on either duplicates of the same sample or a pair of duplicate spikes
Batch	A group of samples analyzed sequentially using the same calibration curve, reagents, and instrument
Laboratory Control Standard (LCS)	Laboratory reagent water spiked with known compounds and subjected to the same procedures as the samples. The LCS thus indicates the accuracy of the analytical method and, because it is prepared from a different source than the standard used to calibrate the instrument, it also serves to double-check the calibration
Matrix QC	Quality control tests performed on actual client samples. For most inorganic analyses, the laboratory uses a pair of duplicate samples and a spiked sample. For most organic analyses, the laboratory uses a pair of spiked samples (duplicate spikes)
LC Result	Laboratory result of an LCS analysis
LT Result	Expected result, or true value, of the LCS analysis
R1, R2 Result:	Result of the analysis of replicate aliquots of a sample, with R1 indicating the first analysis of the sample and R2 its corresponding duplicate; used to determine precision
S1, S2 Result	Result of the analysis of replicate spiked aliquots, with S1 indicating one spike of the sample and S2 the second spike; used to determine precision and accuracy
R Bar Result	The average of replicate analysis results
S Bar Result:	The average of spike analysis results
True value	The theoretical, or expected, result of a spike sample analysis
Percent Recovery	The percentage of analyte recovered. For LCS, the percent recovery calculation is: $LC \div LT \times 100$ For spike recoveries, the percent recovery calculatiion is: $\frac{(\text{S Bar} - \text{Sample Concentration})}{\text{Spike Amount}} \times 100$
Relative Percent Difference (RPD)	Calculated using one of the following: $\frac{(R1 - R2) \times 100}{(R1 + R2) \div 2}$ $\frac{(S1 - S2) \times 100}{(S1 + S2) \div 2}$
Blank Result	The result of the analysis of a method blank,which is reagent water that is analysed using the same reagents, instruments and procedures as the samples in a batch; used to determine laboratory contamination
Reporting Detection Limit (RDL)	BCA-assigned limit based on—but not the same as—method detection limits (MDLs) determined using EPA guidelines

: ORDER PLACED FOR CLIENT: Geomatrix Consultants 9011467 :
: BC ANALYTICAL : EMVL LAB : 11:54:29 28 NOV 1990 - P. 1 :

SAMPLES...	SAMPLE DESCRIPTION..	DETERM CODE....	DATE.... ANALYZED	METHOD.....	EQUIP.	BATCH	ID.NO
9011467*1	SB-1A	8015	11.24.90	8015	516-08	271	7754
9011467*2	SB-1B	8015	11.26.90	8015	516-08	271	7754
9011467*3	SB-1C	8015	11.24.90	8015	516-08	271	7754

***

Notes: Equipment = BC Analytical identification number for a particular piece of analytical equipment.

ID.NO = BC Analytical employee identification number of analyst.

BC ANALYTICAL

BATCH QC REPORT
ORDER: E9011467

ATE REPORTED : 11/28/90

LABORATORY CONTROL STANDARDS

PARAMETER	DATE ANALYZED	BATCH NUMBER	LC RESULT	LT RESULT	UNIT	PERCENT RECOVERY
TPH - Modified 8015						
Dilution Factor	11.24.90	271	1	1	Times	100
Total Fuel Hydrocarbons	11.24.90	271	190	250	mg/kg	76

BC ANALYTICAL

BATCH QC REPORT
ORDER: E9011467

ATE REPORTED : 11/28/90

MATRIX QC PRECISION (DUPLICATE SPIKES)

PARAMETER	DATE ANALYZED	BATCH NUMBER	S1 RESULT	S2 RESULT	UNIT	RELATIVE %DIFF
PH - Modified 8015						
Dilution Factor	11.24.90	271	1	1	Times	0
Total Fuel Hydrocarbons	11.24.90	271	180	190	mg/kg	5

BC ANALYTICAL

BATCH QC REPORT
ORDER: E9011467

DATE REPORTED : 11/28/90

MATRIX QC ACCURACY (SPIKES)

PARAMETER	DATE ANALYZED	BATCH NUMBER	SBAR RESULT	TRUE RESULT	RBAR RESULT	UNIT	PERCENT RECOVERY
TPH - Modified 8015 Total Fuel Hydrocarbons	11.24.90	271	185	250	<10	mg/kg	74

BC ANALYTICAL

BATCH QC REPORT
ORDER: E9011467

ATE REPORTED : 11/28/90

METHOD BLANKS AND REPORTING DETECTION LIMIT (RDL)

PARAMETER	DATE ANALYZED	BATCH NUMBER	BLANK RESULT	RDL	UNIT
TPH - Modified 8015					
Date Analyzed	11.24.90	271	11.24.90	NA	Date
Dilution Factor	11.24.90	271	1	NA	Times
Total Fuel Hydrocarbons	11.24.90	271	4.0	10	mg/kg

GEOMATRIX CONSULTANTS

ONE MARKET PLAZA
SPEAR STREET TOWER SUITE 717
SAN FRANCISCO, CALIFORNIA 94105
(415) 957-9557

04196

Chain of Custody Record

DATE 11/20/90 PAGE 1 OF 1

PROJECT NO. 1459.05

SAMPLERS: (SIGNATURE)

DATE	TIME	SAMPLE NUMBER	GENERAL MINERAL	PRIORITY POLLUTANT METALS	EPA METHOD 624	EPA METHOD 625	EPA METHOD 601	EPA METHOD 602	EPA METHOD 608	PETROLEUM HYDROCARBONS	8020 - BTXE	MINERAL SPIRITS				NUMBER OF CONTAINERS
11/20	8:51	MW-1									X	X				4
11/20	10 50	SB-1A									[redacted]	X				1
11/20	1000	SB-1B									[redacted]	X				1
11/20	1040	SB-1C									[redacted]	X				1

ANALYSES

REMARKS (SAMPLE PRESERVATION, HANDLING PROCEDURES, OBSERVATIONS, ETC.)

All soil samples in BTubes w/ Al foil & caps on ends.

ATTN. CHISAN HO

8020 - acidified (3 VOAs)

Mineral spirits ut acidified (1-liter)

NORMAL TURNAROUND for soil samples (SB 1A, 1B, 1C,

RESULTS TO CHERI YOUNG

MW-1 on 1 day TAT

TOTAL NUMBER OF CONTAINERS 7

RELINQUISHED BY:	DATE	RECEIVED BY:
SIGNATURE: RHALIL, I	11/20/90	SIGNATURE: Mary Janaey
PRINTED NAME: L. Romett X	TIME: 12:15 pm	PRINTED NAME: BCA 11/20/90 1211
COMPANY		COMPANY

RELINQUISHED BY:	DATE	RECEIVED BY:
SIGNATURE		SIGNATURE
PRINTED NAME	TIME	PRINTED NAME
COMPANY		COMPANY

RELINQUISHED BY:	DATE	RECEIVED BY: (LAB)
SIGNATURE		SIGNATURE
PRINTED NAME	TIME	PRINTED NAME
COMPANY		LABORATORY

METHOD OF SHIPMENT:

LABORATORY COMMENTS / OBSERVATIONS

Log # E9011467

DISTRIBUTION: WHITE, CANARY - LABORATORY, PINK - ORIGINATOR

Analytical Report

LOG NO: E91-01-290

Received: 15 JAN 91
Reported: 25 JAN 91

Ms. Cheri Young
Geomatrix Consultants
1 Market Plaza, Spear Tower, Ste.717
San Francisco, California 94105

Project: 1459.05

REPORT OF ANALYTICAL RESULTS

LOG NO	SAMPLE DESCRIPTION, SOIL SAMPLES	DATE SAMPLED
01-290-1	B33-2	14 JAN 91
01-290-2	B33-3	14 JAN 91
01-290-3	B33-4	14 JAN 91
01-290-4	B33-5	14 JAN 91
01-290-5	B33-6	14 JAN 91

PARAMETER	01-290-1	01-290-2	01-290-3	01-290-4	01-290-5
TPH - Modified 8015					
Date Analyzed	01.18.91	01.18.91	01.18.91	01.18.91	01.18.91
Dilution Factor, Times	1	1	1	1	1
Total Fuel Hydrocarbons, mg/kg	<10	<10	<10	<10	<10
Other TPH - Modified 8015	---	---	---	---	---

1255 Powell Street
Emeryville, CA 94608

415/428-2300
Fax: 415/547-3643

BCA *B C Analytical*

Analytical Report

LOG NO: E91-01-290

Received: 15 JAN 91
Reported: 25 JAN 91

Ms. Cheri Young
Geomatrix Consultants
1 Market Plaza, Spear Tower, Ste.717
San Francisco, California 94105

Project: 1459.05

REPORT OF ANALYTICAL RESULTS

LOG NO	SAMPLE DESCRIPTION, SOIL SAMPLES	DATE SAMPLED
01-290-6	B34-1	14 JAN 91
01-290-7	B34-2	14 JAN 91
01-290-8	B34-3	15 JAN 91
01-290-9	B34-4	15 JAN 91
01-290-10	B35-1	15 JAN 91

PARAMETER	01-290-6	01-290-7	01-290-8	01-290-9	01-290-10
TPH - Modified 8015					
Date Analyzed	01.18.91	01.18.91	01.18.91	01.18.91	01.23.91
Dilution Factor, Times	1	1	1	1	10
Total Fuel Hydrocarbons, mg/kg	<10	<10	<10	<10	1600
Fuel Characterization, .	---	---	---	---	MINERAL SP
Other TPH - Modified 8015	---	---	---	---	---

1255 Powell Street
Emeryville, CA 94608

415/428-2300
Fax: 415/547-3643

B C Analytical

Analytical Report

LOG NO: E91-01-290

Received: 15 JAN 91
Reported: 25 JAN 91

Ms. Cheri Young
Geomatrix Consultants
1 Market Plaza, Spear Tower, Ste.717
San Francisco, California 94105

Project: 1459.05

REPORT OF ANALYTICAL RESULTS

LOG NO	SAMPLE DESCRIPTION, SOIL SAMPLES	DATE SAMPLED
01-290-11	B35-2	15 JAN 91
01-290-12	B35-3	15 JAN 91
01-290-13	B35-4	15 JAN 91
01-290-14	B33-1	14 JAN 91
01-290-15	B33-7	14 JAN 91

PARAMETER	01-290-11	01-290-12	01-290-13	01-290-14	01-290-15
TPH - Modified 8015					
Date Analyzed	01.18.91	01.18.91	01.18.91	01.18.91	01.18.91
Dilution Factor, Times	1	1	1	1	1
Total Fuel Hydrocarbons, mg/kg	15	<10	<10	<10	<10
Fuel Characterization, .	MINERAL SP	---	---	---	---
Other TPH - Modified 8015	---	---	---	---	---

1255 Powell Street
Emeryville, CA 94608

415/428-2300
Fax: 415/547-3643

BCA *B C Analytical*

Analytical Report

LOG NO: E91-01-290

Received: 15 JAN 91
Reported: 25 JAN 91

Ms. Cheri Young
Geomatrix Consultants
1 Market Plaza, Spear Tower, Ste.717
San Francisco, California 94105

Project: 1459.05

REPORT OF ANALYTICAL RESULTS

LOG NO	SAMPLE DESCRIPTION, SOIL SAMPLES	DATE SAMPLED
01-290-16	S-1, S-2, S-3 Composite	15 JAN 91

PARAMETER	01-290-16
TPH - Modified 8015	
Date Analyzed	01.23.91
Dilution Factor, Times	1
Total Fuel Hydrocarbons, mg/kg	<10
Other TPH - Modified 8015	---

This fuel characterization is a qualitative identification based upon a visual comparison of sample chromatograms with those from a mineral spirits standard.

Sim D. Lessley, Ph.D., Laboratory Director

1255 Powell Street
Emeryville, CA 94608

415/428-2300
Fax: 415/547-3643

BCA B C Analytical

: ORDER PLACED FOR CLIENT: Geomatrix Consultants 9101290 :
: BC ANALYTICAL : EMVL LAB : 16:23:22 29 JAN 1991 - P. 1 :

SAMPLES...	SAMPLE DESCRIPTION..	DETERM.....	DATE.... ANALYZED	METHOD.....	EQUIP.	BATCH	ID.NO
9101290*1	B33-2	8015	01.22.91	8015	516-08	20	7258
9101290*2	B33-3	8015	01.18.91	8015	516-08	20	7258
9101290*3	B33-4	8015	01.18.91	8015	516-08	20	7258
9101290*4	B33-5	8015	01.18.91	8015	516-08	20	7258
9101290*5	B33-6	8015	01.18.91	8015	516-08	20	7258
9101290*6	B34-1	8015	01.18.91	8015	516-08	20	7258
9101290*7	B34-2	8015	01.18.91	8015	516-08	20	7258
9101290*8	B34-3	8015	01.18.91	8015	516-08	20	7258
9101290*9	B34-4	8015	01.18.91	8015	516-08	20	7258
9101290*10	B35-1	8015	01.23.91	8015	516-07	14	7754
9101290*11	B35-2	8015	01.18.91	8015	516-08	14	7258
9101290*12	B35-3	8015	01.18.91	8015	516-08	14	7258
9101290*13	B35-4	8015	01.18.91	8015	516-08	14	7258
9101290*14	B33-1	8015	01.18.91	8015	516-08	20	7258
9101290*15	B33-7	8015	01.18.91	8015	516-08	20	7258
9101290*16	S-1, S-2, S-3 Composite	8015	01.23.91	8015	516-07	20	7754

*

Notes: Equipment = BC Analytical identification number for a particular piece of analytical equipment.

ID.NO = BC Analytical employee identification number of analyst.

BC ANALYTICAL

BATCH QC REPORT
ORDER: E9101290

DATE REPORTED : 01/29/91

LABORATORY CONTROL STANDARDS

PARAMETER	DATE ANALYZED	BATCH NUMBER	LC RESULT	LT RESULT	UNIT	PERCENT RECOVERY
TPH - Modified 8015						
Total Fuel Hydrocarbons	01.23.91	20	240	250	mg/kg	96
TPH - Modified 8015						
Total Fuel Hydrocarbons	01.23.91	20	250	250	mg/kg	100
TPH - Modified 8015						
Total Fuel Hydrocarbons	01.18.91	14	230	250	mg/kg	92

BC ANALYTICAL

BATCH QC REPORT
ORDER: E9101290

DATE REPORTED : 01/29/91

MATRIX QC PRECISION (DUPLICATE SPIKES)

PARAMETER	DATE ANALYZED	BATCH NUMBER	S1 RESULT	S2 RESULT	UNIT	RELATIVE %DIFF
TPH - Modified 8015						
Total Fuel Hydrocarbons	01.23.91	20	250	240	mg/kg	4
TPH - Modified 8015						
Total Fuel Hydrocarbons	01.18.91	14	230	220	mg/kg	4
TPH - Modified 8015						
Total Fuel Hydrocarbons	01.23.91	14	250	240	mg/kg	4

BC ANALYTICAL

BATCH QC REPORT
ORDER: E9101290

DATE REPORTED : 01/29/91

MATRIX QC ACCURACY (SPIKES)

PARAMETER	DATE ANALYZED	BATCH NUMBER	SBAR RESULT	TRUE RESULT	RBAR RESULT	UNIT	PERCENT RECOVERY
TPH - Modified 8015							
Total Fuel Hydrocarbons	01.22.91	20	245	250	<10	mg/kg	98
TPH - Modified 8015							
Total Fuel Hydrocarbons	01.18.91	14	225	240	<10	mg/kg	94
TPH - Modified 8015							
Total Fuel Hydrocarbons	01.22.91	14	245	250	<10	mg/kg	98

BC ANALYTICAL

BATCH QC REPORT
ORDER: E9101290

DATE REPORTED : 01/29/91

METHOD BLANKS AND REPORTING DETECTION LIMIT (RDL)

PARAMETER	DATE ANALYZED	BATCH NUMBER	BLANK RESULT	RDL	UNIT
TPH - Modified 8015					
Date Analyzed	01.18.91	20	01.18.91	NA	Date
Dilution Factor	01.18.91	20	1	NA	Times
Total Fuel Hydrocarbons	01.18.91	20	0.18	10	mg/kg
TPH - Modified 8015					
Date Analyzed	01.18.91	14	01.18.91	NA	Date
Dilution Factor	01.18.91	14	1	NA	Times
Total Fuel Hydrocarbons	01.18.91	14	1.2	10	mg/kg

04369

GEOMATRIX CONSULTANTS

ONE MARKET PLAZA
SPEAR STREET TOWER SUITE 717
SAN FRANCISCO, CALIFORNIA 94105
(415) 957-9557

Chain of Custody Record

DATE 1/15/91 PAGE 1 OF

PROJECT NO. 1459.05

SAMPLERS: (SIGNATURE)

	DATE	TIME	SAMPLE NUMBER	GENERAL MINERAL	PRIORITY POLLUTANT METALS	EPA METHOD 624	EPA METHOD 625	EPA METHOD 601	EPA METHOD 602	EPA METHOD 608	PETROLEUM HYDROCARBONS	8015 (Mineral Spirits)	HOLD		NUMBER OF CONTAINERS
1	1/14/91	9:25	B33-1										X		1
2		9:45	B33-2									X			1
		10:13	B33-3									X			1
3		10:42	B33-4									X			1
		11:30	B33-5									X			1
		12:10	B33-6									X			1
5		12:30	B33-7										X		1
		14:35	B34-1									X			1
7		15:23	B34-2									X			1
8	1/15/91	8:54	B34-3									X			1
		9:20	B34-4									X			1
10		9:39	B35-1									X			1
		9:50	B35-2									X			1
		10	B35-3									X			1
13		10:31	B35-4									X			1
		11:25	S-1										X		1
		11:40	S-2										X		1
16		11:50	S-3										X		1

REMARKS

(SAMPLE PRESERVATION, HANDLING PROCEDURES, OBSERVATIONS, ETC.)

① Analyze for Mineral Spirits ONLY

② Standard Turnaround

③ Results to Cheri Young

Analyze B33-1, B33-7 and S-1, S-2, S-3 Composite per C. Young ct 1/18

TOTAL NUMBER OF CONTAINERS 18

RELINQUISHED BY:	DATE	RECEIVED BY:	RELINQUISHED BY:	DATE	RECEIVED BY: (LAB)
SIGNATURE: Dennis Hufford	1/15/91	SIGNATURE	SIGNATURE		SIGNATURE
PRINTED NAME: Geomatrix	TIME 12:25	PRINTED NAME	PRINTED NAME	TIME	PRINTED NAME: BCA
COMPANY		COMPANY	COMPANY		LABORATORY

RELINQUISHED BY:	DATE	RECEIVED BY:
SIGNATURE		SIGNATURE
PRINTED NAME	TIME	PRINTED NAME
COMPANY		COMPANY

METHOD OF SHIPMENT:

LABORATORY COMMENTS / OBSERVATIONS

Log # 9101280

DISTRIBUTION: WHITE, CANARY - LABORATORY, PINK - ORIGINATOR

Analytical Report

LOG NO: E91-01-596

Received: 28 JAN 91
Mailed : 12 FEB 91

Ms. Cheri Young
Geomatrix Consultants
1 Market Plaza, Spear Tower, Ste.717
San Francisco, California 94105

Project: 1459.05

REPORT OF ANALYTICAL RESULTS

LOG NO	SAMPLE DESCRIPTION, SOIL SAMPLES	DATE SAMPLED
01-596-1	MW5-1	26 JAN 91
01-596-2	MW5-2	26 JAN 91
01-596-3	MW5-3	26 JAN 91
01-596-4	MW5-4	26 JAN 91
01-596-5	MW5-5	26 JAN 91

PARAMETER	01-596-1	01-596-2	01-596-3	01-596-4	01-596-5
Sample Held, Not Analyzed	HELD	---	---	---	HELD
TPH - Modified 8015					
Date Analyzed	---	02.02.91	02.02.91	02.02.91	---
Dilution Factor, Times	---	1	1	1	---
Total Fuel Hydrocarbons, mg/kg	---	<10	<10	<10	---
Other TPH - Modified 8015	---	---	---	---	---

1255 Powell Street
Emeryville, CA 94608

415/428-2300
Fax: 415/547-3643

B C Analytical

Analytical Report

LOG NO: E91-01-596

Received: 28 JAN 91
Mailed : 12 FEB 91

Ms. Cheri Young
Geomatrix Consultants
1 Market Plaza, Spear Tower, Ste.717
San Francisco, California 94105

Project: 1459.05

REPORT OF ANALYTICAL RESULTS

LOG NO	SAMPLE DESCRIPTION, SOIL SAMPLES	DATE SAMPLED
01-596-6	MW5-6	26 JAN 91
01-596-7	MW6-1	27 JAN 91
01-596-8	MW6-2	27 JAN 91
01-596-9	MW6-3	27 JAN 91

PARAMETER	01-596-6	01-596-7	01-596-8	01-596-9
Sample Held, Not Analyzed	HELD	---	HELD	---
TPH - Modified 8015				
Date Analyzed	---	02.02.91	---	02.02.91
Dilution Factor, Times	---	1	---	1
Total Fuel Hydrocarbons, mg/kg	---	<10	---	<10
Other TPH - Modified 8015	---	---	---	---

This fuel characterization is a qualitative identification based upon a visual comparison of sample chromatograms with those from a mineral spirits standard.

Sim D. Lessley, Ph.D., Laboratory Director

1255 Powell Street
Emeryville, CA 94608

415/428-2300
Fax: 415/547-3643

B C Analytical

BATCH QC REPORT: Definitions and Terms

Accuracy	The ability of a procedure to determine the "true" concentration of an analyte
Precision	The reproducibility of a procedure demonstrated by the agreement between analyses performed on either duplicates of the same sample or a pair of duplicate spikes
Batch	A group of samples analyzed sequentially using the same calibration curve, reagents, and instrument
Laboratory Control Standard (LCS)	Laboratory reagent water spiked with known compounds and subjected to the same procedures as the samples. The LCS thus indicates the accuracy of the analytical method and, because it is prepared from a different source than the standard used to calibrate the instrument, it also serves to double-check the calibration
Matrix QC	Quality control tests performed on actual client samples. For most inorganic analyses, the laboratory uses a pair of duplicate samples and a spiked sample. For most organic analyses, the laboratory uses a pair of spiked samples (duplicate spikes)
LC Result	Laboratory result of an LCS analysis
LT Result	Expected result, or true value, of the LCS analysis
R1, R2 Result:	Result of the analysis of replicate aliquots of a sample, with R1 indicating the first analysis of the sample and R2 its corresponding duplicate; used to determine precision
S1, S2 Result	Result of the analysis of replicate spiked aliquots, with S1 indicating one spike of the sample and S2 the second spike; used to determine precision and accuracy
R Bar Result	The average of replicate analysis results
S Bar Result:	The average of spike analysis results
True value	The theoretical, or expected, result of a spike sample analysis
Percent Recovery	The percentage of analyte recovered. For LCS, the percent recovery calculation is: LC ÷ LT x 100 For spike recoveries, the percent recovery calculatiion is: $\frac{\text{(S Bar - Sample Concentration)}}{\text{Spike Amount}} \times 100$
Relative Percent Difference (RPD)	Calculated using one of the following: $\frac{(R1 - R2) \times 100}{(R1 + R2) \div 2}$ $\frac{(S1 - S2) \times 100}{(S1 + S2) \div 2}$
Blank Result	The result of the analysis of a method blank,which is reagent water that is analysed using the same reagents, instruments and procedures as the samples in a batch; used to determine laboratory contamination
Reporting Detection Limit (RDL)	BCA-assigned limit based on—but not the same as—method detection limits (MDLs) determined using EPA guidelines

: ORDER PLACED FOR CLIENT: Geomatrix Consultants 9101596 :
: BC ANALYTICAL : EMVL LAB : 12:19:37 06 FEB 1991 - P. 1 :
==========

SAMPLES...	SAMPLE DESCRIPTION..	DETERM.....	DATE.... ANALYZED	METHOD.....	EQUIP.	BATCH	ID.NO
9101596*1	MW5-1	HOLD	01.29.91			1	7356
9101596*5	MW5-5	HOLD	01.29.91			1	7356
9101596*6	MW5-6	HOLD	01.29.91			1	7356
9101596*8	MW6-2	HOLD	01.29.91			1	7356
9101596*2	MW5-2	8015	02.02.91	8015	516-08	31	7258
9101596*3	MW5-3	8015	02.02.91	8015	516-08	31	7258
9101596*4	MW5-4	8015	02.02.91	8015	516-08	31	7258
9101596*7	MW6-1	8015	02.02.91	8015	516-08	31	7258
9101596*9	MW6-3	8015	02.02.91	8015	516-08	31	7258

Notes: Equipment = BC Analytical identification number for a particular piece of analytical equipment.

ID.NO = BC Analytical employee identification number of analyst.

BC ANALYTICAL

BATCH QC REPORT
ORDER: E9101596

TE REPORTED : 02/06/91

LABORATORY CONTROL STANDARDS

ARAMETER	DATE ANALYZED	BATCH NUMBER	LC RESULT	LT RESULT	UNIT	PERCENT RECOVERY
H - Modified 8015						
Dilution Factor	02.02.91	31	1	1	Times	100
Total Fuel Hydrocarbons	02.02.91	31	240	250	mg/kg	96
PH - Modified 8015						
Dilution Factor	02.02.91	31	1	1	Times	100
Total Fuel Hydrocarbons	02.02.91	31	260	250	mg/kg	104

BC ANALYTICAL

BATCH QC REPORT
ORDER: E9101596

DATE REPORTED : 02/06/91

MATRIX QC PRECISION (DUPLICATE SPIKES)

PARAMETER	DATE ANALYZED	BATCH NUMBER	S1 RESULT	S2 RESULT	UNIT	RELATIVE %DIFF
TPH - Modified 8015						
Dilution Factor	02.02.91	31	1	1	Times	0
Total Fuel Hydrocarbons	02.02.91	31	250	250	mg/kg	0

BC ANALYTICAL

BATCH QC REPORT
ORDER: E9101596

DATE REPORTED : 02/06/91

MATRIX QC ACCURACY (SPIKES)

PARAMETER	DATE ANALYZED	BATCH NUMBER	SBAR RESULT	TRUE RESULT	RBAR RESULT	UNIT	PERCENT RECOVERY
PH - Modified 8015							
Total Fuel Hydrocarbons	02.02.91	31	250	250	<10	mg/kg	100

BC ANALYTICAL

BATCH QC REPORT
ORDER: E9101596

TE REPORTED : 02/06/91

METHOD BLANKS AND REPORTING DETECTION LIMIT (RDL)

ARAMETER	DATE ANALYZED	BATCH NUMBER	BLANK RESULT	RDL	UNIT
PH - Modified 8015					
Date Analyzed	02.02.91	31	02.02.91	NA	Date
Dilution Factor	02.02.91	31	1	NA	Times
Total Fuel Hydrocarbons	02.02.91	31	0	10	mg/kg

04406

GEOMATRIX CONSULTANTS

ONE MARKET PLAZA
SPEAR STREET TOWER SUITE 717
SAN FRANCISCO, CALIFORNIA 94105
(415) 957-9557

Chain of Custody Record

DATE 1/27/91 PAGE 1 OF 1

PROJECT NO. 1459.05

SAMPLERS: (SIGNATURE) Dennis Withrid

DATE	TIME	SAMPLE NUMBER		GENERAL MINERAL	PRIORITY POLLUTANT METALS	EPA METHOD 624	EPA METHOD 625	EPA METHOD 601	EPA METHOD 602	EPA METHOD 608	PETROLEUM HYDROCARBONS			8015 HOLD			NUMBER OF CONTAINERS
1/26/91	1235	MW5-1												X			1
	1420	MW5-2	*											X			1
	1455	MW5-3	*											X			1
	1635	MW5-4	*											X			1
	1710	MW5-5												X			1
	1800	MW5-6												X			1
1/27/91	1420	MW6-1	*											X			1
	1445	MW6-2												X			1
	1535	MW6-3	*											X			1

* Samples taken off Hold and analysis for mineral spirits requested by Cheri Young on 1/28/91 10:00 am. M. Jansen

TOTAL NUMBER OF CONTAINERS 9

ANALYSES

REMARKS
(SAMPLE PRESERVATION, HANDLING PROCEDURES, OBSERVATIONS, ETC.)

(1) HOLD all Samples

(2) Call Cheri Young (@ 415 957 9557) re: sample analyses

Log # 910596

RELINQUISHED BY:	DATE	RECEIVED BY:
SIGNATURE		SIGNATURE
PRINTED NAME	TIME	PRINTED NAME
COMPANY		COMPANY

RELINQUISHED BY:	DATE	RECEIVED BY:
SIGNATURE		SIGNATURE
PRINTED NAME	TIME	PRINTED NAME
COMPANY		COMPANY

RELINQUISHED BY:	DATE	RECEIVED BY: (LAB)
SIGNATURE Dennis Withrid	1-27-91	SIGNATURE J. LAFFERTY
PRINTED NAME GMX	TIME	PRINTED NAME BC ANALYTICAL
COMPANY		LABORATORY

METHOD OF SHIPMENT:

LABORATORY COMMENTS / OBSERVATIONS

DISTRIBUTION: WHITE, CANARY - LABORATORY, PINK - ORIGINATOR

Analytical Report

LOG NO: E91-02-600

Received: 25 FEB 91
Mailed : 19 MAR 91

Ms. Cheri Young
Geomatrix Consultants
1 Market Plaza, Spear Tower, Ste.717
San Francisco, California 94105

Project: 1459.05

REPORT OF ANALYTICAL RESULTS

LOG NO	SAMPLE DESCRIPTION, SOIL SAMPLES	DATE SAMPLED
02-600-1	MB7-2	25 FEB 91
02-600-2	MB7-3	25 FEB 91
02-600-3	MB7-4	25 FEB 91
02-600-4	MB7-5	25 FEB 91
02-600-5	MB8-1	25 FEB 91

PARAMETER	02-600-1	02-600-2	02-600-3	02-600-4	02-600-5
TPH - Modified 8015					
Date Analyzed	02.27.91	02.27.91	02.27.91	02.27.91	02.27.91
Dilution Factor, Times	10	1	1	1	1
Total Fuel Hydrocarbons, mg/kg	1800	90	240	<10	200
Fuel Characterization, .	MINERAL SP	MINERAL SP	MINERAL SP	---	MINERAL SP
Other TPH - Modified 8015	---	---	---	---	---
TPH-Volatile/BTEX					
Date Analyzed	03/01/91	02/28/91	02/28/91	03/01/91	03/01/91
Date Extracted	03/01/91	02/28/91	02/28/91	03/01/91	03/01/91
Dilution Factor, Times	100	100	100	1	100
Benzene, mg/kg	<0.1	<0.1	<0.1	<0.005	<0.1
Ethylbenzene, mg/kg	3.3	<0.1	<0.1	<0.005	<0.1
Toluene, mg/kg	<0.1	<0.1	<0.1	0.02	<0.1
Total Xylene Isomers, mg/kg	5.5	2.0	3.3	<0.005	<0.1

1255 Powell Street
Emeryville, CA 94608

415/428-2300
Fax: 415/547-3643

BCA *B C Analytical*

Analytical Report

LOG NO: E91-02-600

Received: 25 FEB 91
Mailed : 19 MAR 91

Ms. Cheri Young
Geomatrix Consultants
1 Market Plaza, Spear Tower, Ste.717
San Francisco, California 94105

Project: 1459.05

REPORT OF ANALYTICAL RESULTS

LOG NO	SAMPLE DESCRIPTION, SOIL SAMPLES	DATE SAMPLED
02-600-6	MB8-2	25 FEB 91

PARAMETER	02-600-6
TPH - Modified 8015	
Date Analyzed	02.27.91
Dilution Factor, Times	1
Total Fuel Hydrocarbons, mg/kg	<10
Other TPH - Modified 8015	---
TPH-Volatile/BTEX	
Date Analyzed	02/28/91
Date Extracted	02/28/91
Dilution Factor, Times	1
Benzene, mg/kg	<0.005
Ethylbenzene, mg/kg	<0.005
Toluene, mg/kg	<0.005
Total Xylene Isomers, mg/kg	0.03

This fuel characterization is a qualitative identificationbased upon a visual comparison of sample chromatograms with those from mineralspirit standards. Mineral spirits results were reported to Cheri Young on 2/27/91. M. Janney

This report was revised on March 18, 1991 to report only the TPH quantitated using a mineral spirit standard as requested on the chain-of-custody.

Sim D. Lessley, Ph.D., Laboratory Director

1255 Powell Street
Emeryville, CA 94608

415/428-2300
Fax: 415/547-3643

BCA *B C Analytical*

GEOMATRIX CONSULTANTS
ONE MARKET PLAZA
SPEAR STREET TOWER SUITE 717
SAN FRANCISCO, CALIFORNIA 94105
(415) 957-9557

Chain of Custody Record

04559

DATE 2/25/91 PAGE 1 OF 1

PROJECT NO. 1459.05

SAMPLERS: (SIGNATURE)

Matt Oblog

DATE	TIME	SAMPLE NUMBER	GENERAL MINERAL	PRIORITY POLLUTANT METALS	EPA METHOD 624	EPA METHOD 625	EPA METHOD 601	EPA METHOD 602	EPA METHOD 608	PETROLEUM HYDROCARBONS	TPH as Mineral Spirits	BTEX				NUMBER OF CONTAINERS
2/25		MB7-2									X	X				1
		MB7-3									X	X				1
		MB7-4									X	X				1
		MB7-5									X	X				1
		MB8-1									X	X				1
		MB8-2									X	X				1

ANALYSES

REMARKS (SAMPLE PRESERVATION, HANDLING PROCEDURES, OBSERVATIONS, ETC.)

Soil Samples
Normal TAT
Results to Cheri Young

Log # 9102600

Preserved w/ Ice in the Field

TOTAL NUMBER OF CONTAINERS 6

RELINQUISHED BY:	DATE	RECEIVED BY:	RELINQUISHED BY:	DATE	RECEIVED BY: (LAB)
SIGNATURE		SIGNATURE	SIGNATURE: Matt Oblog	2/25/91 Fri	SIGNATURE
PRINTED NAME	TIME	PRINTED NAME	PRINTED NAME: Geomatrix	TIME 1515	PRINTED NAME
COMPANY		COMPANY	COMPANY		LABORATORY
RELINQUISHED BY:	DATE	RECEIVED BY:	METHOD OF SHIPMENT:		
SIGNATURE		SIGNATURE	LABORATORY COMMENTS / OBSERVATIONS		
PRINTED NAME	TIME	PRINTED NAME			
COMPANY		COMPANY			

DISTRIBUTION: WHITE, CANARY - LABORATORY, PINK - ORIGINATOR

GEOMATRIX

APPENDIX E

ANALYTICAL LABORATORY REPORTS AND CHAIN-OF-CUSTODY RECORDS FOR WATER SAMPLES

Analytical Report

LOG NO: E90-11-466

Received: 20 NOV 90
Reported: 27 NOV 90

Ms. Cheri Young
Geomatrix Consultants
1 Market Plaza, Spear Tower, Ste.717
San Francisco, California 94105

Project: 1459.05

REPORT OF ANALYTICAL RESULTS

LOG NO	SAMPLE DESCRIPTION, GROUND WATER SAMPLES	DATE SAMPLED
11-466-1	MW-1	20 NOV 90

PARAMETER	11-466-1
TPH - Modified 8015	
Date Analyzed	11.21.90
Dilution Factor, Times	1
Total Fuel Hydrocarbons, mg/L	150
Fuel Characterization, .	OIL
Other TPH - Modified 8015	---
EPA Method 8020	
Date Analyzed	11.21.90
Dilution Factor, Times	1
1,2-Dichlorobenzene, ug/L	<0.5
1,3-Dichlorobenzene, ug/L	<0.5
1,4-Dichlorobenzene, ug/L	<0.5
Benzene, ug/L	<0.5
Chlorobenzene, ug/L	<0.5
Ethylbenzene, ug/L	<0.5
Toluene, ug/L	<0.5
Total Xylene Isomers, ug/L	<0.5
Other EPA Method 8020	---

Sample chromatograms compared to mineral spirits standard. No mineral spirits were detected. Results were quantified using oil standard, and were reported to Ms. Young on 11/21/90.

Sim D. Lessley, Ph.D., Laboratory Director

1255 Powell Street
Emeryville, CA 94608

415/428-2300
Fax: 415/547-3643

BCA B C Analytical

BATCH QC REPORT: Definitions and Terms

Accuracy	The ability of a procedure to determine the "true" concentration of an analyte
Precision	The reproducibility of a procedure demonstrated by the agreement between analyses performed on either duplicates of the same sample or a pair of duplicate spikes
Batch	A group of samples analyzed sequentially using the same calibration curve, reagents, and instrument
Laboratory Control Standard (LCS)	Laboratory reagent water spiked with known compounds and subjected to the same procedures as the samples. The LCS thus indicates the accuracy of the analytical method and, because it is prepared from a different source than the standard used to calibrate the instrument, it also serves to double-check the calibration
Matrix QC	Quality control tests performed on actual client samples. For most inorganic analyses, the laboratory uses a pair of duplicate samples and a spiked sample. For most organic analyses, the laboratory uses a pair of spiked samples (duplicate spikes)
LC Result	Laboratory result of an LCS analysis
LT Result	Expected result, or true value, of the LCS analysis
R1, R2 Result:	Result of the analysis of replicate aliquots of a sample, with R1 indicating the first analysis of the sample and R2 its corresponding duplicate; used to determine precision
S1, S2 Result	Result of the analysis of replicate spiked aliquots, with S1 indicating one spike of the sample and S2 the second spike; used to determine precision and accuracy
R Bar Result $\bar{S}$	The average of replicate analysis results
S Bar Result:	The average of spike analysis results
True value	The theoretical, or expected, result of a spike sample analysis
Percent Recovery	The percentage of analyte recovered. For LCS, the percent recovery calculation is: LC ÷ LT x 100 For spike recoveries, the percent recovery calculatiion is: $\frac{\text{(S Bar - Sample Concentration)}}{\text{Spike Amount}} \times 100$
Relative Percent Difference (RPD)	Calculated using one of the following: $\frac{(R1 - R2) \times 100}{(R1 + R2) \div 2}$ $\frac{(S1 - S2) \times 100}{(S1 + S2) \div 2}$
Blank Result	The result of the analysis of a method blank,which is reagent water that is analysed using the same reagents, instruments and procedures as the samples in a batch; used to determine laboratory contamination
Reporting Detection Limit (RDL)	BCA-assigned limit based on—but not the same as—method detection limits (MDLs) determined using EPA guidelines

: ORDER PLACED FOR CLIENT: Geomatrix Consultants 9011466 :
BC ANALYTICAL : EMVL LAB : 13:21:59 03 DEC 1990 - P. 1 :

SAMPLES...	SAMPLE DESCRIPTION..	DETERM CODE....	DATE.... ANALYZED	METHOD.....	EQUIP.	BATCH	ID.NO
9011466*1	MW-1	FUEL.TOT	11.21.90	8015	516-08	269	7754
		VA.8020	11.21.90	8020	516-21	815	7314

**

Notes: Equipment = BC Analytical identification number for a particular piece of analytical equipment.

ID.NO = BC Analytical employee identification number of analyst.

BC ANALYTICAL

BATCH QC REPORT
ORDER: E9011466

ATE REPORTED : 12/03/90

LABORATORY CONTROL STANDARDS

PARAMETER	DATE ANALYZED	BATCH NUMBER	LC RESULT	LT RESULT	UNIT	PERCENT RECOVERY
PH - Modified 8015						
Dilution Factor	11.21.90	269	1	1	Times	100
Total Fuel Hydrocarbons	11.21.90	269	350	250	mg/L	140
EPA Method 602						
Analyst ID	11.20.90	815	7314	7314	No.	100
Detection Limit	11.20.90	815	0.5	0.5	ug/L	100
Dilution Factor	11.20.90	815	1	1	Times	100
1,2-Dichlorobenzene	11.20.90	815	18	20	ug/L	90
1,3-Dichlorobenzene	11.20.90	815	22	20	ug/L	110
1,4-Dichlorobenzene	11.20.90	815	23	20	ug/L	115
Benzene	11.20.90	815	19	20	ug/L	95
Chlorobenzene	11.20.90	815	18	20	ug/L	90
Ethylbenzene	11.20.90	815	20	20	ug/L	100
Toluene	11.20.90	815	18	20	ug/L	90
Total Xylene Isomers	11.20.90	815	42	40	ug/L	105

BC ANALYTICAL

BATCH QC REPORT
ORDER: E9011466

TE REPORTED : 12/03/90

MATRIX QC PRECISION (DUPLICATE SPIKES)

PARAMETER	DATE ANALYZED	BATCH NUMBER	S1 RESULT	S2 RESULT	UNIT	RELATIVE %DIFF
TPH - Modified 8015						
Dilution Factor	11.21.90	269	1	1	Times	0
Total Fuel Hydrocarbons	11.21.90	269	500	420	mg/L	17
EPA Method 602						
Analyst ID	11.21.90	815	7553	7553	No.	0
Detection Limit	11.21.90	815	0.5	0.5	ug/L	0
Dilution Factor	11.21.90	815	1	1	Times	0
1,2-Dichlorobenzene	11.21.90	815	10	11	ug/L	10
1,3-Dichlorobenzene	11.21.90	815	13	14	ug/L	7
1,4-Dichlorobenzene	11.21.90	815	13	14	ug/L	7
Benzene	11.21.90	815	11	12	ug/L	9
Chlorobenzene	11.21.90	815	10	11	ug/L	10
Ethylbenzene	11.21.90	815	11	13	ug/L	17
Toluene	11.21.90	815	9.8	11	ug/L	12
Total Xylene Isomers	11.21.90	815	23	27	ug/L	16

BC ANALYTICAL

BATCH QC REPORT
ORDER: E9011466

ATE REPORTED : 12/03/90

MATRIX QC ACCURACY (SPIKES)

PARAMETER	DATE ANALYZED	BATCH NUMBER	SBAR RESULT	TRUE RESULT	RBAR RESULT	UNIT	PERCENT RECOVERY
TPH - Modified 8015							
Total Fuel Hydrocarbons	11.21.90	269	460	400	150	mg/L	124
EPA Method 602							
1,2-Dichlorobenzene	11.21.90	815	10.5	12	<0.5	ug/L	88
1,3-Dichlorobenzene	11.21.90	815	13.5	12	<0.5	ug/L	113
1,4-Dichlorobenzene	11.21.90	815	13.5	12	<0.5	ug/L	113
Benzene	11.21.90	815	11.5	12	<0.5	ug/L	96
Chlorobenzene	11.21.90	815	10.5	12	<0.5	ug/L	88
Ethylbenzene	11.21.90	815	12	12	<0.5	ug/L	100
Toluene	11.21.90	815	10.4	12	<0.5	ug/L	87
Total Xylene Isomers	11.21.90	815	25	24	<0.5	ug/L	104

BC ANALYTICAL

BATCH QC REPORT
ORDER: E9011466

TE REPORTED : 12/03/90

METHOD BLANKS AND REPORTING DETECTION LIMIT (RDL)

PARAMETER	DATE ANALYZED	BATCH NUMBER	BLANK RESULT	RDL	UNIT
TPH - Modified 8015					
Date Analyzed	11.21.90	269	11.21.90	NA	Date
Dilution Factor	11.21.90	269	1	NA	Times
Total Fuel Hydrocarbons	11.21.90	269	0	(1)	mg/L
BTEX Method 8020					
Date Analyzed	11.20.90	815	11.20.90	NA	Date
Time Analyzed	11.20.90	815	09:41	NA	Hours
Analyst ID	11.20.90	815	7314	NA	No.
Detection Limit	11.20.90	815	0.5	99999	ug/L
Dilution Factor	11.20.90	815	1	NA	Times
Instrument ID	11.20.90	815	516-21	NA	No.
1,2-Dichlorobenzene	11.20.90	815	0	0.5	ug/L
1,3-Dichlorobenzene	11.20.90	815	0	0.5	ug/L
1,4-Dichlorobenzene	11.20.90	815	0	0.5	ug/L
Benzene	11.20.90	815	0	0.5	ug/L
Chlorobenzene	11.20.90	815	0	0.5	ug/L
Ethylbenzene	11.20.90	815	0	0.5	ug/L
Toluene	11.20.90	815	0	0.5	ug/L
Total Xylene Isomers	11.20.90	815	0	0.5	ug/L

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Andrew John Friedman
James E. Bruya, Ph.D.
(206) 285-8282

3008-B 16th Avenue West
Seattle, WA 98119
FAX: (206) 283-5044

November 28, 1990

Sherry Young, Project Leader
Geomatrix Consultants, Inc.
One Market Plaza
Spear Street Tower, Suite 717
San Francisco, CA 94105

Dear Ms Young:

Enclosed are the results of the analyses of the sample submitted on November 27, 1990 from Project 1459.05.

We appreciate this opportunity to be of service to you on this project. If you have any questions regarding this material, or if you just want to discuss any aspect of your projects, please do not hesitate to contact me.

Sincerely,

Tod S. Becherer

Tod S. Becherer, Chemist

TSB

Enclosures

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Date of Report: November 28, 1990
Date Submitted: November 27, 1990
Project: 1459.05

RESULTS OF ANALYSES OF THE WATER SAMPLE FOR FINGERPRINT CHARACTERIZATION BY CAPILLARY GAS CHROMATOGRAPHY

Sample #	GC Characterization
MW-1	The gas chromatographic trace was indicative of low concentrations of high boiling materials. This characterization is based on the presence of a broad hump of material eluting from ca *n*-C_{26} to beyond *n*-C_{35}. This material may be motor oil; however the GC pattern is not typical of most motor oils that we have examined. The presence of the broad peaks near 27, 32, 36 and 37 minutes may be indicative of biogenic materials. There is no indication of whole gasoline, diesel fuels or turbine fuels.

GEOMATRIX CONSULTANTS
ONE MARKET PLAZA
SPEAR STREET TOWER SUITE 717
SAN FRANCISCO, CALIFORNIA 94105
(415) 957-9557

04196

Chain of Custody Record

11-TSB-A

DATE 11/20/90 PAGE 1 OF 1

PROJECT NO. 1459.05

SAMPLERS: (SIGNATURE)

DATE	TIME	SAMPLE NUMBER (1 LITRE BOTTLE)	GENERAL MINERAL	PRIORITY POLLUTANT METALS	EPA METHOD 624	EPA METHOD 625	EPA METHOD 601	EPA METHOD 602	EPA METHOD 608	PETROLEUM HYDROCARBONS	8020 - BTXE	MINERAL SPIRITS	GC/HES (F+B,J)		NUMBER OF CONTAINERS
11/20	8:51	MW-1 (24 HOUR RUSH)									X	X	X		4
11/20	10 50	SB-1A									X	X			1
11/20	1000	SB-1B									X	X			1
11/20	1040	SB-1C									X	X			1

RUSH

ANALYSES

REMARKS (SAMPLE PRESERVATION, HANDLING PROCEDURES, OBSERVATIONS, ETC.)

All soil samples in Brubes w/ Al foil + caps on ends.

ATTN. CHISAN HO

8020 - acidified (3 VOAs)

MINERAL spirits not acidified (1-1 liter)

NORMAL TURNAROUND for soil samples (SB-1A, MW-1)

RESULTS TO CHERI YOUNG

MW-1 on 1 day TAT.

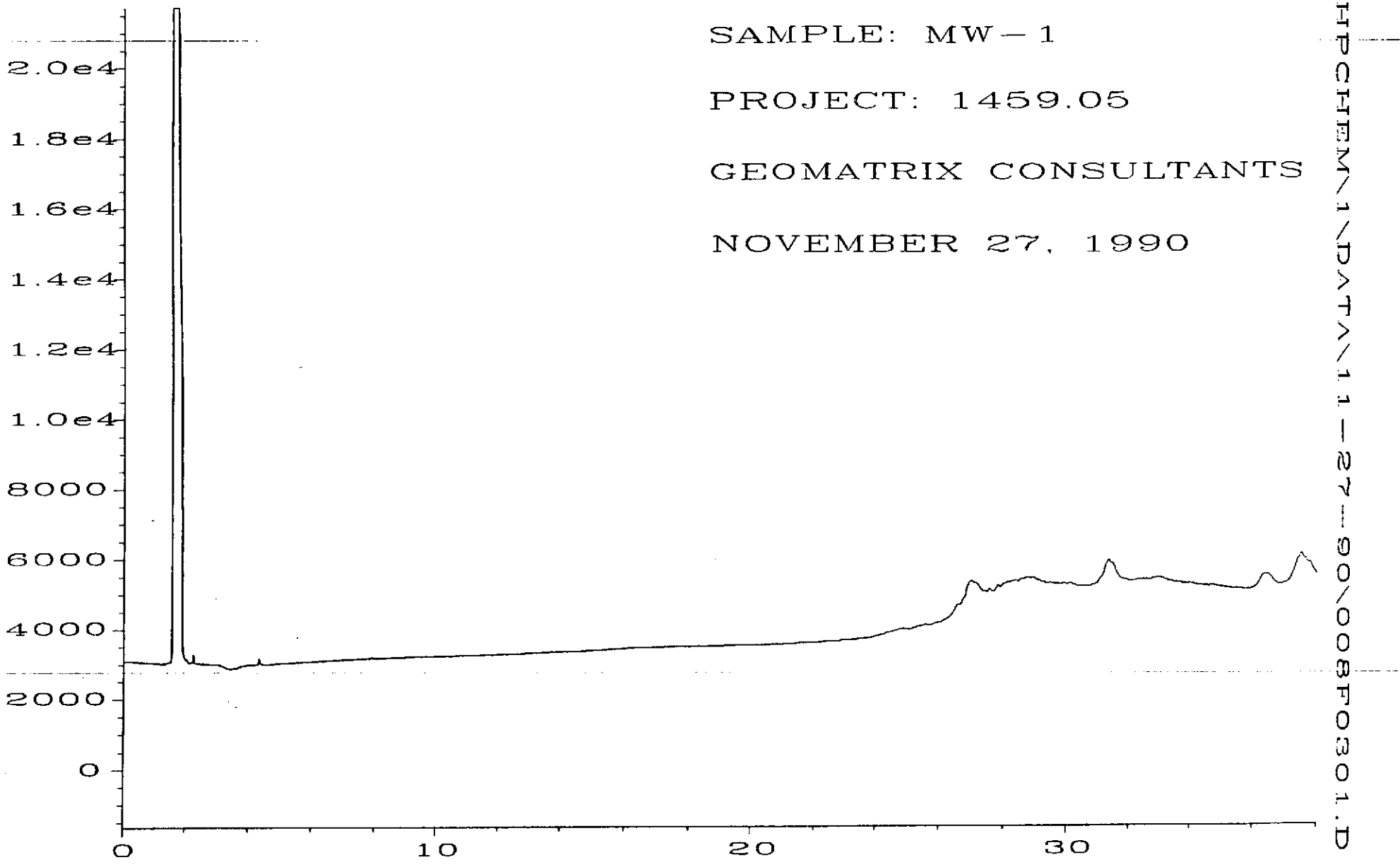
REPORT TO SHERRY YOUNG @ GEOMATRIX

11/21/90

TOTAL NUMBER OF CONTAINERS 7

RELINQUISHED BY	DATE	RECEIVED BY	RELINQUISHED BY:	DATE	RECEIVED BY: (LAB)
SIGNATURE: Raquel Hall	11/20/90	SIGNATURE: Mary Jandera	SIGNATURE:		SIGNATURE: M.A. DANFORD
PRINTED NAME: R HALL, I	TIME: 2:15 pm	PRINTED NAME: BCA 11/20/90 1211	PRINTED NAME: BCA	TIME	PRINTED NAME: FREEDMAN & BRUYA, INC
COMPANY: Geomatrix		COMPANY	COMPANY		LABORATORY
RELINQUISHED BY:	DATE	RECEIVED BY:	METHOD OF SHIPMENT:		
SIGNATURE		SIGNATURE	LABORATORY COMMENTS / OBSERVATIONS		
PRINTED NAME	TIME	PRINTED NAME	Log # 9011 A16b		
COMPANY		COMPANY			

DISTRIBUTION: WHITE - CANARY - LABORATORY PINK - ORIGINATOR


SAMPLE: MW-1
PROJECT: 1459.05
GEOMATRIX CONSULTANTS
NOVEMBER 27, 1990
C:\HPCHEM\1\DATA\11-27-90\008F0301.D
2.0e4
1.8e4
1.6e4
1.4e4
1.2e4
1.0e4
8000
6000
4000
2000
0
0
10
20
30

ANAMETRIX INC
Environmental & Analytical Chemistry
1961 Concourse Drive, Suite E, San Jose, CA 95131
(408) 432-8192 • Fax (408) 432-8198

REPORT

MS. CHERI YOUNG
GEOMATRIX CONSULTANTS - SAN FRANCISCO
ONE MARKET PLAZA,SPEAR ST. TOWER STE 717
SAN FRANCISCO, CA 94105

Workorder # : 9011238
Date Received : 11/28/90
Project ID : 1459.05
Purchase Order: N/A

The following samples were received at Anametrix, Inc. for analysis :

ANAMETRIX ID	CLIENT SAMPLE ID
9011238- 1	MW-3

This report is paginated for your convenience and ease of review. It contains 3 pages excluding the cover letter. The report is organized into sections. Each section contains all analytical results and quality assurance data related to a specific group or section within Anametrix. The Report Summary that precedes each section will help you determine which group at Anametrix generated the data. The Report Summary will contain the signatures of the department supervisor and a chemist, both of whom reviewed the analytical data. Please refer all questions to the department supervisor that signed the form.

If you have any further questions or comments on this report, please give us a call as soon as possible. Thank you for using Anametrix.

Burt Sutherland
Laboratory Director

12-05-90
Date

REPORT SUMMARY
ANAMETRIX, INC. (408)432-8192

MS. CHERI YOUNG
GEOMATRIX CONSULTANTS - SAN FRANCISCO
ONE MARKET PLAZA,SPEAR ST. TOWER STE 717
SAN FRANCISCO, CA 94105

Workorder # : 9011238
Date Received : 11/28/90
Project ID : 1459.05
Purchase Order: N/A
Department : GC
Sub-Department: TPH

SAMPLE INFORMATION:

ANAMETRIX SAMPLE ID	CLIENT SAMPLE ID	MATRIX	DATE SAMPLED	METHOD
9011238- 1	MW-3	H2O	11/27/90	TPHg/BTEX

REPORT SUMMARY
ANAMETRIX, INC. (408)432-8192

MS. CHERI YOUNG
GEOMATRIX CONSULTANTS - SAN FRANCISCO
ONE MARKET PLAZA,SPEAR ST. TOWER STE 717
SAN FRANCISCO, CA 94105

Workorder # : 9011238
Date Received : 11/28/90
Project ID : 1459.05
Purchase Order: N/A
Department : GC
Sub-Department: TPH

QA/QC SUMMARY :

- No QA/QC problems encountered for samples.

Cheryl Balmer 12/4/90
Department Supervisor Date

Steve Sunseri 12-05-90
Chemist Date

ANALYSIS DATA SHEET - TOTAL PETROLEUM HYDROCARBONS
(MINERAL SPIRITS WITH BTEX)
ANAMETRIX, INC. - (408) 432-8192

Anametrix W.O.: 9011238
Matrix : WATER
Date Sampled : 11/27/90

Project Number : 1459.05
Date Released : 12/04/90

COMPOUNDS	Reporting Limit (ug/L)	Sample I.D.# MW-3 -01	Sample I.D.# 04B1203C BLANK
Benzene	0.5	ND	ND
Toluene	0.5	0.6	ND
Ethylbenzene	0.5	ND	ND
Total Xylenes	0.5	2.3	ND
TPH as Mineral Spirits	50	ND	ND
% Surrogate Recovery		126%	104%
Instrument I.D.		HP4	HP4
Date Analyzed		12/03/90	12/03/90
RLMF		1	1

ND - Not detected at or above the practical quantitation limit for the method.
TPHg - Total Petroleum Hydrocarbons as mineral spirits is determined by GCFID using EPA Method 5030.
BTEX - Benzene, Toluene, Ethylbenzene, and Total Xylenes are determined by modified EPA 8020.
RLMF - Reporting Limit Multiplication Factor.

All testing procedures follow California Department of Health Services (Cal-DHS) approved methods.

Irma Steer 12/10/90
Analyst Date

Cheryl Balmer 12/7/90
Supervisor Date

9011238 (2)

GEOMATRIX CONSULTANTS
ONE MARKET PLAZA
SPEAR STREET TOWER SUITE 717
SAN FRANCISCO, CALIFORNIA 94105
(415) 957-9557

Chain of Custody Record

04170
M28490

DATE 11/27/90 PAGE 1 OF 1

PROJECT NO. 1459.05

SAMPLERS: (SIGNATURE) Matt Obloy

DATE	TIME	SAMPLE NUMBER	GENERAL MINERAL	PRIORITY POLLUTANT METALS	EPA METHOD 624	EPA METHOD 625	EPA METHOD 601	EPA METHOD 602	EPA METHOD 608	PETROLEUM HYDROCARBONS	BTXE and TPH Mineral Spirits					NUMBER OF CONTAINERS	REMARKS (SAMPLE PRESERVATION, HANDLING PROCEDURES, OBSERVATIONS, ETC.)
11/27/90	1040	MW-3									X					3	water samples

Remarks: 5 day turnaround. Results to Cheri Young. Cold, proper container, preserved, no bubbles 11/28/90 NI. All samples preserved by ice in the field.

TOTAL NUMBER OF CONTAINERS: 3

RELINQUISHED BY:	DATE	RECEIVED BY:	RELINQUISHED BY:	DATE	RECEIVED BY: (LAB)
SIGNATURE: Matt Obloy	11/27/90	SIGNATURE: Mike Keith	SIGNATURE: Mike Keith	11/28	SIGNATURE: Benny S. Carrizosa
PRINTED NAME: MATT OBLOY	TIME 1245	PRINTED NAME: MIKE KEITH	PRINTED NAME: MIKE KEITH	TIME 12:00	PRINTED NAME: BENNY S. CARRIZOSA
COMPANY: GEOMATRIX		COMPANY: GEOMATRIX	COMPANY: GEOMATRIX		LABORATORY: ANAMETRIX

RELINQUISHED BY:	DATE	RECEIVED BY:
SIGNATURE		SIGNATURE
PRINTED NAME	TIME	PRINTED NAME
COMPANY		COMPANY

METHOD OF SHIPMENT: Anametrix Pick-up

LABORATORY COMMENTS / OBSERVATIONS
Rel. By: Benny S. Carrizosa 11/28/90 1250
Rec: By Nari [illegible] 11/28/90 1250
ALL SAMPLES CHECK BY Calvin Robinson ON 11-29-90 OK

DISTRIBUTION: WHITE, CANARY - LABORATORY, PINK - ORIGINATOR

ANAMETRIX INC
Environmental & Analytical Chemistry
1961 Concourse Drive, Suite E, San Jose, CA 95131
(408) 432-8192 • Fax (408) 432-8198

REPORT

MS. CHERI YOUNG
GEOMATRIX CONSULTANTS - SAN FRANCISCO
ONE MARKET PLAZA,SPEAR ST. TOWER STE 717
SAN FRANCISCO, CA 94105

Workorder # : 9011262
Date Received : 11/29/90
Project ID : 1459.05
Purchase Order: N/A

The following samples were received at Anametrix, Inc. for analysis :

ANAMETRIX ID	CLIENT SAMPLE ID
9011262- 1	MW-2

This report is paginated for your convenience and ease of review. It contains 3 pages excluding the cover letter. The report is organized into sections. Each section contains all analytical results and quality assurance data related to a specific group or section within Anametrix. The Report Summary that precedes each section will help you determine which group at Anametrix generated the data. The Report Summary will contain the signatures of the department supervisor and a chemist, both of whom reviewed the analytical data. Please refer all questions to the department supervisor that signed the form.

If you have any further questions or comments on this report, please give us a call as soon as possible. Thank you for using Anametrix.

Frank Schoen for
Burt Sutherland
Laboratory Director

12-05-90
Date

REPORT SUMMARY
ANAMETRIX, INC. (408)432-8192

MS. CHERI YOUNG
GEOMATRIX CONSULTANTS - SAN FRANCISCO
ONE MARKET PLAZA,SPEAR ST. TOWER STE 717
SAN FRANCISCO, CA 94105

Workorder # : 9011262
Date Received : 11/29/90
Project ID : 1459.05
Purchase Order: N/A
Department : GC
Sub-Department: TPH

SAMPLE INFORMATION:

ANAMETRIX SAMPLE ID	CLIENT SAMPLE ID	MATRIX	DATE SAMPLED	METHOD
9011262- 1	MW-2	H2O	11/29/90	TPHg/BTEX

REPORT SUMMARY
ANAMETRIX, INC. (408)432-8192

MS. CHERI YOUNG
GEOMATRIX CONSULTANTS - SAN FRANCISCO
ONE MARKET PLAZA,SPEAR ST. TOWER STE 717
SAN FRANCISCO, CA 94105

Workorder # : 9011262
Date Received : 11/29/90
Project ID : 1459.05
Purchase Order: N/A
Department : GC
Sub-Department: TPH

QA/QC SUMMARY :

- No QA/QC problems encountered for samples.

Cheryl Balmer 12/4/90
Department Supervisor Date

[illegible] 12-05-90
Chemist Date

ANALYSIS DATA SHEET - TOTAL PETROLEUM HYDROCARBONS
(MINERAL SPIRITS WITH BTEX)
ANAMETRIX, INC. - (408) 432-8192

Anametrix W.O.: 9011262
Matrix : WATER
Date Sampled : 11/29/90

Project Number : 1459.05
Date Released : 12/04/90

COMPOUNDS	Reporting Limit (ug/L)	Sample I.D.# MW-2 -01	Sample I.D.# 04B1203C BLANK
Benzene	0.5	ND	ND
Toluene	0.5	ND	ND
Ethylbenzene	0.5	ND	ND
Total Xylenes	0.5	ND	ND
TPH as Mineral Spirits	50	ND	ND
% Surrogate Recovery		140%	104%
Instrument I.D.		HP4	HP4
Date Analyzed		12/03/90	12/03/90
RLMF		1	1

ND - Not detected at or above the practical quantitation limit for the method.
TPHg - Total Petroleum Hudrocarbons as mineral spirits is determined by GCFID using EPA Method 5030.
BTEX - Benzene, Toluene, Ethylbenzene, and Total Xylenes are determined by modified EPA 8020.
RLMF - Reporting Limit Multiplication Factor.

All testing procedures follow California Department of Health Services (Cal-DHS) approved methods.

Jesus Juarez 12-05-90
Analyst Date

Cheryl Balmer 12/5/90
Supervisor Date

③ 3r2 16:30 9011262

04171

GEOMATRIX CONSULTANTS
ONE MARKET PLAZA
SPEAR STREET TOWER SUITE 717
SAN FRANCISCO, CALIFORNIA 94105
(415) 957-9557

Chain of Custody Record

DATE 11/29/90 PAGE 1 OF 1

PROJECT NO. 1459.05

SAMPLERS: (SIGNATURE) Matt Obloy

DATE	TIME	SAMPLE NUMBER	GENERAL MINERAL	PRIORITY POLLUTANT METALS	EPA METHOD 624	EPA METHOD 625	EPA METHOD 601	EPA METHOD 602	EPA METHOD 608	PETROLEUM HYDROCARBONS	BTEX, TPH g as Mineral Spirits					NUMBER OF CONTAINERS	REMARKS (SAMPLE PRESERVATION, HANDLING PROCEDURES, OBSERVATIONS, ETC.)
11/29	10:30	MW-2									X					3	Water Samples 4 day Turnaround Results To Cheri Young

TOTAL NUMBER OF CONTAINERS

RELINQUISHED BY:	DATE	RECEIVED BY:	RELINQUISHED BY:	DATE	RECEIVED BY: (LAB)
SIGNATURE		SIGNATURE	Matt Obloy SIGNATURE	11/29/90	Benny S. Carrizosa SIGNATURE
PRINTED NAME	TIME	PRINTED NAME	MATT OBLOY PRINTED NAME	TIME 1245	BENNY S. CARRIZOSA PRINTED NAME
COMPANY		COMPANY	Geomatrix COMPANY		Anametrix LABORATORY

RELINQUISHED BY:	DATE	RECEIVED BY:
SIGNATURE		SIGNATURE
PRINTED NAME	TIME	PRINTED NAME
COMPANY		COMPANY

METHOD OF SHIPMENT: Pick-up

LABORATORY COMMENTS / OBSERVATIONS
Rel. By: Benny S. Carrizosa 11/29/90 1610
Rec'd By: [illegible] 11/29/90 1610

DISTRIBUTION: WHITE, CANARY - LABORATORY, PINK - ORIGINATOR

ANAMETRIX INC
Environmental & Analytical Chemistry
1961 Concourse Drive, Suite E, San Jose, CA 95131
(408) 432-8192 • Fax (408) 432-8198

REPORT

CHERI YOUNG
GEOMATRIX CONSULTANTS - SAN FRANCISCO
ONE MARKET PLAZA,SPEAR ST. TOWER STE 717
SAN FRANCISCO, CA 94105

Workorder # : 9101030
Date Received : 01/04/91
Project ID : 1459.05
Purchase Order: N/A

The following samples were received at Anametrix, Inc. for analysis :

ANAMETRIX ID	CLIENT SAMPLE ID
9101030- 1	MW-3
9101030- 2	MW-2
9101030- 3	MW-1 01/04/91
9101030- 4	MW-1 01/02/91

This report consists of 16 pages not including the cover letter, and is organized in sections according to the specific Anametrix laboratory group or section which performed the analysis(es) and generated the data. The Report Summary that precedes each section will help you determine which Anametrix group is responsible for those test results, and will bear the signatures of the department supervisor and the chemist who have reviewed the analytical data. Please refer all questions to the department supervisor who signed the form.

Anametrix is certified by the California Department of Health Services (DHS) to perform environmental testing under Certificate Number 1234. A detailed list of the approved fields of testing can be obtained by calling our office, or the DHS Environmental Laboratory Accreditation Program at (415)540-2800.

If you have any further questions or comments on this report, please give us a call as soon as possible. Thank you for using Anametrix.

Burt Sutherland
Laboratory Director

1-17-91
Date

ANAMETRIX REPORT DESCRIPTION
GCMS

Organic Analysis Data Sheets (OADS)

OADS forms contain tabulated results for target compounds. The OADS are grouped by method and, within each method, organized sequentially in order of increasing Anametrix ID number.

Tentatively Identified Compounds (TICs)

TIC forms contain tabulated results for non-target compounds detected in GC/MS analyses. TICs must be requested at the time samples are submitted at Anametrix. TIC forms immediately follow the OADS form for each sample. If TICs are requested but not found, then TIC forms will not be included with the report.

Surrogate Recovery Summary (SRS)

SRS forms contain quality assurance data. An SRS form will be printed for each method, if the method requires surrogate compounds. They will list surrogate percent recoveries for all samples and any method blanks. Any surrogate recovery outside the established limits will be flagged with an "*", and the total number of surrogates outside the limits will be listed in the column labelled "Total Out".

Matrix Spike Recovery Form (MSR)

MSR forms contain quality assurance data. They summarize percent recovery and relative percent difference information for matrix spikes and matrix spike duplicates. This information is a statement of both accuracy and precision. Any percent recovery or relative percent difference outside established limits will be flagged with an "*", and the total number outside the limits will be listed at the bottom of the page. Not all reports will contain an MSR form.

Qualifiers

Anametrix uses several data qualifiers (Q) in it's report forms. These qualifiers give additional information on the compounds reported. They should help a data reviewer to verify the integrity of the analytical results. The following is a list of qualifiers and their meanings:

- U - Indicates that the compound was analyzed for, but was not detected at or above the specified reporting limit.
- B - Indicates that the compound was detected in the associated method blank.
- J - Indicates that the compound was detected at an amount below the specified reporting limit. Consequently, the amount should be considered an approximate value. Tentatively identified compounds will always have a "J" qualifier because they are not included in the instrument calibration.
- E - Indicates that the amount reported exceeded the linear range of the instrument calibration.
- D - Indicates that the compound was detected in an analysis performed at a secondary dilution.
- A - Indicates that the tentatively identified compound is a suspected aldol condensation product. This is common in EPA Method 8270 soil analyses.

Absence of a qualifier indicates that the compound was detected at a concentration at or above the specified reporting limit.

REPORTING CONVENTIONS

- Due to a size limitation in our data processing step, only the first eight (8) characters of your project ID and sample ID will be printed on the report forms. However, the report cover letter and report summary pages display up to twenty (20) characters of your project and sample IDs.
- Amounts reported are gross values, i.e., not corrected for method blank contamination.

REPORT SUMMARY
ANAMETRIX, INC. (408)432-8192

CHERI YOUNG
GEOMATRIX CONSULTANTS - SAN FRANCISCO
ONE MARKET PLAZA,SPEAR ST. TOWER STE 717
SAN FRANCISCO, CA 94105

Workorder # : 9101030
Date Received : 01/04/91
Project ID : 1459.05
Purchase Order: N/A
Department : GCMS
Sub-Department: GCMS

SAMPLE INFORMATION:

ANAMETRIX SAMPLE ID	CLIENT SAMPLE ID	MATRIX	DATE SAMPLED	METHOD
9101030- 1	MW-3	WATER	01/03/91	8240
9101030- 2	MW-2	WATER	01/03/91	8240
9101030- 3	MW-1 01/04/91	WATER	01/04/91	8240
9101030- 1	MW-3	WATER	01/03/91	8270
9101030- 4	MW-1 01/02/91	WATER	01/02/91	8270

REPORT SUMMARY
ANAMETRIX, INC. (408)432-8192

CHERI YOUNG
GEOMATRIX CONSULTANTS - SAN FRANCISCO
ONE MARKET PLAZA,SPEAR ST. TOWER STE 717
SAN FRANCISCO, CA 94105

Workorder # : 9101030
Date Received : 01/04/91
Project ID : 1459.05
Purchase Order: N/A
Department : GCMS
Sub-Department: GCMS

QA/QC SUMMARY :

- Surrogate recovery is outside established limits in the EPA Method 8270 analysis of sample MW-3. This method allows for one surrogate to be outside established limits per fraction, thus no corrective action was taken.
- Internal standard areas are outside established limits in the EPA Method 8270 analysis of sample MW-3. Since surrogate recoveries were acceptible, no corrective action was taken.

Paul Gowan 1-24-91
Department Supervisor Date

Laura Marsh 1.24.91
Chemist Date

ORGANIC ANALYSIS DATA SHEET -- EPA METHOD 624/8240
ANAMETRIX, INC. (408)432-8192

Project ID : 1459.05
Sample ID : MW-3
Matrix : WATER
Date Sampled : 1/ 3/91
Date Analyzed : 1/15/91
Instrument ID : F3

Anametrix ID : 9101030-01
Analyst : LY
Supervisor : PG

Dilution Factor : 1.00
Conc. Units : ug/L

CAS NO.	COMPOUND NAME	REPORTING LIMIT	AMOUNT DETECTED	Q
74-87-3	CHLOROMETHANE	10.	ND	U
75-01-4	VINYL CHLORIDE	10.	ND	U
74-83-9	BROMOMETHANE	10.	ND	U
75-00-3	CHLOROETHANE	10.	ND	U
75-69-4	TRICHLOROFLUOROMETHANE	5.	ND	U
75-35-4	1,1-DICHLOROETHENE	5.	ND	U
76-13-1	TRICHLOROTRIFLUOROETHANE	5.	ND	U
67-64-1	ACETONE	20.	ND	U
75-15-0	CARBON DISULFIDE	5.	ND	U
75-09-2	METHYLENE CHLORIDE	5.	ND	U
156-60-5	TRANS-1,2-DICHLOROETHENE	5.	ND	U
75-34-3	1,1-DICHLOROETHANE	5.	ND	U
78-93-3	2-BUTANONE	20.	ND	U
156-59-2	CIS-1,2-DICHLOROETHENE	5.	ND	U
67-66-3	CHLOROFORM	5.	ND	U
71-55-6	1,1,1-TRICHLOROETHANE	5.	ND	U
56-23-5	CARBON TETRACHLORIDE	5.	ND	U
71-43-2	BENZENE	5.	ND	U
107-06-2	1,2-DICHLOROETHANE	5.	ND	U
79-01-6	TRICHLOROETHENE	5.	ND	U
78-87-5	1,2-DICHLOROPROPANE	5.	ND	U
75-27-4	BROMODICHLOROMETHANE	5.	ND	U
110-75-8	2-CHLOROETHYLVINYL ETHER	5.	ND	U
108-05-4	VINYL ACETATE	10.	ND	U
10061-01-5	CIS-1,3-DICHLOROPROPENE	5.	ND	U
108-10-1	4-METHYL-2-PENTANONE	10.	ND	U
108-88-3	TOLUENE	5.	ND	U
10061-02-6	TRANS-1,3-DICHLOROPROPENE	5.	ND	U
79-00-5	1,1,2,-TRICHLOROETHANE	5.	ND	U
127-18-4	TETRACHLOROETHENE	5.	ND	U
591-78-6	2-HEXANONE	10.	ND	U
124-48-1	DIBROMOCHLOROMETHANE	5.	ND	U
108-90-7	CHLOROBENZENE	5.	ND	U
100-41-4	ETHYLBENZENE	5.	ND	U
1330-20-7	XYLENE (TOTAL)	5.	ND	U
100-42-5	STYRENE	5.	ND	U
75-25-2	BROMOFORM	5.	ND	U
79-34-5	1,1,2,2-TETRACHLOROETHANE	5.	ND	U
541-73-1	1,3-DICHLOROBENZENE	5.	ND	U
106-46-7	1,4-DICHLOROBENZENE	5.	ND	U
95-50-1	1,2-DICHLOROBENZENE	5.	ND	U

ORGANIC ANALYSIS DATA SHEET -- EPA METHOD 624/8240
ANAMETRIX, INC. (408)432-8192

Project ID : 1459.05
Sample ID : MW-2
Matrix : WATER
Date Sampled : 1/ 3/91
Date Analyzed : 1/15/91
Instrument ID : F3

Anametrix ID : 9101030-02
Analyst : LJ
Supervisor : PG

Dilution Factor : 1.00
Conc. Units : ug/L

CAS NO.	COMPOUND NAME	REPORTING LIMIT	AMOUNT DETECTED	Q
74-87-3	CHLOROMETHANE	10.	ND	U
75-01-4	VINYL CHLORIDE	10.	ND	U
74-83-9	BROMOMETHANE	10.	ND	U
75-00-3	CHLOROETHANE	10.	ND	U
75-69-4	TRICHLOROFLUOROMETHANE	5.	7.	
75-35-4	1,1-DICHLOROETHENE	5.	ND	U
76-13-1	TRICHLOROTRIFLUOROETHANE	5.	ND	U
67-64-1	ACETONE	20.	ND	U
75-15-0	CARBON DISULFIDE	5.	ND	U
75-09-2	METHYLENE CHLORIDE	5.	ND	U
156-60-5	TRANS-1,2-DICHLOROETHENE	5.	ND	U
75-34-3	1,1-DICHLOROETHANE	5.	ND	U
78-93-3	2-BUTANONE	20.	ND	U
156-59-2	CIS-1,2-DICHLOROETHENE	5.	ND	U
67-66-3	CHLOROFORM	5.	ND	U
71-55-6	1,1,1-TRICHLOROETHANE	5.	ND	U
56-23-5	CARBON TETRACHLORIDE	5.	ND	U
71-43-2	BENZENE	5.	ND	U
107-06-2	1,2-DICHLOROETHANE	5.	ND	U
79-01-6	TRICHLOROETHENE	5.	ND	U
78-87-5	1,2-DICHLOROPROPANE	5.	ND	U
75-27-4	BROMODICHLOROMETHANE	5.	ND	U
110-75-8	2-CHLOROETHYLVINYL ETHER	5.	ND	U
108-05-4	VINYL ACETATE	10.	ND	U
10061-01-5	CIS-1,3-DICHLOROPROPENE	5.	ND	U
108-10-1	4-METHYL-2-PENTANONE	10.	ND	U
108-88-3	TOLUENE	5.	ND	U
10061-02-6	TRANS-1,3-DICHLOROPROPENE	5.	ND	U
79-00-5	1,1,2,-TRICHLOROETHANE	5.	ND	U
127-18-4	TETRACHLOROETHENE	5.	7.	
591-78-6	2-HEXANONE	10.	ND	U
124-48-1	DIBROMOCHLOROMETHANE	5.	ND	U
108-90-7	CHLOROBENZENE	5.	ND	U
100-41-4	ETHYLBENZENE	5.	ND	U
1330-20-7	XYLENE (TOTAL)	5.	ND	U
100-42-5	STYRENE	5.	ND	U
75-25-2	BROMOFORM	5.	ND	U
79-34-5	1,1,2,2-TETRACHLOROETHANE	5.	ND	U
541-73-1	1,3-DICHLOROBENZENE	5.	ND	U
106-46-7	1,4-DICHLOROBENZENE	5.	ND	U
95-50-1	1,2-DICHLOROBENZENE	5.	ND	U

ORGANIC ANALYSIS DATA SHEET -- EPA METHOD 624/8240
ANAMETRIX, INC. (408)432-8192

Project ID : 1459.05
Sample ID : MW-1
Matrix : WATER
Date Sampled : 1/ 4/91
Date Analyzed : 1/15/91
Instrument ID : F3

Anametrix ID : 9101030-03
Analyst : uw
Supervisor : PG

Dilution Factor : 1.00
Conc. Units : ug/L

CAS NO.	COMPOUND NAME	REPORTING LIMIT	AMOUNT DETECTED	Q
74-87-3	CHLOROMETHANE	10.	ND	U
75-01-4	VINYL CHLORIDE	10.	ND	U
74-83-9	BROMOMETHANE	10.	ND	U
75-00-3	CHLOROETHANE	10.	ND	U
75-69-4	TRICHLOROFLUOROMETHANE	5.	ND	U
75-35-4	1,1-DICHLOROETHENE	5.	ND	U
76-13-1	TRICHLOROTRIFLUOROETHANE	5.	ND	U
67-64-1	ACETONE	20.	ND	U
75-15-0	CARBON DISULFIDE	5.	ND	U
75-09-2	METHYLENE CHLORIDE	5.	ND	U
156-60-5	TRANS-1,2-DICHLOROETHENE	5.	ND	U
75-34-3	1,1-DICHLOROETHANE	5.	ND	U
78-93-3	2-BUTANONE	20.	ND	U
156-59-2	CIS-1,2-DICHLOROETHENE	5.	ND	U
67-66-3	CHLOROFORM	5.	6.	
71-55-6	1,1,1-TRICHLOROETHANE	5.	ND	U
56-23-5	CARBON TETRACHLORIDE	5.	ND	U
71-43-2	BENZENE	5.	ND	U
107-06-2	1,2-DICHLOROETHANE	5.	ND	U
79-01-6	TRICHLOROETHENE	5.	ND	U
78-87-5	1,2-DICHLOROPROPANE	5.	ND	U
75-27-4	BROMODICHLOROMETHANE	5.	ND	U
110-75-8	2-CHLOROETHYLVINYL ETHER	5.	ND	U
108-05-4	VINYL ACETATE	10.	ND	U
10061-01-5	CIS-1,3-DICHLOROPROPENE	5.	ND	U
108-10-1	4-METHYL-2-PENTANONE	10.	ND	U
108-88-3	TOLUENE	5.	ND	U
10061-02-6	TRANS-1,3-DICHLOROPROPENE	5.	ND	U
79-00-5	1,1,2,-TRICHLOROETHANE	5.	ND	U
127-18-4	TETRACHLOROETHENE	5.	ND	U
591-78-6	2-HEXANONE	10.	ND	U
124-48-1	DIBROMOCHLOROMETHANE	5.	ND	U
108-90-7	CHLOROBENZENE	5.	ND	U
100-41-4	ETHYLBENZENE	5.	ND	U
1330-20-7	XYLENE (TOTAL)	5.	ND	U
100-42-5	STYRENE	5.	ND	U
75-25-2	BROMOFORM	5.	ND	U
79-34-5	1,1,2,2-TETRACHLOROETHANE	5.	ND	U
541-73-1	1,3-DICHLOROBENZENE	5.	ND	U
106-46-7	1,4-DICHLOROBENZENE	5.	ND	U
95-50-1	1,2-DICHLOROBENZENE	5.	ND	U

ORGANIC ANALYSIS DATA SHEET -- EPA METHOD 625/8270
ANAMETRIX, INC. (408)432-8192

Project ID : 1459.05
Sample ID : MW-3
Matrix : WATER
Date Sampled : 1/ 3/91
Date Extracted : 1/ 8/91
Amount Extracted : 920.0 mL
Date Analyzed : 1/ 9/91
Instrument ID : F2

Anametrix ID : 9101030-01
Analyst : UM
Supervisor : PG

Dilution Factor : 1.00
Conc. Units : ug/L

CAS NO.	COMPOUND NAME	REPORTING LIMIT	AMOUNT DETECTED	Q
108-95-2	PHENOL	11.	ND	U
111-44-4	BIS(2-CHLOROETHYL)ETHER	11.	ND	U
95-57-8	2-CHLOROPHENOL	11.	ND	U
541-73-1	1,3-DICHLOROBENZENE	11.	ND	U
106-46-7	1,4-DICHLOROBENZENE	11.	ND	U
100-51-6	BENZYL ALCOHOL	11.	ND	U
95-50-1	1,2-DICHLOROBENZENE	11.	ND	U
95-48-7	2-METHYLPHENOL	11.	ND	U
108-60-1	BIS(2-CHLOROISOPROPYL)ETHER	11.	ND	U
106-44-5	4-METHYLPHENOL	11.	ND	U
621-64-7	N-NITROSO-DI-N-PROPYLAMINE	11.	ND	U
67-72-1	HEXACHLOROETHANE	11.	ND	U
98-95-3	NITROBENZENE	11.	ND	U
78-59-1	ISOPHORONE	11.	ND	U
88-75-5	2-NITROPHENOL	11.	ND	U
105-67-9	2,4-DIMETHYLPHENOL	11.	ND	U
65-85-0	BENZOIC ACID	54.	ND	U
111-91-1	BIS(2-CHLOROETHOXY)METHANE	11.	ND	U
120-83-2	2,4-DICHLOROPHENOL	11.	ND	U
120-82-1	1,2,4-TRICHLOROBENZENE	11.	ND	U
91-20-3	NAPHTHALENE	11.	ND	U
106-47-8	4-CHLOROANILINE	11.	ND	U
87-68-3	HEXACHLOROBUTADIENE	11.	ND	U
59-50-7	4-CHLORO-3-METHYLPHENOL	11.	ND	U
91-57-6	2-METHYLNAPHTHALENE	11.	ND	U
77-47-4	HEXACHLOROCYCLOPENTADIENE	11.	ND	U
88-06-2	2,4,6-TRICHLOROPHENOL	11.	ND	U
95-95-4	2,4,5-TRICHLOROPHENOL	54.	ND	U
91-58-7	2-CHLORONAPHTHALENE	11.	ND	U
88-74-4	2-NITROANILINE	54.	ND	U
131-11-3	DIMETHYLPHTHALATE	11.	ND	U
208-96-8	ACENAPHTHYLENE	11.	ND	U
606-20-2	2,6-DINITROTOLUENE	11.	ND	U

ORGANIC ANALYSIS DATA SHEET -- EPA METHOD 625/8270
ANAMETRIX, INC. (408)432-8192

Project ID : 1459.05
Sample ID : MW-3
Matrix : WATER
Date Sampled : 1/ 3/91
Date Extracted : 1/ 8/91
Amount Extracted : 920.0 mL
Date Analyzed : 1/ 9/91
Instrument ID : F2

Anametrix ID : 9101030-01
Analyst : CH
Supervisor : PG

Dilution Factor : 1.00
Conc. Units : ug/L

CAS NO.	COMPOUND NAME	REPORTING LIMIT	AMOUNT DETECTED	Q
99-09-2	3-NITROANILINE	54.	ND	U
83-32-9	ACENAPHTHENE	11.	ND	U
51-28-5	2,4-DINITROPHENOL	54.	ND	U
100-02-7	4-NITROPHENOL	54.	ND	U
132-64-9	DIBENZOFURAN	11.	ND	U
121-14-2	2,4-DINITROTOLUENE	11.	ND	U
84-66-2	DIETHYLPHTHALATE	11.	ND	U
7005-72-3	4-CHLOROPHENYL-PHENYLETHER	11.	ND	U
86-73-7	FLUORENE	11.	ND	U
100-01-6	4-NITROANILINE	54.	ND	U
534-52-1	4,6-DINITRO-2-METHYLPHENOL	54.	ND	U
86-30-6	N-NITROSODIPHENYLAMINE (1)	11.	ND	U
101-55-3	4-BROMOPHENYL-PHENYLETHER	11.	ND	U
118-74-1	HEXACHLOROBENZENE	11.	ND	U
87-86-5	PENTACHLOROPHENOL	54.	ND	U
85-01-8	PHENANTHRENE	11.	ND	U
120-12-7	ANTHRACENE	11.	ND	U
84-74-2	DI-N-BUTYLPHTHALATE	11.	ND	U
206-44-0	FLUORANTHENE	11.	ND	U
129-00-0	PYRENE	11.	ND	U
85-68-7	BUTYLBENZYLPHTHALATE	11.	ND	U
91-94-1	3,3'-DICHLOROBENZIDINE	22.	ND	U
56-55-3	BENZO(A)ANTHRACENE	11.	ND	U
218-01-9	CHRYSENE	11.	ND	U
117-81-7	BIS(2-ETHYLHEXYL)PHTHALATE	11.	ND	U
117-84-0	DI-N-OCTYLPHTHALATE	11.	ND	U
205-99-2	BENZO(B)FLUORANTHENE	11.	ND	U
207-08-9	BENZO(K)FLUORANTHENE	11.	ND	U
50-32-8	BENZO(A)PYRENE	11.	ND	U
193-39-5	INDENO(1,2,3-CD)PYRENE	11.	ND	U
53-70-3	DIBENZ[A,H]ANTHRACENE	11.	ND	U
191-24-2	BENZO(G,H,I)PERYLENE	11.	ND	U

ORGANIC ANALYSIS DATA SHEET -- EPA METHOD 625/8270
ANAMETRIX, INC. (408)432-8192

Project ID : 1459.05
Sample ID : MW-1
Matrix : WATER
Date Sampled : 1/ 2/91
Date Extracted : 1/ 8/91
Amount Extracted : 990.0 mL
Date Analyzed : 1/ 9/91
Instrument ID : F2

Anametrix ID : 9101030-04
Analyst : UM
Supervisor : PG

Dilution Factor : 1.00
Conc. Units : ug/L

CAS NO.	COMPOUND NAME	REPORTING LIMIT	AMOUNT DETECTED	Q
108-95-2	PHENOL	10.	ND	U
111-44-4	BIS(2-CHLOROETHYL)ETHER	10.	ND	U
95-57-8	2-CHLOROPHENOL	10.	ND	U
541-73-1	1,3-DICHLOROBENZENE	10.	ND	U
106-46-7	1,4-DICHLOROBENZENE	10.	ND	U
100-51-6	BENZYL ALCOHOL	10.	ND	U
95-50-1	1,2-DICHLOROBENZENE	10.	ND	U
95-48-7	2-METHYLPHENOL	10.	ND	U
108-60-1	BIS(2-CHLOROISOPROPYL)ETHER	10.	ND	U
106-44-5	4-METHYLPHENOL	10.	ND	U
621-64-7	N-NITROSO-DI-N-PROPYLAMINE	10.	ND	U
67-72-1	HEXACHLOROETHANE	10.	ND	U
98-95-3	NITROBENZENE	10.	ND	U
78-59-1	ISOPHORONE	10.	ND	U
88-75-5	2-NITROPHENOL	10.	ND	U
105-67-9	2,4-DIMETHYLPHENOL	10.	ND	U
65-85-0	BENZOIC ACID	51.	ND	U
111-91-1	BIS(2-CHLOROETHOXY)METHANE	10.	ND	U
120-83-2	2,4-DICHLOROPHENOL	10.	ND	U
120-82-1	1,2,4-TRICHLOROBENZENE	10.	ND	U
91-20-3	NAPHTHALENE	10.	ND	U
106-47-8	4-CHLOROANILINE	10.	ND	U
87-68-3	HEXACHLOROBUTADIENE	10.	ND	U
59-50-7	4-CHLORO-3-METHYLPHENOL	10.	ND	U
91-57-6	2-METHYLNAPHTHALENE	10.	ND	U
77-47-4	HEXACHLOROCYCLOPENTADIENE	10.	ND	U
88-06-2	2,4,6-TRICHLOROPHENOL	10.	ND	U
95-95-4	2,4,5-TRICHLOROPHENOL	51.	ND	U
91-58-7	2-CHLORONAPHTHALENE	10.	ND	U
88-74-4	2-NITROANILINE	51.	ND	U
131-11-3	DIMETHYLPHTHALATE	10.	ND	U
208-96-8	ACENAPHTHYLENE	10.	ND	U
606-20-2	2,6-DINITROTOLUENE	10.	ND	U

ORGANIC ANALYSIS DATA SHEET -- EPA METHOD 625/8270
ANAMETRIX, INC. (408)432-8192

Project ID : 1459.05
Sample ID : MW-1
Matrix : WATER
Date Sampled : 1/ 2/91
Date Extracted : 1/ 8/91
Amount Extracted : 990.0 mL
Date Analyzed : 1/ 9/91
Instrument ID : F2

Anametrix ID : 9101030-04
Analyst : UH
Supervisor : PG

Dilution Factor : 1.00
Conc. Units : ug/L

CAS NO.	COMPOUND NAME	REPORTING LIMIT	AMOUNT DETECTED	Q
99-09-2	3-NITROANILINE	51.	ND	U
83-32-9	ACENAPHTHENE	10.	ND	U
51-28-5	2,4-DINITROPHENOL	51.	ND	U
100-02-7	4-NITROPHENOL	51.	ND	U
132-64-9	DIBENZOFURAN	10.	ND	U
121-14-2	2,4-DINITROTOLUENE	10.	ND	U
84-66-2	DIETHYLPHTHALATE	10.	ND	U
7005-72-3	4-CHLOROPHENYL-PHENYLETHER	10.	ND	U
86-73-7	FLUORENE	10.	ND	U
100-01-6	4-NITROANILINE	51.	ND	U
534-52-1	4,6-DINITRO-2-METHYLPHENOL	51.	ND	U
86-30-6	N-NITROSODIPHENYLAMINE (1)	10.	ND	U
101-55-3	4-BROMOPHENYL-PHENYLETHER	10.	ND	U
118-74-1	HEXACHLOROBENZENE	10.	ND	U
87-86-5	PENTACHLOROPHENOL	51.	ND	U
85-01-8	PHENANTHRENE	10.	ND	U
120-12-7	ANTHRACENE	10.	ND	U
84-74-2	DI-N-BUTYLPHTHALATE	10.	ND	U
206-44-0	FLUORANTHENE	10.	ND	U
129-00-0	PYRENE	10.	ND	U
85-68-7	BUTYLBENZYLPHTHALATE	10.	ND	U
91-94-1	3,3'-DICHLOROBENZIDINE	20.	ND	U
56-55-3	BENZO(A)ANTHRACENE	10.	ND	U
218-01-9	CHRYSENE	10.	ND	U
117-81-7	BIS(2-ETHYLHEXYL)PHTHALATE	10.	ND	U
117-84-0	DI-N-OCTYLPHTHALATE	10.	ND	U
205-99-2	BENZO(B)FLUORANTHENE	10.	ND	U
207-08-9	BENZO(K)FLUORANTHENE	10.	ND	U
50-32-8	BENZO(A)PYRENE	10.	ND	U
193-39-5	INDENO(1,2,3-CD)PYRENE	10.	ND	U
53-70-3	DIBENZ[A,H]ANTHRACENE	10.	ND	U
191-24-2	BENZO(G,H,I)PERYLENE	10.	ND	U

ORGANIC ANALYSIS DATA SHEET -- EPA METHOD 624/8240
ANAMETRIX, INC. (408)432-8192

Project ID :
Sample ID : BLANK
Matrix : WATER
Date Sampled : 0/ 0/ 0
Date Analyzed : 1/15/91
Instrument ID : F3

Anametrix ID : 3CB0115V02
Analyst : LT
Supervisor : PG

Dilution Factor : 1.00
Conc. Units : ug/L

CAS NO.	COMPOUND NAME	REPORTING LIMIT	AMOUNT DETECTED	Q
74-87-3	CHLOROMETHANE	10.	ND	U
75-01-4	VINYL CHLORIDE	10.	ND	U
74-83-9	BROMOMETHANE	10.	ND	U
75-00-3	CHLOROETHANE	10.	ND	U
75-69-4	TRICHLOROFLUOROMETHANE	5.	ND	U
75-35-4	1,1-DICHLOROETHENE	5.	ND	U
76-13-1	TRICHLOROTRIFLUOROETHANE	5.	ND	U
67-64-1	ACETONE	20.	ND	U
75-15-0	CARBON DISULFIDE	5.	ND	U
75-09-2	METHYLENE CHLORIDE	5.	ND	U
156-60-5	TRANS-1,2-DICHLOROETHENE	5.	ND	U
75-34-3	1,1-DICHLOROETHANE	5.	ND	U
78-93-3	2-BUTANONE	20.	ND	U
156-59-2	CIS-1,2-DICHLOROETHENE	5.	ND	U
67-66-3	CHLOROFORM	5.	ND	U
71-55-6	1,1,1-TRICHLOROETHANE	5.	ND	U
56-23-5	CARBON TETRACHLORIDE	5.	ND	U
71-43-2	BENZENE	5.	ND	U
107-06-2	1,2-DICHLOROETHANE	5.	ND	U
79-01-6	TRICHLOROETHENE	5.	ND	U
78-87-5	1,2-DICHLOROPROPANE	5.	ND	U
75-27-4	BROMODICHLOROMETHANE	5.	ND	U
110-75-8	2-CHLOROETHYLVINYL ETHER	5.	ND	U
108-05-4	VINYL ACETATE	10.	ND	U
10061-01-5	CIS-1,3-DICHLOROPROPENE	5.	ND	U
108-10-1	4-METHYL-2-PENTANONE	10.	ND	U
108-88-3	TOLUENE	5.	ND	U
10061-02-6	TRANS-1,3-DICHLOROPROPENE	5.	ND	U
79-00-5	1,1,2,-TRICHLOROETHANE	5.	ND	U
127-18-4	TETRACHLOROETHENE	5.	ND	U
591-78-6	2-HEXANONE	10.	ND	U
124-48-1	DIBROMOCHLOROMETHANE	5.	ND	U
108-90-7	CHLOROBENZENE	5.	ND	U
100-41-4	ETHYLBENZENE	5.	ND	U
1330-20-7	XYLENE (TOTAL)	5.	ND	U
100-42-5	STYRENE	5.	ND	U
75-25-2	BROMOFORM	5.	ND	U
79-34-5	1,1,2,2-TETRACHLOROETHANE	5.	ND	U
541-73-1	1,3-DICHLOROBENZENE	5.	ND	U
106-46-7	1,4-DICHLOROBENZENE	5.	ND	U
95-50-1	1,2-DICHLOROBENZENE	5.	ND	U

ORGANIC ANALYSIS DATA SHEET -- EPA METHOD 625/8270
ANAMETRIX, INC. (408)432-8192

Project ID :
Sample ID : BLANK
Matrix : WATER
Date Sampled : 0/ 0/ 0
Date Extracted : 1/ 8/91
Amount Extracted : 1000.0 mL
Date Analyzed : 1/ 9/91
Instrument ID : F2

Anametrix ID : 2CB0108C01
Analyst : UH
Supervisor : PG

Dilution Factor : 1.00
Conc. Units : ug/L

CAS NO.	COMPOUND NAME	REPORTING LIMIT	AMOUNT DETECTED	Q
108-95-2	PHENOL	10.	ND	U
111-44-4	BIS(2-CHLOROETHYL)ETHER	10.	ND	U
95-57-8	2-CHLOROPHENOL	10.	ND	U
541-73-1	1,3-DICHLOROBENZENE	10.	ND	U
106-46-7	1,4-DICHLOROBENZENE	10.	ND	U
100-51-6	BENZYL ALCOHOL	10.	ND	U
95-50-1	1,2-DICHLOROBENZENE	10.	ND	U
95-48-7	2-METHYLPHENOL	10.	ND	U
108-60-1	BIS(2-CHLOROISOPROPYL)ETHER	10.	ND	U
106-44-5	4-METHYLPHENOL	10.	ND	U
621-64-7	N-NITROSO-DI-N-PROPYLAMINE	10.	ND	U
67-72-1	HEXACHLOROETHANE	10.	ND	U
98-95-3	NITROBENZENE	10.	ND	U
78-59-1	ISOPHORONE	10.	ND	U
88-75-5	2-NITROPHENOL	10.	ND	U
105-67-9	2,4-DIMETHYLPHENOL	10.	ND	U
65-85-0	BENZOIC ACID	50.	ND	U
111-91-1	BIS(2-CHLOROETHOXY)METHANE	10.	ND	U
120-83-2	2,4-DICHLOROPHENOL	10.	ND	U
120-82-1	1,2,4-TRICHLOROBENZENE	10.	ND	U
91-20-3	NAPHTHALENE	10.	ND	U
106-47-8	4-CHLOROANILINE	10.	ND	U
87-68-3	HEXACHLOROBUTADIENE	10.	ND	U
59-50-7	4-CHLORO-3-METHYLPHENOL	10.	ND	U
91-57-6	2-METHYLNAPHTHALENE	10.	ND	U
77-47-4	HEXACHLOROCYCLOPENTADIENE	10.	ND	U
88-06-2	2,4,6-TRICHLOROPHENOL	10.	ND	U
95-95-4	2,4,5-TRICHLOROPHENOL	50.	ND	U
91-58-7	2-CHLORONAPHTHALENE	10.	ND	U
88-74-4	2-NITROANILINE	50.	ND	U
131-11-3	DIMETHYLPHTHALATE	10.	ND	U
208-96-8	ACENAPHTHYLENE	10.	ND	U
606-20-2	2,6-DINITROTOLUENE	10.	ND	U

ORGANIC ANALYSIS DATA SHEET -- EPA METHOD 625/8270
ANAMETRIX, INC. (408)432-8192

Project ID :
Sample ID : BLANK
Matrix : WATER
Date Sampled : 0/ 0/ 0
Date Extracted : 1/ 8/91
Amount Extracted : 1000.0 mL
Date Analyzed : 1/ 9/91
Instrument ID : F2

Anametrix ID : 2CB0108C01
Analyst : JM
Supervisor : PG

Dilution Factor : 1.00
Conc. Units : ug/L

CAS NO.	COMPOUND NAME	REPORTING LIMIT	AMOUNT DETECTED	Q
99-09-2	3-NITROANILINE	50.	ND	U
83-32-9	ACENAPHTHENE	10.	ND	U
51-28-5	2,4-DINITROPHENOL	50.	ND	U
100-02-7	4-NITROPHENOL	50.	ND	U
132-64-9	DIBENZOFURAN	10.	ND	U
121-14-2	2,4-DINITROTOLUENE	10.	ND	U
84-66-2	DIETHYLPHTHALATE	10.	ND	U
7005-72-3	4-CHLOROPHENYL-PHENYLETHER	10.	ND	U
86-73-7	FLUORENE	10.	ND	U
100-01-6	4-NITROANILINE	50.	ND	U
534-52-1	4,6-DINITRO-2-METHYLPHENOL	50.	ND	U
86-30-6	N-NITROSODIPHENYLAMINE (1)	10.	ND	U
101-55-3	4-BROMOPHENYL-PHENYLETHER	10.	ND	U
118-74-1	HEXACHLOROBENZENE	10.	ND	U
87-86-5	PENTACHLOROPHENOL	50.	ND	U
85-01-8	PHENANTHRENE	10.	ND	U
120-12-7	ANTHRACENE	10.	ND	U
84-74-2	DI-N-BUTYLPHTHALATE	10.	ND	U
206-44-0	FLUORANTHENE	10.	ND	U
129-00-0	PYRENE	10.	ND	U
85-68-7	BUTYLBENZYLPHTHALATE	10.	ND	U
91-94-1	3,3'-DICHLOROBENZIDINE	20.	ND	U
56-55-3	BENZO(A)ANTHRACENE	10.	ND	U
218-01-9	CHRYSENE	10.	ND	U
117-81-7	BIS(2-ETHYLHEXYL)PHTHALATE	10.	ND	U
117-84-0	DI-N-OCTYLPHTHALATE	10.	ND	U
205-99-2	BENZO(B)FLUORANTHENE	10.	ND	U
207-08-9	BENZO(K)FLUORANTHENE	10.	ND	U
50-32-8	BENZO(A)PYRENE	10.	ND	U
193-39-5	INDENO(1,2,3-CD)PYRENE	10.	ND	U
53-70-3	DIBENZ[A,H]ANTHRACENE	10.	ND	U
191-24-2	BENZO(G,H,I)PERYLENE	10.	ND	U

SURROGATE RECOVERY SUMMARY -- EPA METHOD 624/8240
ANAMETRIX, INC. (408)432-8192

Project ID : 1459.05
Matrix : WATER

Anametrix ID : 9101030
Analyst : [illegible]
Supervisor : [illegible]

	SAMPLE ID	SU1	SU2	SU3	TOTAL OUT
1	BLANK	91	109	97	0
2	MW-3	90	92	95	0
3	MW-2	90	88	95	0
4	MW-1	90	90	95	0
5	MW-1 MS	94	96	100	0
6	MW-1 MSD	95	91	101	0
7					
8					
9					
10					
11					
12					
13					
14					
15					
16					
17					
18					
19					
20					
21					
22					
23					
24					
25					
26					
27					
28					
29					
30					

	QC LIMITS
SU1 = 1,2-DICHLOROETHANE-D4	(75-113)
SU2 = TOLUENE-D8	(83-110)
SU3 = BROMOFLUOROBENZENE	(82-114)

* Values outside of Anametrix QC limits

SURROGATE RECOVERY SUMMARY -- EPA METHOD 625/8270
ANAMETRIX, INC. (408)432-8192

Project ID : 1459.05
Matrix : WATER

Anametrix ID : 9101030
Analyst : UM
Supervisor : PG

	SAMPLE ID	SU1	SU2	SU3	SU4	SU5	SU6	TOTAL OUT
1	BLANK	38	31	65	61	60	68	0
2	MW-3	72 *	51	80	86	107	78	1
3	MW-1	52	35	63	59	84	54	0
4								
5								
6								
7								
8								
9								
10								
11								
12								
13								
14								
15								
16								
17								
18								
19								
20								
21								
22								
23								
24								
25								
26								
27								
28								
29								
30								

	QC LIMITS
SU1 = 2-FLUOROPHENOL	(11- 70)
SU2 = PHENOL-D5	(10- 62)
SU3 = NITROBENZENE-D5	(20-105)
SU4 = 2-FLUOROBIPHENYL	(26-110)
SU5 = 2,4,6-TRIBROMOPHENOL	(26-154)
SU6 = TERPHENYL-D14	(16-131)

* Values outside of Anametrix QC limits

MATRIX SPIKE RECOVERY FORM -- EPA METHOD 624/8240
ANAMETRIX, INC. (408)432-8192

Project ID : 1459.05
Sample ID : MW-1
Matrix : WATER
Date Sampled : 1/ 4/91
Date Analyzed : 1/15/91
Instrument ID : F3

Anametrix ID : 9101030-03
Analyst : ww
Supervisor : PG

COMPOUND	SPIKE ADDED (ug/L)	SAMPLE CONCENTRATION (ug/L)	MS CONCENTRATION (ug/L)	MS % REC	%REC LIMITS
1,1-DICHLOROETHENE	50.	0.	40.	81	48-148
TRICHLOROTRIFLUOROETHAN	50.	0.	48.	96	40-134
METHYLENE CHLORIDE	50.	0.	48.	96	64-162
CHLOROFORM	50.	6.	60.	107	64-122
1,1,1-TRICHLOROETHANE	50.	0.	46.	92	54-122
BENZENE	50.	0.	51.	102	52-136
1,2-DICHLOROETHANE	50.	0.	48.	97	68-116
TRICHLOROETHENE	50.	0.	52.	104	68-124
4-METHYL-2-PENTANONE	50.	0.	48.	97	56-152
TOLUENE	50.	0.	54.	108	66-124
TETRACHLOROETHENE	50.	0.	57.	115	62-134
CHLOROBENZENE	50.	0.	53.	106	74-124
1,2-DICHLOROBENZENE	50.	0.	65.	131	74-140

COMPOUND	SPIKE ADDED (ug/L)	MSD CONCENTRATION (ug/L)	MSD % REC	% RPD	RPD LIMITS	%REC LIMITS
1,1-DICHLOROETHENE	50.	40.	79	2	25	48-148
TRICHLOROTRIFLUOROETHAN	50.	46.	91	5	25	40-134
METHYLENE CHLORIDE	50.	47.	94	3	25	64-162
CHLOROFORM	50.	59.	105	2	25	64-122
1,1,1-TRICHLOROETHANE	50.	46.	91	1	25	54-122
BENZENE	50.	48.	97	5	25	52-136
1,2-DICHLOROETHANE	50.	46.	92	5	25	68-116
TRICHLOROETHENE	50.	50.	101	4	25	68-124
4-METHYL-2-PENTANONE	50.	43.	85	13	25	56-152
TOLUENE	50.	44.	88	21	25	66-124
TETRACHLOROETHENE	50.	55.	110	4	25	62-134
CHLOROBENZENE	50.	51.	103	3	25	74-124
1,2-DICHLOROBENZENE	50.	63.	126	4	25	74-140

* Value is outside of Anametrix QC limits

RPD: 0 out of 13 outside limits
Spike Recovery: 0 out of 26 outside limits

8 17:00 9/01030 (1) 10/2

GEOMATRIX CONSULTANTS

ONE MARKET PLAZA
SPEAR STREET TOWER SUITE 717
SAN FRANCISCO, CALIFORNIA 94105
(415) 957-9557

04128

Chain of Custody Record

DATE 1/4/91 PAGE 1 OF 1

PROJECT NO. 1459.05

SAMPLERS: (SIGNATURE) Matt Osborn

DATE	TIME	SAMPLE NUMBER	GENERAL MINERAL	PRIORITY POLLUTANT METALS	EPA METHOD 624	EPA METHOD 625	EPA METHOD 601	EPA METHOD 602	EPA METHOD 608	PETROLEUM HYDROCARBONS	8240	8270				NUMBER OF CONTAINERS	
1/3/91	1130	MW-3 01									X	X				5	= 3 VOAs = 2 Amber Liters
1/3/91	1050	MW-2 02									X					3	= VOAs
1/2/91	1455	MW-1 04										X				2	= Liters
1/4/91	1200	MW-1 03									X					3	= VOAs

REMARKS (SAMPLE PRESERVATION, HANDLING PROCEDURES, OBSERVATIONS, ETC.)

Normal Turnaround
Results to Cheri Young

All VOAs preserved w/ HCl
Preserved w/ Ice in Field

TOTAL NUMBER OF CONTAINERS 13

RELINQUISHED BY:	DATE	RECEIVED BY:
SIGNATURE		SIGNATURE
PRINTED NAME	TIME	PRINTED NAME
COMPANY		COMPANY

RELINQUISHED BY:	DATE	RECEIVED BY:
SIGNATURE		SIGNATURE
PRINTED NAME	TIME	PRINTED NAME
COMPANY		COMPANY

RELINQUISHED BY:	DATE	RECEIVED BY: (LAB)
Matt Osborn	1/4/91	Bonny S. Carrizosa
SIGNATURE Matt Osborn	TIME 1310	SIGNATURE Bonny S. Carrizosa
PRINTED NAME Geomatrix		PRINTED NAME Anametrix
COMPANY		LABORATORY

METHOD OF SHIPMENT: Anametrix pickup

LABORATORY COMMENTS / OBSERVATIONS
Rel. By: Bonny S. Carrizosa 1/4/91 1525
Rec. Michael Schaller 01/04/91 15:25

DISTRIBUTION: WHITE, CANARY - LABORATORY, PINK - ORIGINATOR

ANAMETRIX INC
Environmental & Analytical Chemistry
1961 Concourse Drive, Suite E, San Jose, CA 95131
(408) 432-8192 • Fax (408) 432-8198

REPORT

MS. CHERI YOUNG
GEOMATRIX CONSULTANTS - SAN FRANCISCO
ONE MARKET PLAZA,SPEAR ST. TOWER STE 717
SAN FRANCISCO, CA 94105

Workorder # : 9101038
Date Received : 01/07/91
Project ID : 1459.05
Purchase Order: N/A

The following samples were received at Anametrix, Inc. for analysis :

ANAMETRIX ID	CLIENT SAMPLE ID
9101038- 1	MW-2

This report consists of 8 pages not including the cover letter, and is organized in sections according to the specific Anametrix laboratory group or section which performed the analysis(es) and generated the data. The Report Summary that precedes each section will help you determine which Anametrix group is responsible for those test results, and will bear the signatures of the department supervisor and the chemist who have reviewed the analytical data. Please refer all questions to the department supervisor who signed the form.

Anametrix is certified by the California Department of Health Services (DHS) to perform environmental testing under Certificate Number 1234. A detailed list of the approved fields of testing can be obtained by calling our office, or the DHS Environmental Laboratory Accreditation Program at (415)540-2800.

If you have any further questions or comments on this report, please give us a call as soon as possible. Thank you for using Anametrix.

for
Burt Sutherland
Laboratory Director

1-16-91
Date

ANAMETRIX REPORT DESCRIPTION
GCMS

Organic Analysis Data Sheets (OADS)

OADS forms contain tabulated results for target compounds. The OADS are grouped by method and, within each method, organized sequentially in order of increasing Anametrix ID number.

Tentatively Identified Compounds (TICs)

TIC forms contain tabulated results for non-target compounds detected in GC/MS analyses. TICs must be requested at the time samples are submitted at Anametrix. TIC forms immediately follow the OADS form for each sample. If TICs are requested but not found, then TIC forms will not be included with the report.

Surrogate Recovery Summary (SRS)

SRS forms contain quality assurance data. An SRS form will be printed for each method, if the method requires surrogate compounds. They will list surrogate percent recoveries for all samples and any method blanks. Any surrogate recovery outside the established limits will be flagged with an "*", and the total number of surrogates outside the limits will be listed in the column labelled "Total Out".

Matrix Spike Recovery Form (MSR)

MSR forms contain quality assurance data. They summarize percent recovery and relative percent difference information for matrix spikes and matrix spike duplicates. This information is a statement of both accuracy and precision. Any percent recovery or relative percent difference outside established limits will be flagged with an "*", and the total number outside the limits will be listed at the bottom of the page. Not all reports will contain an MSR form.

Qualifiers

Anametrix uses several data qualifiers (Q) in it's report forms. These qualifiers give additional information on the compounds reported. They should help a data reviewer to verify the integrity of the analytical results. The following is a list of qualifiers and their meanings:

- U - Indicates that the compound was analyzed for, but was not detected at or above the specified reporting limit.
- B - Indicates that the compound was detected in the associated method blank.
- J - Indicates that the compound was detected at an amount below the specified reporting limit. Consequently, the amount should be considered an approximate value. Tentatively identified compounds will always have a "J" qualifier because they are not included in the instrument calibration.
- E - Indicates that the amount reported exceeded the linear range of the instrument calibration.
- D - Indicates that the compound was detected in an analysis performed at a secondary dilution.
- A - Indicates that the tentatively identified compound is a suspected aldol condensation product. This is common in EPA Method 8270 soil analyses.

Absence of a qualifier indicates that the compound was detected at a concentration at or above the specified reporting limit.

REPORTING CONVENTIONS

- Due to a size limitation in our data processing step, only the first eight (8) characters of your project ID and sample ID will be printed on the report forms. However, the report cover letter and report summary pages display up to twenty (20) characters of your project and sample IDs.
- Amounts reported are gross values, i.e., not corrected for method blank contamination.

REPORT SUMMARY
ANAMETRIX, INC. (408)432-8192

MS. CHERI YOUNG
GEOMATRIX CONSULTANTS - SAN FRANCISCO
ONE MARKET PLAZA,SPEAR ST. TOWER STE 717
SAN FRANCISCO, CA 94105

Workorder # : 9101038
Date Received : 01/07/91
Project ID : 1459.05
Purchase Order: N/A
Department : GCMS
Sub-Department: GCMS

SAMPLE INFORMATION:

ANAMETRIX SAMPLE ID	CLIENT SAMPLE ID	MATRIX	DATE SAMPLED	METHOD
9101038- 1	MW-2	WATER	01/04/91	8270

REPORT SUMMARY
ANAMETRIX, INC. (408)432-8192

MS. CHERI YOUNG
GEOMATRIX CONSULTANTS - SAN FRANCISCO
ONE MARKET PLAZA,SPEAR ST. TOWER STE 717
SAN FRANCISCO, CA 94105

Workorder # : 9101038
Date Received : 01/07/91
Project ID : 1459.05
Purchase Order: N/A
Department : GCMS
Sub-Department: GCMS

QA/QC SUMMARY :

- No QA/QC problems encountered.

Paul Dowan 1-16-91
Department Supervisor Date

Dawn Mash 1-16-91
Chemist Date

ORGANIC ANALYSIS DATA SHEET -- EPA METHOD 625/8270
ANAMETRIX, INC. (408)432-8192

Project ID : 1459.05
Sample ID : MW-2
Matrix : WATER
Date Sampled : 1/ 4/91
Date Extracted : 1/ 8/91
Amount Extracted : 400.0 mL
Date Analyzed : 1/11/91
Instrument ID : F2

Anametrix ID : 9101038-01
Analyst : VM
Supervisor : PG

Dilution Factor : 1.00
Conc. Units : ug/L

CAS NO.	COMPOUND NAME	REPORTING LIMIT	AMOUNT DETECTED	Q
108-95-2	PHENOL	25.	ND	U
111-44-4	BIS(2-CHLOROETHYL)ETHER	25.	ND	U
95-57-8	2-CHLOROPHENOL	25.	ND	U
541-73-1	1,3-DICHLOROBENZENE	25.	ND	U
106-46-7	1,4-DICHLOROBENZENE	25.	ND	U
100-51-6	BENZYL ALCOHOL	25.	ND	U
95-50-1	1,2-DICHLOROBENZENE	25.	ND	U
95-48-7	2-METHYLPHENOL	25.	ND	U
108-60-1	BIS(2-CHLOROISOPROPYL)ETHER	25.	ND	U
106-44-5	4-METHYLPHENOL	25.	ND	U
621-64-7	N-NITROSO-DI-N-PROPYLAMINE	25.	ND	U
67-72-1	HEXACHLOROETHANE	25.	ND	U
98-95-3	NITROBENZENE	25.	ND	U
78-59-1	ISOPHORONE	25.	ND	U
88-75-5	2-NITROPHENOL	25.	ND	U
105-67-9	2,4-DIMETHYLPHENOL	25.	ND	U
65-85-0	BENZOIC ACID	120.	ND	U
111-91-1	BIS(2-CHLOROETHOXY)METHANE	25.	ND	U
120-83-2	2,4-DICHLOROPHENOL	25.	ND	U
120-82-1	1,2,4-TRICHLOROBENZENE	25.	ND	U
91-20-3	NAPHTHALENE	25.	ND	U
106-47-8	4-CHLOROANILINE	25.	ND	U
87-68-3	HEXACHLOROBUTADIENE	25.	ND	U
59-50-7	4-CHLORO-3-METHYLPHENOL	25.	ND	U
91-57-6	2-METHYLNAPHTHALENE	25.	ND	U
77-47-4	HEXACHLOROCYCLOPENTADIENE	25.	ND	U
88-06-2	2,4,6-TRICHLOROPHENOL	25.	ND	U
95-95-4	2,4,5-TRICHLOROPHENOL	120.	ND	U
91-58-7	2-CHLORONAPHTHALENE	25.	ND	U
88-74-4	2-NITROANILINE	120.	ND	U
131-11-3	DIMETHYLPHTHALATE	25.	ND	U
208-96-8	ACENAPHTHYLENE	25.	ND	U
606-20-2	2,6-DINITROTOLUENE	25.	ND	U

ORGANIC ANALYSIS DATA SHEET -- EPA METHOD 625/8270
ANAMETRIX, INC. (408)432-8192

Project ID : 1459.05
Sample ID : MW-2
Matrix : WATER
Date Sampled : 1/ 4/91
Date Extracted : 1/ 8/91
Amount Extracted : 400.0 mL
Date Analyzed : 1/11/91
Instrument ID : F2

Anametrix ID : 9101038-01
Analyst : UM
Supervisor : PG

Dilution Factor : 1.00
Conc. Units : ug/L

CAS NO.	COMPOUND NAME	REPORTING LIMIT	AMOUNT DETECTED	Q
99-09-2	3-NITROANILINE	120.	ND	U
83-32-9	ACENAPHTHENE	25.	ND	U
51-28-5	2,4-DINITROPHENOL	120.	ND	U
100-02-7	4-NITROPHENOL	120.	ND	U
132-64-9	DIBENZOFURAN	25.	ND	U
121-14-2	2,4-DINITROTOLUENE	25.	ND	U
84-66-2	DIETHYLPHTHALATE	25.	ND	U
7005-72-3	4-CHLOROPHENYL-PHENYLETHER	25.	ND	U
86-73-7	FLUORENE	25.	ND	U
100-01-6	4-NITROANILINE	120.	ND	U
534-52-1	4,6-DINITRO-2-METHYLPHENOL	120.	ND	U
86-30-6	N-NITROSODIPHENYLAMINE (1)	25.	ND	U
101-55-3	4-BROMOPHENYL-PHENYLETHER	25.	ND	U
118-74-1	HEXACHLOROBENZENE	25.	ND	U
87-86-5	PENTACHLOROPHENOL	120.	ND	U
85-01-8	PHENANTHRENE	25.	ND	U
120-12-7	ANTHRACENE	25.	ND	U
84-74-2	DI-N-BUTYLPHTHALATE	25.	ND	U
206-44-0	FLUORANTHENE	25.	ND	U
129-00-0	PYRENE	25.	ND	U
85-68-7	BUTYLBENZYLPHTHALATE	25.	ND	U
91-94-1	3,3'-DICHLOROBENZIDINE	50.	ND	U
56-55-3	BENZO(A)ANTHRACENE	25.	ND	U
218-01-9	CHRYSENE	25.	ND	U
117-81-7	BIS(2-ETHYLHEXYL)PHTHALATE	25.	ND	U
117-84-0	DI-N-OCTYLPHTHALATE	25.	ND	U
205-99-2	BENZO(B)FLUORANTHENE	25.	ND	U
207-08-9	BENZO(K)FLUORANTHENE	25.	ND	U
50-32-8	BENZO(A)PYRENE	25.	ND	U
193-39-5	INDENO(1,2,3-CD)PYRENE	25.	ND	U
53-70-3	DIBENZ[A,H]ANTHRACENE	25.	ND	U
191-24-2	BENZO(G,H,I)PERYLENE	25.	ND	U

ORGANIC ANALYSIS DATA SHEET -- EPA METHOD 625/8270
ANAMETRIX, INC. (408)432-8192

Project ID :
Sample ID : BLANK
Matrix : WATER
Date Sampled : 0/ 0/ 0
Date Extracted : 1/ 8/91
Amount Extracted : 1000.0 mL
Date Analyzed : 1/ 9/91
Instrument ID : F2

Anametrix ID : 2CB0108C01
Analyst : UH
Supervisor : PG

Dilution Factor : 1.00
Conc. Units : ug/L

CAS NO.	COMPOUND NAME	REPORTING LIMIT	AMOUNT DETECTED	Q
108-95-2	PHENOL	10.	ND	U
111-44-4	BIS(2-CHLOROETHYL)ETHER	10.	ND	U
95-57-8	2-CHLOROPHENOL	10.	ND	U
541-73-1	1,3-DICHLOROBENZENE	10.	ND	U
106-46-7	1,4-DICHLOROBENZENE	10.	ND	U
100-51-6	BENZYL ALCOHOL	10.	ND	U
95-50-1	1,2-DICHLOROBENZENE	10.	ND	U
95-48-7	2-METHYLPHENOL	10.	ND	U
108-60-1	BIS(2-CHLOROISOPROPYL)ETHER	10.	ND	U
106-44-5	4-METHYLPHENOL	10.	ND	U
621-64-7	N-NITROSO-DI-N-PROPYLAMINE	10.	ND	U
67-72-1	HEXACHLOROETHANE	10.	ND	U
98-95-3	NITROBENZENE	10.	ND	U
78-59-1	ISOPHORONE	10.	ND	U
88-75-5	2-NITROPHENOL	10.	ND	U
105-67-9	2,4-DIMETHYLPHENOL	10.	ND	U
65-85-0	BENZOIC ACID	50.	ND	U
111-91-1	BIS(2-CHLOROETHOXY)METHANE	10.	ND	U
120-83-2	2,4-DICHLOROPHENOL	10.	ND	U
120-82-1	1,2,4-TRICHLOROBENZENE	10.	ND	U
91-20-3	NAPHTHALENE	10.	ND	U
106-47-8	4-CHLOROANILINE	10.	ND	U
87-68-3	HEXACHLOROBUTADIENE	10.	ND	U
59-50-7	4-CHLORO-3-METHYLPHENOL	10.	ND	U
91-57-6	2-METHYLNAPHTHALENE	10.	ND	U
77-47-4	HEXACHLOROCYCLOPENTADIENE	10.	ND	U
88-06-2	2,4,6-TRICHLOROPHENOL	10.	ND	U
95-95-4	2,4,5-TRICHLOROPHENOL	50.	ND	U
91-58-7	2-CHLORONAPHTHALENE	10.	ND	U
88-74-4	2-NITROANILINE	50.	ND	U
131-11-3	DIMETHYLPHTHALATE	10.	ND	U
208-96-8	ACENAPHTHYLENE	10.	ND	U
606-20-2	2,6-DINITROTOLUENE	10.	ND	U

ORGANIC ANALYSIS DATA SHEET -- EPA METHOD 625/8270
ANAMETRIX, INC. (408)432-8192

Project ID :
Sample ID : BLANK
Matrix : WATER
Date Sampled : 0/ 0/ 0
Date Extracted : 1/ 8/91
Amount Extracted : 1000.0 mL
Date Analyzed : 1/ 9/91
Instrument ID : F2

Anametrix ID : 2CB0108C01
Analyst : UH
Supervisor : PG

Dilution Factor : 1.00
Conc. Units : ug/L

CAS NO.	COMPOUND NAME	REPORTING LIMIT	AMOUNT DETECTED	Q
99-09-2	3-NITROANILINE	50.	ND	U
83-32-9	ACENAPHTHENE	10.	ND	U
51-28-5	2,4-DINITROPHENOL	50.	ND	U
100-02-7	4-NITROPHENOL	50.	ND	U
132-64-9	DIBENZOFURAN	10.	ND	U
121-14-2	2,4-DINITROTOLUENE	10.	ND	U
84-66-2	DIETHYLPHTHALATE	10.	ND	U
7005-72-3	4-CHLOROPHENYL-PHENYLETHER	10.	ND	U
86-73-7	FLUORENE	10.	ND	U
100-01-6	4-NITROANILINE	50.	ND	U
534-52-1	4,6-DINITRO-2-METHYLPHENOL	50.	ND	U
86-30-6	N-NITROSODIPHENYLAMINE (1)	10.	ND	U
101-55-3	4-BROMOPHENYL-PHENYLETHER	10.	ND	U
118-74-1	HEXACHLOROBENZENE	10.	ND	U
87-86-5	PENTACHLOROPHENOL	50.	ND	U
85-01-8	PHENANTHRENE	10.	ND	U
120-12-7	ANTHRACENE	10.	ND	U
84-74-2	DI-N-BUTYLPHTHALATE	10.	ND	U
206-44-0	FLUORANTHENE	10.	ND	U
129-00-0	PYRENE	10.	ND	U
85-68-7	BUTYLBENZYLPHTHALATE	10.	ND	U
91-94-1	3,3'-DICHLOROBENZIDINE	20.	ND	U
56-55-3	BENZO(A)ANTHRACENE	10.	ND	U
218-01-9	CHRYSENE	10.	ND	U
117-81-7	BIS(2-ETHYLHEXYL)PHTHALATE	10.	ND	U
117-84-0	DI-N-OCTYLPHTHALATE	10.	ND	U
205-99-2	BENZO(B)FLUOROANTHENE	10.	ND	U
207-08-9	BENZO(K)FLUOROANTHENE	10.	ND	U
50-32-8	BENZO(A)PYRENE	10.	ND	U
193-39-5	INDENO(1,2,3-CD)PYRENE	10.	ND	U
53-70-3	DIBENZ[A,H]ANTHRACENE	10.	ND	U
191-24-2	BENZO(G,H,I)PERYLENE	10.	ND	U

SURROGATE RECOVERY SUMMARY -- EPA METHOD 625/8270
ANAMETRIX, INC. (408)432-8192

Project ID : 1459.05
Matrix : WATER

Anametrix ID : 9101038
Analyst : MM
Supervisor : PG

	SAMPLE ID	SU1	SU2	SU3	SU4	SU5	SU6	TOTAL OUT
1	BLANK	38	31	65	61	60	68	0
2	MW-2	61	44	60	62	90	47	0
3								
4								
5								
6								
7								
8								
9								
10								
11								
12								
13								
14								
15								
16								
17								
18								
19								
20								
21								
22								
23								
24								
25								
26								
27								
28								
29								
30								

	QC LIMITS
SU1 = 2-FLUOROPHENOL	(11- 70)
SU2 = PHENOL-D5	(10- 62)
SU3 = NITROBENZENE-D5	(20-105)
SU4 = 2-FLUOROBIPHENYL	(26-110)
SU5 = 2,4,6-TRIBROMOPHENOL	(26-154)
SU6 = TERPHENYL-D14	(16-131)

* Values outside of Anametrix QC limits

9101038 (10/2)

GEOMATRIX CONSULTANTS
ONE MARKET PLAZA
SPEAR STREET TOWER SUITE 717
SAN FRANCISCO, CALIFORNIA 94105
(415) 957-9557

Chain of Custody Record

04129

DATE 1/7/91 PAGE 1 OF 1

PROJECT NO. 1459.05

SAMPLERS: (SIGNATURE) Matt Obloy

DATE	TIME	SAMPLE NUMBER	GENERAL MINERAL	PRIORITY POLLUTANT METALS	EPA METHOD 624	EPA METHOD 625	EPA METHOD 601	EPA METHOD 602	EPA METHOD 608	PETROLEUM HYDROCARBONS	8270						NUMBER OF CONTAINERS	REMARKS (SAMPLE PRESERVATION, HANDLING PROCEDURES, OBSERVATIONS, ETC.)
1-4-91 1-5-91	1310 0715	MW-2									X						4	Normal Turnaround Results To: Cheri Young. Watch Hold Time. Samples preserved w/ Blue Ice in Field (360mls)

TOTAL NUMBER OF CONTAINERS 4

RELINQUISHED BY:	DATE	RECEIVED BY:	RELINQUISHED BY:	DATE	RECEIVED BY: (LAB)
SIGNATURE: Matt Obloy	1/7/91	SIGNATURE: Benny S. Carrizosa	SIGNATURE: Benny S. Carrizosa	1/7/91	SIGNATURE: [signature] 1/7/91
PRINTED NAME: MATT OBLOY	TIME 0930	PRINTED NAME: BENNY S. CARRIZOSA	PRINTED NAME: BENNY S. CARRIZOSA	TIME 1145	PRINTED NAME: Nacine Sylva 1145
COMPANY: Geomatrix		COMPANY: ANAMETRIX	COMPANY: ANAMETRIX		LABORATORY: Anametrix Inc

RELINQUISHED BY:	DATE	RECEIVED BY:	METHOD OF SHIPMENT:
SIGNATURE	TIME	SIGNATURE	LABORATORY COMMENTS / OBSERVATIONS
PRINTED NAME		PRINTED NAME	
COMPANY		COMPANY	

DISTRIBUTION: WHITE, CANARY - LABORATORY, PINK - ORIGINATOR

ANAMETRIX INC
Environmental & Analytical Chemistry
1961 Concourse Drive, Suite E, San Jose, CA 95131
(408) 432-8192 • Fax (408) 432-8198

REPORT

CHERI YOUNG
GEOMATRIX CONSULTANTS - SAN FRANCISCO
ONE MARKET PLAZA,SPEAR ST. TOWER STE 717
SAN FRANCISCO, CA 94105

Workorder # : 9102026
Date Received : 02/04/91
Project ID : 1459.05
Purchase Order: N/A

The following samples were received at Anametrix, Inc. for analysis :

ANAMETRIX ID	CLIENT SAMPLE ID
9102026- 1	S-1 A,B,C,D, (MW-5) (CG
9102026- 2	S-5 A,B,C,D (MW-6) CG

This report consists of 3 pages not including the cover letter, and is organized in sections according to the specific Anametrix laboratory group or section which performed the analysis(es) and generated the data. The Report Summary that precedes each section will help you determine which Anametrix group is responsible for those test results, and will bear the signatures of the department supervisor and the chemist who have reviewed the analytical data. Please refer all questions to the department supervisor who signed the form.

Anametrix is certified by the California Department of Health Services (DHS) to perform environmental testing under Certificate Number 1234. A detailed list of the approved fields of testing can be obtained by calling our office, or the DHS Environmental Laboratory Accreditation Program at (415)540-2800.

If you have any further questions or comments on this report, please give us a call as soon as possible. Thank you for using Anametrix.

Burt Sutherland
Laboratory Director

2-20-91
Date

REPORT SUMMARY
ANAMETRIX, INC. (408)432-8192

CHERI YOUNG
GEOMATRIX CONSULTANTS - SAN FRANCISCO
ONE MARKET PLAZA,SPEAR ST. TOWER STE 717
SAN FRANCISCO, CA 94105

Workorder # : 9102026
Date Received : 02/04/91
Project ID : 1459.05
Purchase Order: N/A
Department : GC
Sub-Department: TPH

SAMPLE INFORMATION:

ANAMETRIX SAMPLE ID	CLIENT SAMPLE ID	MATRIX	DATE SAMPLED	METHOD
9102026- 1	S-1 A,B,C,D,	WATER	02/01/91	TPHg
9102026- 2	S-5 A,B,C,D	WATER	02/01/91	TPHg

REPORT SUMMARY
ANAMETRIX, INC. (408)432-8192

CHERI YOUNG
GEOMATRIX CONSULTANTS - SAN FRANCISCO
ONE MARKET PLAZA,SPEAR ST. TOWER STE 717
SAN FRANCISCO, CA 94105

Workorder # : 9102026
Date Received : 02/04/91
Project ID : 1459.05
Purchase Order: N/A
Department : GC
Sub-Department: TPH

QA/QC SUMMARY :

- No QA/QC problems encountered for samples.

Cheryl Brosman 2/19/91
Department Supervisor Date

Inna Sher 2/19/91
Chemist Date

ANALYSIS DATA SHEET - TOTAL PETROLEUM HYDROCARBONS
(GASOLINE WITH BTEX)
ANAMETRIX, INC. - (408) 432-8192

Anametrix W.O.: 9102026
Matrix : WATER
Date Sampled : 02/01/91

Project Number : 1459.05
Date Released : 02/15/91

COMPOUNDS	Reporting Limit (ug/L)	Sample I.D.# S-1 A,B,C,D -01	Sample I.D.# S-5 A,B,C,D -02	Sample I.D.# 12B0212A BLANK
Mineral Spirits	50	ND	ND	ND
% Surrogate Recovery		100%	106%	104%
Instrument I.D.		HP12	HP12	HP12
Date Analyzed		02/12/91	02/12/91	02/12/91
RLMF		1	1	1

ND - Not detected at or above the practical quantitation limit for the method.
TPHg - Total Petroleum Hydrocarbons as mineral spirits is determined by GCFID using EPA Method 5030.
RLMF - Reporting Limit Multiplication Factor.
Anametrix control limits for surrogate recovery are 53-147%.

All testing procedures follow California Department of Health Services (Cal-DHS) approved methods.

Irene Jurisich 02-20-91
Analyst Date

Cheryl Bateman 2/20/91
Supervisor Date

ANAMETRIX INC
Environmental & Analytical Chemistry
1961 Concourse Drive, Suite E. San Jose, CA 95131
(408) 432-8192 • Fax (408) 432-8198

REPORT

CHERI YOUNG
GEOMATRIX CONSULTANTS - SAN FRANCISCO
ONE MARKET PLAZA,SPEAR ST. TOWER STE 717
SAN FRANCISCO, CA 94105

Workorder # : 9102051
Date Received : 02/06/91
Project ID : 1459.05
Purchase Order: N/A

The following samples were received at Anametrix, Inc. for analysis :

ANAMETRIX ID	CLIENT SAMPLE ID
9102051- 1	S-2a,b,c (MW-5)
9102051- 2	S-3a,b,c (MW-5)
9102051- 3	S-4a,c (MW-5)
9102051- 4	S-6a,b,c (MW-6)

This report consists of 6 pages not including the cover letter, and is organized in sections according to the specific Anametrix laboratory group or section which performed the analysis(es) and generated the data. The Report Summary that precedes each section will help you determine which Anametrix group is responsible for those test results, and will bear the signatures of the department supervisor and the chemist who have reviewed the analytical data. Please refer all questions to the department supervisor who signed the form.

Anametrix is certified by the California Department of Health Services (DHS) to perform environmental testing under Certificate Number 1234. A detailed list of the approved fields of testing can be obtained by calling our office, or the DHS Environmental Laboratory Accreditation Program at (415)540-2800.

If you have any further questions or comments on this report, please give us a call as soon as possible. Thank you for using Anametrix.

Burt Sutherland for
Burt Sutherland
Laboratory Director

2-25-91
Date

REPORT SUMMARY
ANAMETRIX, INC. (408)432-8192

CHERI YOUNG
GEOMATRIX CONSULTANTS - SAN FRANCISCO
ONE MARKET PLAZA,SPEAR ST. TOWER STE 717
SAN FRANCISCO, CA 94105

Workorder # : 9102051
Date Received : 02/06/91
Project ID : 1459.05
Purchase Order: N/A
Department : GC
Sub-Department: VOA

SAMPLE INFORMATION:

ANAMETRIX SAMPLE ID	CLIENT SAMPLE ID	MATRIX	DATE SAMPLED	METHOD
9102051- 1	S-2a,b,c	WATER	02/01/91	8020
9102051- 4	S-6a,b,c	WATER	02/01/91	8020

REPORT SUMMARY
ANAMETRIX, INC. (408)432-8192

CHERI YOUNG
GEOMATRIX CONSULTANTS - SAN FRANCISCO
ONE MARKET PLAZA,SPEAR ST. TOWER STE 717
SAN FRANCISCO, CA 94105

Workorder # : 9102051
Date Received : 02/06/91
Project ID : 1459.05
Purchase Order: N/A
Department : GC
Sub-Department: VOA

QA/QC SUMMARY :

- Samples S-2A,B,C and S-6A,B,C were analyzed outside the fourteen day hold time for EPA Method 8020.

Corinne Pham 2/21/91
Department Supervisor Date

Chemist 2-21-91
Chemist Date

ORGANIC ANALYSIS DATA SHEET - EPA METHOD 602/8020
ANAMETRIX, INC. (408) 432-8192

Sample I.D. : 1459.05 S-2A,B,C
Matrix : WATER
Date sampled : 02/01/91
Date analyzed: 02/19/91
Dilution : NONE

Anametrix I.D. : 9102051-01
Analyst : mh
Supervisor : CP
Date released : 02/21/91
Instrument ID : HP15

CAS #	Compound Name	Reporting Limit (ug/l)	Amount Found (ug/l)
71-43-2	Benzene	0.5	ND
108-88-3	Toluene	0.5	ND
108-90-7	Chlorobenzene	0.5	ND
100-41-4	Ethylbenzene	0.5	ND
1330-20-7	Xylenes	0.5	ND
95-50-1	1,2-Dichlorobenzene	1	ND
541-73-1	1,3-Dichlorobenzene	1	ND
106-46-7	1,4-Dichlorobenzene	1	ND
	% Surrogate Recovery	51-136%	94%

ND : Not detected at or above the practical quantitation limit for the method.

ORGANIC ANALYSIS DATA SHEET - EPA METHOD 602/8020
ANAMETRIX, INC. (408) 432-8192

Sample I.D. : 1459.05 S-6A,B,C
Matrix : WATER
Date sampled : 02/01/91
Date analyzed: 02/19/91
Dilution : NONE

Anametrix I.D. : 9102051-04
Analyst : mh
Supervisor : [signature]
Date released : 02/21/91
Instrument ID : HP15

CAS #	Compound Name	Reporting Limit (ug/l)	Amount Found (ug/l)
71-43-2	Benzene	0.5	ND
108-88-3	Toluene	0.5	ND
108-90-7	Chlorobenzene	0.5	ND
100-41-4	Ethylbenzene	0.5	ND
1330-20-7	Xylenes	0.5	ND
95-50-1	1,2-Dichlorobenzene	1	ND
541-73-1	1,3-Dichlorobenzene	1	ND
106-46-7	1,4-Dichlorobenzene	1	ND
	% Surrogate Recovery	51-136%	94%

ND : Not detected at or above the practical quantitation limit for the method.

ORGANIC ANALYSIS DATA SHEET - EPA METHOD 602/8020
ANAMETRIX, INC. (408) 432-8192

Sample I.D. : METHOD BLANK
Matrix : WATER
Date sampled : N/A
Date analyzed: 02/19/91
Dilution : NONE

Anametrix I.D. : 15B0219A01
Analyst : mb
Supervisor : CP
Date released : 02/21/91
Instrument ID : HP15

CAS #	Compound Name	Reporting Limit (ug/l)	Amount Found (ug/l)
71-43-2	Benzene	0.5	ND
108-88-3	Toluene	0.5	ND
108-90-7	Chlorobenzene	0.5	ND
100-41-4	Ethylbenzene	0.5	ND
1330-20-7	Xylenes	0.5	ND
95-50-1	1,2-Dichlorobenzene	1	ND
541-73-1	1,3-Dichlorobenzene	1	ND
106-46-7	1,4-Dichlorobenzene	1	ND
	% Surrogate Recovery	51-136%	99%

ND : Not detected at or above the practical quantitation limit for the method.

VOLATILE AROMATIC MATRIX SPIKE REPORT
EPA METHOD 602/8020
ANAMETRIX, INC. (408)432-8192

Sample I.D : 1459.05 S-2A,B,C
Matrix : WATER
Date sampled : 02/01/91
Date analyzed : 02/19/91

Anametrix I.D. : 9102051-01
Analyst :
Supervisor :
Date released : 02/21/91
Instrument I.D.: HP15

Compound Name	SPIKE AMT. (ug/L)	MS (ug/L)	REC MS	MSD (ug/L)	REC MSD	RPD	%REC LIMITS
Benzene	5	4.1	82%	3.9	78%	5%	65 - 124
Toluene	5	4.5	90%	4.0	80%	12%	62 - 116
Chlorobenzene	20	16.4	82%	16.1	81%	2%	74 - 139
Ethylbenzene	5	3.9	78%	3.9	78%	0%	40 - 127
M&P-xylene	3.7	2.3	62%	2.2	59%	4%	61 - 128
O-xylene	1.3	1.2	92%	1.1	85%	9%	62 - 128
1,3-Dichlorobenzene	20	16.5	83%	15.9	80%	4%	53 - 116
1,4-Dichlorobenzene	20	14.3	72%	13.8	69%	4%	62 - 127
1,2-Dichlorobenzene	20	16.5	83%	16.6	83%	-1%	53 - 128

* Limits established 7/90

ANAMETRIX REPORT DESCRIPTION
GCMS

Organic Analysis Data Sheets (OADS)

OADS forms contain tabulated results for target compounds. The OADS are grouped by method and, within each method, organized sequentially in order of increasing Anametrix ID number.

Tentatively Identified Compounds (TICs)

TIC forms contain tabulated results for non-target compounds detected in GC/MS analyses. TICs must be requested at the time samples are submitted at Anametrix. TIC forms immediately follow the OADS form for each sample. If TICs are requested but not found, then TIC forms will not be included with the report.

Surrogate Recovery Summary (SRS)

SRS forms contain quality assurance data. An SRS form will be printed for each method, if the method requires surrogate compounds. They will list surrogate percent recoveries for all samples and any method blanks. Any surrogate recovery outside the established limits will be flagged with an "*", and the total number of surrogates outside the limits will be listed in the column labelled "Total Out".

Matrix Spike Recovery Form (MSR)

MSR forms contain quality assurance data. They summarize percent recovery and relative percent difference information for matrix spikes and matrix spike duplicates. This information is a statement of both accuracy and precision. Any percent recovery or relative percent difference outside established limits will be flagged with an "*", and the total number outside the limits will be listed at the bottom of the page. Not all reports will contain an MSR form.

Qualifiers

Anametrix uses several data qualifiers (Q) in it's report forms. These qualifiers give additional information on the compounds reported. They should help a data reviewer to verify the integrity of the analytical results. The following is a list of qualifiers and their meanings:

- U - Indicates that the compound was analyzed for, but was not detected at or above the specified reporting limit.
- B - Indicates that the compound was detected in the associated method blank.
- J - Indicates that the compound was detected at an amount below the specified reporting limit. Consequently, the amount should be considered an approximate value. Tentatively identified compounds will always have a "J" qualifier because they are not included in the instrument calibration.
- E - Indicates that the amount reported exceeded the linear range of the instrument calibration.
- D - Indicates that the compound was detected in an analysis performed at a secondary dilution.
- A - Indicates that the tentatively identified compound is a suspected aldol condensation product. This is common in EPA Method 8270 soil analyses.

Absence of a qualifier indicates that the compound was detected at a concentration at or above the specified reporting limit.

REPORTING CONVENTIONS

- Due to a size limitation in our data processing step, only the first eight (8) characters of your project ID and sample ID will be printed on the report forms. However, the report cover letter and report summary pages display up to twenty (20) characters of your project and sample IDs.
- Amounts reported are gross values, i.e., not corrected for method blank contamination.

REPORT SUMMARY
ANAMETRIX, INC. (408)432-8192

CHERI YOUNG
GEOMATRIX CONSULTANTS - SAN FRANCISCO
ONE MARKET PLAZA,SPEAR ST. TOWER STE 717
SAN FRANCISCO, CA 94105

Workorder # : 9102051
Date Received : 02/06/91
Project ID : 1459.05
Purchase Order: N/A
Department : GCMS
Sub-Department: GCMS

SAMPLE INFORMATION:

ANAMETRIX SAMPLE ID	CLIENT SAMPLE ID	MATRIX	DATE SAMPLED	METHOD
9102051- 2	S-3a,b,c	WATER	02/01/91	8240
9102051- 3	S-4a,c	WATER	02/01/91	8270

REPORT SUMMARY
ANAMETRIX, INC. (408)432-8192

CHERI YOUNG
GEOMATRIX CONSULTANTS - SAN FRANCISCO
ONE MARKET PLAZA,SPEAR ST. TOWER STE 717
SAN FRANCISCO, CA 94105

Workorder # : 9102051
Date Received : 02/06/91
Project ID : 1459.05
Purchase Order: N/A
Department : GCMS
Sub-Department: GCMS

QA/QC SUMMARY :

- No QA/QC problems encountered.

Paul Gowan 2-19-91
Department Supervisor Date

Laura Massin 2-12-91
Chemist Date

ORGANIC ANALYSIS DATA SHEET -- EPA METHOD 624/8240
ANAMETRIX, INC. (408)432-8192

Project ID : 1459.05
Sample ID : S-3A,B,C
Matrix : WATER
Date Sampled : 2/ 1/91
Date Analyzed : 2/11/91
Instrument ID : F3

Anametrix ID : 9102051-02
Analyst : LY
Supervisor : PG

Dilution Factor : 1.00
Conc. Units : ug/L

CAS NO.	COMPOUND NAME	REPORTING LIMIT	AMOUNT DETECTED	Q
74-87-3	CHLOROMETHANE	10.	ND	U
75-01-4	VINYL CHLORIDE	10.	ND	U
74-83-9	BROMOMETHANE	10.	ND	U
75-00-3	CHLOROETHANE	10.	ND	U
75-69-4	TRICHLOROFLUOROMETHANE	5.	25.	
75-35-4	1,1-DICHLOROETHENE	5.	ND	U
76-13-1	TRICHLOROTRIFLUOROETHANE	5.	ND	U
67-64-1	ACETONE	20.	ND	U
75-15-0	CARBON DISULFIDE	5.	ND	U
75-09-2	METHYLENE CHLORIDE	5.	ND	U
156-60-5	TRANS-1,2-DICHLOROETHENE	5.	ND	U
75-34-3	1,1-DICHLOROETHANE	5.	ND	U
78-93-3	2-BUTANONE	20.	ND	U
156-59-2	CIS-1,2-DICHLOROETHENE	5.	ND	U
67-66-3	CHLOROFORM	5.	ND	U
71-55-6	1,1,1-TRICHLOROETHANE	5.	ND	U
56-23-5	CARBON TETRACHLORIDE	5.	ND	U
71-43-2	BENZENE	5.	ND	U
107-06-2	1,2-DICHLOROETHANE	5.	ND	U
79-01-6	TRICHLOROETHENE	5.	ND	U
78-87-5	1,2-DICHLOROPROPANE	5.	ND	U
75-27-4	BROMODICHLOROMETHANE	5.	ND	U
110-75-8	2-CHLOROETHYLVINYL ETHER	5.	ND	U
108-05-4	VINYL ACETATE	10.	ND	U
10061-01-5	CIS-1,3-DICHLOROPROPENE	5.	ND	U
108-10-1	4-METHYL-2-PENTANONE	10.	ND	U
108-88-3	TOLUENE	5.	ND	U
10061-02-6	TRANS-1,3-DICHLOROPROPENE	5.	ND	U
79-00-5	1,1,2,-TRICHLOROETHANE	5.	ND	U
127-18-4	TETRACHLOROETHENE	5.	ND	U
591-78-6	2-HEXANONE	10.	ND	U
124-48-1	DIBROMOCHLOROMETHANE	5.	ND	U
108-90-7	CHLOROBENZENE	5.	ND	U
100-41-4	ETHYLBENZENE	5.	ND	U
1330-20-7	XYLENE (TOTAL)	5.	ND	U
100-42-5	STYRENE	5.	ND	U
75-25-2	BROMOFORM	5.	ND	U
79-34-5	1,1,2,2-TETRACHLOROETHANE	5.	ND	U
541-73-1	1,3-DICHLOROBENZENE	5.	ND	U
106-46-7	1,4-DICHLOROBENZENE	5.	ND	U
95-50-1	1,2-DICHLOROBENZENE	5.	ND	U

ORGANIC ANALYSIS DATA SHEET -- EPA METHOD 625/8270
ANAMETRIX, INC. (408)432-8192

Project ID : 1459.05
Sample ID : S-4A,C
Matrix : WATER
Date Sampled : 2/ 1/91
Date Extracted : 2/ 8/91
Amount Extracted : 980.0 mL
Date Analyzed : 2/11/91
Instrument ID : F2

Anametrix ID : 9102051-03
Analyst : UH
Supervisor : PG

Dilution Factor : 1.00
Conc. Units : ug/L

CAS NO.	COMPOUND NAME	REPORTING LIMIT	AMOUNT DETECTED	Q
108-95-2	PHENOL	10.	ND	U
111-44-4	BIS(2-CHLOROETHYL)ETHER	10.	ND	U
95-57-8	2-CHLOROPHENOL	10.	ND	U
541-73-1	1,3-DICHLOROBENZENE	10.	ND	U
106-46-7	1,4-DICHLOROBENZENE	10.	ND	U
100-51-6	BENZYL ALCOHOL	10.	ND	U
95-50-1	1,2-DICHLOROBENZENE	10.	ND	U
95-48-7	2-METHYLPHENOL	10.	ND	U
108-60-1	BIS(2-CHLOROISOPROPYL)ETHER	10.	ND	U
106-44-5	4-METHYLPHENOL	10.	ND	U
621-64-7	N-NITROSO-DI-N-PROPYLAMINE	10.	ND	U
67-72-1	HEXACHLOROETHANE	10.	ND	U
98-95-3	NITROBENZENE	10.	ND	U
78-59-1	ISOPHORONE	10.	ND	U
88-75-5	2-NITROPHENOL	10.	ND	U
105-67-9	2,4-DIMETHYLPHENOL	10.	ND	U
65-85-0	BENZOIC ACID	10.	ND	U
111-91-1	BIS(2-CHLOROETHOXY)METHANE	51.	ND	U
120-83-2	2,4-DICHLOROPHENOL	10.	ND	U
120-82-1	1,2,4-TRICHLOROBENZENE	10.	ND	U
91-20-3	NAPHTHALENE	10.	ND	U
106-47-8	4-CHLOROANILINE	10.	ND	U
87-68-3	HEXACHLOROBUTADIENE	10.	ND	U
59-50-7	4-CHLORO-3-METHYLPHENOL	10.	ND	U
91-57-6	2-METHYLNAPHTHALENE	10.	ND	U
77-47-4	HEXACHLOROCYCLOPENTADIENE	10.	ND	U
88-06-2	2,4,6-TRICHLOROPHENOL	10.	ND	U
95-95-4	2,4,5-TRICHLOROPHENOL	51.	ND	U
91-58-7	2-CHLORONAPHTHALENE	10.	ND	U
88-74-4	2-NITROANILINE	51.	ND	U
131-11-3	DIMETHYLPHTHALATE	10.	ND	U
208-96-8	ACENAPHTHYLENE	10.	ND	U
606-20-2	2,6-DINITROTOLUENE	10.	ND	U

ORGANIC ANALYSIS DATA SHEET -- EPA METHOD 625/8270
ANAMETRIX, INC. (408)432-8192

Project ID : 1459.05
Sample ID : S-4A,C
Matrix : WATER
Date Sampled : 2/ 1/91
Date Extracted : 2/ 8/91
Amount Extracted : 980.0 mL
Date Analyzed : 2/11/91
Instrument ID : F2

Anametrix ID : 9102051-03
Analyst : UH
Supervisor : PG

Dilution Factor : 1.00
Conc. Units : ug/L

CAS NO.	COMPOUND NAME	REPORTING LIMIT	AMOUNT DETECTED	Q
99-09-2	3-NITROANILINE	51.	ND	U
83-32-9	ACENAPHTHENE	10.	ND	U
51-28-5	2,4-DINITROPHENOL	51.	ND	U
100-02-7	4-NITROPHENOL	51.	ND	U
132-64-9	DIBENZOFURAN	10.	ND	U
121-14-2	2,4-DINITROTOLUENE	10.	ND	U
84-66-2	DIETHYLPHTHALATE	10.	ND	U
7005-72-3	4-CHLOROPHENYL-PHENYLETHER	10.	ND	U
86-73-7	FLUORENE	10.	ND	U
100-01-6	4-NITROANILINE	51.	ND	U
534-52-1	4,6-DINITRO-2-METHYLPHENOL	51.	ND	U
86-30-6	N-NITROSODIPHENYLAMINE (1)	10.	ND	U
101-55-3	4-BROMOPHENYL-PHENYLETHER	10.	ND	U
118-74-1	HEXACHLOROBENZENE	10.	ND	U
87-86-5	PENTACHLOROPHENOL	51.	ND	U
85-01-8	PHENANTHRENE	10.	ND	U
120-12-7	ANTHRACENE	10.	ND	U
84-74-2	DI-N-BUTYLPHTHALATE	10.	ND	U
206-44-0	FLUORANTHENE	10.	ND	U
129-00-0	PYRENE	10.	ND	U
85-68-7	BUTYLBENZYLPHTHALATE	10.	ND	U
91-94-1	3,3'-DICHLOROBENZIDINE	20.	ND	U
56-55-3	BENZO(A)ANTHRACENE	10.	ND	U
218-01-9	CHRYSENE	10.	ND	U
117-81-7	BIS(2-ETHYLHEXYL)PHTHALATE	10.	ND	U
117-84-0	DI-N-OCTYLPHTHALATE	10.	ND	U
205-99-2	BENZO(B)FLUORANTHENE	10.	ND	U
207-08-9	BENZO(K)FLUORANTHENE	10.	ND	U
50-32-8	BENZO(A)PYRENE	10.	ND	U
193-39-5	INDENO(1,2,3-CD)PYRENE	10.	ND	U
53-70-3	DIBENZ[A,H]ANTHRACENE	10.	ND	U
191-24-2	BENZO(G,H,I)PERYLENE	10.	ND	U
62-75-9	N-NITROSODIMETHYLAMINE	10.	ND	U
4165-61-1	ANILINE	10.	ND	U
103-33-3	AZOBENZENE	10.	ND	U
92-87-5	BENZIDINE	51.	ND	U

ORGANIC ANALYSIS DATA SHEET -- EPA METHOD 624/8240
ANAMETRIX, INC. (408)432-8192

Project ID :
Sample ID : BLANK
Matrix : WATER
Date Sampled : 0/ 0/ 0
Date Analyzed : 2/11/91
Instrument ID : F3

Anametrix ID : 3CB0211V01
Analyst : UW
Supervisor : PG

Dilution Factor : 1.00
Conc. Units : ug/L

CAS NO.	COMPOUND NAME	REPORTING LIMIT	AMOUNT DETECTED	Q
74-87-3	CHLOROMETHANE	10.	ND	U
75-01-4	VINYL CHLORIDE	10.	ND	U
74-83-9	BROMOMETHANE	10.	ND	U
75-00-3	CHLOROETHANE	10.	ND	U
75-69-4	TRICHLOROFLUOROMETHANE	5.	ND	U
75-35-4	1,1-DICHLOROETHENE	5.	ND	U
76-13-1	TRICHLOROTRIFLUOROETHANE	5.	ND	U
67-64-1	ACETONE	20.	ND	U
75-15-0	CARBON DISULFIDE	5.	ND	U
75-09-2	METHYLENE CHLORIDE	5.	ND	U
156-60-5	TRANS-1,2-DICHLOROETHENE	5.	ND	U
75-34-3	1,1-DICHLOROETHANE	5.	ND	U
78-93-3	2-BUTANONE	20.	ND	U
156-59-2	CIS-1,2-DICHLOROETHENE	5.	ND	U
67-66-3	CHLOROFORM	5.	ND	U
71-55-6	1,1,1-TRICHLOROETHANE	5.	ND	U
56-23-5	CARBON TETRACHLORIDE	5.	ND	U
71-43-2	BENZENE	5.	ND	U
107-06-2	1,2-DICHLOROETHANE	5.	ND	U
79-01-6	TRICHLOROETHENE	5.	ND	U
78-87-5	1,2-DICHLOROPROPANE	5.	ND	U
75-27-4	BROMODICHLOROMETHANE	5.	ND	U
110-75-8	2-CHLOROETHYLVINYL ETHER	5.	ND	U
108-05-4	VINYL ACETATE	10.	ND	U
10061-01-5	CIS-1,3-DICHLOROPROPENE	5.	ND	U
108-10-1	4-METHYL-2-PENTANONE	10.	ND	U
108-88-3	TOLUENE	5.	ND	U
10061-02-6	TRANS-1,3-DICHLOROPROPENE	5.	ND	U
79-00-5	1,1,2,-TRICHLOROETHANE	5.	ND	U
127-18-4	TETRACHLOROETHENE	5.	ND	U
591-78-6	2-HEXANONE	10.	ND	U
124-48-1	DIBROMOCHLOROMETHANE	5.	ND	U
108-90-7	CHLOROBENZENE	5.	ND	U
100-41-4	ETHYLBENZENE	5.	ND	U
1330-20-7	XYLENE (TOTAL)	5.	ND	U
100-42-5	STYRENE	5.	ND	U
75-25-2	BROMOFORM	5.	ND	U
79-34-5	1,1,2,2-TETRACHLOROETHANE	5.	ND	U
541-73-1	1,3-DICHLOROBENZENE	5.	ND	U
106-46-7	1,4-DICHLOROBENZENE	5.	ND	U
95-50-1	1,2-DICHLOROBENZENE	5.	ND	U

ORGANIC ANALYSIS DATA SHEET -- EPA METHOD 625/8270
ANAMETRIX, INC. (408)432-8192

Project ID	:	Anametrix ID	: 2CB0208C01
Sample ID	: BLANK	Analyst	: JM
Matrix	: WATER	Supervisor	: PG
Date Sampled	: 0/ 0/ 0		
Date Extracted	: 2/ 8/91		
Amount Extracted	: 1000.0 mL		
Date Analyzed	: 2/11/91	Dilution Factor	: 1.00
Instrument ID	: F2	Conc. Units	: ug/L

CAS NO.	COMPOUND NAME	REPORTING LIMIT	AMOUNT DETECTED	Q
108-95-2	PHENOL	10.	ND	U
111-44-4	BIS(2-CHLOROETHYL)ETHER	10.	ND	U
95-57-8	2-CHLOROPHENOL	10.	ND	U
541-73-1	1,3-DICHLOROBENZENE	10.	ND	U
106-46-7	1,4-DICHLOROBENZENE	10.	ND	U
100-51-6	BENZYL ALCOHOL	10.	ND	U
95-50-1	1,2-DICHLOROBENZENE	10.	ND	U
95-48-7	2-METHYLPHENOL	10.	ND	U
108-60-1	BIS(2-CHLOROISOPROPYL)ETHER	10.	ND	U
106-44-5	4-METHYLPHENOL	10.	ND	U
621-64-7	N-NITROSO-DI-N-PROPYLAMINE	10.	ND	U
67-72-1	HEXACHLOROETHANE	10.	ND	U
98-95-3	NITROBENZENE	10.	ND	U
78-59-1	ISOPHORONE	10.	ND	U
88-75-5	2-NITROPHENOL	10.	ND	U
105-67-9	2,4-DIMETHYLPHENOL	10.	ND	U
65-85-0	BENZOIC ACID	50.	ND	U
111-91-1	BIS(2-CHLOROETHOXY)METHANE	10.	ND	U
120-83-2	2,4-DICHLOROPHENOL	10.	ND	U
120-82-1	1,2,4-TRICHLOROBENZENE	10.	ND	U
91-20-3	NAPHTHALENE	10.	ND	U
106-47-8	4-CHLOROANILINE	10.	ND	U
87-68-3	HEXACHLOROBUTADIENE	10.	ND	U
59-50-7	4-CHLORO-3-METHYLPHENOL	10.	ND	U
91-57-6	2-METHYLNAPHTHALENE	10.	ND	U
77-47-4	HEXACHLOROCYCLOPENTADIENE	10.	ND	U
88-06-2	2,4,6-TRICHLOROPHENOL	10.	ND	U
95-95-4	2,4,5-TRICHLOROPHENOL	50.	ND	U
91-58-7	2-CHLORONAPHTHALENE	10.	ND	U
88-74-4	2-NITROANILINE	50.	ND	U
131-11-3	DIMETHYLPHTHALATE	10.	ND	U
208-96-8	ACENAPHTHYLENE	10.	ND	U
606-20-2	2,6-DINITROTOLUENE	10.	ND	U

ORGANIC ANALYSIS DATA SHEET -- EPA METHOD 625/8270
ANAMETRIX, INC. (408)432-8192

Project ID :
Sample ID : BLANK
Matrix : WATER
Date Sampled : 0/ 0/ 0
Date Extracted : 2/ 8/91
Amount Extracted : 1000.0 mL
Date Analyzed : 2/11/91
Instrument ID : F2

Anametrix ID : 2CB0208C01
Analyst : M
Supervisor : PG

Dilution Factor : 1.00
Conc. Units : ug/L

CAS NO.	COMPOUND NAME	REPORTING LIMIT	AMOUNT DETECTED	Q
99-09-2	3-NITROANILINE	50.	ND	U
83-32-9	ACENAPHTHENE	10.	ND	U
51-28-5	2,4-DINITROPHENOL	50.	ND	U
100-02-7	4-NITROPHENOL	50.	ND	U
132-64-9	DIBENZOFURAN	10.	ND	U
121-14-2	2,4-DINITROTOLUENE	10.	ND	U
84-66-2	DIETHYLPHTHALATE	10.	ND	U
7005-72-3	4-CHLOROPHENYL-PHENYLETHER	10.	ND	U
86-73-7	FLUORENE	10.	ND	U
100-01-6	4-NITROANILINE	50.	ND	U
534-52-1	4,6-DINITRO-2-METHYLPHENOL	50.	ND	U
86-30-6	N-NITROSODIPHENYLAMINE (1)	10.	ND	U
101-55-3	4-BROMOPHENYL-PHENYLETHER	10.	ND	U
118-74-1	HEXACHLOROBENZENE	10.	ND	U
87-86-5	PENTACHLOROPHENOL	50.	ND	U
85-01-8	PHENANTHRENE	10.	ND	U
120-12-7	ANTHRACENE	10.	ND	U
84-74-2	DI-N-BUTYLPHTHALATE	10.	ND	U
206-44-0	FLUORANTHENE	10.	ND	U
129-00-0	PYRENE	10.	ND	U
85-68-7	BUTYLBENZYLPHTHALATE	10.	ND	U
91-94-1	3,3'-DICHLOROBENZIDINE	20.	ND	U
56-55-3	BENZO(A)ANTHRACENE	10.	ND	U
218-01-9	CHRYSENE	10.	ND	U
117-81-7	BIS(2-ETHYLHEXYL)PHTHALATE	10.	ND	U
117-84-0	DI-N-OCTYLPHTHALATE	10.	ND	U
205-99-2	BENZO(B)FLUORANTHENE	10.	ND	U
207-08-9	BENZO(K)FLUORANTHENE	10.	ND	U
50-32-8	BENZO(A)PYRENE	10.	ND	U
193-39-5	INDENO(1,2,3-CD)PYRENE	10.	ND	U
53-70-3	DIBENZ[A,H]ANTHRACENE	10.	ND	U
191-24-2	BENZO(G,H,I)PERYLENE	10.	ND	U
62-75-9	N-NITROSODIMETHYLAMINE	10.	ND	U
4165-61-1	ANILINE	10.	ND	U
103-33-3	AZOBENZENE	10.	ND	U
92-87-5	BENZIDINE	50.	ND	U

SURROGATE RECOVERY SUMMARY -- EPA METHOD 624/8240
ANAMETRIX, INC. (408)432-8192

Project ID : 1459.05
Matrix : LIQUID

Anametrix ID : 9102051
Analyst : ww
Supervisor : PG

	SAMPLE ID	SU1	SU2	SU3	TOTAL OUT
1	BLANK	89	97	98	0
2	S-3A,B,C	88	99	95	0
3					
4					
5					
6					
7					
8					
9					
10					
11					
12					
13					
14					
15					
16					
17					
18					
19					
20					
21					
22					
23					
24					
25					
26					
27					
28					
29					
30					

	QC LIMITS
SU1 = 1,2-DICHLOROETHANE-D4	(75-113)
SU2 = TOLUENE-D8	(83-110)
SU3 = BROMOFLUOROBENZENE	(82-114)

* Values outside of Anametrix QC limits

SURROGATE RECOVERY SUMMARY -- EPA METHOD 625/8270
ANAMETRIX, INC. (408)432-8192

Project ID : 1459.05
Matrix : LIQUID

Anametrix ID : 9102051
Analyst : UL
Supervisor : PG

	SAMPLE ID	SU1	SU2	SU3	SU4	SU5	SU6	TOTAL OUT
2	BLANK	43	32	54	61	68	42	0
3	S-4A,C	31	20	33	39	57	25	0
4								
5								
6								
7								
8								
9								
10								
11								
12								
13								
14								
15								
16								
17								
18								
19								
20								
21								
22								
23								
24								
25								
26								
27								
28								
29								
30								

	QC LIMITS
SU1 = 2-FLUOROPHENOL	(10- 82)
SU2 = PHENOL-D5	(10- 72)
SU3 = NITROBENZENE-D5	(10-100)
SU4 = 2-FLUOROBIPHENYL	(10- 92)
SU5 = 2,4,6-TRIBROMOPHENOL	(15-139)
SU6 = TERPHENYL-D14	(10-110)

* Values outside of Anametrix QC limits

9102051 04497

GEOMATRIX CONSULTANTS
ONE MARKET PLAZA
SPEAR STREET TOWER SUITE 717
SAN FRANCISCO, CALIFORNIA 94105
(415) 957-9557

Chain of Custody Record

DATE 2/1/90 PAGE 1 OF 1

PROJECT NO. 1459.05

SAMPLERS: (SIGNATURE) [signature]

DATE	TIME	SAMPLE NUMBER	GENERAL MINERAL	PRIORITY POLLUTANT METALS	EPA METHOD 624	EPA METHOD 625	EPA METHOD 601	EPA METHOD 602	EPA METHOD 608	PETROLEUM HYDROCARBONS		mod 8015	8020	8240	8270	NUMBER OF CONTAINERS
2/1/90	11:00	S-1a – S-1d ★										X				4
	11:55	S-2a – S-2c											X	-1		3
	12:50	S-3a – S-3c												X	-3	3
	12:05	S-4a, S-4b, S-4c												-4	X	2
	13:20	S-5a – S-5d ★										X				4
↓	14:20	S-6a – S6-c											X	-2		3

Samples S-2a and S-6c have head space 3/4 at the bottom of the vial is air. All samples cold, proper container, preserved. 02/06/91

REMARKS
(SAMPLE PRESERVATION, HANDLING PROCEDURES, OBSERVATIONS, ETC.)

① Analyze for MINERAL SPIRITS ONLY on mod 8015

★ Samples not on rush as per Cheri Young 2/1

② 7 day turnaround time

③ results to Cheri Young

★ 8015 To be picked up by Another lab as per Cheri Young
MJanney 2/1/91

★ Samples S-1a → S-1D and S-5a – S-5D

TOTAL NUMBER OF CONTAINERS: 19

RELINQUISHED BY:	DATE	RECEIVED BY:	RELINQUISHED BY:	DATE	RECEIVED BY: (LAB)
SIGNATURE: Mary Janney	2/4/91	SIGNATURE: Benny S. Carrizosa	SIGNATURE: [signature]	2/1/91	SIGNATURE: [signature]
PRINTED NAME: BCA	TIME 10:30	PRINTED NAME: BENNY S. CARRIZOSA	PRINTED NAME: Dennis Whitlock	TIME 16:00	PRINTED NAME: Mary Janney
COMPANY: [illegible]		COMPANY: ANAMETRIX	COMPANY: GMX		LABORATORY: BC Analytical

RELINQUISHED BY:	DATE	RECEIVED BY:
SIGNATURE: Benny S. Carrizosa	2/6/91	SIGNATURE: [signature]
PRINTED NAME: BENNY S. CARRIZOSA	TIME 11:25	PRINTED NAME: Dezime Silva 02/06/91
COMPANY: ANAMETRIX		COMPANY: Anametrix 11:25

METHOD OF SHIPMENT:

LABORATORY COMMENTS / OBSERVATIONS
Relinquished By [signature]
LOG # 9102029 2-6-91 1020
Received By Benny S. Carrizosa

DISTRIBUTION: WHITE, CANARY - LABORATORY, PINK - ORIGINATOR

ANAMETRIX INC
Environmental & Analytical Chemistry
1961 Concourse Drive, Suite E, San Jose, CA 95131
(408) 432-8192 • Fax (408) 432-8198

REPORT

CHERI YOUNG
GEOMATRIX CONSULTANTS - SAN FRANCISCO
ONE MARKET PLAZA,SPEAR ST. TOWER STE 717
SAN FRANCISCO, CA 94105

Workorder # : 9102080
Date Received : 02/07/91
Project ID : 1459.05
Purchase Order: N/A

The following samples were received at Anametrix, Inc. for analysis :

ANAMETRIX ID	CLIENT SAMPLE ID
9102080- 1	MW-3
9102080- 2	MW-1
9102080- 3	MW-2

This report consists of 10 pages not including the cover letter, and is organized in sections according to the specific Anametrix laboratory group or section which performed the analysis(es) and generated the data. The Report Summary that precedes each section will help you determine which Anametrix group is responsible for those test results, and will bear the signatures of the department supervisor and the chemist who have reviewed the analytical data. Please refer all questions to the department supervisor who signed the form.

Anametrix is certified by the California Department of Health Services (DHS) to perform environmental testing under Certificate Number 1234. A detailed list of the approved fields of testing can be obtained by calling our office, or the DHS Environmental Laboratory Accreditation Program at (415)540-2800.

If you have any further questions or comments on this report, please give us a call as soon as possible. Thank you for using Anametrix.

Burt Sutherland
Laboratory Director

2-19-91
Date

ANAMETRIX REPORT DESCRIPTION
GCMS

Organic Analysis Data Sheets (OADS)

OADS forms contain tabulated results for target compounds. The OADS are grouped by method and, within each method, organized sequentially in order of increasing Anametrix ID number.

Tentatively Identified Compounds (TICs)

TIC forms contain tabulated results for non-target compounds detected in GC/MS analyses. TICs must be requested at the time samples are submitted at Anametrix. TIC forms immediately follow the OADS form for each sample. If TICs are requested but not found, then TIC forms will not be included with the report.

Surrogate Recovery Summary (SRS)

SRS forms contain quality assurance data. An SRS form will be printed for each method, if the method requires surrogate compounds. They will list surrogate percent recoveries for all samples and any method blanks. Any surrogate recovery outside the established limits will be flagged with an "*", and the total number of surrogates outside the limits will be listed in the column labelled "Total Out".

Matrix Spike Recovery Form (MSR)

MSR forms contain quality assurance data. They summarize percent recovery and relative percent difference information for matrix spikes and matrix spike duplicates. This information is a statement of both accuracy and precision. Any percent recovery or relative percent difference outside established limits will be flagged with an "*", and the total number outside the limits will be listed at the bottom of the page. Not all reports will contain an MSR form.

Qualifiers

Anametrix uses several data qualifiers (Q) in it's report forms. These qualifiers give additional information on the compounds reported. They should help a data reviewer to verify the integrity of the analytical results. The following is a list of qualifiers and their meanings:

- U - Indicates that the compound was analyzed for, but was not detected at or above the specified reporting limit.
- B - Indicates that the compound was detected in the associated method blank.
- J - Indicates that the compound was detected at an amount below the specified reporting limit. Consequently, the amount should be considered an approximate value. Tentatively identified compounds will always have a "J" qualifier because they are not included in the instrument calibration.
- E - Indicates that the amount reported exceeded the linear range of the instrument calibration.
- D - Indicates that the compound was detected in an analysis performed at a secondary dilution.
- A - Indicates that the tentatively identified compound is a suspected aldol condensation product. This is common in EPA Method 8270 soil analyses.

Absence of a qualifier indicates that the compound was detected at a concentration at or above the specified reporting limit.

REPORTING CONVENTIONS

- Due to a size limitation in our data processing step, only the first eight (8) characters of your project ID and sample ID will be printed on the report forms. However, the report cover letter and report summary pages display up to twenty (20) characters of your project and sample IDs.
- Amounts reported are gross values, i.e., not corrected for method blank contamination.

REPORT SUMMARY
ANAMETRIX, INC. (408)432-8192

CHERI YOUNG
GEOMATRIX CONSULTANTS - SAN FRANCISCO
ONE MARKET PLAZA,SPEAR ST. TOWER STE 717
SAN FRANCISCO, CA 94105

Workorder # : 9102080
Date Received : 02/07/91
Project ID : 1459.05
Purchase Order: N/A
Department : GCMS
Sub-Department: GCMS

SAMPLE INFORMATION:

ANAMETRIX SAMPLE ID	CLIENT SAMPLE ID	MATRIX	DATE SAMPLED	METHOD
9102080- 2	MW-1	WATER	02/07/91	8240
9102080- 3	MW-2	WATER	02/07/91	8240

REPORT SUMMARY
ANAMETRIX, INC. (408)432-8192

CHERI YOUNG
GEOMATRIX CONSULTANTS - SAN FRANCISCO
ONE MARKET PLAZA,SPEAR ST. TOWER STE 717
SAN FRANCISCO, CA 94105

Workorder # : 9102080
Date Received : 02/07/91
Project ID : 1459.05
Purchase Order: N/A
Department : GCMS
Sub-Department: GCMS

QA/QC SUMMARY :

- No QA/QC problems encountered.

Department Supervisor 2-14-91 Date

Chemist 2-14-91 Date

ORGANIC ANALYSIS DATA SHEET -- EPA METHOD 624/8240
ANAMETRIX, INC. (408)432-8192

Project ID : 1459.05
Sample ID : MW-1
Matrix : WATER
Date Sampled : 2/ 7/91
Date Analyzed : 2/13/91
Instrument ID : F3

Anametrix ID : 9102080-02
Analyst : LW
Supervisor : JM

Dilution Factor : 1.00
Conc. Units : ug/L

CAS NO.	COMPOUND NAME	REPORTING LIMIT	AMOUNT DETECTED	Q
74-87-3	CHLOROMETHANE	10.	ND	U
75-01-4	VINYL CHLORIDE	10.	ND	U
74-83-9	BROMOMETHANE	10.	ND	U
75-00-3	CHLOROETHANE	10.	ND	U
75-69-4	TRICHLOROFLUOROMETHANE	5.	ND	U
75-35-4	1,1-DICHLOROETHENE	5.	ND	U
76-13-1	TRICHLOROTRIFLUOROETHANE	5.	ND	U
67-64-1	ACETONE	20.	ND	U
75-15-0	CARBON DISULFIDE	5.	ND	U
75-09-2	METHYLENE CHLORIDE	5.	ND	U
156-60-5	TRANS-1,2-DICHLOROETHENE	5.	ND	U
75-34-3	1,1-DICHLOROETHANE	5.	8.	
78-93-3	2-BUTANONE	20.	ND	U
156-59-2	CIS-1,2-DICHLOROETHENE	5.	ND	U
67-66-3	CHLOROFORM	5.	ND	U
71-55-6	1,1,1-TRICHLOROETHANE	5.	ND	U
56-23-5	CARBON TETRACHLORIDE	5.	ND	U
71-43-2	BENZENE	5.	ND	U
107-06-2	1,2-DICHLOROETHANE	5.	ND	U
79-01-6	TRICHLOROETHENE	5.	ND	U
78-87-5	1,2-DICHLOROPROPANE	5.	ND	U
75-27-4	BROMODICHLOROMETHANE	5.	ND	U
110-75-8	2-CHLOROETHYLVINYL ETHER	5.	ND	U
108-05-4	VINYL ACETATE	10.	ND	U
10061-01-5	CIS-1,3-DICHLOROPROPENE	5.	ND	U
108-10-1	4-METHYL-2-PENTANONE	10.	ND	U
108-88-3	TOLUENE	5.	ND	U
10061-02-6	TRANS-1,3-DICHLOROPROPENE	5.	ND	U
79-00-5	1,1,2,-TRICHLOROETHANE	5.	ND	U
127-18-4	TETRACHLOROETHENE	5.	ND	U
591-78-6	2-HEXANONE	10.	ND	U
124-48-1	DIBROMOCHLOROMETHANE	5.	ND	U
108-90-7	CHLOROBENZENE	5.	ND	U
100-41-4	ETHYLBENZENE	5.	ND	U
1330-20-7	XYLENE (TOTAL)	5.	ND	U
100-42-5	STYRENE	5.	ND	U
75-25-2	BROMOFORM	5.	ND	U
79-34-5	1,1,2,2-TETRACHLOROETHANE	5.	ND	U
541-73-1	1,3-DICHLOROBENZENE	5.	ND	U
106-46-7	1,4-DICHLOROBENZENE	5.	ND	U
95-50-1	1,2-DICHLOROBENZENE	5.	ND	U

ORGANIC ANALYSIS DATA SHEET -- EPA METHOD 624/8240
ANAMETRIX, INC. (408)432-8192

Project ID : 1459.05
Sample ID : MW-2
Matrix : WATER
Date Sampled : 2/ 7/91
Date Analyzed : 2/13/91
Instrument ID : F3

Anametrix ID : 9102080-03
Analyst : LW
Supervisor : LM

Dilution Factor : 1.00
Conc. Units : ug/L

CAS NO.	COMPOUND NAME	REPORTING LIMIT	AMOUNT DETECTED	Q
74-87-3	CHLOROMETHANE	10.	ND	U
75-01-4	VINYL CHLORIDE	10.	ND	U
74-83-9	BROMOMETHANE	10.	ND	U
75-00-3	CHLOROETHANE	10.	ND	U
75-69-4	TRICHLOROFLUOROMETHANE	5.	ND	U
75-35-4	1,1-DICHLOROETHENE	5.	ND	U
76-13-1	TRICHLOROTRIFLUOROETHANE	5.	ND	U
67-64-1	ACETONE	20.	ND	U
75-15-0	CARBON DISULFIDE	5.	ND	U
75-09-2	METHYLENE CHLORIDE	5.	ND	U
156-60-5	TRANS-1,2-DICHLOROETHENE	5.	ND	U
75-34-3	1,1-DICHLOROETHANE	5.	ND	U
78-93-3	2-BUTANONE	20.	ND	U
156-59-2	CIS-1,2-DICHLOROETHENE	5.	ND	U
67-66-3	CHLOROFORM	5.	ND	U
71-55-6	1,1,1-TRICHLOROETHANE	5.	ND	U
56-23-5	CARBON TETRACHLORIDE	5.	ND	U
71-43-2	BENZENE	5.	ND	U
107-06-2	1,2-DICHLOROETHANE	5.	ND	U
79-01-6	TRICHLOROETHENE	5.	ND	U
78-87-5	1,2-DICHLOROPROPANE	5.	ND	U
75-27-4	BROMODICHLOROMETHANE	5.	ND	U
110-75-8	2-CHLOROETHYLVINYL ETHER	5.	ND	U
108-05-4	VINYL ACETATE	10.	ND	U
10061-01-5	CIS-1,3-DICHLOROPROPENE	5.	ND	U
108-10-1	4-METHYL-2-PENTANONE	10.	ND	U
108-88-3	TOLUENE	5.	ND	U
10061-02-6	TRANS-1,3-DICHLOROPROPENE	5.	ND	U
79-00-5	1,1,2,-TRICHLOROETHANE	5.	ND	U
127-18-4	TETRACHLOROETHENE	5.	ND	U
591-78-6	2-HEXANONE	10.	ND	U
124-48-1	DIBROMOCHLOROMETHANE	5.	ND	U
108-90-7	CHLOROBENZENE	5.	ND	U
100-41-4	ETHYLBENZENE	5.	ND	U
1330-20-7	XYLENE (TOTAL)	5.	ND	U
100-42-5	STYRENE	5.	ND	U
75-25-2	BROMOFORM	5.	ND	U
79-34-5	1,1,2,2-TETRACHLOROETHANE	5.	ND	U
541-73-1	1,3-DICHLOROBENZENE	5.	ND	U
106-46-7	1,4-DICHLOROBENZENE	5.	ND	U
95-50-1	1,2-DICHLOROBENZENE	5.	ND	U

ORGANIC ANALYSIS DATA SHEET -- EPA METHOD 624/8240
ANAMETRIX, INC. (408)432-8192

Project ID :
Sample ID : BLANK
Matrix : WATER
Date Sampled : 0/ 0/ 0
Date Analyzed : 2/13/91
Instrument ID : F3

Anametrix ID : 3CB0213V01
Analyst : LW
Supervisor : LM

Dilution Factor : 1.00
Conc. Units : ug/L

CAS NO.	COMPOUND NAME	REPORTING LIMIT	AMOUNT DETECTED	Q
74-87-3	CHLOROMETHANE	10.	ND	U
75-01-4	VINYL CHLORIDE	10.	ND	U
74-83-9	BROMOMETHANE	10.	ND	U
75-00-3	CHLOROETHANE	10.	ND	U
75-69-4	TRICHLOROFLUOROMETHANE	5.	ND	U
75-35-4	1,1-DICHLOROETHENE	5.	ND	U
76-13-1	TRICHLOROTRIFLUOROETHANE	5.	ND	U
67-64-1	ACETONE	20.	ND	U
75-15-0	CARBON DISULFIDE	5.	ND	U
75-09-2	METHYLENE CHLORIDE	5.	ND	U
156-60-5	TRANS-1,2-DICHLOROETHENE	5.	ND	U
75-34-3	1,1-DICHLOROETHANE	5.	ND	U
78-93-3	2-BUTANONE	20.	ND	U
156-59-2	CIS-1,2-DICHLOROETHENE	5.	ND	U
67-66-3	CHLOROFORM	5.	ND	U
71-55-6	1,1,1-TRICHLOROETHANE	5.	ND	U
56-23-5	CARBON TETRACHLORIDE	5.	ND	U
71-43-2	BENZENE	5.	ND	U
107-06-2	1,2-DICHLOROETHANE	5.	ND	U
79-01-6	TRICHLOROETHENE	5.	ND	U
78-87-5	1,2-DICHLOROPROPANE	5.	ND	U
75-27-4	BROMODICHLOROMETHANE	5.	ND	U
110-75-8	2-CHLOROETHYLVINYL ETHER	5.	ND	U
108-05-4	VINYL ACETATE	10.	ND	U
10061-01-5	CIS-1,3-DICHLOROPROPENE	5.	ND	U
108-10-1	4-METHYL-2-PENTANONE	10.	ND	U
108-88-3	TOLUENE	5.	ND	U
10061-02-6	TRANS-1,3-DICHLOROPROPENE	5.	ND	U
79-00-5	1,1,2,-TRICHLOROETHANE	5.	ND	U
127-18-4	TETRACHLOROETHENE	5.	ND	U
591-78-6	2-HEXANONE	10.	ND	U
124-48-1	DIBROMOCHLOROMETHANE	5.	ND	U
108-90-7	CHLOROBENZENE	5.	ND	U
100-41-4	ETHYLBENZENE	5.	ND	U
1330-20-7	XYLENE (TOTAL)	5.	ND	U
100-42-5	STYRENE	5.	ND	U
75-25-2	BROMOFORM	5.	ND	U
79-34-5	1,1,2,2-TETRACHLOROETHANE	5.	ND	U
541-73-1	1,3-DICHLOROBENZENE	5.	ND	U
106-46-7	1,4-DICHLOROBENZENE	5.	ND	U
95-50-1	1,2-DICHLOROBENZENE	5.	ND	U

SURROGATE RECOVERY SUMMARY -- EPA METHOD 624/8240
ANAMETRIX, INC. (408)432-8192

Project ID : 1459.05
Matrix : LIQUID

Anametrix ID : 9102080
Analyst : MW
Supervisor : MY

	SAMPLE ID	SU1	SU2	SU3	TOTAL OUT
1	BLANK	92	99	97	0
6	MW-1	90	98	96	0
7	MW-2	90	99	97	0
8					
9					
10					
11					
12					
13					
14					
15					
16					
17					
18					
19					
20					
21					
22					
23					
24					
25					
26					
27					
28					
29					
30					

	QC LIMITS
SU1 = 1,2-DICHLOROETHANE-D4	(75-113)
SU2 = TOLUENE-D8	(83-110)
SU3 = BROMOFLUOROBENZENE	(82-114)

* Values outside of Anametrix QC limits

REPORT SUMMARY
ANAMETRIX, INC. (408)432-8192

CHERI YOUNG
GEOMATRIX CONSULTANTS - SAN FRANCISCO
ONE MARKET PLAZA,SPEAR ST. TOWER STE 717
SAN FRANCISCO, CA 94105

Workorder # : 9102080
Date Received : 02/07/91
Project ID : 1459.05
Purchase Order: N/A
Department : GC
Sub-Department: TPH

SAMPLE INFORMATION:

ANAMETRIX SAMPLE ID	CLIENT SAMPLE ID	MATRIX	DATE SAMPLED	METHOD
9102080- 1	MW-3	WATER	02/07/91	TPHg/BTEX
9102080- 2	MW-1	WATER	02/07/91	TPHg/BTEX
9102080- 3	MW-2	WATER	02/07/91	TPHg/BTEX

REPORT SUMMARY
ANAMETRIX, INC. (408)432-8192

CHERI YOUNG
GEOMATRIX CONSULTANTS - SAN FRANCISCO
ONE MARKET PLAZA,SPEAR ST. TOWER STE 717
SAN FRANCISCO, CA 94105

Workorder # : 9102080
Date Received : 02/07/91
Project ID : 1459.05
Purchase Order: N/A
Department : GC
Sub-Department: TPH

QA/QC SUMMARY :

- No QA/QC problems encountered for these samples.

Cheryl Balsano 2/15/91
Department Supervisor Date

Irene Lusinov 02-15-91
Chemist Date

ANALYSIS DATA SHEET - TOTAL PETROLEUM HYDROCARBONS
(GASOLINE WITH BTEX)
ANAMETRIX, INC. - (408) 432-8192

Anametrix W.O.: 9102080
Matrix : WATER
Date Sampled : 02/07/91

Project Number : 1459.05
Date Released : 02/15/91

COMPOUNDS	Reporting Limit (ug/L)	Sample I.D.# MW-3 -01	Sample I.D.# MW-1 -02	Sample I.D.# MW-2 -03	Sample I.D.# 12B0212A BLANK	Sample I.D.# 12B0213A BLANK
Benzene	0.5	ND	ND	ND	ND	ND
Toluene	0.5	ND	ND	ND	ND	ND
Ethylbenzene	0.5	ND	ND	ND	ND	ND
Total Xylenes	0.5	ND	ND	ND	ND	ND
TPH as Mineral Spirits	50	ND	ND	ND	ND	ND
% Surrogate Recovery		78%	111%	120%	104%	122%
Instrument I.D.		HP12	HP12	HP12	HP12	HP12
Date Analyzed		02/12/91	02/13/91	02/12/91	02/12/91	02/13/91
RLMF		1	1	1	1	1

ND - Not detected at or above the practical quantitation limit for the method.
TPHg - Total Petroleum Hydrocarbons as mineral spirits is determined by GCFID using EPA Method 5030.
BTEX - Benzene, Toluene, Ethylbenzene, and Total Xylenes are determined by modified EPA 8020.
RLMF - Reporting Limit Multiplication Factor.
Anametrix control limits for surrogate recovery are 50-150%.

All testing procedures follow California Department of Health Services (Cal-DHS) approved methods.

Analyst — Date 2/15/91

Supervisor — Date 2/15/91

9102080 9102080 (1) (2)

GEOMATRIX CONSULTANTS

ONE MARKET PLAZA
SPEAR STREET TOWER SUITE 717
SAN FRANCISCO, CALIFORNIA 94105
(415) 957-9557

Chain of Custody Record

01103

DATE 2-7-91 PAGE 1 OF 1

PROJECT NO. 1459.05

SAMPLERS: (SIGNATURE)

Matt Oblog

DATE	TIME	SAMPLE NUMBER	GENERAL MINERAL	PRIORITY POLLUTANT METALS	EPA METHOD 624	EPA METHOD 625	EPA METHOD 601	EPA METHOD 602	EPA METHOD 608	PETROLEUM HYDROCARBONS TPH as Mineral Spirits BTEX	8240			NUMBER OF CONTAINERS
2/7/91	1250	MW-3								X				3
	1340	MW-1								X	X			5
	1430	MW-2								X	X			5

ANALYSES

REMARKS (SAMPLE PRESERVATION, HANDLING PROCEDURES, OBSERVATIONS, ETC.)

VOAs

Normal TAT

Results To Cheri Young

Samples preserved w/ Blue Ice in Field

TOTAL NUMBER OF CONTAINERS 13

RELINQUISHED BY:	DATE	RECEIVED BY:
SIGNATURE		SIGNATURE
PRINTED NAME	TIME	PRINTED NAME
COMPANY		COMPANY

RELINQUISHED BY:	DATE	RECEIVED BY:
SIGNATURE		SIGNATURE
PRINTED NAME	TIME	PRINTED NAME
COMPANY		COMPANY

RELINQUISHED BY:	DATE	RECEIVED BY: (LAB)
Matt Oblog	2/7/91	Benny Lamzon
SIGNATURE		SIGNATURE
MATT OBLOG	TIME	BENNY S. CARDOSA
PRINTED NAME	1500	PRINTED NAME
GEOMATRIX		ANAMETRIX
COMPANY		LABORATORY

METHOD OF SHIPMENT: Benny Pickup

LABORATORY COMMENTS / OBSERVATIONS 2-7-91

Rel. By: Benny L. Lamzon 1630

Rec'd By: [signature] 2-7-91 16:30

DISTRIBUTION: WHITE, CANARY - LABORATORY, PINK - ORIGINATOR

ANAMETRIX INC
Environmental & Analytical Chemistry
1961 Concourse Drive Suite E. San Jose. CA 95131
(408) 432-8192 • Fax (408) 432-8198

REPORT

MS. CHERI YOUNG
GEOMATRIX CONSULTANTS - SAN FRANCISCO
ONE MARKET PLAZA,SPEAR ST. TOWER STE 717
SAN FRANCISCO, CA 94105

Workorder # : 9102273
Date Received : 02/26/91
Project ID : 1459.05
Purchase Order: N/A

The following samples were received at Anametrix, Inc. for analysis :

ANAMETRIX ID	CLIENT SAMPLE ID
9102273- 1	MW-5

This report consists of 3 pages not including the cover letter, and is organized in sections according to the specific Anametrix laboratory group or section which performed the analysis(es) and generated the data. The Report Summary that precedes each section will help you determine which Anametrix group is responsible for those test results, and will bear the signatures of the department supervisor and the chemist who have reviewed the analytical data. Please refer all questions to the department supervisor who signed the form.

Anametrix is certified by the California Department of Health Services (DHS) to perform environmental testing under Certificate Number 1234. A detailed list of the approved fields of testing can be obtained by calling our office, or the DHS Environmental Laboratory Accreditation Program at (415)540-2800.

If you have any further questions or comments on this report, please give us a call as soon as possible. Thank you for using Anametrix.

Burt Sutherland
Laboratory Director

2-28-91
Date

REPORT SUMMARY
ANAMETRIX, INC. (408)432-8192

MS. CHERI YOUNG
GEOMATRIX CONSULTANTS - SAN FRANCISCO
ONE MARKET PLAZA,SPEAR ST. TOWER STE 717
SAN FRANCISCO, CA 94105

Workorder # : 9102273
Date Received : 02/26/91
Project ID : 1459.05
Purchase Order: N/A
Department : GC
Sub-Department: TPH

SAMPLE INFORMATION:

ANAMETRIX SAMPLE ID	CLIENT SAMPLE ID	MATRIX	DATE SAMPLED	METHOD
9102273- 1	MW-5	WATER	02/25/91	BTEX

REPORT SUMMARY
ANAMETRIX, INC. (408)432-8192

MS. CHERI YOUNG
GEOMATRIX CONSULTANTS - SAN FRANCISCO
ONE MARKET PLAZA,SPEAR ST. TOWER STE 717
SAN FRANCISCO, CA 94105

Workorder # : 9102273
Date Received : 02/26/91
Project ID : 1459.05
Purchase Order: N/A
Department : GC
Sub-Department: TPH

QA/QC SUMMARY :

- No QA/QC problems encountered for sample.

Department Supervisor Date

Chemist Date

ANALYSIS DATA SHEET - TOTAL PETROLEUM HYDROCARBONS
(GASOLINE WITH BTEX)
ANAMETRIX, INC. - (408) 432-8192

Anametrix W.O.: 9102273
Matrix : WATER
Date Sampled : 02/25/91

Project Number : 1459.05
Date Released : 02/28/91

COMPOUNDS	Reporting Limit (ug/L)	Sample I.D.# MW-5 -01	Sample I.D.# 12B0227A BLANK
Benzene	0.5	ND	ND
Toluene	0.5	ND	ND
Ethylbenzene	0.5	ND	ND
Total Xylenes	0.5	ND	ND
% Surrogate Recovery		93%	94%
Instrument I.D.		HP12	HP12
Date Analyzed		02/27/91	02/27/91
RLMF		1	1

ND - Not detected at or above the practical quantitation limit for the method.
BTEX - Benzene, Toluene, Ethylbenzene, and Total Xylenes are determined by modified EPA 8020.
RLMF - Reporting Limit Multiplication Factor.
Anametrix control limits for surrogate recovery are 50-150%.

All testing procedures follow California Department of Health Services (Cal-DHS) approved methods.

Analyst 2/27/91 Date

Supervisor 2/28/91 Date

1200

9102273 (2)

GEOMATRIX CONSULTANTS
ONE MARKET PLAZA
SPEAR STREET TOWER SUITE 717
SAN FRANCISCO, CALIFORNIA 94105
(415) 957-9557

Chain of Custody Record

04560

DATE 2/26/91 PAGE 1 OF 1

PROJECT NO. 1459.05

SAMPLERS: (SIGNATURE) [signature]

DATE	TIME	SAMPLE NUMBER	GENERAL MINERAL	PRIORITY POLLUTANT METALS	EPA METHOD 624	EPA METHOD 625	EPA METHOD 601	EPA METHOD 602	EPA METHOD 608	PETROLEUM HYDROCARBONS	BTEX					NUMBER OF CONTAINERS	REMARKS (SAMPLE PRESERVATION, HANDLING PROCEDURES, OBSERVATIONS, ETC.)
2/25	1230	MW-5									X					3	water samples

NOTE: This is a resample Due To anamatrix Error in not Analyzing for BTEX in 2/1/91 sample.
24 HR TAT
Results To Cheri Young

1 voa w/a 2mm bubble, cold, preserved, proper container (NS)

TOTAL NUMBER OF CONTAINERS: 3

RELINQUISHED BY:	DATE	RECEIVED BY:	RELINQUISHED BY:	DATE	RECEIVED BY: (LAB)
SIGNATURE		SIGNATURE	SIGNATURE: [signature]	2/26	SIGNATURE: [signature]
PRINTED NAME	TIME	PRINTED NAME	PRINTED NAME: MATT OBLOY	TIME 930	PRINTED NAME: BENNY S. CARRIZOSA
COMPANY		COMPANY	COMPANY: Geomatrix		LABORATORY: ANAMETRIX

RELINQUISHED BY:	DATE	RECEIVED BY:
SIGNATURE		SIGNATURE
PRINTED NAME	TIME	PRINTED NAME
COMPANY		COMPANY

METHOD OF SHIPMENT: Benny Pick-up

LABORATORY COMMENTS / OBSERVATIONS
Rel. By: Benny S. Carrizosa 2/26/91 1120
Rec By [signature] 02/26/91 1120

DISTRIBUTION: WHITE, CANARY - LABORATORY, PINK - ORIGINATOR

ANAMETRIX INC
Environmental & Analytical Chemistry
1961 Concourse Drive, Suite E. San Jose, CA 95131
(408) 432-8192 • Fax (408) 432-8198

REPORT

MS. CHERI YOUNG
GEOMATRIX CONSULTANTS - SAN FRANCISCO
ONE MARKET PLAZA,SPEAR ST. TOWER STE 717
SAN FRANCISCO, CA 94105

Workorder # : 9103085
Date Received : 03/07/91
Project ID : 1459.05
Purchase Order: N/A

The following samples were received at Anametrix, Inc. for analysis :

ANAMETRIX ID	CLIENT SAMPLE ID
9103085- 1	MW-2
9103085- 2	MW-1
9103085- 3	MW-5
9103085- 4	MW-6

This report consists of 15 pages not including the cover letter, and is organized in sections according to the specific Anametrix laboratory group or section which performed the analysis(es) and generated the data. The Report Summary that precedes each section will help you determine which Anametrix group is responsible for those test results, and will bear the signatures of the department supervisor and the chemist who have reviewed the analytical data. Please refer all questions to the department supervisor who signed the form.

Anametrix is certified by the California Department of Health Services (DHS) to perform environmental testing under Certificate Number 1234. A detailed list of the approved fields of testing can be obtained by calling our office, or the DHS Environmental Laboratory Accreditation Program at (415)540-2800.

If you have any further questions or comments on this report, please give us a call as soon as possible. Thank you for using Anametrix.

Burt Sutherland
Laboratory Director

3-19-91
Date

ANAMETRIX REPORT DESCRIPTION
GCMS

Organic Analysis Data Sheets (OADS)

OADS forms contain tabulated results for target compounds. The OADS are grouped by method and, within each method, organized sequentially in order of increasing Anametrix ID number.

Tentatively Identified Compounds (TICs)

TIC forms contain tabulated results for non-target compounds detected in GC/MS analyses. TICs must be requested at the time samples are submitted at Anametrix. TIC forms immediately follow the OADS form for each sample. If TICs are requested but not found, then TIC forms will not be included with the report.

Surrogate Recovery Summary (SRS)

SRS forms contain quality assurance data. An SRS form will be printed for each method, if the method requires surrogate compounds. They will list surrogate percent recoveries for all samples and any method blanks. Any surrogate recovery outside the established limits will be flagged with an "*", and the total number of surrogates outside the limits will be listed in the column labelled "Total Out".

Matrix Spike Recovery Form (MSR)

MSR forms contain quality assurance data. They summarize percent recovery and relative percent difference information for matrix spikes and matrix spike duplicates. This information is a statement of both accuracy and precision. Any percent recovery or relative percent difference outside established limits will be flagged with an "*", and the total number outside the limits will be listed at the bottom of the page. Not all reports will contain an MSR form.

Qualifiers

Anametrix uses several data qualifiers (Q) in it's report forms. These qualifiers give additional information on the compounds reported. They should help a data reviewer to verify the integrity of the analytical results. The following is a list of qualifiers and their meanings:

- U - Indicates that the compound was analyzed for, but was not detected at or above the specified reporting limit.
- B - Indicates that the compound was detected in the associated method blank.
- J - Indicates that the compound was detected at an amount below the specified reporting limit. Consequently, the amount should be considered an approximate value. Tentatively identified compounds will always have a "J" qualifier because they are not included in the instrument calibration.
- E - Indicates that the amount reported exceeded the linear range of the instrument calibration.
- D - Indicates that the compound was detected in an analysis performed at a secondary dilution.
- A - Indicates that the tentatively identified compound is a suspected aldol condensation product. This is common in EPA Method 8270 soil analyses.

Absence of a qualifier indicates that the compound was detected at a concentration at or above the specified reporting limit.

REPORTING CONVENTIONS

- Due to a size limitation in our data processing step, only the first eight (8) characters of your project ID and sample ID will be printed on the report forms. However, the report cover letter and report summary pages display up to twenty (20) characters of your project and sample IDs.
- Amounts reported are gross values, i.e., not corrected for method blank contamination.

REPORT SUMMARY
ANAMETRIX, INC. (408)432-8192

MS. CHERI YOUNG
GEOMATRIX CONSULTANTS - SAN FRANCISCO
ONE MARKET PLAZA,SPEAR ST. TOWER STE 717
SAN FRANCISCO, CA 94105

Workorder # : 9103085
Date Received : 03/07/91
Project ID : 1459.05
Purchase Order: N/A
Department : GCMS
Sub-Department: GCMS

SAMPLE INFORMATION:

ANAMETRIX SAMPLE ID	CLIENT SAMPLE ID	MATRIX	DATE SAMPLED	METHOD
9103085- 3	MW-5	WATER	03/07/91	8240
9103085- 4	MW-6	WATER	03/07/91	8240
9103085- 1	MW-2	WATER	03/07/91	8270

REPORT SUMMARY
ANAMETRIX, INC. (408)432-8192

MS. CHERI YOUNG
GEOMATRIX CONSULTANTS - SAN FRANCISCO
ONE MARKET PLAZA,SPEAR ST. TOWER STE 717
SAN FRANCISCO, CA 94105

Workorder # : 9103085
Date Received : 03/07/91
Project ID : 1459.05
Purchase Order: N/A
Department : GCMS
Sub-Department: GCMS

QA/QC SUMMARY :

- No QA/QC problems encountered.

Paul Gowan 3-18-91
Department Supervisor Date

Laura Maslo 3-19-91
Chemist Date

ORGANIC ANALYSIS DATA SHEET -- EPA METHOD 624/8240
ANAMETRIX, INC. (408)432-8192

Project ID : 1459.05
Sample ID : MW-5
Matrix : WATER
Date Sampled : 3/ 7/91
Date Analyzed : 3/15/91
Instrument ID : F1

Anametrix ID : 9103085-03
Analyst : ij
Supervisor : PG

Dilution Factor : 1.00
Conc. Units : ug/L

CAS NO.	COMPOUND NAME	REPORTING LIMIT	AMOUNT DETECTED	Q
74-87-3	CHLOROMETHANE	10.	ND	U
75-01-4	VINYL CHLORIDE	10.	ND	U
74-83-9	BROMOMETHANE	10.	ND	U
75-00-3	CHLOROETHANE	10.	ND	U
75-69-4	TRICHLOROFLUOROMETHANE	5.	24.	
75-35-4	1,1-DICHLOROETHENE	5.	ND	U
76-13-1	TRICHLOROTRIFLUOROETHANE	5.	ND	U
67-64-1	ACETONE	20.	ND	U
75-15-0	CARBON DISULFIDE	5.	ND	U
75-09-2	METHYLENE CHLORIDE	5.	ND	U
156-60-5	TRANS-1,2-DICHLOROETHENE	5.	ND	U
75-34-3	1,1-DICHLOROETHANE	5.	ND	U
78-93-3	2-BUTANONE	20.	ND	U
156-59-2	CIS-1,2-DICHLOROETHENE	5.	ND	U
67-66-3	CHLOROFORM	5.	ND	U
71-55-6	1,1,1-TRICHLOROETHANE	5.	ND	U
56-23-5	CARBON TETRACHLORIDE	5.	ND	U
71-43-2	BENZENE	5.	ND	U
107-06-2	1,2-DICHLOROETHANE	5.	ND	U
79-01-6	TRICHLOROETHENE	5.	ND	U
78-87-5	1,2-DICHLOROPROPANE	5.	ND	U
75-27-4	BROMODICHLOROMETHANE	5.	ND	U
110-75-8	2-CHLOROETHYLVINYL ETHER	5.	ND	U
108-05-4	VINYL ACETATE	10.	ND	U
10061-01-5	CIS-1,3-DICHLOROPROPENE	5.	ND	U
108-10-1	4-METHYL-2-PENTANONE	10.	ND	U
108-88-3	TOLUENE	5.	ND	U
10061-02-6	TRANS-1,3-DICHLOROPROPENE	5.	ND	U
79-00-5	1,1,2,-TRICHLOROETHANE	5.	ND	U
127-18-4	TETRACHLOROETHENE	5.	ND	U
591-78-6	2-HEXANONE	10.	ND	U
124-48-1	DIBROMOCHLOROMETHANE	5.	ND	U
108-90-7	CHLOROBENZENE	5.	ND	U
100-41-4	ETHYLBENZENE	5.	ND	U
1330-20-7	XYLENE (TOTAL)	5.	ND	U
100-42-5	STYRENE	5.	ND	U
75-25-2	BROMOFORM	5.	ND	U
79-34-5	1,1,2,2-TETRACHLOROETHANE	5.	ND	U
541-73-1	1,3-DICHLOROBENZENE	5.	ND	U
106-46-7	1,4-DICHLOROBENZENE	5.	ND	U
95-50-1	1,2-DICHLOROBENZENE	5.	ND	U

ORGANIC ANALYSIS DATA SHEET -- EPA METHOD 624/8240
ANAMETRIX, INC. (408)432-8192

Project ID : 1459.05
Sample ID : MW-6
Matrix : WATER
Date Sampled : 3/ 7/91
Date Analyzed : 3/15/91
Instrument ID : F1

Anametrix ID : 9103085-04
Analyst : LT
Supervisor : PG

Dilution Factor : 1.00
Conc. Units : ug/L

CAS NO.	COMPOUND NAME	REPORTING LIMIT	AMOUNT DETECTED	Q
74-87-3	CHLOROMETHANE	10.	ND	U
75-01-4	VINYL CHLORIDE	10.	ND	U
74-83-9	BROMOMETHANE	10.	ND	U
75-00-3	CHLOROETHANE	10.	ND	U
75-69-4	TRICHLOROFLUOROMETHANE	5.	ND	U
75-35-4	1,1-DICHLOROETHENE	5.	ND	U
76-13-1	TRICHLOROTRIFLUOROETHANE	5.	ND	U
67-64-1	ACETONE	20.	ND	U
75-15-0	CARBON DISULFIDE	5.	ND	U
75-09-2	METHYLENE CHLORIDE	5.	ND	U
156-60-5	TRANS-1,2-DICHLOROETHENE	5.	ND	U
75-34-3	1,1-DICHLOROETHANE	5.	ND	U
78-93-3	2-BUTANONE	20.	ND	U
156-59-2	CIS-1,2-DICHLOROETHENE	5.	ND	U
67-66-3	CHLOROFORM	5.	ND	U
71-55-6	1,1,1-TRICHLOROETHANE	5.	ND	U
56-23-5	CARBON TETRACHLORIDE	5.	ND	U
71-43-2	BENZENE	5.	ND	U
107-06-2	1,2-DICHLOROETHANE	5.	ND	U
79-01-6	TRICHLOROETHENE	5.	ND	U
78-87-5	1,2-DICHLOROPROPANE	5.	ND	U
75-27-4	BROMODICHLOROMETHANE	5.	ND	U
110-75-8	2-CHLOROETHYLVINYL ETHER	5.	ND	U
108-05-4	VINYL ACETATE	10.	ND	U
10061-01-5	CIS-1,3-DICHLOROPROPENE	5.	ND	U
108-10-1	4-METHYL-2-PENTANONE	10.	ND	U
108-88-3	TOLUENE	5.	ND	U
10061-02-6	TRANS-1,3-DICHLOROPROPENE	5.	ND	U
79-00-5	1,1,2,-TRICHLOROETHANE	5.	ND	U
127-18-4	TETRACHLOROETHENE	5.	ND	U
591-78-6	2-HEXANONE	10.	ND	U
124-48-1	DIBROMOCHLOROMETHANE	5.	ND	U
108-90-7	CHLOROBENZENE	5.	ND	U
100-41-4	ETHYLBENZENE	5.	ND	U
1330-20-7	XYLENE (TOTAL)	5.	ND	U
100-42-5	STYRENE	5.	ND	U
75-25-2	BROMOFORM	5.	ND	U
79-34-5	1,1,2,2-TETRACHLOROETHANE	5.	ND	U
541-73-1	1,3-DICHLOROBENZENE	5.	ND	U
106-46-7	1,4-DICHLOROBENZENE	5.	ND	U
95-50-1	1,2-DICHLOROBENZENE	5.	ND	U

ORGANIC ANALYSIS DATA SHEET -- EPA METHOD 625/8270
ANAMETRIX, INC. (408)432-8192

Project ID : 1459.05
Sample ID : MW-2
Matrix : WATER
Date Sampled : 3/ 7/91
Date Extracted : 3/ 8/91
Amount Extracted : 1000.0 mL
Date Analyzed : 3/12/91
Instrument ID : F2

Anametrix ID : 9103085-01
Analyst : UH
Supervisor : PG

Dilution Factor : 1.00
Conc. Units : ug/L

CAS NO.	COMPOUND NAME	REPORTING LIMIT	AMOUNT DETECTED	Q
108-95-2	PHENOL	10.	ND	U
111-44-4	BIS(2-CHLOROETHYL)ETHER	10.	ND	U
95-57-8	2-CHLOROPHENOL	10.	ND	U
541-73-1	1,3-DICHLOROBENZENE	10.	ND	U
106-46-7	1,4-DICHLOROBENZENE	10.	ND	U
100-51-6	BENZYL ALCOHOL	10.	ND	U
95-50-1	1,2-DICHLOROBENZENE	10.	ND	U
95-48-7	2-METHYLPHENOL	10.	ND	U
108-60-1	BIS(2-CHLOROISOPROPYL)ETHER	10.	ND	U
106-44-5	4-METHYLPHENOL	10.	ND	U
621-64-7	N-NITROSO-DI-N-PROPYLAMINE	10.	ND	U
67-72-1	HEXACHLOROETHANE	10.	ND	U
98-95-3	NITROBENZENE	10.	ND	U
78-59-1	ISOPHORONE	10.	ND	U
88-75-5	2-NITROPHENOL	10.	ND	U
105-67-9	2,4-DIMETHYLPHENOL	10.	ND	U
65-85-0	BENZOIC ACID	50.	ND	U
111-91-1	BIS(2-CHLOROETHOXY)METHANE	10.	ND	U
120-83-2	2,4-DICHLOROPHENOL	10.	ND	U
120-82-1	1,2,4-TRICHLOROBENZENE	10.	ND	U
91-20-3	NAPHTHALENE	10.	ND	U
106-47-8	4-CHLOROANILINE	10.	ND	U
87-68-3	HEXACHLOROBUTADIENE	10.	ND	U
59-50-7	4-CHLORO-3-METHYLPHENOL	10.	ND	U
91-57-6	2-METHYLNAPHTHALENE	10.	ND	U
77-47-4	HEXACHLOROCYCLOPENTADIENE	10.	ND	U
88-06-2	2,4,6-TRICHLOROPHENOL	10.	ND	U
95-95-4	2,4,5-TRICHLOROPHENOL	50.	ND	U
91-58-7	2-CHLORONAPHTHALENE	10.	ND	U
88-74-4	2-NITROANILINE	50.	ND	U
131-11-3	DIMETHYLPHTHALATE	10.	ND	U
208-96-8	ACENAPHTHYLENE	10.	ND	U
606-20-2	2,6-DINITROTOLUENE	10.	ND	U

ORGANIC ANALYSIS DATA SHEET -- EPA METHOD 625/8270
ANAMETRIX, INC. (408)432-8192

Project ID : 1459.05
Sample ID : MW-2
Matrix : WATER
Date Sampled : 3/ 7/91
Date Extracted : 3/ 8/91
Amount Extracted : 1000.0 mL
Date Analyzed : 3/12/91
Instrument ID : F2

Anametrix ID : 9103085-01
Analyst : UH
Supervisor : PG

Dilution Factor : 1.00
Conc. Units : ug/L

CAS NO.	COMPOUND NAME	REPORTING LIMIT	AMOUNT DETECTED	Q
99-09-2	3-NITROANILINE	50.	ND	U
83-32-9	ACENAPHTHENE	10.	ND	U
51-28-5	2,4-DINITROPHENOL	50.	ND	U
100-02-7	4-NITROPHENOL	50.	ND	U
132-64-9	DIBENZOFURAN	10.	ND	U
121-14-2	2,4-DINITROTOLUENE	10.	ND	U
84-66-2	DIETHYLPHTHALATE	10.	ND	U
7005-72-3	4-CHLOROPHENYL-PHENYLETHER	10.	ND	U
86-73-7	FLUORENE	10.	ND	U
100-01-6	4-NITROANILINE	50.	ND	U
534-52-1	4,6-DINITRO-2-METHYLPHENOL	50.	ND	U
86-30-6	N-NITROSODIPHENYLAMINE (1)	10.	ND	U
101-55-3	4-BROMOPHENYL-PHENYLETHER	10.	ND	U
118-74-1	HEXACHLOROBENZENE	10.	ND	U
87-86-5	PENTACHLOROPHENOL	30.	ND	U
85-01-8	PHENANTHRENE	10.	ND	U
120-12-7	ANTHRACENE	10.	ND	U
84-74-2	DI-N-BUTYLPHTHALATE	10.	ND	U
206-44-0	FLUORANTHENE	10.	ND	U
129-00-0	PYRENE	10.	ND	U
85-68-7	BUTYLBENZYLPHTHALATE	10.	ND	U
91-94-1	3,3'-DICHLOROBENZIDINE	20.	ND	U
56-55-3	BENZO(A)ANTHRACENE	10.	ND	U
218-01-9	CHRYSENE	10.	ND	U
117-81-7	BIS(2-ETHYLHEXYL)PHTHALATE	10.	ND	U
117-84-0	DI-N-OCTYLPHTHALATE	10.	ND	U
205-99-2	BENZO(B)FLUORANTHENE	10.	ND	U
207-08-9	BENZO(K)FLUORANTHENE	10.	ND	U
50-32-8	BENZO(A)PYRENE	10.	ND	U
193-39-5	INDENO(1,2,3-CD)PYRENE	10.	ND	U
53-70-3	DIBENZ[A,H]ANTHRACENE	10.	ND	U
191-24-2	BENZO(G,H,I)PERYLENE	10.	ND	U
62-75-9	N-NITROSODIMETHYLAMINE	10.	ND	U
4165-61-1	ANILINE	10.	ND	U
103-33-3	AZOBENZENE	10.	ND	U
92-87-5	BENZIDINE	50.	ND	U

ORGANIC ANALYSIS DATA SHEET -- EPA METHOD 624/8240
ANAMETRIX, INC. (408)432-8192

Project ID :
Sample ID : BLANK
Matrix : WATER
Date Sampled : 0/ 0/ 0
Date Analyzed : 3/15/91
Instrument ID : F1

Anametrix ID : 1CB0315V00
Analyst : LT
Supervisor : PG

Dilution Factor : 1.00
Conc. Units : ug/L

CAS NO.	COMPOUND NAME	REPORTING LIMIT	AMOUNT DETECTED	Q
74-87-3	CHLOROMETHANE	10.	ND	U
75-01-4	VINYL CHLORIDE	10.	ND	U
74-83-9	BROMOMETHANE	10.	ND	U
75-00-3	CHLOROETHANE	10.	ND	U
75-69-4	TRICHLOROFLUOROMETHANE	5.	ND	U
75-35-4	1,1-DICHLOROETHENE	5.	ND	U
76-13-1	TRICHLOROTRIFLUOROETHANE	5.	ND	U
67-64-1	ACETONE	20.	ND	U
75-15-0	CARBON DISULFIDE	5.	ND	U
75-09-2	METHYLENE CHLORIDE	5.	3.	J
156-60-5	TRANS-1,2-DICHLOROETHENE	5.	ND	U
75-34-3	1,1-DICHLOROETHANE	5.	ND	U
78-93-3	2-BUTANONE	20.	ND	U
156-59-2	CIS-1,2-DICHLOROETHENE	5.	ND	U
67-66-3	CHLOROFORM	5.	ND	U
71-55-6	1,1,1-TRICHLOROETHANE	5.	ND	U
56-23-5	CARBON TETRACHLORIDE	5.	ND	U
71-43-2	BENZENE	5.	ND	U
107-06-2	1,2-DICHLOROETHANE	5.	ND	U
79-01-6	TRICHLOROETHENE	5.	ND	U
78-87-5	1,2-DICHLOROPROPANE	5.	ND	U
75-27-4	BROMODICHLOROMETHANE	5.	ND	U
110-75-8	2-CHLOROETHYLVINYL ETHER	5.	ND	U
108-05-4	VINYL ACETATE	10.	ND	U
10061-01-5	CIS-1,3-DICHLOROPROPENE	5.	ND	U
108-10-1	4-METHYL-2-PENTANONE	10.	ND	U
108-88-3	TOLUENE	5.	ND	U
10061-02-6	TRANS-1,3-DICHLOROPROPENE	5.	ND	U
79-00-5	1,1,2,-TRICHLOROETHANE	5.	ND	U
127-18-4	TETRACHLOROETHENE	5.	ND	U
591-78-6	2-HEXANONE	10.	ND	U
124-48-1	DIBROMOCHLOROMETHANE	5.	ND	U
108-90-7	CHLOROBENZENE	5.	ND	U
100-41-4	ETHYLBENZENE	5.	ND	U
1330-20-7	XYLENE (TOTAL)	5.	ND	U
100-42-5	STYRENE	5.	ND	U
75-25-2	BROMOFORM	5.	ND	U
79-34-5	1,1,2,2-TETRACHLOROETHANE	5.	ND	U
541-73-1	1,3-DICHLOROBENZENE	5.	ND	U
106-46-7	1,4-DICHLOROBENZENE	5.	ND	U
95-50-1	1,2-DICHLOROBENZENE	5.	ND	U

ORGANIC ANALYSIS DATA SHEET -- EPA METHOD 625/8270
ANAMETRIX, INC. (408)432-8192

Project ID :
Sample ID : BLANK
Matrix : WATER
Date Sampled : 0/ 0/ 0
Date Extracted : 3/ 8/91
Amount Extracted : 1000.0 mL
Date Analyzed : 3/11/91
Instrument ID : F2

Anametrix ID : 2CB0308C02
Analyst : UH
Supervisor : PG

Dilution Factor : 1.00
Conc. Units : ug/L

CAS NO.	COMPOUND NAME	REPORTING LIMIT	AMOUNT DETECTED	Q
108-95-2	PHENOL	10.	ND	U
111-44-4	BIS(2-CHLOROETHYL)ETHER	10.	ND	U
95-57-8	2-CHLOROPHENOL	10.	ND	U
541-73-1	1,3-DICHLOROBENZENE	10.	ND	U
106-46-7	1,4-DICHLOROBENZENE	10.	ND	U
100-51-6	BENZYL ALCOHOL	10.	ND	U
95-50-1	1,2-DICHLOROBENZENE	10.	ND	U
95-48-7	2-METHYLPHENOL	10.	ND	U
108-60-1	BIS(2-CHLOROISOPROPYL)ETHER	10.	ND	U
106-44-5	4-METHYLPHENOL	10.	ND	U
621-64-7	N-NITROSO-DI-N-PROPYLAMINE	10.	ND	U
67-72-1	HEXACHLOROETHANE	10.	ND	U
98-95-3	NITROBENZENE	10.	ND	U
78-59-1	ISOPHORONE	10.	ND	U
88-75-5	2-NITROPHENOL	10.	ND	U
105-67-9	2,4-DIMETHYLPHENOL	10.	ND	U
65-85-0	BENZOIC ACID	50.	ND	U
111-91-1	BIS(2-CHLOROETHOXY)METHANE	10.	ND	U
120-83-2	2,4-DICHLOROPHENOL	10.	ND	U
120-82-1	1,2,4-TRICHLOROBENZENE	10.	ND	U
91-20-3	NAPHTHALENE	10.	ND	U
106-47-8	4-CHLOROANILINE	10.	ND	U
87-68-3	HEXACHLOROBUTADIENE	10.	ND	U
59-50-7	4-CHLORO-3-METHYLPHENOL	10.	ND	U
91-57-6	2-METHYLNAPHTHALENE	10.	ND	U
77-47-4	HEXACHLOROCYCLOPENTADIENE	10.	ND	U
88-06-2	2,4,6-TRICHLOROPHENOL	10.	ND	U
95-95-4	2,4,5-TRICHLOROPHENOL	50.	ND	U
91-58-7	2-CHLORONAPHTHALENE	10.	ND	U
88-74-4	2-NITROANILINE	50.	ND	U
131-11-3	DIMETHYLPHTHALATE	10.	ND	U
208-96-8	ACENAPHTHYLENE	10.	ND	U
606-20-2	2,6-DINITROTOLUENE	10.	ND	U

ORGANIC ANALYSIS DATA SHEET -- EPA METHOD 625/8270
ANAMETRIX, INC. (408)432-8192

Project ID :
Sample ID : BLANK
Matrix : WATER
Date Sampled : 0/ 0/ 0
Date Extracted : 3/ 8/91
Amount Extracted : 1000.0 mL
Date Analyzed : 3/11/91
Instrument ID : F2

Anametrix ID : 2CB0308C02
Analyst : UM
Supervisor : PG

Dilution Factor : 1.00
Conc. Units : ug/L

CAS NO.	COMPOUND NAME	REPORTING LIMIT	AMOUNT DETECTED	Q
99-09-2	3-NITROANILINE	50.	ND	U
83-32-9	ACENAPHTHENE	10.	ND	U
51-28-5	2,4-DINITROPHENOL	50.	ND	U
100-02-7	4-NITROPHENOL	50.	ND	U
132-64-9	DIBENZOFURAN	10.	ND	U
121-14-2	2,4-DINITROTOLUENE	10.	ND	U
84-66-2	DIETHYLPHTHALATE	10.	ND	U
7005-72-3	4-CHLOROPHENYL-PHENYLETHER	10.	ND	U
86-73-7	FLUORENE	10.	ND	U
100-01-6	4-NITROANILINE	50.	ND	U
534-52-1	4,6-DINITRO-2-METHYLPHENOL	50.	ND	U
86-30-6	N-NITROSODIPHENYLAMINE (1)	10.	ND	U
101-55-3	4-BROMOPHENYL-PHENYLETHER	10.	ND	U
118-74-1	HEXACHLOROBENZENE	10.	ND	U
87-86-5	PENTACHLOROPHENOL	50.	ND	U
85-01-8	PHENANTHRENE	10.	ND	U
120-12-7	ANTHRACENE	10.	ND	U
84-74-2	DI-N-BUTYLPHTHALATE	10.	ND	U
206-44-0	FLUORANTHENE	10.	ND	U
129-00-0	PYRENE	10.	ND	U
85-68-7	BUTYLBENZYLPHTHALATE	10.	ND	U
91-94-1	3,3'-DICHLOROBENZIDINE	20.	ND	U
56-55-3	BENZO(A)ANTHRACENE	10.	ND	U
218-01-9	CHRYSENE	10.	ND	U
117-81-7	BIS(2-ETHYLHEXYL)PHTHALATE	10.	ND	U
117-84-0	DI-N-OCTYLPHTHALATE	10.	ND	U
205-99-2	BENZO(B)FLUORANTHENE	10.	ND	U
207-08-9	BENZO(K)FLUORANTHENE	10.	ND	U
50-32-8	BENZO(A)PYRENE	10.	ND	U
193-39-5	INDENO(1,2,3-CD)PYRENE	10.	ND	U
53-70-3	DIBENZ[A,H]ANTHRACENE	10.	ND	U
191-24-2	BENZO(G,H,I)PERYLENE	10.	ND	U
62-75-9	N-NITROSODIMETHYLAMINE	10.	ND	U
4165-61-1	ANILINE	10.	ND	U
103-33-3	AZOBENZENE	10.	ND	U
92-87-5	BENZIDINE	50.	ND	U

SURROGATE RECOVERY SUMMARY -- EPA METHOD 624/8240
ANAMETRIX, INC. (408)432-8192

Project ID : 1459.05
Matrix : LIQUID

Anametrix ID : 9103085
Analyst : LY
Supervisor : PG

	SAMPLE ID	SU1	SU2	SU3	TOTAL OUT
1	BLANK	102	102	100	0
2	MW-5	111	98	96	0
3	MW-6	105	107	91	0
4					
5					
6					
7					
8					
9					
10					
11					
12					
13					
14					
15					
16					
17					
18					
19					
20					
21					
22					
23					
24					
25					
26					
27					
28					
29					
30					

	QC LIMITS
SU1 = 1,2-DICHLOROETHANE-D4	(75-113)
SU2 = TOLUENE-D8	(83-118)
SU3 = BROMOFLUOROBENZENE	(82-114)

* Values outside of Anametrix QC limits

SURROGATE RECOVERY SUMMARY -- EPA METHOD 625/8270
ANAMETRIX, INC. (408)432-8192

Project ID : 1459.05
Matrix : LIQUID

Anametrix ID : 9103085
Analyst : JH
Supervisor : PG

	SAMPLE ID	SU1	SU2	SU3	SU4	SU5	SU6	TOTAL OUT
1	BLANK	34	25	51	48	50	52	0
2	MW-2	49	31	51	54	86	59	0
3								
4								
5								
6								
7								
8								
9								
10								
11								
12								
13								
14								
15								
16								
17								
18								
19								
20								
21								
22								
23								
24								
25								
26								
27								
28								
29								
30								

	QC LIMITS
SU1 = 2-FLUOROPHENOL	(10- 82)
SU2 = PHENOL-D5	(10- 72)
SU3 = NITROBENZENE-D5	(10-100)
SU4 = 2-FLUOROBIPHENYL	(10- 92)
SU5 = 2,4,6-TRIBROMOPHENOL	(15-139)
SU6 = TERPHENYL-D14	(10-110)

* Values outside of Anametrix QC limits

REPORT SUMMARY
ANAMETRIX, INC. (408)432-8192

MS. CHERI YOUNG
GEOMATRIX CONSULTANTS - SAN FRANCISCO
ONE MARKET PLAZA,SPEAR ST. TOWER STE 717
SAN FRANCISCO, CA 94105

Workorder # : 9103085
Date Received : 03/07/91
Project ID : 1459.05
Purchase Order: N/A
Department : GC
Sub-Department: TPH

SAMPLE INFORMATION:

ANAMETRIX SAMPLE ID	CLIENT SAMPLE ID	MATRIX	DATE SAMPLED	METHOD
9103085- 2	MW-1	WATER	03/07/91	TPHg
9103085- 3	MW-5	WATER	03/07/91	TPHg/BTEX
9103085- 4	MW-6	WATER	03/07/91	TPHg/BTEX

REPORT SUMMARY
ANAMETRIX, INC. (408)432-8192

MS. CHERI YOUNG
GEOMATRIX CONSULTANTS - SAN FRANCISCO
ONE MARKET PLAZA,SPEAR ST. TOWER STE 717
SAN FRANCISCO, CA 94105

Workorder # : 9103085
Date Received : 03/07/91
Project ID : 1459.05
Purchase Order: N/A
Department : GC
Sub-Department: TPH

QA/QC SUMMARY :

- No QA/QC problems encountered for this workorder.

Department Supervisor Date

Chemist 03-14-91 Date

ANALYSIS DATA SHEET - TOTAL PETROLEUM HYDROCARBONS
(GASOLINE WITH BTEX)
ANAMETRIX, INC. - (408) 432-8192

Anametrix W.O.: 9103085
Matrix : WATER
Date Sampled : 03/07/91

Project Number : 1459.05
Date Released : 03/14/91

COMPOUNDS	Reporting Limit (ug/L)	Sample I.D.# MW-1 -02	Sample I.D.# MW-5 -03	Sample I.D.# MW-6 -04	Sample I.D.# 08B0312B BLANK
Benzene	0.5	-	ND	ND	ND
Toluene	0.5	-	ND	ND	ND
Ethylbenzene	0.5	-	ND	ND	ND
Total Xylenes	0.5	-	ND	ND	ND
TPH as Mineral Spirits	50	ND	ND	ND	ND
% Surrogate Recovery		109%	108%	111%	101%
Instrument I.D.		HP8	HP8	HP8	HP8
Date Analyzed		03/12/91	03/12/91	03/12/91	03/12/91
RLMF		1	1	1	1

ND - Not detected at or above the practical quantitation limit for the method.
TPHg - Total Petroleum Hydrocarbons as mineral spirits is determined by GCFID using EPA Method 5030.
BTEX - Benzene, Toluene, Ethylbenzene, and Total Xylenes are determined by modified EPA 8020.
RLMF - Reporting Limit Multiplication Factor.
Anametrix control limits for surrogate recovery are 53-147%.

All testing procedures follow California Department of Health Services (Cal-DHS) approved methods.

Inna Shor 3/15/91
Analyst Date

Supervisor Date

(b)(2)(1) [illegible]

GEOMATRIX CONSULTANTS

ONE MARKET PLAZA
SPEAR STREET TOWER SUITE 717
SAN FRANCISCO, CALIFORNIA 94105
(415) 957-9557

Chain of Custody Record

DATE 3-7-91 PAGE 1 OF 1

PROJECT NO. 1459.05

SAMPLERS: (SIGNATURE) [signature]

DATE	TIME	SAMPLE NUMBER	GENERAL MINERAL	PRIORITY POLLUTANT METALS	EPA METHOD 624	EPA METHOD 625	EPA METHOD 601	EPA METHOD 602	EPA METHOD 608	PETROLEUM HYDROCARBONS	8270	[illegible] Split	BTEX	8240		NUMBER OF CONTAINERS
3/7/91	1030	MW-2									X					1
	1100	MW-1										X				3
	1300	MW-5										X	X	X		5
	1245	MW-6												X		2
(4)	1330	MW-6										X	X			3

REMARKS (SAMPLE PRESERVATION, HANDLING PROCEDURES, OBSERVATIONS, ETC.)

103085

Normal TAT
Results to
Cheri Young

* Low detection limit on PCP (Sample MW-2) (30ppb) *

Received on [illegible] [illegible] [illegible] [illegible] [illegible].

Cooled w/ Ice infield

TOTAL NUMBER OF CONTAINERS 14

RELINQUISHED BY:	DATE	RECEIVED BY:
SIGNATURE		SIGNATURE
PRINTED NAME	TIME	PRINTED NAME
COMPANY		COMPANY

RELINQUISHED BY:	DATE	RECEIVED BY: (LAB)
[signature] SIGNATURE	3/7/91	[signature] SIGNATURE
Matt [illegible] PRINTED NAME	TIME	Benny S. Carrizosa PRINTED NAME 3-7-91
Geomatrix COMPANY	1445	Anametrix 1445 LABORATORY

RELINQUISHED BY:	DATE	RECEIVED BY:
SIGNATURE		SIGNATURE
PRINTED NAME	TIME	PRINTED NAME
COMPANY		COMPANY

METHOD OF SHIPMENT:

LABORATORY COMMENTS / OBSERVATIONS
Rel. By: Benny S. Carrizosa 3/7/91 1650
Rec. by: [illegible] 3/7/91 - 1650

DISTRIBUTION: WHITE, CANARY - LABORATORY, PINK - ORIGINATOR

ANAMETRIX INC
Environmental & Analytical Chemistry
1961 Concourse Drive, Suite E San Jose, CA 95131
(408) 432-8192 • Fax (408) 432-8198

REPORT

MS. CHERI YOUNG
GEOMATRIX CONSULTANTS - SAN FRANCISCO
ONE MARKET PLAZA,SPEAR ST. TOWER STE 717
SAN FRANCISCO, CA 94105

Workorder # : 9103130
Date Received : 03/11/91
Project ID : 1459.05
Purchase Order: N/A

The following samples were received at Anametrix, Inc. for analysis :

ANAMETRIX ID	CLIENT SAMPLE ID
9103130- 1	MW-4

This report consists of 9 pages not including the cover letter, and is organized in sections according to the specific Anametrix laboratory group or section which performed the analysis(es) and generated the data. The Report Summary that precedes each section will help you determine which Anametrix group is responsible for those test results, and will bear the signatures of the department supervisor and the chemist who have reviewed the analytical data. Please refer all questions to the department supervisor who signed the form.

Anametrix is certified by the California Department of Health Services (DHS) to perform environmental testing under Certificate Number 1234. A detailed list of the approved fields of testing can be obtained by calling our office, or the DHS Environmental Laboratory Accreditation Program at (415)540-2800.

If you have any further questions or comments on this report, please give us a call as soon as possible. Thank you for using Anametrix.

Burt Sutherland
Laboratory Director

3-22-91
Date

ANAMETRIX REPORT DESCRIPTION
GCMS

Organic Analysis Data Sheets (OADS)

OADS forms contain tabulated results for target compounds. The OADS are grouped by method and, within each method, organized sequentially in order of increasing Anametrix ID number.

Tentatively Identified Compounds (TICs)

TIC forms contain tabulated results for non-target compounds detected in GC/MS analyses. TICs must be requested at the time samples are submitted at Anametrix. TIC forms immediately follow the OADS form for each sample. If TICs are requested but not found, then TIC forms will not be included with the report.

Surrogate Recovery Summary (SRS)

SRS forms contain quality assurance data. An SRS form will be printed for each method, if the method requires surrogate compounds. They will list surrogate percent recoveries for all samples and any method blanks. Any surrogate recovery outside the established limits will be flagged with an "*", and the total number of surrogates outside the limits will be listed in the column labelled "Total Out".

Matrix Spike Recovery Form (MSR)

MSR forms contain quality assurance data. They summarize percent recovery and relative percent difference information for matrix spikes and matrix spike duplicates. This information is a statement of both accuracy and precision. Any percent recovery or relative percent difference outside established limits will be flagged with an "*", and the total number outside the limits will be listed at the bottom of the page. Not all reports will contain an MSR form.

Qualifiers

Anametrix uses several data qualifiers (Q) in it's report forms. These qualifiers give additional information on the compounds reported. They should help a data reviewer to verify the integrity of the analytical results. The following is a list of qualifiers and their meanings:

- U - Indicates that the compound was analyzed for, but was not detected at or above the specified reporting limit.
- B - Indicates that the compound was detected in the associated method blank.
- J - Indicates that the compound was detected at an amount below the specified reporting limit. Consequently, the amount should be considered an approximate value. Tentatively identified compounds will always have a "J" qualifier because they are not included in the instrument calibration.
- E - Indicates that the amount reported exceeded the linear range of the instrument calibration.
- D - Indicates that the compound was detected in an analysis performed at a secondary dilution.
- A - Indicates that the tentatively identified compound is a suspected aldol condensation product. This is common in EPA Method 8270 soil analyses.

Absence of a qualifier indicates that the compound was detected at a concentration at or above the specified reporting limit.

REPORTING CONVENTIONS

- Due to a size limitation in our data processing step, only the first eight (8) characters of your project ID and sample ID will be printed on the report forms. However, the report cover letter and report summary pages display up to twenty (20) characters of your project and sample IDs.
- Amounts reported are gross values, i.e., not corrected for method blank contamination.

REPORT SUMMARY
ANAMETRIX, INC. (408)432-8192

MS. CHERI YOUNG
GEOMATRIX CONSULTANTS - SAN FRANCISCO
ONE MARKET PLAZA,SPEAR ST. TOWER STE 717
SAN FRANCISCO, CA 94105

Workorder # : 9103130
Date Received : 03/11/91
Project ID : 1459.05
Purchase Order: N/A
Department : GCMS
Sub-Department: GCMS

SAMPLE INFORMATION:

ANAMETRIX SAMPLE ID	CLIENT SAMPLE ID	MATRIX	DATE SAMPLED	METHOD
9103130- 1	MW-4	WATER	03/11/91	8240

REPORT SUMMARY
ANAMETRIX, INC. (408)432-8192

MS. CHERI YOUNG
GEOMATRIX CONSULTANTS - SAN FRANCISCO
ONE MARKET PLAZA,SPEAR ST. TOWER STE 717
SAN FRANCISCO, CA 94105

Workorder # : 9103130
Date Received : 03/11/91
Project ID : 1459.05
Purchase Order: N/A
Department : GCMS
Sub-Department: GCMS

QA/QC SUMMARY :

- No QA/QC problems encountered.

Department Supervisor — Date: 3.21.91

Chemist — Date: 3-21-91

ORGANIC ANALYSIS DATA SHEET -- EPA METHOD 624/8240
ANAMETRIX, INC. (408)432-8192

Project ID : 1459.05
Sample ID : MW-4
Matrix : WATER
Date Sampled : 3/11/91
Date Analyzed : 3/20/91
Instrument ID : F3

Anametrix ID : 9103130-01
Analyst : ww
Supervisor : WM

Dilution Factor : 1.00
Conc. Units : ug/L

CAS NO.	COMPOUND NAME	REPORTING LIMIT	AMOUNT DETECTED	Q
74-87-3	CHLOROMETHANE	10.	ND	U
75-01-4	VINYL CHLORIDE	10.	ND	U
74-83-9	BROMOMETHANE	10.	ND	U
75-00-3	CHLOROETHANE	10.	ND	U
75-69-4	TRICHLOROFLUOROMETHANE	5.	ND	U
75-35-4	1,1-DICHLOROETHENE	5.	ND	U
76-13-1	TRICHLOROTRIFLUOROETHANE	5.	ND	U
67-64-1	ACETONE	20.	ND	U
75-15-0	CARBON DISULFIDE	5.	ND	U
75-09-2	METHYLENE CHLORIDE	5.	ND	U
156-60-5	TRANS-1,2-DICHLOROETHENE	5.	ND	U
75-34-3	1,1-DICHLOROETHANE	5.	ND	U
78-93-3	2-BUTANONE	20.	ND	U
156-59-2	CIS-1,2-DICHLOROETHENE	5.	ND	U
67-66-3	CHLOROFORM	5.	ND	U
71-55-6	1,1,1-TRICHLOROETHANE	5.	ND	U
56-23-5	CARBON TETRACHLORIDE	5.	ND	U
71-43-2	BENZENE	5.	ND	U
107-06-2	1,2-DICHLOROETHANE	5.	ND	U
79-01-6	TRICHLOROETHENE	5.	ND	U
78-87-5	1,2-DICHLOROPROPANE	5.	ND	U
75-27-4	BROMODICHLOROMETHANE	5.	ND	U
110-75-8	2-CHLOROETHYLVINYL ETHER	5.	ND	U
108-05-4	VINYL ACETATE	10.	ND	U
10061-01-5	CIS-1,3-DICHLOROPROPENE	5.	ND	U
108-10-1	4-METHYL-2-PENTANONE	10.	ND	U
108-88-3	TOLUENE	5.	ND	U
10061-02-6	TRANS-1,3-DICHLOROPROPENE	5.	ND	U
79-00-5	1,1,2,-TRICHLOROETHANE	5.	ND	U
127-18-4	TETRACHLOROETHENE	5.	9.	
591-78-6	2-HEXANONE	10.	ND	U
124-48-1	DIBROMOCHLOROMETHANE	5.	ND	U
108-90-7	CHLOROBENZENE	5.	ND	U
100-41-4	ETHYLBENZENE	5.	ND	U
1330-20-7	XYLENE (TOTAL)	5.	ND	U
100-42-5	STYRENE	5.	ND	U
75-25-2	BROMOFORM	5.	ND	U
79-34-5	1,1,2,2-TETRACHLOROETHANE	5.	ND	U
541-73-1	1,3-DICHLOROBENZENE	5.	ND	U
106-46-7	1,4-DICHLOROBENZENE	5.	ND	U
95-50-1	1,2-DICHLOROBENZENE	5.	ND	U

ORGANIC ANALYSIS DATA SHEET -- EPA METHOD 624/8240
ANAMETRIX, INC. (408)432-8192

Project ID :
Sample ID : BLANK
Matrix : WATER
Date Sampled : 0/ 0/ 0
Date Analyzed : 3/20/91
Instrument ID : F3

Anametrix ID : 3CB0320V00
Analyst : LW
Supervisor : LH

Dilution Factor : 1.00
Conc. Units : ug/L

CAS NO.	COMPOUND NAME	REPORTING LIMIT	AMOUNT DETECTED	Q
74-87-3	CHLOROMETHANE	10.	ND	U
75-01-4	VINYL CHLORIDE	10.	ND	U
74-83-9	BROMOMETHANE	10.	ND	U
75-00-3	CHLOROETHANE	10.	ND	U
75-69-4	TRICHLOROFLUOROMETHANE	5.	ND	U
75-35-4	1,1-DICHLOROETHENE	5.	ND	U
76-13-1	TRICHLOROTRIFLUOROETHANE	5.	ND	U
67-64-1	ACETONE	20.	ND	U
75-15-0	CARBON DISULFIDE	5.	ND	U
75-09-2	METHYLENE CHLORIDE	5.	ND	U
156-60-5	TRANS-1,2-DICHLOROETHENE	5.	ND	U
75-34-3	1,1-DICHLOROETHANE	5.	ND	U
78-93-3	2-BUTANONE	20.	ND	U
156-59-2	CIS-1,2-DICHLOROETHENE	5.	ND	U
67-66-3	CHLOROFORM	5.	ND	U
71-55-6	1,1,1-TRICHLOROETHANE	5.	ND	U
56-23-5	CARBON TETRACHLORIDE	5.	ND	U
71-43-2	BENZENE	5.	ND	U
107-06-2	1,2-DICHLOROETHANE	5.	ND	U
79-01-6	TRICHLOROETHENE	5.	ND	U
78-87-5	1,2-DICHLOROPROPANE	5.	ND	U
75-27-4	BROMODICHLOROMETHANE	5.	ND	U
110-75-8	2-CHLOROETHYLVINYL ETHER	5.	ND	U
108-05-4	VINYL ACETATE	10.	ND	U
10061-01-5	CIS-1,3-DICHLOROPROPENE	5.	ND	U
108-10-1	4-METHYL-2-PENTANONE	10.	ND	U
108-88-3	TOLUENE	5.	ND	U
10061-02-6	TRANS-1,3-DICHLOROPROPENE	5.	ND	U
79-00-5	1,1,2,-TRICHLOROETHANE	5.	ND	U
127-18-4	TETRACHLOROETHENE	5.	ND	U
591-78-6	2-HEXANONE	10.	ND	U
124-48-1	DIBROMOCHLOROMETHANE	5.	ND	U
108-90-7	CHLOROBENZENE	5.	ND	U
100-41-4	ETHYLBENZENE	5.	ND	U
1330-20-7	XYLENE (TOTAL)	5.	ND	U
100-42-5	STYRENE	5.	ND	U
75-25-2	BROMOFORM	5.	ND	U
79-34-5	1,1,2,2-TETRACHLOROETHANE	5.	ND	U
541-73-1	1,3-DICHLOROBENZENE	5.	ND	U
106-46-7	1,4-DICHLOROBENZENE	5.	ND	U
95-50-1	1,2-DICHLOROBENZENE	5.	ND	U

SURROGATE RECOVERY SUMMARY -- EPA METHOD 624/8240
ANAMETRIX, INC. (408)432-8192

Project ID : 1459.05
Matrix : LIQUID

Anametrix ID : 9103130
Analyst : W
Supervisor : M

	SAMPLE ID	SU1	SU2	SU3	TOTAL OUT
1	BLANK	90	102	99	0
2	MW-4	90	101	108	0
3					
4					
5					
6					
7					
8					
9					
10					
11					
12					
13					
14					
15					
16					
17					
18					
19					
20					
21					
22					
23					
24					
25					
26					
27					
28					
29					
30					

	QC LIMITS
SU1 = 1,2-DICHLOROETHANE-D4	(75-113)
SU2 = TOLUENE-D8	(83-110)
SU3 = BROMOFLUOROBENZENE	(82-114)

* Values outside of Anametrix QC limits

REPORT SUMMARY
ANAMETRIX, INC. (408)432-8192

MS. CHERI YOUNG
GEOMATRIX CONSULTANTS - SAN FRANCISCO
ONE MARKET PLAZA,SPEAR ST. TOWER STE 717
SAN FRANCISCO, CA 94105

Workorder # : 9103130
Date Received : 03/11/91
Project ID : 1459.05
Purchase Order: N/A
Department : GC
Sub-Department: TPH

SAMPLE INFORMATION:

ANAMETRIX SAMPLE ID	CLIENT SAMPLE ID	MATRIX	DATE SAMPLED	METHOD
9103130- 1	MW-4	WATER	03/11/91	TPHg/BTEX

REPORT SUMMARY
ANAMETRIX, INC. (408)432-8192

MS. CHERI YOUNG
GEOMATRIX CONSULTANTS - SAN FRANCISCO
ONE MARKET PLAZA, SPEAR ST. TOWER STE 717
SAN FRANCISCO, CA 94105

Workorder # : 9103130
Date Received : 03/11/91
Project ID : 1459.05
Purchase Order: N/A
Department : GC
Sub-Department: TPH

QA/QC SUMMARY :

- No QA/QC problems encountered for this workorder.

Cheryl Balmer 3/21/91
Department Supervisor Date

[signature] 3/21/91
Chemist Date

ANALYSIS DATA SHEET - TOTAL PETROLEUM HYDROCARBONS
(GASOLINE WITH BTEX)
ANAMETRIX, INC. - (408) 432-8192

Anametrix W.O.: 9103130
Matrix : WATER
Date Sampled : 03/11/91

Project Number : 1459.05
Date Released : 03/21/91

COMPOUNDS	Reporting Limit (ug/L)	Sample I.D.# MW-4 -01	Sample I.D.# 08B0314A BLANK
Benzene	0.5	ND	ND
Toluene	0.5	ND	ND
Ethylbenzene	0.5	ND	ND
Total Xylenes	0.5	ND	ND
TPH Mineral Spirits	50	ND	ND
% Surrogate Recovery		103%	106%
Instrument I.D.		HP8	HP8
Date Analyzed		03/14/91	03/14/91
RLMF		1	1

ND - Not detected at or above the practical quantitation limit for the method.
TPHg - Total Petroleum Hydrocarbons as mineral spirits is determined by GCFID using EPA Method 5030.
BTEX - Benzene, Toluene, Ethylbenzene, and Total Xylenes are determined by modified EPA 8020.
RLMF - Reporting Limit Multiplication Factor.
Anametrix control limits for surrogate recovery are 53-147%.

All testing procedures follow California Department of Health Services (Cal-DHS) approved methods.

Analyst — Date 03-22-91

Supervisor — Date 3/22/91

2

9103130

All samples cold, ok, HCL pres. brkt

GEOMATRIX CONSULTANTS

ONE MARKET PLAZA
SPEAR STREET TOWER SUITE 717
SAN FRANCISCO, CALIFORNIA 94105
(415) 957-9557

Chain of Custody Record

(2) (1)

04584

DATE 3/11/91 PAGE 1 OF 1

PROJECT NO. 1459.05

SAMPLERS: (SIGNATURE) Matt Obloy

DATE	TIME	SAMPLE NUMBER	GENERAL MINERAL	PRIORITY POLLUTANT METALS	EPA METHOD 624	EPA METHOD 625	EPA METHOD 601	EPA METHOD 602	EPA METHOD 608	PETROLEUM HYDROCARBONS	Tphcy Mineral Spirits	BTEX 8240			NUMBER OF CONTAINERS
3/11/91	240	MW-4									X	X	X		5

ANALYSES

REMARKS (SAMPLE PRESERVATION, HANDLING PROCEDURES, OBSERVATIONS, ETC.)

Normal TAT

Results To Cheri Young

Samples cold, proper container, preserved, no bubbles (NS)

Preserved w/ Blue Ice in field

TOTAL NUMBER OF CONTAINERS 5

RELINQUISHED BY:	DATE	RECEIVED BY:
SIGNATURE		SIGNATURE
PRINTED NAME	TIME	PRINTED NAME
COMPANY		COMPANY

RELINQUISHED BY:	DATE	RECEIVED BY:
SIGNATURE		SIGNATURE
PRINTED NAME	TIME	PRINTED NAME
COMPANY		COMPANY

RELINQUISHED BY:	DATE	RECEIVED BY: (LAB)
SIGNATURE: Matt Obloy	3/11/91	SIGNATURE: Wayne Landers
PRINTED NAME: Matt Obloy	TIME 8:00PM	PRINTED NAME: Anametrix
COMPANY: Geomatrix		LABORATORY

METHOD OF SHIPMENT:

LABORATORY COMMENTS / OBSERVATIONS

DISTRIBUTION: WHITE, CANARY - LABORATORY, PINK - ORIGINATOR