PORT OF OAKLAND

January 31, 2002

Mr. Barney Chan
Alameda County Health Care Services Agency
Department of Environmental Health
1131 Harbor Bay Parkway, 2nd Floor
Alameda, California 94502

Dear Mr. Chan:

Please find enclosed for your review the report "Site Investigation and Screening Level Risk Assessment, Grey & Reynolds Development Site, Embarcadero Cove, Oakland." This report is submitted in response to your letter dated October 3, 2001, in which you request further delineation of the TPH contamination discovered by Baseline Environmental Consultants in a Phase II Investigation dated August 2001.

Your prompt review and comments on the report would be greatly appreciated. If you have any questions, please do not hesitate to contact me at (510) 627-1184.

Sincerely,

Douglas P. Herman
Associate Port Environmental Scientist

Cc w/encl: Tom Bender
Barbara Szudy
Betty Graham

Cc w/o encl: Adrienne La Pierre
Phil Fitzwater
Yane Nordhav

C:\mydocs\projects\grey&reynolds\transmittal site investigation

530 Water Street ■ Jack London Square ■ P.O. Box 2064 ■ Oakland, California 94604–2064
Telephone: (510) 627-1100 ■ Facsimile: (510) 627-1826 ■ Web Page: *www.portofoakland.com*

Iris - Cambria
Environmental, JV

SITE INVESTIGATION AND SCREENING-LEVEL RISK ASSESSMENT REPORT

Gray & Reynolds Development Site
Embarcadero Cove
1275 Embarcadero
Oakland, California

January 16, 2002

Prepared for:

Port of Oakland
c/o Douglas P. Herman
EH&SC Department
530 Water Street
Oakland, California 94607

Prepared by:

Iris-Cambria Environmental, J.V.

1615 Broadway, Suite 1003
Oakland, California 94612

1144 65th Street, Suite B
Oakland, California 94602

REGISTERED GEOLOGIST
ROBERT W. SCHULTZ
No. 7012
STATE OF CALIFORNIA

Robert W. Schultz, R.G.
Senior Project Geologist

Adrienne LaPierre PLF
Principal Toxicologist

Table of Contents Page

FIGURES

TABLES

APPENDICES

1.0 INTRODUCTION

Iris–Cambria Environmental, J.V. (Iris–Cambria), has prepared this Site Investigation and Screening-Level Risk Assessment Report for the property located at 1275 Embarcadero, Oakland, California (Site) on behalf of the Port of Oakland (Port) to facilitate redevelopment of the property for commercial use.

1.1 Purpose

The primary objective of these investigations is to further characterize soil and groundwater quality beneath the Site. A subsurface environmental site assessment was performed to assess potential ramifications of chemicals in the subsurface for Site redevelopment.

1.2 Scope of Work

Multiple investigations have been completed at the Site to characterize site conditions. Completed investigations are listed below in chronological order:

- Grab sampling of soil and groundwater was completed to provide hydrogeological and analytical data for the Site and to guide the selection of locations for groundwater monitoring wells;
- Geophysical surveys were utilized to investigate the lateral extent of subsurface concrete foundation(s);
- Test pits were excavated at the Site in areas where the geophysical surveys yielded anomalies including areas that might have contained possible USTs;.
- Monitoring wells were installed, developed, and sampled;
- A conduit survey was completed;
- The tidal influence on groundwater levels was assessed and used to understand whether a local wooden bulkhead might be important in controlling the local flow of groundwater;
- Sanborn maps were reviewed to help confirm the historical location of the former UST and to help identify potential former Site activities that could have released chemicals at the Site; and
- A screening-level risk assessment was completed for the Site to evaluate whether chemicals detected at the Site exceed risk-based screening levels (RBSLs) for the projected future site uses.

2.0 SITE DESCRIPTION

The Site is shown on Figure 1 and is located at 1275 Embarcadero, Oakland, California. Current Site surface features include a parking lot and a vacant former restaurant. The Port owns the Site, and Gray & Reynolds Properties, Inc. (Gray & Reynolds) is proposing commercial redevelopment for the Site. Redevelopment will include a 3 or 4-story commercial building to be located within the footprint of the former restaurant, a parking lot, and landscaping.

2.1 Background

Past investigations at the Site included the March 14, 2001 *Draft Review of Existing Site Conditions and Environmental Risk Evaluation* completed by Henshaw Associates, Inc., (Henshaw) and the subsequent April 23, 2001 *Soil and Groundwater Sampling and Analysis Workplan* (Workplan) also completed by Henshaw. The Site was discussed as an "Adjoining Property" in the July 26, 1994 Phase I Environmental Site Assessment report (ESA) prepared by the Port for the Marriott Hotel Development Site (Port of Oakland, 1994). In the 1994 ESA, the Port reported that an underground storage tank (UST) and associated pump, several small wood frame sheds, and an incinerator had been removed from the Site in 1970. The April 23, 2001 Workplan identified the storage sheds, the UST, and a cooling tower. According to Henshaw, the structure was initially misidentified during aerial photograph review. Henshaw later confirmed that the structure was a cooling tower (Brathwaite, 2002). Subsequently, Baseline Environmental Consulting (Baseline) implemented Henshaw's April 23, 2001 Workplan.

Baseline completed four (4) borings to groundwater (SB-1, SB-1A, SB-2, and SB-3), and shallow borings where refusal was encountered (SB-1B, SB-1C, SB-2C, and SB-2D). Baseline completed six shallow borings (RN-A1, RN-A2, RN-A3, RN-A4, RN-B1, and RN-B2) to assess soil and groundwater conditions beneath the Site (Baseline, 2001). Baseline's field effort included soil sampling at randomly selected locations ("RN" series) and soil and grab groundwater sampling at source-specific locations ("SB" series.) Baseline's sampling locations are shown on Figure 2. Baseline collected and analyzed soil and groundwater samples from the area near the former UST and pump (borings SB-1, SB-1A, and SB-1B) and from the area between the former UST and the Bay (SB-2 and SB-2C). Baseline detected the following compounds in the former UST area: total petroleum hydrocarbons (TPH) as gasoline (TPHg), TPH as diesel (TPHd), naphthalene, 2-methylnaphthalene, benzene, toluene, ethylbenzene, and xylenes (BTEX). Baseline also identified bis(2-ethylhexly)phalate, commonly the result of laboratory cross contamination, in a sample from the former UST area. No samples from the former UST area were analyzed for TPH as motor oil (TPHmo). Baseline analyzed soil and groundwater samples from the area between the former UST and the Bay for TPHg, TPHd, and BTEX. Only TPHd was detected in these areas.

Soil and grab groundwater samples were collected from boring SB-3 adjacent to the former cooling tower; samples were analyzed for hexavalent chromium only. No hexavalent chromium was identified above the reporting limit in soil or groundwater from boring SB-3.

Soil and groundwater chemical data from all investigations are presented in Tables 1 through 4 for soils and Tables 5 through 7 for groundwater. These tables include data from Baseline's investigation of the Site and data from Iris-Cambria investigations.

2.2 Hydrogeology

2.2.1 Regional Hydrogeology

The Site is located within the East Bay Plain Groundwater Basin and is very near (<1/4 mile) to the boundary between the Oakland Sub-Area and the Central Sub-Area (California Regional Water Quality Control Board, San Francisco Bay Region, 1999). The Oakland Sub-Area contains a series of westward-dipping alluvial fan deposits, typically 300 to 700 feet thick. The Central Sub-Area is underlain by the Younger Bay Mud (silty clay and fine-grained facies). Merritt Sands that are exposed at the ground surface in areas of west Oakland, extend through sections of both sub-areas. The Merritt Sand is stratigraphically deeper than the Younger Bay Mud, and occurs in part, as interfingered channel fills. The Merritt Sand typically ranges from 10 to 50 feet in thickness. The Younger Bay Mud thins in the region of the Site, and the deposit terminates at, or near, the Site. West of the Site, beneath the Bay, the Younger Bay Mud thickens to over 20 feet in thickness, and the Merritt Sand is present beneath the Younger Bay Mud (Goldman, 1969). Holocene deposits and developing soils are present either at the ground surface or beneath man-made fills.

2.2.2 Site Lithology

Soils beneath the Site generally consist of gravelly fill to approximately 2 feet below ground surface (ft bgs) (0 to 2 ft bgs). In many areas investigated at the Site, there exists a layer of concrete and asphalt that extends to approximately 3 ft bgs (2 to 3 ft bgs). The concrete and asphalt layer appears to be a remnant of former foundation(s). Beneath the concrete and asphalt, approximately 2 feet of clayey, silty, sandy and/or gravel fill (3 to 5 ft bgs) was encountered during drilling. Soils from 5 ft bgs to approximately 8 ft bgs principally consisted of silty clay and clayey silt. In all borings except MW-4 (the furthest boring from the Bay), primarily clayey silts were detected between 8 and the total explored depth of 15 ft bgs. Boring logs from this investigation are presented in Appendix A.

The investigated soils were principally comprised of sequences of gravelly fill and remnants of old foundations, overlying lower permeability clays and silts. The lower permeability clays and silts may be Younger Bay Muds and/or dredge fill. The clays and silts potentially overly Merritt Sands or they may overly interlayered Holocene sediments and soils. overlie

2.2.3 Depth to Groundwater at the Site

Depth to first encountered groundwater at the Site is between approximately 5 and 8 ft. Depth to groundwater is greatest in the north-northeastern portion of the Site (wells MW-1 and MW-4) and less in wells nearer the Bay (MW-3 and MW-2). First encountered groundwater at the Site appears to be unconfined.

2.2.4 Site Groundwater Flow Direction

Inconsistent with the regional flow pattern, groundwater at the Site is calculated to flow to the northeast. This finding is based on five (5) rounds of groundwater level monitoring in October and December 2001 in all four monitoring wells at the Site (MW-1, MW-2, MW-3 and MW-4). Figure 3 illustrates groundwater levels measured on October 19, 2001 and shows the groundwater elevation decreasing to the northeast. The hydraulic gradient is mapped on Figure 3 to the northeast with a magnitude of 0.02.

Groundwater flow direction at the Site as calculated from multiple rounds of water level measurements is inconsistent with general regional groundwater flow patterns expected for this area. Regional flow is generally to the southwest towards the Bay (California Regional Water Quality Control Board, San Francisco Bay Region, 1999). A northeastern flow direction at the Site would suggest that local hydraulic influences are controlling the direction of flow. Review of boring logs for the Site indicate that well MW-2 is screened both through the targeted clayey silts and 6 inches into an underlying higher permeability sand. This well construction detail could affect groundwater elevation in well MW-2. Despite this consideration, the groundwater flow direction calculated for the Site using wells MW-1, MW-3, and MW-4, only, remains northeastward. Discussion of local potential hydraulic influences such as utility conduits is presented in Section 3.8.4 of this report. Lastly, flow direction at the Site is to be investigated further with the installation of an additional monitoring well in the northeastern portion of the Site.

3.0 SITE INVESTIGATION

Iris-Cambria's investigations at the Site included soil and groundwater grab sampling, investigation of a buried foundation found to exist beneath a portion of the Site, excavation of test pits, installation and sampling of monitoring wells, completion of a conduit survey, evaluation of a buried wooden bulkhead, a Sanborn map review and a limited tidal study. Discussion of each phase of study is presented below.

3.1 Soil and Groundwater Grab Sampling

On August 30, 2001, Iris-Cambria collected soil and grab groundwater samples from six borings completed at the Site. These borings are numbered SB-A, SB-B, SB-C, SB-D, SB-E and SB-F and their respective locations are illustrated on Figure 2. All borings were advanced to groundwater with the exception of boring SB-C. Boring SB-C was terminated at 4 ft bgs because subsurface obstacles were encountered in the borehole. Boring logs and permits are presented in Appendices A and B, respectively.

Soil and groundwater samples collected from five of the six borings were submitted to McCampbell Analytical, Inc. of Pacheco, California to be analyzed for the presence of petroleum hydrocarbons, methyl tert-butyl ether (MTBE), and semi-volatile compounds (SVOCs)(no samples from boring SB-C were submitted for analysis). Petroleum hydrocarbons were quantified as total petroleum hydrocarbons in all three ranges (TPHg, TPHd and TPHmo) and as benzene, toluene, ethylbenzene, and xylenes (BTEX). Standard field procedures for sample collection are presented in Appendix C.

Soil analytical results from the August 30, 2001 investigation are summarized in Tables 1 and 2. Likewise, grab groundwater analytical results from this same sampling program are summarized in Tables 5 and 6. Laboratory sheets for the soil and groundwater testing are presented in Appendix D. For completeness and to ease review of all analytical data for the Site, soil and groundwater data from prior investigations at the Site have been reproduced in Tables 1, 2, 5 and 6.

3.1.1 Field Activities

Field activities completed during the August 30, 2001 sampling program are presented in Appendix E. The results of the field investigation are presented below.

3.1.2 Soil Analytical Results

One soil sample was collected from above the water table in each of the following borings: SB-A, SB-B, SB-D, SB-E, and SB-F. These soil samples were analyzed for TPHg, TPHd, TPHmo, BTEX, MTBE, and SVOCs. Chemical concentrations were low in all of these soil samples tested in this phase of the program. The maximum chemical detections were found in the soil sample from boring SB-F in the northern portion of the Site, but even in that sample, concentrations were low (i.e. below RBSLs as discussed in Section 4, below). For example, benzene in the sample from SB-F was detected at 0.021 milligrams per kilogram (mg/kg) and the maximum total petroleum hydrocarbon detection was in the motor oil range at a concentration of 16 mg/kg TPHmo. No MTBE or SVOCs were detected in any of the soil samples collected from SB-A, SB-B, SB-D, SB-E, and SB-F.

3.1.3 Grab Groundwater Analytical Results

Analytical results for grab groundwater samples from borings SB-A, SB-B, SB-D, SB-E, and SB-F are summarized in Tables 5 and 6. Hydrocarbons were detected in all three ranges of TPH including TPHg, TPHd, and TPHmo. BTEX constituents were only detected in the groundwater sample from SB-E. Figure 4 illustrates the distribution of TPHg, TPHd, and TPHmo, and benzene in grab groundwater samples from the August 30, 2001 investigation as well as earlier grab groundwater samples collected by Baseline in their borings SB-1, SB-1A, SB-2 and SB-3. Chemical concentrations in the grab groundwater samples are highest in the northeast portion of the Site. The locations where higher concentrations were found were north of the location of the former UST identified as subsurface anomaly 1 on Figure 4.

Chemical concentrations in grab groundwater samples generally decrease away from the source area toward the Bay. As illustrated on Figure 4, this trend is shown moving from SB-1 to SB-A to SB-2.

MTBE was not detected in any grab groundwater sample from SB-A, SB-B, SB-D, SB-E, or SB-F. SVOCs were detected infrequently. Their only detection in water samples from SB-A, SB-B, SB-D, SB-E, and SB-F were fluoranthene and pyrene at SB-D and naphthalene at SB-E. SVOCs from diesel or wrapping from USTs

3.2 Foundation Investigation

Subsurface investigations completed by Baseline (Baseline, 2001) and those completed by Iris-Cambria during the drilling program of August 30, 2001, suggest that there were remnants of an old foundation at some 2 to 3 feet below the current ground surface in portions of the Site.

Additional investigations of the old foundation's extent were undertaken to assist with future property redevelopment activities and to assess the foundation's potential influence on the distribution of chemicals at the Site.

To further investigate the general extent of the remnants of the old buried foundation, Iris-Cambria contracted for magnetometer and Ground Penetrating Radar (GPR) surveys to be completed at the Site. These surveys were completed by Norcal Geophysical Consultants, Inc. (Norcal) of Petaluma, California on September 5, 2001. The geophysical surveys were ineffective in delineating the extent of the subsurface foundation at the Site. GPR transects and test pit locations are shown on Figure 5 and Norcal's entire report is reproduced in Appendix F.

Because geophysical surveys proved ineffective in determining the extent of the old foundation remnants, existing boring data were used to map its extent. Boring locations were used to map the old foundation remnants; the approximate extent of the remnants are shown on Figure 6. Figure 6 illustrates that the foundation underlies approximately two thirds of the eastern portion of the Site. The extent to the west is unclear but the foundation remnants were not encountered in either RN-A1 or RN-A2 in the western portion of the Site.

The remnants of the old foundation found between depths of 2 to 3 ft bgs are believed to be too shallow and insufficiently widespread to have a material effect on the chemical distributions at the Site. Site redevelopment activities especially grading activities should plan to encounter the remnants in the eastern portion of the Site and possibly to the west, although the occurrence of the foundation remnants to the west is less certain.

3.3 Test Pits

During geophysical surveying to investigate the old buried foundation remnants and to clear locations for drilling, the geophysical subcontractors identified four subsurface magnetic anomalies at the Site. These subsurface anomalies are illustrated on Figure 5 and the entire geophysical survey report is presented in Appendix F.

Geophysical signatures from anomalies 1 and 2 were similar to those typically seen from USTs. Anomalies 3 and 4 appeared to be buried debris. To investigate the geophysical anomalies, Iris-Cambria field staff oversaw exploration activities of Foss Environmental Services of Alameda, California, using a backhoe on September 17, 2001.

At anomaly 1, soil was excavated to approximately 6 ft bgs. Rebar and wires were encountered in the excavation between 2 and 4 ft bgs. A concrete foundation was partially detected at 2 ft bgs at this location. The foundation was cut or broken on the eastern side of the excavation, and missing entirely in the rest of the excavation. Anomaly 1 appears to be the likely location of the former UST that was reportedly removed from the Site in 1970 (Port of Oakland, 1994). Consistent with records showing the UST removal in 1970, the backhoe excavations completed by Iris-Cambria at anomaly 1 show that the former UST has indeed been removed from the Site.

At anomaly 2, rebar was unearthed prior to encountering a concrete foundation at 2 ft bgs. Anomaly 3 was not excavated because it was nearby anomaly 1 and because excavation at anomaly 1 indicated a UST had previously been removed. In addition, the geophysical signature for anomaly 3 suggested that this anomaly consisted of buried debris. At anomaly 4, soil was excavated to approximately 2 ft bgs, where a hubcap was unearthed. This finding was consistent with the geophysical signature of buried debris.

A soil sample (M-1-5) was collected at 5 ft bgs in the test pit dug at anomaly 1, the location of the former UST. The soil sample was analyzed for TPHg, TPHd, TPHmo, BTEX and MTBE (by EPA Methods 8015 and 8020). Analytical results are presented in Tables 1 and 2. The highest total petroleum hydrocarbon detection was in the gasoline range at 2,300 mg/kg (TPHg) and benzene was detected at 1.8 mg/kg. MTBE was detected at 5.1 mg/kg; however, this result is considered anomalous because the sample was analyzed by EPA Method 8020 which may yield false positives for MTBE in the presence of other petroleum hydrocarbons (American Petroleum Institute, 2000). The MTBE detection in soil sample M-1-5 being a false positive is further supported by the consistent lack of MTBE detection in any other soil or groundwater sample collected and analyzed from the Site.

3.4 Monitoring Well Installation and Sampling

Iris-Cambria installed four groundwater monitoring wells (MW-1 through MW-4) at the Site on October 9, 2001. Well locations are illustrated on Figure 2, and boring logs and well completion details are presented in Appendix A. One soil sample was analyzed from each well borehole. Well installation and sampling procedures are presented in Appendix C.

Monitoring well locations were selected based on the results of previous investigations at the Site. Monitoring well locations were proposed to the Alameda County Health Care Services Agency (ACHCSA) in the September 27, 2001, *Workplan Addendum* (Iris-Cambria, 2001). ACHCSA provided written comments on October 3, 2001 (Chan, 2001) and final monitoring well locations were adopted as recommended by the ACHCSA.

3.4.1 Field Activities

Field activities completed during the October 2001 sampling program are presented in Appendix E. Well sampling forms and survey data are presented in Appendices G and H, respectively. The results of the field investigation are presented below.

3.4.2 Soil Analytical Results

Soil samples collected during the installation of monitoring wells MW-1 through MW-4 were analyzed for TPHg, TPHd, TPHmo, BTEX, SVOCs, and VOCs. Well locations are shown on Figure 2. One soil sample from boring MW-1 was analyzed for CAM 17 Metals. Metals detections in the soil sample from MW-1 were generally low (i.e. below expected background concentrations as characterized in colluvium and fill at Lawrence Berkeley National Laboratory (LBNL, 1995). A discussion of the significance of onsite metal detections in soils is addressed in the Risk Based Screening Evaluation, Section 4.0. Soil analytical results are presented in Tables 1, 2, 3 and 4.

Chemicals detected in onsite soils included TPHg, TPHd, TPHmo, BTEX, naphthalene, and metals. No MTBE was detected in soil samples from MW-1, MW-2, MW-3, or MW-4. The maximum total petroleum hydrocarbon detection in soil samples from the four monitoring well boreholes was found ~~was~~ at MW-2 (300 mg/kg of TPHmo) which is south of the former UST location and the maximum benzene detection was found at MW-4 (0.7 mg/kg benzene) which is north of the former UST location.

3.4.3 Groundwater Analytical Results

Groundwater was sampled three times in each monitoring well (MW-1 through MW-4). The sampling events occurred on October 19, 2001 and at two different tidal stages on December 5, 2001. The analytical results for groundwater testing are summarized in Tables 5, 6 and 7.

Figure 7 presents groundwater concentrations of TPHg, TPHd, TPHmo and BTEX detected during the sampling event of December 5, 2001. Highest chemical concentrations are generally found in the north and northeast portion of the Site furthest away from the Bay. For the majority of compounds tested, MW-4 yielded the most elevated concentrations. Exceptions to this pattern included TPHmo, 2-methylnaphthalene, and naphthalene where MW-3 contained the highest concentrations.

Detected chemical concentrations decrease rapidly toward the Bay from the former UST location. The former UST location is shown as anomaly 1 on Figures 4 and 5. An illustration of this is provided on Figure 8 where benzene contours are plotted. Benzene concentrations decrease significantly from the former UST location toward the Bay (to the south and southwest). Chemical concentrations in groundwater at MW-2 (approximately 85 feet from the Bay) are non-detect for all compounds except TPHd and TPHmo.

Generally, detected chemical concentrations in the four monitoring wells MW-1 through MW-4 have decreased from the first sampling event of October 19, 2001. Analytical results from the December 2001 sampling events likely are most representative of actual groundwater concentrations at the Site; the October 19, 2001 samples may have been biased by effects of the well installation processes.

The lower concentrations detected in groundwater in the December 2001 sampling events do not appear to be the result of groundwater elevation fluctuations. Groundwater elevations measured in the site wells on December 5, 2001 (6:50-8:05 AM) were very similar to those measured on October 19, 2001.

3.5 Conduit Survey

To evaluate if subsurface conduits identified by the geophysical surveying had the potential to act as preferential pathways for groundwater and dissolved chemical migration, Iris-Cambria performed a conduit survey. The survey inventoried all subsurface utilities beneath the Site and in nearby areas. Subsurface utilities at the Site and beneath the Embarcadero (north of the Site) were researched by Foresite Engineering Surveys, Inc. of Pleasant Hill, California, and by Underground Service Alert (USA) prior to the August and October 2001 drilling programs. Iris-Cambria mapped the utility locations and used a measuring wheel to determine distances. Iris-Cambria also reviewed topographic and subsurface utility maps developed for the Site by Watson Engineering, Inc. of Auburn, California. The utility trench locations are illustrated on Figure 9. A City of Oakland Engineering Department (City) utility and street improvement map is included in Appendix I for completeness but Figure 9 best illustrates the utility features that could intersect groundwater beneath the Site.

The conduit survey indicated that a storm drain, a sanitary sewer, an electric line, a telephone line, and a water line run parallel to Embarcadero. A small storm drain collection grate and an associated drain pipe (about 4-inch in diameter and approximately 12-inch bgs) is located near the southeast corner of the Site and drains to the Bay. Only the storm drain and sanitary sewer lines

are shown on Figure 9 since these would be the deeper utility trenches than those for electric and telephone.

A 78-inch diameter interceptor sanitary sewer line runs roughly east to west within the Embarcadero. This sanitary sewer line is the deepest utility feature found during the conduit survey. According to communication with the City of Oakland, the 78-inch diameter interceptor is a sanitary sewer line that transports wastewater to an East Bay Municipal Utilities District facility, and the top of the interceptor line is at least approximately 3 ft bgs. Therefore, the invert (or flow line) of the 78-inch diameter interceptor line is at least 9.5 ft bgs. Street elevation near the Site is approximately 11.0 ft (Port datum) which would make the invert elevation of the interceptor line approximately 1.5 ft (Port datum). Other invert elevations for nearby utility conduits are shallower and are shown on Figure 9.

Figures 9 and 10 show the approximate locations and estimated invert elevations of key utilities near the Site that could intersect groundwater. Groundwater elevations (in Port datum) at two tides (a falling tide and a rising tide) are posted on Figure 10. Figure 10 indicates that invert elevations for conduits except the 78-inch diameter interceptor line are generally above the water table. The sanitary sewer invert is close to the groundwater level measured in MW-4 on the falling tide cycle on December 5, 2001. The invert elevation of the 78-inch diameter interceptor line is deeper than groundwater elevations measured in monitoring wells anywhere on the Site. The 78-inch diameter interceptor line and possibly the sanitary sewer could be affecting local groundwater flow patterns at the Site, a possible explanation for the observed groundwater flow opposite regional flow patterns.

3.6 Wooden Bulkhead Evaluation

The City utility map initially created July 17, 1969 (reproduced in Appendix I) and a Site location map obtained from the Port (Inner Harbor, Brooklyn Basin, Test Piles Adjacent to Harbor Line Points 57&59, September 2, 1947) both show the presence of a wooden bulkhead that traverses the Site from west to east. The approximate location of the wooden bulkhead is shown on Figure 2. An additional 1936 drawing of the wooden bulkhead was obtained from the Port and is reproduced in Appendix J. The Appendix J drawing shows the wooden bulkhead to consist of riprap and creosoted sheet piles.

The depth of the wooden bulkhead is unclear from the available information. If the scale shown on the 1936 drawing in Appendix J is roughly correct, then the wooden bulkhead might extend to about 40 feet below the 1936 Site grade; however, the scale does not appear correct. The wooden

bulkhead is located near well MW-1; however, it was not encountered during any of Iris-Cambria's excavation or drilling activities.

Of interest to the current investigation, is the question of what effect the wooden bulkhead might have on the Site hydrogeologic system and whether the wooden bulkhead divides the Site into two separate hydraulic units. If the wooden bulkhead were an effective hydraulic barrier, then the response to tidal changes should be markedly different on the Bay side of the bulkhead versus the side furthest away from the Bay. Figure 10 illustrates changes in water levels in wells closest to the Bay and in wells on the other side of the wooden bulkhead furthest away from the Bay. Water levels were measured during a rising and during a falling tide some six hours apart on December 5, 2001 as discussed more completely in the following section.

Water levels in wells on both sides of the wooden bulkhead fluctuated by at least 0.5 ft over the 6-hr period. These similar hydraulic responses in wells on either side of the wooden bulkhead suggest that the wooden bulkhead is not an effective hydraulic barrier to shallow groundwater flow at the Site and should not be a significant controlling factor in affecting local groundwater flow patterns. Figure 10 also illustrates the location of the utility trenches to the north of the Site and their relative depths with respect to groundwater elevations.

3.7 Limited Tidal Influence Study

Iris-Cambria performed a limited tidal study to evaluate tidal influence in Site monitoring wells MW-1, MW-2, MW-3, and MW-4. On December 5, 2001, groundwater levels were measured in two separate events, approximately six hours apart. The 6:10-6:20 AM measuring event occurred on a falling tide, and the 11:43-11:49 AM measuring event occurred on a rising tide. On December 19, 2001, groundwater levels were measured near the daily lower low tide. During each groundwater measuring event, water levels in all wells were measured within a 20- to 30-minute period to minimize the impact of tidal fluctuation between the network of wells. Groundwater level maps for all three tidal study measuring events are shown on Figures 11, 12, and 13. Groundwater level elevations are tabulated in Tables 5 and 6. Field forms are included in Appendix G.

During the measuring events of December 5, 2001 between the falling and rising tide gauging events, water levels in wells MW-1, MW-2, and MW-4 increased by about 0.5 ft. The water level in MW-3 increased by over 1.0 ft. Figures 10, 11, and 12 map the groundwater levels across the Site during each monitoring event. Although there appears to be tidal influence at the Site, these figures show that the observed groundwater gradients are roughly constant in direction. There is no indication of gradient reversals occurring at the Site as a result of nearby tidal variations.

3.8 Sanborn Map Study

At the request of the ACHCSA (Chan, 2001), Sanborn maps of the Site were obtained from Environmental Data Resources, Inc. (EDR) covering the years 1911, 1950, 1952, 1953, 1957, 1959, 1960, 1964, 1965, 1967, and 1969, and are included as Appendix K. The approximate Site boundaries have been placed on the Sanborn maps presented in Appendix K.. The Sanborn maps are of poor quality with respect to relative distances, feature dimensions, and relative orientation. The Site boundaries were located using the best consistent anchor points, such as Railroad tracks and older buildings present on the most recent maps.

- Buildings do not appear on the Sanborn maps covering the Site until 1950 where it appears that a shed exists in the northeast portion of the Site and another building, possibly an office, appears in the north central portion of the Site.
- In the 1952 map, the northeast shed is present but drawn slightly differently. The central portion of the Site is empty.
- In the 1953 map, the Site contains only the office structure to the northeast. The shed in the 1952 map has been removed.
- In the 1957 map, a small area appears in the eastern portion of the Site including a marked area near the assumed location of the former onsite UST. A pallet handling area now shows up in the central portion of the Site.
- In the 1959 map, a yacht club appears on the western portion of the Site and a new building appears on the eastern portion of the Site. Other structures remain the same.
- The 1960, 1964,1965,1967, and 1969 maps remain the same as the 1959 map. The building on the eastern portion of the Site appears to have been used for sawing.

The maps yielded no additional information (beyond those recognized by Henshaw) suggesting historical site uses that would have involved onsite hazardous materials use or storage. The Sanborn maps do not confirm the former location of the UST.

3.9 Site Investigation Conclusions

The conclusions that are drawn from the subsurface investigation of the Site are presented under general topics of key concern. They are as follows:

3.9.1 Source of Contamination

Investigation results suggest that an underground storage tank (UST) was previously located in the northwest (east) portion of the Site. The approximate former UST location is illustrated as subsurface anomaly 1 on Figures 4 and 5. The former UST was removed from the Site in the 1970s as reported by Henshaw Associates (Henshaw, 2001). Test pits dug in the same area

confirmed that the UST had been removed. Elevated petroleum related chemical concentrations in soil and groundwater surrounding the former UST location suggest that historical site operation of the UST, potentially including storage and dispensing of gasoline, was the source of TPHg and BTEX detected at the Site. The exact source of TPHmo, TPHd, and SVOCs is uncertain; however it appears to have been located near the former UST.

3.9.2 Chemical Distribution in Site Soil

Chemicals concentrations in soils are generally greatest at the former UST location. The highest TPHd, TPHg, and benzene concentrations found in soils anywhere on the Site were in a soil sample from a test pit dug at the former UST location (M-1-5). This soil sample contained 2,300 mg/kg of TPHg, 850 mg/kg TPHd, and 1.8 mg/kg benzene. Other petroleum compounds were also detected in this sample. The highest TPHmo concentration of 300 mg/kg was detected approximately 40 ft south of this location in a soil sample from boring MW-2.

Soil samples from immediately surrounding sample locations were likewise elevated. With the sole exception of TPHmo, concentrations of petroleum related compounds drop in magnitude as distance away from the former UST location increases suggesting that the former UST location was the source of the chemicals being detected in soils at the Site. Detected TPHmo concentrations were higher both west (at MW-3) and south (at MW-2) of the former UST location. Accordingly, TPHmo is distributed in the vicinity of the former UST, and the data do not suggest a single point source of TPHmo.

3.9.3 Chemical Distribution in Groundwater

Groundwater chemical data show that TPHg and BTEX concentrations were highest near the former UST location and in MW-4 approximately 35 ft to the north. Benzene concentrations decrease to below detection levels closer to the Bay as shown in MW-2 (Figure 7). TPHmo concentrations were highest south of the former UST location in MW-3 at 550 µg/L. TPHmo was detected at 270 µg/L closer to the Bay at MW-2 (Figure 7).

3.9.4 Groundwater Flow Direction

Measured groundwater levels in the four monitoring wells at the Site suggest that the hydraulic gradient in the northeast portion of the Site is to the northeast. This finding is inconsistent with regional flow which is to the southwest toward the Bay. Given that the regional groundwater flow direction is to the southwest, the hydraulic gradient calculated for the Site may be a local variation.

Discussion of local hydraulic influences such as the presence of utility conduits was presented earlier in this report. In summary, a 78-inch diameter interceptor line north of the Site has an invert elevation lower than *all* groundwater levels measured on the Site. Similarly, a sanitary sewer trench north of the Site has an invert elevation lower than *some* of the groundwater measured on the Site. Therefore, the 78-inch diameter interceptor line and the sanitary sewer could be affecting local groundwater flow patterns by causing groundwater to flow toward them. This could explain why the hydraulic gradient at the Site appears inconsistent with the regional flow patterns.

There is an old buried wooden bulkhead that crosses the Site west to east. Water levels measured on both sides of the wooden bulkhead over various tidal cycles, suggest that the wooden bulkhead is not an effective hydraulic barrier at the Site. Therefore, the wooden bulkhead should not be a significant controlling factor in affecting local groundwater flow patterns.

3.9.5 Plume Definition

The extent of chemicals in groundwater beneath the Site appears generally well defined with concentrations declining to the south, west and east of the former UST location. Chemical concentrations detected in groundwater samples collected closest to the Bay are reduced from concentrations detected in the former UST area. The distribution of dissolved chemical concentrations suggests that migration, if occurring, may be toward the north-northeast.

4.0 RISK-BASED SCREENING LEVEL EVALUATION

The purpose of the risk-based screening level (RBSL) evaluation is to assess whether chemicals detected in soils and groundwater at the Site could pose a risk to human health or the environment. Site plans call for the development of a commercial building within the footprint of the former restaurant building, with the remaining portions of the Site to be used for parking and limited landscaping. Based on the site development plans, the human populations included in this screening-level evaluation are future commercial workers and construction workers. The environmental receptors considered in this evaluation include urban-area terrestrial receptors, and aquatic organisms that may be present in the adjacent San Francisco Bay. The approach, results, and conclusions of the RBSL evaluation are discussed in the sections below.

4.1 Approach

The RBSL evaluation consists of a direct comparison of the chemicals detected in the soil and groundwater against selected risk-based soil and groundwater screening levels that are protective

of human health and ecological receptors. All analytical results from soil and groundwater investigations conducted by Baseline in May 2001 and Cambria in August, October, and December 2001 were used in the RBSL evaluation. The applicable RBSLs correspond to those developed and assembled by the San Francisco Regional Water Quality Control Board (SFRWQCB) for the protection of future onsite commercial and construction workers, aquatic life, and urban-area terrestrial flora and fauna (SFRWQCB, 2000). Specifically, the human health and ecological RBSLs are based upon the following exposure scenarios:

Surface Soil (less than 3 meters below ground surface)

- Commercial workers exposed to soil through direct contact (i.e., soil ingestion, and dermal contact pathways), inhalation of particulates, and inhalation of vapors in indoor air;
- Construction workers exposed to soil through direct contact (i.e., soil ingestion, and dermal contact pathways), inhalation of particulates, and inhalation of ambient vapors;
- Aquatic receptors exposed to chemicals in the soil that have leached down from soil, into the underlying groundwater, and migrated to surface waters; and
- Urban-area terrestrial flora and fauna exposed to surface soils.

Groundwater (not assumed to be a drinking water source)

- Commercial workers exposed to groundwater vapors that have migrated into the indoor air; and
- Aquatic receptors exposed to groundwater discharging to surface water.

These risk-based soil and groundwater screening levels were selected to evaluate the potential adverse health and environmental impacts posed by chemicals detected in soils and groundwater at the Site. The RBSLs for chemicals that are carcinogens (e.g., benzene) are based on a target cancer risk of 10^{-6} (one-in-one million). This represents the most stringent end of the acceptable risk range of 10^{-4} to 10^{-6}, used by both Federal and State regulatory agencies in environmental decision-making. The RBSLs for noncarcinogens are based on a hazard index (HI) of 0.2. The RBSLs used in this evaluation are extremely conservative. Consequently, the presence of a chemical at concentrations below the RBSLs can be assumed to pose an insignificant threat to human health and the environment. However, it is important to note that the presence of a chemical detected above the RBSL does not necessarily indicate that adverse effects to human health or the environment are occurring; rather, exceedances of the RBSLs simply indicate that additional investigation and/or evaluation of potential risks may be warranted.

The analytical results from the soil and groundwater investigations conducted at the Site and the selected risk-based soil and groundwater screening levels are summarized and presented in Tables

1 through 6. The results of the RBSL evaluation for human health and ecological receptors are discussed below.

4.2 Results of the Human Health RBSL Evaluation

Soil and groundwater analytical data for the Site was directly compared to selected human health risk-based soil and groundwater screening levels. As discussed in Sections 3, TPHg, TPHd, TPHmo, BTEX, MTBE, other VOCs, and selected SVOCs were detected in soils and/or groundwater at the Site. MTBE was detected in only one soil sample and is believed to be a false positive result as discussed in Section 3.3. Metals were also detected in soils at the Site. The results of the RBSL evaluation for future commercial workers and construction workers who may be present at the Site are discussed below.

Future Commercial Workers

As indicated in Tables 1 through 4, benzene was the only compound detected in soils at concentrations that exceed the human health risk-based screening level for the commercial worker. The RBSL for benzene is 0.39 mg/kg, and assumes exposures occur via direct contact with soil, and via the inhalation of vapors migrating up through the soil column and accumulating in the indoor air of a building. The specific locations and depths where benzene was detected in soil at levels that exceed the commercial RBSL include MW-4 (at a depth of 5.3 feet bgs), MW-1 (at a depth of 8.3 feet bgs) and M-1-5 (at a depth of 5 feet bgs). Benzene was detected in soil at MW-4, MW-1, and M-1-5 at concentrations of 0.70 mg/kg, 0.48 mg/kg and 1.8 mg/kg, respectively, concentrations that exceed the RBSL of 0.39 mg/kg by a factor of between 1.2 and 4.6. The presence of benzene at these particular locations and depths would not be expected to pose a significant health risk to future commercial workers for the following reasons: 1) commercial workers will not likely have direct exposure with any soils located at depths of between 5 and 8 feet bgs; and 2) the exceedances occur in areas that will be used for parking and/or landscaping, and therefore potential indoor air impacts resulting from the transport of benzene vapors into a building will not occur.

Similar to soils, benzene was the only compound detected in groundwater at concentrations that exceed the human health risk-based screening levels for the commercial worker. As indicated in Table 5, the specific locations where benzene was detected in groundwater at levels that exceed the commercial RBSL of 84 µg/L include SB-1, SB-1A, SB-E (all groundwater grab samples), MW-1, and MW-4. All of these locations where benzene exceeded the RBSL are located either within or directly north of the former UST location. The concentrations of benzene in MW-1 and MW-4 range from 120 µg/L to 1,900 µg/L. As with the soil, the RBSL for benzene in the

groundwater is based on the potential for the benzene to volatilize from the groundwater and migrate up through the soil column into the indoor air of a building. Consequently, the sampling locations that are most relevant for determining whether the benzene may pose a risk to future commercial workers include those groundwater samples that are closest to the building, and that would be considered most representative of the groundwater conditions that may exist under the building.

As indicated in Table 5, the concentrations of benzene in groundwater at the locations surrounding the former restaurant (i.e., SB-2, SB-A, SB-B, MW-2 and MW-3) were well below the RBSL of 84 µg/L. Benzene was reported as non-detect in groundwater in six of the nine groundwater samples collected from these locations, and was detected at a maximum concentration of 2 µg/L at MW-3. Accordingly, based on the proposed development plans, the levels of chemicals detected in groundwater at the Site would not be expected to pose a significant health risk to future commercial workers who will be working at the Site.

Future Construction Workers

As indicated in Tables 1 through 4, all chemicals in soil were detected at concentrations that are below the RBSLs developed for the protection of a future construction worker. Accordingly, the levels of chemicals detected in soils at the Site would not be expected to pose a significant health risk to future construction workers who may be directly exposed to chemicals present in the subsurface soils.

4.3 Results of the Ecological RBSL Evaluation

Soil and groundwater analytical data for the Site was directly compared to selected ecological risk-based soil and groundwater screening levels. As discussed above, TPHg, TPHd, TPHmo, BTEX, MTBE, other VOCs, and select SVOCs were detected in soils and/or groundwater at the Site. Metals were also detected in soils at the Site. The results of the RBSL evaluation for urban-area terrestrial receptors and aquatic life in San Francisco Bay are presented below (saltwater criteria were given priority over freshwater criteria).

Urban-Area Terrestrial Receptors

None of the chemicals detected at the Site were present at levels that exceed urban-area terrestrial RBSLs (Tables 1 through 4). Accordingly, chemicals detected in soils would not be expected to adversely impact urban-area terrestrial receptors that could potentially be using the Site.

what are these?

Aquatic-Life

As indicated in Tables 1 through 4, TPHg, TPHd, ethylbenzene, xylenes, MTBE, and 2-methylnaphthalene were detected in soils at concentrations that exceed the RBSL developed for the protection of aquatic receptors. The locations where soil concentrations exceeded the aquatic-based RBSLs include SB-1A (located north of the former UST), M-1 and MW-1 (both within the former UST location). The soil RBSL for aquatic-life protection is based on the potential leaching of the chemical from soil down into the groundwater, and the subsequent exposure of aquatic organisms to the chemicals in the groundwater as it discharges to the surface water.

Generally speaking, concentrations measured in groundwater provide a more direct estimate of the amount of a chemical that may leach from the soil and impact the groundwater. This is particularly true for situations where the release occurred many years ago, the leaching from soil to the groundwater has already occurred, and chemical equilibrium has been established. In these situations, it is preferable to rely upon direct groundwater monitoring data to determine whether residual chemicals present in the soil may adversely impact the underlying groundwater.

Tables 5 and 6 present a comparison of the concentrations of chemicals detected directly in the groundwater to the aquatic-based RBSLs. As indicated in the Tables, TPHg, TPHd, TPHmo, BTEX, 1-methylnaphthalene, 2-methylnaphthalene and phenanthrene were detected at concentrations in groundwater above the risk-based screening levels for aquatic life. The locations where groundwater concentrations exceeded the RBSLs include: SB-1A, SB-E, SB-F, MW-4 (all located north of the former UST location); MW-1, SB-1, SB-D (all located at or adjacent to the former UST location); and SB-A and MW-3 (both located approximately 40 feet southwest of the former UST location). All of these exceedances are located on the northern portion of the Site, more than 100 feet away from the San Francisco Bay. The monitoring well closet to the San Francisco Bay is MW-2, located approximately 85 feet from the shoreline. As petroleum-related compounds tend to attenuate rapidly with distance from the source, the concentrations measured in the monitoring well closest to the San Francisco Bay provide the best available representation of the concentrations of chemicals from the Site that could be impacting aquatic organisms in the Bay. As indicated on Tables 5 and 6, only trace concentrations of TPHd and TPHmo were detected in MW-2, at concentrations below the aquatic-based RBSL. Accordingly, the analytic data collected to date support that the chemicals detected at the Site do not appear to be adversely impacting aquatic life.

unless there is preferential pathway

4.4 Conclusions of Risk Screening

Based on the results of the RBSL evaluation, Iris-Cambria has drawn the conclusions presented below.

Chemicals detected in soils and groundwater in the area surrounding the location of the proposed building are below relevant health-based RBSLs for future onsite commercial workers. Accordingly, assuming that the groundwater plume is stable, and that the higher concentrations of benzene detected in groundwater around and north of the former UST do not migrate beneath the building in the future, the levels of chemicals detected at the Site would not be expected to pose a significant health risk to future commercial workers. As the location of the benzene exceedances occur at locations that will be used for parking and/or landscaping, the levels of benzene detected at and north of the former UST location would not be expected to pose a significant health risk to future commercial workers at the Site.

Chemicals detected in soils at the Site are below health-based RBSLs for construction workers, and would therefore not be expected to pose a significant threat to the health of future onsite construction workers who may have direct contact with the soil during subsurface activities.

Chemicals detected in soils at the Site were present at levels below urban-area terrestrial RBSLs. Accordingly, detected chemicals would not be expected to adversely impact terrestrial receptors that could potentially be using the Site.

Although chemicals were detected in both soil and groundwater at concentrations that exceed the RBSLs developed for the protection of aquatic life, these exceedances occurred more than 100 feet north of the San Francisco Bay. Petroleum-related compounds tend to attenuate rapidly with distance from the source, and thus the concentrations measured in monitoring well MW-2 provide the best representation of the concentrations of chemicals from the Site that could be impacting aquatic organisms in the Bay. As chemicals detected in soils and groundwater at MW-2 were below RBSLs developed for the protection of aquatic life, the analytic data collected to date support that the chemicals detected at the Site do not appear to be adversely impacting the aquatic receptors.

5.0 CONCLUSIONS AND RECOMMENDATIONS

The investigations completed for the Site have well characterized chemical occurrence in soil and groundwater in the northeast portion of the Site, and have provided a sound basis for the

assessment of potential risks to human health and the nearby aquatic environment posed by the presence of chemicals in the subsurface. Specifically:

- Based on existing subsurface investigation data and Site use information, the Site appears to be appropriate for the planned redevelopment from a health risk perspective. With confirmation of UST removal, there is no known ongoing source of contamination. The chemicals detected in the soil and groundwater would not pose an unacceptable risk to future commercial workers, construction workers, or nearby aquatic receptors based on the current redevelopment plans. We recommend that the Port request that the ACHCSA review the screening-level risk evaluation presented in this report and issue a letter concurring with the conclusion that based on current knowledge the Site is appropriate for the planned redevelopment.

- An additional groundwater monitoring well should be installed in the northeastern corner of the Site. This well would be used to further characterize the extent of chemicals in groundwater in this portion of the Site and would be used to further understand local groundwater flow patterns.

- Measuring of water levels and sampling for water quality should continue in the site monitoring wells until data are collected over one complete hydrologic cycle. Monitoring wells have been sampled in October 2001 (prior to the rainy season) and again in December 2001. Water levels and water samples should be measured and collected again in March and June 2002 to complete the sampling over an entire hydrologic cycle. Groundwater samples would be tested for total petroleum hydrocarbons in the gasoline, diesel and motor oil ranges and for SVOCs and BTEX.

- Future construction work should be undertaken in accordance with a site-specific health and safety plan. The health and safety plan should take into account all contaminants identified in the subsurface identified during the investigations.

- If the two additional rounds of sampling proposed for March and June 2002 yield data consistent with the current understanding of the Site or yield concentrations trending downward, Iris-Cambria recommends that the Port request formal site closure or a No Further Action letter from ACHCSA and the Regional Water Quality Control Board (RWQCB).

6.0 REFERENCES

American Petroleum Institute. *Strategies for Characterizing Subsurface Releases of Gasoline Containing MTBE.* API Publication 4699. June 2000.

Baseline Environmental Consulting. *Soil and Groundwater Investigation and Workplan.* Gray & Reynolds Development Project. Embarcadero Cove, Oakland, California. August 13, 2001.

Brathwaite, Sam, Henshaw Associates, Inc. Personal communication. January 7, 2002.

California Regional Water Quality Control Board, San Francisco Bay Region, Groundwater Committee. *East Bay Plain Groundwater Basin Beneficial Use Evaluation Report.* June 1999.

Chan, Barney, Hazardous Materials Specialist. Alameda County Health Care Services Agency. *Letter RE: Work Plan Addendum, Embarcadero Cove, 1275 Embarcadero, Oakland, CA 94606.* October 3, 2001.

Goldman, H.B. *Geology of San Francisco Bay, in Geologic and Engineering Aspects of San Francisco Bay Fill.* California Division of Mines and Geology Special Report 97. 1969.

Henshaw Associates, Inc. *Draft Review of Existing Site Conditions and Environmental Risk Evaluation.* Embarcadero Cove Project, Oakland, California. March 14, 2001.

Henshaw Associates, Inc. *Soil and Groundwater Sampling and Analysis Workplan.* Embarcadero Cove Project, Oakland, California. April 23, 2001.

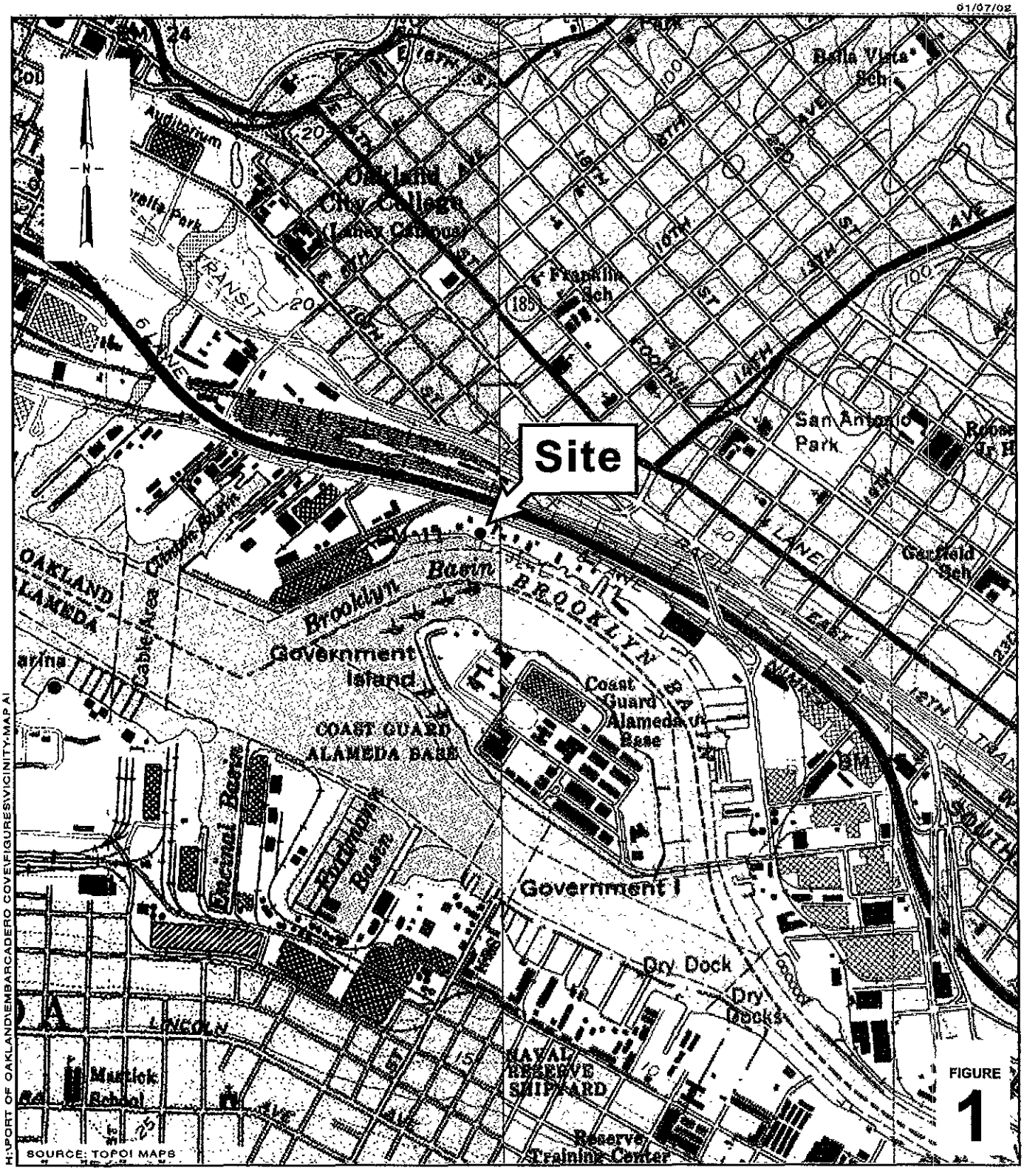
Iris-Cambria Environmental, JV. *Workplan Addendum.* Gray and Reynolds Development Site. Embarcadero Cove, 1275 Embarcadero, Oakland, California. September 27, 2001.

Lawrence Berkeley National Laboratory (LBNL). *Protocol For Determining Background Concentrations of Metals in Soil at Lawrence Berkeley National Laboratory.* August 1995.

Port of Oakland, Environmental Department. *Phase I Environmental Site Assessment for Marriott Hotel Development.* July 26, 1994.

San Francisco Regional Water Quality Control Board (SFRWQCB), 2000. *Application of Risk-Based Screening Levels and Decisions Making to Site with Impacted Soils and Groundwater.* Volume I: Summary Tier I Lookup Tables. Interim Final. August. Updated July 2001.

FIGURES



0 1/8 1/4 1/2 1

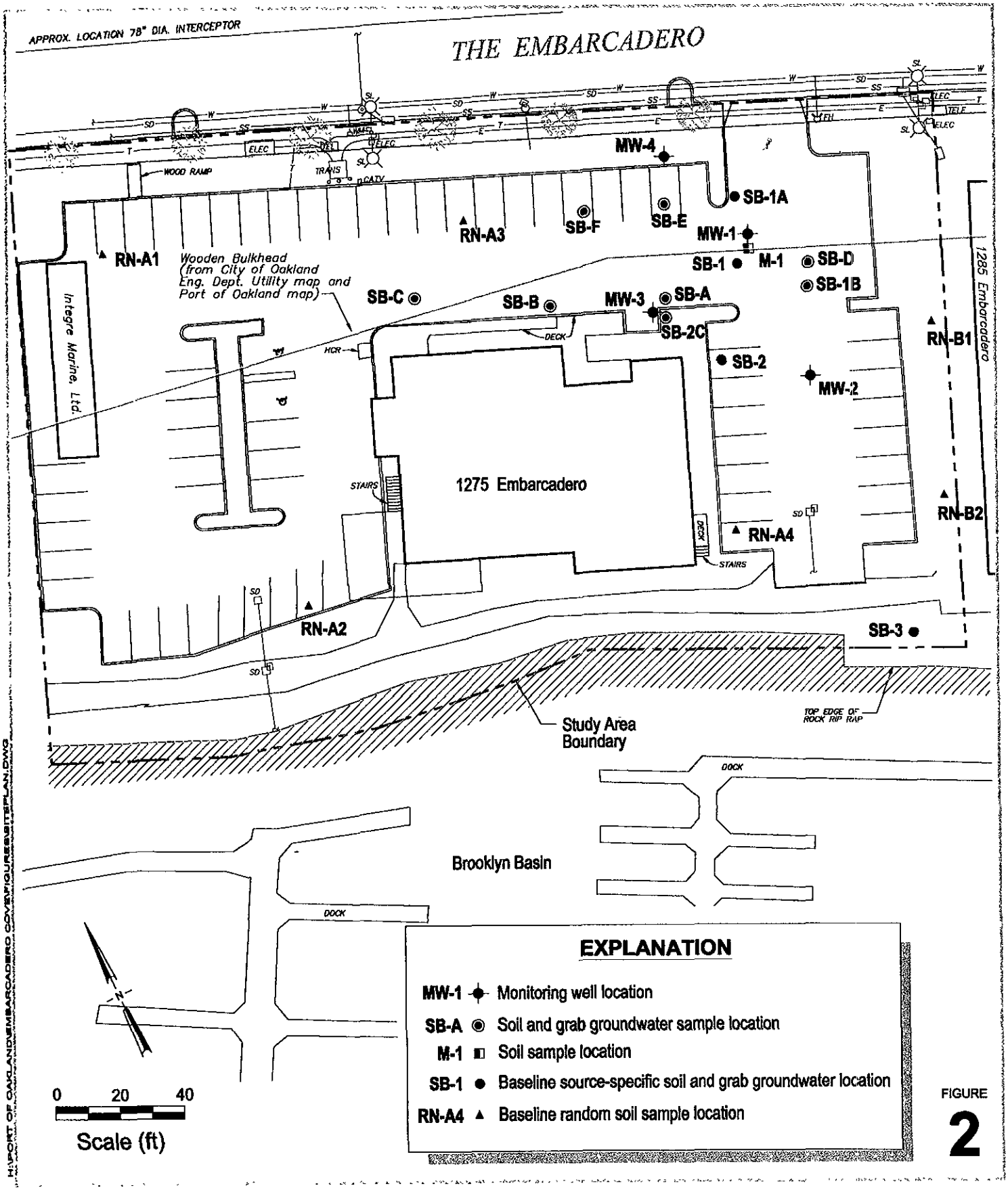
SCALE : 1" = 1/4 MILE

FIGURE 1

Port of Oakland
1275 Embarcadero
Embarcadero Cove Project
Oakland, California

CAMBRIA

Vicinity Map



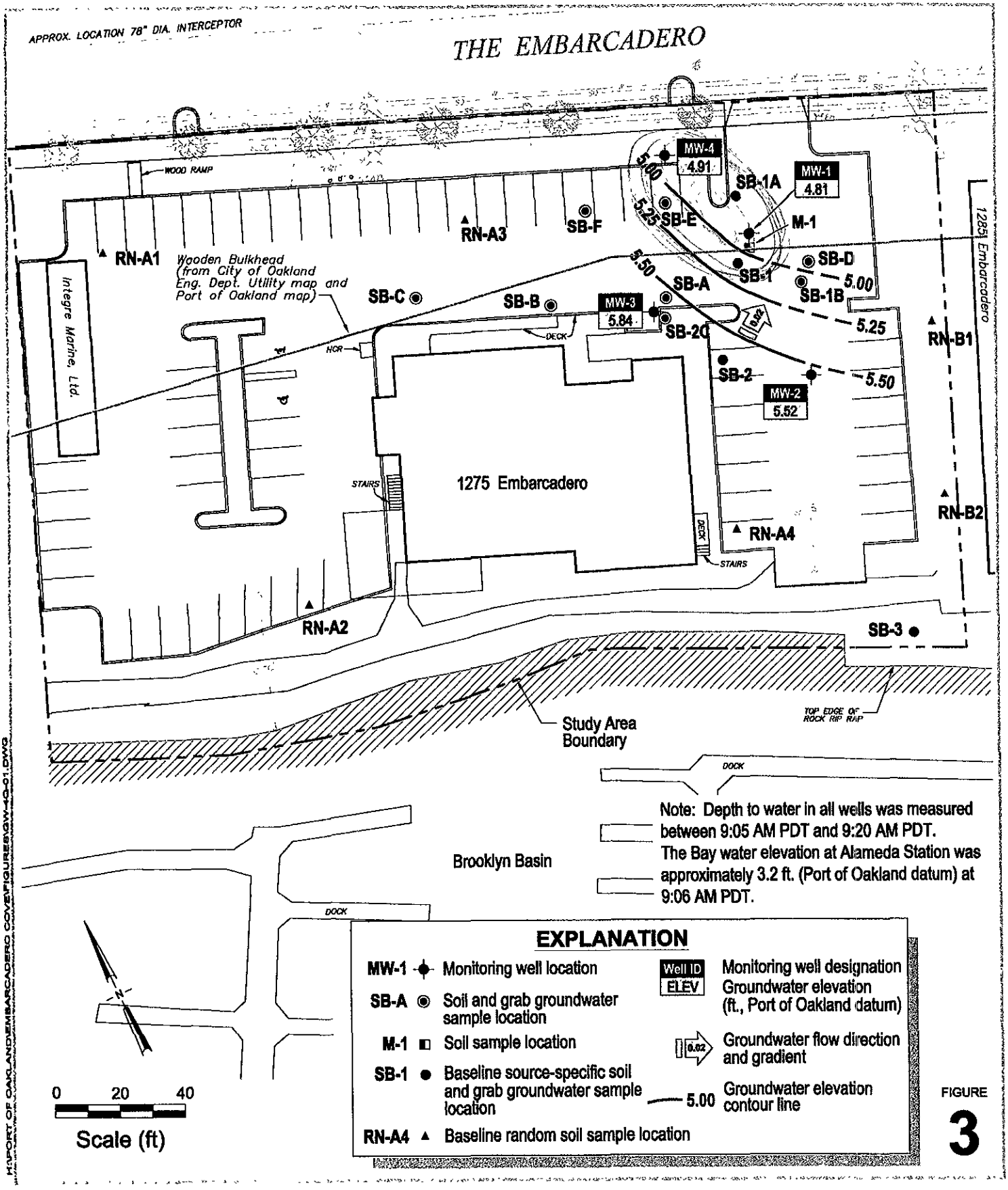
H:\PORT OF OAKLAND\EMBARCADERO COVE\FIGURES\SITEPLAN.DWG

FIGURE **2**

Port of Oakland
1275 Embarcadero
Embarcadero Cove Project
Oakland, California

CAMBRIA

Site Plan



H:\PORT OF OAKLAND\EMBARCADERO COVE\FIGURES\GW-4Q-01.DWG

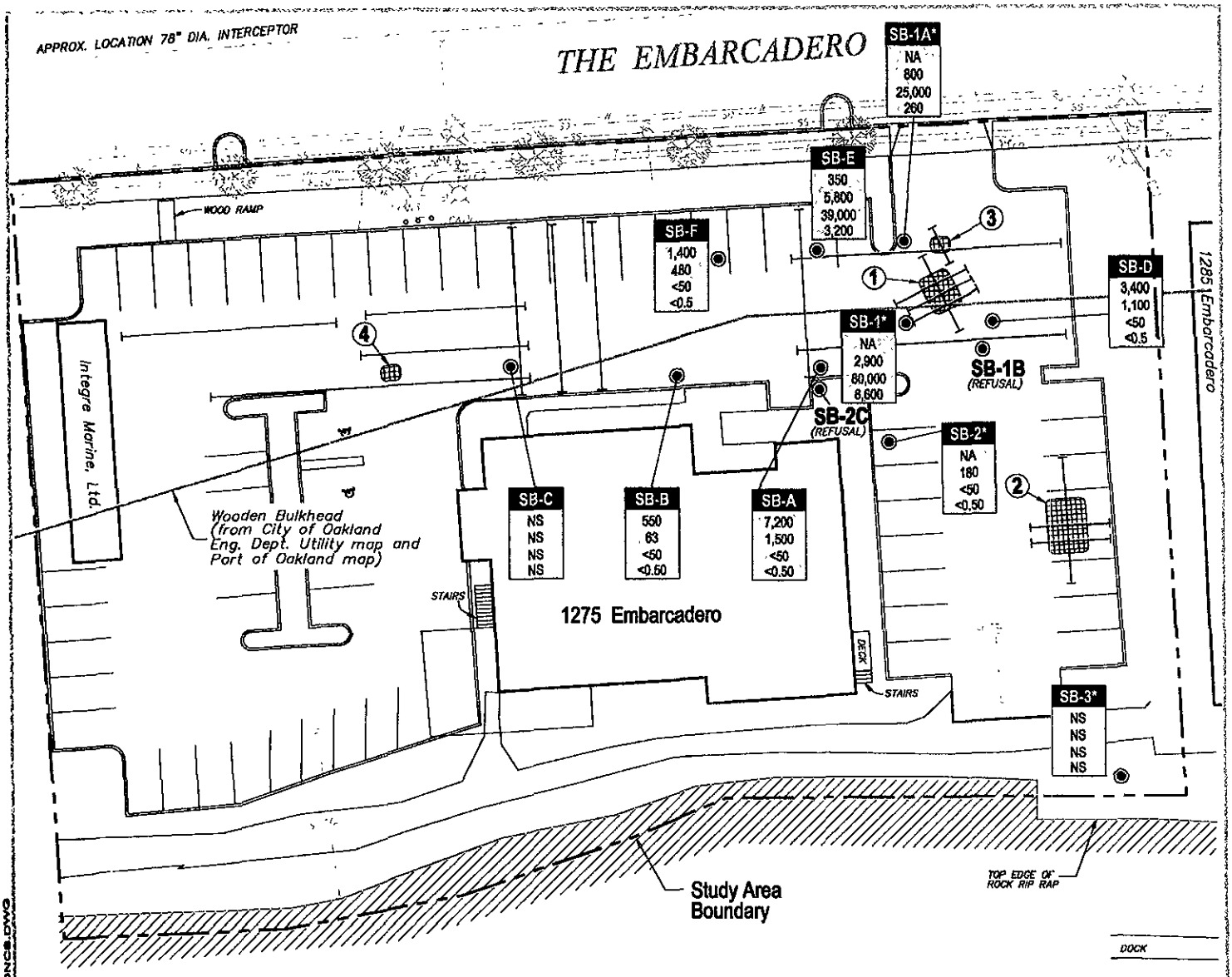
FIGURE
3

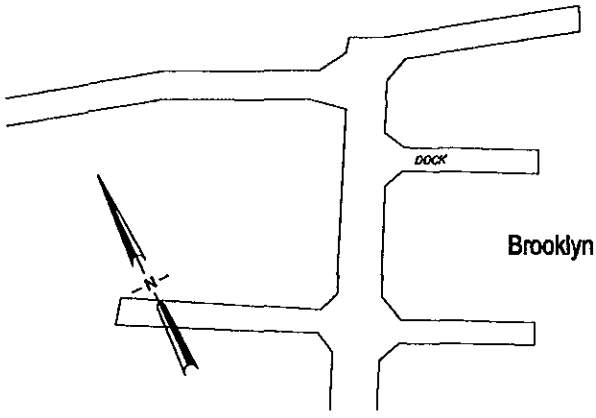
Port of Oakland
1275 Embarcadero
Embarcadero Cove Project
Oakland, California

CAMBRIA

Groundwater Elevation Contours (Rising Tide)

for October 19, 2001





EXPLANATION

- SB-A ◉ Soil and grab groundwater sample location
- * Asterisk indicates Baseline sample location
- Sample location designation
- Sample / TPHmo — TPHmo concentrations in groundwater (µg/L)
- TPHd — TPHd concentrations in groundwater (µg/L)
- TPHg — TPHg concentrations in groundwater (µg/L)
- Benzene — Benzene concentrations in groundwater (µg/L)
- NA Not Analyzed
- NS Not Sampled
- GPR Traverse
- ④ ⊞ Subsurface anomaly

FIGURE
4

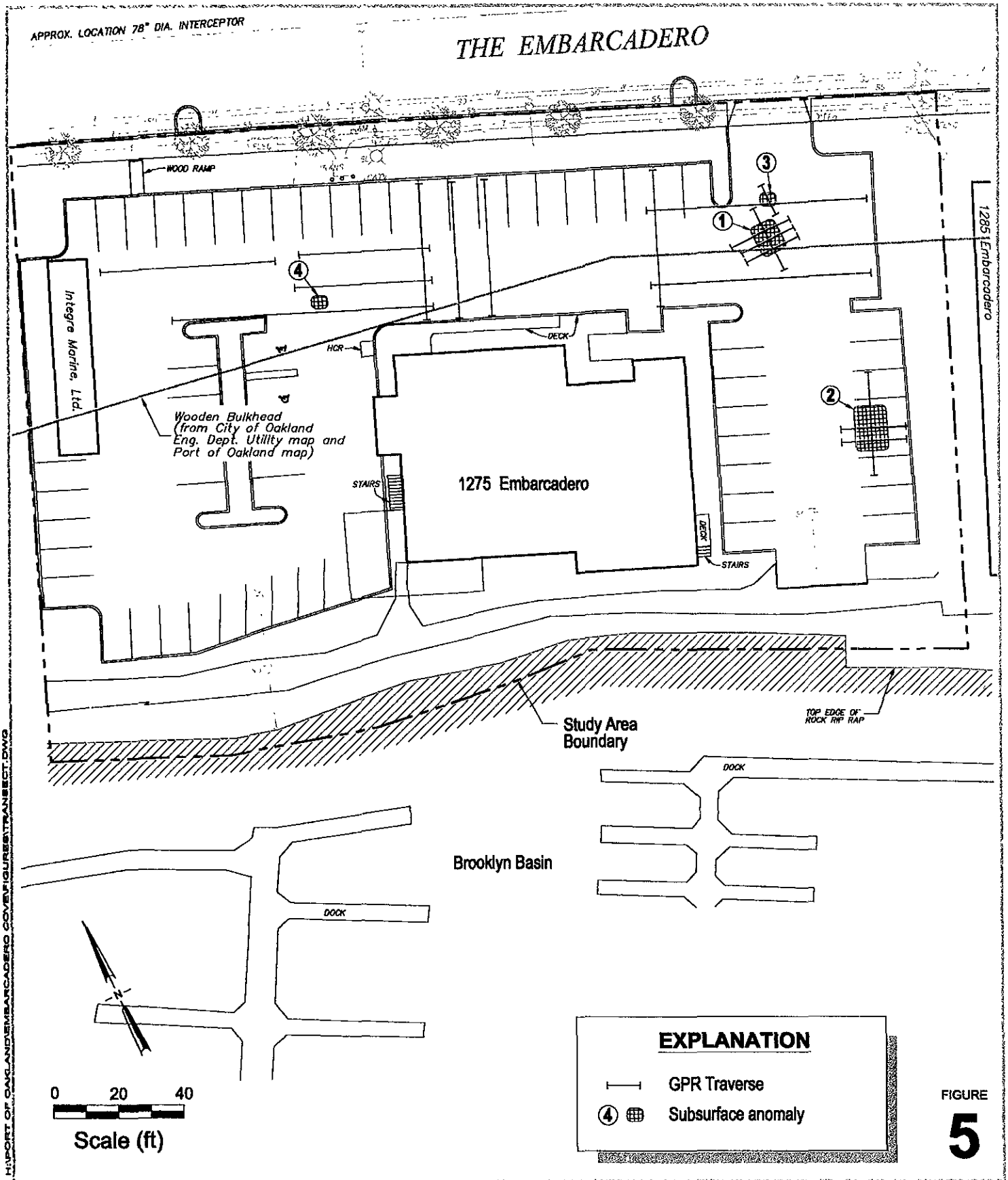
H:\PORT OF OAKLAND\EMBARCADERO COVE\FIGURES\HC-CONC8.DWG

Port of Oakland
1275 Embarcadero
Embarcadero Cove Project
Oakland, California

CAMBRIA

Hydrocarbon Concentrations in Grab Groundwater from Borings

01/09/02



H:\PORT OF OAKLAND\EMBARCADERO COVE\FIGURES\TRANSECT.DWG

FIGURE

5

Port of Oakland
1275 Embarcadero
Embarcadero Cove Project
Oakland, California

CAMBRIA

Transects and Test Pit Locations

01/08/02

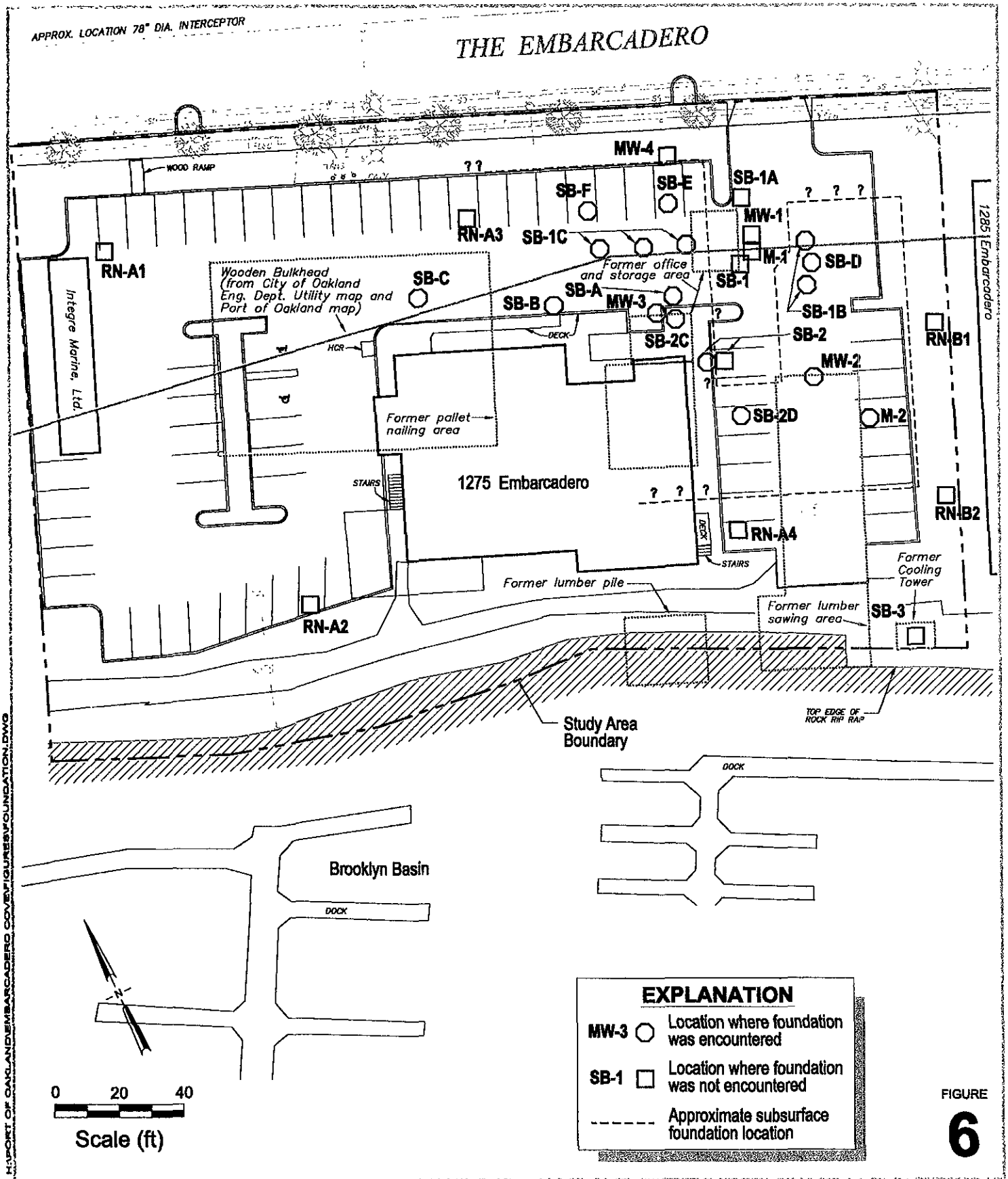


FIGURE
6

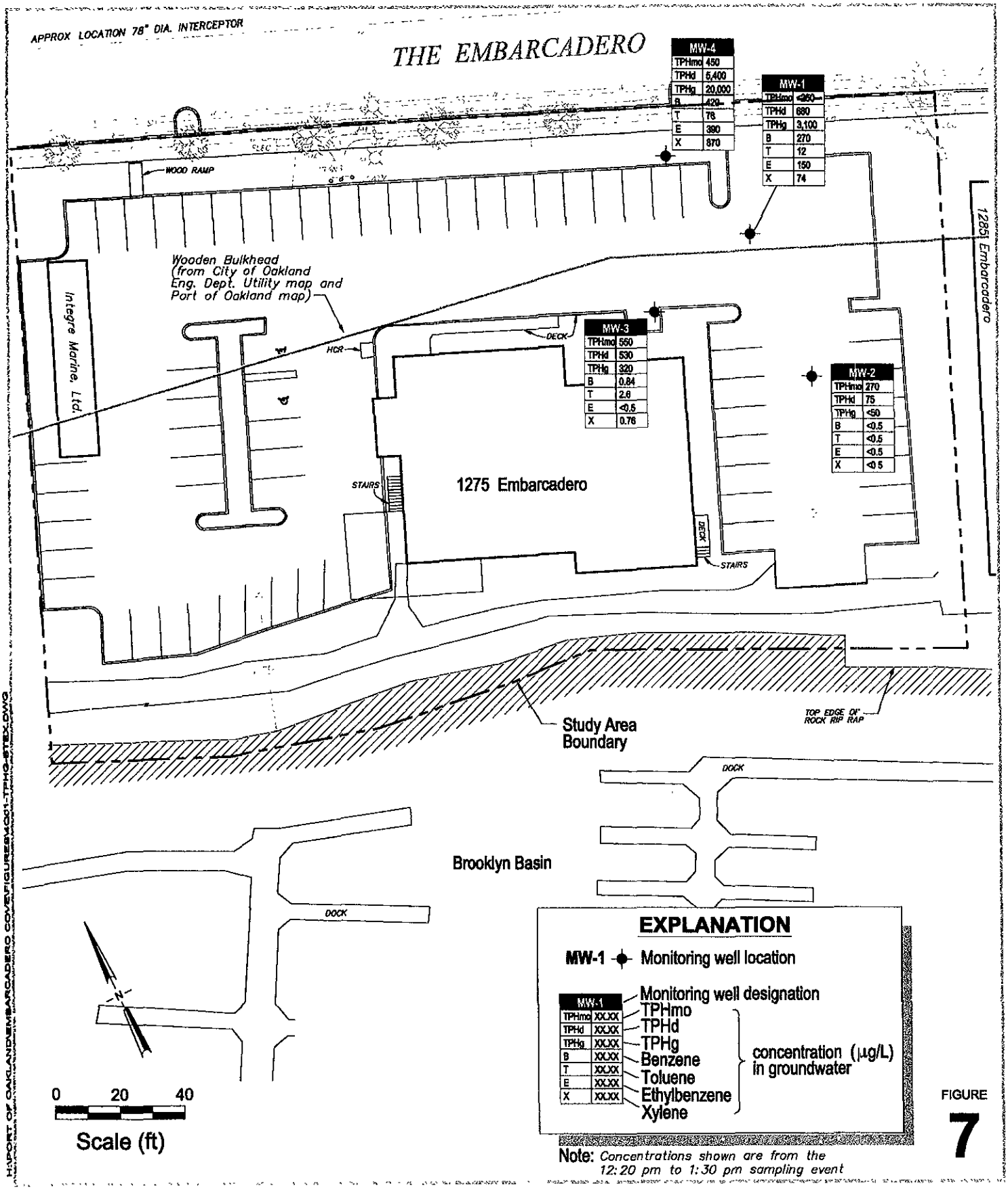
H:\PORT OF OAKLAND\EMBARCADERO COVE\FIGURES\FOUNDATION.DWG

Port of Oakland
1275 Embarcadero
Embarcadero Cove Project
Oakland, California

CAMBRIA

Foundation Boundaries

01/09/02



Note: *Concentrations shown are from the 12:20 pm to 1:30 pm sampling event*

FIGURE **7**

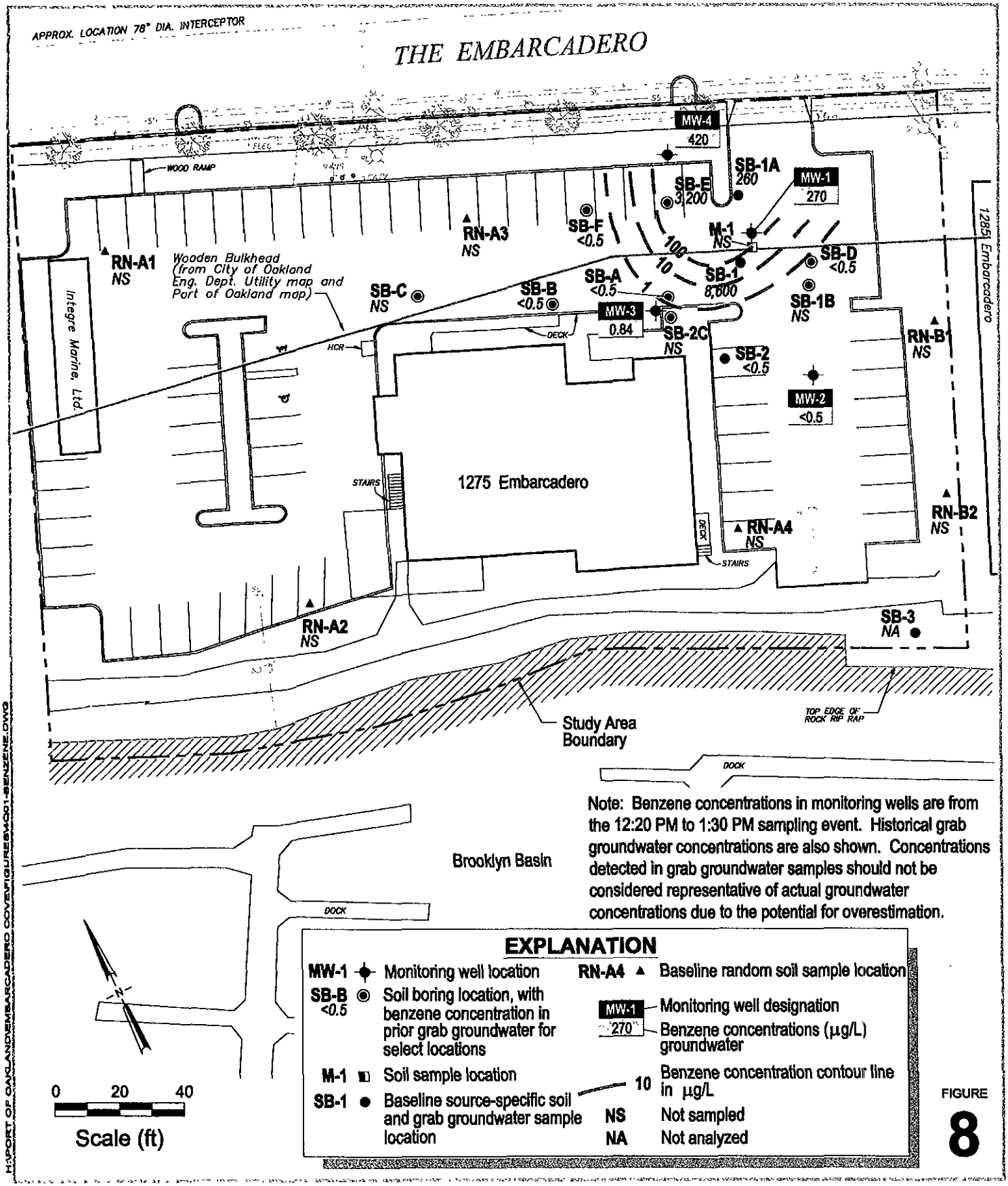
H:\PORT OF OAKLAND\EMBARCADERO COVE\FIGURES\M301-TPHG-BTEX.DWG

Port of Oakland
1275 Embarcadero
Embarcadero Cove Project
Oakland, California

CAMBRIA

Hydrocarbon Concentrations in Groundwater
for December 5, 2001

01/09/02



Note: Benzene concentrations in monitoring wells are from the 12:20 PM to 1:30 PM sampling event. Historical grab groundwater concentrations are also shown. Concentrations detected in grab groundwater samples should not be considered representative of actual groundwater concentrations due to the potential for overestimation.

EXPLANATION

- MW-1 ✦ Monitoring well location
- SB-B <0.5 ◉ Soil boring location, with benzene concentration in prior grab groundwater for select locations
- M-1 ▮ Soil sample location
- SB-1 ● Baseline source-specific soil and grab groundwater sample location
- RN-A4 ▲ Baseline random soil sample location
- MW-1 / 270 — Monitoring well designation; Benzene concentrations (µg/L) groundwater
- 10 — Benzene concentration contour line in µg/L
- NS — Not sampled
- NA — Not analyzed

FIGURE **8**

H:\PORT OF OAKLAND\EMBARCADERO COVE\FIGURES\MO01-BENZENE.DWG

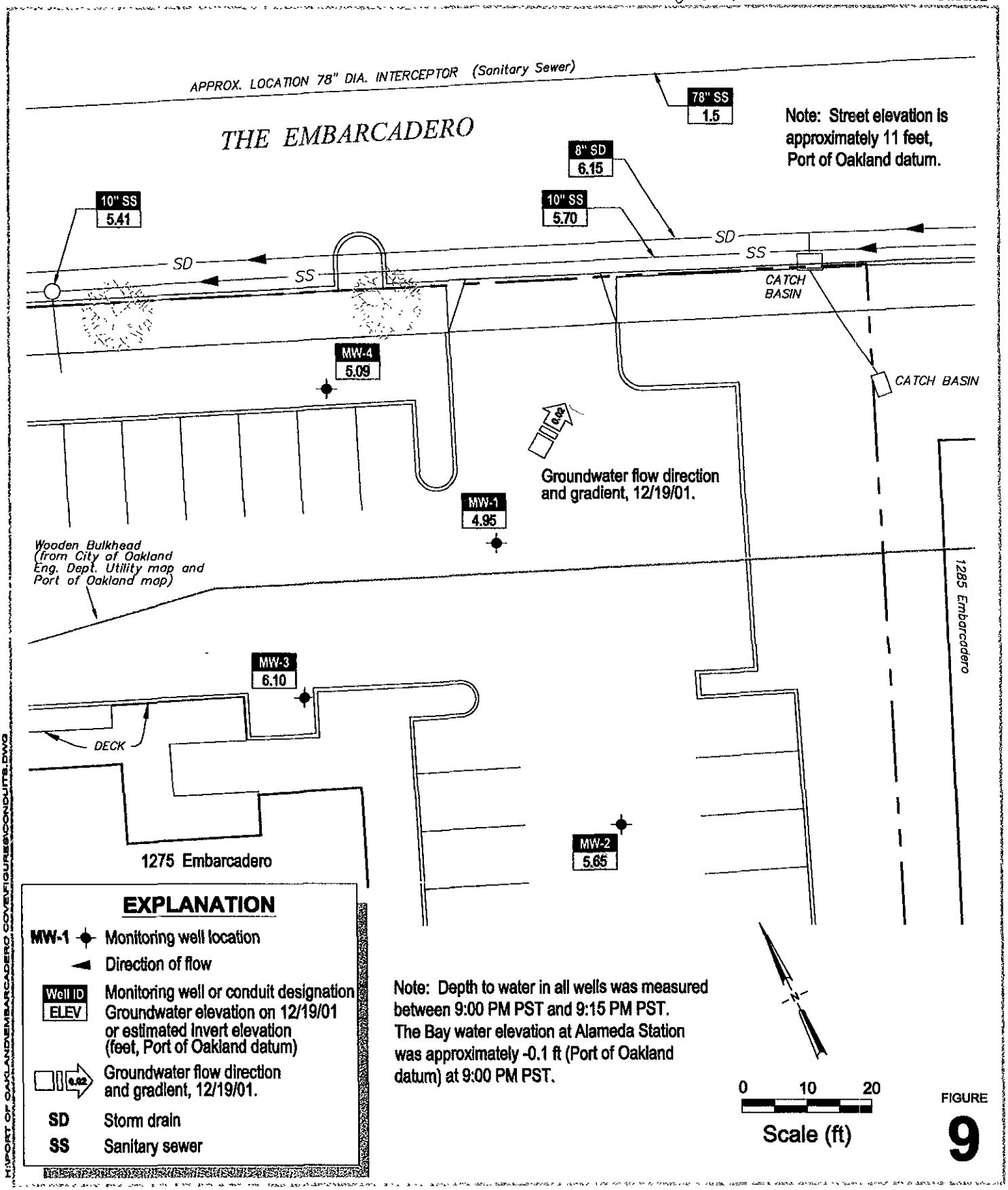
Port of Oakland
1275 Embarcadero
Embarcadero Cove Project
Oakland, California

CAMBRIA

Benzene Concentrations in Groundwater

for December 5, 2001

01/09/02



H:\PORT OF OAKLAND\EMBARCADERO COVE\FIGURES\CONDUITS.DWG

FIGURE
9

Port of Oakland
1275 Embarcadero
Embarcadero Cove Project
Oakland, California

CAMBRIA

Groundwater Elevations and Deeper Subsurface Conduits

December 19, 2001

01/10/02

A — South - Southwest

A' — North - Northeast

Approximate Shoreline Location

MW-2 | MW-3 | Wooden Bulkhead | MW-1 | MW-4

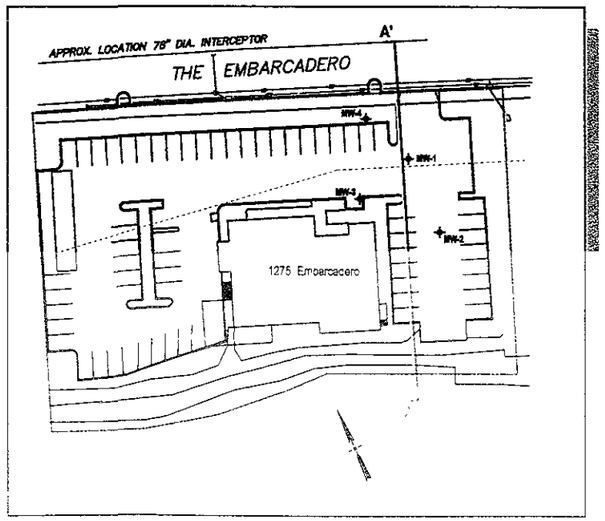
Elevation in Feet, Port of Oakland Datum

11 10 9 8 7 6 5 4 3 2 1 0 -1

Note: High tide at Alameda Station was approximately 5.13 ft. (Port of Oakland datum) at 4:00 AM PST.
Low tide at Alameda Station was approximately 2.67 ft. (Port of Oakland datum) at 8:48 AM PST.
During falling tide, depth to water in all wells was measured between 6:10 AM PST and 6:20 AM PST. The Bay water elevation at Alameda Station was approximately 4.1 ft. (Port of Oakland datum) at 6:12 AM PST.
During rising tide, depth to water in all wells was measured between 11:40 AM PST and 11:50 AM PST. The Bay water elevation at Alameda Station was approximately 4.3 ft. (Port of Oakland datum) at 11:42 AM PST.

MW-2: ▼ 6.11, ▽ 5.66
MW-3: ▼ 6.69, ▽ 5.54
MW-1: ▼ 5.33, ▽ 4.74
MW-4: ▼ 5.61, ▽ 5.08

Storm Drain Trench
Sanitary Sewer Trench
78" Interceptor Trench



EXPLANATION

▼ Groundwater Elevation. 6:10 AM - 6:20 AM (Falling Tide)
▽ Groundwater Elevation. 11:40 AM - 11:50 AM (Rising Tide)

Scale (ft): 0 10 20 (2, 1)

Effects of Tidal Cycle on Groundwater Levels on either side of the Wooden Bulkhead

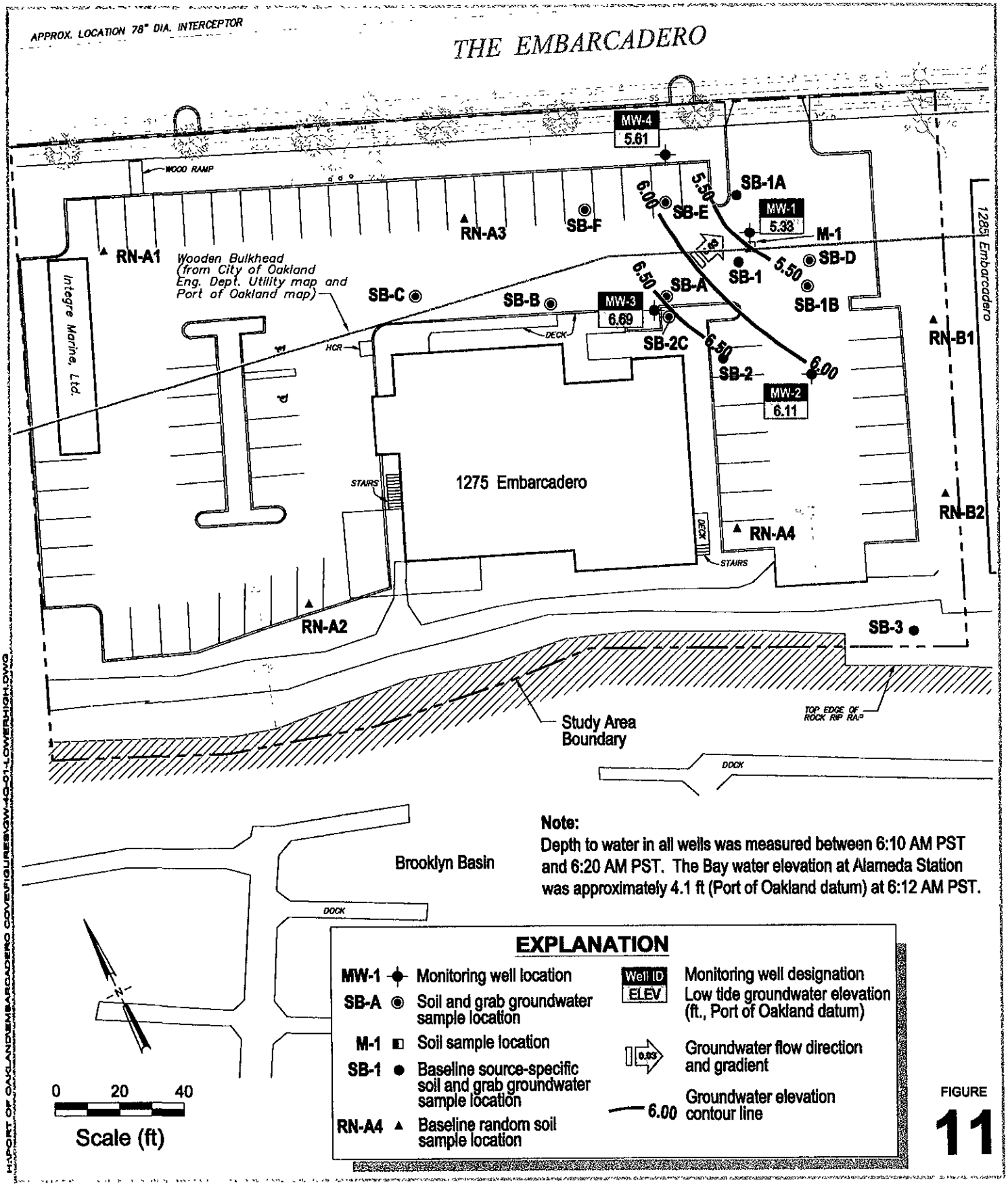
December 5, 2001

CAMBRIA

FIGURE **10**

Port of Oakland
1275 Embarcadero
Embarcadero Cove Project
Oakland, California

H:\PORT OF OAKLAND\EMBARCADERO COVE\FIGURES\X-SECTION.DWG



Note:
Depth to water in all wells was measured between 6:10 AM PST and 6:20 AM PST. The Bay water elevation at Alameda Station was approximately 4.1 ft (Port of Oakland datum) at 6:12 AM PST.

EXPLANATION

MW-1	Monitoring well location	Well ID / ELEV	Monitoring well designation Low tide groundwater elevation (ft., Port of Oakland datum)
SB-A	Soil and grab groundwater sample location	0.03	Groundwater flow direction and gradient
M-1	Soil sample location	6.00	Groundwater elevation contour line
SB-1	Baseline source-specific soil and grab groundwater sample location		
RN-A4	Baseline random soil sample location		

FIGURE
11

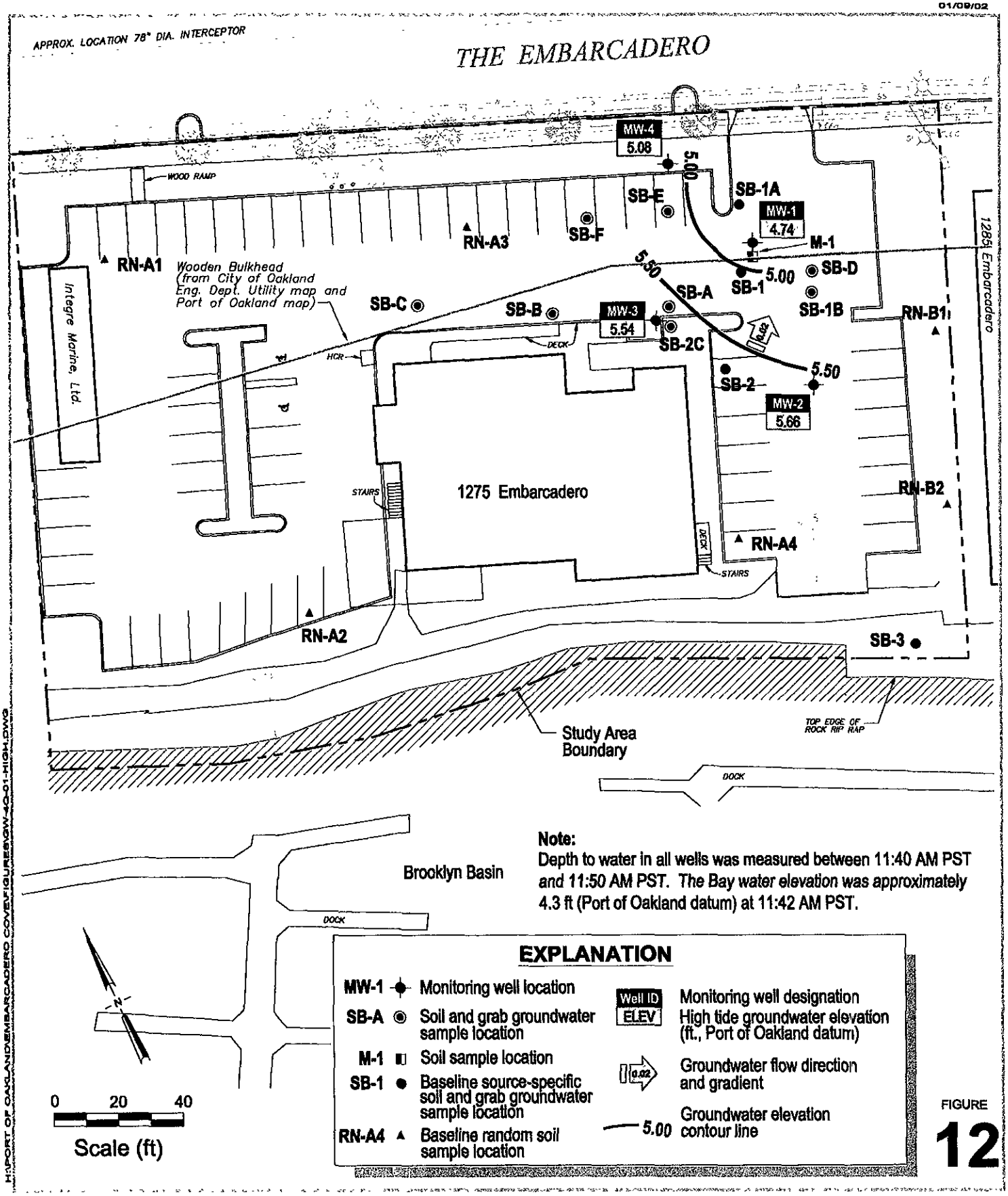
H:\PORT OF OAKLAND\EMBARCADERO COVE\FIGURES\GW4Q01-LOWERHIGH.DWG

Port of Oakland
1275 Embarcadero
Embarcadero Cove Project
Oakland, California

CAMBRIA

Groundwater Elevation Contours (Falling Tide)

for December 5, 2001



Note:
Depth to water in all wells was measured between 11:40 AM PST and 11:50 AM PST. The Bay water elevation was approximately 4.3 ft (Port of Oakland datum) at 11:42 AM PST.

FIGURE
12

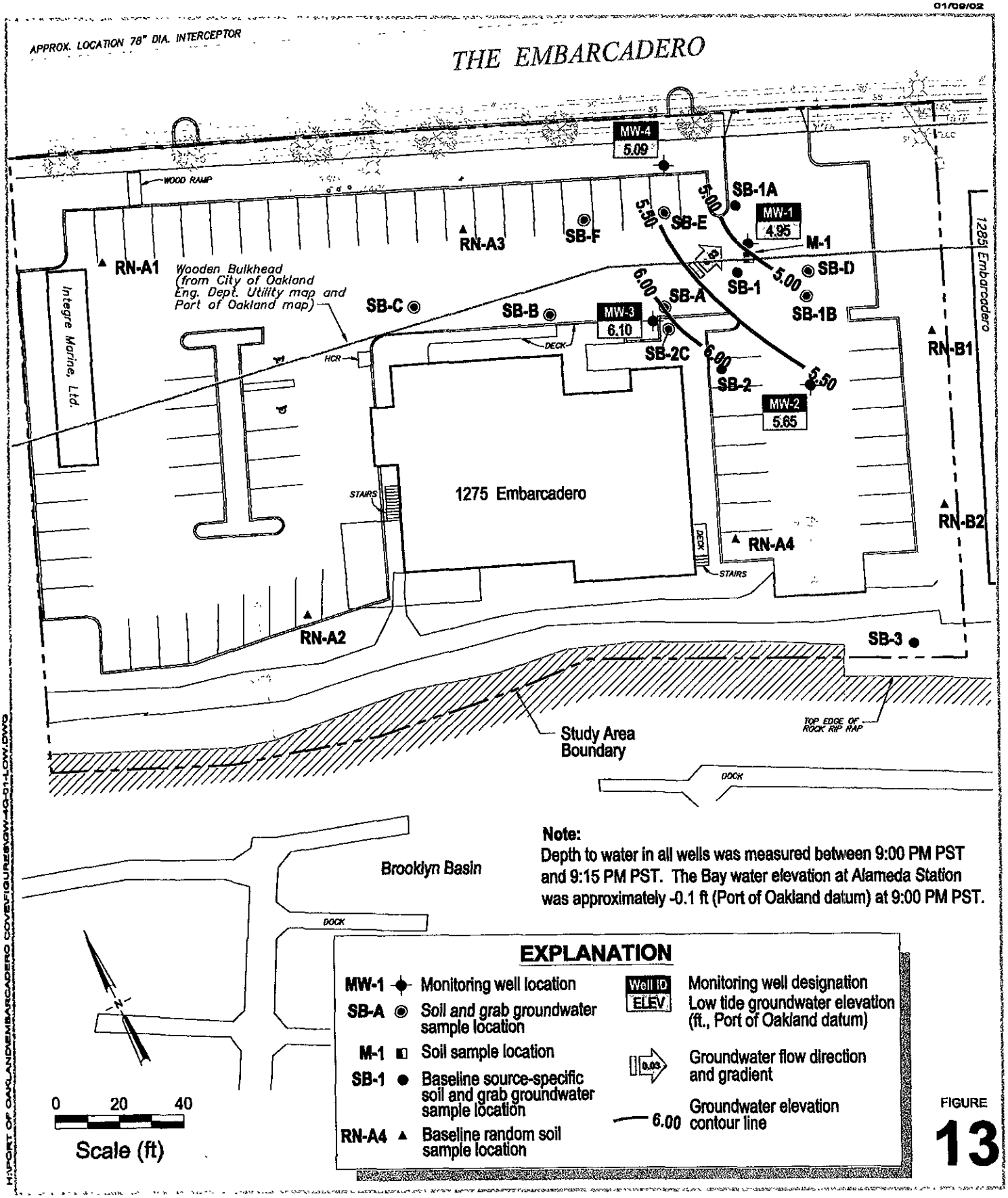
H:\PORT OF OAKLAND\EMBARCADERO COVE\FIGURES\GW-4Q-01-HIGH.DWG

Port of Oakland
1275 Embarcadero
Embarcadero Cove Project
Oakland, California

CAMBRIA

Groundwater Elevation Contours (Rising Tide)

for December 5, 2001



H:\PORT OF OAKLAND\EMBARCADERO COVE\FIGURES\GW-4Q-01-1-OW.DWG

FIGURE
13

Port of Oakland
1275 Embarcadero
Embarcadero Cove Project
Oakland, California

CAMBRIA

Groundwater Elevation Contours (Slack Tide)

for December 19, 2001

TABLES

CAMBRIA

Table 1: Soil Analytical Data - Light-Range Petroleum Hydrocarbons and MTBE - 1275 Embarcadero, Oakland, CA

Sample ID	Date Sampled	Sample Depth (ft)	TPHg	Benzene	Toluene	Ethylbenzene	Xylenes	MTBE
			mg/kg					
Baseline Samples								
RN-A1,1.5-2	05/01/01	1.5	--	< 0.005	< 0 005	< 0.005	< 0.005	< 1.0
RN-A2;1-1.5	05/01/01	1.0	--	< 0.005	< 0.005	< 0 005	< 0.005	< 1.0
RN-A3;0.5-1	05/01/01	0.5	--	< 0.005	< 0.005	< 0.005	< 0 005	< 1.0
RN-A4;1.0-1.5	05/01/01	1.0	--	< 0.005	< 0.005	< 0.005	< 0.005	< 1.0
RN-B1;1-1.5	05/01/01	1.0	--	< 0.005	< 0.005	< 0.005	< 0.005	< 1.0
RN-B2;1-1.5	05/01/01	1.0	--	< 0.005	< 0.005	< 0.005	< 0.005	< 1.0
SB-1;0.75-1.25	05/01/01	0.75	< 1.1	< 0.0056	< 0.0056	< 0.0056	< 0.0056	--
SB-1;3-3.5	05/01/01	3.0	< 1.0	0.013	< 0.0052	< 0.0052	< 0.0052	--
SB-1A;0-0.5	05/02/01	0.0	< 1.1	< 0.0054	< 0.0054	< 0.0054	< 0.0054	--
SB-1A;5-5.5	05/02/01	5.0	**500**	< 0.130	1.1	5.0	**16.1**	--
SB-1B;1-1 5	05/02/01	1.0	< 1.0	< 0.005	< 0.005	< 0.005	0.0074	--
SB-2;1-1.5	05/01/01	1.0	< .98	< 0.0049	< 0.0049	< 0.0049	< 0.0049	--
SB-2;4-4.5	05/01/01	4.0	< 1.1	< 0.0054	< 0.0054	< 0.0054	< 0.0054	--
SB-2C;0-0.5	05/02/01	0.0	< 0.96	< 0.0048	< 0.0048	< 0.0048	< 0.0048	--
SB-2C,3-3.5	05/02/01	3.0	< 1.0	< 0.0052	< 0.0052	< 0 0052	< 0.0052	--
Cambria Samples								
SB-A-3.5	08/30/01	3.5	< 1.0	< 0.005	< 0.005	< 0.005	< 0.005	< 0.05
SB-B-3.5	08/30/01	3.5	< 1.0	< 0.005	< 0 005	< 0.005	< 0.005	< 0.05
SB-D-3.5	08/30/01	3.5	< 1.0	< 0 005	< 0 005	< 0.005	< 0.005	< 0.05
SB-E-3.5	08/30/01	3.5	1.4	0.014	0.0080	< 0 005	0 026	< 0.05
SB-F-3.5	08/30/01	3.5	2.5	0.021	0.010	< 0.005	0.005	< 0.05
MW-1-5	09/17/01	5.0	2,300	1.8	3.7	**48**	**7.2**	**5.1**
MW-1-8.3	10/09/01	8.3	30	**0.48**	0.067	0.70	0.52	<0.05
MW-2-5.0	10/09/01	5.0	7.5	0.027	0 051	0 041	0.087	<0.05
MW-3-5.0	10/09/01	5 0	1.6	< 0.005	< 0.005	< 0.005	< 0.005	<0 05
MW-4-5.3	10/09/01	5.3	34	**0.70**	0.068	0.41	0.97	<0.05

CAMBRIA

Table 1: Soil Analytical Data - Light-Range Petroleum Hydrocarbons and MTBE - 1275 Embarcadero, Oakland, CA

Sample ID	Date Sampled	Sample Depth (ft)	TPHg	Benzene	Toluene	Ethylbenzene	Xylenes	MTBE
			mg/kg					
Soil Screening Values								
Surface Soil (<3 m) Commercial Worker [non-drinking water source][1]								
Human Health Risk-Based			11,000 ?	0.39	89	220	210 sat	69
Soil Leaching-Based for Protection of Aquatic Life			400	2.1	8.4	24	1	1
Urban Area Ecotoxicity-Based			--	25	150	--	--	--
Construction Worker[2]								
Human Health Risk-Based			16,000	16	520 sat	230 sat	210 sat	4900

Abbreviations and Methods:

ft = feet

mg/kg = milligrams per kilogram

-- = not available, not analyzed, or does not apply

MTBE = methyl tert-butyl ether by EPA Method 8020

Benzene, toluene, ethylbenzene, and xylenes by EPA Method 8020 or 8021B

TPHg = total petroleum hydrocarbons as gasoline by EPA Methods modified 8015, 5030, and 8020 or 602

sat = saturation limit

Notes:

[1] Soil screening values from RWQCB's (2000) Table B-2.

[2] Soil screening values from RWQCB's (2000) Table K-3

Bolded values indicate exceedance of soil screening values.

CAMBRIA

Table 2: Soil Analytical Data - Heavy-Range Petroleum Hydrocarbons and SVOCs - 1275 Embarcadero, Oakland, CA

Sample ID	Date Sampled	Sample Depth (ft)	TPHd	TPHmo	bis(2-ethylhexyl) phthalate	Fluoranthene	2 - methyl naphthalene	Naphthalene	Pyrene
			mg/kg						
Baseline Samples[1]									
RN-A1;1.5-2	05/01/01	1.5	--	--	--	--	--	< 0.0046	--
RN-A2;1-1.5	05/01/01	1.0	--	--	--	--	--	< 0.005	--
RN-A3;0.5-1	05/01/01	0.5	--	--	--	--	--	< 0.005	--
RN-A4;1.0-1.5	05/01/01	1.0	--	--	--	--	--	< 0.0046	--
RN-B1;1-1.5	05/01/01	1.0	--	--	--	--	--	< 0.0049	--
RN-B2;1-1.5	05/01/01	1.0	--	--	--	--	--	< 0.0047	--
SB-1;0.75-1.25	05/01/01	0.75	62[2]	--	< 0.33	< 0.33	< 0.33	< 0 33	< 0 33
SB-1;3-3.5	05/01/01	3.0	13[2]	--	0.61	< 0.33	< 0.33	< 0.33	< 0.33
SB-1A;0-0.5	05/02/01	0.0	240[2]	--	< 6.60	< 6 60	< 6.60	< 6.60	< 6 60
SB-1A;5-5.5	05/02/01	5.0	40[2]	--	< 0.33	< 0.33	2.2	2.2	< 0.33
SB-1B;1-1.5	05/02/01	1.0	60[2]	--	--	--	--	--	--
SB-2;1-1.5	05/01/01	1.0	43[2]	--	< 0.33	< 0.33	< 0.33	< 0.33	< 0.33
SB-2;4-4.5	05/01/01	4.0	43[2]	--	< 0.33	< 0.33	< 0.33	< 0 33	< 0 33
SB-2C;0-0.5	05/02/01	0.0	25[2]	--	--	--	--	--	--
SB-2C;3-3.5	05/02/01	3.0	37[2]	--	--	--	--	--	--
Cambria Samples									
SB-A-3.5	08/30/01	3.5	1 4	5.2	--	< 0 25	--	< 0.25	< 0.25
SB-B-3.5	08/30/01	3.5	< 1.0	< 5.0	--	< 0.062	--	< 0.062	< 0.062
SB-D-3.5	08/30/01	3.5	< 1.0	< 5.0	--	< 0.062	--	< 0.062	< 0.062
SB-E-3.5	08/30/01	3.5	2.4	6.1	--	< 0.062	--	< 0.062	< 0.062
SB-F-3.5	08/30/01	3.5	4.6	16	--	< 0.25	--	< 0.25	< 0.25
[illegible]	09/17/01	5.0	[illegible]	97	--	--	--	--	--
MW-1-8.3	10/09/01	8.3	5.7	< 5 0	< 0 33	< 0 33	< 0.33	< 0.33 / 0.58[3]	< 0.33
MW-2-5.0	10/09/01	5.0	74	300	< 1.0	< 1.0	< 1.0	< 1.0 / < 0.005[3]	< 1.0
MW-3-5.0	10/09/01	5.0	17	160	< 0.33	< 0.33	< 0.33	< 0.33 / < 0.005[3]	< 0.33
MW-4-5.3	10/09/01	5.3	8.3	10	< 0.33	< 0 33	< 0.33	0.62 / 0.62[3]	< 0 33
Soil Screening Values									
Surface Soil (<3 m) Commercial Worker [non-drinking water source][4]									
Human Health Risk-Based			11,000	11,000	180	6,000	280	5.7	11,000
Soil Leaching-Based for Protection of Aquatic Life			500	1,000	530	60	0 25	4.9	55
Urban Area Ecotoxicity-Based			--	--	--	40	--	40	--
Construction Worker[5]									
Human Health Risk-Based			16,000	16,000	1,200	12,000	18,000	450	16,000

CAMBRIA

Table 2: Soil Analytical Data - Heavy-Range Petroleum Hydrocarbons and SVOCs - 1275 Embarcadero, Oakland, CA

Sample ID	Date Sampled	Sample Depth (ft)	TPHd	TPHmo	bis(2-ethylhexyl) phthalate	Fluoranthene	2 - methyl naphthalene	Naphthalene	Pyrene
			←			mg/kg			→

Abbreviations and Methods:

ft = feet

mg/kg = milligrams per kilogram

-- = not available, not analyzed, or does not apply

TPHd = total petroleum hydrocarbons as diesel by EPA method 8015

TPHd analyses with silica gel clean-up prior to extraction unless otherwise noted

TPHmo = total petroleum hydrocarbons as motor oil by EPA method 8015

SVOC = semi-volatile organic compounds by EPA Method 8270 (modified 8100) *and 3550 or 625 and 3510 unless otherwise noted*

Notes:

Only those compounds above laboratory reporting limits are shown

[1] Baseline samples analyzed for SVOCs by EPA Method 8260 or 8270

[2] No silica gel cleanup performed, prepared by shaker table.

[3] Analyzed by EPA Method 8270 and additionally by EPA Method 8260

[4] Soil screening values from RWQCB's (2000) Table B-2.

[5] Soil screening values from RWQCB's (2000) Table K-3.

Bolded values indicate exceedance of soil screening values.

CAMBRIA

Table 3: Soil Analytical Data - Additional VOCs - 1275 Embarcadero, Oakland, CA

Sample ID	Date Sampled	Sample Depth (ft)	n-Butyl benzene	Isopropyl benzene	p-Isopropyl toluene	n-Propyl benzene	1,2,4-Trimethyl benzene	1,3,5-Trimethyl benzene
			← µg/kg →					
Cambria Samples								
MW-1-8.3	10/09/01	8.3	580	210	< 25	910	450	160
MW-2-5.0	10/09/01	5.0	18	< 5 0	11	17	26	11
MW-3-5.0	10/09/01	5.0	< 5.0	< 5.0	< 5.0	< 5.0	5.7	< 5.0
MW-4-5 3	10/09/01	5.3	< 25	220	< 25	870	1,000	610
Soil Screening Values								
Surface Soil (<3 m) Commercial Worker [non-drinking water source]								
Human Health Risk-Based			--	--	--	--	--	--
Soil Leaching-Based for Protection of Aquatic Life			--	--	--	--	--	--
Urban Area Ecotoxicity-Based			--	--	--	--	--	--
Construction Worker								
Human Health Risk-Based			--	--	--	--	--	--

Abbreviations and Methods:

µg/kg = micrograms per kilogram

-- = not available, not analyzed, or does not apply

VOC = volatile organic compounds by EPA Method 8260

Notes:

Only those compounds above laboratory reporting limits are shown

CAMBRIA

Table 4: Soil Analytical Data - Metals - 1275 Embarcadero, Oakland, CA

Sample ID	Date Sampled	Sample Depth (ft)	Barium (Ba)	Chromium (Cr) [1]	Hexavalent Chromium (Cr^{6+})	Cobalt (Co)	Copper (Cu)	Lead (Pb)	Nickel (Ni)	Vanadium (V)	Zinc (Zn)
			← mg/kg →								
Baseline Samples											
COMP A	04/23/01	2	41	22	--	5.3	17	24	25	20	40
SB-3; 0.5-1	05/01/01	0.5	--	--	<0.05	--	--	--	--	--	--
SB-3; 3.5-4	05/01/01	3.5	--	--	<0.05	--	--	--	--	--	--
Cambria Samples											
MW-1-8.3	10/09/01	8.3	110	56	--	12	15	2.6	64	33	29
Soil Screening Values											
Surface Soil (<3 m) Commercial Worker [non-drinking water source] [2]											
Human Health Risk-Based			2,400	610,000	1.8	24,000	15,000	1,000	1,000	2,900	120,000
Soil Leaching-Based for Protection of Aquatic Life			--	--	--	--	--	--	--	--	--
Urban Area Ecotoxicity-Based			1,500	750	8	80	225	--	150	200	600
Construction Worker [3]											
Human Health Risk-Based			2,400	800,000	1.8	32,000	20,000	1,000	1,000	3,700	160,000

Abbreviations and Methods:

ft = feet

mg/kg = milligrams per kilogram

-- = not available, not analyzed, or does not apply

Metal analyses (CAM / CCR 17) by EPA Method 6010

Baseline SB-3 samples analyzed for hexavalent chromium by EPA Method 7196

Notes:

Only those compounds above laboratory reporting limits are shown

COMP A is four-point composite of RN-A1, RN-A2, RN-A3, and RN-A4.

[1] For purposes of this analysis, we have assumed that the total chromium detected at the Site is in the trident form. This asumption is consistent with the data collected at the Site (i.e., hexavalent chromium was not detected in samples from SB-3), and is based on our experience at similar industrial sites, where absent a source of hexavalent chromium, chromium in soils is typically found in the trivalent (reduced) form.

[2] Soil screening values from RWQCB's (2000) Table B-2.

[3] Soil screening values from RWQCB's (2000) Table K-3.

CAMBRIA

Table 5: Groundwater Analytical and Elevation Data - Light-Range Petroleum Hydrocarbons and MTBE - 1275 Embarcadero, Oakland, CA

Sample ID *TOC* (ft)	Date Sampled	Groundwater Elevation (ft [1])	Depth to Water (ft)	TPHg	Benzene	Toluene	Ethylbenzene	Xylenes	MTBE
				← µg/L →					
Baseline Grab Samples									
SB-1	05/01/01	--	--	**80,000**	**8,600**	**8,200**	**3,900**	**14,600**	--
SB-1A	05/02/01	--	--	**25,000**	**260**	170	**760**	**2,290**	--
SB-2	05/01/01	--	--	< 50	< 0.5	< 0.5	< 0.5	< 0.5	--
Cambria Grab Samples									
SB-A	08/30/01	--	--	< 50	< 0.5	< 0.5	< 0.5	< 0.5	< 5.0
SB-B	08/30/01	--	--	< 50	< 0.5	< 0.5	< 0.5	< 0.5	< 5.0
SB-D	08/30/01	--	--	< 50	< 0.5	< 0.5	< 0.5	< 0.5	< 5.0
SB-E	08/30/01	--	--	**39,000**	**3,200**	750	**1,200**	**3,600**	< 200
SB-F	08/30/01	--	--	< 50	< 0.5	< 0.5	< 0.5	< 0.5	< 5.0
Cambria Monitoring Well Samples									
MW-1	10/12/01	4.88	7.15	--	--	--	--	--	--
12.03	10/19/01	4.81	7.22	**11,000**	**900**	300	**470**	**1,000**	--
	12/05/01 [2]	5.33	6.70	**13,000**	**1,300**	180	**1,200**	**860**	< 20
	12/05/01 [3]	4.74	7.29	3,100	**270**	12	150	**74**	< 5.0
	12/19/01 [4]	4.95	7.08	--	--	--	--	--	--
MW-2	10/12/01	5.71	5.75	--	--	--	--	--	--
11.46	10/19/01	5.52	5.94	< 50	< 0.5	< 0.5	< 0.5	< 0.5	--
	12/05/01 [2]	6.11	5.35	< 50	< 0.5	< 0.5	< 0.5	< 0.5	< 5.0
	12/05/01 [3]	5.66	5.80	< 50	< 0.5	< 0.5	< 0.5	< 0.5	< 5.0
	12/19/01 [4]	5.65	5.81	--	--	--	--	--	--
MW-3	10/12/01	5.89	6.60	--	--	--	--	--	--
12.49	10/19/01 [5]	5.84	6.65	290	2.0	6.6	0.54	1.2	--
	12/05/01 [2,5]	6.69	5.8	310	0.72	2.2	< 0.5	< 0.5	< 5.0
	12/05/01 [3,5]	5.54	6.95	320	0.84	2.6	< 0.5	0.76	< 5.0
	12/19/01 [4]	6.10	6.39	--	--	--	--	--	--
MW-4	10/12/01	4.98	8.15	--	--	--	--	--	--
13.13	10/19/01	4.91	8.22	**44,000**	**1,900**	270	**1,500**	**3,300**	--
	12/05/01 [2]	5.61	7.52	**13,000**	**120**	28	170	**380**	< 10
	12/05/01 [3]	5.08	8.05	**20,000**	**420**	78	390	**870**	< 20
	12/19/01 [4]	5.09	8.04	--	--	--	--	--	--
Trip Blank				--	--	--	--	--	--
TB	12/05/01	--	--	< 50	< 0.5	< 0.5	< 0.5	< 0.5	< 5.0
				--	--	--	--	--	--

CAMBRIA

Table 5: Groundwater Analytical and Elevation Data - Light-Range Petroleum Hydrocarbons and MTBE - 1275 Embarcadero, Oakland, CA

Sample ID *TOC* (ft)	Date Sampled	Groundwater Elevation (ft [1])	Depth to Water (ft)	TPHg	Benzene	Toluene	Ethylbenzene	Xylenes	MTBE
				← µg/L →					
Groundwater Screening Values [6]									
Indoor Air Impacts				–	84	76,000	170,000 sol	150,000	290000
Aquatic Life Protection				3,700 [a]	700 [b]	5,000 [b]	430 [c]	13 [d]	8,000 [e]

Abbreviations and Methods:

ft = feet

µg/L = micrograms per liter

-- = not available, not analyzed, or does not apply

msl = mean sea level

Benzene, toluene, ethylbenzene, and xylenes by EPA Method 8020

MTBE = methyl tert-butyl ether by EPA Method 8020

TPHg = total petroleum hydrocarbons as gasoline by EPA Methods modified 8015, 5030, and 8020 or 602

TOC Elev. (ft) = top of casing elevation in feet (Port of Oakland datum)

Depth to water in monitoring wells is ft below TOC.

sol = solubility threshold

Notes:

[1] Elevation in feet, Port of Oakland datum

[2] Wells gauged between 6:00 am and 6:30 am on 12/5 near lower high tide.

[3] Wells gauged between 11:40 am and 12:00 pm on 12/5 near higher high tide.

[4] Wells gauged between 9:00 pm and 9:15 pm on 12/19 at lower low tide.

[5] Sample was collected pre-purge.

[6] Goundwater screening values from RWQCB's (2000) Table F-2, F-4a, b, and c.

Bolded values indicate exceedance of groundwater screening values.

[a] California Toxic Rule, Saltwater Criteria for Continuous Concentration

[b] USEPA Saltwater Chronic Lowest Observable Effect Level

[c] USEPA Saltwater Acute Lowest Observable Effect Level

[d] USDOE Freshwater Chronic Preliminary Remedial Goal

[e] RWQCB Saltwater Criteria for Continuous Concentration (interim)

CAMBRIA

Table 6: Groundwater Analytical and Elevation Data - Heavy-Range Petroleum Hydrocarbons and SVOCs - 1275 Embarcadero, Oakland, CA

Sample ID *TOC* *(ft)*	Date Sampled	Groundwater Elevation (ft [1])	Depth to Water (ft)	TPHd	TPHmo	Acenaph-thalene	bis(2-ethylhexyl) phthalate	Fluoran-thene	1 - methyl-naphthalene	2 - methyl naphthalene	Naph-thalene	Phenan-threne	Pyrene
				←				µg/L					→
Baseline Grab Samples													
SB-1	05/01/01	--	--	2,900	--	< 94	< 94	< 94	--	260	610	< 94	< 94
SB-1A	05/02/01	--	--	800	--	<9 6	<9 6	<9.6	--	130	170	<9 6	<9.6
SB-2	05/01/01	--	--	180	--	< 9.7	< 9 7	< 9.7	--	< 9.7	< 9.7	< 9.7	< 9.7
Cambria Grab Samples													
SB-A	08/30/01	--	--	1,500	7,200	< 10	--	< 10	--	--	< 10	< 10	< 10
SB-B	08/30/01	--	--	63	550	< 10	--	< 10	--	--	< 10	< 10	< 10
SB-D	08/30/01	--	--	1,100	3,400	< 10	--	11	--	--	< 10	< 10	11
SB-E	08/30/01	--	--	5,800	350	< 50	--	< 50	--	--	370	< 50	< 50
SB-F	08/30/01	--	--	480	1,400	< 10	--	< 10	--	--	< 10	< 10	< 10
Cambria Monitoring Well Samples													
MW-1	10/12/01	4.88	7 15	--	--	--	--	--	--	--	--	--	--
12.03	10/19/01	4.81	7.22	3,300	< 250	< 10	< 10	< 10	--	54	66	< 10	< 10
	12/05/01 [2]	5.33	6.70	3,800	< 250	72	--	< 10	150	220	360	< 10	< 10
	12/05/01 [3,4]	4.74	7.29	680	< 250	9.6	--	< 1.0	18	14	22	1 3	< 1.0
	12/19/01 [5]	4.95	7 08	--	--	--	--	--	--	--	--	--	--
MW-2	10/12/01	5.71	5.75	--	--	--	--	--	--	--	--	--	--
11.46	10/19/01	5.52	5.94	210	460	< 10	< 10	< 10	--	< 10	< 10	< 10	< 10
	12/5/01 [2]	6.11	5.35	150	560	< 0.5	--	< 0.25	< 1.0	< 1.0	< 0.25	< 0.25	< 0 25
	12/05/01 [3,4]	5.66	5.80	75	270	< 0.5	--	< 0.25	< 1.0	< 1.0	< 0.25	< 0.25	< 0.25
	12/19/01 [5]	5.65	5.81	--	--	--	--	--	--	--	--	--	--
MW-3	10/12/01	5.89	6.60	--	--	--	--	--	--	--	--	--	--
12.49	10/19/01 [6]	5 84	6.65	1,600	1,300	< 25	< 25	< 25	--	670	420	< 25	< 25
	12/05/01 [2,6]	6.69	5.80	480	480	< 0.5	--	< 0.25	< 1.0	< 1 0	< 0.25	< 0.25	< 0.25
	12/05/01 [3,6]	5.54	6.95	530	550	< 0.5	--	< 0.25	< 1.0	< 1.0	< 0.25	< 0.25	0.31
	12/19/01 [5]	6.10	6.39	--	--	--	--	--	--	--	--	--	--
MW-4	10/12/01	4.98	8.15	--	--	--	--	--	--	--	--	--	--
13 13	10/19/01	4 91	8 22	33,000	900	< 50	< 50	< 50	--	< 50	< 50	< 50	< 50
	12/05/01 [2]	5.61	7.52	6,400	430	24	--	< 10	99	190	60	18	< 10
	12/05/01 [3]	5.08	8.05	5,400	450	21	--	< 10	100	180	96	12	< 10
	12/19/01 [5]	5.09	8.04	--	--	--	--	--	--	--	--	--	--

CAMBRIA

Table 6: Groundwater Analytical and Elevation Data - Heavy-Range Petroleum Hydrocarbons and SVOCs - 1275 Embarcadero, Oakland, CA

Sample ID *TOC* *(ft)*	Date Sampled	Groundwater Elevation (ft [1])	Depth to Water (ft)	TPHd	TPHmo	Acenaph-thalene	bis(2-ethylhexyl) phthalate	Fluoran-thene	1 - methyl-naphthalene	2 - methyl naphthalene	Naph-thalene	Phenan-threne	Pyrene
				←				µg/L					→
Groundwater Screening Values [7]													
Indoor Air Impacts				--	--	--	--	--	26,000 sol	26,000 sol	9,200		135 sol
Aquatic Life Protection				640 [a]	640 [a]	310 [g]	32 [b]	11 [c]	2.1 [d]	2.1 [d]	2,350 [e]	4.6 [f]	300 [e]

Abbreviations and Methods:

ft = feet

µg/L = micrograms per liter

-- = not available, not analyzed, or does not apply

msl = mean sea level

TOC Elev. (ft) = top of casing elevation in feet (Port of Oakland datum)

TPHd analyses with silica gel clean-up prior to extraction

TPHmo = total petroleum hydrocarbons as motor oil by EPA method 8015

SVOC = semi-volatile organic compound analyses performed by EPA Method 8270 (modified 8100) and 3550 unless otherwise noted

TPHd = total petroleum hydrocarbons as diesel by EPA method 8015, and 3550 or 3510

Only those compounds above laboratory reporting limits are shown

Depth to water in monitoring wells is ft below TOC.

sol = solubility threshold

Notes:

[1] Elevation in feet, Port of Oakland datum

[2] Wells gauged between 6:00 am and 6:30 am on 12/5 near lower high tide.

[3] Wells gauged between 11:40 am and 12:00 pm on 12/5 near higher high tide.

[4] SVOC extraction performed past standard 7day hold time per SW-846 Table 2-36 Revision 3, 12/96.

[5] Wells gauged between 9:00 pm and 9:15 pm on 12/19 at lower low tide.

[6] Sample was collected pre-purge

[7] Goundwater screening values from RWQCB's (2000) Table F-2, F-4a, b, and c.

Bolded values indicate exceedance of groundwater screening values.

[a] RWQCB Saltwater and Freshest Water Criteria

[b] USEPA Freshwater Chronic Ecotoxicity Criteria

[c] USEPA Saltwater Chronic Ecotoxicity Criteria

[d] USDOE Freshwater Chronic Preliminary Remedial Goal

[e] USEPA Saltwater Acute Lowest Observable Effect Level

[f] USEPA Saltwater Criterion for Continuous Concentration

[g] Ontario Ministry of Environment and Energy Drinking Water Screening Level

CAMBRIA

Table 7: Goundwater Analytical and Elevation Data - Metals - 1275 Embarcadero, Oakland, CA

Sample ID	Date Sampled	Groundwater Elevation (ft [1])	Depth to Water (ft)	Antimony (Sb)	Arsenic (As)	Barium (Ba)	Beryl-lium (Be)	Cad-mium (Cd)	Chro-mium (Cr)	Cobalt (Co)	Copper (Cu)	Lead (Pb)	Mercury (Hg)	Molyb-denum (Mo)	Nickel (Ni)	Sele-nium (Se)	Silver (Ag)	Thallium (Tl)	Vana-dium (V)	Zinc (Zn)
				←								ug/L								→
Cambria Samples																				
MW-1	12/07/01 [2]	6.85	5.18	< 6	5.7	57	< 4	< 5	< 20	< 50	< 50	5.3	< 0.8	< 50	< 50	< 5	< 10	< 5	< 50	< 50
MW-1	12/07/01 [3]	7 15	4.88	< 6	< 5	51	< 4	< 5	< 20	< 50	< 50	< 5	< 0.8	< 50	< 50	< 5	< 10	< 5	< 50	50

Abbreviations and Methods:

ft = feet

ug/L = micrograms per liter

Metal analyses (CAM / CCR 17) by EPA Method 6010

Notes:

Only those compounds above laboratory reporting limits are shown

[1] Elevation in feet, Port of Oakland datum

[2] Gauged at 5 40 am on 12/7 near higher high tide

[3] Gauged at 11.40 am on 12/7 near lower high tide

APPENDIX A

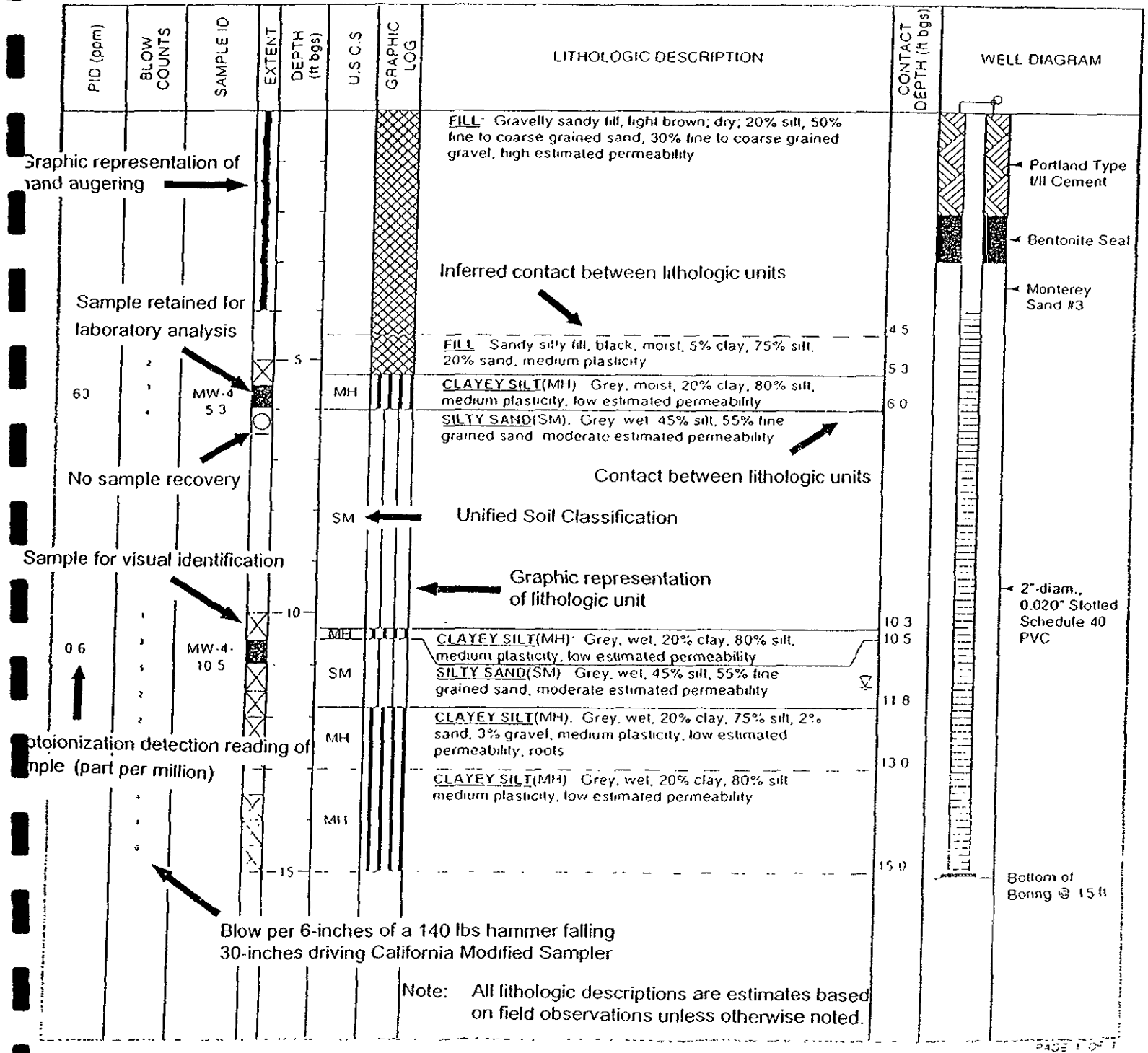
Soil Boring Logs

Cambria Environmental Technology, Inc
1144 - 65th St
Oakland, CA 94608
Telephone (510) 420-0700
Fax (510) 420-9170

BORING/WELL LOG

SAMPLE

CLIENT NAME		BORING/WELL NAME	MW Example
JOB/SITE NAME		DRILLING STARTED	
LOCATION		DRILLING COMPLETED	
PROJECT NUMBER		WELL DEVELOPMENT DATE (YIELD)	NA
DRILLER	ABC Drilling	GROUND SURFACE ELEVATION	
DRILLING METHOD	Hollow stem auger	TOP OF CASING ELEVATION	ft above msl
BORING DIAMETER	8"	SCREENED INTERVAL	4 to 15 ft bgs
LOGGED BY		DEPTH TO WATER (First Encountered)	11 4 ft (06-Jun-01)
REVIEWED BY		DEPTH TO WATER (Static)	
REMARKS	Hand augered to 4 ft bgs		



Note: All lithologic descriptions are estimates based on field observations unless otherwise noted.

Cambria Environmental Technology, Inc.
1144 - 65th St.
Oakland, CA 94608
Telephone: (510) 420-0700
Fax: (510) 420-9170

BORING/WELL LOG

CLIENT NAME	Port of Oakland	**BORING/WELL NAME**	MW-1
JOB/SITE NAME	Embarcadero Cove	**DRILLING STARTED**	09-Oct-01
LOCATION	1275 Embarcadero, Oakland, CA	**DRILLING COMPLETED**	09-Oct-01
PROJECT NUMBER	458-1705	**WELL DEVELOPMENT DATE (YIELD)**	12-Oct-01
DRILLER	V&W Drilling	**GROUND SURFACE ELEVATION**	Not Surveyed
DRILLING METHOD	Hollow-stem auger	**TOP OF CASING ELEVATION**	8.83 ft above msl
BORING DIAMETER	8"	**SCREENED INTERVAL**	4 to 15 ft bgs
LOGGED BY	K. Cejka	**DEPTH TO WATER (First Encountered)**	8.6 ft (09-Oct-01)
REVIEWED BY	R Schultz, RG# 7012	**DEPTH TO WATER (Static)**	7.15 ft (12-Oct-01)

REMARKS Located in previous test pit area to 6 ft bgs; located 37.7 ft WNW of eastern planter, 22.5 ft SSW of northern planter

PID (ppm)	BLOW COUNTS	SAMPLE ID	EXTENT	DEPTH (ft bgs)	U.S.C.S.	GRAPHIC LOG	LITHOLOGIC DESCRIPTION	CONTACT DEPTH (ft bgs)
							FILL: Gravelly sandy fill; light brown; dry; 20% silt, 50% fine to coarse grained sand, 30% gravel; high estimated permeability	
39	2 2 2	MW-1-5.0		5			**Clayey SILT**(MH): Black to grey; damp; 20% clay, 80% silt; low to medium plasticity; low estimated permeability; shell fragments	5.0
316		MW-1-8.3		10	MH		@ 8.0 ft: Grey; wet; medium plasticity; shell fragments	
0	1 2 3			15			@ 13.5 ft: Light yellowish brown; wet; 10% clay, 85% silt, 5% fine grained sand; medium plasticity	15.0

WELL DIAGRAM

- Portland Type I/II Cement
- Bentonite Seal
- Monterey Sand #2/12
- 2"-diameter, 0.010" Slotted Schedule 40 PVC
- Bottom of Boring @ 15 ft

WELL LOG (PID) H:\PORTOF-1\EMBARC-1\GINTEGOVEMW.GPJ DEFAULT GDT 1/13/02

Cambria Environmental Technology, Inc.
1144 - 65th St.
Oakland, CA 94608
Telephone: (510) 420-0700
Fax: (510) 420-9170

BORING/WELL LOG

CLIENT NAME	Port of Oakland	**BORING/WELL NAME**	MW-2
JOB/SITE NAME	Embarcadero Cove	**DRILLING STARTED**	08-Oct-01
LOCATION	1275 Embarcadero, Oakland, CA	**DRILLING COMPLETED**	09-Oct-01
PROJECT NUMBER	458-1705	**WELL DEVELOPMENT DATE (YIELD)**	12-Oct-01
DRILLER	V&W Drilling	**GROUND SURFACE ELEVATION**	Not Surveyed
DRILLING METHOD	Hollow-stem auger	**TOP OF CASING ELEVATION**	8.26 ft above msl
BORING DIAMETER	8"	**SCREENED INTERVAL**	4 to 15 ft bgs
LOGGED BY	K. Cejka	**DEPTH TO WATER (First Encountered)**	10.0 ft (09-Oct-01)
REVIEWED BY	R. Schultz, RG# 7012	**DEPTH TO WATER (Static)**	5.75 ft (12-Oct-01)

REMARKS Hand augered to 4 ft bgs; located 28 ft WNW of eastern planter, 68 feet SSW of norther planter

PID (ppm)	BLOW COUNTS	SAMPLE ID	EXTENT	DEPTH (ft bgs)	U.S.C.S.	GRAPHIC LOG	LITHOLOGIC DESCRIPTION	CONTACT DEPTH (ft bgs)	WELL DIAGRAM
							ASPHALT	0.5	Portland Type I/II Cement
							FILL: Gravelly sandy fill; grey to brown; dry; 20% silt, 40% sand, 40% medium to coarse grained gravel; high estimated permeability	1.5	
							CONCRETE	2.4	Bentonite Seal
							FILL: Gravelly sandy fill; brown; dry; 20% silt, 50% sand, 30% gravel, high estimated permeability	4.5	Monterey Sand #2/12
0	3 3 4	MW-2-5.0		5			**Clayey SILT**(MH): Grey to brown; moist; 20% clay, 80% silt; low to medium plasticity; low estimated permeability		
					MH				
0.6	1 3 5	MW-2-10.0		10			@ 10.0 ft: Wet; shell fragments		2"-diameter, 0.010" Slotted Schedule 40 PVC
					SM		**Silty SAND**(SM): Grey to brown; wet; 15% clay, 35% silt, 45% fine to coarse grained sand, 5% gravel; low to moderate estimated permeability; rust-colored staining	14.4 15.0	Bottom of Boring @ 15 ft
				15					

WELL LOG (PID) H:\PORTOF~1\EMBARC~1\GINTECOVEMW.GPJ DEFAULT.GDT 1/10/02

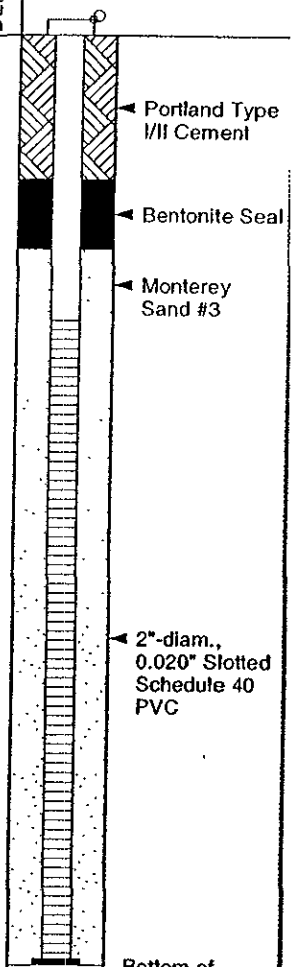
Cambria Environmental Technology, Inc.
1144 - 65th St.
Oakland, CA 94608
Telephone: (510) 420-0700
Fax: (510) 420-9170

BORING/WELL LOG

CLIENT NAME	Port of Oakland	**BORING/WELL NAME**	MW-3
JOB/SITE NAME	Embarcadero Cove	**DRILLING STARTED**	08-Oct-01
LOCATION	1275 Embarcadero, Oakland, CA	**DRILLING COMPLETED**	09-Oct-01
PROJECT NUMBER	458-1705	**WELL DEVELOPMENT DATE (YIELD)**	12-Oct-01
DRILLER	V&W Drilling	**GROUND SURFACE ELEVATION**	Not Surveyed
DRILLING METHOD	Hollow-stem auger	**TOP OF CASING ELEVATION**	9.29 ft above msl
BORING DIAMETER	8"	**SCREENED INTERVAL**	4 to 13 ft bgs
LOGGED BY	K. Cejka	**DEPTH TO WATER (First Encountered)**	7.9 ft (09-Oct-01)
REVIEWED BY	R. Schultz, RG# 7012	**DEPTH TO WATER (Static)**	6.60 ft (12-Oct-01)
REMARKS	Hand augered to 3.2 ft bgs; located 69 ft WNW of eastern planter, 44.5 ft SSW of northern planter		

PID (ppm)	BLOW COUNTS	SAMPLE ID	EXTENT	DEPTH (ft bgs)	U.S.C.S.	GRAPHIC LOG	LITHOLOGIC DESCRIPTION	CONTACT DEPTH (ft bgs)
							CONCRETE	0.5
							FILL: Sandy fill; brown; dry; 20% silt, 70% sand, 10% gravel; high estimated permeability	
							CONCRETE	2.5
							ASPHALT	2.8
							CONCRETE	3.0
							FILL: Gravelly sandy fill; brown; dry; 20% silt, 50% sand, 30% gravel; high estimated permeability	3.3
0	2 3 5	MW-3-5.0		5			**Clayey SILT**(MH): Dark greenish grey; moist; 25% clay, 70% silt, 5% gravel; medium plasticity; very low estimated permeability; roots	5.0
6	2 3 4	MW-3-6.5			MH		@ 8.5 ft: Dark yellowish brown; wet; 20% clay, 80% silt; low plasticity; roots	
				10			@ 11.0 ft: Greenish grey; wet; 20% clay, 70% silt, 10% fine grained sand; low estimated permeability; roots	
	1 1 1	MW-3-12.5						13.0
							Note: Well cap dislodged from bottom. Surge block remains in well.	

WELL DIAGRAM



WELL LOG (PID) H:\PORTOF~1\EMBARC~1\GINTEC\OVEMW.GPJ DEFAULT.GDT 1/10/02

Cambria Environmental Technology, Inc.
1144 - 65th St
Oakland, CA 94608
Telephone: (510) 420-0700
Fax: (510) 420-9170

BORING/WELL LOG

CLIENT NAME	Port of Oakland	**BORING/WELL NAME**	MW-4
JOB/SITE NAME	Embarcadero Cove	**DRILLING STARTED**	08-Oct-01
LOCATION	1275 Embarcadero, Oakland, CA	**DRILLING COMPLETED**	09-Oct-01
PROJECT NUMBER	458-1705	**WELL DEVELOPMENT DATE (YIELD)**	12-Oct-01
DRILLER	V&W Drilling	**GROUND SURFACE ELEVATION**	Not Surveyed
DRILLING METHOD	Hollow-stem auger	**TOP OF CASING ELEVATION**	9.93 ft above msl
BORING DIAMETER	8"	**SCREENED INTERVAL**	4 to 15 ft bgs
LOGGED BY	K. Cejka	**DEPTH TO WATER (First Encountered)**	11.4 ft (09-Oct-01)
REVIEWED BY	R. Schultz, RG# 7012	**DEPTH TO WATER (Static)**	8.15 ft (12-Oct-01)

REMARKS Hand augered to 4 ft bgs; located 18.7 ft WNW of entrance way, 3 ft NNW of northern planter

PID (ppm)	BLOW COUNTS	SAMPLE ID	EXTENT	DEPTH (ft bgs)	U.S.C.S.	GRAPHIC LOG	LITHOLOGIC DESCRIPTION	CONTACT DEPTH (ft bgs)
				0			**FILL**: Gravelly sandy fill; light brown; dry; 20% silt, 50% fine to coarse grained sand, 30% fine to coarse grained gravel; high estimated permeability	
	2			5			@ 4.5 ft: Sandy silty fill; black; moist; 5% clay, 75% silt, 20% sand; medium plasticity	4.5
63	3 4	MW-4-5.3			MH		**Clayey SILT**(MH): Grey; moist; 20% clay, 80% silt; medium plasticity; low estimated permeability	5.3
					SM		**Silty SAND**(SM): Grey; wet; 45% silt, 55% fine grained sand; moderate estimated permeability	6.0
	1			10	MH		**Clayey SILT**(MH): Grey; wet; 20% clay, 80% silt; medium plasticity; low estimated permeability	10.3
0.6	3 5	MW-4-10.5			SM		**Silty SAND**(SM): Grey; wet; 45% silt, 55% fine grained sand; moderate estimated permeability	10.5
	2 2 3				MH		**Clayey SILT**(MH): Grey; wet; 20% clay, 75% silt, 2% sand, 3% gravel; medium plasticity; low estimated permeability; roots @ 13.0 ft: 20% clay, 80% silt	11.8
	4 4 6			15				15.0

WELL DIAGRAM

- Portland Type I/II Cement
- Bentonite Seal
- Monterey Sand #3
- 2"-diam., 0.020" Slotted Schedule 40 PVC
- Bottom of Boring @ 15 ft

WELL LOG (PID) H:\PORTOF~1\EMBARC~1\GINT\ECOVEMW.GPJ DEFAULT GDT 1/10/02

Cambria Environmental Technology, Inc.
1144 - 65th St.
Oakland, CA 94608
Telephone: (510) 420-0700
Fax: (510) 420-9170

BORING/WELL LOG

CLIENT NAME	Port of Oakland	**BORING/WELL NAME**	SB-A
JOB/SITE NAME	Embarcadero Cove	**DRILLING STARTED**	29-Aug-01
LOCATION	1275 Embarcadero, Oakland, CA	**DRILLING COMPLETED**	30-Aug-01
PROJECT NUMBER	458-1705	**WELL DEVELOPMENT DATE (YIELD)**	NA
DRILLER	Vironex	**GROUND SURFACE ELEVATION**	Not Surveyed
DRILLING METHOD	Hydraulic push	**TOP OF CASING ELEVATION**	NA
BORING DIAMETER	2"	**SCREENED INTERVAL**	NA
LOGGED BY	K. Cejka	**DEPTH TO WATER (First Encountered)**	8.0 ft (30-Aug-01) ▽
REVIEWED BY	R. Schultz, RG# 7012	**DEPTH TO WATER (Static)**	NA ▼
REMARKS	Hand augered to 3 ft bgs; located 66 ft WNW of eastern planter, 40 ft SSW of northern planter		

PID (ppm)	BLOW COUNTS	SAMPLE ID	EXTENT	DEPTH (ft bgs)	U.S.C.S.	GRAPHIC LOG	LITHOLOGIC DESCRIPTION	CONTACT DEPTH (ft bgs)	WELL DIAGRAM
							ASPHALT	0.5	
							FILL: Sandy fill; greyish brown; dry; 20% silt, 80% fine grained sand; very high estimated permeability	2.0	
							CONCRETE	2.5	
							ASPHALT	2.7	
							CONCRETE	3.0	
3		SB-A- 3.5					**FILL**: Silty gravelly fill; light brown; 10% clay, 30% silt, 60% fine to coarse grained gravel; high estimated permeability	4 0	
					CL		**Silty CLAY** (CL): Brown; dry; 60% clay, 25% silt, 15% sand; medium plasticity; very low estimated permeability	5.0	◄ Portland Type I/II Cement
				5			**Sandy CLAY** (CH): Grey; damp; 65% clay, 30% sand, 5% fine grained gravel; high plasticity; very low estimated permeability		
					CH				
4		SB-A- 7.5					@ 8 ft: Brown; wet; 70% clay, 5% silt, 25% sand ▽		
								9.0	
6		SB-A- 9.5			CL		**Silty CLAY** (CL): Grey; wet; 65% clay, 35% silt; medium plasticity; very low estimated permeability; shell fragments		
				10				10.0	Bottom of Boring @ 10 ft

WELL LOG (PID) H:\PORTOF~1\EMBARC~1\GINT\EMBCOVE.GPJ DEFAULT.GDT 1/10/02

Cambria Environmental Technology, Inc.
1144 - 65th St.
Oakland, CA 94608
Telephone: (510) 420-0700
Fax: (510) 420-9170

BORING/WELL LOG

CLIENT NAME	Port of Oakland	**BORING/WELL NAME**	SB-B
JOB/SITE NAME	Embarcadero Cove	**DRILLING STARTED**	29-Aug-01
LOCATION	1275 Embarcadero, Oakland, CA	**DRILLING COMPLETED**	30-Aug-01
PROJECT NUMBER	458-1705	**WELL DEVELOPMENT DATE (YIELD)**	NA
DRILLER	Vironex	**GROUND SURFACE ELEVATION**	Not Surveyed
DRILLING METHOD	Hydraulic push	**TOP OF CASING ELEVATION**	NA
BORING DIAMETER	2"	**SCREENED INTERVAL**	NA
LOGGED BY	K. Cejka	**DEPTH TO WATER (First Encountered)**	7 0 ft (30-Aug-01) ▽
REVIEWED BY	R. Schultz, RG# 7012	**DEPTH TO WATER (Static)**	NA ▼

REMARKS Hand augered to 3.5 ft bgs; located 102 ft WNW of eatern planter, 40 ft SSW of northern planter

PID (ppm)	BLOW COUNTS	SAMPLE ID	EXTENT	DEPTH (ft bgs)	U.S.C.S.	GRAPHIC LOG	LITHOLOGIC DESCRIPTION	CONTACT DEPTH (ft bgs)	WELL DIAGRAM
							ASPHALT	0.5	
							FILL: Sandy fill; grey; dry; 20% silt, 80% fine grained sand; very high estimated permeability; cobble		
							CONCRETE	2.0	
							ASPHALT	2.5	
							CONCRETE	2.7	
							FILL: Silty gravelly fill; brown; 15% clay, 20% silt, 5% sand, 60% fine to coarse grained gravel; low plasticity, medium estimated permeability	3.0	
3		SB-B- 3.5		5					
					SM		**Silty SAND** (SM): Grey; damp; 40% silt, 60% fine grained sand; high estimated permeability	5.5	◄ Portland Type I/II Cement
3		SB-B- 6.5					▽	7.0	
					CH		**Silty CLAY** (CH): Grey; wet; 60% clay, 40% silt; medium plasticity; low estimated permeabilitiy		
				10					
4		SB-B- 10.5						11.0	Bottom of Boring @ 11 ft

WELL LOG (PID) H:\PORTOF~1\EMBARC~1\GINTEMBCOVE.GPJ DEFAULT.GDT 1/10/02

Cambria Environmental Technology, Inc.
1144 - 65th St.
Oakland, CA 94608
Telephone: (510) 420-0700
Fax: (510) 420-9170

BORING/WELL LOG

CLIENT NAME	Port of Oakland	**BORING/WELL NAME**	SB-C
JOB/SITE NAME	Embarcadero Cove	**DRILLING STARTED**	29-Aug-01
LOCATION	1275 Embarcadero, Oakland, CA	**DRILLING COMPLETED**	29-Aug-01
PROJECT NUMBER	458-1705	**WELL DEVELOPMENT DATE (YIELD)**	NA
DRILLER	Vironex	**GROUND SURFACE ELEVATION**	Not Surveyed
DRILLING METHOD	Hand auger	**TOP OF CASING ELEVATION**	NA
BORING DIAMETER	4"	**SCREENED INTERVAL**	NA
LOGGED BY	K. Cejka	**DEPTH TO WATER (First Encountered)**	NA
REVIEWED BY	R. Schultz, RG# 7012	**DEPTH TO WATER (Static)**	NA
REMARKS	Hand augered to 4 ft bgs; 143 ft WNW of eastern planter, 36 ft SSW of northern planter		

PID (ppm)	BLOW COUNTS	SAMPLE ID	EXTENT	DEPTH (ft bgs)	U.S.C.S.	GRAPHIC LOG	LITHOLOGIC DESCRIPTION	CONTACT DEPTH (ft bgs)	WELL DIAGRAM
							ASPHALT	0.5	
							FILL: Sandy fill; grey; dry; 10% silt, 90% fine grained sand; very high estimated permeability	2.0	
							CONCRETE	2.5	
							ASPHALT	2.7	
							CONCRETE	3.0	
							FILL: Gravel fill; Grey; 10% clay, 90% fine to coarse grained gravel; very high estimated permeability	4.0	Bottom of Boring @ 4 ft

WELL LOG (PID) H:\PORTOF~1\EMBARC~1\GINT\EMBCOVE.GPJ DEFAULT.GDT 1/10/02

Cambria Environmental Technology, Inc.
1144 - 65th St.
Oakland, CA 94608
Telephone: (510) 420-0700
Fax: (510) 420-9170

BORING/WELL LOG

CLIENT NAME	Port of Oakland	**BORING/WELL NAME**	SB-D
JOB/SITE NAME	Embarcadero Cove	**DRILLING STARTED**	29-Aug-01
LOCATION	1275 Embarcadero, Oakland, CA	**DRILLING COMPLETED**	30-Aug-01
PROJECT NUMBER	458-1705	**WELL DEVELOPMENT DATE (YIELD)**	NA
DRILLER	Vironex	**GROUND SURFACE ELEVATION**	Not Surveyed
DRILLING METHOD	Hydraulic push	**TOP OF CASING ELEVATION**	NA
BORING DIAMETER	2"	**SCREENED INTERVAL**	NA
LOGGED BY	K. Cejka	**DEPTH TO WATER (First Encountered)**	6.5 ft (30-Aug-01) ▽
REVIEWED BY	R. Schultz, RG# 7012	**DEPTH TO WATER (Static)**	NA ▼

REMARKS Hand augered to 3 ft bgs; located 20 ft WNW of eastern planter, 30 ft SSW of northern planter

PID (ppm)	BLOW COUNTS	SAMPLE ID	EXTENT	DEPTH (ft bgs)	U.S.C.S.	GRAPHIC LOG	LITHOLOGIC DESCRIPTION	CONTACT DEPTH (ft bgs)	WELL DIAGRAM
							ASPHALT	0.5	
							FILL: Gravelly sandy fill; brown; moist; 70% sand, 30% gravel; high estimated permeability	2.0	
							CONCRETE	2.5	
4		SB-D- 3.5		5			**FILL**: Silty gravelly fill; brownish black; moist; 5% clay, 20% silt, 75% fine to coarse grained gravel; high estimated permeability	5.0	Portland Type I/II Cement
3		SB-D- 6.5			CL		**Silty CLAY** (CL): Dark brown; damp; 65% clay, 35% silt; low plasticity; very low permeability ▽	7.0	
					CH		**Clayey SILT** (CL): Grey; wet; 40% clay, 60% silt; medium plasticity; low estimated permeability		
2		SB-D-10.5		10				11.0	Bottom of Boring @ 11 ft

WELL LOG (PID) H:\PORTOF-1\EMBARC-1\GINT\EMBCOVE.GPJ DEFAULT.GDT 1/10/02

Cambria Environmental Technology, Inc.
1144 - 65th St.
Oakland, CA 94608
Telephone: (510) 420-0700
Fax: (510) 420-9170

BORING/WELL LOG

CLIENT NAME	Port of Oakland	**BORING/WELL NAME**	SB-E
JOB/SITE NAME	Embarcadero Cove	**DRILLING STARTED**	29-Aug-01
LOCATION	1275 Embarcadero, Oakland, CA	**DRILLING COMPLETED**	30-Aug-01
PROJECT NUMBER	458-1705	**WELL DEVELOPMENT DATE (YIELD)**	NA
DRILLER	Vironex	**GROUND SURFACE ELEVATION**	Not Surveyed
DRILLING METHOD	Hydraulic push	**TOP OF CASING ELEVATION**	NA
BORING DIAMETER	2"	**SCREENED INTERVAL**	NA
LOGGED BY	K. Cejka	**DEPTH TO WATER (First Encountered)**	6.0 ft (30-Aug-01) ▽
REVIEWED BY	R. Schultz, RG# 7012	**DEPTH TO WATER (Static)**	NA ▼
REMARKS	Hand augered to 3.5 ft bgs; 63 ft WNW of eastern planter, 12 ft SSW of northern planter		

PID (ppm)	BLOW COUNTS	SAMPLE ID	EXTENT	DEPTH (ft bgs)	U.S.C.S.	GRAPHIC LOG	LITHOLOGIC DESCRIPTION	CONTACT DEPTH (ft bgs)	WELL DIAGRAM
							ASPHALT	0.5	
							FILL: Sandy fill; brown; damp; 10% silt, 90% fine grained sand; very high estimated permeability	2.0	
							CONCRETE: dyed	2.5	
							FILL: Sandy gravelly fill; brown; damp; 20% sand 80% fine to coarse gravel; very high estimated permeability		
14		SB-E- 3.5							Portland Type I/II Cement
				5					
					SM		**Silty SAND** (SM): Brown; wet; 30% silt, 50% sand, 20% fine gravel; medium to high estimated permeability; shell fragments ▽	5.0	
356		SB-E- 6						6.5	
					CL		**Silty CLAY** (CL): Brown; wet; 60% clay, 40% silt; medium plasticity; low estimated permeability		
78		SB-E- 7.5						8.0	Bottom of Boring @ 8 ft

WELL LOG (PID) H:\PORTOF~1\EMBARC~1\GINTEMBCOVE.GPJ DEFAULT.GDT 1/10/02

Cambria Environmental Technology, Inc.
1144 - 65th St.
Oakland, CA 94608
Telephone: (510) 420-0700
Fax: (510) 420-9170

BORING/WELL LOG

CLIENT NAME	Port of Oakland	BORING/WELL NAME	SB-F
JOB/SITE NAME	Embarcadero Cove	DRILLING STARTED	29-Aug-01
LOCATION	1275 Embarcadero, Oakland, CA	DRILLING COMPLETED	30-Aug-01
PROJECT NUMBER	458-1705	WELL DEVELOPMENT DATE (YIELD)	NA
DRILLER	Vironex	GROUND SURFACE ELEVATION	Not Surveyed
DRILLING METHOD	Hydraulic push	TOP OF CASING ELEVATION	NA
BORING DIAMETER	2"	SCREENED INTERVAL	NA
LOGGED BY	K. Cejka	DEPTH TO WATER (First Encountered)	6.5 ft (30-Aug-01) ▽
REVIEWED BY	R. Schultz, RG# 7012	DEPTH TO WATER (Static)	NA ▼
REMARKS	Hand augered to 3.5 ft bgs; located 90 ft WNW of eastern planter, 12 ft SSW of northern planter		

PID (ppm)	BLOW COUNTS	SAMPLE ID	EXTENT	DEPTH (ft bgs)	U.S.C.S.	GRAPHIC LOG	LITHOLOGIC DESCRIPTION	CONTACT DEPTH (ft bgs)	WELL DIAGRAM
							ASPHALT	0.5	
							FILL: Sandy fill; grey; damp; 80% sand, 20%gravel; very high estimated permeability		
							CONCRETE: dyed	2.0	
							FILL: Clayey gravelly fill; brown; wet; 30% clay, 10% sand, 60% gravel; high estimated permeability	2.5	
9		SB-F- 3.5			GM		**Silty GRAVEL** (GM): Brown; damp; 10% clay, 30% silt, 60% gravel; very low estimated permeability	3.5	Portland Type I/II Cement
				5					
6		SB-F- 5.5			CH		**CLAY** (CH): Black; damp; 90% clay, 10% silt; high plasticity; very low estimated permeability	5.5	
					SM		**Silty SAND** (SM): Grey; wet; 40% silt, 60% sand; high plasticity; high estimated permeability ▽	6.0	
5		SB-F- 7.5						8.0	Bottom of Boring @ 8 ft

WELL LOG (PID) H:\PORTOF~1\EMBARC~1\GINT\EMBCOVE.GPJ DEFAULT GDT 1/10/02

APPENDIX B

Permits

OCT-04-2001

ALAMEDA COUNTY PUBLIC WORKS AGENCY

WATER RESOURCES SECTION
399 ELMHURST ST. HAYWARD CA. 94544-1395
PHONE (510) 670-5554
FAX (510)782-1939

DRILLING PERMIT APPLICATION

FOR APPLICANT TO COMPLETE

LOCATION OF PROJECT
PORT OF OAKLAND
1275 EMBARCADERO
OAKLAND, CA

CLIENT
Name PORT OF OAKLAND
Address 530 WATER STREET Phone 510 465 8910
City OAKLAND, CA Zip 94607

APPLICANT
Name KRIS CEJKA for CAMBRIA ENVIRONMENTAL
Fax 510-420-9170
Address 1144 65TH ST, STE B Phone 510-420-3313
City OAKLAND, CA Zip 94608

TYPE OF PROJECT

Well Construction		Geotechnical Investigation	
Cathodic Protection	0	General	0
Water Supply	0	Contamination	0
Monitoring	X	Well Destruction	0

PROPOSED WATER SUPPLY WELL USE

New Domestic	0	Replacement Domestic	0
Municipal	0	Irrigation	0
Industrial	0	Other	0

DRILLING METHOD:

Mud Rotary	0	Air Rotary	0	Auger	X
Cable	0	Other	0		

DRILLER'S NAME V + W

DRILLER'S LICENSE NO. 720-904

WELL PROJECTS
Drill Hole Diameter 8 in. Depth 15 ft.
Casing Diameter 2 in. Owner's Well Number
Surface Seal Depth ft.

GEOTECHNICAL PROJECTS
Number of Borings Maximum
Hole Diameter in. Depth ft.

ESTIMATED STARTING DATE 10-9-2001
ESTIMATED COMPLETION DATE 10-10-2001

FOR OFFICE USE
PERMIT NUMBER W01-947
WELL NUMBER
APN

PERMIT CONDITIONS
Circled Permit Requirements Apply

A. GENERAL
1. A permit application should be submitted so as to arrive at the ACPWA office five days prior to proposed starting date.
2. Submit to ACPWA within 60 days after completion of permitted original Department of Water Resources Well Completion Report.
3. Permit is void if project not begun within 90 days of approval date

B. WATER SUPPLY WELLS
1. Minimum surface seal thickness is two inches of cement grout placed by tremie.
2. Minimum seal depth is 50 feet for municipal and industrial wells or 20 feet for domestic and irrigation wells unless a lesser depth is specially approved.

C. GROUNDWATER MONITORING WELLS INCLUDING PIEZOMETERS
1. Minimum surface seal thickness is two inches of cement grout placed by tremie.
2. Minimum seal depth for monitoring wells is the maximum depth practicable or 20 feet.

D. GEOTECHNICAL
Backfill bore hole by tremie with cement grout or cement grout/sand mixture. Upper two-three feet replaced in kind or with compacted cuttings.

E. CATHODIC
Fill hole anode zone with concrete placed by tremie.

F. WELL DESTRUCTION
Send a map of work site. A separate permit is required for wells deeper than 45 feet.

G. SPECIAL CONDITIONS

NOTE: One application must be submitted for each well or well destruction. Multiple borings on one application are acceptable for geotechnical and contamination investigations.

APPROVED [signature] DATE 10-9-01

I hereby agree to comply with all requirements of this permit and Alameda County Ordinance No. 73-68.

APPLICANT'S SIGNATURE [signature] DATE 10-4-2001

PLEASE PRINT NAME KRIS CEJKA

Rev.5-12-00

TOTAL P.01

APPENDIX C

Standard Field Procedures for Soil Borings and Monitoring Wells

CAMBRIA

STANDARD FIELD PROCEDURES FOR SOIL BORINGS AND MONITORING WELLS

This document presents standard field methods for drilling and sampling soil borings and installing, developing and sampling ground water monitoring wells. These procedures are designed to comply with Federal, State and local regulatory guidelines. Specific field procedures are summarized below.

SOIL BORINGS

Objectives

Soil samples are collected to characterize subsurface lithology, assess whether the soils exhibit obvious hydrocarbon or other compound vapor or staining, and to collect samples for analysis at a State-certified laboratory. All borings are logged using the Unified Soil Classification System by a trained geologist working under the supervision of a California Registered Geologist (RG).

Soil Boring and Sampling

Soil borings are typically drilled using hollow-stem augers or direct-push technologies such as the Geoprobe®. Soil samples are collected at least every five ft to characterize the subsurface sediments and for possible chemical analysis. Additional soil samples are collected near the water table and at lithologic changes. Samples are collected using lined split-barrel or equivalent samplers driven into undisturbed sediments at the bottom of the borehole.

Drilling and sampling equipment is steam-cleaned prior to drilling and between borings to prevent cross-contamination. Sampling equipment is washed between samples with trisodium phosphate or an equivalent EPA-approved detergent.

Sample Analysis

Sampling tubes chosen for analysis are trimmed of excess soil and capped with Teflon tape and plastic end caps. Soil samples are labeled and stored at or below 4° C on either crushed or dry ice, depending upon local regulations. Samples are transported under chain-of-custody to a State-certified analytic laboratory.

Field Screening

One of the remaining tubes is partially emptied leaving about one-third of the soil in the tube. The tube is capped with plastic end caps and set aside to allow hydrocarbons to volatilize from the soil. After ten to fifteen minutes, a portable volatile vapor analyzer measures volatile hydrocarbon vapor concentrations in the tube headspace, extracting the vapor through a slit in the cap. Volatile vapor analyzer measurements are used along with the field observations, odors, stratigraphy and ground water depth to select soil samples for analysis.

Water Sampling

Water samples, if they are collected from the boring, are either collected using a driven Hydropunch® type sampler or are collected from the open borehole using bailers. The ground water samples are decanted into the appropriate containers supplied by the analytic laboratory. Samples are labeled, placed in protective foam sleeves, stored on crushed ice at or below 4°C, and transported under chain-of-custody to the laboratory. Laboratory-supplied trip blanks accompany the samples and are analyzed to check for cross-contamination. An equipment blank may be analyzed if non-dedicated sampling equipment is used.

Grouting

If the borings are not completed as wells, the borings are filled to the ground surface with cement grout poured or pumped through a tremie pipe.

MONITORING WELL INSTALLATION, DEVELOPMENT AND SAMPLING

Well Construction and Surveying

Ground water monitoring wells are installed to monitor ground water quality and determine the ground water elevation, flow direction and gradient. Well depths and screen lengths are based on ground water depth, occurrence of hydrocarbons or other compounds in the borehole, stratigraphy and State and local regulatory guidelines. Well screens typically extend 10 to 15 ft below and 5 ft above the static water level at the time of drilling. However, the well screen will generally not extend into or through a clay layer that is at least three ft thick.

Well casing and screen are flush-threaded, Schedule 40 PVC. Screen slot size varies according to the sediments screened, but slots are generally 0.010 or 0.020 inches wide. A rinsed and graded sand occupies the annular space between the boring and the well screen to about one to two ft above the well screen. A two ft thick hydrated bentonite seal separates the sand from the overlying sanitary surface seal composed of Portland type I,II cement.

Well-heads are secured by locking well-caps inside traffic-rated vaults finished flush with the ground surface. A stovepipe may be installed between the well-head and the vault cap for additional security.

The well top-of-casing elevation is surveyed with respect to mean sea level and the well is surveyed for horizontal location with respect to an onsite or nearby offsite landmark.

Well Development

Wells are generally developed using a combination of ground water surging and extraction. Surging agitates the ground water and dislodges fine sediments from the sand pack. After about ten minutes of surging, ground water is extracted from the well using bailing, pumping and/or reverse air-lifting through an eductor pipe to remove the sediments from the well. Surging and extraction continue until at least ten well-casing volumes of ground water are extracted and the sediment volume in the ground water is negligible. This process usually occurs prior to installing the sanitary surface seal to ensure sand pack stabilization. If development occurs after surface seal installation, then development occurs 24 to 72 hours after seal installation to ensure that the Portland cement has set up correctly.

All equipment is steam-cleaned prior to use and air used for air-lifting is filtered to prevent oil entrained in the compressed air from entering the well. Wells that are developed using air-lift evacuation are not sampled until at least 24 hours after they are developed.

Ground Water Sampling

Depending on local regulatory guidelines, three to four well-casing volumes of ground water are purged prior to sampling. Purging continues until ground water pH, conductivity, and temperature have stabilized. Ground water samples are collected using bailers or pumps and are decanted into the appropriate containers supplied by the analytic laboratory. Samples are labeled, placed in protective foam sleeves, stored on crushed ice at or below 4°C, and transported under chain-of-custody to the laboratory. Laboratory-supplied trip blanks accompany the samples and are analyzed to check for cross-contamination. An equipment blank may be analyzed if non-dedicated sampling equipment is used.

F:\TEMPLATE\SOPs\Wells-borings-gw.wpd

APPENDIX D

Laboratory Analytical Reports

McCAMPBELL ANALYTICAL INC.
110 2nd Avenue South, #D7, Pacheco, CA 94553-5560
Telephone : 925-798-1620 Fax : 925-798-1622
http://www.mccampbell.com E-mail: main@mccampbell.com

Cambria Environmental Technology 1144 65th Street, Suite C Oakland, CA 94608	Client Project ID: #458-1705; Embarcadero Cove	Date Sampled: 12/05 & 12/07/01
		Date Received: 12/07/01
	Client Contact: Bob Schultz	Date Extracted: 12/07/01
	Client P.O:	Date Analyzed: 12/07/01

12/14/01

Dear Bob:

Enclosed are:

1). the results of **11** samples from your **#458-1705; Embarcadero Cove** project,

2). a QC report for the above samples

3). a copy of the chain of custody, and

4). a bill for analytical services.

All analyses were completed satisfactorily and all QC samples were found to be within our control limits. If you have any questions please contact me. McCampbell Analytical Laboratories strives for excellence in quality, service and cost. Thank you for your business and I look forward to working with you again.

Yours truly,

Edward Hamilton, Lab Director

McCAMPBELL ANALYTICAL INC.
110 2nd Avenue South, #D7, Pacheco, CA 94553-5560
Telephone : 925-798-1620 Fax : 925-798-1622
http://www.mccampbell.com E-mail: main@mccampbell.com

Cambria Environmental Technology	Client Project ID: #458-1705; Embarcadero Cove	Date Sampled: 12/05 & 12/07/01
1144 65th Street, Suite C		Date Received: 12/07/01
Oakland, CA 94608	Client Contact: Bob Schultz	Date Extracted: 12/10-12/12/01
	Client P.O:	Date Analyzed: 12/10-12/12/01

Gasoline Range (C6-C12) Volatile Hydrocarbons as Gasoline*, with Methyl tert-Butyl Ether* & BTEX*

EPA methods 5030, modified 8015, and 8020 or 602; California RWQCB (SF Bay Region) method GCFID(5030)

Lab ID	Client ID	Matrix	TPH(g)+	MTBE	Benzene	Toluene	Ethyl-benzene	Xylenes	% Recovery Surrogate
85050	MW-1-AM	W	13,000,a	ND<20	1300	180	1200	860	109
85051	MW-2-AM	W	ND	ND	ND	ND	ND	ND	111
85052	MW-3-AM	W	310,a	ND	0.72	2.2	ND	ND	107
85053	MW-4-AM	W	13,000,a,h	ND<10	120	28	170	380	---#
85054	MW-1-PM	W	3100,a	ND	270	12	150	74	113
85055	MW-2-PM	W	ND	ND	ND	ND	ND	ND	107
85056	MW-3-PM	W	320,a	ND	0 84	2.6	ND	0.76	109
85057	MW-4-PM	W	20,000,a,h	ND<20	420	78	390	870	---#
85058	TB	W	ND	ND	ND	ND	ND	ND	98
Reporting Limit unless otherwise stated; ND means not detected above the reporting limit		W	50 ug/L	5.0	0.5	0.5	0.5	0.5	
		S	1.0 mg/kg	0.05	0.005	0.005	0.005	0.005	

* water and vapor samples are reported in ug/L, wipe samples in ug/wipe, soil and sludge samples in mg/kg, and all TCLP and SPLP extracts in ug/L

cluttered chromatogram; sample peak coelutes with surrogate peak

+The following descriptions of the TPH chromatogram are cursory in nature and McCampbell Analytical is not responsible for their interpretation: a) unmodified or weakly modified gasoline is significant; b) heavier gasoline range compounds are significant(aged gasoline?); c) lighter gasoline range compounds (the most mobile fraction) are significant; d) gasoline range compounds having broad chromatographic peaks are significant; biologically altered gasoline?; e) TPH pattern that does not appear to be derived from gasoline (?); f) one to a few isolated peaks present; g) strongly aged gasoline or diesel range compounds are significant; h) lighter than water immiscible sheen is present; i) liquid sample that contains greater than ~5 vol. % sediment; j) no recognizable pattern.

DHS Certification No. 1644

Edward Hamilton, Lab Director

McCAMPBELL ANALYTICAL INC.
110 2nd Avenue South, #D7, Pacheco, CA 94553-5560
Telephone : 925-798-1620 Fax : 925-798-1622
http://www.mccampbell.com E-mail: main@mccampbell.com

Cambria Environmental Technology	Client Project ID: #458-1705; Embarcadero Cove	Date Sampled: 12/05 & 12/07/01
1144 65th Street, Suite C		Date Received: 12/07/01
Oakland, CA 94608	Client Contact: Bob Schultz	Date Extracted: 12/07/01
	Client P.O:	Date Analyzed: 12/07/01

Diesel Range (C10-C23) and Oil-Range (C18+) Extractable Hydrocarbons as Diesel and Motor Oil with Silica Gel Clean-Up*

EPA methods modified 8015, and 3550 or 3510; California RWQCB (SF Bay Region) method GCFID(3550) or GCFID(3510)

Lab ID	Client ID	Matrix	TPH(d)+	TPH(mo)+	% Recovery Surrogate
85050	MW-1-AM	W	3800,d	ND	106
85051	MW-2-AM	W	150,g	560	106
85052	MW-3-AM	W	480,d,b,g	480	108
85053	MW-4-AM	W	6400,d,b,g,h	430	118
85054	MW-1-PM	W	680,d	ND	111
85055	MW-2-PM	W	75,b	270	105
85056	MW-3-PM	W	530,d,b,g	550	109
85057	MW-4-PM	W	5400,d,b,g,h	450	112
Reporting Limit unless otherwise stated; ND means not detected above the reporting limit		W	50 ug/L	250 ug/L	
		S	1.0 mg/kg	5.0 mg/kg	

*water samples are reported in ug/L, wipe samples in ug/wipe, soil and sludge samples in mg/kg, and all TCLP / STLC / SPLP extracts in ug/L

cluttered chromatogram resulting in coeluted surrogate and sample peaks, or; surrogate peak is on elevated baseline, or; surrogate has been diminished by dilution of original extract.

+The following descriptions of the TPH chromatogram are cursory in nature and McCampbell Analytical is not responsible for their interpretation: a) unmodified or weakly modified diesel is significant; b) diesel range compounds are significant; no recognizable pattern; c) aged diesel? is significant); d) gasoline range compounds are significant; e) medium boiling point pattern that does not match diesel (?); f) one to a few isolated peaks present; g) oil range compounds are significant; h) lighter than water immiscible sheen is present; i) liquid sample that contains greater than ~5 vol. % sediment.

DHS Certification No. 1644

Edward Hamilton, Lab Director

McCAMPBELL ANALYTICAL INC.
110 2nd Avenue South, #D7, Pacheco, CA 94553-5560
Telephone : 925-798-1620 Fax : 925-798-1622
http://www.mccampbell.com E-mail: main@mccampbell.com

Cambria Environmental Technology	Client Project ID: #458-1705; Embarcadero Cove	Date Sampled: 12/05 & 12/07/01
		Date Received: 12/07/01
1144 65th Street, Suite C	Client Contact: Bob Schultz	Date Extracted: 12/10/01
Oakland, CA 94608	Client P.O:	Date Analyzed: 12/10-12/11/01

Polynuclear Aromatic Hydrocarbons (PAH / PNA) by Liquid Chromatography

EPA methods 8310 and 3510

Lab ID	85050	85051	85052	Reporting Limit	
Client ID	MW-1-AM	MW-2-AM	MW-3-AM	S	W, STLC TCLP
Matrix	W	W	W		
Compound	Concentration*			ug/kg	ug/L
Acenaphthene	ND<10	ND	ND	5.0	0.5
Acenaphthylene	72	ND<0.25	ND<0.25	5.0	0.2
Anthracene	ND<10	ND	ND	5.0	2.0
Benzo(a)anthracene	ND<10	ND<0.25	ND<0.25	5.0	0.1
Benzo(b)fluoranthene	ND<10	ND	ND	5.0	10
Benzo(k)fluoranthene	ND<10	ND	ND	5.0	2
Benzo(g,h,i)perylene	ND<10	ND<0.25	ND<0.25	5.0	0.1
Benzo(a)pyrene	ND<10	ND<0.25	ND<0.25	5.0	0.1
Chrysene	ND<10	ND	ND	5.0	5.0
Dibenzo(a,h)anthracene	ND<10	ND<0.25	ND<0.25	5.0	0.1
Fluoranthene	ND<10	ND<0.25	ND<0.25	5.0	0.05
Fluorene	ND<10	ND<0.25	ND<0.25	5.0	0.1
Indeno(1,2,3-cd)pyrene	ND<10	ND<0.25	ND<0.25	5.0	0.05
1-Methynaphthalene	150	ND	ND	5.0	1.0
2-Methynaphthalene	220	ND	ND	5.0	1.0
Naphthalene	360	ND<0.25	ND<0.25	5.0	0.2
Phenanthrene	ND<10	ND<0.25	ND<0.25	5.0	0.05
Pyrene	ND<10	ND<0.25	ND<0.25	5.0	0.05
% Recovery Surrogate 1	---#	110	107		
% Recovery Surrogate 2	---#	102	87		
Comments		j	j		

* water and vapor samples are reported in ug/L, soil and sludge samples in mg/kg, wipes in ug/wipe and all TCLP / STLC / SPLP extracts in ug/L.

ND means not detected above the reporting limit; N/A means analyte not applicable to this analysis

surrogate diluted out of range or surrogate coelutes with another peak

(h) a lighter than water immiscible sheen is present; (i) liquid sample that contains >1% vol. % sediment; (j) sample diluted due to high organic content.

DHS Certification No. 1644

Edward Hamilton, Lab Director

McCAMPBELL ANALYTICAL INC.
110 2nd Avenue South, #D7, Pacheco, CA 94553-5560
Telephone : 925-798-1620 Fax : 925-798-1622
http://www.mccampbell.com E-mail: main@mccampbell.com

Cambria Environmental Technology 1144 65th Street, Suite C Oakland, CA 94608	Client Project ID: #458-1705; Embarcadero Cove	Date Sampled: 12/05 & 12/07/01
		Date Received: 12/07/01
	Client Contact: Bob Schultz	Date Extracted: 12/10/01
	Client P.O:	Date Analyzed: 12/10-12/11/01

Polynuclear Aromatic Hydrocarbons (PAH / PNA) by Liquid Chromatography

EPA methods 8310 and 3510

Lab ID	85053	85054	85055	Reporting Limit	
Client ID	MW-4-AM	MW-1-PM	MW-2-PM	S	W, STLC TCLP
Matrix	W	W	W		
Compound	Concentration*			ug/kg	ug/L
Acenaphthene	ND<10	ND<1.0	ND	5.0	0.5
Acenaphthylene	24	9.6	ND<0.25	5.0	0.2
Anthracene	ND<10	ND	ND	5.0	2.0
Benzo(a)anthracene	ND<10	ND<1.0	ND<0.25	5.0	0.1
Benzo(b)fluoranthene	ND<10	ND	ND	5.0	10
Benzo(k)fluoranthene	ND<10	ND	ND	5.0	.2
Benzo(g,h,i)perylene	ND<10	ND<1.0	ND<0.25	5.0	0.1
Benzo(a)pyrene	ND<10	ND<1.0	ND<0.25	5.0	0.1
Chrysene	ND<10	ND	ND	5.0	5.0
Dibenzo(a,h)anthracene	ND<10	ND<1.0	ND<0.25	5.0	0.1
Fluoranthene	ND<10	ND<1.0	ND<0.25	5.0	0.05
Fluorene	ND<10	ND<1.0	ND<0.25	5.0	0.1
Indeno(1,2,3-cd)pyrene	ND<10	ND<1.0	ND<0.25	5.0	0.05
1-Methynaphthalene	99	18	ND	5.0	1.0
2-Methynaphthalene	190	14	ND	5.0	1.0
Naphthalene	60	22	ND<0.25	5.0	0.2
Phenanthrene	18	1.3	ND<0.25	5.0	0.05
Pyrene	ND<10	ND<1.0	ND<0.25	5.0	0.05
% Recovery Surrogate 1	---#	111	105		
% Recovery Surrogate 2	---#	107	115		
Comments	h		j		

* water and vapor samples are reported in ug/L, soil and sludge samples in mg/kg, wipes in ug/wipe and all TCLP / STLC / SPLP extracts in ug/L.

ND means not detected above the reporting limit; N/A means analyte not applicable to this analysis

surrogate diluted out of range or surrogate coelutes with another peak

(h) a lighter than water immiscible sheen is present; (i) liquid sample that contains >~5 vol. % sediment; (j) sample diluted due to high organic content.

DHS Certification No. 1644

Edward Hamilton, Lab Director

McCAMPBELL ANALYTICAL INC.
110 2nd Avenue South, #D7, Pacheco, CA 94553-5560
Telephone : 925-798-1620 Fax : 925-798-1622
http://www.mccampbell.com E-mail: main@mccampbell.com

Cambria Environmental Technology	Client Project ID: #458-1705; Embarcadero Cove	Date Sampled: 12/05 & 12/07/01
		Date Received: 12/07/01
1144 65th Street, Suite C	Client Contact: Bob Schultz	Date Extracted: 12/10/01
Oakland, CA 94608	Client P.O:	Date Analyzed: 12/10-12/11/01

Polynuclear Aromatic Hydrocarbons (PAH / PNA) by Liquid Chromatography

EPA methods 8310 and 3510

Lab ID	85056	85057		Reporting Limit	
Client ID	MW-3-PM	NW-4-PM		S	W, STLC TCLP
Matrix	W	W			
Compound	Concentration*			ug/kg	ug/L
Acenaphthene	ND	ND<10		5.0	0.5
Acenaphthylene	ND<0.25	21		5.0	0.2
Anthracene	ND	ND<10		5.0	2.0
Benzo(a)anthracene	ND<0.25	ND<10		5.0	0.1
Benzo(b)fluoranthene	ND	ND<10		5.0	10
Benzo(k)fluoranthene	ND	ND<10		5.0	2
Benzo(g,h,i)perylene	ND<0.25	ND<10		5.0	0.1
Benzo(a)pyrene	ND<0.25	ND<10		5.0	0.1
Chrysene	ND	ND<10		5.0	5.0
Dibenzo(a,h)anthracene	ND<0.25	ND<10		5.0	0.1
Fluoranthene	ND<0.25	ND<10		5.0	0.05
Fluorene	ND<0.25	ND<10		5.0	0.1
Indeno(1,2,3-cd)pyrene	ND<0.25	ND<10		5.0	0.05
1-Methynaphthalene	ND	100		5.0	1.0
2-Methynaphthalene	ND	180		5.0	1.0
Naphthalene	ND<0.25	96		5.0	0.2
Phenanthrene	ND<0.25	12		5.0	0.05
Pyrene	0.31	ND<10		5.0	0.05
% Recovery Surrogate 1	104	---#			
% Recovery Surrogate 2	105	---#			
Comments	j	h			

* water and vapor samples are reported in ug/L, soil and sludge samples in mg/kg, wipes in ug/wipe and all TCLP / STLC / SPLP extracts in ug/L.

ND means not detected above the reporting limit; N/A means analyte not applicable to this analysis

surrogate diluted out of range or surrogate coelutes with another peak

(h) a lighter than water immiscible sheen is present; (i) liquid sample that contains >~5 vol. % sediment; (j) sample diluted due to high organic content.

DHS Certification No. 1644

Edward Hamilton, Lab Director

McCAMPBELL ANALYTICAL INC.
110 2nd Avenue South, #D7, Pacheco, CA 94553-5560
Telephone : 925-798-1620 Fax : 925-798-1622
http://www.mccampbell.com E-mail: main@mccampbell.com

Cambria Environmental Technology	Client Project ID: #458-1705; Embarcadero Cove	Date Sampled: 12/05 & 12/07/01
1144 65th Street, Suite C		Date Received: 12/07/01
Oakland, CA 94608	Client Contact: Bob Schultz	Date Extracted: 12/07/01
	Client P.O:	Date Analyzed: 12/07-12/12/01

CAM / CCR 17 Metals*

EPA methods 6010/200.7; 7470/7471/245.1/245.5 (Hg); 7060/206.2 (As); 7740/270.2 (Se); 7841/279.2 (Tl); 239.2 (Pb, w); 204.2 (Sb,w)

Lab ID	85059	85060	Reporting Limit		
Client ID	MW-1-AM	MW-1-PM			
Matrix	W	W	S	W	STLC, TCLP
Extraction°	TTLC	TTLC	TTLC	TTLC	
Compound	Concentration*		mg/kg	mg/L	mg/L
Antimony (Sb)	ND	ND	2.5	0.006	0.05
Arsenic (As)	0.0057	ND	2.5	0.005	0.25
Barium (Ba)	0 057	0.051	2.5	0.05	0.05
Beryllium (Be)	ND	ND	0 5	0.004	0.01
Cadmium (Cd)	ND	ND	0.5	0.005	0.01
Chromium (Cr)	ND	ND	0.5	0.02	0.05
Cobalt (Co)	ND	ND	2.0	0.05	0 05
Copper (Cu)	ND	ND	2 0	0.05	0.05
Lead (Pb)	0.0053	ND	3.0	0.005	0.2
Mercury (Hg)	ND	ND	0.06	0 0008	0.005
Molybdenum (Mo)	ND	ND	2.5	0.05	0 05
Nickel (Ni)	ND	ND	2.0	0.05	0.05
Selenium (Se)	ND	ND	2.5	0.005	0.25
Silver (Ag)	ND	ND	1.0	0.01	0.05
Thallium (Tl)	ND	ND	2.5	0.005	0.5
Vanadium (V)	ND	ND	2.0	0.05	0.05
Zinc (Zn)	ND	0.050	1.0	0.05	0 05
% Recovery Surrogate	80	88			
Comments					

* water samples are reported in mg/L, soil and sludge samples in mg/kg, wipes in ug/wipe and all TCLP / STLC / SPLP extracts in mg/L

ND means not detected above the reporting limit; N/A means surrogate not applicable to this analysis

° EPA extraction methods 1311(TCLP), 3010/3020(water,TTLC), 3040(organic matrices,TTLC), 3050(solids,TTLC); STLC - CA Title 22

@ DISTLC extractions are performed using STLC methodology except that deionized water is substituted for citric acid buffer as the extraction fluid. DISTLC results are not applicable to STLC regulatory limits.

surrogate diluted out of range

& reporting limit raised due to matrix interference

i) liquid sample that contains greater than ~2 vol % sediment; this sediment is extracted with the liquid, in accordance with EPA methodologies and can significantly effect reported metal concentrations.

DHS Certification No. 1644

Edward Hamilton, Lab Director

McCAMPBELL ANALYTICAL INC.
110 2nd Ave. South, #D7, Pacheco, CA 94553-5560
Telephone : 925-798-1620 Fax : 925-798-1622
http://www.mccampbell.com E-mail: main@mccampbell.com

QC REPORT

EPA 8015m + 8020

Date: 12/10/01 **Extraction:** TTTLC **Matrix:** Water

Compound	Concentration: ug/L				%Recovery		RPD
	Sample	MS	MSD	Amount Spiked	MS	MSD	
SampleID: 120601					Instrument:	GC-3	
Surrogate1	ND	103.0	102.0	100.00	103	102	1.0
Xylenes	ND	33.7	34.0	30.00	112	113	0.9
Ethylbenzene	ND	11.2	11.2	10.00	112	112	0.0
Toluene	ND	10.9	10.9	10.00	109	109	0.0
Benzene	ND	10.5	10.4	10.00	105	104	1.0
MTBE	ND	11.0	10.4	10.00	110	104	5.6
TPH (gas)	ND	83.5	82.6	100.00	83	83	1.0

$$\%\ \text{Recovery} = \frac{(MS - Sample)}{Amount Spiked} \cdot 100$$

$$\text{RPD} = \frac{(MS - MSD)}{(MS + MSD)} \cdot 200$$

RPD means Relative Percent Deviation

McCAMPBELL ANALYTICAL INC.
110 2nd Ave. South, #D7, Pacheco, CA 94553-5560
Telephone : 925-798-1620 Fax : 925-798-1622
http://www.mccampbell.com E-mail: main@mccampbell.com

QC REPORT

EPA 8015m + 8020

Date: 12/07/01 **Extraction:** TTLC **Matrix:** Water

Compound	Concentration: ug/L				%Recovery		RPD
	Sample	MS	MSD	Amount Spiked	MS	MSD	
SampleID: 120501					Instrument: GC-6 A		
Surrogate1	ND	109.0	104.0	100.00	109	104	4.7
TPH (diesel)	ND	8875.0	8450.0	7500.00	118	113	4.9

$$\%\ \text{Recovery} = \frac{(MS - Sample)}{AmountSpiked} \cdot 100$$

$$\text{RPD} = \frac{(MS - MSD)}{(MS + MSD)} \cdot 200$$

RPD means Relative Percent Deviation

McCAMPBELL ANALYTICAL INC.
110 2nd Ave. South, #D7, Pacheco, CA 94553-5560
Telephone : 925-798-1620 Fax : 925-798-1622
http://www.mccampbell.com E-mail: main@mccampbell.com

QC REPORT

SVOCs (EPA 8270/625/525)

Date: 12/10/01 **Extraction:** N/A **Matrix:** Water

Compound	Concentration: ug/L				%Recovery		RPD
	Sample	MS	MSD	Amount Spiked	MS	MSD	
SampleID: 121101					Instrument:	GC-8	
Surrogate1	ND	690.0	700.0	1000.00	69	70	1.4
Pyrene	ND	610.0	620.0	1000.00	61	62	1.6
Pentachlorophenol	ND	870.0	870.0	2000.00	44	44	0.0
2,4-Dinitrotoluene	ND	510.0	540.0	1000.00	51	54	5.7
4-Nitrophenol	ND	740.0	680.0	2000.00	37	34	8.5
Acenaphtene	ND	520.0	540.0	1000.00	52	54	3.8
4-Chloro-3-metylphenol	ND	710.0	740.0	2000.00	36	37	4 1
1,2,4-trichlorobenzene	ND	520.0	550.0	1000.00	52	55	5.6
N-nitroso-di-n-propyl	ND	490.0	470.0	1000.00	49	47	4.2
1,4-Dichlorobenzene	ND	520.0	540.0	1000.00	52	54	3.8
2-Chlorophenol	ND	870.0	890.0	2000.00	44	45	2.3
Phenol	ND	830.0	800.0	2000.00	42	40	3.7

$$\%\ \text{Recovery} = \frac{(MS - Sample)}{AmountSpiked} \cdot 100$$

$$RPD = \frac{(MS - MSD)}{(MS + MSD)} \cdot 200$$

RPD means Relative Percent Deviation

McCAMPBELL ANALYTICAL INC.
110 2nd Ave. South, #D7, Pacheco, CA 94553-5560
Telephone : 925-798-1620 Fax : 925-798-1622
http://www.mccampbell.com E-mail: main@mccampbell.com

QC REPORT

CAM 17

Date: 12/07/01 **Extraction:** TTLC **Matrix:** Water

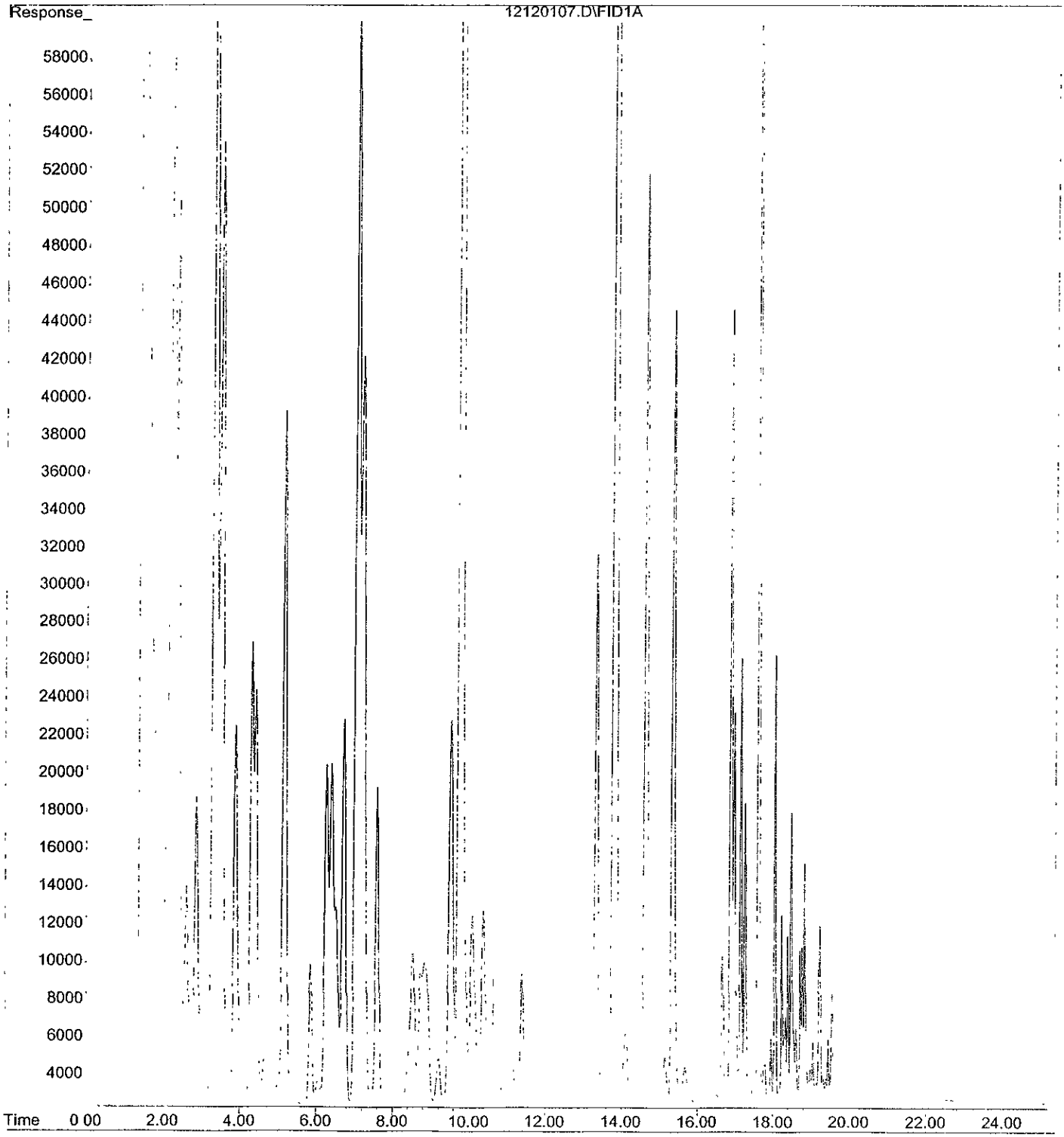
Compound	Concentration: mg/L				%Recovery		RPD
	Sample	MS	MSD	Amount Spiked	MS	MSD	
SampleID: 120601					Instrument: P-1	AA	
Beryllium	ND	5.1	5.6	5.00	102	111	8.5
Selenium	ND	0.0100	0.0100	0.0100	100	100	0.0
Molybdenum	ND	4.5	4.6	5.00	90	93	2.9
Silver	ND	0.4	0.4	0.50	87	86	1.9
Thallium	ND	0.0110	0.0100	0.0100	110	100	9.5
Barium	ND	4.6	4.6	5.00	93	93	0.0
Nickel	ND	4.7	4.6	5.00	94	92	2.2
Arsenic	ND	0.0099	0.0110	0.0100	99	110	10.5
Vanadium	ND	4.7	4.5	5.00	93	91	2.7
Surrogate1	ND	80.0	83.8	100.00	80	84	4.6
Zinc	ND	5.1	5.2	5.00	102	104	1.8
Copper	ND	4.8	4.7	5.00	97	94	3.5
Antimony	ND	0.0100	0.0100	0.0100	100	100	0.0
Lead	ND	0.0098	0.0100	0.0100	98	100	2.0
Cadmium	ND	5.7	5.5	5.00	114	109	4.1
Cobalt	ND	4.5	4.7	5.00	89	94	5.6
Mercury	ND	0.00095	0.00093	0.00100	95	93	3.0
Chromium	ND	4.9	4.9	5.00	97	98	1.0

$$\%\ \text{Recovery} = \frac{(MS - Sample)}{AmountSpiked} \cdot 100$$

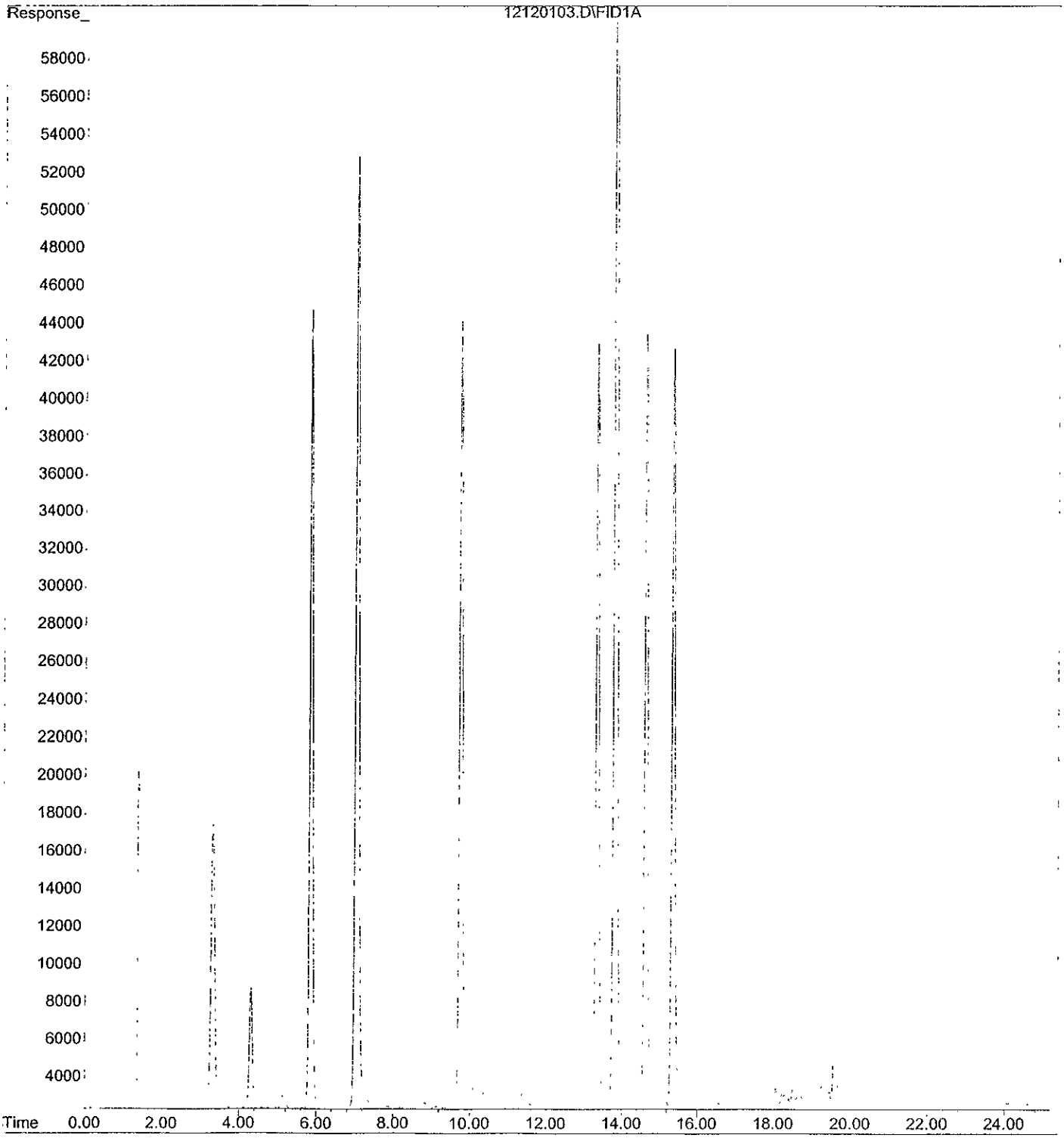
$$RPD = \frac{(MS - MSD)}{(MS + MSD)} \cdot 2 \cdot 100$$

RPD means Relative Percent Deviation

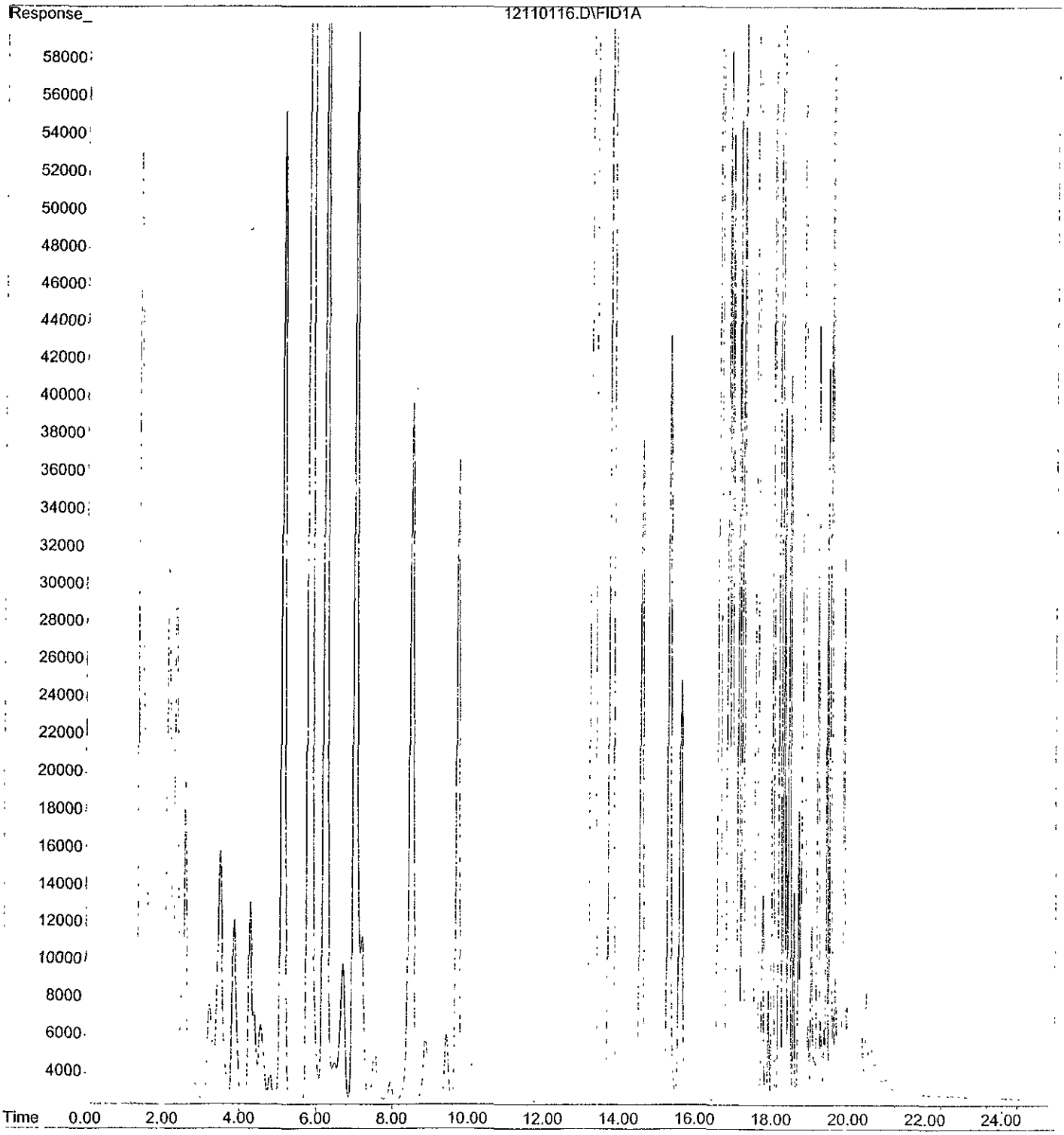
File : D:\HPCHEM\1\DATA\12120107.D
Operator :
Acquired : 12 Dec 2001 6:40 pm using AcqMethod GC3D.M
Instrument : GC=3
Sample Name: 5000ngGAS
Misc Info :
Vial Number: 7



File : D:\HPCHEM\1\DATA\12120103.D
Operator :
Acquired : 12 Dec 2001 4:28 pm using AcqMethod GC3D.M
Instrument : GC-3
Sample Name: 100ngBTEX
Misc Info :
Vial Number: 3

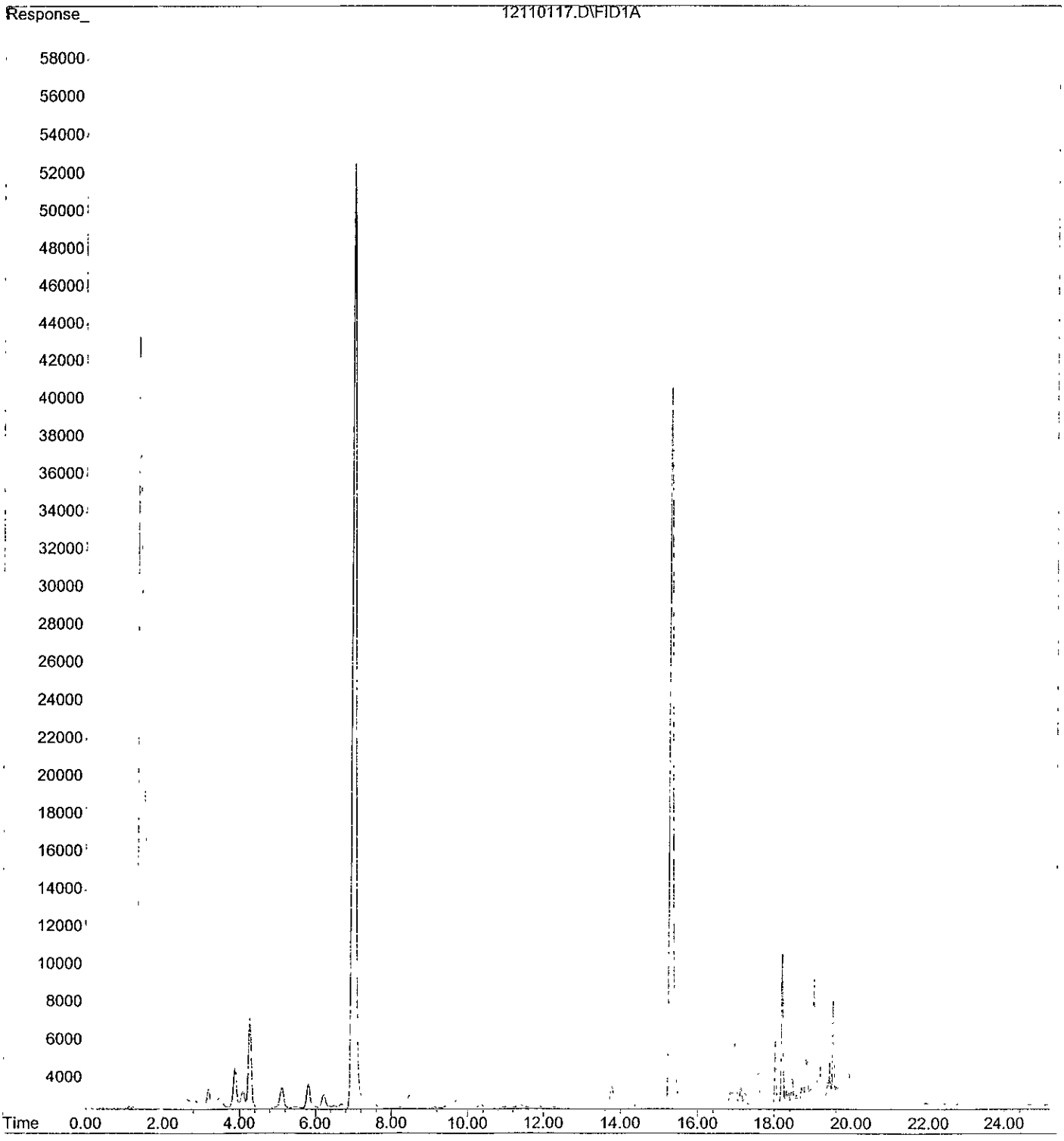


File : D:\HPCHEM\1\DATA\12110116.D
Operator :
Acquired : 11 Dec 2001 8:29 pm using AcqMethod GC3D.M
Instrument : GC-3
Sample Name: 85050rrW
Misc Info :
Vial Number: 16



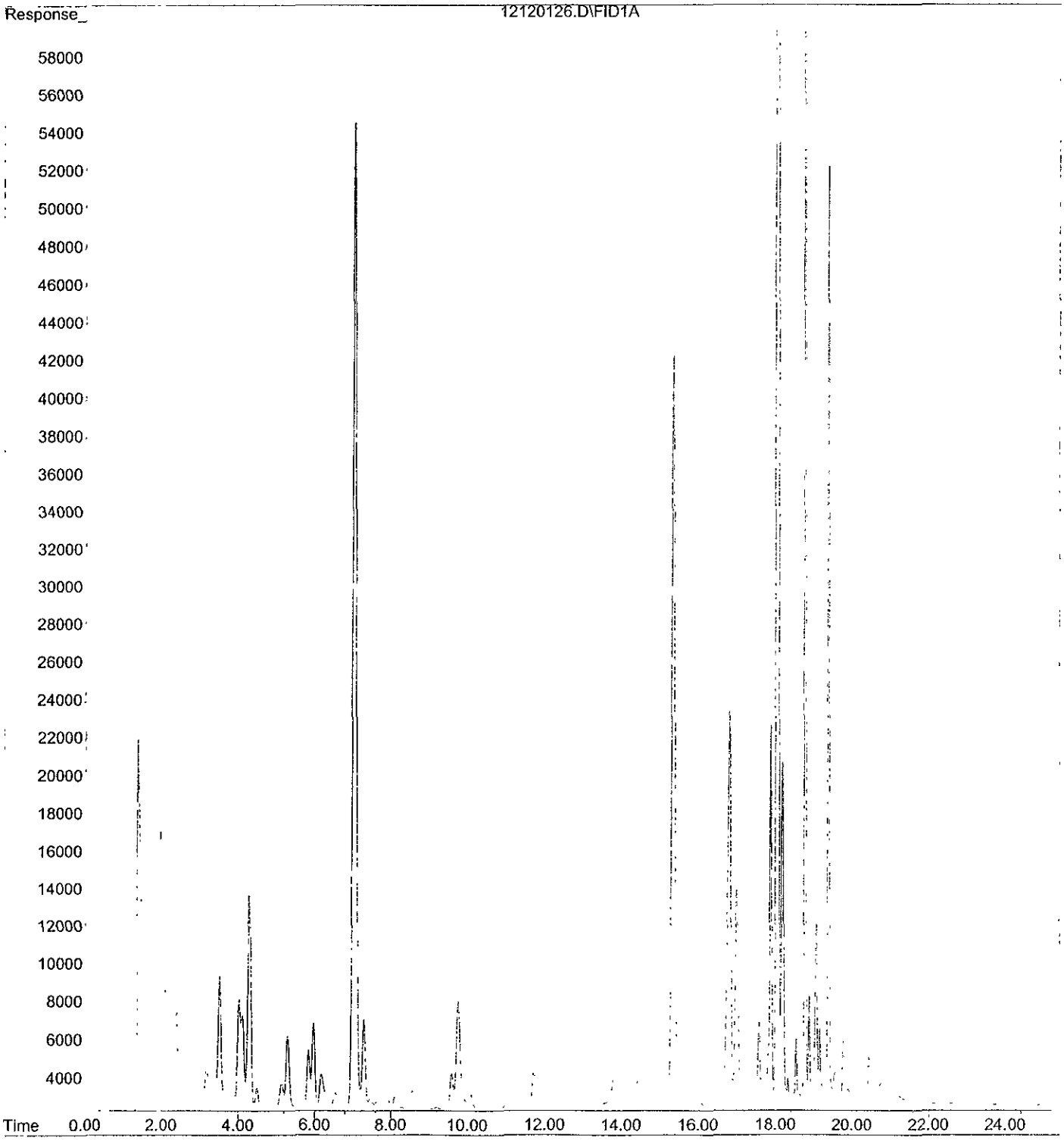
MW-1-Am

File : D:\HPCHEM\1\DATA\12110117.D
Operator :
Acquired : 11 Dec 2001 9:01 pm using AcqMethod GC3D.M
Instrument : GC-3
Sample Name: 85051rrW
Misc Info :
Vial Number: 17



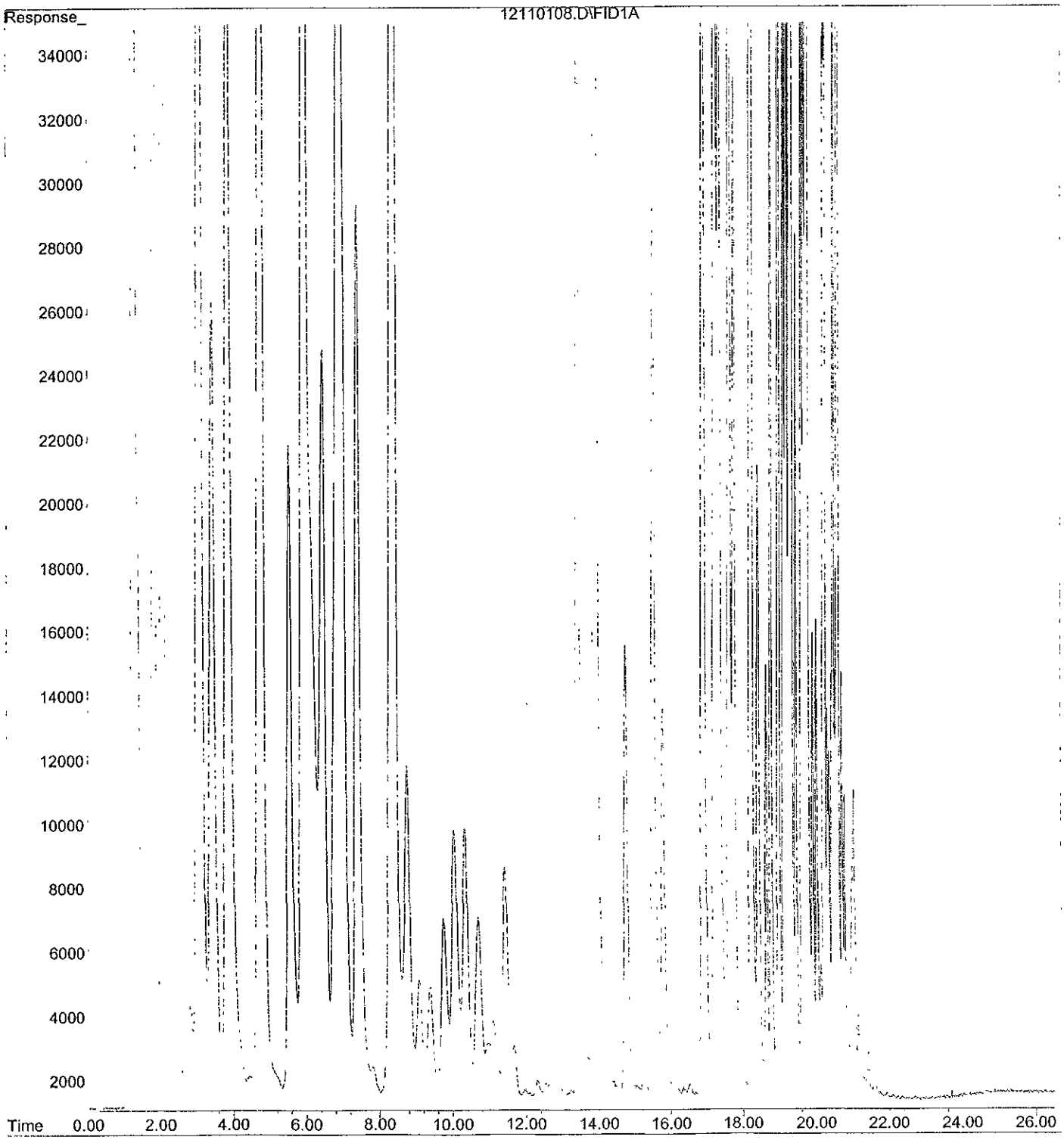
MW-2-AM

File : D:\HPCHEM\1\DATA\12120126.D
Operator :
Acquired : 13 Dec 2001 4:53 am using AcqMethod GC3D.M
Instrument : GC-3
Sample Name: 85052rrrW-AF
Misc Info :
Vial Number: 26



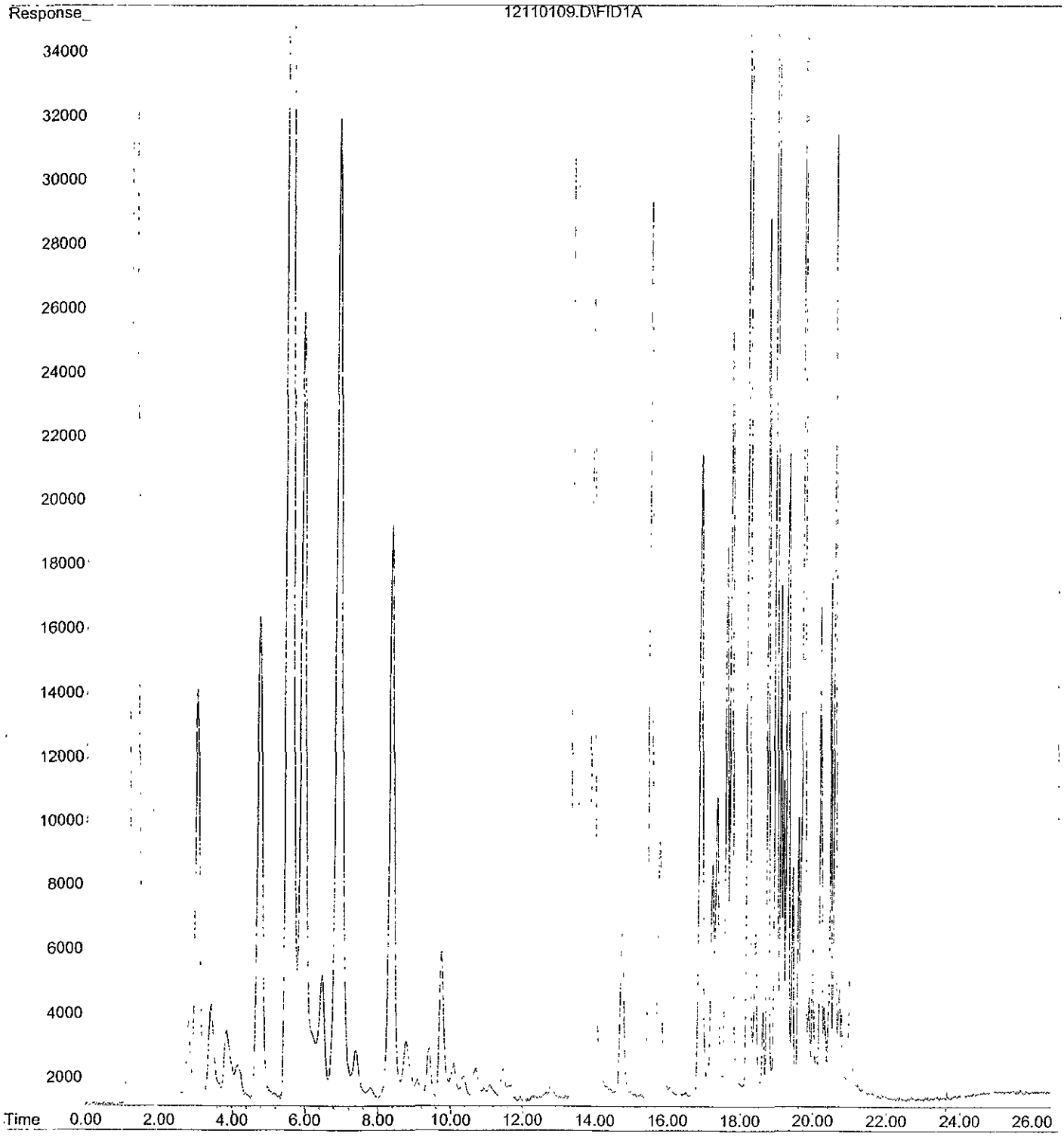
MW-3-AM

File : D:\HPCHEM\2\DATA\12110108.D
Operator :
Acquired : 11 Dec 2001 3:25 pm using AcqMethod GC12A.M
Instrument : GC-12
Sample Name: 85053rrW
Misc Info :
Vial Number: 8



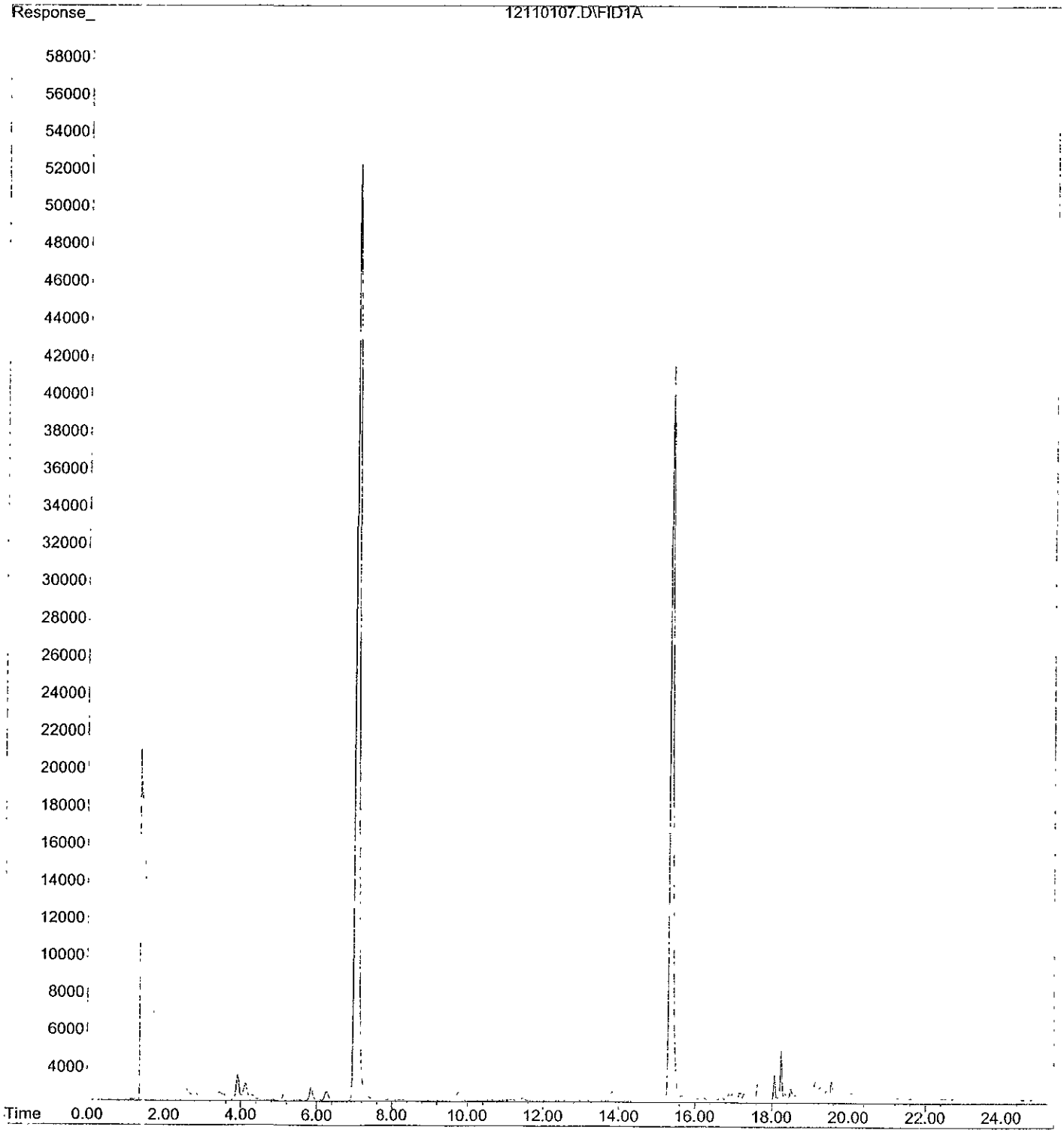
MW-4-AM

File : D:\HPCHEM\2\DATA\12110109.D
Operator :
Acquired : 11 Dec 2001 3:59 pm using AcqMethod GC12A.M
Instrument : GC-12
Sample Name: 85054rrW
Misc Info :
Vial Number: 9



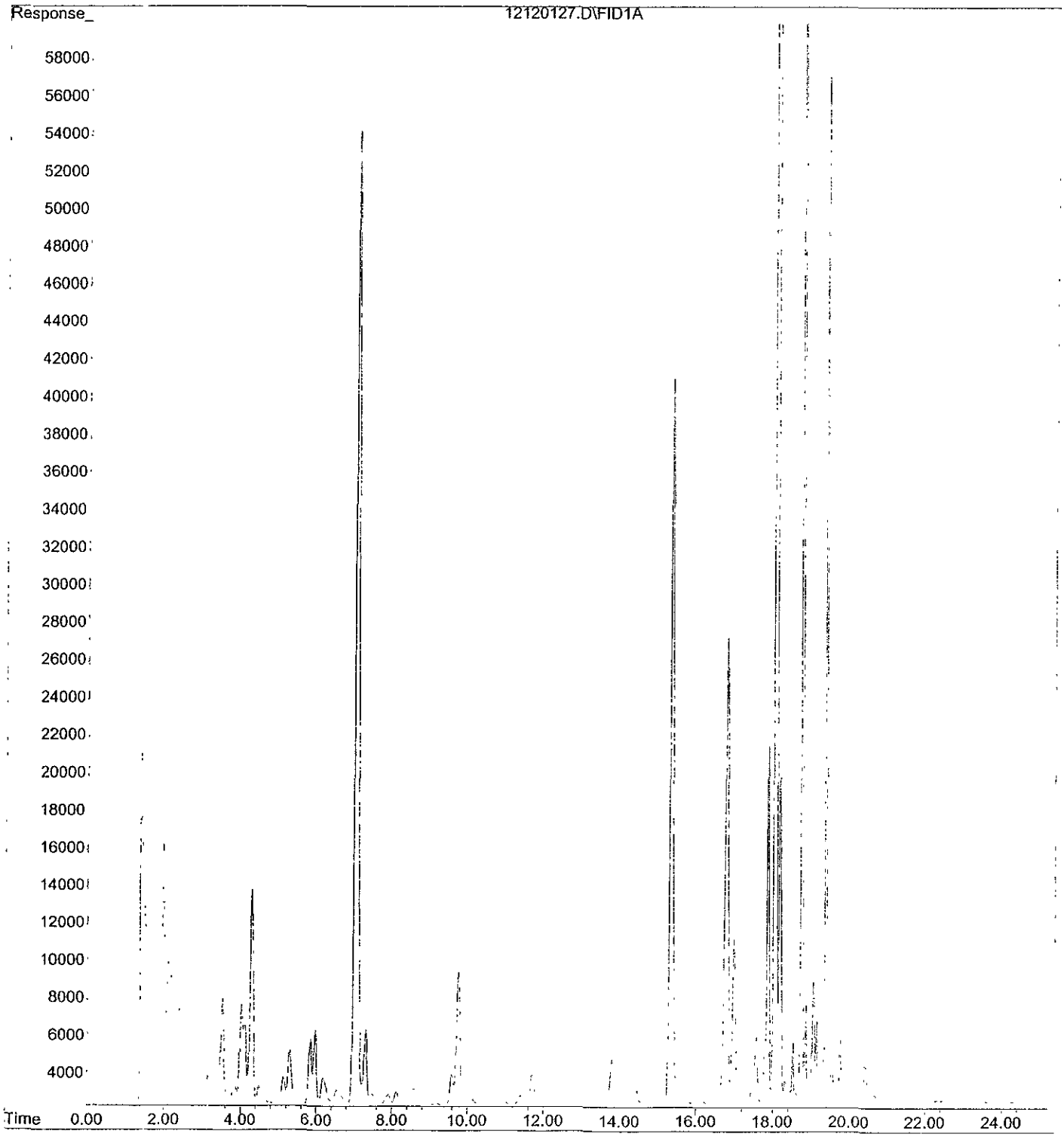
MW - 1 - PM

File : D:\HPCHEM\1\DATA\12110107.D
Operator :
Acquired : 11 Dec 2001 3:35 pm using AcqMethod GC3D.M
Instrument : GC-3
Sample Name: 85055rrW
Misc Info :
Vial Number: 7



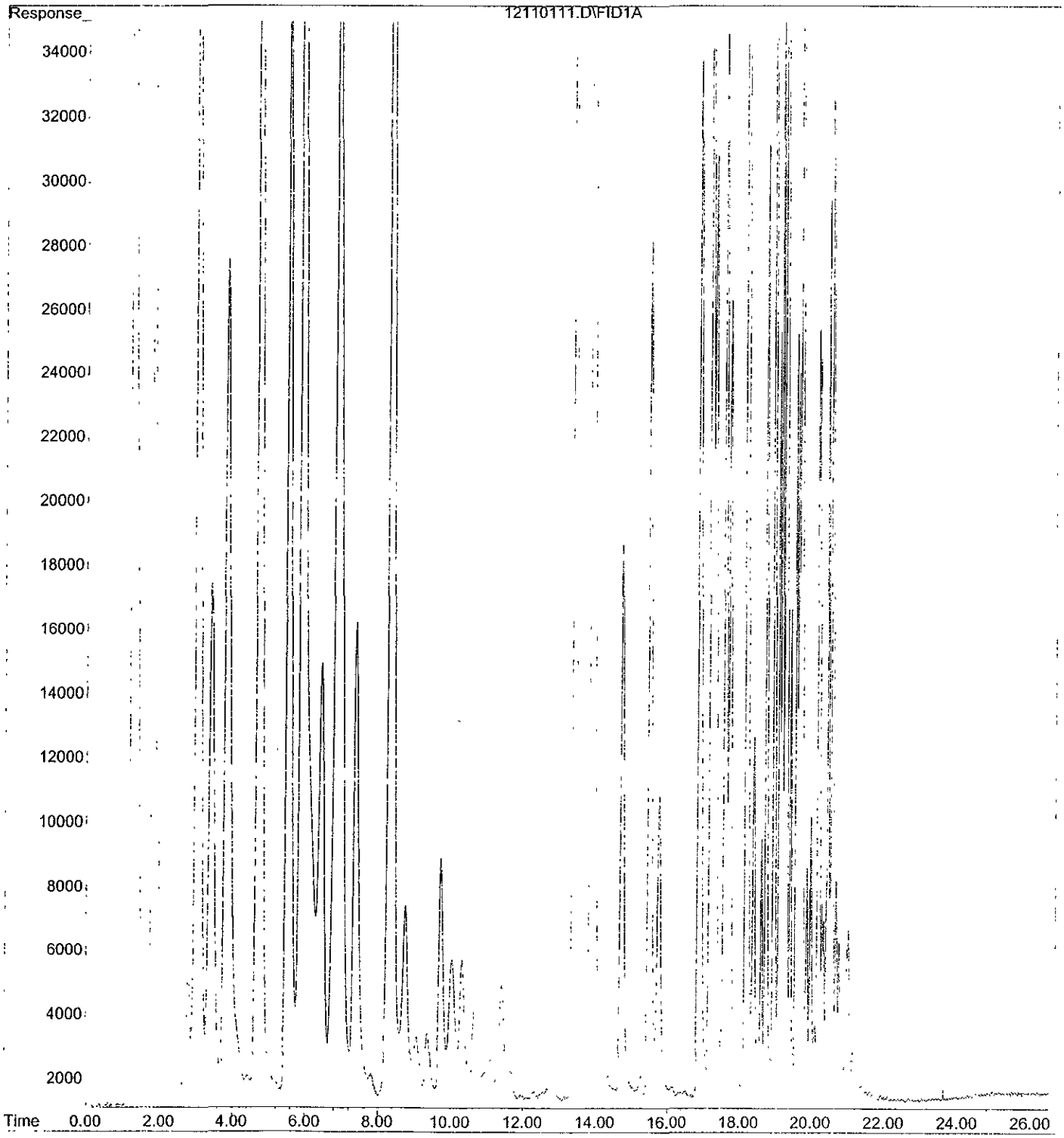
MW-2-PM

File : D:\HPCHEM\1\DATA\12120127.D
Operator :
Acquired : 13 Dec 2001 5:25 am using AcqMethod GC3D.M
Instrument : GC-3
Sample Name: 85056rrrW+AF
Misc Info :
Vial Number: 27



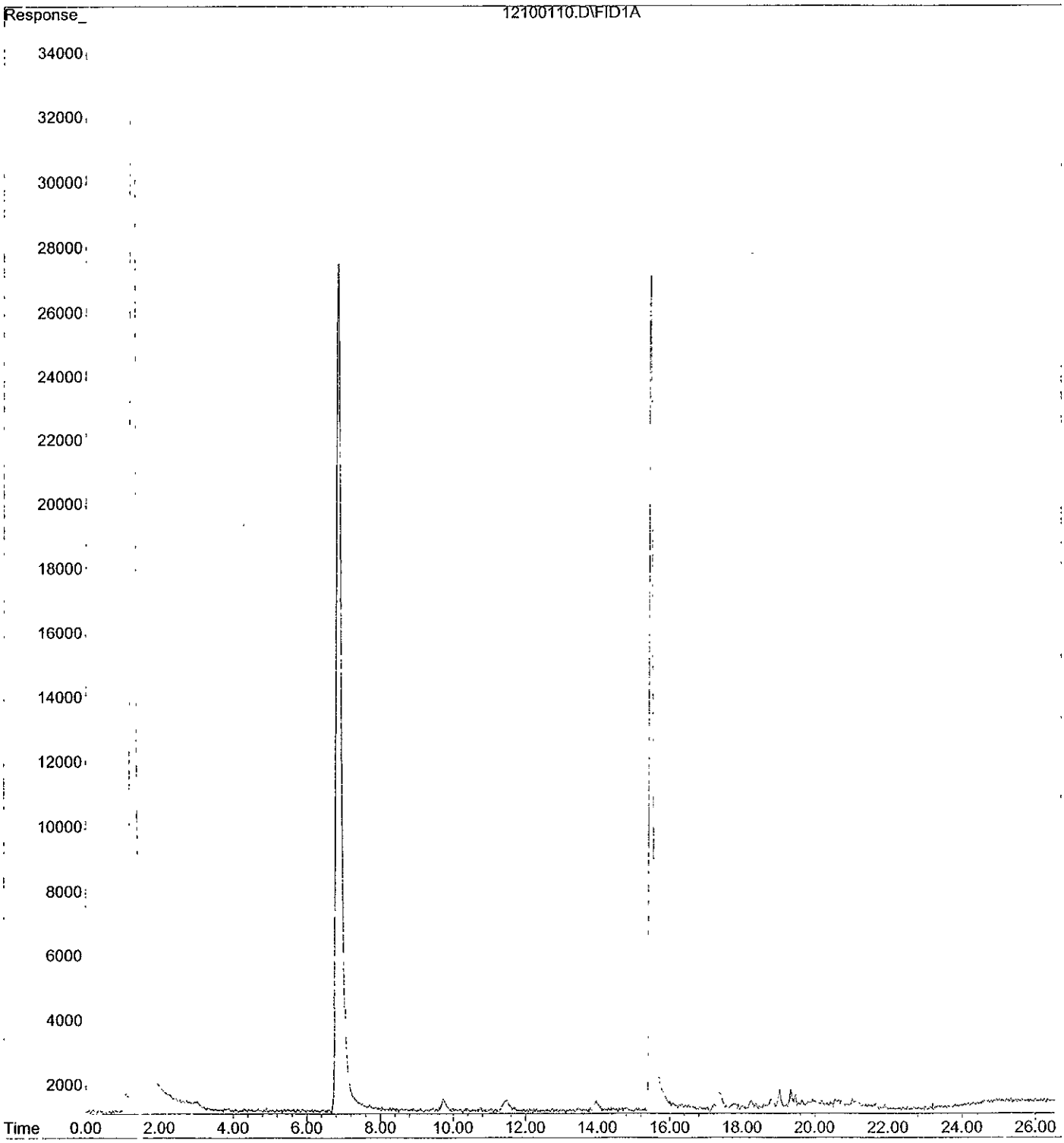
MW-3-PM

File : D:\HPCHEM\2\DATA\12110111.D
Operator :
Acquired : 11 Dec 2001 5:06 pm using AcqMethod GC12A.M
Instrument : GC-12
Sample Name: 85057rrW
Misc Info :
Vial Number: 11



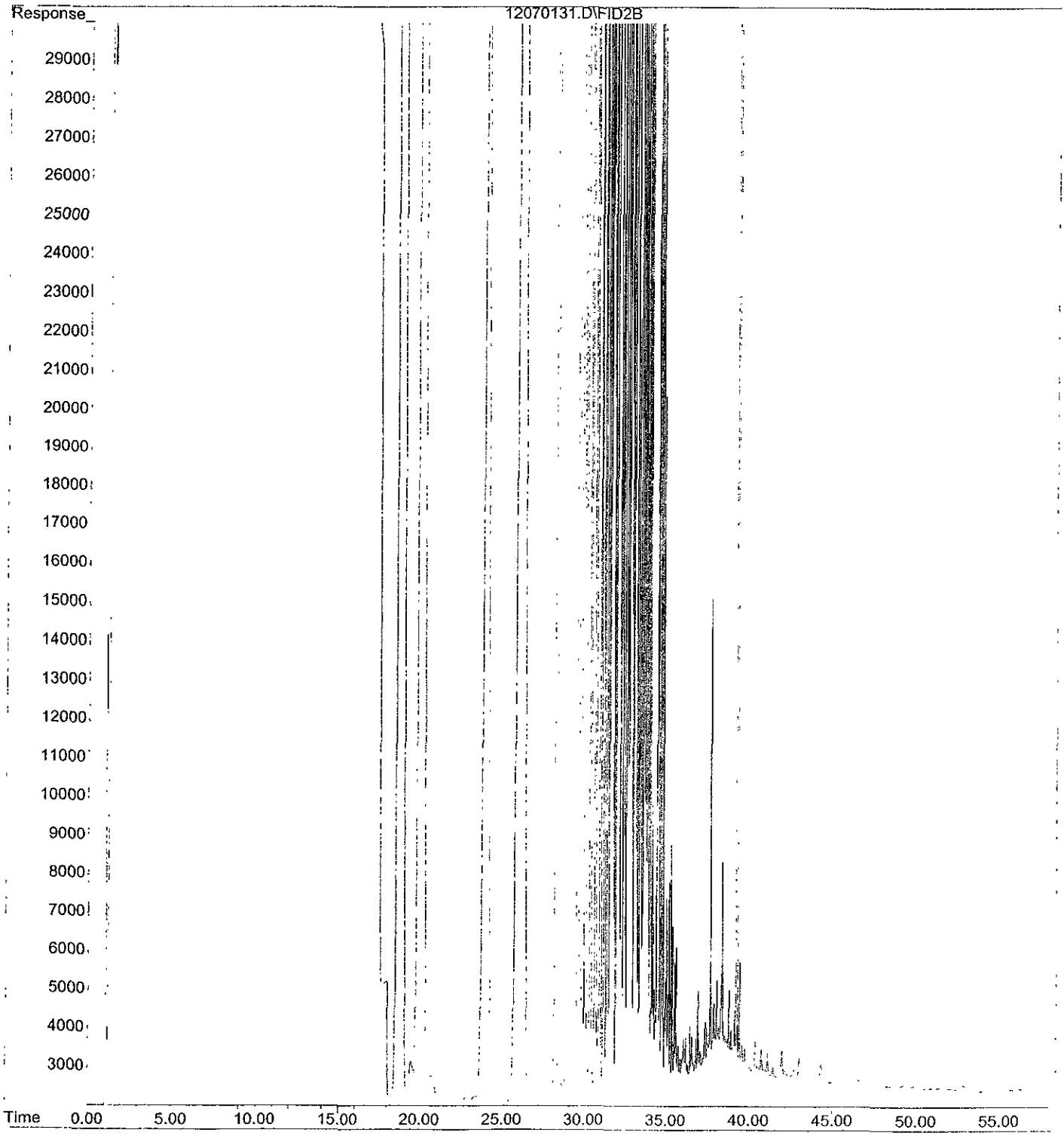
MW-4-PM

File : D:\HPCHEM\2\DATA\12100110.D
Operator :
Acquired : 10 Dec 2001 8:24 pm using AcqMethod GC12A.M
Instrument : GC-12
Sample Name: 85058W
Misc Info :
Vial Number: 10



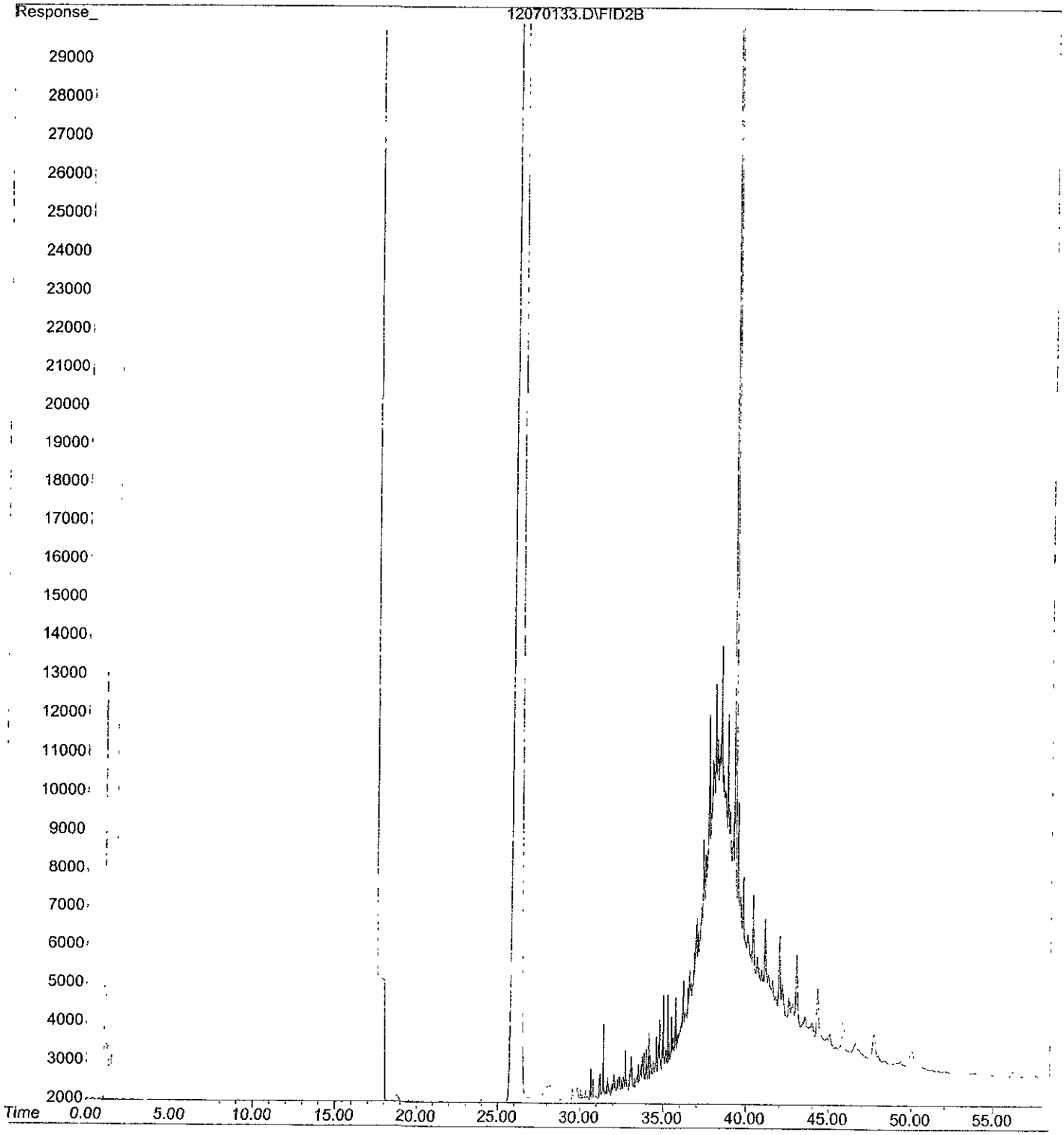
TB

File : E:\HPCHEM\3\DATAB\12070131.D
Operator : Thu
Acquired : 8 Dec 2001 11:02 am using AcqMethod GC2ANEW.M
Instrument : GC-2
Sample Name: ~~B~~ 85050 W
Misc Info :
Vial Number: 66



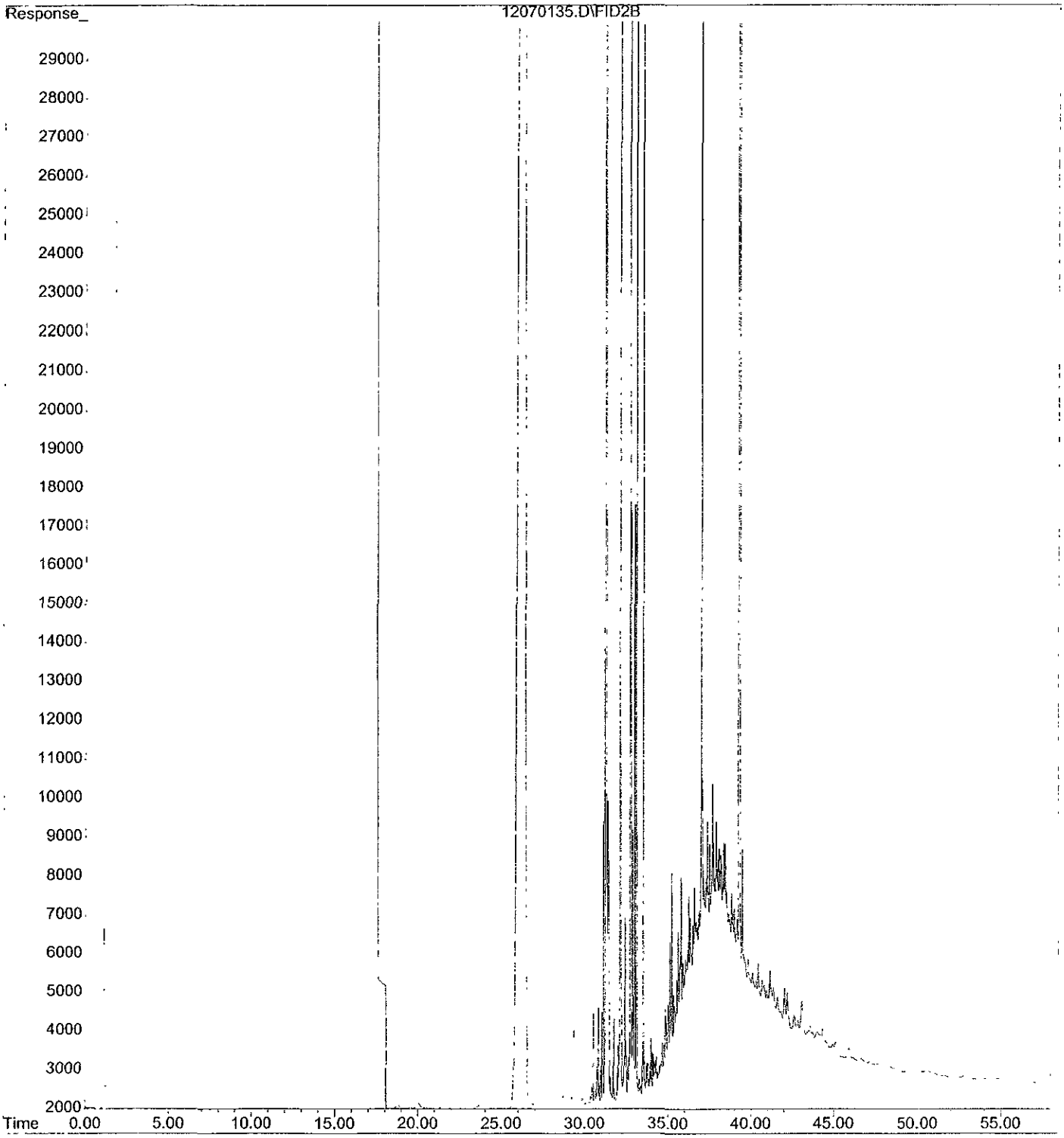
MW-1-AM

File : E:\HPCHEM\3\DATAB\12070133.D
Operator : Thu
Acquired : 8 Dec 2001 12:33 pm using AcqMethod GC2ANEW.M
Instrument : GC-2
Sample Name: B 85051 W
Misc Info :
Vial Number: 67



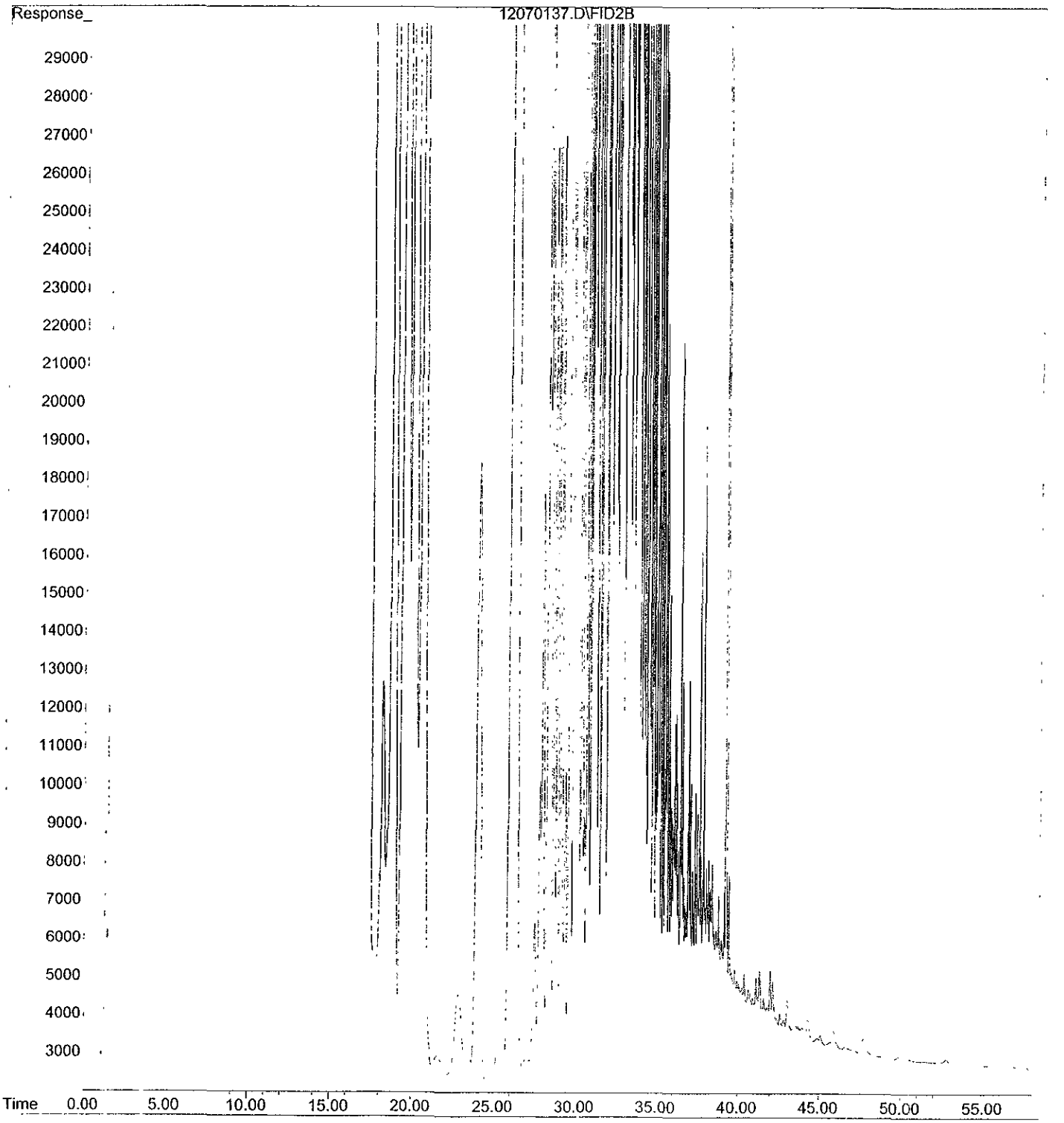
MW-2-AM

File : E:\HPCHEM\3\DATAB\12070135.D
Operator : Thu
Acquired : 8 Dec 2001 2:07 pm using AcqMethod GC2ANEW.M
Instrument : GC-2
Sample Name: ~~B~~ 85052W
Misc Info :
Vial Number: 68



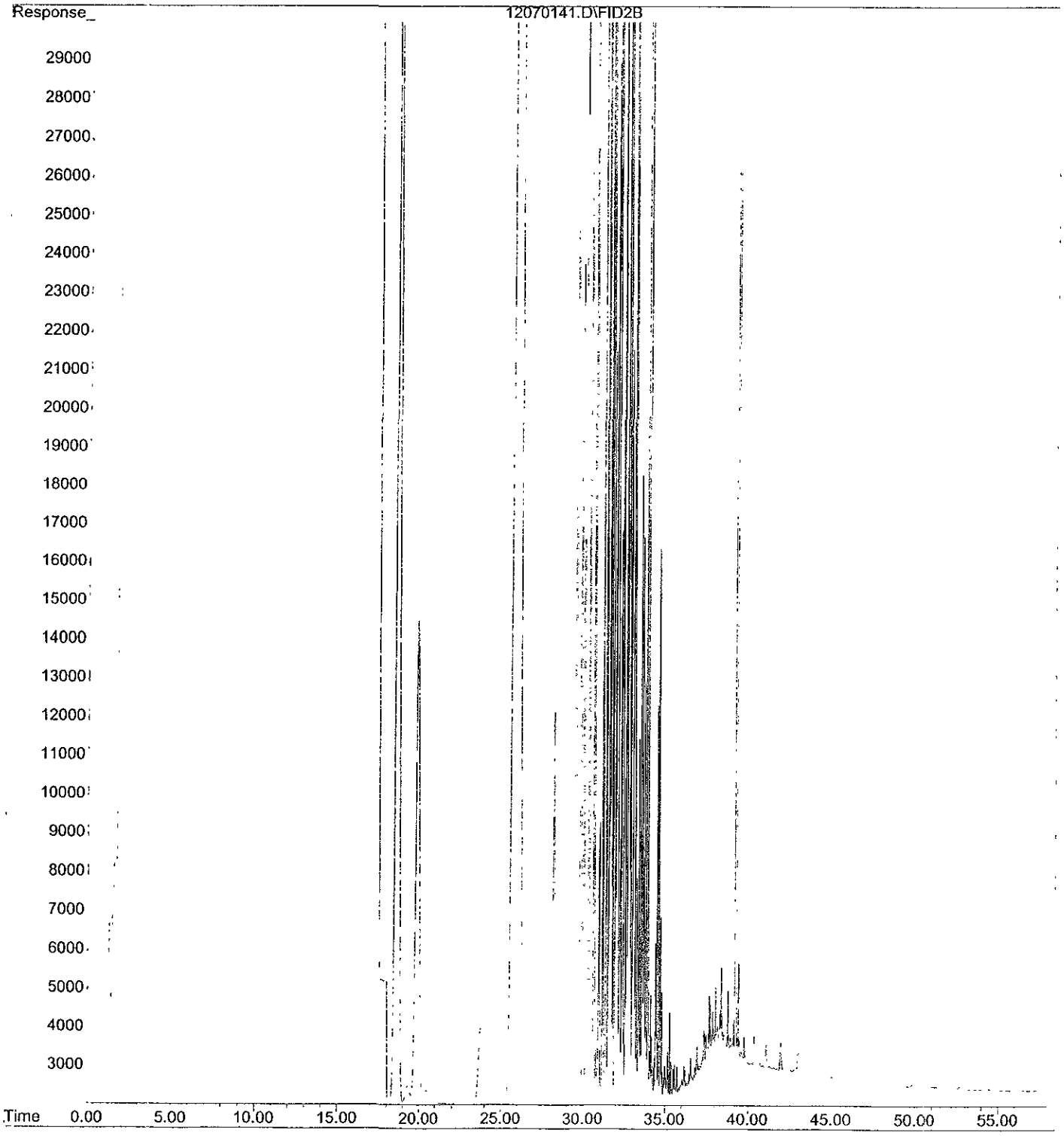
MW-3-AM

File : E:\HPCHEM\3\DATAB\12070137.D
Operator : Thu
Acquired : 8 Dec 2001 3:40 pm using AcqMethod GC2ANEW.M
Instrument : GC-2
Sample Name: ~~B~~ 85053 W
Misc Info :
Vial Number: 69



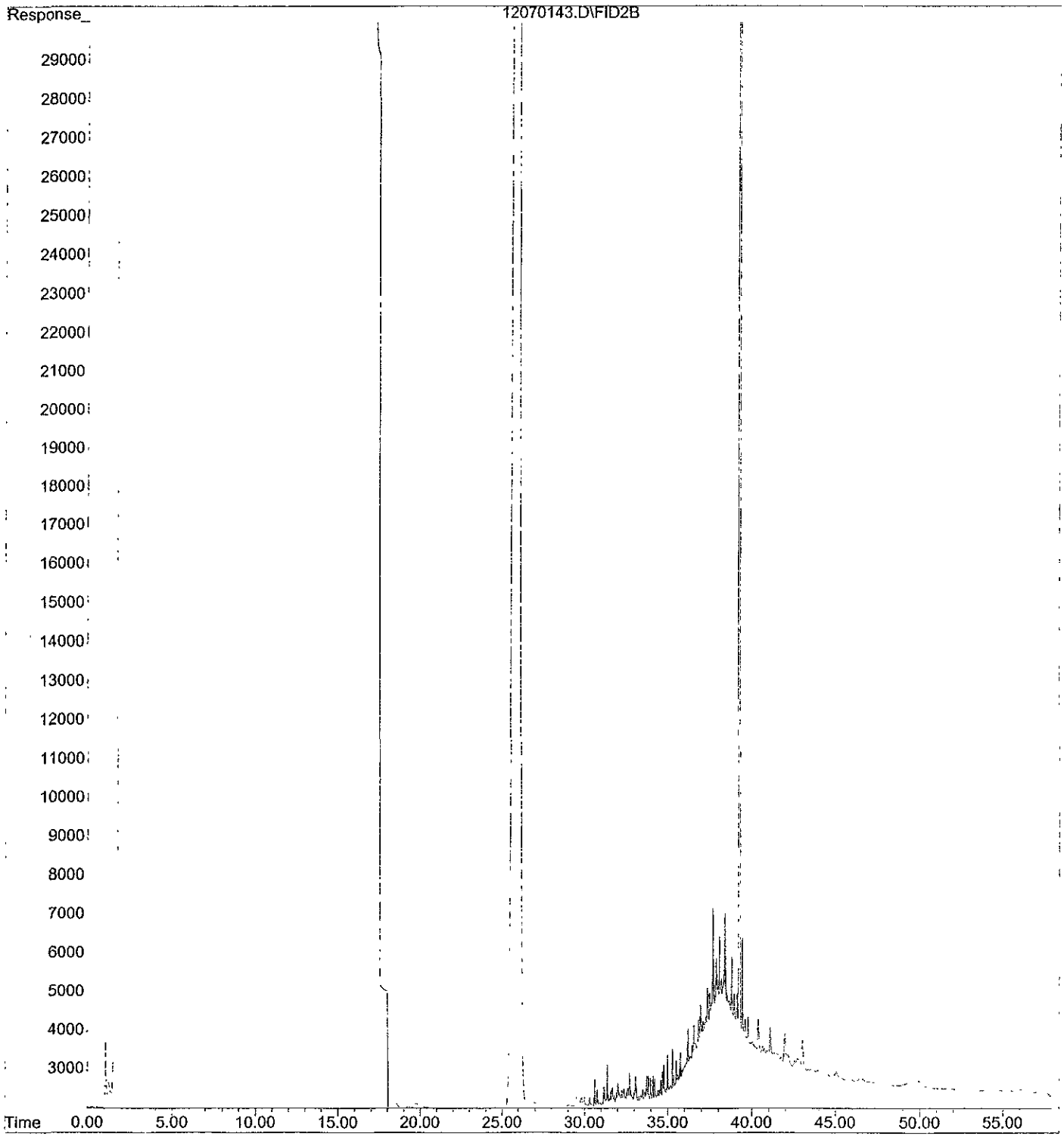
MW-4-AM

File : E:\HPCHEM\3\DATAB\12070141.D
Operator : Thu
Acquired : 8 Dec 2001 6:41 pm using AcqMethod GC2ANEW.M
Instrument : GC-2
Sample Name: ~~B~~ 85054 W
Misc Info :
Vial Number: 71



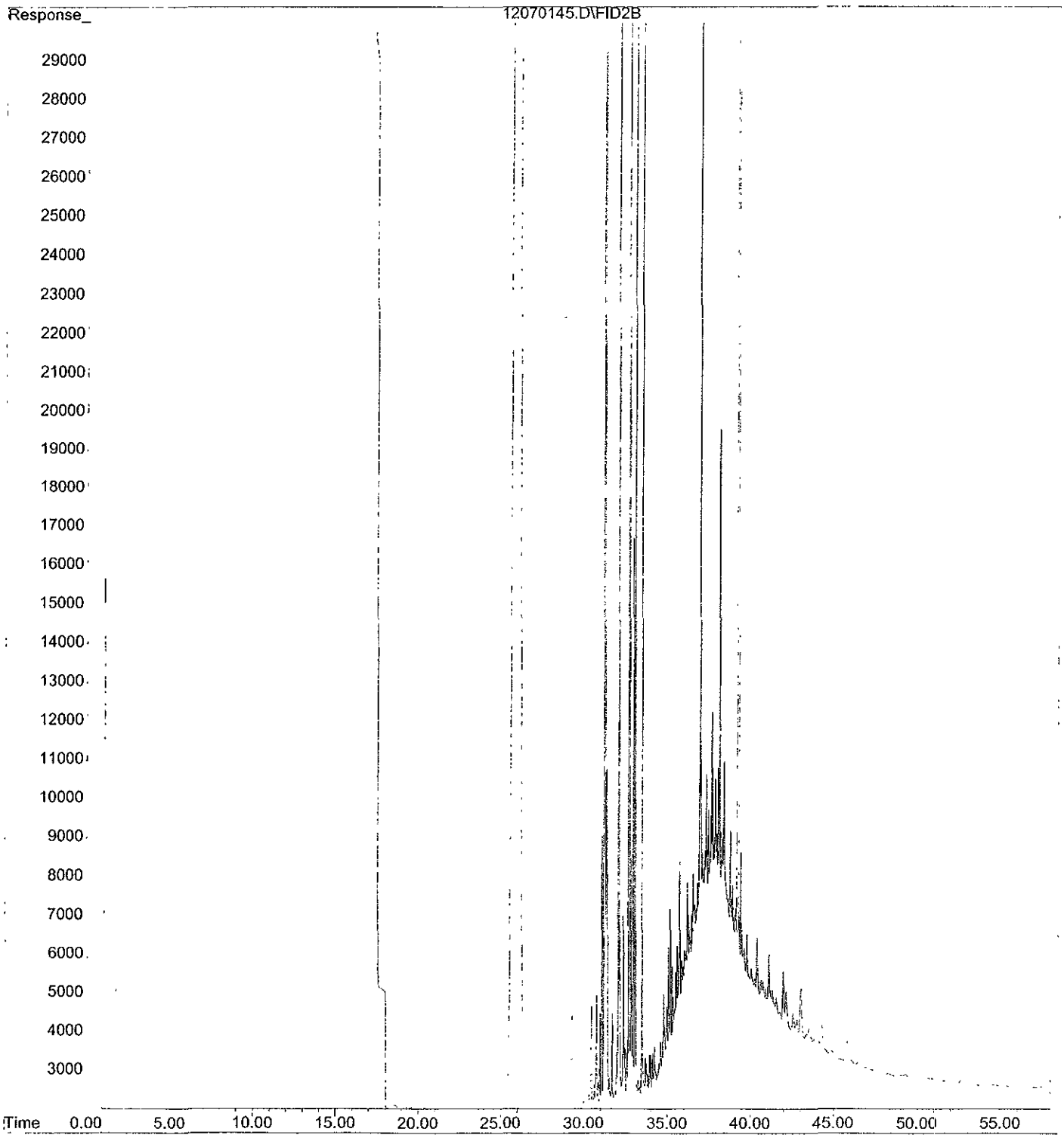
MW-1-PM

File : E:\HPCHEM\3\DATAB\12070143.D
Operator : Thu
Acquired : 8 Dec 2001 8:10 pm using AcqMethod GC2ANEW.M
Instrument : GC-2
Sample Name: B 85055 W
Misc Info :
Vial Number: 72



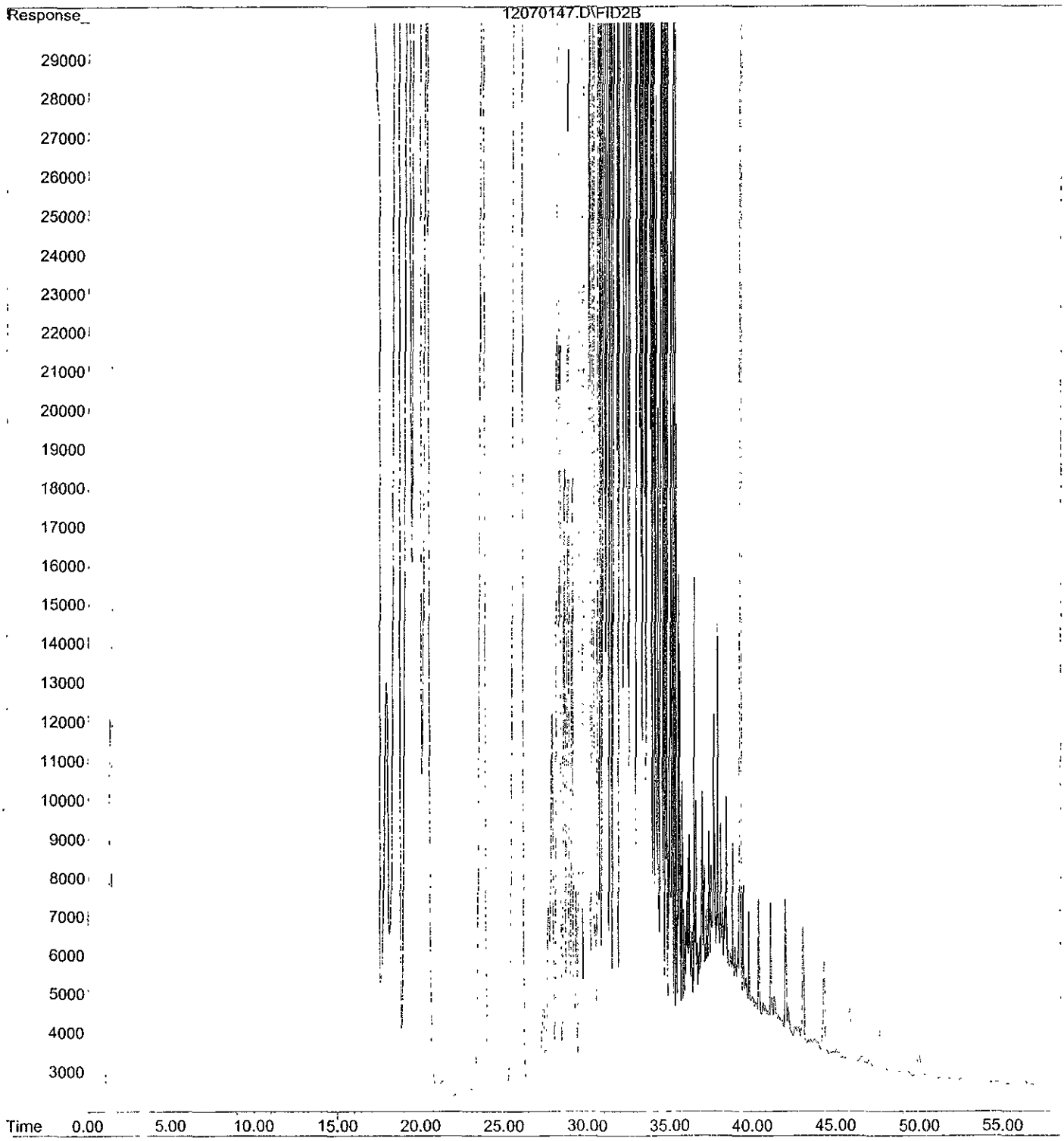
MW-2-PM

File : E:\HPCHEM\3\DATAB\12070145.D
Operator : Thu
Acquired : 8 Dec 2001 9:37 pm using AcqMethod GC2ANEW.M
Instrument : GC-2
Sample Name: ~~B~~ 85056 W
Misc Info :
Vial Number: 73



MW-3-PM

File : E:\HPCHEM\3\DATAB\12070147.D
Operator : Thu
Acquired : 8 Dec 2001 11:08 pm using AcqMethod GC2ANEW.M
Instrument : GC-2
Sample Name: ~~B~~ 850574
Misc Info :
Vial Number: 74



MW-4-PM

29133 ZC543.doc

McCAMPBELL ANALYTICAL INC.

110 2nd AVENUE SOUTH, #D7
PACHECO, CA 94553
Telephone: (925) 798-1620 Fax: (925) 798-1622

CHAIN OF CUSTODY RECORD

TURN AROUND TIME: ☐ RUSH ☐ 24 HOUR ☐ 48 HOUR ☒ 5 DAY

Report To: ~~[crossed out]~~ Bob Schultz Bill To: Cambria Env
Company: Cambria Environmental Technology
~~[crossed out]~~ 1144 65th St
~~Emeryville, CA 94608~~ Oakland, Ca
Tele: (510) 450-1983 Fax: (510) 450-8295
Project #: 458-1705 Project Name: Embarcadero Cove
Project Location: 1275 Embarcadero Cove, Oakland, Ca
Sampler Signature: [signature]

	SAMPLE ID	LOCATION	Sampling Date	Sampling Time	# Containers	Type Containers	Matrix: Water	Matrix: Soil	Matrix: Air	Matrix: Sludge	Matrix: Other	Preserved: Ice	Preserved: HCl	Preserved: HNO3	Preserved: Other	BTEX & TPH as Gas (602/8020 + 8015) MTBE	TPH as Diesel (8015) + TPHmo	Total Petroleum Oil & Grease (5520 E&F/B&F)	Total Petroleum Hydrocarbons (418.1)	EPA 601 / 8010	BTEX ONLY (EPA 602 / 8020)	EPA 608 / 8080	EPA 608 / 8080 PCB's ONLY	EPA 624 / 8240 / 8260	EPA 625 / 8270	PAH's / PNA's by EPA 625 / 8270 / (8310)	CAM-17 Metals	LUFT 5 Metals	Lead (7240/7421/239.2/6010)	RCI	Other: Title 22 metals	Comments
+	MW-1-AM		12-5-01	7:20	8	VOA Amber	X					X	X			X	X									X						TPHd +
+1	MW-2-AM		12-5-01	7:50	8	↓	X					X	X			X	X									X						TPHmo
+1	MW-3-AM		12-5-01	8:05	8		X					X	X			X	X									X						w/silica gel
+1	MW-4-AM		12-5-01	6:50	8		X					X	X			X	X									X						cleanup
+	MW-1-PM		12-5-01	12:50	8		X					X	X			X	X									X						for
+	MW-2-PM		12-5-01	13:20	8		X					X	X			X	X									X						all
+1	MW-3-PM		12-5-01	13:30	8		X					X	X			X	X									X						samples
+1	MW-4-PM		12-5-01	12:20	8	↓	X					X	X			X	X									X						
✓	TB		12-5-01		2	Voa	X					X	X			(X)																
	MW-1-AM		12-7-01	6:10	1	poly																									X	
	MW-1-PM		12-7-01	12:05	1	poly																									X	

Comments: Title 22 metals have been field filtered with 0.45 micron filter

85050 85051 85052 85053 85054 85055 85056 85057

ICE/t° ✓
GOOD CONDITION ✓
HEAD SPACE ABSENT ✓

	VOAS	O&G	METALS	OTHER
PRESERVATION	✓			

APPROPRIATE CONTAINERS ✓

Relinquished By	Date	Time	Received By
[signature]	12-7-01	12:55	secure location
Sara Dwight	12/7/01	345p	Chris Erickson
			V. Miller 12/7 4:50

Remarks: If can't do PNAs by 8310 then do analysis by 8270 w/ a low detection limit.

85058 85059 85060

Sent By: McCampbell Analytical, Inc.; 1 925 798 4612; Sep-5-01 8:42AM; Page

McCAMPBELL ANALYTICAL INC.
110 2nd Avenue South, #D7, Pacheco, CA 94553-5560
Telephone : 925-798-1620 Fax : 925-798-1622
http://www.mccampbell.com E-mail: main@mccampbell.com

Cambria Environmental Technology 1144 65th Street, Suite C Oakland, CA 94608	Client Project ID: #458-1705-4; Embarcadero Ave	Date Sampled: 10/09/01
		Date Received: 10/11/01
	Client Contact: Bob Schultz	Date Extracted: 10/11-11/07/01
	Client P.O:	Date Analyzed: 10/11-11/07/01

11/13/01

Dear Bob:

Enclosed are:

1). the results of **4** samples from your **#458-1705-4; Embarcadero Ave** project,

2). a QC report for the above samples

3). a copy of the chain of custody, and

4). a bill for analytical services.

All analyses were completed satisfactorily and all QC samples were found to be within our control limits. If you have any questions please contact me. McCampbell Analytical Laboratories strives for excellence in quality, service and cost. Thank you for your business and I look forward to working with you again.

Yours truly

Edward Hamilton, Lab Director

McCAMPBELL ANALYTICAL INC.
110 2nd Avenue South, #D7, Pacheco, CA 94553-5560
Telephone : 925-798-1620 Fax : 925-798-1622
http://www.mccampbell.com E-mail: main@mccampbell.com

Cambria Environmental Technology	Client Project ID: #458-1705-4; Embarcadero Ave	Date Sampled: 10/09/01
1144 65th Street, Suite C		Date Received: 10/11/01
Oakland, CA 94608	Client Contact: Bob Schultz	Date Extracted: 10/11/01
	Client P.O:	Date Analyzed: 10/11-10/16/01

Gasoline Range (C6-C12) Volatile Hydrocarbons as Gasoline*, with Methyl tert-Butyl Ether* & BTEX*

EPA methods 5030, modified 8015, and 8020 or 602; California RWQCB (SF Bay Region) method GCFID(5030)

Lab ID	Client ID	Matrix	TPH(g)+	MTBE	Benzene	Toluene	Ethyl-benzene	Xylenes	% Recovery Surrogate
80573	MW-1-8.3	S	30,a	ND	0.48	0.067	0.70	0.52	---#
80574	MW-2-5.0	S	7.5,a	ND	0.027	0.051	0.041	0.087	---#
80576	MW-3-5.0	S	1.6,g,j	ND	ND	ND	ND	ND	109
80579	MW-4-5.3	S	34,a	ND	0.70	0.068	0.41	0.97	---#
Reporting Limit unless otherwise stated; ND means not detected above the reporting limit		W	50 ug/L	5.0	0.5	0.5	0.5	0.5	
		S	1.0 mg/kg	0.05	0.005	0.005	0.005	0.005	

* water and vapor samples are reported in ug/L, wipe samples in ug/wipe, soil and sludge samples in mg/kg, and all TCLP and SPLP extracts in ug/L

cluttered chromatogram; sample peak coelutes with surrogate peak

+The following descriptions of the TPH chromatogram are cursory in nature and McCampbell Analytical is not responsible for their interpretation: a) unmodified or weakly modified gasoline is significant; b) heavier gasoline range compounds are significant(aged gasoline?); c) lighter gasoline range compounds (the most mobile fraction) are significant; d) gasoline range compounds having broad chromatographic peaks are significant; biologically altered gasoline?; e) TPH pattern that does not appear to be derived from gasoline (?); f) one to a few isolated peaks present; g) strongly aged gasoline or diesel range compounds are significant; h) lighter than water immiscible sheen is present; i) liquid sample that contains greater than ~5 vol. % sediment; j) no recognizable pattern.

DHS Certification No. 1644

Edward Hamilton, Lab Director

McCAMPBELL ANALYTICAL INC.
110 2nd Avenue South, #D7, Pacheco, CA 94553-5560
Telephone : 925-798-1620 Fax : 925-798-1622
http://www.mccampbell.com E-mail: main@mccampbell.com

Cambria Environmental Technology 1144 65th Street, Suite C Oakland, CA 94608	Client Project ID: #458-1705-4; Embarcadero Ave	Date Sampled: 10/09/01
		Date Received: 10/11/01
	Client Contact: Bob Schultz	Date Extracted: 10/11/01
	Client P.O:	Date Analyzed: 10/11-10/12/01

Diesel Range (C10-C23) and Oil-Range (C18+) Extractable Hydrocarbons as Diesel and Motor Oil with Silica Gel Clean-up*

EPA methods modified 8015, and 3550 or 3510; California RWQCB (SF Bay Region) method GCFID(3550) or GCFID(3510)

Lab ID	Client ID	Matrix	TPH(d)+	TPH(mo)+	% Recovery Surrogate
80573	MW-1-8.3	S	5.7,d	ND	100
80574	MW-2-5.0	S	74,g	300	100
80576	MW-3-5.0	S	17,g	160	102
80579	MW-4-5.3	S	8.3,d,g	10	98
Reporting Limit unless otherwise stated; ND means not detected above the reporting limit		W	50 ug/L	250 ug/L	
		S	1.0 mg/kg	5.0 mg/kg	

*water samples are reported in ug/L, wipe samples in ug/wipe, soil and sludge samples in mg/kg, and all TCLP / STLC / SPLP extracts in ug/L

cluttered chromatogram resulting in coeluted surrogate and sample peaks, or; surrogate peak is on elevated baseline, or; surrogate has been diminished by dilution of original extract.

+The following descriptions of the TPH chromatogram are cursory in nature and McCampbell Analytical is not responsible for their interpretation: a) unmodified or weakly modified diesel is significant; b) diesel range compounds are significant; no recognizable pattern; c) aged diesel? is significant); d) gasoline range compounds are significant; e) medium boiling point pattern that does not match diesel (?); f) one to a few isolated peaks present; g) oil range compounds are significant; h) lighter than water immiscible sheen is present; i) liquid sample that contains greater than ~5 vol. % sediment.

DHS Certification No. 1644

Edward Hamilton, Lab Director

McCAMPBELL ANALYTICAL INC.
110 2nd Avenue South, #D7, Pacheco, CA 94553-5560
Telephone : 925-798-1620 Fax : 925-798-1622
http://www.mccampbell.com E-mail: main@mccampbell.com

Cambria Environmental Technology	Client Project ID: #458-1705-4; Embarcadero Ave	Date Sampled: 10/09/01
1144 65th Street, Suite C		Date Received: 10/11/01
Oakland, CA 94608	Client Contact: Bob Schultz	Date Extracted: 10/11/01
	Client P.O:	Date Analyzed: 10/12-10/22/01

Volatile Organics By GC/MS

EPA method 8260

Lab ID	80573
Client ID	MW-1-8.3
Matrix	S

Compound	Concentration*	Reporting Limit W	Reporting Limit S	Compound	Concentration*	Reporting Limit W	Reporting Limit S
Acetone [b]	ND<130	5.0	25	trans-1,3-Dichloropropene	ND<25	1.0	5.0
Benzene	260	1.0	5.0	Ethylene dibromide	ND<25	1.0	5.0
Bromobenzene	ND<25	1.0	5.0	Ethylbenzene	800	1.0	5.0
Bromochloromethane	ND<25	1.0	5.0	Hexachlorobutadiene	ND<130	5.0	25
Bromodichloromethane	ND<25	1.0	5 0	Iodomethane	ND<25	1.0	5.0
Bromoform	ND<25	1.0	5.0	Isopropylbenzene	210	1.0	5.0
Bromomethane	ND<25	1.0	5.0	p-Isopropyl toluene	ND<25	1.0	5.0
n-Butyl benzene	580	1.0	5.0	Methyl butyl ketone [d]	ND<25	1.0	5.0
sec-Butyl benzene	ND<25	1.0	5.0	Methylene Chloride[e]	ND<80	1.0	5.0
tert-Butyl benzene	ND<25	1.0	5.0	Methyl ethyl ketone [f]	ND<50	2.0	10
Carbon Disulfide	ND<25	1.0	5.0	Methyl isobutyl ketone [g]	ND<25	1.0	5.0
Carbon Tetrachloride	ND<25	1.0	5.0	Methyl tert-Butyl Ether (MTBE)	---	1.0	5.0
Chlorobenzene	ND<25	1.0	5 0	Naphthalene	580	5.0	5.0
Chloroethane	ND<25	1.0	5.0	n-Propyl benzene	910	1.0	5.0
2-Chloroethyl Vinyl Ether[c]	ND<25	1.0	5.0	Styrene [k]	ND<25	1.0	5.0
Chloroform	ND<25	1.0	5.0	1,1,1,2-Tetrachloroethane	ND<25	1.0	5.0
Chloromethane	ND<25	1.0	5 0	1,1,2,2-Tetrachloroethane	ND<25	1.0	5.0
2-Chlorotoluene	ND<25	1.0	5.0	Tetrachloroethene	ND<25	1.0	5.0
4-Chlorotoluene	ND<25	1.0	5.0	Toluene [l]	43	1.0	5.0
Dibromochloromethane	ND<25	1.0	5.0	1,2,3-Trichlorobenzene	ND<130	5.0	25
1,2-Dibromo-3-chloropropane	ND<50	2.0	10	1,2,4-Trichlorobenzene	ND<130	5.0	25
Dibromomethane	ND<25	1.0	5.0	1,1,1-Trichloroethane	ND<25	1.0	5.0
1,2-Dichlorobenzene	ND<25	1.0	5.0	1,1,2-Trichloroethane	ND<25	1.0	5.0
1,3-Dichlorobenzene	ND<25	1.0	5.0	Trichloroethene	ND<25	1.0	5.0
1,4-Dichlorobenzene	ND<25	1.0	5.0	Trichlorofluoromethane	ND<25	1.0	5.0
Dichlorodifluoromethane	ND<25	1.0	5.0	1,2,3-Trichloropropane	ND<25	1.0	5.0
1,1-Dichloroethane	ND<25	1.0	5.0	1,2,4-Trimethylbenzene	450	1.0	5.0
1,2-Dichloroethane	ND<25	1.0	5.0	1,3,5-Trimethylbenzene	160	1.0	5.0
1,1-Dichloroethene	ND<25	1.0	5.0	Vinyl Acetate [m]	ND<130	5.0	25
cis-1,2-Dichloroethene	ND<25	1.0	5.0	Vinyl Chloride [n]	ND<25	1.0	5.0
trans-1,2-Dichloroethene	ND<25	1.0	5.0	Xylenes, total [o]	490	1.0	5.0
1,2-Dichloropropane	ND<25	1 0	5.0	**Comments:**			
1,3-Dichloropropane	ND<25	1.0	5.0	**Surrogate Recoveries (%)**			
2,2-Dichloropropane	ND<25	1.0	5.0	Dibromofluoromethane	90		
1,1-Dichloropropene	ND<25	1.0	5.0	Toluene-d8	110		
cis-1,3-Dichloropropene	ND<25	1.0	5 0	4-Bromofluorobenzene	102		

*water and vapor samples are reported in ug/L, soil and sludge samples in ug/kg, wipes in ug/wipe and all TCLP / SPLP extracts in ug/L

ND means not detected above the reporting limit; N/A means analyte not applicable to this analysis

(b) 2-propanone or dimethyl ketone; (c) (2-chloroethoxy) ethene; (d) 2-hexanone; (e) dichloromethane; (f) 2-butanone; (g) 4-methyl-2-pentanone or isopropylacetone; (h) lighter than water immiscible sheen is present; (i) liquid sample that contains greater than ~5 vol. % sediment, (j) sample diluted due to high organic content; (k) ethenylbenzene; (l) methylbenzene; (m) acetic acid ethenyl ester; (n) chloroethene; (o) dimethylbenzenes.

DHS Certification No. 1644

Edward Hamilton, Lab Director

McCAMPBELL ANALYTICAL INC.
110 2nd Avenue South, #D7, Pacheco, CA 94553-5560
Telephone : 925-798-1620 Fax : 925-798-1622
http://www.mccampbell.com E-mail: main@mccampbell.com

Cambria Environmental Technology	Client Project ID: #458-1705-4; Embarcadero Ave	Date Sampled: 10/09/01
1144 65th Street, Suite C		Date Received: 10/11/01
Oakland, CA 94608	Client Contact: Bob Schultz	Date Extracted: 10/11/01
	Client P.O:	Date Analyzed: 10/12-10/22/01

Volatile Organics By GC/MS

EPA method 8260

Lab ID	80574
Client ID	MW-2-5.0
Matrix	S

Compound	Concentration*	Reporting Limit W	Reporting Limit S	Compound	Concentration*	Reporting Limit W	Reporting Limit S
Acetone (b)	ND<85	5.0	25	trans-1,3-Dichloropropene	ND	1.0	5.0
Benzene	ND	1.0	5.0	Ethylene dibromide	ND	1.0	5.0
Bromobenzene	ND	1.0	5.0	Ethylbenzene	5.3	1.0	5.0
Bromochloromethane	ND	1.0	5.0	Hexachlorobutadiene	ND	5.0	25
Bromodichloromethane	ND	1.0	5.0	Iodomethane	ND	1.0	5.0
Bromoform	ND	1.0	5.0	Isopropylbenzene	ND	1.0	5.0
Bromomethane	ND	1.0	5.0	p-Isopropyl toluene	11	1.0	5.0
n-Butyl benzene	18	1.0	5.0	Methyl butyl ketone (d)	ND	1.0	5.0
sec-Butyl benzene	ND	1.0	5.0	Methylene Chloride(e)	ND<10	1.0	5.0
tert-Butyl benzene	ND	1.0	5.0	Methyl ethyl ketone (f)	ND	2.0	10
Carbon Disulfide	ND	1.0	5.0	Methyl isobutyl ketone (g)	ND	1.0	5.0
Carbon Tetrachloride	ND	1.0	5.0	Methyl tert-Butyl Ether (MTBE)	---	1.0	5.0
Chlorobenzene	ND	1.0	5.0	Naphthalene	ND	5.0	5.0
Chloroethane	ND	1.0	5.0	n-Propyl benzene	17	1.0	5.0
2-Chloroethyl Vinyl Ether(c)	ND	1.0	5.0	Styrene (k)	ND	1.0	5.0
Chloroform	ND	1.0	5.0	1,1,1,2-Tetrachloroethane	ND	1.0	5.0
Chloromethane	ND	1.0	5.0	1,1,2,2-Tetrachloroethane	ND	1.0	5.0
2-Chlorotoluene	ND	1.0	5.0	Tetrachloroethene	ND	1.0	5.0
4-Chlorotoluene	ND	1.0	5.0	Toluene (l)	ND	1.0	5.0
Dibromochloromethane	ND	1.0	5.0	1,2,3-Trichlorobenzene	ND	5.0	25
1,2-Dibromo-3-chloropropane	ND	2.0	10	1,2,4-Trichlorobenzene	ND	5.0	25
Dibromomethane	ND	1.0	5.0	1,1,1-Trichloroethane	ND	1.0	5.0
1,2-Dichlorobenzene	ND	1.0	5.0	1,1,2-Trichloroethane	ND	1.0	5.0
1,3-Dichlorobenzene	ND	1.0	5.0	Trichloroethene	ND	1.0	5.0
1,4-Dichlorobenzene	ND	1.0	5.0	Trichlorofluoromethane	ND	1.0	5.0
Dichlorodifluoromethane	ND	1.0	5.0	1,2,3-Trichloropropane	ND	1.0	5.0
1,1-Dichloroethane	ND	1.0	5.0	1,2,4-Trimethylbenzene	26	1.0	5.0
1,2-Dichloroethane	ND	1.0	5.0	1,3,5-Trimethylbenzene	11	1.0	5.0
1,1-Dichloroethene	ND	1.0	5.0	Vinyl Acetate (m)	ND	5.0	25
cis-1,2-Dichloroethene	ND	1.0	5.0	Vinyl Chloride (n)	ND	1.0	5.0
trans-1,2-Dichloroethene	ND	1.0	5.0	Xylenes, total (o)	7.1	1.0	5.0
1,2-Dichloropropane	ND	1.0	5.0	**Comments:**			
1,3-Dichloropropane	ND	1.0	5.0	**Surrogate Recoveries (%)**			
2,2-Dichloropropane	ND	1.0	5.0	Dibromofluoromethane		103	
1,1-Dichloropropene	ND	1.0	5.0	Toluene-d8		94	
cis-1,3-Dichloropropene	ND	1.0	5.0	4-Bromofluorobenzene		107	

*water and vapor samples are reported in ug/L, soil and sludge samples in ug/kg, wipes in ug/wipe and all TCLP / SPLP extracts in ug/L

ND means not detected above the reporting limit; N/A means analyte not applicable to this analysis

(b) 2-propanone or dimethyl ketone; (c) (2-chloroethoxy) ethene; (d) 2-hexanone; (e) dichloromethane; (f) 2-butanone; (g) 4-methyl-2-pentanone or isopropylacetone; (h) lighter than water immiscible sheen is present; (i) liquid sample that contains greater than ~5 vol. % sediment; (j) sample diluted due to high organic content; (k) ethenylbenzene; (l) methylbenzene; (m) acetic acid ethenyl ester; (n) chloroethene; (o) dimethylbenzenes.

DHS Certification No. 1644

Edward Hamilton, Lab Director

McCAMPBELL ANALYTICAL INC.
110 2nd Avenue South, #D7, Pacheco, CA 94553-5560
Telephone : 925-798-1620 Fax : 925-798-1622
http://www.mccampbell.com E-mail: main@mccampbell.com

Cambria Environmental Technology	Client Project ID: #458-1705-4; Embarcadero Ave	Date Sampled: 10/09/01
1144 65th Street, Suite C		Date Received: 10/11/01
Oakland, CA 94608	Client Contact: Bob Schultz	Date Extracted: 10/11/01
	Client P.O:	Date Analyzed: 10/12-10/22/01

Volatile Organics By GC/MS

EPA method 8260

Lab ID	80576
Client ID	MW-3-5.0
Matrix	S

Compound	Concentration*	Reporting Limit W	Reporting Limit S	Compound	Concentration*	Reporting Limit W	Reporting Limit S
Acetone (b)	ND<85	5.0	25	trans-1,3-Dichloropropene	ND	1.0	5.0
Benzene	ND	1.0	5.0	Ethylene dibromide	ND	1.0	5.0
Bromobenzene	ND	1.0	5.0	Ethylbenzene	ND	1.0	5.0
Bromochloromethane	ND	1.0	5.0	Hexachlorobutadiene	ND	5.0	25
Bromodichloromethane	ND	1.0	5.0	Iodomethane	ND	1.0	5.0
Bromoform	ND	1.0	5.0	Isopropylbenzene	ND	1.0	5.0
Bromomethane	ND	1.0	5.0	p-Isopropyl toluene	ND	1.0	5.0
n-Butyl benzene	ND	1.0	5.0	Methyl butyl ketone (d)	ND	1.0	5.0
sec-Butyl benzene	ND	1.0	5.0	Methylene Chloride(e)	ND<10	1.0	5.0
tert-Butyl benzene	ND	1.0	5.0	Methyl ethyl ketone (f)	ND	2.0	10
Carbon Disulfide	ND	1.0	5.0	Methyl isobutyl ketone (g)	ND	1.0	5.0
Carbon Tetrachloride	ND	1.0	5.0	Methyl tert-Butyl Ether (MTBE)	---	1.0	5.0
Chlorobenzene	ND	1.0	5.0	Naphthalene	ND	5.0	5.0
Chloroethane	ND	1.0	5.0	n-Propyl benzene	ND	1.0	5.0
2-Chloroethyl Vinyl Ether(c)	ND	1.0	5.0	Styrene (k)	ND	1.0	5.0
Chloroform	ND	1.0	5.0	1,1,1,2-Tetrachloroethane	ND	1.0	5.0
Chloromethane	ND	1.0	5.0	1,1,2,2-Tetrachloroethane	ND	1.0	5.0
2-Chlorotoluene	ND	1.0	5.0	Tetrachloroethene	ND	1.0	5.0
4-Chlorotoluene	ND	1.0	5.0	Toluene (l)	ND	1.0	5.0
Dibromochloromethane	ND	1.0	5.0	1,2,3-Trichlorobenzene	ND	5.0	25
1,2-Dibromo-3-chloropropane	ND	2.0	10	1,2,4-Trichlorobenzene	ND	5.0	25
Dibromomethane	ND	1.0	5.0	1,1,1-Trichloroethane	ND	1.0	5.0
1,2-Dichlorobenzene	ND	1.0	5.0	1,1,2-Trichloroethane	ND	1.0	5.0
1,3-Dichlorobenzene	ND	1.0	5.0	Trichloroethene	ND	1.0	5.0
1,4-Dichlorobenzene	ND	1.0	5.0	Trichlorofluoromethane	ND	1.0	5.0
Dichlorodifluoromethane	ND	1.0	5.0	1,2,3-Trichloropropane	ND	1.0	5.0
1,1-Dichloroethane	ND	1.0	5.0	1,2,4-Trimethylbenzene	5.7	1.0	5.0
1,2-Dichloroethane	ND	1.0	5.0	1,3,5-Trimethylbenzene	ND	1.0	5.0
1,1-Dichloroethene	ND	1.0	5.0	Vinyl Acetate (m)	ND	5.0	25
cis-1,2-Dichloroethene	ND	1.0	5.0	Vinyl Chloride (n)	ND	1.0	5.0
trans-1,2-Dichloroethene	ND	1.0	5.0	Xylenes, total (o)	ND	1.0	5.0
1,2-Dichloropropane	ND	1.0	5.0	**Comments:**			
1,3-Dichloropropane	ND	1.0	5.0	**Surrogate Recoveries (%)**			
2,2-Dichloropropane	ND	1.0	5.0	Dibromofluoromethane	103		
1,1-Dichloropropene	ND	1.0	5.0	Toluene-d8	95		
cis-1,3-Dichloropropene	ND	1.0	5.0	4-Bromofluorobenzene	107		

*water and vapor samples are reported in ug/L, soil and sludge samples in ug/kg, wipes in ug/wipe and all TCLP / SPLP extracts in ug/L

ND means not detected above the reporting limit; N/A means analyte not applicable to this analysis

(b) 2-propanone or dimethyl ketone; (c) (2-chloroethoxy) ethene; (d) 2-hexanone; (e) dichloromethane; (f) 2-butanone; (g) 4-methyl-2-pentanone or isopropylacetone; (h) lighter than water immiscible sheen is present; (i) liquid sample that contains greater than ~5 vol. % sediment; (j) sample diluted due to high organic content; (k) ethenylbenzene; (l) methylbenzene; (m) acetic acid ethenyl ester; (n) chloroethene; (o) dimethylbenzenes.

DHS Certification No. 1644

Edward Hamilton, Lab Director

McCAMPBELL ANALYTICAL INC.
110 2nd Avenue South, #D7, Pacheco, CA 94553-5560
Telephone : 925-798-1620 Fax : 925-798-1622
http://www.mccampbell.com E-mail: main@mccampbell.com

Cambria Environmental Technology	Client Project ID: #458-1705-4; Embarcadero Ave	Date Sampled: 10/09/01
1144 65th Street, Suite C		Date Received: 10/11/01
Oakland, CA 94608	Client Contact: Bob Schultz	Date Extracted: 10/11/01
	Client P.O:	Date Analyzed: 10/12-10/22/01

Volatile Organics By GC/MS

EPA method 8260

Lab ID	80579
Client ID	MW-4-5.3
Matrix	S

Compound	Concentration*	Reporting Limit W	Reporting Limit S	Compound	Concentration*	Reporting Limit W	Reporting Limit S
Acetone (b)	ND<130	5.0	25	trans-1,3-Dichloropropene	ND<25	1.0	5.0
Benzene	700	1.0	5.0	Ethylene dibromide	ND<25	1.0	5.0
Bromobenzene	ND<25	1.0	5.0	Ethylbenzene	460	1.0	5.0
Bromochloromethane	ND<25	1.0	5.0	Hexachlorobutadiene	ND<130	5.0	25
Bromodichloromethane	ND<25	1.0	5.0	Iodomethane	ND<25	1.0	5.0
Bromoform	ND<25	1.0	5.0	Isopropylbenzene	220	1.0	5.0
Bromomethane	ND<25	1.0	5.0	p-Isopropyl toluene	ND<25	1.0	5.0
n-Butyl benzene	ND<25	1.0	5.0	Methyl butyl ketone (d)	ND<25	1.0	5.0
sec-Butyl benzene	*ND<25*	*1.0*	*5.0*	*Methylene Chloride(c)*	*ND<80*	*1.0*	*5.0*
tert-Butyl benzene	ND<25	1.0	5.0	Methyl ethyl ketone (f)	ND<50	2.0	10
Carbon Disulfide	ND<25	1.0	5.0	Methyl isobutyl ketone (g)	ND<25	1.0	5.0
Carbon Tetrachloride	ND<25	1.0	5.0	Methyl tert-Butyl Ether (MTBE)	---	1.0	5.0
Chlorobenzene	ND<25	1.0	5.0	Naphthalene	620	5.0	5.0
Chloroethane	ND<25	1.0	5.0	n-Propyl benzene	870	1.0	5.0
2-Chloroethyl Vinyl Ether(c)	ND<25	1.0	5.0	Styrene (k)	ND<25	1.0	5.0
Chloroform	ND<25	1.0	5.0	1,1,1,2-Tetrachloroethane	ND<25	1.0	5.0
Chloromethane	ND<25	1.0	5.0	1,1,2,2-Tetrachloroethane	ND<25	1.0	5.0
2-Chlorotoluene	ND<25	1.0	5.0	Tetrachloroethene	ND<25	1.0	5.0
4-Chlorotoluene	ND<25	1.0	5.0	Toluene (l)	41	1.0	5.0
Dibromochloromethane	ND<25	1.0	5.0	1,2,3-Trichlorobenzene	ND<130	5.0	25
1,2-Dibromo-3-chloropropane	ND<50	2.0	10	1,2,4-Trichlorobenzene	ND<130	5.0	25
Dibromomethane	ND<25	1.0	5.0	1,1,1-Trichloroethane	ND<25	1.0	5.0
1,2-Dichlorobenzene	ND<25	1.0	5.0	1,1,2-Trichloroethane	ND<25	1.0	5.0
1,3-Dichlorobenzene	ND<25	1.0	5.0	Trichloroethene	ND<25	1.0	5.0
1,4-Dichlorobenzene	ND<25	1.0	5.0	Trichlorofluoromethane	ND<25	1.0	5.0
Dichlorodifluoromethane	ND<25	1.0	5.0	1,2,3-Trichloropropane	ND<25	1.0	5.0
1,1-Dichloroethane	ND<25	1.0	5.0	1,2,4-Trimethylbenzene	1000	1.0	5.0
1,2-Dichloroethane	ND<25	1.0	5.0	1,3,5-Trimethylbenzene	610	1.0	5.0
1,1-Dichloroethene	ND<25	1.0	5.0	Vinyl Acetate (m)	ND<130	5.0	25
cis-1,2-Dichloroethene	ND<25	1.0	5.0	Vinyl Chloride (n)	ND<25	1.0	5.0
trans-1,2-Dichloroethene	ND<25	1.0	5.0	Xylenes, total (o)	990	1.0	5.0
1,2-Dichloropropane	*ND<25*	*1.0*	*5.0*	***Comments:***			
1,3-Dichloropropane	ND<25	1.0	5.0	**Surrogate Recoveries (%)**			
2,2-Dichloropropane	ND<25	1.0	5.0	Dibromofluoromethane	107		
1,1-Dichloropropene	ND<25	1.0	5.0	Toluene-d8	92		
cis-1,3-Dichloropropene	ND<25	1.0	5.0	4-Bromofluorobenzene	106		

*water and vapor samples are reported in ug/L, soil and sludge samples in ug/kg, wipes in ug/wipe and all TCLP / SPLP extracts in ug/L

ND means not detected above the reporting limit; N/A means analyte not applicable to this analysis

(b) 2-propanone or dimethyl ketone; (c) (2-chloroethoxy) ethene; (d) 2-hexanone; (e) dichloromethane; (f) 2-butanone; (g) 4-methyl-2-pentanone or isopropylacetone; (h) lighter than water immiscible sheen is present; (i) liquid sample that contains greater than ~5 vol. % sediment; (j) sample diluted due to high organic content; (k) ethenylbenzene, (l) methylbenzene; (m) acetic acid ethenyl ester; (n) chloroethene; (o) dimethylbenzenes.

DHS Certification No. 1644

Edward Hamilton, Lab Director

McCAMPBELL ANALYTICAL INC.
110 2nd Avenue South, #D7, Pacheco, CA 94553-5560
Telephone : 925-798-1620 Fax : 925-798-1622
http://www.mccampbell.com E-mail: main@mccampbell.com

Cambria Environmental Technology	Client Project ID: #458-1705-4; Embarcadero Ave	Date Sampled: 10/09/01
1144 65th Street, Suite C		Date Received: 10/11/01
Oakland, CA 94608	Client Contact: Kris Cejka	Date Extracted: 11/06/01
	Client P.O:	Date Analyzed: 11/07/01

Semi-Volatile Organics By GC/MS

EPA method 625 and 3510 or 8270 and 3550

Lab ID	80573
Client ID	MW-1-8.3
Matrix	S

Compound	Concentration*	Reporting Limit W	Reporting Limit S	Compound	oncentration	Reporting Limit W	Reporting Limit S
Acenaphthene	ND	10	0.33	Di-n-octyl Phthalate	ND	10	0 33
Acenaphthylene	ND	10	0 33	1,2-Diphenylhydrazine	ND	10	0.33
Anthracene	ND	10	0.33	Fluoranthene	ND	10	0.33
Benzidine	ND	50	1 6	Fluorene	ND	10	0.33
Benzoic Acid	ND	50	1.6	Hexachlorobenzene	ND	10	0.33
Benzo(a)anthracene	ND	10	0.33	Hexachlorobutadiene	ND	10	0.33
Benzo(b)fluoranthene	ND	10	0 33	Hexachlorocyclopentadiene	ND	50	1.6
Benzo(k)fluoranthene	ND	10	0.33	Hexachloroethane	ND	10	0.33
Benzo(g,h,i)perylene	ND	10	0.33	Indeno(1,2,3-cd)pyrene	ND	10	0.33
Benzo(a)pyrene	ND	10	0.33	Isophorone	ND	10	0.33
Benzyl Alcohol	ND	20	0 66	2-Methylnaphthalene	ND	10	0.33
Bis(2-chloroethoxy)methane	ND	10	0 33	2-Methylphenol (o-Cresol)	ND	10	0.33
Bis(2-chloroethyl) Ether	ND	10	0.33	3 &/or 4-Methylphenol (m &/or p-Cresol)	ND	10	0 33
Bis(2-chloroisopropyl)Ether	ND	10	0 33	Naphthalene	ND	10	0.33
Bis(2-ethylhexyl) Phthalate	ND	10	0.33	2-Nitroaniline	ND	50	1.6
4-Bromophenyl Phenyl Ether	ND	10	0.33	3-Nitroaniline	ND	50	1.6
Butylbenzyl Phthalate	ND	10	0.33	4-Nitroaniline	ND	50	1.6
4-Chloroanaline	ND	20	0.66	2-Nitrophenol	ND	50	1.6
4-Chloro-3-methylphenol	ND	10	0.33	4-Nitrophenol	ND	50	1.6
2-Chloronaphthalene	ND	10	0.33	Nitrobenzene	ND	10	0.33
2-Chlorophenol	ND	10	0.33	N-Nitrosodiphenylamine	ND	10	0.33
4-Chlorophenyl Phenyl Ether	ND	10	0.33	N-Nitrosodi-n-propylamine	ND	10	0.33
Chrysene	ND	10	0.33	Pentachlorophenol	ND	50	1.6
Dibenzo(a,h)anthracene	ND	10	0.33	Phenanthrene	ND	10	0.33
Dibenzofuran	ND	10	0.33	Phenol	ND	10	0.33
Di-n-butyl Phthalate	ND	10	0.33	Pyrene	ND	10	0 33
1,2-Dichlorobenzene	ND	10	0.33	1,2,4-Trichlorobenzene	ND	10	0.33
1,3-Dichlorobenzene	ND	10	0.33	2,4,5-Trichlorophenol	ND	10	0.33
1,4-Dichlorobenzene	ND	10	0.33	2,4,6-Trichlorophenol	ND	10	0.33
3,3-Dichlorobenzidine	ND	20	0.66				
2,4-Dichlorophenol	ND	10	0.33	Comments:			
Diethyl Phthalate	ND	10	0 33	**Surrogate Recoveries (%)**			
2,4-Dimethylphenol	ND	10	0.33	2-Fluorophenol	105		
Dimethyl Phthalate	ND	10	0.33	Phenol-d5	103		
4,6-Dinitro-2-methylphenol	ND	50	1.6	Nitrobenzene-d5	109		
2,4-Dinitrophenol	ND	50	1.6	2-Fluorobiphenyl	108		
2,4-Dinitrotoluene	ND	10	0.33	2,4,6-Tribromophenol	85		
2,6-Dinitrotoluene	ND	10	0.33	p-Terphenyl-d14	94		

*water samples are reported in ug/L, soil and sludge samples in mg/kg, wipes in ug/wipe and all TCLP / STLC / SPLP extracts in ug/L

ND means not detected above the reporting limit; N/A means analyte not applicable to this analysis.

surrogate diluted out of range

h) lighter than water immiscible sheen is present; i)liquid sample that contains greater than ~5 vol. % sediment; j) sample diluted due to high organic content

DHS Certification No. 1644

Edward Hamilton, Lab Director

McCAMPBELL ANALYTICAL INC.
110 2nd Avenue South, #D7, Pacheco, CA 94553-5560
Telephone : 925-798-1620 Fax : 925-798-1622
http://www.mccampbell.com E-mail: main@mccampbell.com

Cambria Environmental Technology 1144 65th Street, Suite C Oakland, CA 94608	Client Project ID: #458-1705-4; Embarcadero Ave	Date Sampled: 10/09/01
		Date Received: 10/11/01
	Client Contact: Kris Cejka	Date Extracted: 11/06/01
	Client P.O:	Date Analyzed: 11/07/01

Semi-Volatile Organics By GC/MS

EPA method 625 and 3510 or 8270 and 3550

Lab ID	80574
Client ID	MW-2-5.0
Matrix	S

Compound	Concentration*	Reporting Limit W	Reporting Limit S	Compound	oncentration	Reporting Limit W	Reporting Limit S
Acenaphthene	ND<1.0	10	0.33	Di-n-octyl Phthalate	ND<1.0	10	0.33
Acenaphthylene	ND<1 0	10	0.33	1,2-Diphenylhydrazine	ND<1.0	10	0.33
Anthracene	ND<1.0	10	0.33	Fluoranthene	ND<1 0	10	0.33
Benzidine	ND<5.0	50	1.6	Fluorene	ND<1.0	10	0.33
Benzoic Acid	ND<5 0	50	1 6	Hexachlorobenzene	ND<1.0	10	0.33
Benzo(a)anthracene	ND<1.0	10	0 33	Hexachlorobutadiene	ND<1.0	10	0.33
Benzo(b)fluoranthene	ND<1.0	10	0.33	Hexachlorocyclopentadiene	ND<5 0	50	1.6
Benzo(k)fluoranthene	ND<1.0	10	0.33	Hexachloroethane	ND<1.0	10	0.33
Benzo(g,h,i)perylene	ND<1.0	10	0.33	Indeno(1,2,3-cd)pyrene	ND<1 0	10	0 33
Benzo(a)pyrene	ND<1.0	10	0 33	Isophorone	ND<1.0	10	0.33
Benzyl Alcohol	ND<2 0	20	0.66	2-Methylnaphthalene	ND<1 0	10	0.33
Bis(2-chloroethoxy)methane	ND<1.0	10	0.33	2-Methylphenol (o-Cresol)	ND<1.0	10	0.33
Bis(2-chloroethyl) Ether	ND<1.0	10	0.33	3 &/or 4-Methylphenol (m &/or p-Cresol)	ND<1 0	10	0 33
Bis(2-chloroisopropyl)Ether	ND<1 0	10	0 33	Naphthalene	ND<1.0	10	0.33
Bis(2-ethylhexyl) Phthalate	ND<1 0	10	0.33	2-Nitroaniline	ND<5 0	50	1.6
4-Bromophenyl Phenyl Ether	ND<1.0	10	0.33	3-Nitroaniline	ND<5.0	50	1 6
Butylbenzyl Phthalate	ND<1.0	10	0 33	4-Nitroaniline	ND<5.0	50	1.6
4-Chloroanaline	ND<2.0	20	0.66	2-Nitrophenol	ND<5.0	50	1.6
4-Chloro-3-methylphenol	ND<1.0	10	0.33	4-Nitrophenol	ND<5.0	50	1.6
2-Chloronaphthalene	ND<1.0	10	0.33	Nitrobenzene	ND<1.0	10	0 33
2-Chlorophenol	ND<1 0	10	0 33	N-Nitrosodiphenylamine	ND<1.0	10	0.33
4-Chlorophenyl Phenyl Ether	ND<1.0	10	0.33	N-Nitrosodi-n-propylamine	ND<1.0	10	0.33
Chrysene	ND<1.0	10	0.33	Pentachlorophenol	ND<5.0	50	1.6
Dibenzo(a,h)anthracene	ND<1.0	10	0.33	Phenanthrene	ND<1.0	10	0.33
Dibenzofuran	ND<1.0	10	0 33	Phenol	ND<1.0	10	0.33
Di-n-butyl Phthalate	ND<1.0	10	0.33	Pyrene	ND<1.0	10	0.33
1,2-Dichlorobenzene	ND<1.0	10	0.33	1,2,4-Trichlorobenzene	ND<1.0	10	0.33
1,3-Dichlorobenzene	ND<1.0	10	0.33	2,4,5-Trichlorophenol	ND<1.0	10	0.33
1,4-Dichlorobenzene	ND<1.0	10	0.33	2,4,6-Trichlorophenol	ND<1.0	10	0.33
3,3-Dichlorobenzidine	ND<2.0	20	0.66				
2,4-Dichlorophenol	ND<1.0	10	0.33	Comments: j			
Diethyl Phthalate	ND<1.0	10	0.33	**Surrogate Recoveries (%)**			
2,4-Dimethylphenol	ND<1.0	10	0.33	2-Fluorophenol	90		
Dimethyl Phthalate	ND<1.0	10	0.33	Phenol-d5	---#		
4,6-Dinitro-2-methylphenol	ND<5.0	50	1.6	Nitrobenzene-d5	119		
2,4-Dinitrophenol	ND<5.0	50	1.6	2-Fluorobiphenyl	119		
2,4-Dinitrotoluene	ND<1.0	10	0.33	2,4,6-Tribromophenol	92		
2,6-Dinitrotoluene	ND<1.0	10	0.33	p-Terphenyl-d14	114		

*water samples are reported in ug/L, soil and sludge samples in mg/kg, wipes in ug/wipe and all TCLP / STLC / SPLP extracts in ug/L

ND means not detected above the reporting limit; N/A means analyte not applicable to this analysis.

surrogate diluted out of range

h) lighter than water immiscible sheen is present; i)liquid sample that contains greater than ~5 vol. % sediment; j) sample diluted due to high organic content

DHS Certification No. 1644

Edward Hamilton, Lab Director

McCAMPBELL ANALYTICAL INC.
110 2nd Avenue South, #D7, Pacheco, CA 94553-5560
Telephone : 925-798-1620 Fax : 925-798-1622
http://www.mccampbell.com E-mail: main@mccampbell.com

Cambria Environmental Technology	Client Project ID: #458-1705-4; Embarcadero Ave	Date Sampled: 10/09/01
1144 65th Street, Suite C		Date Received: 10/11/01
Oakland, CA 94608	Client Contact: Kris Cejka	Date Extracted: 11/06/01
	Client P.O:	Date Analyzed: 11/07/01

Semi-Volatile Organics By GC/MS

EPA method 625 and 3510 or 8270 and 3550

Lab ID	80576
Client ID	MW-3-5.0
Matrix	S

Compound	Concentration*	Reporting Limit W	Reporting Limit S	Compound	oncentration	Reporting Limit W	Reporting Limit S
Acenaphthene	ND	10	0.33	Di-n-octyl Phthalate	ND	10	0.33
Acenaphthylene	ND	10	0.33	1,2-Diphenylhydrazine	ND	10	0.33
Anthracene	ND	10	0.33	Fluoranthene	ND	10	0.33
Benzidine	ND	50	1.6	Fluorene	ND	10	0.33
Benzoic Acid	ND	50	1.6	Hexachlorobenzene	ND	10	0.33
Benzo(a)anthracene	ND	10	0.33	Hexachlorobutadiene	ND	10	0 33
Benzo(b)fluoranthene	ND	10	0.33	Hexachlorocyclopentadiene	ND	50	1.6
Benzo(k)fluoranthene	ND	10	0.33	Hexachloroethane	ND	10	0 33
Benzo(g,h,i)perylene	ND	10	0.33	Indeno(1,2,3-cd)pyrene	ND	10	0 33
Benzo(a)pyrene	ND	10	0.33	Isophorone	ND	10	0.33
Benzyl Alcohol	ND	20	0.66	2-Methylnaphthalene	ND	10	0.33
Bis(2-chloroethoxy)methane	ND	10	0.33	2-Methylphenol (o-Cresol)	ND	10	0.33
Bis(2-chloroethyl) Ether	ND	10	0.33	3 &/or 4-Methylphenol (m &/or p-Cresol)	ND	10	0.33
Bis(2-chloroisopropyl)Ether	ND	10	0.33	Naphthalene	ND	10	0.33
Bis(2-ethylhexyl) Phthalate	ND	10	0.33	2-Nitroaniline	ND	50	1.6
4-Bromophenyl Phenyl Ether	ND	10	0.33	3-Nitroaniline	ND	50	1.6
Butylbenzyl Phthalate	ND	10	0.33	4-Nitroaniline	ND	50	1.6
4-Chloroanaline	ND	20	0.66	2-Nitrophenol	ND	50	1.6
4-Chloro-3-methylphenol	ND	10	0.33	4-Nitrophenol	ND	50	1.6
2-Chloronaphthalene	ND	10	0.33	Nitrobenzene	ND	10	0.33
2-Chlorophenol	ND	10	0.33	N-Nitrosodiphenylamine	ND	10	0.33
4-Chlorophenyl Phenyl Ether	ND	10	0.33	N-Nitrosodi-n-propylamine	ND	10	0.33
Chrysene	ND	10	0.33	Pentachlorophenol	ND	50	1.6
Dibenzo(a,h)anthracene	ND	10	0.33	Phenanthrene	ND	10	0.33
Dibenzofuran	ND	10	0.33	Phenol	ND	10	0.33
Di-n-butyl Phthalate	ND	10	0 33	Pyrene	ND	10	0.33
1,2-Dichlorobenzene	ND	10	0.33	1,2,4-Trichlorobenzene	ND	10	0.33
1,3-Dichlorobenzene	ND	10	0.33	2,4,5-Trichlorophenol	ND	10	0.33
1,4-Dichlorobenzene	ND	10	0.33	2,4,6-Trichlorophenol	ND	10	0.33
3,3-Dichlorobenzidine	ND	20	0.66				
2,4-Dichlorophenol	ND	10	0.33	Comments:			
Diethyl Phthalate	ND	10	0.33	**Surrogate Recoveries (%)**			
2,4-Dimethylphenol	ND	10	0.33	2-Fluorophenol	102		
Dimethyl Phthalate	ND	10	0.33	Phenol-d5	81		
4,6-Dinitro-2-methylphenol	ND	50	1.6	Nitrobenzene-d5	105		
2,4-Dinitrophenol	ND	50	1.6	2-Fluorobiphenyl	105		
2,4-Dinitrotoluene	ND	10	0.33	2,4,6-Tribromophenol	88		
2,6-Dinitrotoluene	ND	10	0.33	p-Terphenyl-d14	96		

*water samples are reported in ug/L, soil and sludge samples in mg/kg, wipes in ug/wipe and all TCLP / STLC / SPLP extracts in ug/L

ND means not detected above the reporting limit; N/A means analyte not applicable to this analysis.

surrogate diluted out of range

h) lighter than water immiscible sheen is present; i)liquid sample that contains greater than ~5 vol % sediment, j) sample diluted due to high organic content

DHS Certification No. 1644

Edward Hamilton, Lab Director

McCAMPBELL ANALYTICAL INC.
110 2nd Avenue South, #D7, Pacheco, CA 94553-5560
Telephone : 925-798-1620 Fax : 925-798-1622
http://www.mccampbell.com E-mail: main@mccampbell.com

Cambria Environmental Technology	Client Project ID: #458-1705-4; Embarcadero Ave	Date Sampled: 10/09/01
1144 65th Street, Suite C		Date Received: 10/11/01
Oakland, CA 94608	Client Contact: Kris Cejka	Date Extracted: 11/06/01
	Client P.O:	Date Analyzed: 11/07/01

Semi-Volatile Organics By GC/MS

EPA method 625 and 3510 or 8270 and 3550

Lab ID	80579
Client ID	MW-4-5.3
Matrix	S

Compound	Concentration*	Reporting Limit W	Reporting Limit S	Compound	oncentration	Reporting Limit W	Reporting Limit S
Acenaphthene	ND	10	0.33	Di-n-octyl Phthalate	ND	10	0.33
Acenaphthylene	ND	10	0.33	1,2-Diphenylhydrazine	ND	10	0.33
Anthracene	ND	10	0 33	Fluoranthene	ND	10	0.33
Benzidine	ND	50	1.6	Fluorene	ND	10	0.33
Benzoic Acid	ND	50	1.6	Hexachlorobenzene	ND	10	0.33
Benzo(a)anthracene	ND	10	0 33	Hexachlorobutadiene	ND	10	0 33
Benzo(b)fluoranthene	ND	10	0.33	Hexachlorocyclopentadiene	ND	50	1 6
Benzo(k)fluoranthene	ND	10	0.33	Hexachloroethane	ND	10	0.33
Benzo(g,h,i)perylene	ND	10	0.33	Indeno(1,2,3-cd)pyrene	ND	10	0.33
Benzo(a)pyrene	ND	10	0.33	Isophorone	ND	10	0 33
Benzyl Alcohol	ND	20	0.66	2-Methylnaphthalene	ND	10	0.33
Bis(2-chloroethoxy)methane	ND	10	0.33	2-Methylphenol (o-Cresol)	ND	10	0.33
Bis(2-chloroethyl) Ether	ND	10	0.33	3 &/or 4-Methylphenol (m &/or p-Cresol)	ND	10	0.33
Bis(2-chloroisopropyl)Ether	ND	10	0.33	Naphthalene	0 62	10	0.33
Bis(2-ethylhexyl) Phthalate	ND	10	0.33	2-Nitroaniline	ND	50	1 6
4-Bromophenyl Phenyl Ether	ND	10	0.33	3-Nitroaniline	ND	50	1.6
Butylbenzyl Phthalate	ND	10	0.33	4-Nitroaniline	ND	50	1.6
4-Chloroanaline	ND	20	0.66	2-Nitrophenol	ND	50	1.6
4-Chloro-3-methylphenol	ND	10	0 33	4-Nitrophenol	ND	50	1.6
2-Chloronaphthalene	ND	10	0.33	Nitrobenzene	ND	10	0.33
2-Chlorophenol	ND	10	0.33	N-Nitrosodiphenylamine	ND	10	0.33
4-Chlorophenyl Phenyl Ether	ND	10	0 33	N-Nitrosodi-n-propylamine	ND	10	0 33
Chrysene	ND	10	0.33	Pentachlorophenol	ND	50	1.6
Dibenzo(a,h)anthracene	ND	10	0.33	Phenanthrene	ND	10	0.33
Dibenzofuran	ND	10	0.33	Phenol	ND	10	0.33
Di-n-butyl Phthalate	ND	10	0.33	Pyrene	ND	10	0.33
1,2-Dichlorobenzene	ND	10	0.33	1,2,4-Trichlorobenzene	ND	10	0.33
1,3-Dichlorobenzene	ND	10	0.33	2,4,5-Trichlorophenol	ND	10	0.33
1,4-Dichlorobenzene	ND	10	0.33	2,4,6-Trichlorophenol	ND	10	0.33
3,3-Dichlorobenzidine	ND	20	0.66				
2,4-Dichlorophenol	ND	10	0.33	Comments:			
Diethyl Phthalate	ND	10	0.33	**Surrogate Recoveries (%)**			
2,4-Dimethylphenol	ND	10	0 33	2-Fluorophenol	101		
Dimethyl Phthalate	ND	10	0.33	Phenol-d5	82		
4,6-Dinitro-2-methylphenol	ND	50	1.6	Nitrobenzene-d5	106		
2,4-Dinitrophenol	ND	50	1.6	2-Fluorobiphenyl	108		
2,4-Dinitrotoluene	ND	10	0.33	2,4,6-Tribromophenol	86		
2,6-Dinitrotoluene	ND	10	0.33	p-Terphenyl-d14	99		

*water samples are reported in ug/L, soil and sludge samples in mg/kg, wipes in ug/wipe and all TCLP / STLC / SPLP extracts in ug/L

ND means not detected above the reporting limit; N/A means analyte not applicable to this analysis.

* surrogate diluted out of range

h) lighter than water immiscible sheen is present; i)liquid sample that contains greater than ~5 vol. % sediment; j) sample diluted due to high organic content

DHS Certification No. 1644

Edward Hamilton, Lab Director

McCAMPBELL ANALYTICAL INC.
110 2nd Avenue South, #D7, Pacheco, CA 94553-5560
Telephone : 925-798-1620 Fax : 925-798-1622
http://www.mccampbell.com E-mail: main@mccampbell.com

Cambria Environmental Technology 1144 65th Street, Suite C Oakland, CA 94608	Client Project ID: #458-1705-4; Embarcadero Ave	Date Sampled: 10/09/01
		Date Received: 10/11/01
	Client Contact: Bob Schultz	Date Extracted: 10/11/01
	Client P.O:	Date Analyzed: 10/11-10/12/01

CAM / CCR 17 Metals*

EPA methods 6010/200.7; 7470/7471/245.1/245.5 (Hg); 7060/206.2 (As); 7740/270 2 (Se); 7841/279 2 (Tl); 239.2 (Pb, w); 204.2 (Sb,w)

Lab ID	80573				Reporting Limit		
Client ID	MW-1-8.3						
Matrix	S				S	W	STLC, TCLP
Extraction°	TTLC				TTLC	TTLC	
Compound	Concentration*				mg/kg	mg/L	mg/L
Antimony (Sb)	ND				2.5	0.006	0.05
Arsenic (As)	ND				2.5	0.005	0.25
Barium (Ba)	110				2.5	0.05	0.05
Beryllium (Be)	ND				0.5	0.004	0.01
Cadmium (Cd)	ND				0.5	0.005	0.01
Chromium (Cr)	56				0.5	0 02	0.05
Cobalt (Co)	12				2.0	0.05	0.05
Copper (Cu)	15				2.0	0.05	0.05
Lead (Pb)	2.6				3.0	0.005	0.2
Mercury (Hg)	ND				0 06	0.0008	0.005
Molybdenum (Mo)	ND				2.5	0.05	0.05
Nickel (Ni)	64				2.0	0.05	0.05
Selenium (Se)	ND				2.5	0.005	0.25
Silver (Ag)	ND				1.0	0.01	0.05
Thallium (Tl)	ND				2.5	0.005	0.5
Vanadium (V)	33				2.0	0.05	0.05
Zinc (Zn)	29				1.0	0.05	0.05
% Recovery Surrogate	90						
Comments							

* water samples are reported in mg/L, soil and sludge samples in mg/kg, wipes in ug/wipe and all TCLP / STLC / SPLP extracts in mg/L

ND means not detected above the reporting limit; N/A means surrogate not applicable to this analysis

° EPA extraction methods 1311(TCLP), 3010/3020(water,TTLC), 3040(organic matrices,TTLC), 3050(solids,TTLC); STLC - CA Title 22

@ DISTLC extractions are performed using STLC methodology except that deionized water is substituted for citric acid buffer as the extraction fluid. DISTLC results are not applicable to STLC regulatory limits.

surrogate diluted out of range

& reporting limit raised due to matrix interference

i) liquid sample that contains greater than ~2 vol. % sediment; this sediment is extracted with the liquid, in accordance with EPA methodologies and can significantly effect reported metal concentrations.

DHS Certification No. 1644

Edward Hamilton, Lab Director

McCAMPBELL ANALYTICAL INC.
110 2nd Ave. South, #D7, Pacheco, CA 94553-5560
Telephone : 925-798-1620 Fax : 925-798-1622
http://www.mccampbell.com E-mail: main@mccampbell.com

QC REPORT

EPA 8015m + 8020

Date: 10/11/01 **Matrix:** Soil

Compound	Concentration: mg/kg				%Recovery		RPD
	Sample	MS	MSD	Amount Spiked	MS	MSD	
SampleID: 100901	Extraction: EPA 5030				Instrument: GC-3		
Surrogate1	ND	99.000	103.000	100.00	99	103	4.0
Xylenes	ND	0.332	0.354	0.30	111	118	6.4
Ethylbenzene	ND	0.109	0.111	0.10	109	111	1.8
Toluene	ND	0.106	0.115	0.10	106	115	8.1
Benzene	ND	0.101	0.109	0.10	101	109	7.6
MTBE	ND	0.112	0.111	0.10	112	111	0.9
TPH (gas)	ND	0 836	0.841	1.00	84	84	0.6
SampleID: 101501	Extraction: EPA 3550				Instrument: GC-11 A		
Surrogate1	ND	103.000	102.000	100.00	103	102	1.0
TPH (diesel)	ND	140.000	152.000	150.00	93	101	8.2

$$\%\ \text{Recovery} = \frac{(MS - Sample)}{AmountSpiked} \cdot 100$$

$$RPD = \frac{(MS - MSD)}{(MS + MSD)} \cdot 2\,100$$

RPD means Relative Percent Deviation

McCAMPBELL ANALYTICAL INC.
110 2nd Ave. South, #D7, Pacheco, CA 94553-5560
Telephone : 925-798-1620 Fax : 925-798-1622
http://www.mccampbell.com E-mail: main@mccampbell.com

QC REPORT

VOCs (EPA 8240/8260)

Date: 10/11/01 **Extraction:** N/A **Matrix:** Soil

Compound	Concentration: ug/kg				%Recovery		RPD
	Sample	MS	MSD	Amount Spiked	MS	MSD	
SampleID: 101101					Instrument: GC-10		
Surrogate	ND	108.0	108.0	100.00	108	108	0.0
tert-Amyl Methyl Ether	ND	48.5	48.5	50.00	97	97	0.0
Methyl tert-Butyl Ether	ND	50.0	50.0	50.00	100	100	0.0
Ethyl tert-Butyl Ether	ND	52.0	53.5	50.00	104	107	2.8
Di-isopropyl Ether	ND	49.5	51.0	50.00	99	102	3.0
Toluene	ND	45.5	45.5	50.00	91	91	0.0
Benzene	ND	45.0	46.0	50.00	90	92	2.2
Chlorobenzene	ND	48.0	49.0	50.00	96	98	2.1
Trichloroethene	ND	40.5	42.0	50.00	81	84	3.6
1,1-Dichloroethene	ND	56.5	58.5	50.00	113	117	3.5

$$\%\ \text{Recovery} = \frac{(MS - Sample)}{AmountSpiked} \cdot 100$$

$$\text{RPD} = \frac{(MS - MSD)}{(MS + MSD)} \cdot 2\,100$$

RPD means Relative Percent Deviation

McCAMPBELL ANALYTICAL INC.
110 2nd Ave. South, #D7, Pacheco, CA 94553-5560
Telephone : 925-798-1620 Fax : 925-798-1622
http://www.mccampbell.com E-mail: main@mccampbell.com

QC REPORT

SVOCs (EPA 8270/625/525)

Date: 11/07/01 **Extraction:** N/A **Matrix:** Soil

SampleID: 100701 **Instrument:** GC-8

Compound	Concentration: mg/kg				%Recovery		RPD
	Sample	MS	MSD	Amount Spiked	MS	MSD	
Surrogate1	ND	1000.0	1050.0	1000.00	100	105	4.9
Pyrene	ND	870.0	910.0	1000.00	87	91	4.5
Pentachlorophenol	ND	1210.0	1210.0	2000.00	61	61	0.0
2,4-Dinitrotoluene	ND	1290.0	1290.0	1000.00	129	129	0.0
4-Nitrophenol	ND	1540.0	1530.0	2000.00	77	77	0.7
Acenaphtene	ND	900.0	940.0	1000.00	90	94	4.3
4-Chloro-3-metylphenol	ND	1860.0	1890.0	2000.00	93	95	1.6
1,2,4-trichlorobenzene	ND	960.0	990.0	1000.00	96	99	3.1
N-nitroso-di-n-propyl	ND	1020.0	1040.0	1000.00	102	104	1.9
1,4-Dichlorobenzene	ND	900.0	930.0	1000.00	90	93	3.3
2-Chlorophenol	ND	1750.0	1740.0	2000.00	88	87	0.6
Phenol	ND	1580.0	1590.0	2000.00	79	80	0.6

$$\%\ \text{Recovery} = \frac{(MS - Sample)}{AmountSpiked} \cdot 100$$

$$\text{RPD} = \frac{(MS - MSD)}{(MS + MSD)} \cdot 2 \cdot 100$$

RPD means Relative Percent Deviation

McCAMPBELL ANALYTICAL INC.
110 2nd Ave. South, #D7, Pacheco, CA 94553-5560
Telephone : 925-798-1620 Fax : 925-798-1622
http://www.mccampbell.com E-mail: main@mccampbell.com

QC REPORT

CAM 17

Date: 10/11/01 **Extraction:** TTLC **Matrix:** Soil

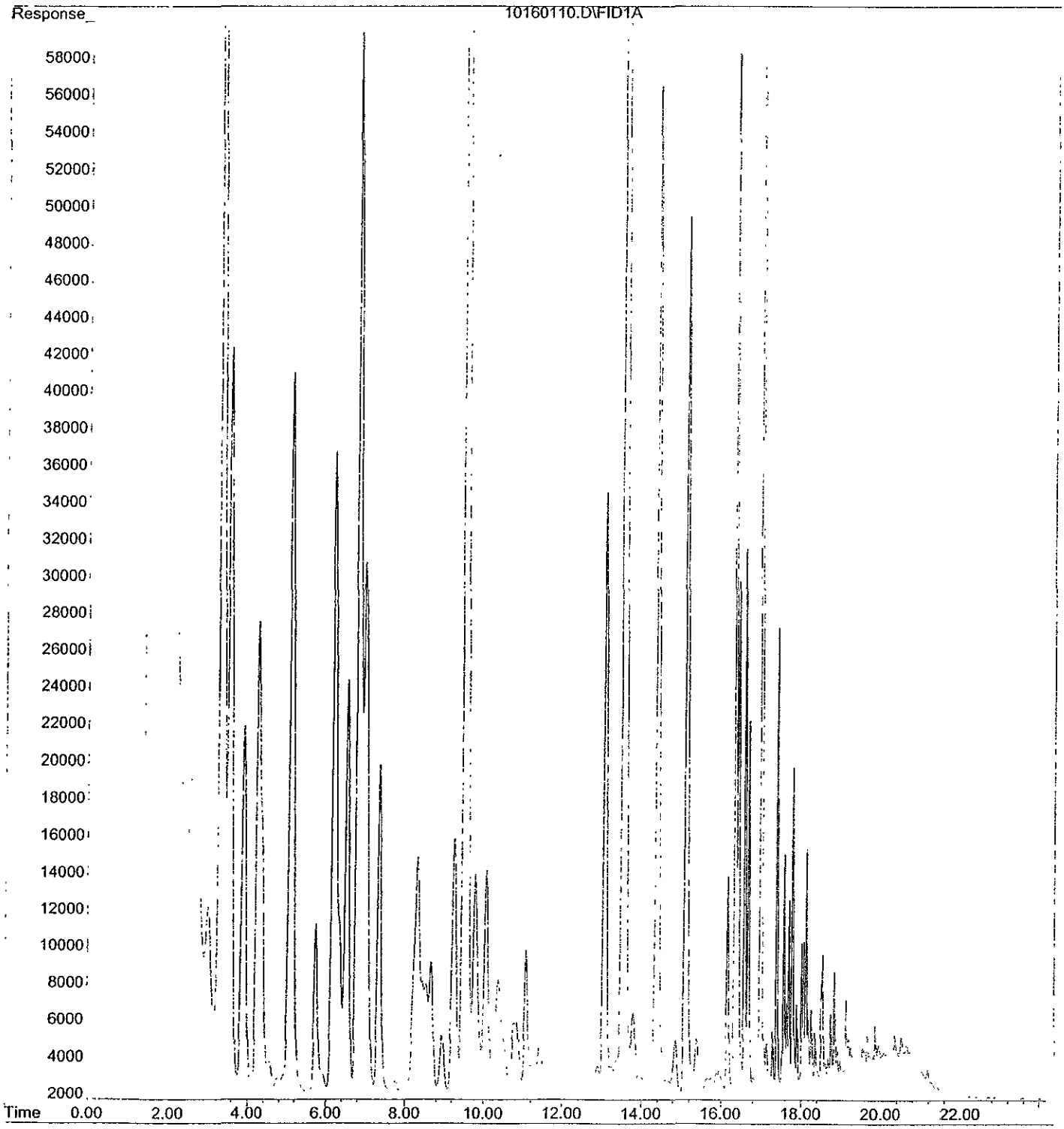
Compound	Concentration: mg/kg				%Recovery		RPD
	Sample	MS	MSD	Amount Spiked	MS	MSD	
SampleID: 101501					Instrument: P-1 I AA		
Beryllium	ND	5.3	5.3	5.00	106	107	0.8
Selenium	ND	9.8	9.7	10.00	98	97	1.0
Molybdenum	ND	5.4	5.5	5.00	109	109	0.2
Silver	ND	0.51	0.51	0.50	102	103	0.8
Thallium	ND	9.9	11.0	10.00	99	110	10.5
Barium	ND	5.0	4.9	5.00	101	99	2.0
Nickel	ND	5.3	5.2	5.00	106	104	1.4
Arsenic	ND	9.0	9.3	10.00	90	93	3.3
Vanadium	ND	5.1	5.2	5.00	102	104	1.0
Surrogate1	ND	90.8	89.8	100.00	91	90	1.1
Zinc	ND	5.4	5.4	5.00	107	108	0.4
Copper	ND	4.8	4.8	5.00	96	96	0.3
Antimony	ND	5.3	5.3	5.00	107	105	1.1
Lead	ND	5.3	5.2	5.00	106	104	2.1
Cadmium	ND	5.5	5.4	5.00	110	108	1.1
Cobalt	ND	5.2	5.2	5.00	103	104	0.9
Mercury	ND	0.24	0.26	0.25	96	105	8.5
Chromium	ND	5.6	5.5	5.00	111	110	1.3

$$\%\ \text{Recovery} = \frac{(MS - Sample)}{AmountSpiked} \cdot 100$$

$$RPD = \frac{(MS - MSD)}{(MS + MSD)} \cdot 2 \cdot 100$$

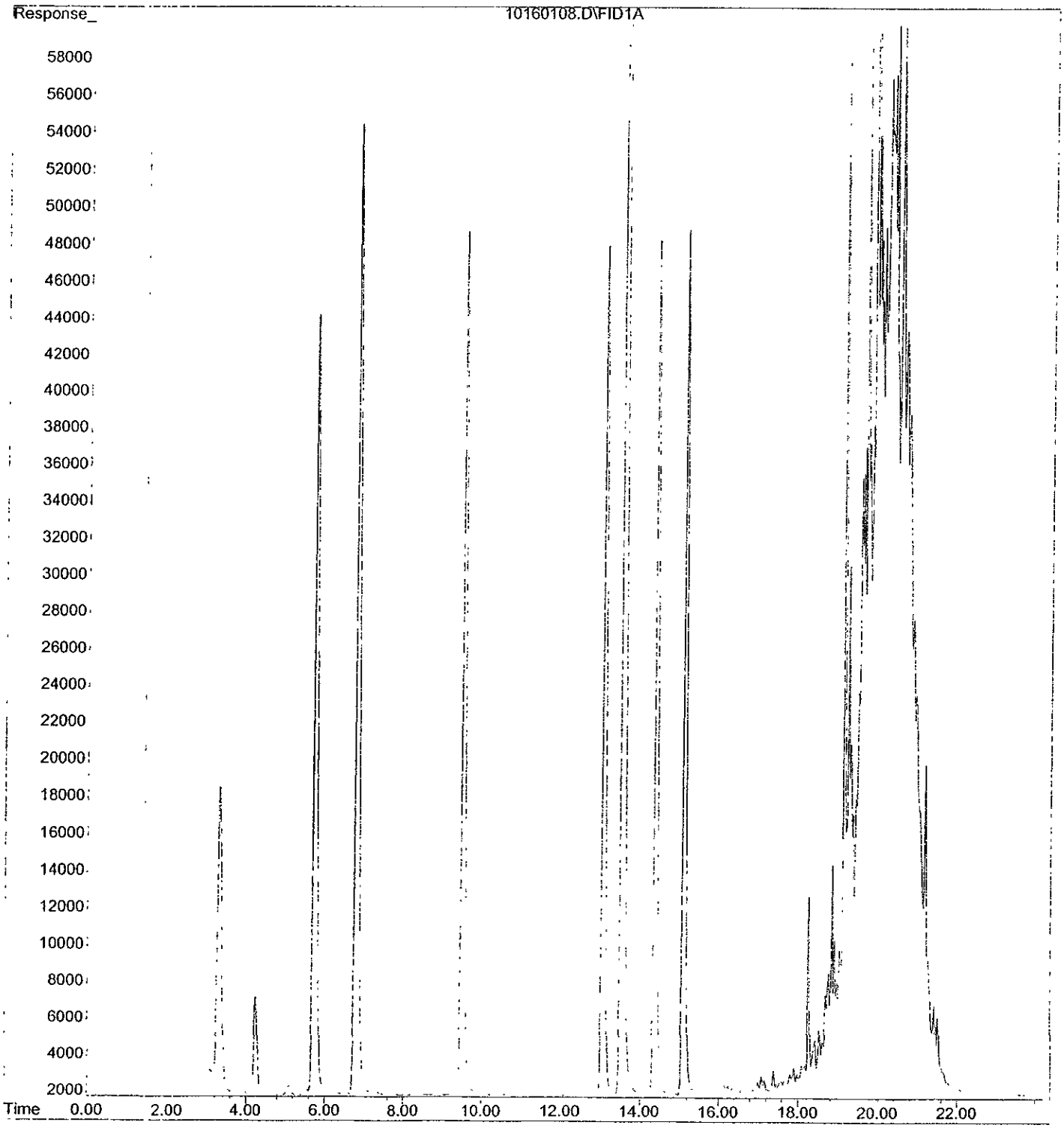
RPD means Relative Percent Deviation

File : D:\HPCHEM\2\DATA\10160110.D
Operator :
Acquired : 16 Oct 2001 3:22 pm using AcqMethod GC7B.M
Instrument : GC-7
Sample Name: 5000ngGAS
Misc Info :
Vial Number: 10



GASOLINE STD

File : D:\HPCHEM\2\DATA\10160108.D
Operator :
Acquired : 16 Oct 2001 2:22 pm using AcqMethod GC7B.M
Instrument : GC-7
Sample Name: 100ngBTEX
Misc Info :
Vial Number: 8



BTEX STANDARD

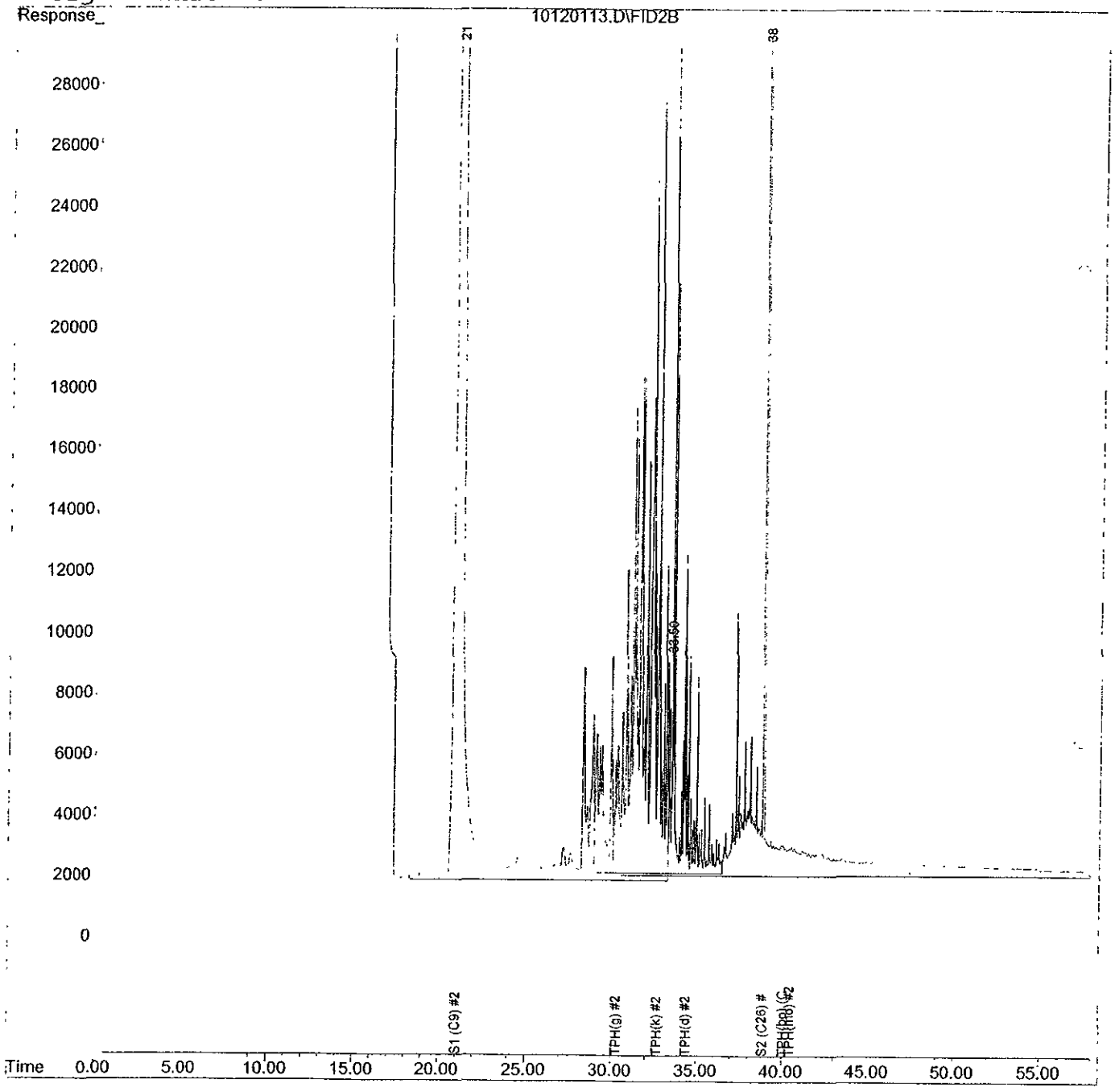
Quantitation Report (Not Reviewed)

Data File : E:\HPCHEM\3\DATAB\10120113.D
Acq On : 12 Oct 2001 9:42 pm
Sample : 80573SRR
Misc : D,MO,WSG
IntFile : EVENTS.E
Quant Time: Nov 20 16:21 2001 Quant Results File: GC2BNEW.RES

Vial: 57
Operator: Thu
Inst : GC-2
Multiplr: 1.0

Quant Method : C:\HPCHEM\3\METHODS\GC2BNEW.M (Chemstation Integrator)
Title : DIESEL 1
Last Update : Tue Mar 27 12:53:30 2001
Response via : Multiple Level Calibration
DataAcq Meth : GC2ANEW.M

Volume Inj. :
Signal Phase :
Signal Info :



MO/DIESEL STANDARD

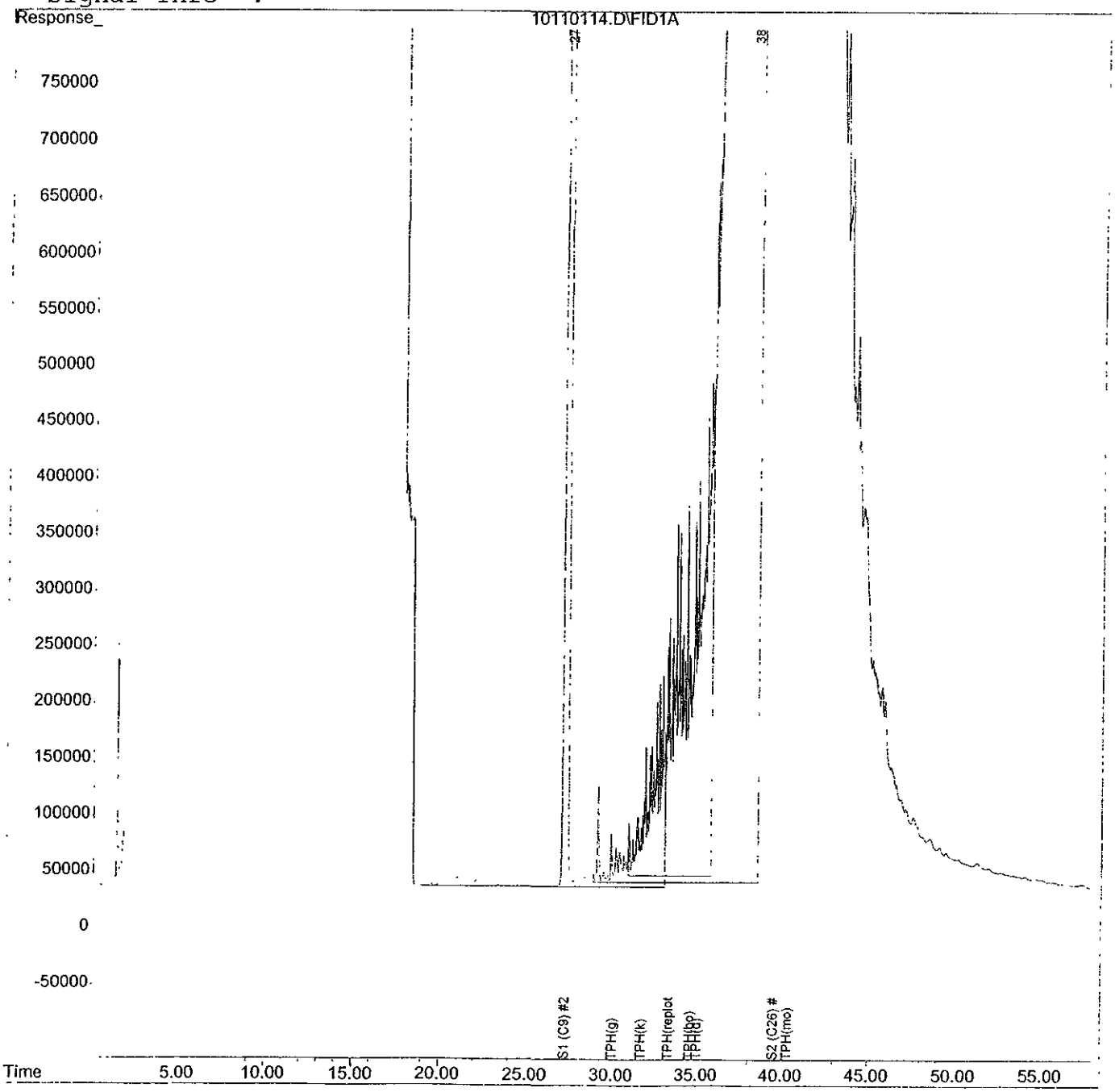
Quantitation Report (Not Reviewed)

Data File : D:\HPCHEM\1\DATAA\10110114.D
Acq On : 11 Oct 2001 10:14 pm
Sample : 80574S
Misc : D,MO,WSG
IntFile : EVENTS.E
Quant Time: Nov 20 15:49 2001 Quant Results File: GC11A.RES

Vial: 7
Operator: Thu
Inst : GC-11
Multiplr: 2.0

Quant Method : C:\HPCHEM\1\METHODS\GC11A.M (Chemstation Integrator)
Title : GC-11A
Last Update : Mon Nov 19 11:45:59 2001
Response via : Multiple Level Calibration
DataAcq Meth : GC11A.M

Volume Inj. :
Signal Phase :
Signal Info :



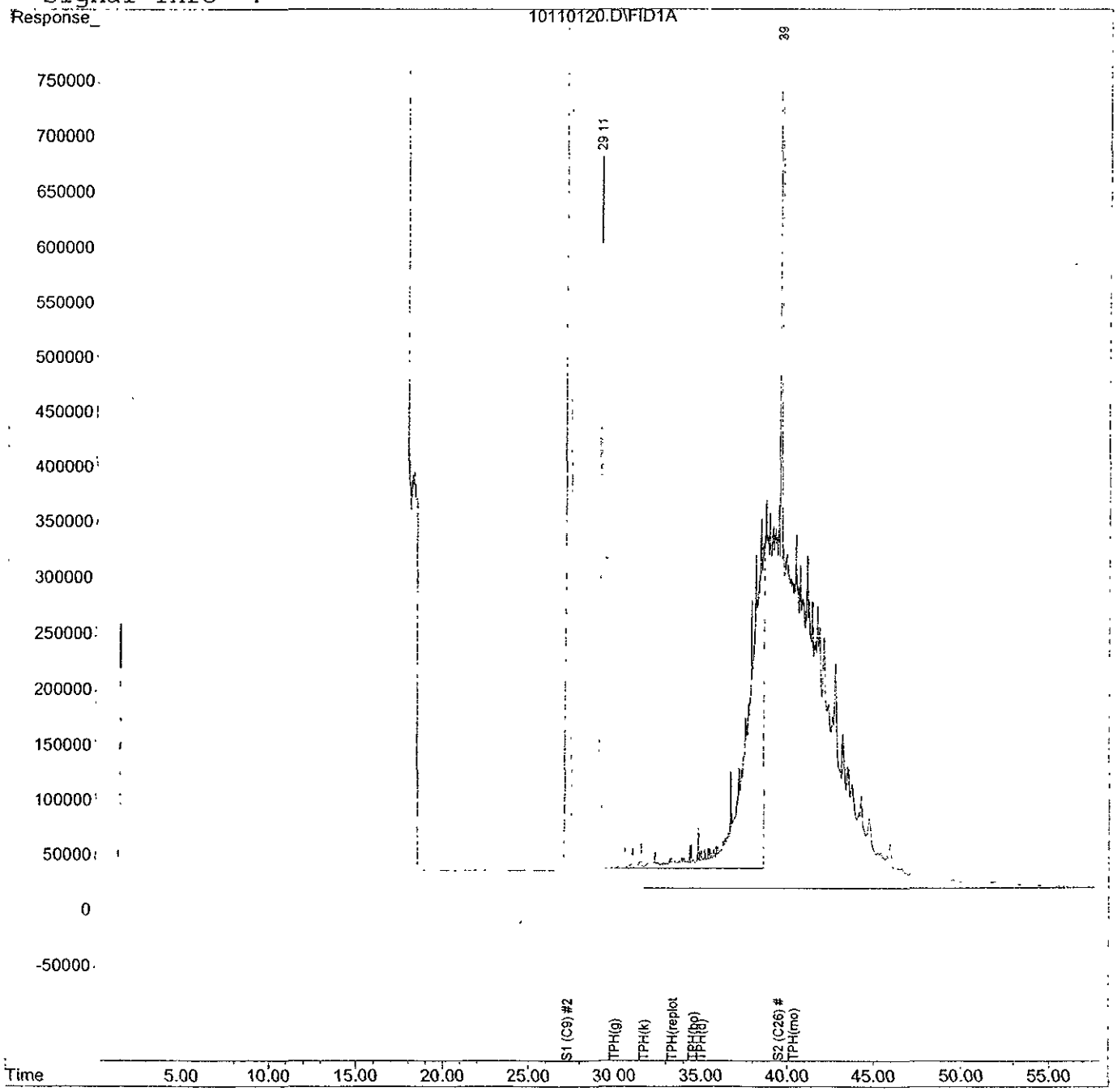
MW-2-5.0

Quantitation Report (Not Reviewed)

Data File : D:\HPCHEM\1\DATAA\10110120.D Vial: 10
Acq On : 12 Oct 2001 1:38 am Operator: Thu
Sample : 80576S Inst : GC-11
Misc : D,MO,WSG Multiplr: 10.0
IntFile : EVENTS.E
Quant Time: Nov 20 15:49 2001 Quant Results File: GC11A.RES

Quant Method : C:\HPCHEM\1\METHODS\GC11A.M (Chemstation Integrator)
Title : GC-11A
Last Update : Mon Nov 19 11:45:59 2001
Response via : Multiple Level Calibration
DataAcq Meth : GC11A.M

Volume Inj. :
Signal Phase :
Signal Info :



MW-3-5.0

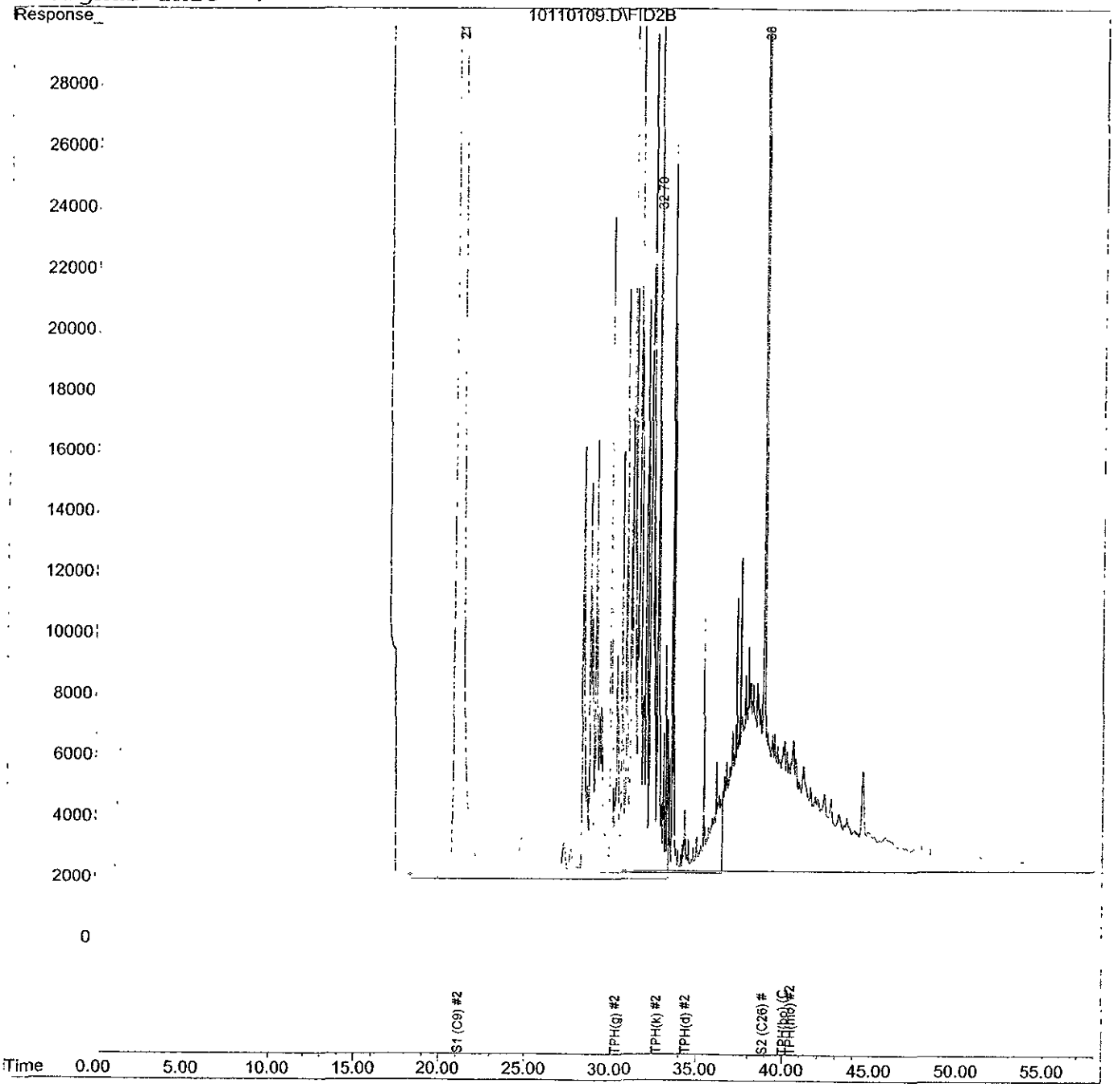
Quantitation Report (Not Reviewed)

Data File : E:\HPCHEM\3\DATAB\10110109.D
Acq On : 11 Oct 2001 6:04 pm
Sample : B 805795
Misc : DMO, WS2
IntFile : EVENTS.E
Quant Time: Nov 20 16:20 2001 Quant Results File: GC2BNEW.RES

Vial: 55
Operator: Thu
Inst : GC-2
Multiplr: 1.0

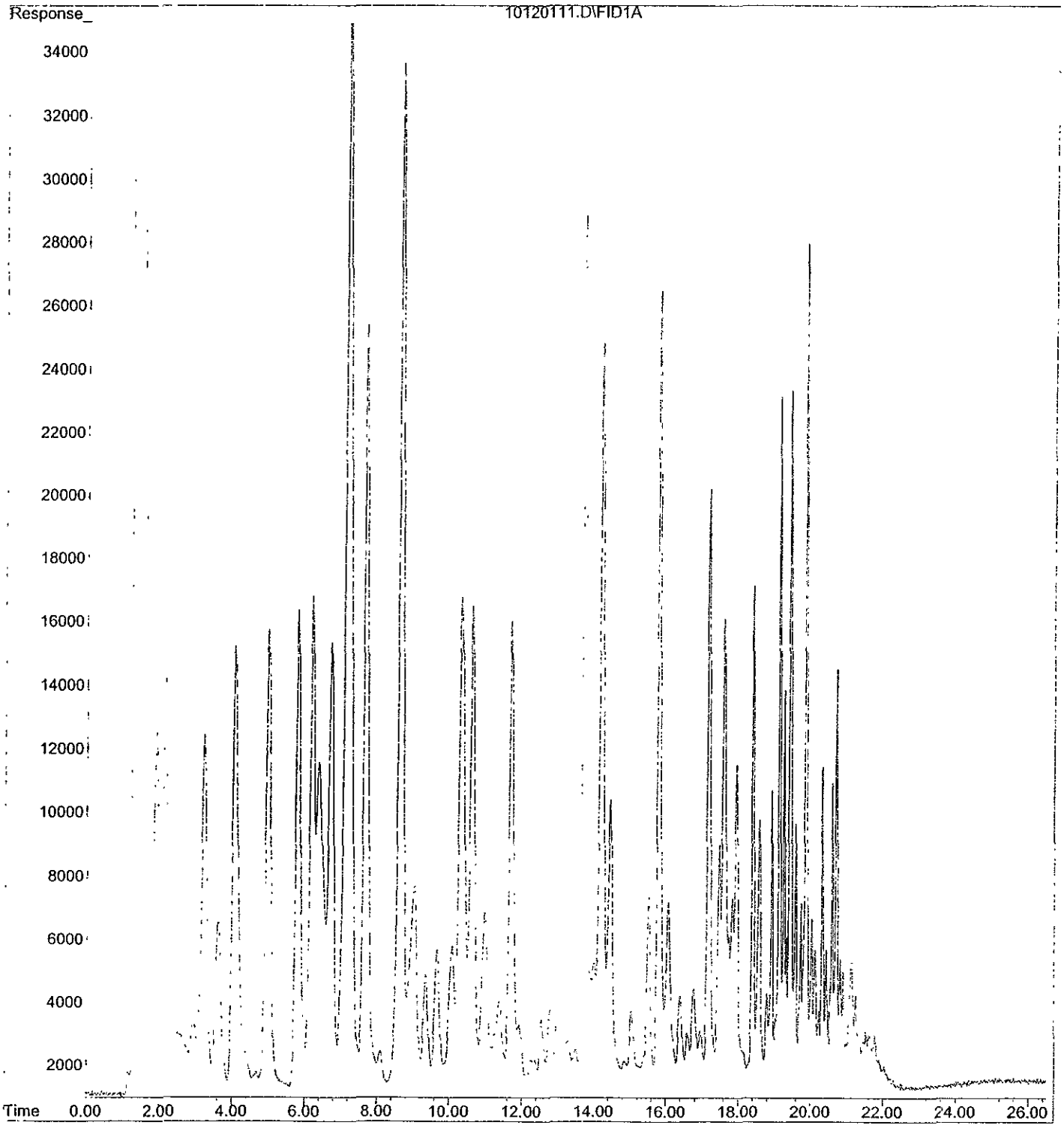
Quant Method : C:\HPCHEM\3\METHODS\GC2BNEW.M (Chemstation Integrator)
Title : DIESEL 1
Last Update : Tue Mar 27 12:53:30 2001
Response via : Multiple Level Calibration
DataAcq Meth : GC2ANEW.M

Volume Inj. :
Signal Phase :
Signal Info :



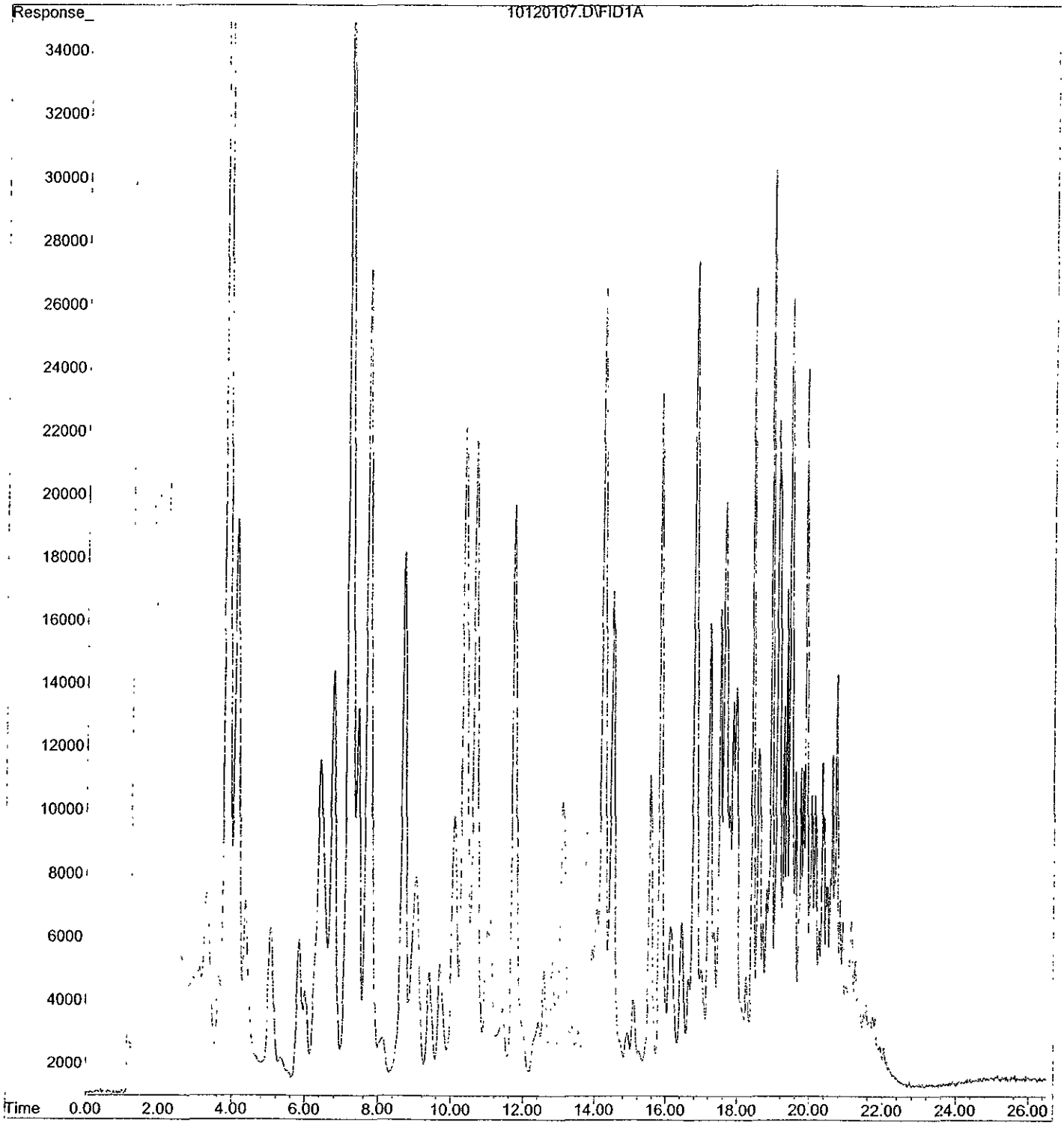
MW-4-5.3

File : D:\HPCHEM\2\DATA\10120111.D
Operator :
Acquired : 12 Oct 2001 9:22 pm using AcqMethod GC12A.M
Instrument : GC-12
Sample Name: 80573rrS+AF
Misc Info :
Vial Number: 11



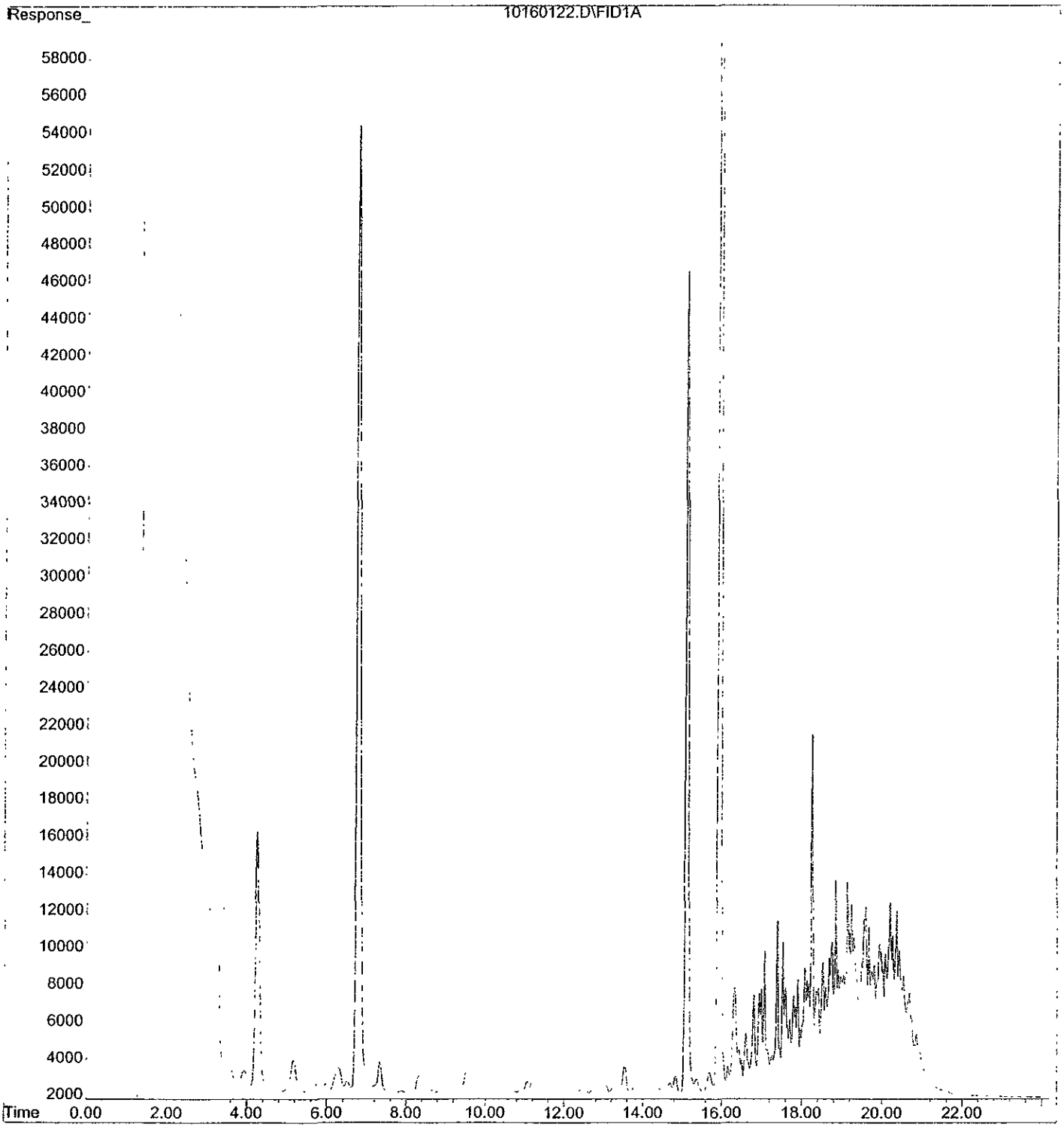
MW-1-8.3

File : D:\HPCHEM\2\DATA\10120107.D
Operator :
Acquired : 12 Oct 2001 7:08 pm using AcqMethod GC12A.M
Instrument : GC-12
Sample Name: 80574rrS+AF
Misc Info :
Vial Number: 7



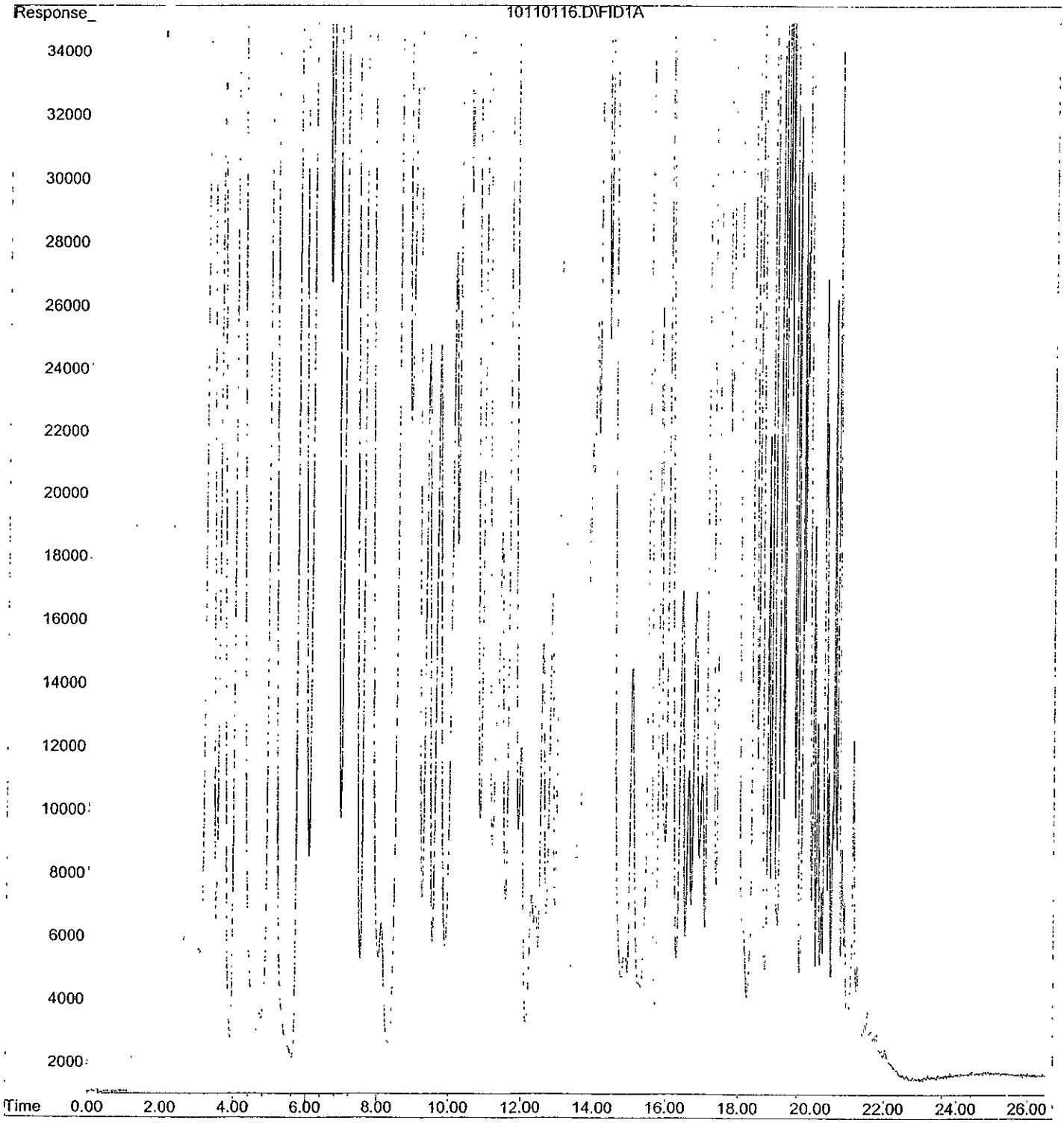
MW-2-5.1

File : D:\HPCHEM\2\DATA\10160122.D
Operator :
Acquired : 16 Oct 2001 9:21 pm using AcqMethod GC7B.M
Instrument : GC-7
Sample Name: 80576reSrr
Misc Info :
Vial Number: 22



MW-3-5.0

File : D:\HPCHEM\2\DATA\10110116.D
Operator :
Acquired : 12 Oct 2001 1:20 am using AcqMethod GC12A.M
Instrument : GC-12
Sample Name: 80579S
Misc Info :
Vial Number: 16



MW-4-5.3

28193

ZC489

McCAMPBELL ANALYTICAL INC.

110 2[nd] AVENUE SOUTH, #D7
PACHECO, CA 94553
Telephone: (925) 798-1620 Fax: (925) 798-1622

CHAIN OF CUSTODY RECORD

TURN AROUND TIME ☐ RUSH ☐ 24 HOUR ☐ 48 HOUR ☒ 5 DAY

Report To: ~~John Rizzi~~ BOB SCHULTZ Bill To: PORT OF OAKLAND
Company: Cambria Environmental Technology
1144 65[th] Street, Suite C
Oakland, CA 94608
Tele: (510) 420-0700 Fax: (510) 420-9170
Project #: 458-1705-4 Project Name: EMBARCADERO COVE
Project Location: 1275 EMBARCADERO
Sampler Signature: [signature]

Analysis Request columns: (1) BTEX & TPH as Gas (602/8020 + 8015)/ MTBE; (2) TPH as Diesel (8015); (3) Total Petroleum Oil & Grease (5520 E&F/B&F); (4) Total Petroleum Hydrocarbons (418.1); (5) EPA 601 / 8010; (6) BTEX ONLY (EPA 602 / 8020); (7) EPA 608 / 8080; (8) EPA 608 / 8080 PCB's ONLY; (9) EPA 624 / 8240 / 8260 — SVOCs added-on 10/16 per 6.5 at 4:48 PM; (10) EPA 625 / 8270; (11) PAH's / PNA's by EPA 625 / 8270 / 8310; (12) CAM-17 Metals; (13) LUFT 5 Metals; (14) Lead (7240/7421/239.2/6010); (15) FOC, Bulk Density/Moisture Content. Other: (16) TITLE 22 METALS; (17) TPH mo and TPHd by 8015 – w/ silica gel cleanup.

SAMPLE ID	LOCATION	Date	Time	# Containers	Type Containers	Water	Soil	Air	Sludge	Other	Ice	HCl	HNO_3	Other	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	Comments
MW-1-5.0		10-9-01	1:45	1	SS		X				X																		X			80572 H
MW-1-8.3		10-9-01	1:55	1	SS		X				X				X								X	X						X	X	80573
MW-2-5.0		10-9-01	12:35	1	SS		X				X				X								X	X					X		X	80574
MW-2-10.0		10-9-01	12:40	1	SS		X				X																					80575 H
MW-3-5.0		10-9-01	9:25	1	SS		X				X				X								X	X					X		X	80576
MW-3-6.5		10-9-01	9:40	1	SS		X				X																					80577 H
MW-3-12.5		10-9-01	10:45	1	SS		X				X																					80578 H
MW-4-5.3		10-9-01	11:00	1	SS		X				X				X								X	X							X	80579
MW-4-10.5		10-9-01	11:45	1	SS		X				X																					80580 H

ICE/t° ✓ PRESERVATION VOAS | O&G | METALS | OTHER
GOOD CONDITION ✓ APPROPRIATE
HEAD SPACE ABSENT___ CONTAINERS ✓

Relinquished By:	Date:	Time:	Received By:
[signature]	10/9	3:00	SECURED LOCATION
[signature]	10/11	11:12	Ann King
Ann King	10/11	1:3/16	[signature]

Remarks:
- SAMPLES STORED IN SECURE LOCATION
- EDF REPORTING
- Verify DETECTION LIMITS FOR SVOCs (8310 Limits)
- SILICA GEL CLEANUP ON TPHd/TPHmo Samples

McCAMPBELL ANALYTICAL INC.
110 2nd Avenue South, #D7, Pacheco, CA 94553-5560
Telephone : 925-798-1620 Fax : 925-798-1622
http://www.mccampbell.com E-mail: main@mccampbell.com

Cambria Environmental Technology 1144 65th Street, Suite C Oakland, CA 94608	Client Project ID: #458-1705; Embarcadero Cove	Date Sampled: 10/19/01
		Date Received: 10/23/01
	Client Contact: Bob Schultz	Date Extracted: 10/23/01
	Client P.O:	Date Analyzed: 10/23/01

10/30/01

Dear Bob:

Enclosed are:

1). the results of **4** samples from your **#458-1705; Embarcadero Cove** project,

2). a QC report for the above samples

3). a copy of the chain of custody, and

4). a bill for analytical services.

All analyses were completed satisfactorily and all QC samples were found to be within our control limits. If you have any questions please contact me. McCampbell Analytical Laboratories strives for excellence in quality, service and cost. Thank you for your business and I look forward to working with you again.

Yours truly,

Edward Hamilton, Lab Director

McCAMPBELL ANALYTICAL INC.
110 2nd Avenue South, #D7, Pacheco, CA 94553-5560
Telephone : 925-798-1620 Fax : 925-798-1622
http://www.mccampbell.com E-mail: main@mccampbell.com

Cambria Environmental Technology	Client Project ID: #458-1705; Embarcadero Cove	Date Sampled: 10/19/01
1144 65th Street, Suite C		Date Received: 10/23/01
Oakland, CA 94608	Client Contact: Bob Schultz	Date Extracted: 10/26-10/29/01
	Client P.O:	Date Analyzed: 10/26-10/29/01

Gasoline Range (C6-C12) Volatile Hydrocarbons as Gasoline*, with Methyl tert-Butyl Ether* & BTEX*

EPA methods 5030, modified 8015, and 8020 or 602; California RWQCB (SF Bay Region) method GCFID(5030)

Lab ID	Client ID	Matrix	TPH(g)+	MTBE	Benzene	Toluene	Ethyl-benzene	Xylenes	% Recovery Surrogate
81774	MW-1	W	11,000,a	---	900	300	470	1000	103
81775	MW-2	W	ND	---	ND	ND	ND	ND	107
81776	MW-3	W	290,a,i	---	2.0	6.6	0.54	1.2	102
81777	MW-4	W	44,000,a,h	---	1900	270	1500	3300	114
Reporting Limit unless otherwise stated; ND means not detected above the reporting limit		W	50 ug/L	5.0	0.5	0.5	0.5	0.5	
		S	1.0 mg/kg	0.05	0.005	0.005	0.005	0.005	

* water and vapor samples are reported in ug/L, wipe samples in ug/wipe, soil and sludge samples in mg/kg, and all TCLP and SPLP extracts in ug/L

* cluttered chromatogram; sample peak coelutes with surrogate peak

+The following descriptions of the TPH chromatogram are cursory in nature and McCampbell Analytical is not responsible for their interpretation: a) unmodified or weakly modified gasoline is significant; b) heavier gasoline range compounds are significant(aged gasoline?); c) lighter gasoline range compounds (the most mobile fraction) are significant; d) gasoline range compounds having broad chromatographic peaks are significant; biologically altered gasoline?; e) TPH pattern that does not appear to be derived from gasoline (?); f) one to a few isolated peaks present; g) strongly aged gasoline or diesel range compounds are significant; h) lighter than water immiscible sheen is present; i) liquid sample that contains greater than ~5 vol. % sediment; j) no recognizable pattern.

DHS Certification No. 1644

Edward Hamilton, Lab Director

McCAMPBELL ANALYTICAL INC.
110 2nd Avenue South, #D7, Pacheco, CA 94553-5560
Telephone : 925-798-1620 Fax : 925-798-1622
http://www.mccampbell.com E-mail: main@mccampbell.com

Cambria Environmental Technology	Client Project ID: #458-1705; Embarcadero Cove	Date Sampled: 10/19/01
1144 65th Street, Suite C		Date Received: 10/23/01
Oakland, CA 94608	Client Contact: Bob Schultz	Date Extracted: 10/23/01
	Client P.O:	Date Analyzed: 10/24/01

Diesel Range (C10-C23) and Oil-Range (C18+) Extractable Hydrocarbons as Diesel and Motor Oil with Silica Gel Clean-up*

EPA methods modified 8015, and 3550 or 3510; California RWQCB (SF Bay Region) method GCFID(3550) or GCFID(3510)

Lab ID	Client ID	Matrix	TPH(d)+	TPH(mo)+	% Recovery Surrogate
81774	MW-1	W	3300,d	ND	113
81775	MW-2	W	210,b,g	460	88
81776	MW-3	W	1600,b,g,i	1300	93
81777	MW-4	W	33,000,d,b,g,h	900	93
Reporting Limit unless otherwise stated; ND means not detected above the reporting limit		W	50 ug/L	250 ug/L	
		S	1.0 mg/kg	5.0 mg/kg	

*water samples are reported in ug/L, wipe samples in ug/wipe, soil and sludge samples in mg/kg, and all TCLP / STLC / SPLP extracts in ug/L

cluttered chromatogram resulting in coeluted surrogate and sample peaks, or; surrogate peak is on elevated baseline, or; surrogate has been diminished by dilution of original extract.

+The following descriptions of the TPH chromatogram are cursory in nature and McCampbell Analytical is not responsible for their interpretation: a) unmodified or weakly modified diesel is significant; b) diesel range compounds are significant; no recognizable pattern; c) aged diesel? is significant); d) gasoline range compounds are significant; e) medium boiling point pattern that does not match diesel (?); f) one to a few isolated peaks present; g) oil range compounds are significant; h) lighter than water immiscible sheen is present; i) liquid sample that contains greater than ~5 vol. % sediment.

DHS Certification No. 1644

Edward Hamilton, Lab Director

McCAMPBELL ANALYTICAL INC.
110 2nd Avenue South, #D7, Pacheco, CA 94553-5560
Telephone : 925-798-1620 Fax : 925-798-1622
http://www.mccampbell.com E-mail: main@mccampbell.com

Cambria Environmental Technology	Client Project ID: #458-1705; Embarcadero Cove	Date Sampled: 10/19/01
1144 65th Street, Suite C		Date Received: 10/23/01
Oakland, CA 94608	Client Contact: Bob Schultz	Date Extracted: 10/23/01
	Client P.O:	Date Analyzed: 10/23-10/24/01

Semi-Volatile Organics By GC/MS

EPA method 625 and 3510 or 8270 and 3550

Lab ID	81774
Client ID	MW-1
Matrix	W

Compound	Concentration*	Reporting Limit W	Reporting Limit S	Compound	oncentration	Reporting Limit W	Reporting Limit S
Acenaphthene	ND	10	0.33	Di-n-octyl Phthalate	ND	10	0.33
Acenaphthylene	ND	10	0.33	1,2-Diphenylhydrazine	ND	10	0.33
Anthracene	ND	10	0.33	Fluoranthene	ND	10	0.33
Benzidine	ND	50	1.6	Fluorene	ND	10	0.33
Benzoic Acid	ND	50	1.6	Hexachlorobenzene	ND	10	0.33
Benzo(a)anthracene	ND	10	0.33	Hexachlorobutadiene	ND	10	0.33
Benzo(b)fluoranthene	ND	10	0.33	Hexachlorocyclopentadiene	ND	50	1.6
Benzo(k)fluoranthene	ND	10	0.33	Hexachloroethane	ND	10	0.33
Benzo(g,h,i)perylene	ND	10	0.33	Indeno(1,2,3-cd)pyrene	ND	10	0.33
Benzo(a)pyrene	ND	10	0 33	Isophorone	ND	10	0 33
Benzyl Alcohol	ND	20	0.66	2-Methylnaphthalene	54	10	0.33
Bis(2-chloroethoxy)methane	ND	10	0.33	2-Methylphenol (o-Cresol)	ND	10	0.33
Bis(2-chloroethyl) Ether	ND	10	0 33	3 &/or 4-Methylphenol (m &/or p-Cresol)	ND	10	0.33
Bis(2-chloroisopropyl)Ether	ND	10	0.33	Naphthalene	66	10	0.33
Bis(2-ethylhexyl) Phthalate	ND	10	0.33	2-Nitroaniline	ND	50	1.6
4-Bromophenyl Phenyl Ether	ND	10	0 33	3-Nitroaniline	ND	50	1.6
Butylbenzyl Phthalate	ND	10	0.33	4-Nitroaniline	ND	50	1 6
4-Chloroanaline	ND	20	0 66	2-Nitrophenol	ND	50	1.6
4-Chloro-3-methylphenol	ND	10	0.33	4-Nitrophenol	ND	50	1.6
2-Chloronaphthalene	ND	10	0.33	Nitrobenzene	ND	10	0.33
2-Chlorophenol	ND	10	0.33	N-Nitrosodimethylamine	ND	10	0 33
4-Chlorophenyl Phenyl Ether	ND	10	0.33	N-Nitrosodiphenylamine	ND	10	0.33
Chrysene	ND	10	0.33	N-Nitrosodi-n-propylamine	ND	10	0.33
Dibenzo(a,h)anthracene	ND	10	0.33	Pentachlorophenol	ND	50	1.6
Dibenzofuran	ND	10	0.33	Phenanthrene	ND	10	0.33
Di-n-butyl Phthalate	ND	10	0.33	Phenol	ND	10	0.33
1,2-Dichlorobenzene	ND	10	0.33	Pyrene	ND	10	0.33
1,3-Dichlorobenzene	ND	10	0.33	1,2,4-Trichlorobenzene	ND	10	0.33
1,4-Dichlorobenzene	ND	10	0.33	2,4,5-Trichlorophenol	ND	10	0.33
3,3-Dichlorobenzidine	ND	20	0.66	2,4,6-Trichlorophenol	ND	10	0.33
2,4-Dichlorophenol	ND	10	0.33	Comments.			
Diethyl Phthalate	ND	10	0.33	**Surrogate Recoveries (%)**			
2,4-Dimethylphenol	ND	10	0.33	2-Fluorophenol	43		
Dimethyl Phthalate	ND	10	0.33	Phenol-d5	41		
4,6-Dinitro-2-methylphenol	ND	50	1.6	Nitrobenzene-d5	66		
2,4-Dinitrophenol	ND	50	1.6	2-Fluorobiphenyl	66		
2,4-Dinitrotoluene	ND	10	0.33	2,4,6-Tribromophenol	74		
2,6-Dinitrotoluene	ND	10	0.33	p-Terphenyl-d14	55		

*water samples are reported in ug/L, soil and sludge samples in mg/kg, wipes in ug/wipe and all TCLP / STLC / SPLP extracts in ug/L

ND means not detected above the reporting limit; N/A means analyte not applicable to this analysis.

surrogate diluted out of range

h) lighter than water immiscible sheen is present; i)liquid sample that contains greater than ~5 vol. % sediment; j) sample diluted due to high organic content

DHS Certification No. 1644

Edward Hamilton, Lab Director

McCAMPBELL ANALYTICAL INC.
110 2nd Avenue South, #D7, Pacheco, CA 94553-5560
Telephone : 925-798-1620 Fax : 925-798-1622
http://www.mccampbell.com E-mail: main@mccampbell.com

Cambria Environmental Technology 1144 65th Street, Suite C Oakland, CA 94608	Client Project ID: #458-1705; Embarcadero Cove	Date Sampled: 10/19/01
		Date Received: 10/23/01
	Client Contact: Bob Schultz	Date Extracted: 10/23/01
	Client P.O:	Date Analyzed: 10/23-10/24/01

Semi-Volatile Organics By GC/MS

EPA method 625 and 3510 or 8270 and 3550

Lab ID	81775
Client ID	MW-2
Matrix	W

Compound	Concentration*	Reporting Limit W	Reporting Limit S	Compound	oncentration	Reporting Limit W	Reporting Limit S
Acenaphthene	ND	10	0.33	Di-n-octyl Phthalate	ND	10	0.33
Acenaphthylene	ND	10	0.33	1,2-Diphenylhydrazine	ND	10	0.33
Anthracene	ND	10	0.33	Fluoranthene	ND	10	0.33
Benzidine	ND	50	1.6	Fluorene	ND	10	0.33
Benzoic Acid	ND	50	1.6	Hexachlorobenzene	ND	10	0.33
Benzo(a)anthracene	ND	10	0.33	Hexachlorobutadiene	ND	10	0.33
Benzo(b)fluoranthene	ND	10	0 33	Hexachlorocyclopentadiene	ND	50	1.6
Benzo(k)fluoranthene	ND	10	0.33	Hexachloroethane	ND	10	0.33
Benzo(g,h,i)perylene	ND	10	0.33	Indeno(1,2,3-cd)pyrene	ND	10	0.33
Benzo(a)pyrene	ND	10	0 33	Isophorone	ND	10	0.33
Benzyl Alcohol	ND	20	0.66	2-Methylnaphthalene	ND	10	0.33
Bis(2-chloroethoxy)methane	ND	10	0.33	2-Methylphenol (o-Cresol)	ND	10	0.33
Bis(2-chloroethyl) Ether	ND	10	0.33	3 &/or 4-Methylphenol (m &/or p-Cresol)	ND	10	0.33
Bis(2-chloroisopropyl)Ether	ND	10	0.33	Naphthalene	ND	10	0.33
Bis(2-ethylhexyl) Phthalate	ND	10	0.33	2-Nitroaniline	ND	50	1.6
4-Bromophenyl Phenyl Ether	ND	10	0.33	3-Nitroaniline	ND	50	1.6
Butylbenzyl Phthalate	ND	10	0.33	4-Nitroaniline	ND	50	1.6
4-Chloroanaline	ND	20	0.66	2-Nitrophenol	ND	50	1.6
4-Chloro-3-methylphenol	ND	10	0.33	4-Nitrophenol	ND	50	1.6
2-Chloronaphthalene	ND	10	0.33	Nitrobenzene	ND	10	0.33
2-Chlorophenol	ND	10	0 33	N-Nitrosodimethylamine	ND	10	0.33
4-Chlorophenyl Phenyl Ether	ND	10	0.33	N-Nitrosodiphenylamine	ND	10	0.33
Chrysene	ND	10	0.33	N-Nitrosodi-n-propylamine	ND	10	0.33
Dibenzo(a,h)anthracene	ND	10	0.33	Pentachlorophenol	ND	50	1.6
Dibenzofuran	ND	10	0.33	Phenanthrene	ND	10	0.33
Di-n-butyl Phthalate	ND	10	0.33	Phenol	ND	10	0.33
1,2-Dichlorobenzene	ND	10	0.33	Pyrene	ND	10	0.33
1,3-Dichlorobenzene	ND	10	0.33	1,2,4-Trichlorobenzene	ND	10	0.33
1,4-Dichlorobenzene	ND	10	0.33	2,4,5-Trichlorophenol	ND	10	0.33
3,3-Dichlorobenzidine	ND	20	0.66	2,4,6-Trichlorophenol	ND	10	0.33
2,4-Dichlorophenol	ND	10	0.33	Comments			
Diethyl Phthalate	ND	10	0.33	**Surrogate Recoveries (%)**			
2,4-Dimethylphenol	ND	10	0.33	2-Fluorophenol	32		
Dimethyl Phthalate	ND	10	0.33	Phenol-d5	39		
4,6-Dinitro-2-methylphenol	ND	50	1.6	Nitrobenzene-d5	67		
2,4-Dinitrophenol	ND	50	1.6	2-Fluorobiphenyl	66		
2,4-Dinitrotoluene	ND	10	0.33	2,4,6-Tribromophenol	74		
2,6-Dinitrotoluene	ND	10	0 33	p-Terphenyl-d14	53		

*water samples are reported in ug/L, soil and sludge samples in mg/kg, wipes in ug/wipe and all TCLP / STLC / SPLP extracts in ug/L

ND means not detected above the reporting limit; N/A means analyte not applicable to this analysis.

surrogate diluted out of range

h) lighter than water immiscible sheen is present; i)liquid sample that contains greater than ~5 vol. % sediment; j) sample diluted due to high organic content

DHS Certification No. 1644

Edward Hamilton, Lab Director

McCAMPBELL ANALYTICAL INC.
110 2nd Avenue South, #D7, Pacheco, CA 94553-5560
Telephone : 925-798-1620 Fax : 925-798-1622
http://www.mccampbell.com E-mail: main@mccampbell.com

Cambria Environmental Technology	Client Project ID: #458-1705; Embarcadero Cove	Date Sampled: 10/19/01
1144 65th Street, Suite C		Date Received: 10/23/01
Oakland, CA 94608	Client Contact: Bob Schultz	Date Extracted: 10/23/01
	Client P.O:	Date Analyzed: 10/23-10/24/01

Semi-Volatile Organics By GC/MS

EPA method 625 and 3510 or 8270 and 3550

Lab ID	81776
Client ID	MW-3
Matrix	W

Compound	Concentration*	Reporting Limit W	Reporting Limit S	Compound	Concentration	Reporting Limit W	Reporting Limit S
Acenaphthene	ND<25	10	0.33	Di-n-octyl Phthalate	ND<25	10	0.33
Acenaphthylene	ND<25	10	0.33	1,2-Diphenylhydrazine	ND<25	10	0.33
Anthracene	ND<25	10	0.33	Fluoranthene	ND<25	10	0.33
Benzidine	ND<125	50	1.6	Fluorene	ND<25	10	0.33
Benzoic Acid	ND<125	50	1 6	Hexachlorobenzene	ND<25	10	0.33
Benzo(a)anthracene	ND<25	10	0.33	Hexachlorobutadiene	ND<25	10	0.33
Benzo(b)fluoranthene	ND<25	10	0 33	Hexachlorocyclopentadiene	ND<125	50	1.6
Benzo(k)fluoranthene	ND<25	10	0 33	Hexachloroethane	ND<25	10	0.33
Benzo(g,h,i)perylene	ND<25	10	0.33	Indeno(1,2,3-cd)pyrene	ND<25	10	0.33
Benzo(a)pyrene	ND<25	10	0.33	Isophorone	ND<25	10	0.33
Benzyl Alcohol	ND<50	20	0.66	2-Methylnaphthalene	670	10	0.33
Bis(2-chloroethoxy)methane	ND<25	10	0.33	2-Methylphenol (o-Cresol)	ND<25	10	0.33
Bis(2-chloroethyl) Ether	ND<25	10	0 33	3 &/or 4-Methylphenol (m &/or p-Cresol)	ND<25	10	0.33
Bis(2-chloroisopropyl)Ether	ND<25	10	0.33	Naphthalene	420	10	0.33
Bis(2-ethylhexyl) Phthalate	ND<25	10	0.33	2-Nitroaniline	ND<125	50	1.6
4-Bromophenyl Phenyl Ether	ND<25	10	0.33	3-Nitroaniline	ND<125	50	1.6
Butylbenzyl Phthalate	ND<25	10	0 33	4-Nitroaniline	ND<125	50	1.6
4-Chloroanaline	ND<50	20	0.66	2-Nitrophenol	ND<125	50	1 6
4-Chloro-3-methylphenol	ND<25	10	0.33	4-Nitrophenol	ND<125	50	1.6
2-Chloronaphthalene	ND<25	10	0.33	Nitrobenzene	ND<25	10	0.33
2-Chlorophenol	ND<25	10	0.33	N-Nitrosodimethylamine	ND<25	10	0.33
4-Chlorophenyl Phenyl Ether	ND<25	10	0.33	N-Nitrosodiphenylamine	ND<25	10	0.33
Chrysene	ND<25	10	0 33	N-Nitrosodi-n-propylamine	ND<25	10	0.33
Dibenzo(a,h)anthracene	ND<25	10	0.33	Pentachlorophenol	ND<125	50	1.6
Dibenzofuran	ND<25	10	0.33	Phenanthrene	ND<25	10	0.33
Di-n-butyl Phthalate	ND<25	10	0.33	Phenol	ND<25	10	0.33
1,2-Dichlorobenzene	ND<25	10	0.33	Pyrene	ND<25	10	0.33
1,3-Dichlorobenzene	ND<25	10	0.33	1,2,4-Trichlorobenzene	ND<25	10	0.33
1,4-Dichlorobenzene	ND<25	10	0.33	2,4,5-Trichlorophenol	ND<25	10	0.33
3,3-Dichlorobenzidine	ND<50	20	0.66	2,4,6-Trichlorophenol	ND<25	10	0.33
2,4-Dichlorophenol	ND<25	10	0.33	Comments: i			
Diethyl Phthalate	ND<25	10	0.33	**Surrogate Recoveries (%)**			
2,4-Dimethylphenol	ND<25	10	0.33	2-Fluorophenol	32		
Dimethyl Phthalate	ND<25	10	0.33	Phenol-d5	---#		
4,6-Dinitro-2-methylphenol	ND<125	50	1.6	Nitrobenzene-d5	60		
2,4-Dinitrophenol	ND<125	50	1.6	2-Fluorobiphenyl	59		
2,4-Dinitrotoluene	ND<25	10	0.33	2,4,6-Tribromophenol	67		
2,6-Dinitrotoluene	ND<25	10	0 33	p-Terphenyl-d14	49		

*water samples are reported in ug/L, soil and sludge samples in mg/kg, wipes in ug/wipe and all TCLP / STLC / SPLP extracts in ug/L

ND means not detected above the reporting limit; N/A means analyte not applicable to this analysis.

surrogate diluted out of range

h) lighter than water immiscible sheen is present; i)liquid sample that contains greater than ~5 vol. % sediment; j) sample diluted due to high organic content

DHS Certification No. 1644

Edward Hamilton, Lab Director

McCAMPBELL ANALYTICAL INC.
110 2nd Avenue South, #D7, Pacheco, CA 94553-5560
Telephone : 925-798-1620 Fax : 925-798-1622
http://www.mccampbell.com E-mail: main@mccampbell.com

Cambria Environmental Technology 1144 65th Street, Suite C Oakland, CA 94608	Client Project ID: #458-1705; Embarcadero Cove	Date Sampled: 10/19/01
		Date Received: 10/23/01
	Client Contact: Bob Schultz	Date Extracted: 10/23/01
	Client P.O:	Date Analyzed: 10/23-10/24/01

Semi-Volatile Organics By GC/MS

EPA method 625 and 3510 or 8270 and 3550

Lab ID	81777
Client ID	MW-4
Matrix	W

Compound	Concentration*	Reporting Limit W	Reporting Limit S	Compound	oncentration	Reporting Limit W	Reporting Limit S
Acenaphthene	ND<50	10	0.33	Di-n-octyl Phthalate	ND<50	10	0.33
Acenaphthylene	ND<50	10	0.33	1,2-Diphenylhydrazine	ND<50	10	0.33
Anthracene	ND<50	10	0.33	Fluoranthene	ND<50	10	0 33
Benzidine	ND<250	50	1 6	Fluorene	ND<50	10	0 33
Benzoic Acid	ND<250	50	1.6	Hexachlorobenzene	ND<50	10	0.33
Benzo(a)anthracene	ND<50	10	0.33	Hexachlorobutadiene	ND<50	10	0.33
Benzo(b)fluoranthene	ND<50	10	0.33	Hexachlorocyclopentadiene	ND<250	50	1.6
Benzo(k)fluoranthene	ND<50	10	0.33	Hexachloroethane	ND<50	10	0.33
Benzo(g,h,i)perylene	ND<50	10	0.33	Indeno(1,2,3-cd)pyrene	ND<50	10	0.33
Benzo(a)pyrene	ND<50	10	0.33	Isophorone	ND<50	10	0 33
Benzyl Alcohol	ND<100	20	0.66	2-Methylnaphthalene	ND<50	10	0.33
Bis(2-chloroethoxy)methane	ND<50	10	0.33	2-Methylphenol (o-Cresol)	ND<50	10	0.33
Bis(2-chloroethyl) Ether	ND<50	10	0.33	3 &/or 4-Methylphenol (m &/or p-Cresol)	ND<50	10	0.33
Bis(2-chloroisopropyl)Ether	ND<50	10	0.33	Naphthalene	ND<50	10	0.33
Bis(2-ethylhexyl) Phthalate	ND<50	10	0.33	2-Nitroaniline	ND<250	50	1.6
4-Bromophenyl Phenyl Ether	ND<50	10	0 33	3-Nitroaniline	ND<250	50	1.6
Butylbenzyl Phthalate	ND<50	10	0.33	4-Nitroaniline	ND<250	50	1.6
4-Chloroanaline	ND<100	20	0 66	2-Nitrophenol	ND<250	50	1 6
4-Chloro-3-methylphenol	ND<50	10	0 33	4-Nitrophenol	ND<250	50	1 6
2-Chloronaphthalene	ND<50	10	0.33	Nitrobenzene	ND<50	10	0.33
2-Chlorophenol	ND<50	10	0 33	N-Nitrosodimethylamine	ND<50	10	0.33
4-Chlorophenyl Phenyl Ether	ND<50	10	0 33	N-Nitrosodiphenylamine	ND<50	10	0.33
Chrysene	ND<50	10	0.33	N-Nitrosodi-n-propylamine	ND<50	10	0.33
Dibenzo(a,h)anthracene	ND<50	10	0.33	Pentachlorophenol	ND<250	50	1.6
Dibenzofuran	ND<50	10	0.33	Phenanthrene	ND<50	10	0.33
Di-n-butyl Phthalate	ND<50	10	0.33	Phenol	ND<50	10	0.33
1,2-Dichlorobenzene	ND<50	10	0.33	Pyrene	ND<50	10	0.33
1,3-Dichlorobenzene	ND<50	10	0.33	1,2,4-Trichlorobenzene	ND<50	10	0.33
1,4-Dichlorobenzene	ND<50	10	0 33	2,4,5-Trichlorophenol	ND<50	10	0.33
3,3-Dichlorobenzidine	ND<100	20	0.66	2,4,6-Trichlorophenol	ND<50	10	0.33
2,4-Dichlorophenol	ND<50	10	0 33	Comments: j,h			
Diethyl Phthalate	ND<50	10	0.33	**Surrogate Recoveries (%)**			
2,4-Dimethylphenol	ND<50	10	0.33	2-Fluorophenol	32		
Dimethyl Phthalate	ND<50	10	0.33	Phenol-d5	---#		
4,6-Dinitro-2-methylphenol	ND<250	50	1.6	Nitrobenzene-d5	---#		
2,4-Dinitrophenol	ND<250	50	1 6	2-Fluorobiphenyl	52		
2,4-Dinitrotoluene	ND<50	10	0.33	2,4,6-Tribromophenol	---#		
2,6-Dinitrotoluene	ND<50	10	0.33	p-Terphenyl-d14	38		

*water samples are reported in ug/L, soil and sludge samples in mg/kg, wipes in ug/wipe and all TCLP / STLC / SPLP extracts in ug/L

ND means not detected above the reporting limit; N/A means analyte not applicable to this analysis.

surrogate diluted out of range

h) lighter than water immiscible sheen is present; i)liquid sample that contains greater than ~5 vol % sediment; j) sample diluted due to high organic content

DHS Certification No. 1644

Edward Hamilton, Lab Director

McCAMPBELL ANALYTICAL INC.
110 2nd Ave. South, #D7, Pacheco, CA 94553-5560
Telephone : 925-798-1620 Fax : 925-798-1622
http://www.mccampbell.com E-mail: main@mccampbell.com

QC REPORT

EPA 8015m + 8020

Date: 10/26/01 **Extraction:** EPA 5030 **Matrix:** Water

Compound	Concentration: ug/L				%Recovery		RPD
	Sample	MS	MSD	Amount Spiked	MS	MSD	
SampleID: 102601					Instrument:		GC-3
Surrogate1	ND	105.0	101.0	100.00	105	101	3.9
Xylenes	ND	34.5	33.2	30.00	115	111	3.8
Ethylbenzene	ND	11.5	10.9	10.00	115	109	5.4
Toluene	ND	11.2	10.5	10.00	112	105	6.5
Benzene	ND	10.4	10.1	10.00	104	101	2.9
MTBE	ND	9.6	9.6	10.00	96	96	0.0
TPH (gas)	ND	84.8	84.1	100.00	85	84	0.8

$$\%\ \text{Recovery} = \frac{(MS - Sample)}{AmountSpiked} \cdot 100$$

$$\text{RPD} = \frac{(MS - MSD)}{(MS + MSD)} \cdot 2 \cdot 100$$

RPD means Relative Percent Deviation

McCAMPBELL ANALYTICAL INC.
110 2nd Ave. South, #D7, Pacheco, CA 94553-5560
Telephone : 925-798-1620 Fax : 925-798-1622
http://www.mccampbell.com E-mail: main@mccampbell.com

QC REPORT

EPA 8015m + 8020

Date: 10/24/01 **Extraction:** EPA 5030 **Matrix:** Water

Compound	Concentration: ug/L				%Recovery		RPD
	Sample	MS	MSD	Amount Spiked	MS	MSD	
SampleID: 102401					Instrument: GC-2 B		
Surrogate1	ND	115.0	108.0	100.00	115	108	6.3
TPH (diesel)	ND	8750.0	8625.0	7500.00	117	115	1.4

$$\%\ \text{Recovery} = \frac{(MS - Sample)}{AmountSpiked} \cdot 100$$

$$\text{RPD} = \frac{(MS - MSD)}{(MS + MSD)} \cdot 200$$

RPD means Relative Percent Deviation

McCAMPBELL ANALYTICAL INC.
110 2nd Ave. South, #D7, Pacheco, CA 94553-5560
Telephone : 925-798-1620 Fax : 925-798-1622
http://www.mccampbell.com E-mail: main@mccampbell.com

QC REPORT

SVOCs (EPA 8270/625/525)

Date: 10/23/01-10/24/01 **Extraction:** N/A **Matrix:** Water

Compound	Concentration: ug/L				%Recovery		RPD
	Sample	MS	MSD	Amount Spiked	MS	MSD	
SampleID: 102301					Instrument:	GC-8	
Surrogate1	ND	710.0	700.0	1000.00	71	70	1.4
Pyrene	ND	440.0	440.0	1000.00	44	44	0.0
Pentachlorophenol	ND	990.0	970.0	2000.00	50	49	2.0
2,4-Dinitrotoluene	ND	530.0	540.0	1000.00	53	54	1.9
4-Nitrophenol	ND	910.0	820.0	2000.00	46	41	10.4
Acenaphtene	ND	490.0	480.0	1000.00	49	48	2.1
4-Chloro-3-metylphenol	ND	720.0	700.0	2000.00	36	35	2.8
1,2,4-trichlorobenzene	ND	510.0	500.0	1000.00	51	50	2.0
N-nitroso-di-n-propyl	ND	320.0	320.0	1000.00	32	32	0.0
1,4-Dichlorobenzene	ND	460.0	460.0	1000.00	46	46	0.0
2-Chlorophenol	ND	720.0	710.0	2000.00	36	36	1.4
Phenol	ND	620.0	640.0	2000.00	31	32	3.2

$$\%\ \text{Recovery} = \frac{(MS - Sample)}{AmountSpiked} \cdot 100$$

$$\text{RPD} = \frac{(MS - MSD)}{(MS + MSD)} \cdot 200$$

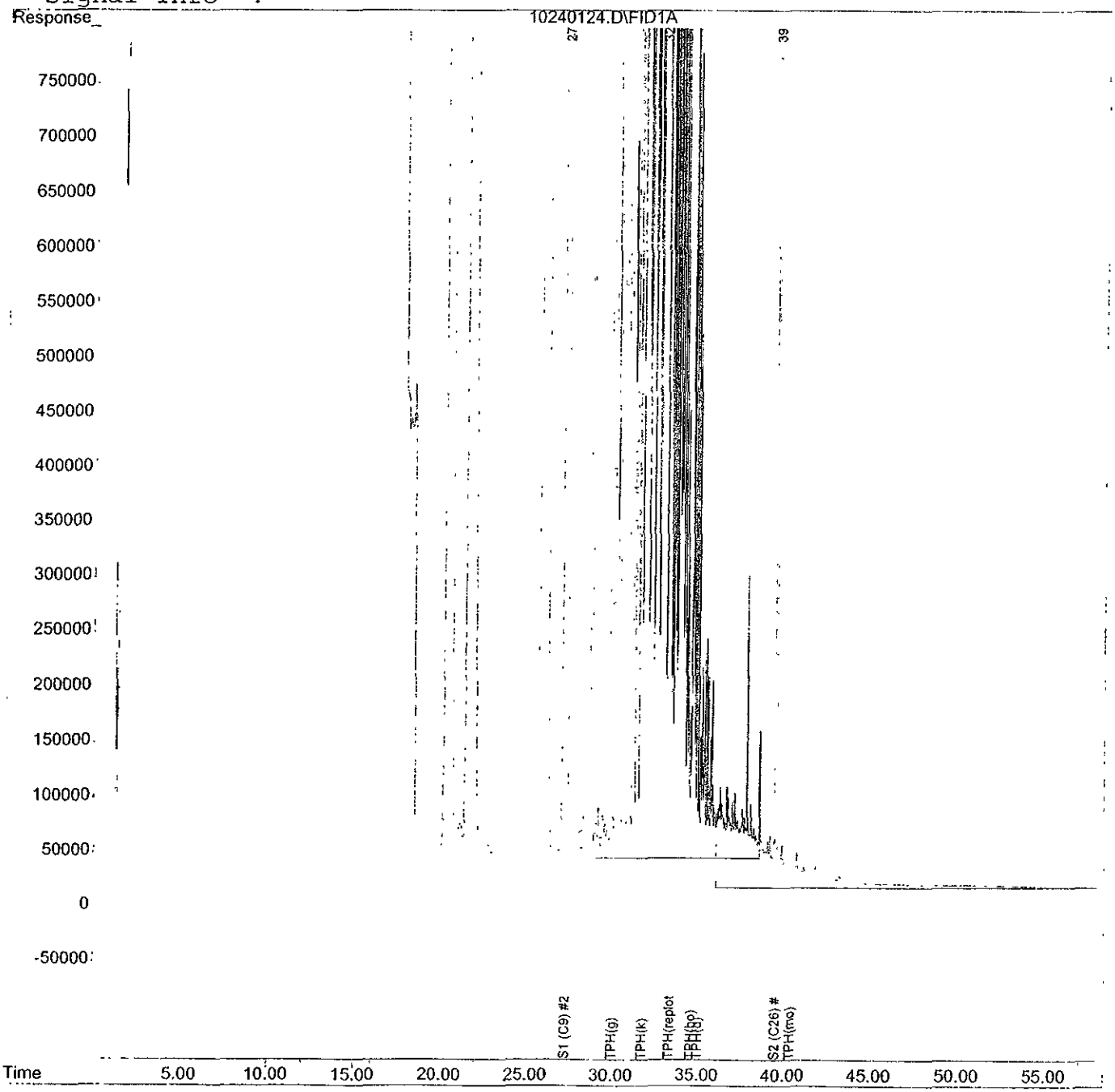
RPD means Relative Percent Deviation

Quantitation Report (Not Reviewed)

Data File : D:\HPCHEM\1\DATAA\10240124.D Vial: 12
Acq On : 25 Oct 2001 4:08 am Operator: Thu
Sample : 81774W Inst : GC-11
Misc : D,MO,WSG Multiplr: 1.0
IntFile : EVENTS.E
Quant Time: Nov 20 15:50 2001 Quant Results File: GC11A.RES

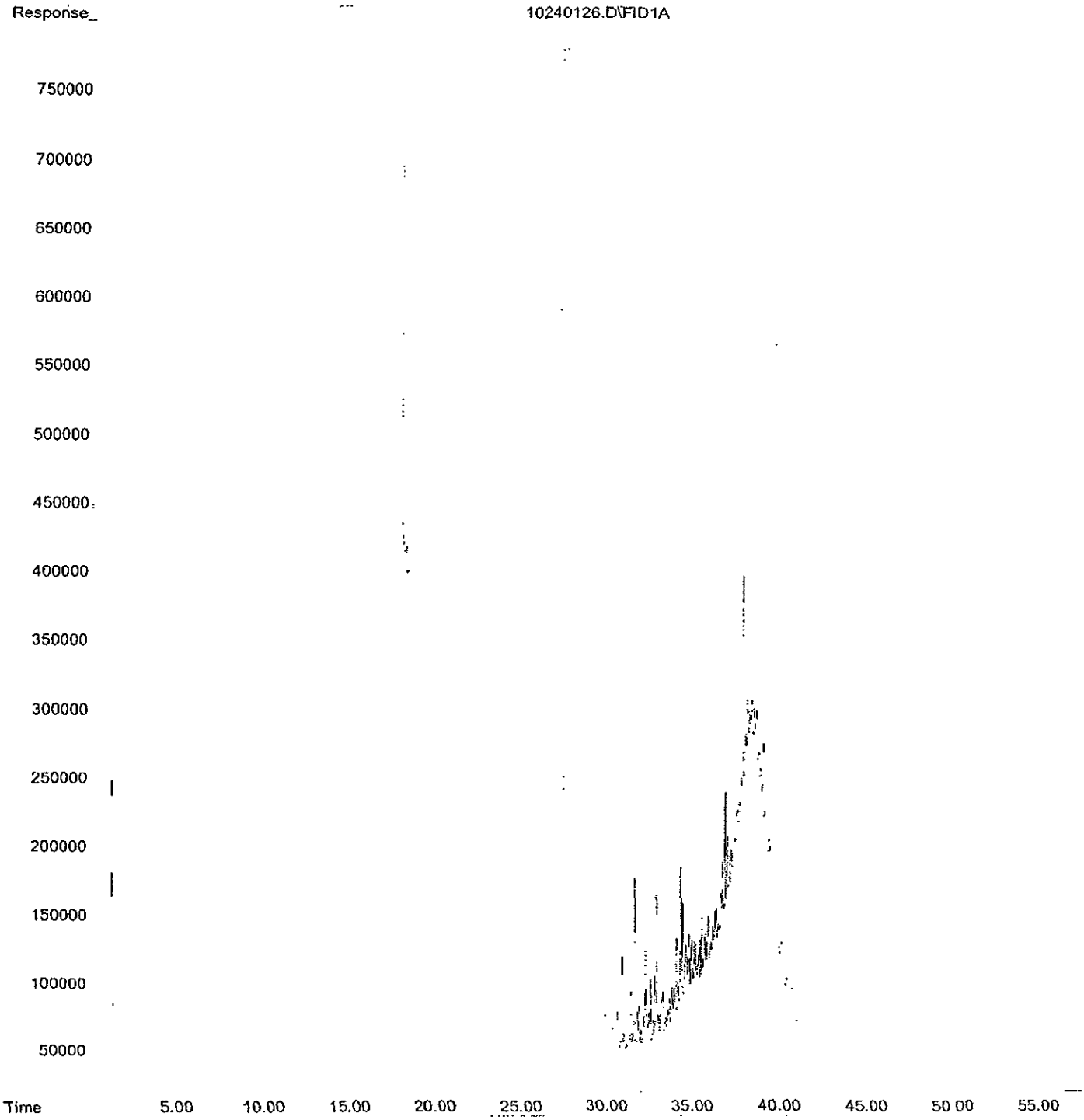
Quant Method : C:\HPCHEM\1\METHODS\GC11A.M (Chemstation Integrator)
Title : GC-11A
Last Update : Mon Nov 19 11:45:59 2001
Response via : Multiple Level Calibration
DataAcq Meth : GC11A.M

Volume Inj. :
Signal Phase :
Signal Info :



MW-1

File : D:\HPCHEM\1\DATAA\10240126.D
Operator : Thu
Acquired : 25 Oct 2001 5:16 am using AcqMethod GC11A.M
Instrument : ~~GC-11,~~
Sample Name: 81775W
Misc Info : ~~D,MO,WSG~~
Vial Number: 13



MW-2

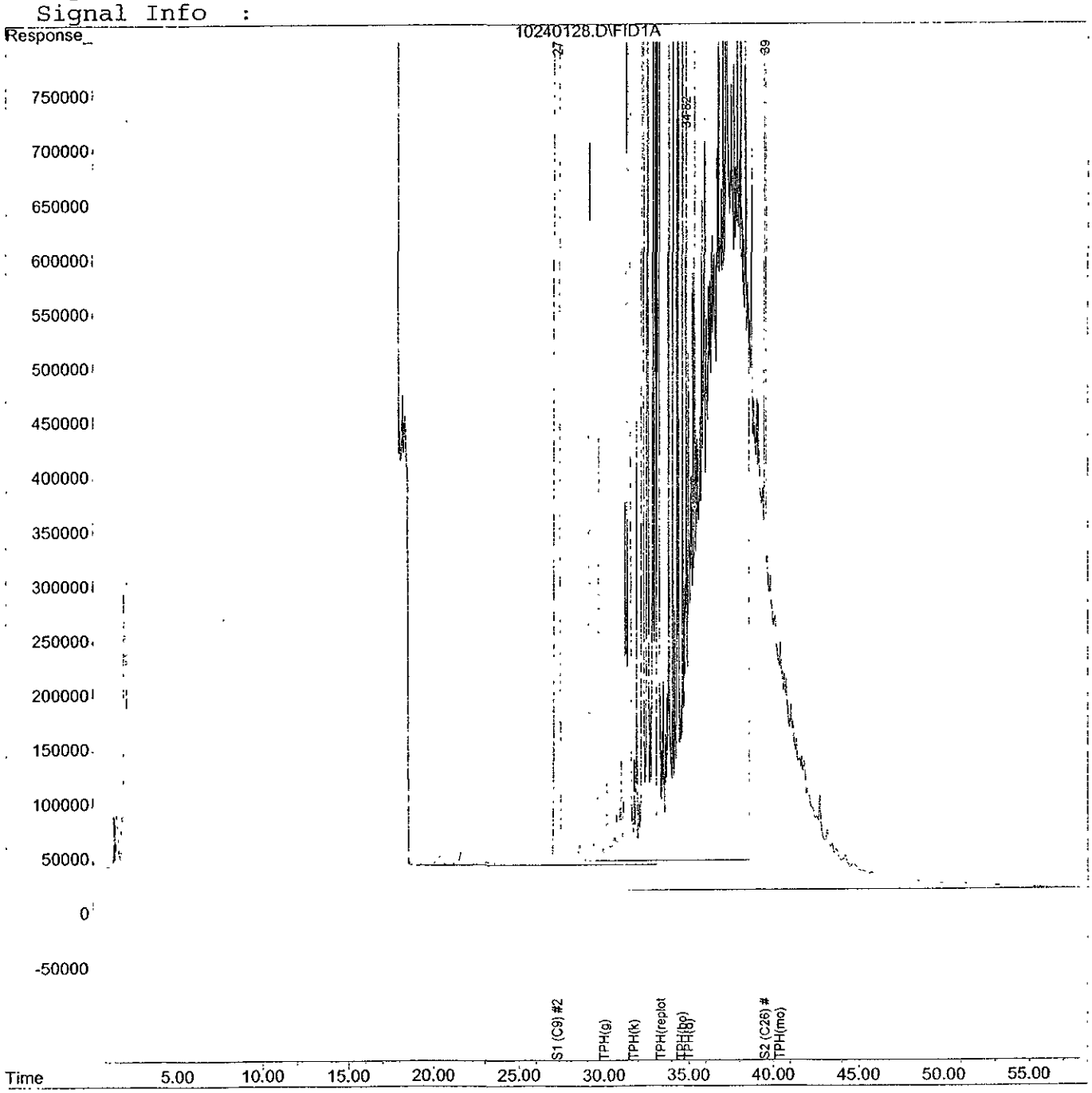
Quantitation Report (Not Reviewed)

Data File : D:\HPCHEM\1\DATAA\10240128.D
Acq On : 25 Oct 2001 6:24 am
Sample : 81776W
Misc : D,MO,WSG
IntFile : EVENTS.E
Quant Time: Nov 20 15:50 2001 Quant Results File: GC11A.RES

Vial: 14
Operator: Thu
Inst : GC-11
Multiplr: 1.0

Quant Method : C:\HPCHEM\1\METHODS\GC11A.M (Chemstation Integrator)
Title : GC-11A
Last Update : Mon Nov 19 11:45:59 2001
Response via : Multiple Level Calibration
DataAcq Meth : GC11A.M

Volume Inj. :
Signal Phase :
Signal Info :



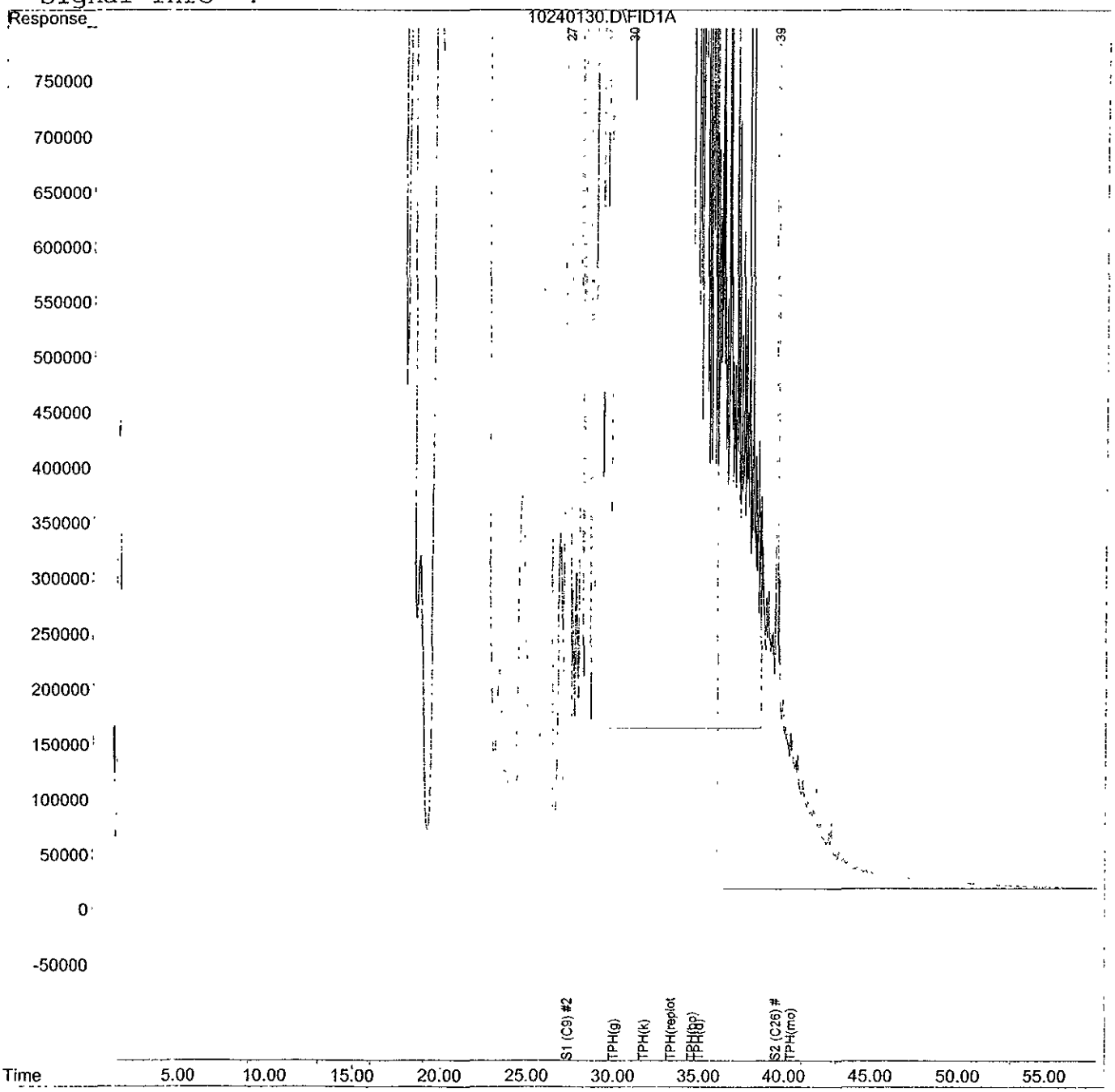
MW-3

Quantitation Report (Not Reviewed)

Data File : D:\HPCHEM\1\DATAA\10240130.D Vial: 15
Acq On : 25 Oct 2001 7:32 am Operator: Thu
Sample : 81777W Inst : GC-11
Misc : D,MO,WSG Multiplr: 1.0
IntFile : EVENTS.E
Quant Time: Nov 20 15:51 2001 Quant Results File: GC11A.RES

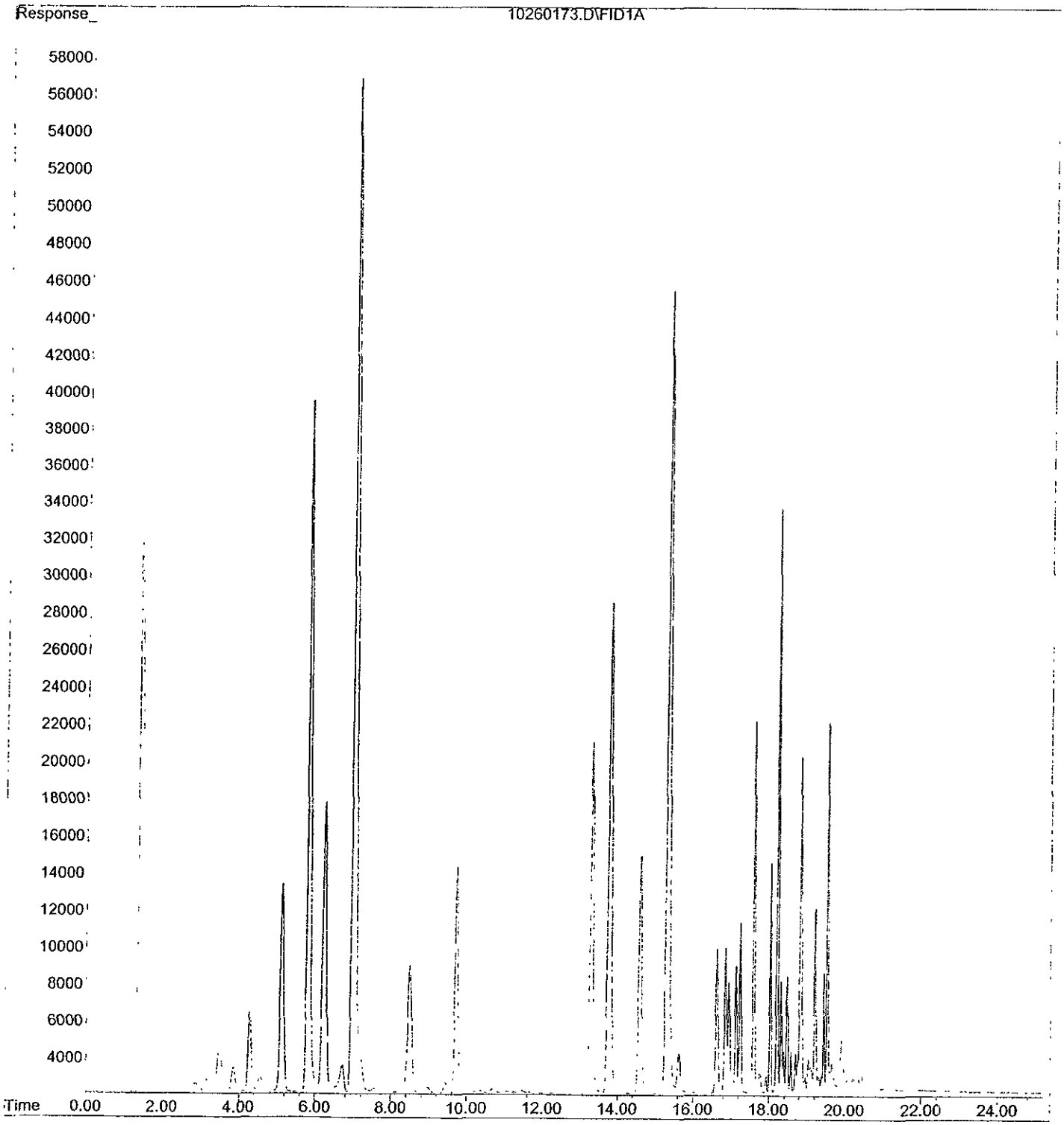
Quant Method : C:\HPCHEM\1\METHODS\GC11A.M (Chemstation Integrator)
Title : GC-11A
Last Update : Mon Nov 19 11:45:59 2001
Response via : Multiple Level Calibration
DataAcq Meth : GC11A.M

Volume Inj. :
Signal Phase :
Signal Info :



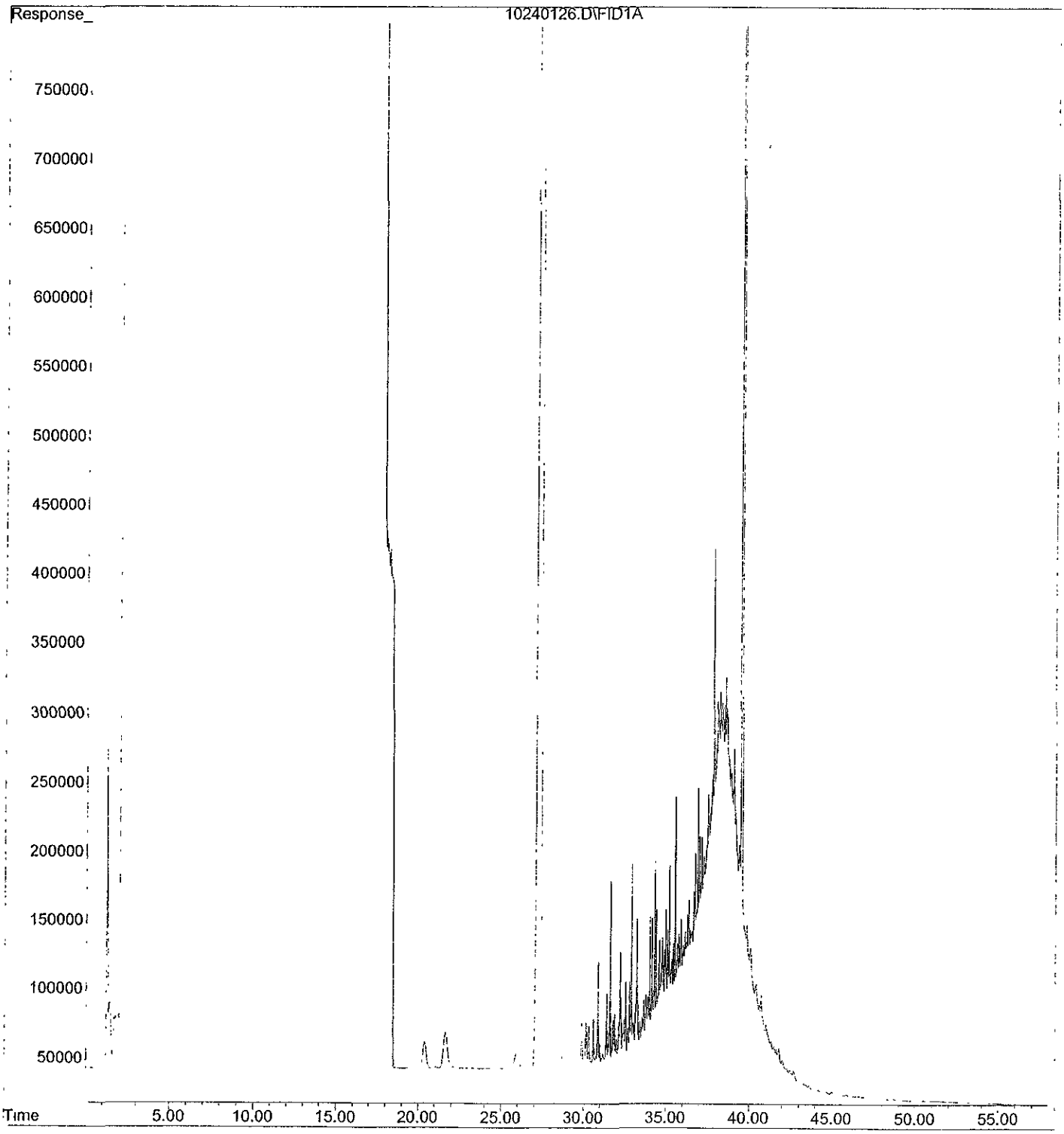
MW-4

File : D:\HPCHEM\1\DATA\10260173.D
Operator :
Acquired : 28 Oct 2001 4:34 am using AcqMethod GC3D.M
Instrument : GC-3
Sample Name: 81774 w
Misc Info :
Vial Number: 73



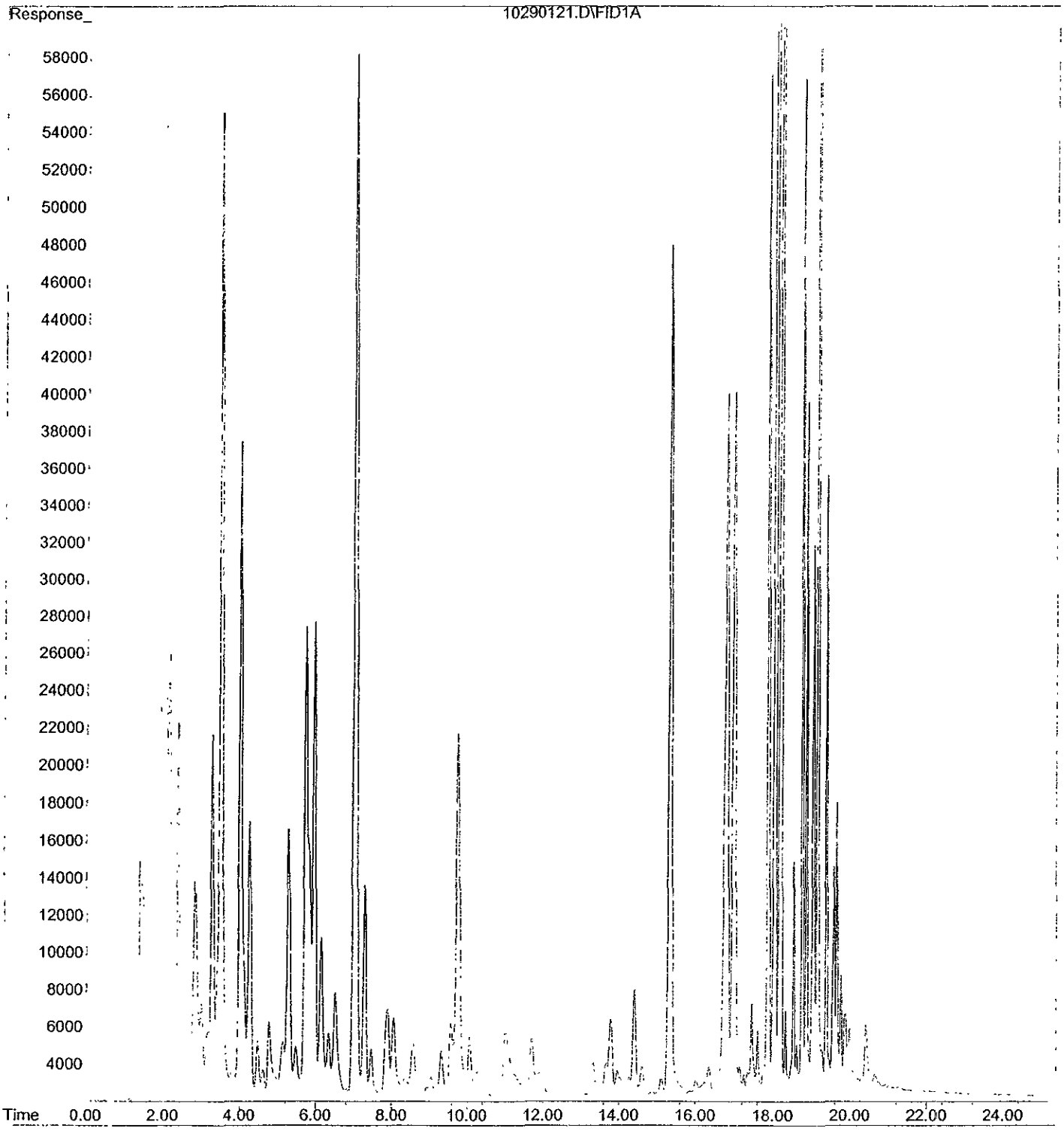
MW-1

File : D:\HPCHEM\1\DATAA\10240126.D
Operator : Thu
Acquired : 25 Oct 2001 5:16 am using AcqMethod GC11A.M
Instrument : ~~GC-11~~
Sample Name: 81775W
Misc Info : ~~D,MO,WSG~~
Vial Number: 13



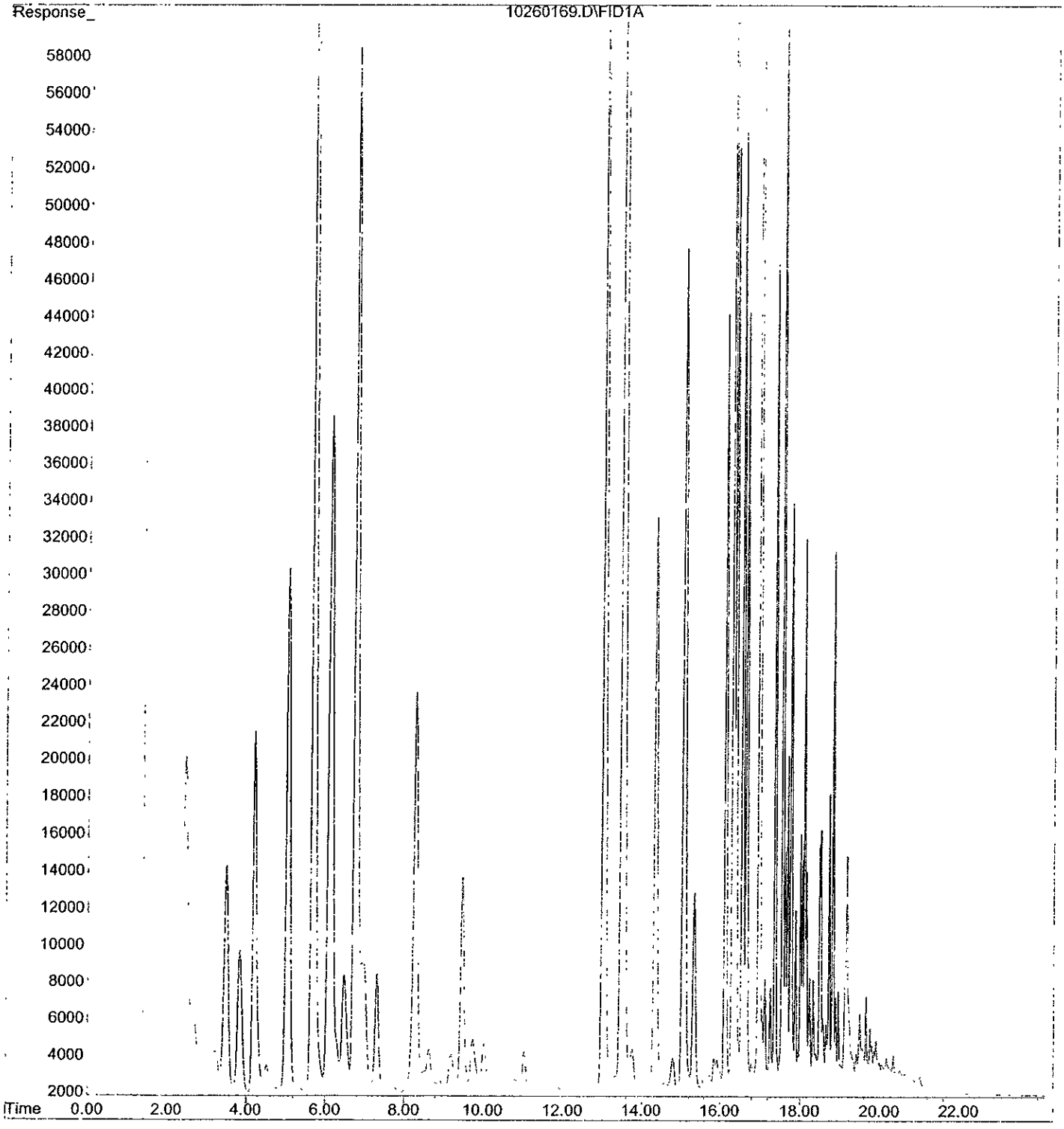
MW-2

File : D:\HPCHEM\1\DATA\10290121.D
Operator :
Acquired : 29 Oct 2001 10:58 pm using AcqMethod GC3D.M
Instrument : GC-3
Sample Name: 81776rrW+af
Misc Info :
Vial Number: 21



MW-3

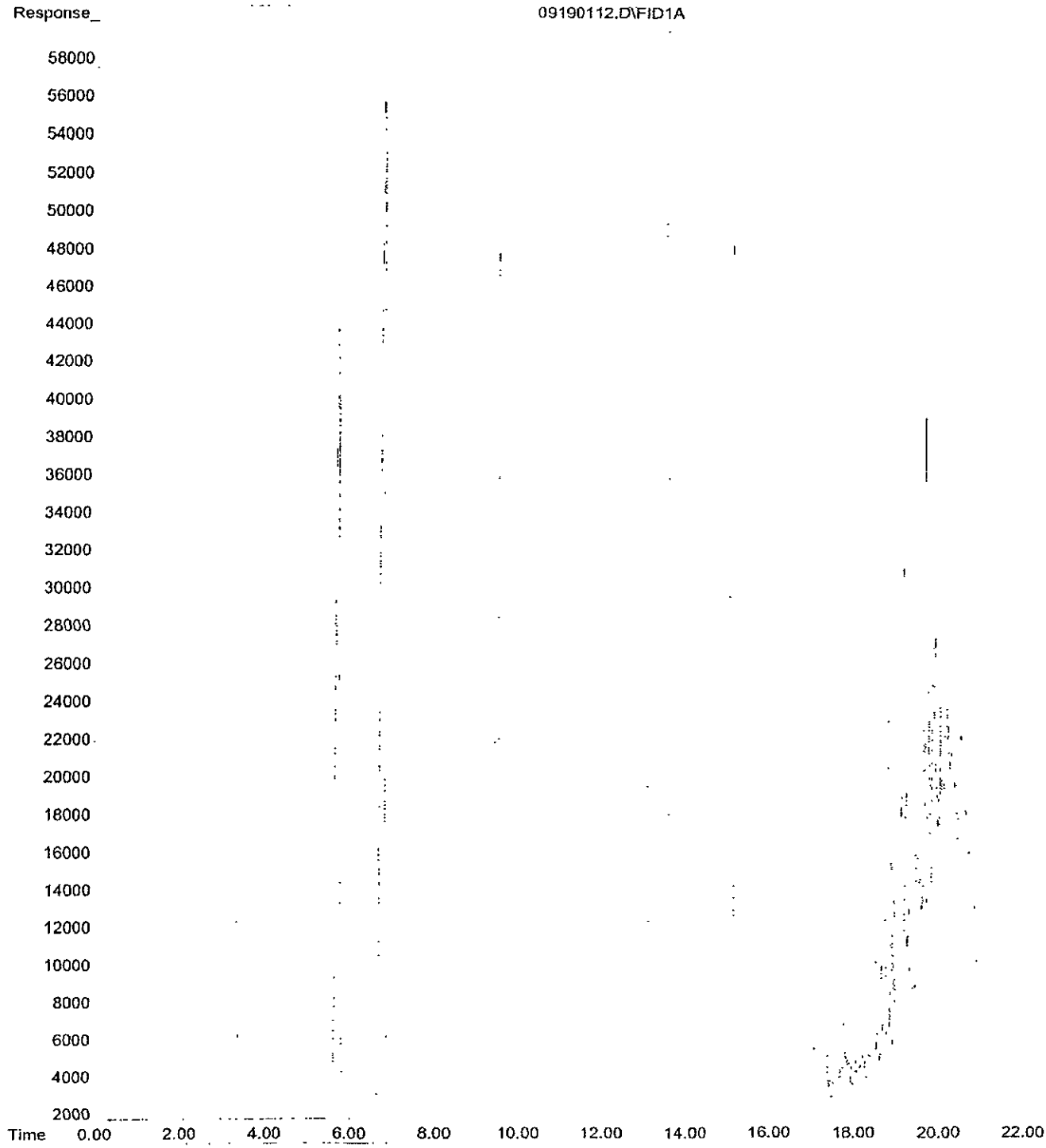
File : D:\HPCHEM\2\DATA\10260169.D
Operator :
Acquired : 27 Oct 2001 9:19 pm using AcqMethod GC7B.M
Instrument : GC-7
Sample Name: 81777 w
Misc Info :
Vial Number: 69



MW-4

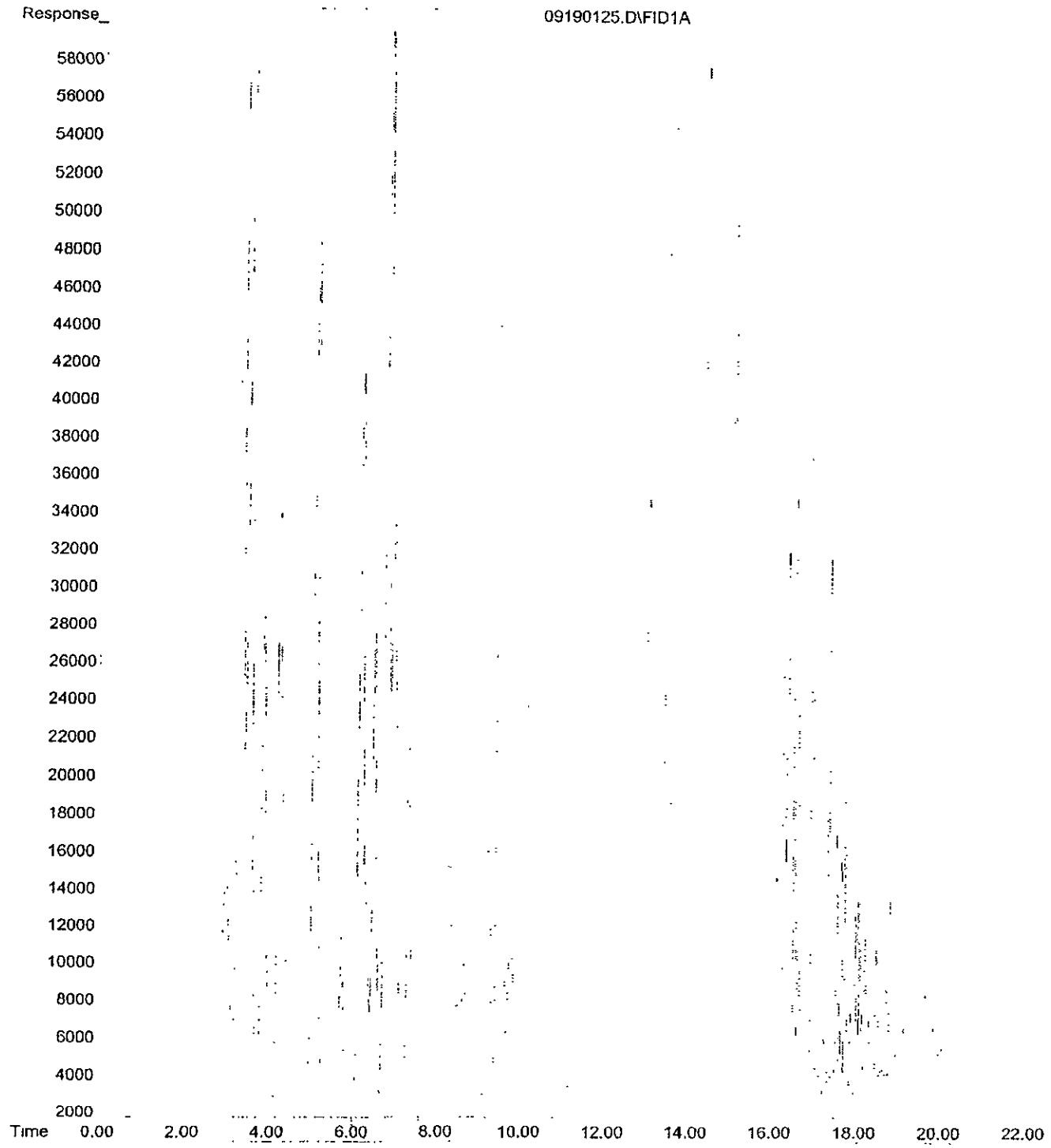
File : D:\HPCHEM\2\DATA\09190112.D
Operator :
Acquired : 19 Sep 2001 4:32 pm using AcqMethod GC7B.M
Instrument : GC-7
Sample Name: 100ngBTEX
Misc Info :
Vial Number: 12

Standards from 78801



File : D:\HPCHEM\2\DATA\09190125.D
Operator :
Acquired : 19 Sep 2001 11:01 pm using AcqMethod GC7B.M
Instrument : GC-7
Sample Name: 5000ngGAS
Misc Info :
Vial Number: 25

Standard from 78801



28403 ZC499

McCAMPBELL ANALYTICAL INC.

110 2nd AVENUE SOUTH, #D7
PACHECO, CA 94553
Telephone: (925) 798-1620 Fax: (925) 798-1622

CHAIN OF CUSTODY RECORD

TURN AROUND TIME ☐ RUSH ☐ 24 HOUR ☐ 48 HOUR ☒ 5 DAY

Report To: Bob Schultz Bill To: Cambria

Company: Cambria Environmental Technology
1144 65th Street, Suite C
Oakland, CA 94608

Tele: (510) 420-0700 Fax: (510) 420-9170

Project #: 458-1705 Project Name: Embarcadero Cove

Project Location: 1275 Embarcadero Cove Oakland, Ca

Sampler Signature: [signature]

SAMPLE ID	LOCATION	SAMPLING Date	SAMPLING Time	# Containers	Type Containers	MATRIX Water	MATRIX Soil	MATRIX Air	MATRIX Sludge	MATRIX Other	METHOD PRESERVED Ice	METHOD PRESERVED HCl	METHOD PRESERVED HNO_3	METHOD PRESERVED Other	BTEX & TPH as Gas (602/8020 + 8015)	TPH as Diesel (8015)	Total Petroleum Oil & Grease (5520 E&F/B&F)	Total Petroleum Hydrocarbons (418.1)	EPA 601 / 8010	BTEX ONLY (EPA 602 / 8020)	EPA 608 / 8080	EPA 608 / 8080 PCB's ONLY	EPA 624 / 8240 / 8260	EPA 625 / 8270	PAH's / PNA's by EPA 625 / 8270 / 8310	CAM-17 Metals	LUFT 5 Metals	Lead (7240/7421/239.2/6010)	RCI	Other	Other	Other	Comments
MW-1		10-15-01	9:55	6	VOA Amber	X					X	X			X	TPHmo														SVOC's	TPHmo 8015 with Silica gel Cleanup		BTEX TPHs TPHd/mo SVOCs
MW-2		10-15-01	10:40	6	VOA Amber	X					X	X			X	X														X	X		
MW-3		10-15-01	10:10	6	VOA Amber	X					X	X			X	X														X	X		
MW-4		10-15-01	9:20	6	VOA Amber	X					X	X			X	X														X	X		

81774
81775
81776
81777

Relinquished By: [signature] Date: 10-23-01 Time: 1:30 Received By: scense location

Relinquished By: [signature] Date: 10/23/01 Time: 11:50 Received By: [signature] #1244

Relinquished By: [signature] Date: 10/23/01 Time: 4:15 Received By: Jen Coo 10/23/01 1615

Remarks: Report results in EDF Format

	VOAs	O&G	METALS	OTHER
PRESERVATION	✓			
APPROPRIATE			3	
CONTAINERS	✓			

ICE/t ✓
GOOD CONDITION ✓
HEAD SPACE ABSENT ✓

McCAMPBELL ANALYTICAL INC.
110 2nd Avenue South, #D7, Pacheco, CA 94553-5560
Telephone : 925-798-1620 Fax : 925-798-1622
http://www.mccampbell.com E-mail: main@mccampbell.com

Cambria Environmental Technology 1144 65th Street, Suite C Oakland, CA 94608	Client Project ID: #458-1705; Embarcadero Cove	Date Sampled: 09/17/01
		Date Received: 09/18/01
	Client Contact: Bob Schultz	Date Extracted: 09/18/01
	Client P.O:	Date Analyzed: 09/18/01

09/26/01

Dear Bob:

Enclosed are:

1). the results of 1 samples from your #458-1705; Embarcadero Cove project,

2). a QC report for the above samples

3). a copy of the chain of custody, and

4). a bill for analytical services.

All analyses were completed satisfactorily and all QC samples were found to be within our control limits. If you have any questions please contact me. McCampbell Analytical Laboratories strives for excellence in quality, service and cost. Thank you for your business and I look forward to working with you again.

Yours truly,

Edward Hamilton, Lab Director

McCAMPBELL ANALYTICAL INC.
110 2nd Avenue South, #D7, Pacheco, CA 94553-5560
Telephone : 925-798-1620 Fax : 925-798-1622
http://www.mccampbell.com E-mail: main@mccampbell.com

Cambria Environmental Technology 1144 65th Street, Suite C Oakland, CA 94608	Client Project ID: #458-1705; Embarcadero Cove	Date Sampled: 09/17/01
		Date Received: 09/18/01
	Client Contact: Bob Schultz	Date Extracted: 09/18/01
	Client P.O:	Date Analyzed: 09/19/01

Gasoline Range (C6-C12) Volatile Hydrocarbons as Gasoline*, with Methyl tert-Butyl Ether* & BTEX*

EPA methods 5030, modified 8015, and 8020 or 602; California RWQCB (SF Bay Region) method GCFID(5030)

Lab ID	Client ID	Matrix	TPH(g)+	MTBE	Benzene	Toluene	Ethyl-benzene	Xylenes	% Recovery Surrogate
78801	M-1-5'	S	2300,a	5.1	1.8	3.7	48	7.2	---#
Reporting Limit unless otherwise stated; ND means not detected above the reporting limit		W	50 ug/L	5.0	0.5	0.5	0.5	0.5	--
		S	1.0 mg/kg	0.05	0.005	0.005	0.005	0.005	

* water and vapor samples are reported in ug/L, wipe samples in ug/wipe, soil and sludge samples in mg/kg, and all TCLP and SPLP extracts in ug/L

cluttered chromatogram; sample peak coelutes with surrogate peak

+The following descriptions of the TPH chromatogram are cursory in nature and McCampbell Analytical is not responsible for their interpretation: a) unmodified or weakly modified gasoline is significant; b) heavier gasoline range compounds are significant(aged gasoline?); c) lighter gasoline range compounds (the most mobile fraction) are significant; d) gasoline range compounds having broad chromatographic peaks are significant; biologically altered gasoline?; e) TPH pattern that does not appear to be derived from gasoline (?); f) one to a few isolated peaks present; g) strongly aged gasoline or diesel range compounds are significant; h) lighter than water immiscible sheen is present; i) liquid sample that contains greater than ~5 vol. % sediment; j) no recognizable pattern.

DHS Certification No. 1644

Edward Hamilton, Lab Director

McCAMPBELL ANALYTICAL INC.
110 2nd Avenue South, #D7, Pacheco, CA 94553-5560
Telephone : 925-798-1620 Fax : 925-798-1622
http://www.mccampbell.com E-mail: main@mccampbell.com

Cambria Environmental Technology 1144 65th Street, Suite C Oakland, CA 94608	Client Project ID: #458-1705; Embarcadero Cove	Date Sampled: 09/17/01
		Date Received: 09/18/01
	Client Contact: Bob Schultz	Date Extracted: 09/18/01
	Client P.O:	Date Analyzed: 09/19-09/20/01

Diesel Range (C10-C23) and Oil-Range (C18+) Extractable Hydrocarbons as Diesel and Motor Oil with Silica Gel Clean-up*

EPA methods modified 8015, and 3550 or 3510; California RWQCB (SF Bay Region) method GCFID(3550) or GCFID(3510)

Lab ID	Client ID	Matrix	TPH(d)+	TPH(mo)+	% Recovery Surrogate
78801	M-1-5'	S	850,d	97	102
Reporting Limit unless otherwise stated; ND means not detected above the reporting limit		W	50 ug/L	250 ug/L	
		S	1.0 mg/kg	5.0 mg/kg	--

*water samples are reported in ug/L, wipe samples in ug/wipe, soil and sludge samples in mg/kg, and all TCLP / STLC / SPLP extracts in ug/L

cluttered chromatogram resulting in coeluted surrogate and sample peaks, or; surrogate peak is on elevated baseline, or; surrogate has been diminished by dilution of original extract.

+The following descriptions of the TPH chromatogram are cursory in nature and McCampbell Analytical is not responsible for their interpretation: a) unmodified or weakly modified diesel is significant; b) diesel range compounds are significant; no recognizable pattern; c) aged diesel? is significant); d) gasoline range compounds are significant; e) medium boiling point pattern that does not match diesel (?); f) one to a few isolated peaks present; g) oil range compounds are significant; h) lighter than water immiscible sheen is present; i) liquid sample that contains greater than ~5 vol. % sediment.

DHS Certification No. 1644

Edward Hamilton, Lab Director

McCAMPBELL ANALYTICAL INC.
110 2nd Ave. South, #D7, Pacheco, CA 94553-5560
Telephone : 925-798-1620 Fax : 925-798-1622
http://www.mccampbell.com E-mail: main@mccampbell.com

QC REPORT

EPA 8015m + 8020

Date: 09/19/01 **Matrix:** Soil

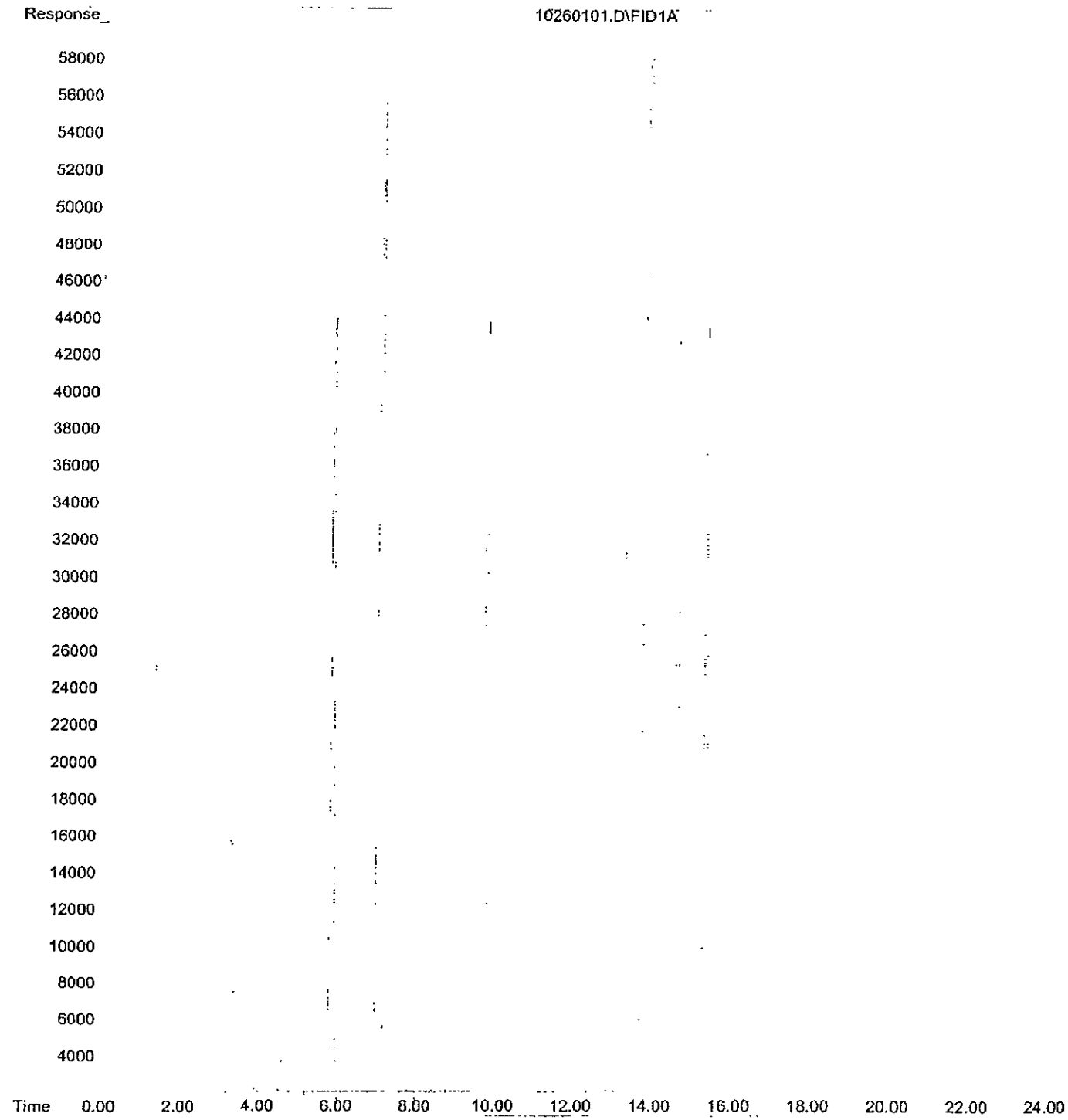
Compound	Concentration: mg/kg				%Recovery		RPD
	Sample	MS	MSD	Amount Spiked	MS	MSD	
SampleID: 91801	Extraction: EPA 5030				Instrument GC-7		
Surrogate1	ND	98.000	99.000	100.00	98	99	1.0
Xylenes	ND	0.309	0.310	0.30	103	103	0.3
Ethylbenzene	ND	0.100	0.100	0.10	100	100	0.0
Toluene	ND	0.100	0.101	0.10	100	101	1.0
Benzene	ND	0.093	0.096	0.10	93	96	3.2
MTBE	ND	0.097	0.094	0.10	97	94	3.1
TPH (gas)	ND	0.953	1.001	1.00	95	100	5.0
SampleID: 91801	Extraction: EPA 3550				Instrument: GC-11 B		
Surrogate1	ND	107.000	109.000	100.00	107	109	1.9
TPH (diesel)	ND	144.500	152.000	150.00	96	101	5.1

$$\%\ \text{Recovery} = \frac{(MS - Sample)}{Amount Spiked} \cdot 100$$

$$\text{RPD} = \frac{(MS - MSD)}{(MS + MSD)} \cdot 2 \cdot 100$$

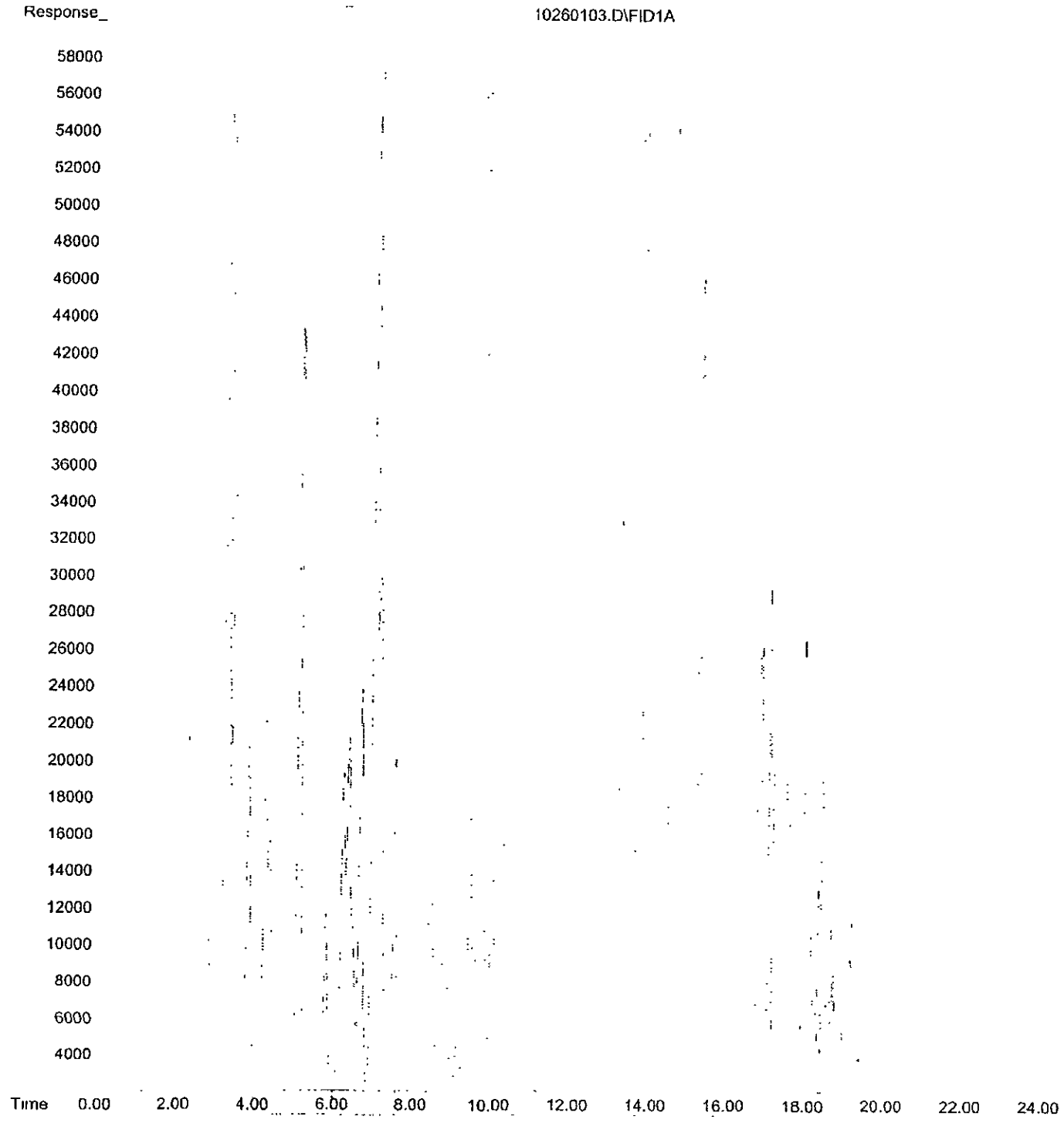
File : D:\HPCHEM\1\DATA\10260101.D
Operator :
Acquired : 26 Oct 2001 12:40 pm using AcqMethod GC3D.M
Instrument : GC-3
Sample Name: 100ngBTEX
Misc Info :
Vial Number: 1

Standard from 81774-777



File : D:\HPCHEM\1\DATA\10260103.D
Operator :
Acquired : 26 Oct 2001 1:45 pm using AcqMethod GC3D.M
Instrument : GC-3
Sample Name: 5000ngGAS
Misc Info :
Vial Number: 3

Standard from 81774-7

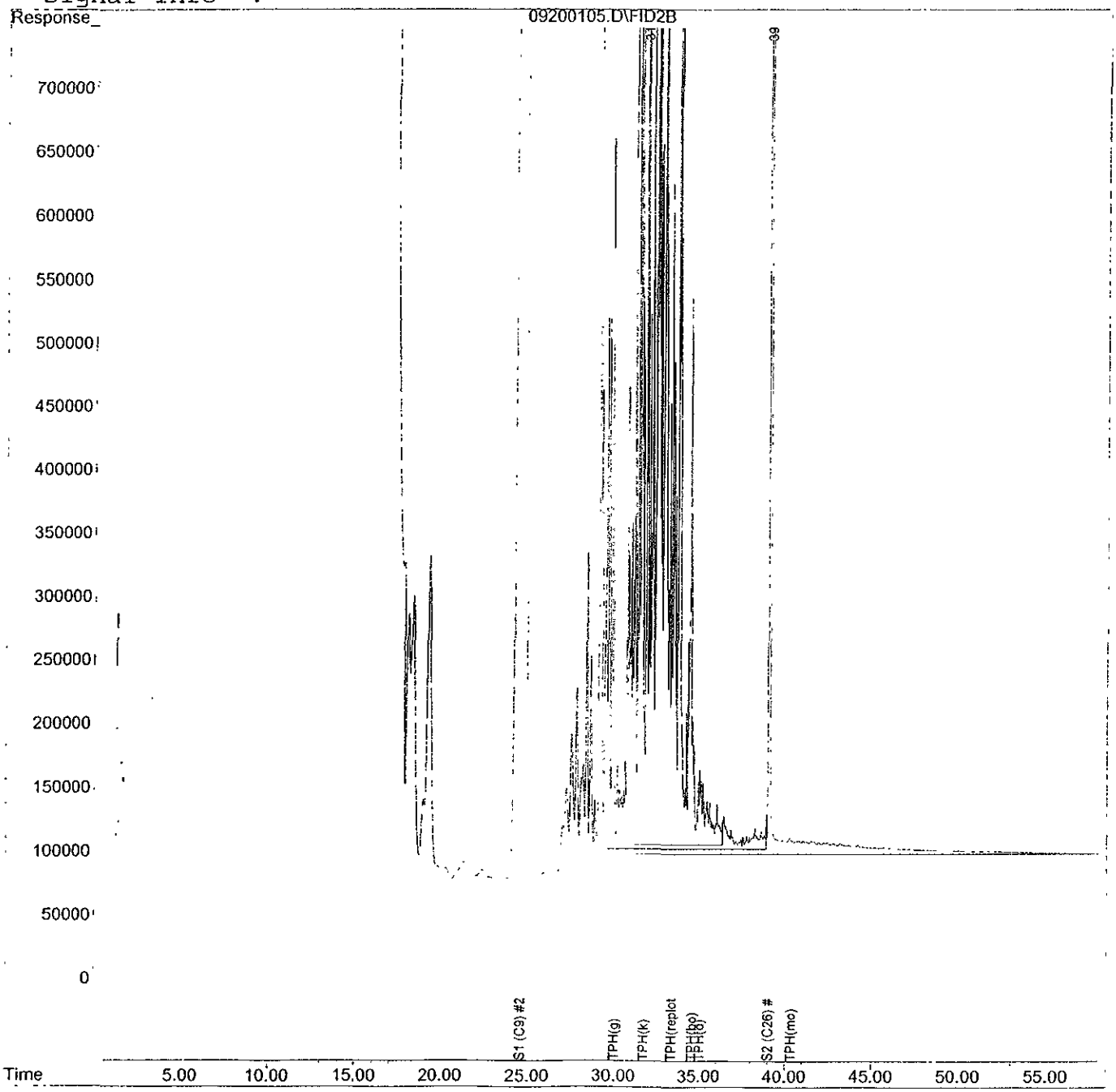


Quantitation Report (Not Reviewed)

Data File : D:\HPCHEM\1\DATAB\09200105.D Vial: 53
Acq On : 20 Sep 2001 2:09 pm Operator: Thu
Sample : 78801SRR Inst : GC-11
Misc : D,MO,WSG Multiplr: 100.0
IntFile : EVENTS.E
Quant Time: Nov 21 11:47 2001 Quant Results File: GC11B.RES

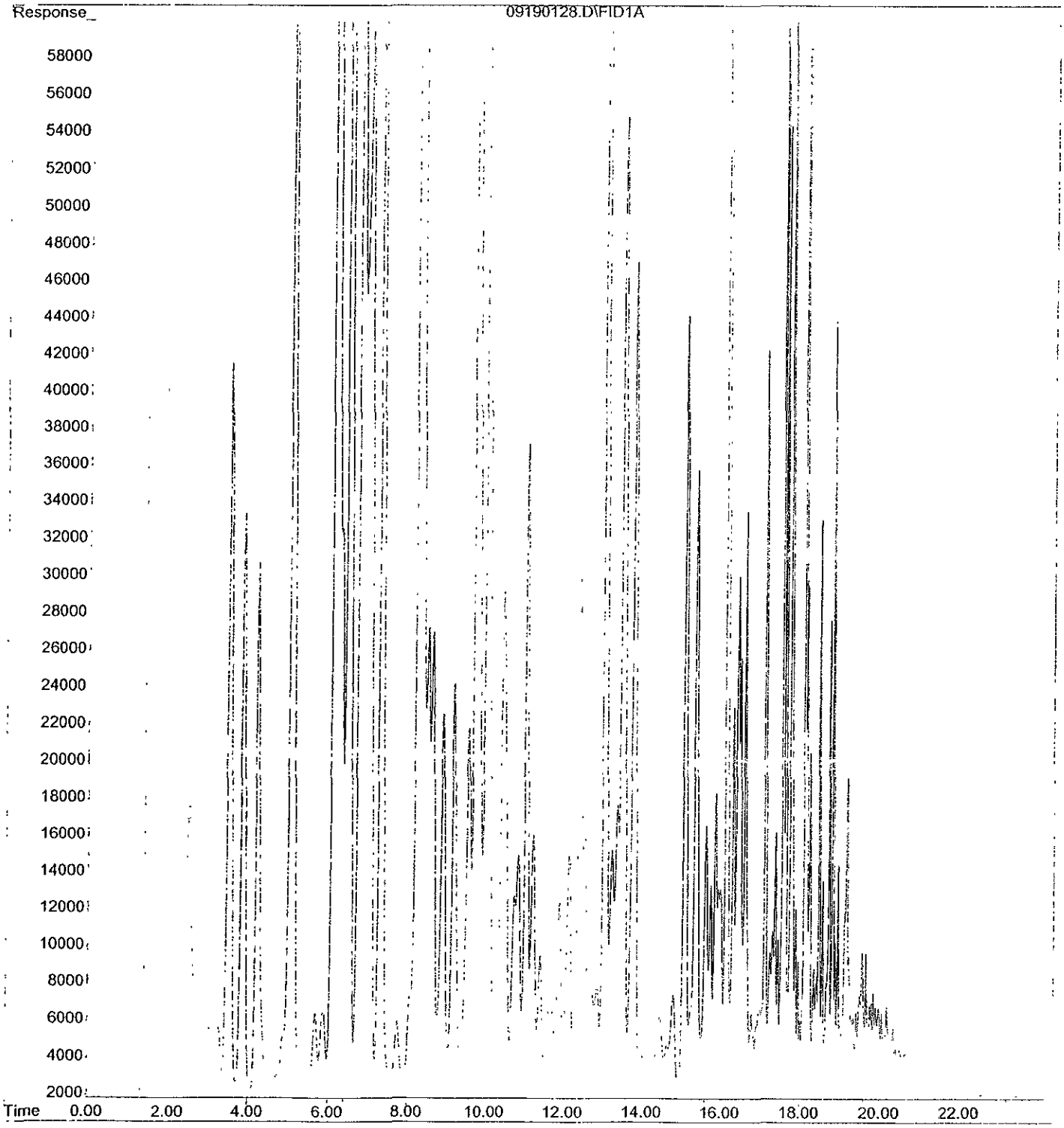
Quant Method : C:\HPCHEM\1\METHODS\GC11B.M (Chemstation Integrator)
Title : GC-11A
Last Update : Mon Nov 19 11:46:44 2001
Response via : Multiple Level Calibration
DataAcq Meth : GC11A.M

Volume Inj. :
Signal Phase :
Signal Info :



DIESEL/MO STANDARD

File : D:\HPCHEM\2\DATA\09190128.D
Operator :
Acquired : 20 Sep 2001 12:31 am using AcqMethod GC7B.M
Instrument : GC-7
Sample Name: 78801s
Misc Info :
Vial Number: 28



M-1-51

27832 ZC474

McCAMPBELL ANALYTICAL INC.

110 2nd AVENUE SOUTH, #D7
PACHECO, CA 94553
Telephone: (925) 798-1620 Fax: (925) 798-1622

CHAIN OF CUSTODY RECORD

TURN AROUND TIME ☐ RUSH ☐ 24 HOUR ☐ 48 HOUR ☒ 5 DAY

Report To: ~~John Riggi~~ BOB SCHULTZ Bill To: PORT OF OAKLAND
Company: Cambria Environmental Technology
1144 65th Street, Suite C
Oakland, CA 94608
Tele: (510) 420-0700 Fax: (510) 420-9170
Project #: 458-1705 Project Name: EMBARCADERO COVE
Project Location: 1275 EMBARCADERO
Sampler Signature: [signature]

Analysis Request: BTEX & TPH as Gas (602/8020 – 8015)/ MTBE; TPH as Diesel (8015), MO w/Silica Gel; Total Petroleum Oil & Grease (5520 E&F/B&F); Total Petroleum Hydrocarbons (418.1); EPA 601 / 8010; BTEX ONLY (EPA 602 / 8020); EPA 608 / 8080; EPA 608 / 8080 PCB's ONLY; EPA 624 / 8240 / 8260; EPA 625 / 8270; PAH's / PNA's by EPA 625 / 8270 / 8310; CAM-17 Metals; LUFT 5 Metals; Lead (7240/7421/239.2/6010); RCI; Other; Comments

SAMPLE ID	LOCATION	Date	Time	# Containers	Type Containers	Water	Soil	Air	Sludge	Other	Ice	HCl	HNO_3	Other	BTEX & TPH as Gas	TPH as Diesel, MO w/Silica Gel	Comments
M-4-2'		9-17	8:45	1	Steel		X				X						78800 H
M-1-5'		9-17	10:00	1	Steel		X				X				X	X	78801
M-2-2'		9-17	11:00	1	Steel		X				X						78802 H

Relinquished By:	Date:	Time:	Received By:
[signature]	9/17	?	SECURED LOCATION
[signature]	09/18	1055	[signature]
[signature]	9/18	1720	Manuel Mendez

Remarks: HOLD
Off Hold

ICE/t° ✓
GOOD CONDITION ✓
HEAD SPACE ABSENT ___

	VOAS	O&G	METALS	OTHER
PRESERVATION				

APPROPRIATE CONTAINERS ✓

McCAMPBELL ANALYTICAL INC.
110 2nd Avenue South, #D7, Pacheco, CA 94553-5560
Telephone : 925-798-1620 Fax : 925-798-1622
http://www.mccampbell.com E-mail: main@mccampbell.com

Cambria Environmental Technology 1144 65th Street, Suite C Oakland, CA 94608	Client Project ID: #458-1705; Embarcadero Cove	Date Sampled: 08/30/01
		Date Received: 09/04/01
	Client Contact: Bob Schultz	Date Extracted: 09/04/01
	Client P.O:	Date Analyzed: 09/04/01

09/11/01

Dear Bob:

Enclosed are:

1). the results of **10** samples from your **#458-1705; Embarcadero Cove** project,

2). a QC report for the above samples

3). a copy of the chain of custody, and

4). a bill for analytical services.

All analyses were completed satisfactorily and all QC samples were found to be within our control limits. If you have any questions please contact me. McCampbell Analytical Laboratories strives for excellence in quality, service and cost. Thank you for your business and I look forward to working with you again.

Yours truly,

Edward Hamilton, Lab Director

McCAMPBELL ANALYTICAL INC.
110 2nd Avenue South, #D7, Pacheco, CA 94553-5560
Telephone : 925-798-1620 Fax : 925-798-1622
http://www.mccampbell.com E-mail: main@mccampbell.com

Cambria Environmental Technology	Client Project ID: #458-1705; Embarcadero Cove	Date Sampled: 08/30/01
1144 65th Street, Suite C		Date Received: 09/04/01
Oakland, CA 94608	Client Contact: Bob Schultz	Date Extracted: 09/05-09/07/01
	Client P.O:	Date Analyzed: 09/05-09/07/01

Gasoline Range (C6-C12) Volatile Hydrocarbons as Gasoline*, with Methyl tert-Butyl Ether* & BTEX*

EPA methods 5030, modified 8015, and 8020 or 602; California RWQCB (SF Bay Region) method GCFID(5030)

Lab ID	Client ID	Matrix	TPH(g)+	MTBE	Benzene	Toluene	Ethyl-benzene	Xylenes	% Recovery Surrogate
76862	SB-A-3.5	S	ND	ND	ND	ND	ND	ND	104
76865	SB-B-3 5	S	ND	ND	ND	ND	ND	ND	105
76868	SB-D-3.5	S	ND	ND	ND	ND	ND	ND	110
76871	SB-E-3.5	S	1.4,a	ND	0.014	0.0080	ND	0.026	---#
76874	SB-F-3.5	S	2.5,a	ND	0.021	0.010	ND	0.005	---#
76877	SB-A	W	ND	ND	ND	ND	ND	ND	102
76878	SB-B	W	ND	ND	ND	ND	ND	ND	106
76879	SB-D	W	ND	ND	ND	ND	ND	ND	105
76880	SB-E	W	39,000,a	ND<200	3200	750	1200	3600	104
76881	SB-F	W	ND	ND	ND	ND	ND	ND	102
Reporting Limit unless otherwise stated; ND means not detected above the reporting limit		W	50 ug/L	5.0	0 5	0.5	0.5	0.5	
		S	1.0 mg/kg	0.05	0.005	0.005	0.005	0.005	

* water and vapor samples are reported in ug/L, wipe samples in ug/wipe, soil and sludge samples in mg/kg, and all TCLP and SPLP extracts in ug/L

cluttered chromatogram; sample peak coelutes with surrogate peak

+The following descriptions of the TPH chromatogram are cursory in nature and McCampbell Analytical is not responsible for their interpretation. a) unmodified or weakly modified gasoline is significant; b) heavier gasoline range compounds are significant(aged gasoline?); c) lighter gasoline range compounds (the most mobile fraction) are significant; d) gasoline range compounds having broad chromatographic peaks are significant; biologically altered gasoline?, e) TPH pattern that does not appear to be derived from gasoline (?); f) one to a few isolated peaks present; g) strongly aged gasoline or diesel range compounds are significant; h) lighter than water immiscible sheen is present; i) liquid sample that contains greater than ~5 vol. % sediment, j) no recognizable pattern.

DHS Certification No. 1644

Edward Hamilton, Lab Director

McCAMPBELL ANALYTICAL INC.
110 2nd Avenue South, #D7, Pacheco, CA 94553-5560
Telephone . 925-798-1620 Fax : 925-798-1622
http://www.mccampbell.com E-mail: main@mccampbell.com

Cambria Environmental Technology 1144 65th Street, Suite C Oakland, CA 94608	Client Project ID: #458-1705; Embarcadero Cove	Date Sampled: 08/30/01
		Date Received: 09/04/01
	Client Contact: Bob Schultz	Date Extracted: 09/04/01
	Client P.O:	Date Analyzed: 09/05-09/06/01

Diesel Range (C10-C23) and Oil-Range (C18+) Extractable Hydrocarbons as Diesel and Motor Oil with Silica Gel Clean-up*

EPA methods modified 8015, and 3550 or 3510; California RWQCB (SF Bay Region) method GCFID(3550) or GCFID(3510)

Lab ID	Client ID	Matrix	TPH(d)+	TPH(mo)+	% Recovery Surrogate
76862	SB-A-3.5	S	1.4,g,b	5 2	106
76865	SB-B-3.5	S	ND	ND	107
76868	SB-D-3.5	S	ND	ND	105
76871	SB-E-3 5	S	2.4,g	6.1	109
76874	SB-F-3.5	S	4.6,g	16	105
76877	SB-A	W	1500,g	7200	96
76878	SB-B	W	63,g	550	104
76879	SB-D	W	1100,g	3400	104
76880	SB-E	W	5800,d	350	109
76881	SB-F	W	480,g	1400	108
Reporting Limit unless otherwise stated, ND means not detected above the reporting limit		W	50 ug/L	250 ug/L	
		S	1.0 mg/kg	5.0 mg/kg	

*water samples are reported in ug/L, wipe samples in ug/wipe, soil and sludge samples in mg/kg, and all TCLP / STLC / SPLP extracts in ug/L

cluttered chromatogram resulting in coeluted surrogate and sample peaks, or; surrogate peak is on elevated baseline, or; surrogate has been diminished by dilution of original extract.

+The following descriptions of the TPH chromatogram are cursory in nature and McCampbell Analytical is not responsible for their interpretation: a) unmodified or weakly modified diesel is significant, b) diesel range compounds are significant; no recognizable pattern; c) aged diesel? is significant); d) gasoline range compounds are significant; e) medium boiling point pattern that does not match diesel (?); f) one to a few isolated peaks present; g) oil range compounds are significant; h) lighter than water immiscible sheen is present; i) liquid sample that contains greater than ~5 vol. % sediment.

DHS Certification No. 1644

Edward Hamilton, Lab Director

McCAMPBELL ANALYTICAL INC.
110 2nd Avenue South, #D7, Pacheco, CA 94553-5560
Telephone : 925-798-1620 Fax : 925-798-1622
http://www.mccampbell.com E-mail: main@mccampbell.com

Cambria Environmental Technology 1144 65th Street, Suite C Oakland, CA 94608	Client Project ID: #458-1705; Embarcadero Cove	Date Sampled: 08/30/01
		Date Received: 09/04/01
	Client Contact: Bob Schultz	Date Extracted: 09/05/01
	Client P.O:	Date Analyzed: 09/06-09/07/01

Polynuclear Aromatic Hydrocarbons (PAH / PNA) by GC-MS

EPA methods 625 (modified 610) and 3510 or 8270 (modified 8100) and 3550

Lab ID	76862	76865	76868	76871	76874	Reporting Limit	
Client ID	SB-A-3.5	SB-B-3.5	SB-D-3.5	SB-E-3.5	SB-F-3 5	S	W, STLC TCLP
Matrix	S	S	S	S	S		
Compound	Concentration*					mg/kg	ug/L
Acenaphthene	ND<0.25	ND	ND	ND	ND<0.25	0.062	10
Acenaphthylne	ND<0.25	ND	ND	ND	ND<0.25	0 062	10
Anthracene	ND<0.25	ND	ND	ND	ND<0.25	0.062	10
Benzo(a)anthracene	ND<0.25	ND	ND	ND	ND<0.25	0.062	10
Benzo(b)fluoranthene	ND<0.25	ND	ND	ND	ND<0.25	0.062	10
Benzo(k)fluoranthene	ND<0.25	ND	ND	ND	ND<0 25	0.062	10
Benzo(g,h,i)perylene	ND<0.25	ND	ND	ND	ND<0.25	0 062	10
Benzo(a)pyrene	ND<0 25	ND	ND	ND	ND<0.25	0.062	10
Chrysene	ND<0.25	ND	ND	ND	ND<0.25	0.062	10
Dibenzo(a,h)anthracene	ND<0.25	ND	ND	ND	ND<0.25	0.062	10
Fluoranthene	ND<0.25	ND	ND	ND	ND<0.25	0.062	10
Fluorene	ND<0.25	ND	ND	ND	ND<0.25	0.062	10
Indeno(1,2,3-cd)pyrene	ND<0.25	ND	ND	ND	ND<0.25	0.062	10
Naphthalene	ND<0.25	ND	ND	ND	ND<0.25	0.062	10
Phenanthrene	ND<0.25	ND	ND	ND	ND<0.25	0.062	10
Pyrene	ND<0.25	ND	ND	ND	ND<0.25	0 062	10
% Recovery Surrogate 1	101	96	99	95	97		
% Recovery Surrogate 2	117	106	110	105	111		
Comments	j				j		

* water and vapor samples are reported in ug/L, soil and sludge samples in mg/kg, wipes in ug/wipe and all TCLP / STLC / SPLP extracts in ug/L.

ND means not detected above the reporting limit; N/A means analyte not applicable to this analysis

surrogate diluted out of range or surrogate coelutes with another peak

(h) a lighter than water immiscible sheen is present; (i) liquid sample that contains >~5 vol. % sediment; (j) sample diluted due to high organic content.

DHS Certification No. 1644

Edward Hamilton, Lab Director

McCAMPBELL ANALYTICAL INC.
110 2nd Avenue South, #D7, Pacheco, CA 94553-5560
Telephone : 925-798-1620 Fax : 925-798-1622
http://www.mccampbell.com E-mail: main@mccampbell.com

Cambria Environmental Technology 1144 65th Street, Suite C Oakland, CA 94608	Client Project ID: #458-1705; Embarcadero Cove	Date Sampled: 08/30/01
		Date Received: 09/04/01
	Client Contact: Bob Schultz	Date Extracted: 09/05/01
	Client P.O:	Date Analyzed: 09/06-09/07/01

Polynuclear Aromatic Hydrocarbons (PAH / PNA) by GC-MS
EPA methods 625 (modified 610) and 3510 or 8270 (modified 8100) and 3550

Lab ID	76877	76878	76879	76880	76881	Reporting Limit	
Client ID	SB-A	SB-B	SB-D	SB-E	SB-F	S	W, STLC TCLP
Matrix	W	W	W	W	W		
Compound	Concentration*					mg/kg	ug/L
Acenaphthene	ND	ND	ND	ND<50	ND	0.062	10
Acenaphthylne	ND	ND	ND	ND<50	ND	0.062	10
Anthracene	ND	ND	ND	ND<50	ND	0.062	10
Benzo(a)anthracene	ND	ND	ND	ND<50	ND	0.062	10
Benzo(b)fluoranthene	ND	ND	ND	ND<50	ND	0.062	10
Benzo(k)fluoranthene	ND	ND	ND	ND<50	ND	0.062	10
Benzo(g,h,i)perylene	ND	ND	ND	ND<50	ND	0.062	10
Benzo(a)pyrene	ND	ND	ND	ND<50	ND	0.062	10
Chrysene	ND	ND	ND	ND<50	ND	0.062	10
Dibenzo(a,h)anthracene	ND	ND	ND	ND<50	ND	0.062	10
Fluoranthene	ND	ND	11	ND<50	ND	0.062	10
Fluorene	ND	ND	ND	ND<50	ND	0.062	10
Indeno(1,2,3-cd)pyrene	ND	ND	ND	ND<50	ND	0.062	10
Naphthalene	ND	ND	ND	370	ND	0.062	10
Phenanthrene	ND	ND	ND	ND<50	ND	0.062	10
Pyrene	ND	ND	11	ND<50	ND	0.062	10
% Recovery Surrogate 1	102	111	96	105	100		
% Recovery Surrogate 2	88	99	106	98	108		
Comments							

* water and vapor samples are reported in ug/L, soil and sludge samples in mg/kg, wipes in ug/wipe and all TCLP / STLC / SPLP extracts in ug/L.

ND means not detected above the reporting limit; N/A means analyte not applicable to this analysis

surrogate diluted out of range or surrogate coelutes with another peak

(h) a lighter than water immiscible sheen is present; (i) liquid sample that contains >~5 vol. % sediment; (j) sample diluted due to high organic content.

DHS Certification No. 1644

Edward Hamilton, Lab Director

McCAMPBELL ANALYTICAL INC.
110 2nd Ave. South, #D7, Pacheco, CA 94553-5560
Telephone : 925-798-1620 Fax : 925-798-1622
http://www.mccampbell.com E-mail: main@mccampbell.com

QC REPORT

EPA 8015m + 8020

Date: 09/05/01 **Matrix:** Water

Compound	Concentration: ug/L				%Recovery		RPD
	Sample	MS	MSD	Amount Spiked	MS	MSD	
SampleID: 90401	Extraction:	EPA 5030			Instrument:	GC-3	
Surrogate1	ND	100.0	103.0	100.00	100	103	3.0
Xylenes	ND	32.4	32.7	30.00	108	109	0.9
Ethylbenzene	ND	10.7	10.7	10.00	107	107	0.0
Toluene	ND	10.7	11.0	10.00	107	110	2.8
Benzene	ND	10.5	10.7	10.00	105	107	1.9
MTBE	ND	11.0	11.1	10.00	110	111	0.9
TPH (gas)	ND	85.3	85.2	100.00	85	85	0.1
SampleID: 90401	Extraction:	EPA 3510			Instrument:	GC-11 A	
Surrogate1	ND	108.0	106.0	100.00	108	106	1.9
TPH (diesel)	ND	7125.0	7400.0	7500.00	95	99	3.8

$$\%\ \text{Recovery} = \frac{(MS - Sample)}{AmountSpiked} \cdot 100$$

$$RPD = \frac{(MS - MSD)}{(MS + MSD)} \cdot 2 \cdot 100$$

RPD means Relative Percent Deviation

McCAMPBELL ANALYTICAL INC.
110 2nd Ave. South, #D7, Pacheco, CA 94553-5560
Telephone : 925-798-1620 Fax : 925-798-1622
http://www.mccampbell.com E-mail: main@mccampbell.com

QC REPORT

SVOCs (EPA 8270/625/525)

Date: 09/07/01-09/08/01 **Extraction:** N/A **Matrix:** Soil

Compound	Concentration: ug/kg				%Recovery		RPD
	Sample	MS	MSD	Amount Spiked	MS	MSD	
SampleID: 91101					Instrument:	GC-8	
Surrogate1	ND	930.0	940.0	1000.00	93	94	1.1
Pyrene	ND	730.0	760.0	1000.00	73	76	4.0
Pentachlorophenol	ND	1700.0	1750 0	2000.00	85	88	2.9
2,4-Dinitrotoluene	ND	880.0	930.0	1000 00	88	93	5.5
4-Nitrophenol	ND	2170.0	2230.0	2000.00	109	112	2 7
Acenaphtene	ND	820.0	840.0	1000.00	82	84	2.4
4-Chloro-3-metylphenol	ND	1550.0	1590.0	2000.00	78	80	2.5
1,2,4-trichlorobenzene	ND	830.0	840.0	1000 00	83	84	1.2
N-nitroso-di-n-propyl	ND	830.0	850.0	1000.00	83	85	2.4
1,4-Dichlorobenzene	ND	800.0	830.0	1000.00	80	83	3.7
2-Chlorophenol	ND	1480.0	1530.0	2000.00	74	77	3.3
Phenol	ND	1440.0	1490.0	2000.00	72	75	3.4

$$\%\ \text{Recovery} = \frac{(MS - Sample)}{AmountSpiked} \cdot 100$$

$$\text{RPD} = \frac{(MS - MSD)}{(MS + MSD)} \cdot 2 \cdot 100$$

RPD means Relative Percent Deviation

McCAMPBELL ANALYTICAL INC.
110 2nd Ave. South, #D7, Pacheco, CA 94553-5560
Telephone : 925-798-1620 Fax : 925-798-1622
http://www.mccampbell.com E-mail: main@mccampbell.com

QC REPORT

SVOCs (EPA 8270/625/525)

Date: 09/06/01-0/07/01 **Extraction:** N/A **Matrix:** Water

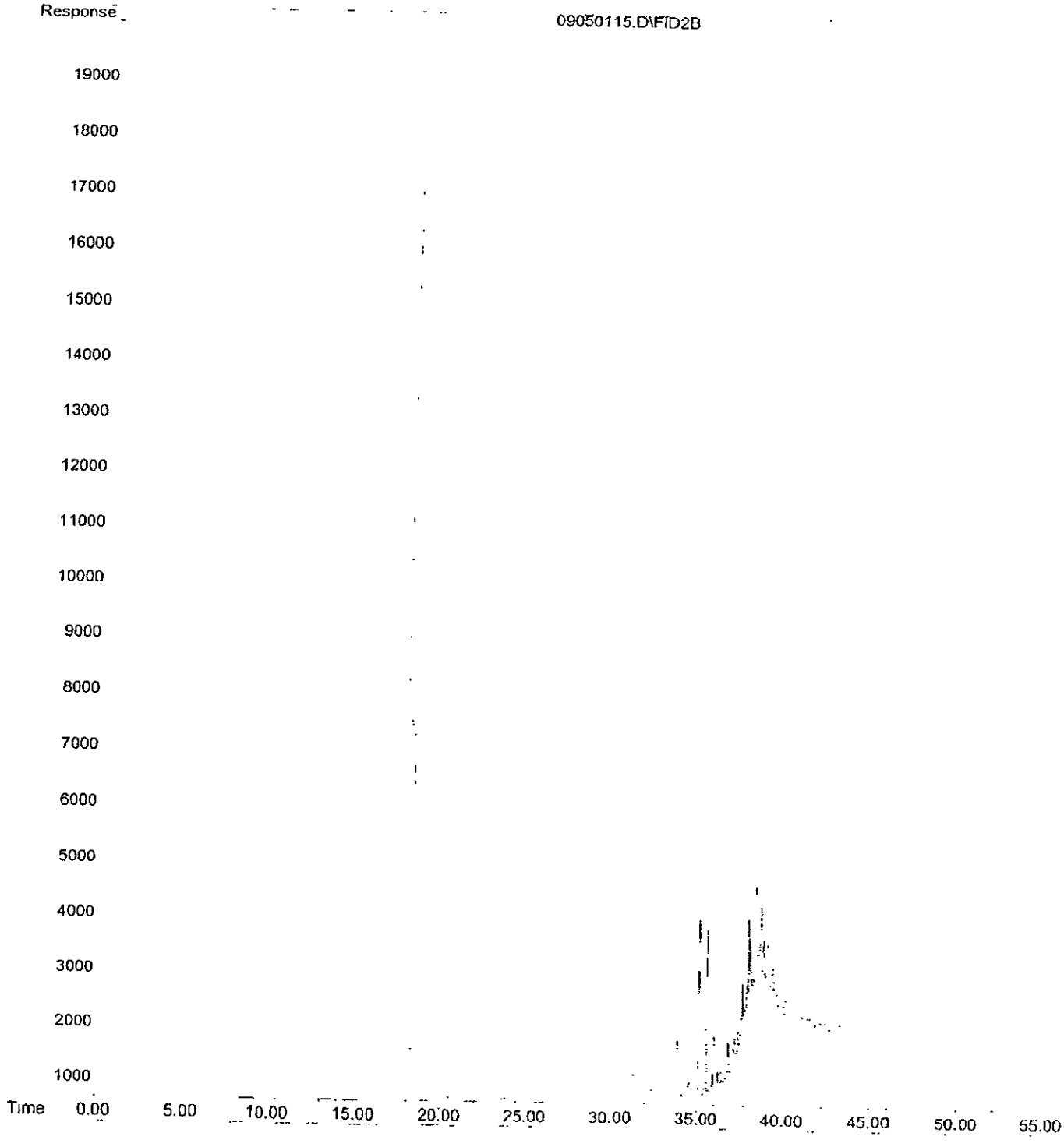
Compound	Concentration: ug/L				%Recovery		RPD
	Sample	MS	MSD	Amount Spiked	MS	MSD	
SampleID: 91101					Instrument:	GC-8	
Surrogate1	ND	590.0	620.0	1000.00	59	62	5.0
Pyrene	ND	510.0	460.0	1000.00	51	46	10.3
Pentachlorophenol	ND	1320.0	1320.0	2000.00	66	66	0.0
2,4-Dinitrotoluene	ND	510.0	500.0	1000.00	51	50	2.0
4-Nitrophenol	ND	1190.0	1190.0	2000.00	60	60	0.0
Acenaphtene	ND	490.0	440.0	1000.00	49	44	10.8
4-Chloro-3-metylphenol	ND	900.0	930.0	2000.00	45	47	3.3
1,2,4-trichlorobenzene	ND	500.0	460.0	1000.00	50	46	8.3
N-nitroso-di-n-propyl	ND	500.0	480.0	1000.00	50	48	4.1
1,4-Dichlorobenzene	ND	480.0	430.0	1000.00	48	43	11.0
2-Chlorophenol	ND	950.0	900.0	2000.00	48	45	5.4
Phenol	ND	830.0	850.0	2000.00	42	43	2.4

$$\%\ \text{Re covery} = \frac{(MS - Sample)}{AmountSpiked} \cdot 100$$

$$\text{RPD} = \frac{(MS - MSD)}{(MS + MSD)} \cdot 2 \cdot 100$$

RPD means Relative Percent Deviation

File : D:\HPCHEM\2\DATAB\09050115.D
Operator : Thu
Acquired : 6 Sep 2001 2:30 am using AcqMethod GC6ANEW.M
Instrument : GC-6
Sample Name: 76862S
Misc Info : D,MO,WSG
Vial Number: 58



SB-A-3.5

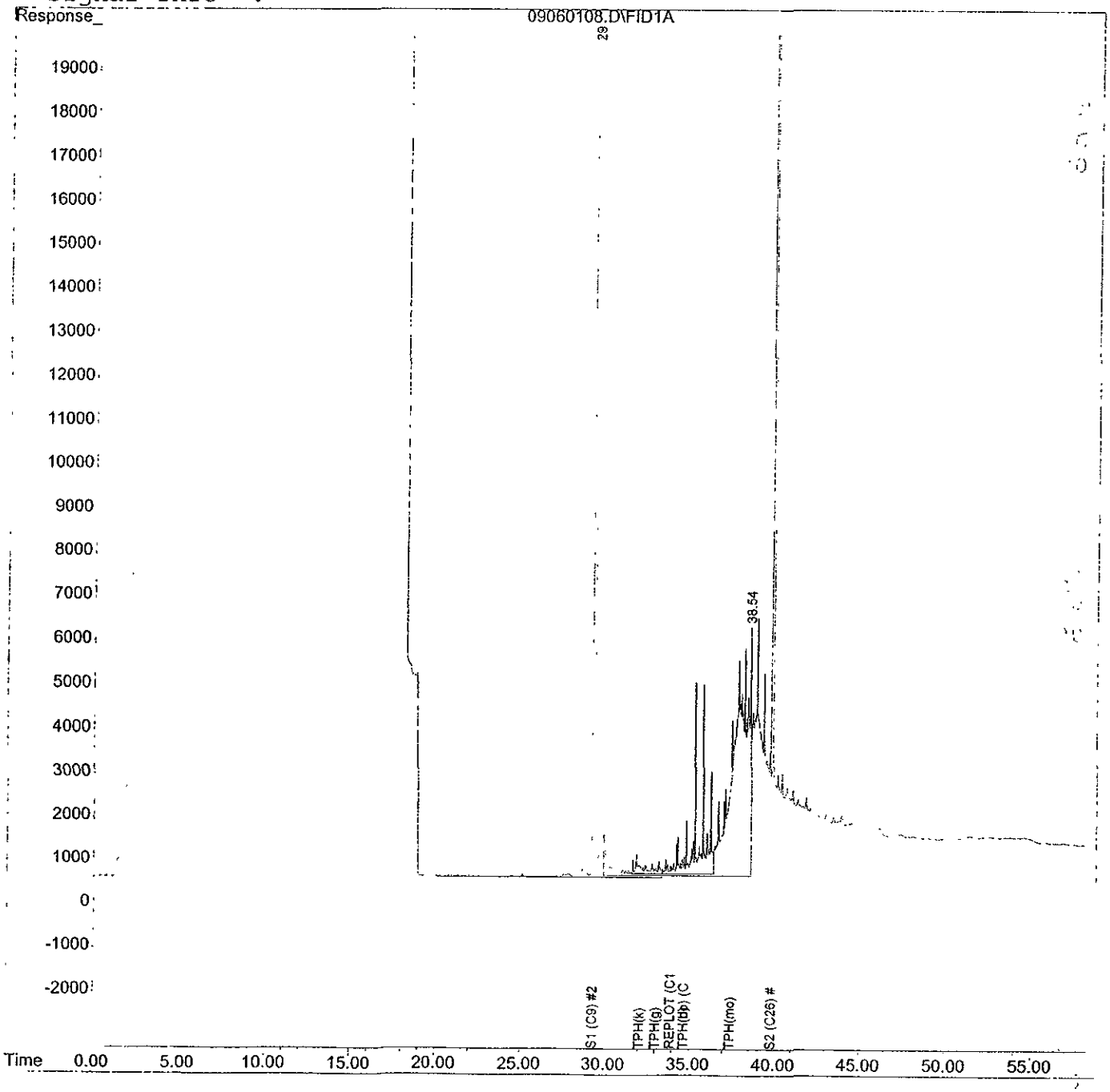
Quantitation Report (Not Reviewed)

Data File : D:\HPCHEM\2\DATAA\09060108.D
Acq On : 6 Sep 2001 7:35 pm
Sample : 76871SRR
Misc : D,MO,WSG
IntFile : autoint1.e
Quant Time: Nov 20 16:50 2001 Quant Results File: GC6ANEW.RES

Vial: 4
Operator: Thu
Inst : GC-6
Multiplr: 1.00

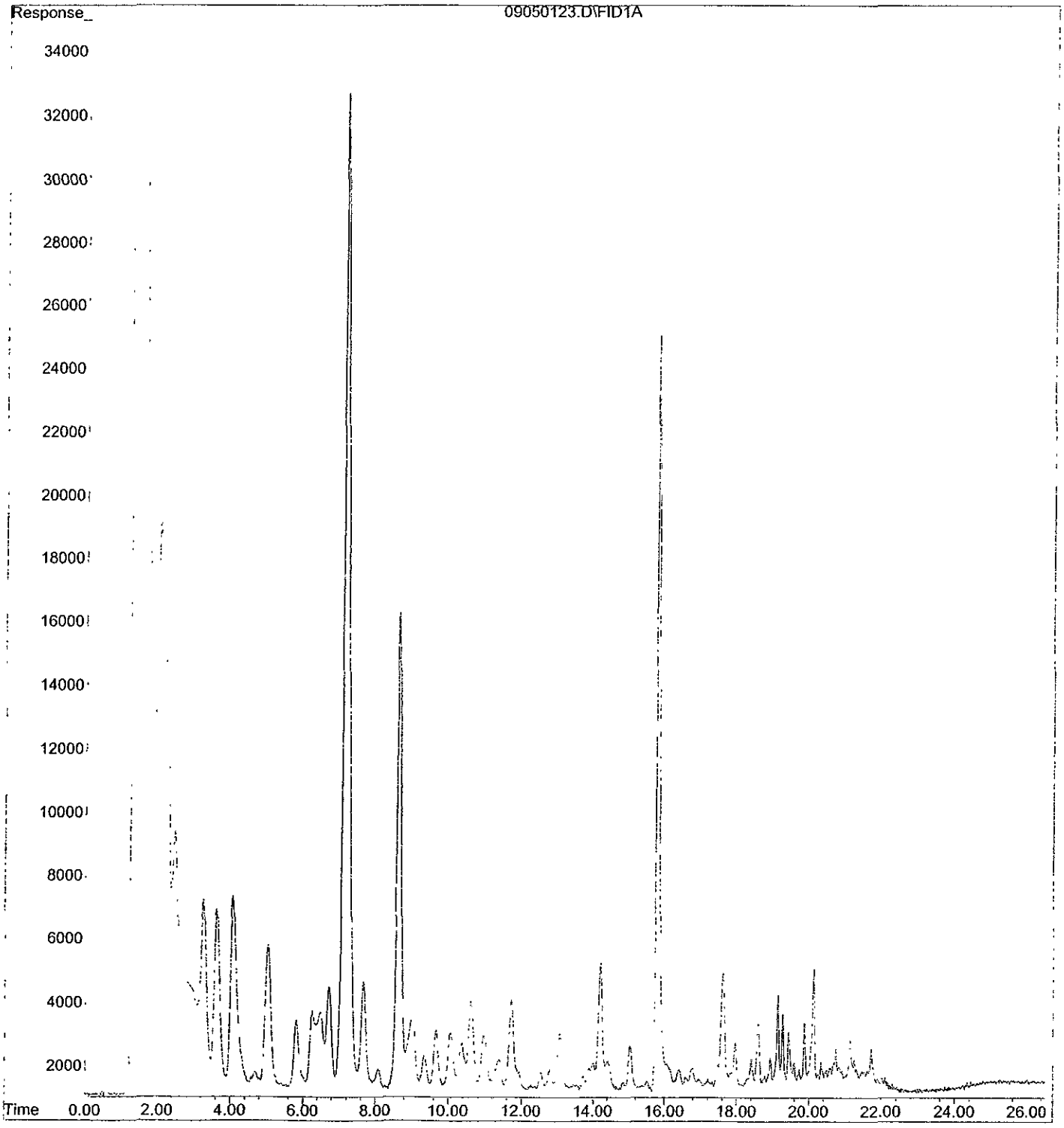
Quant Method : C:\HPCHEM\2\METHODS\GC6ANEW.M (Chemstation Integrator)
Title : GC-6A
Last Update : Mon Nov 19 11:42:54 2001
Response via : Multiple Level Calibration
DataAcq Meth : GC6ANEW.M

Volume Inj. :
Signal Phase :
Signal Info :



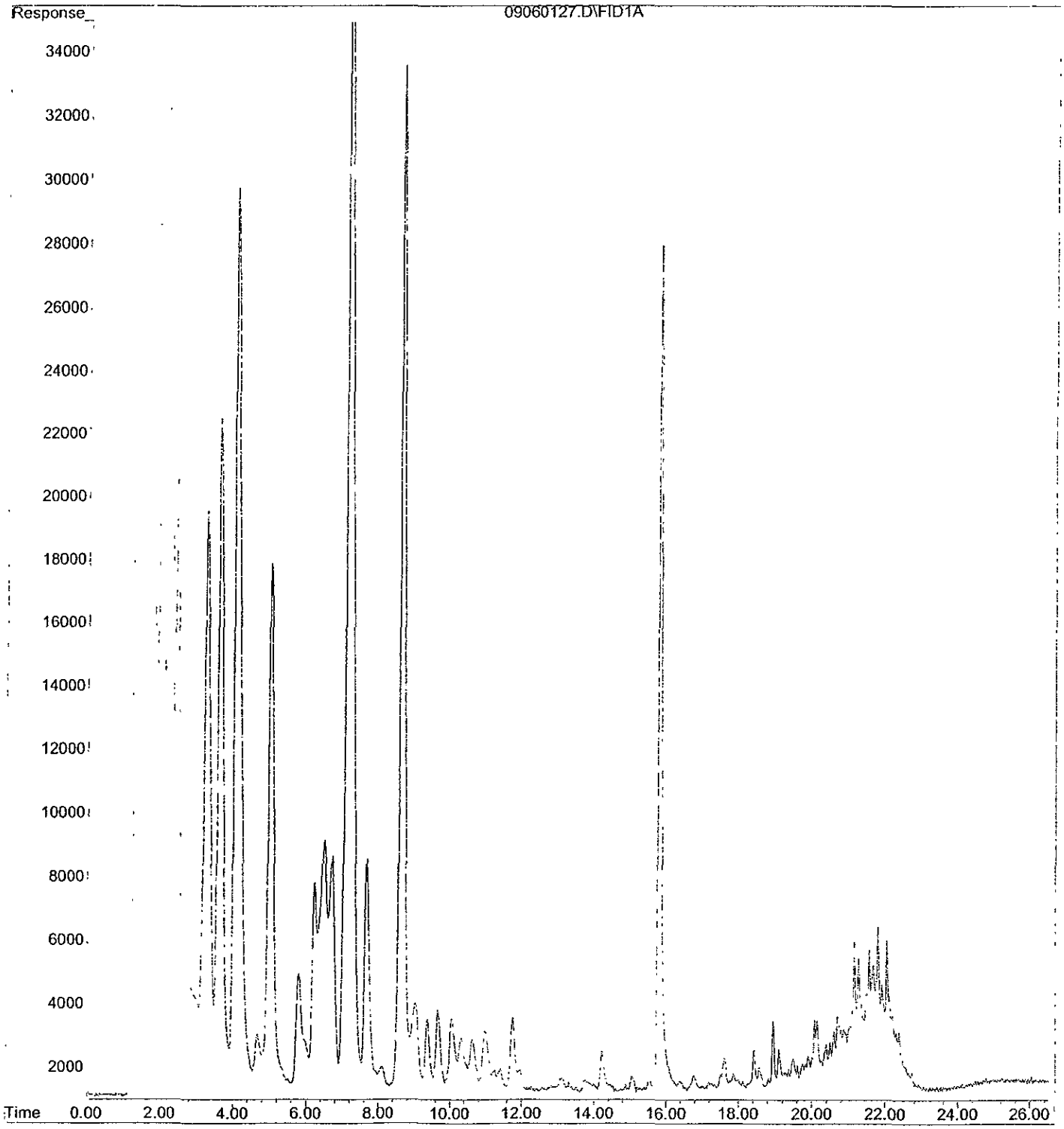
SB-E-3.5

File : D:\HPCHEM\2\DATA\09050123.D
Operator :
Acquired : 6 Sep 2001 5:27 am using AcqMethod GC12A.M
Instrument : GC-12
Sample Name: 76871 S
Misc Info :
Vial Number: 23



SB-E-3.5

File : D:\HPCHEM\2\DATA\09060127.D
Operator :
Acquired : 7 Sep 2001 6:17 am using AcqMethod GC12A.M
Instrument : GC-12
Sample Name: 76874rrS
Misc Info :
Vial Number: 27



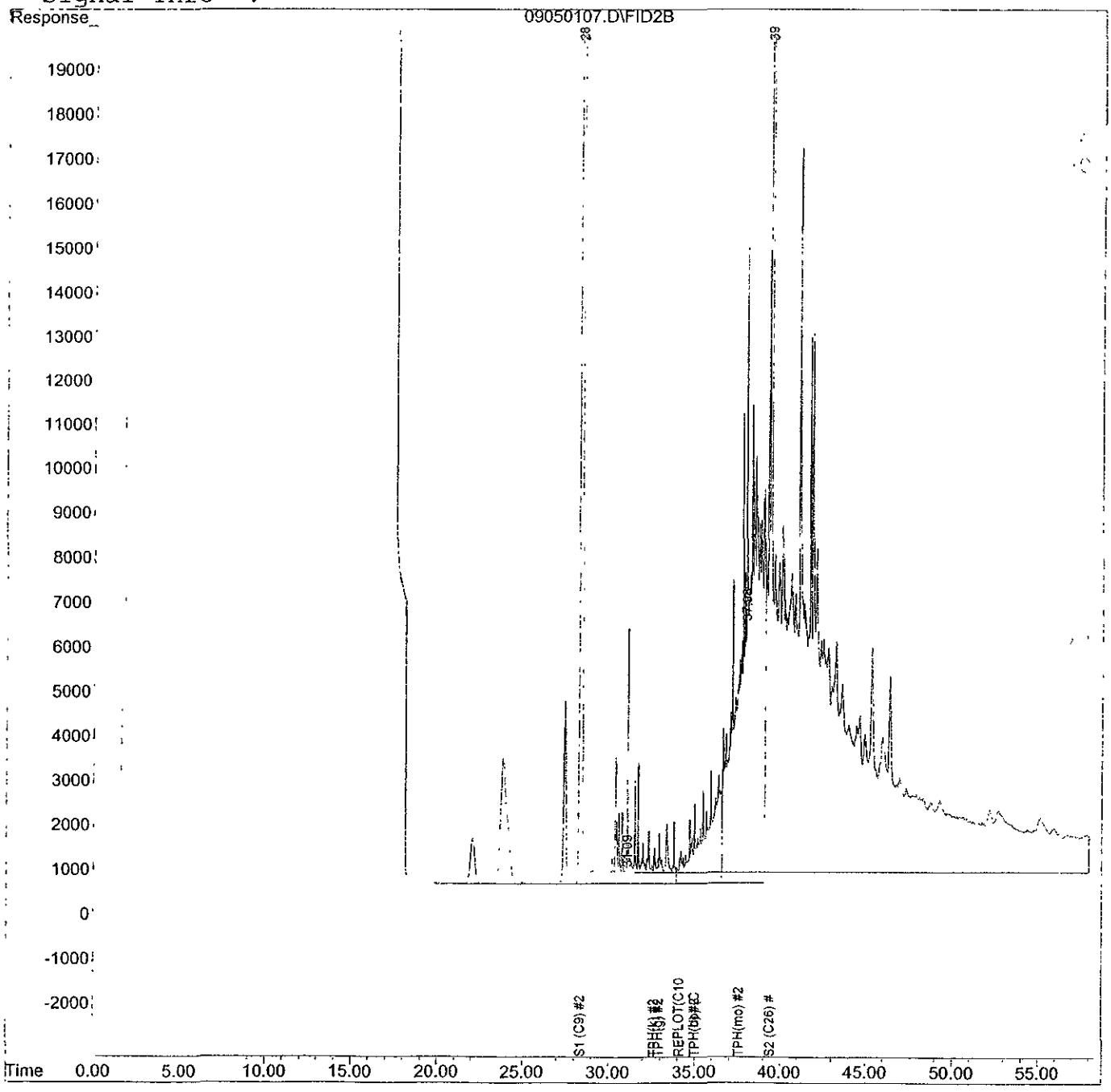
SB-F-3.5

Quantitation Report (Not Reviewed)

Data File : D:\HPCHEM\2\DATAB\09050107.D Vial: 54
Acq On : 5 Sep 2001 7:31 pm Operator: Thu
Sample : 76874S Inst : GC-6
Misc : D,MO,WSG Multiplr: 1.00
IntFile : EVENTS.E
Quant Time: Nov 20 16:54 2001 Quant Results File: GC6BNEW.RES

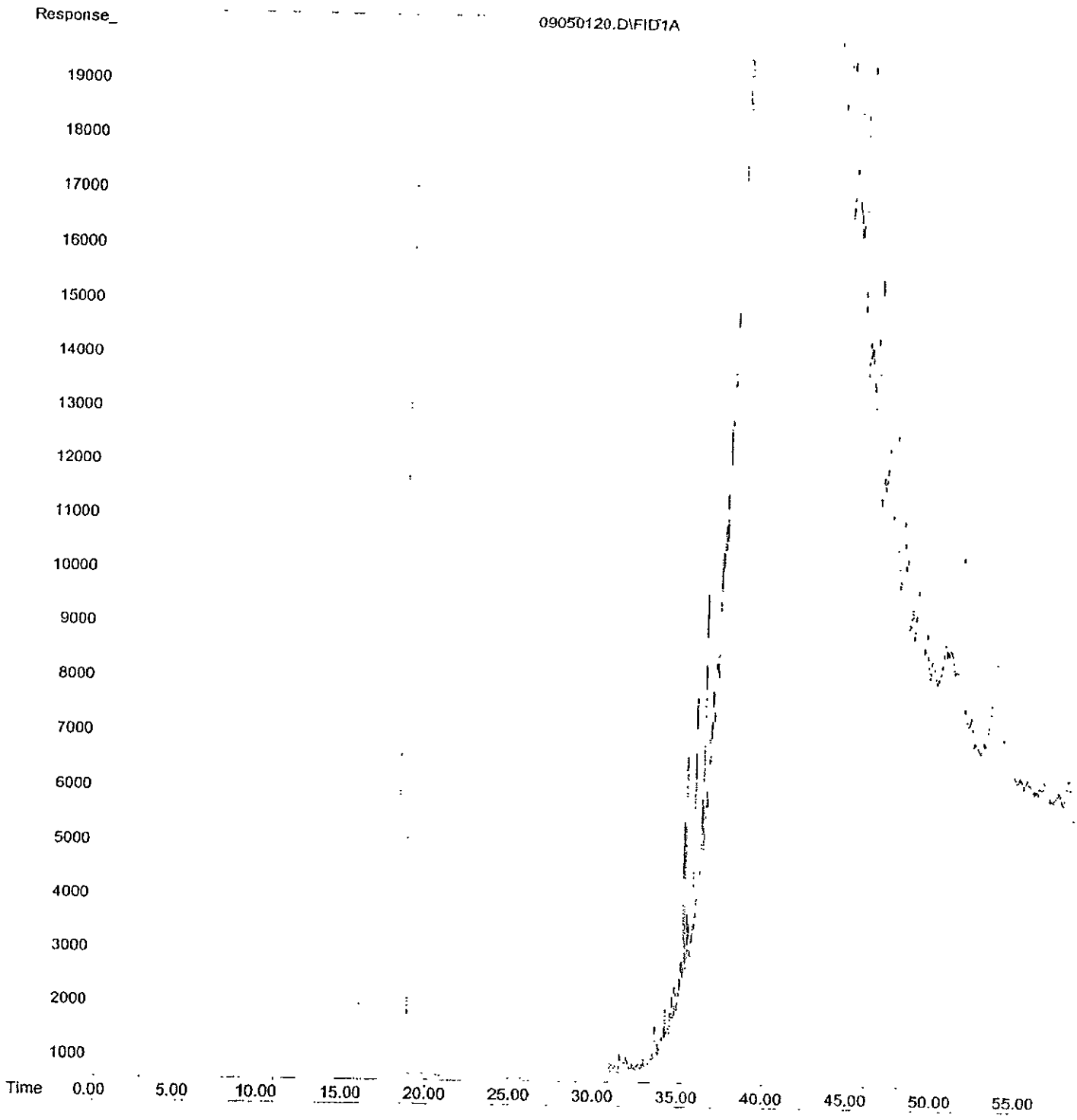
Quant Method : C:\HPCHEM\2\METHODS\GC6BNEW.M (Chemstation Integrator)
Title : GC-2B
Last Update : Fri May 05 10:34:57 2000
Response via : Multiple Level Calibration
DataAcq Meth : GC6ANEW.M

Volume Inj. :
Signal Phase :
Signal Info :



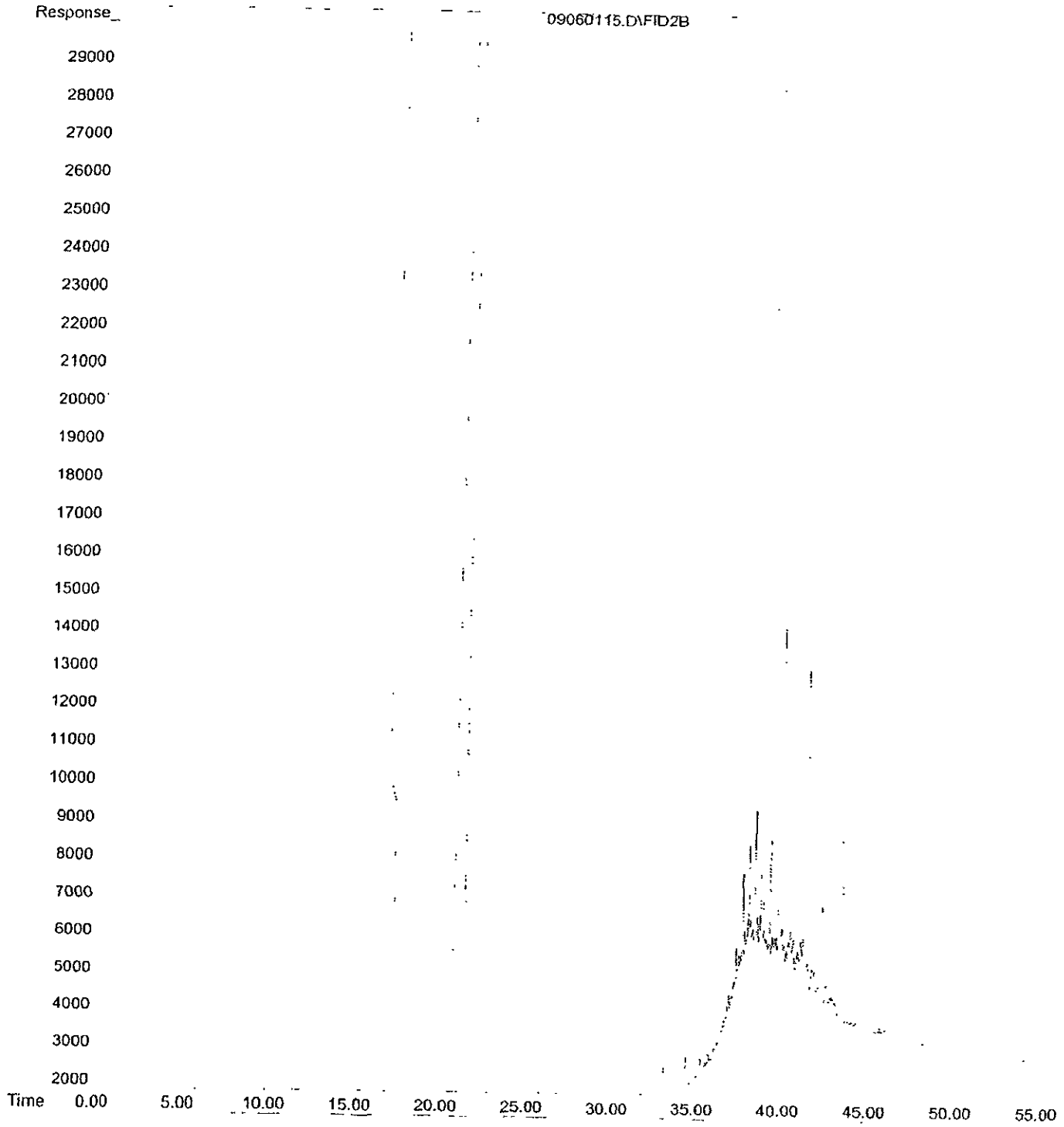
SB-F-3.5

File : D:\HPCHEM\2\DATAA\09050120.D
Operator : Thu
Acquired : 6 Sep 2001 5:58 am using AcqMethod GC6ANEW.M
Instrument : GC-6
Sample Name: 76877W
Misc Info : D,MO,WSG
Vial Number: 10



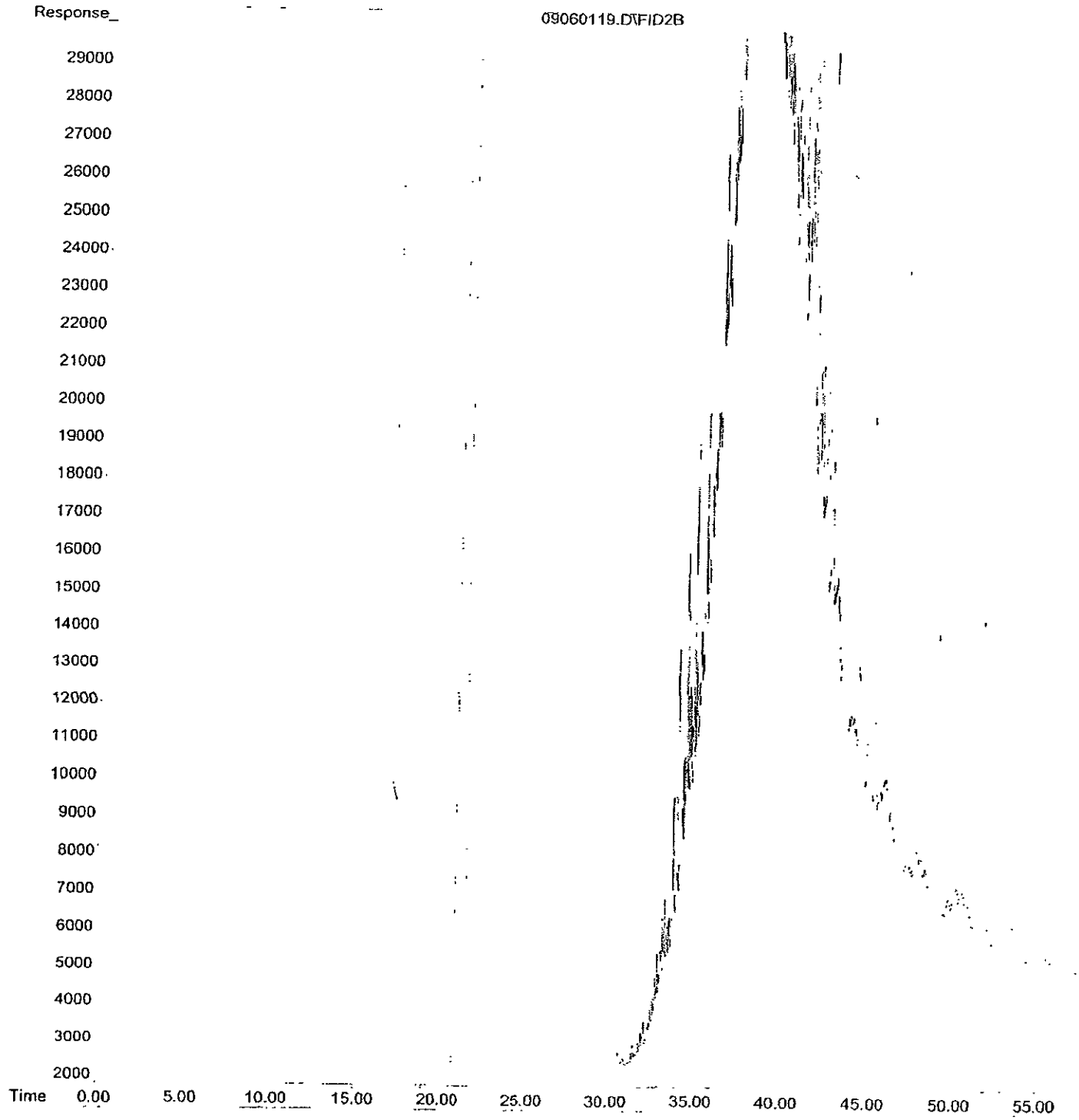
SB-A

File : E:\HPCHEM\3\DATAB\09060115.D
Operator : Thu
Acquired : 7 Sep 2001 4:27 am using AcqMethod GC2ANEW.M
Instrument : GC-2
Sample Name: 76878WRE
Misc Info : D,MO,WSG
Vial Number: 58



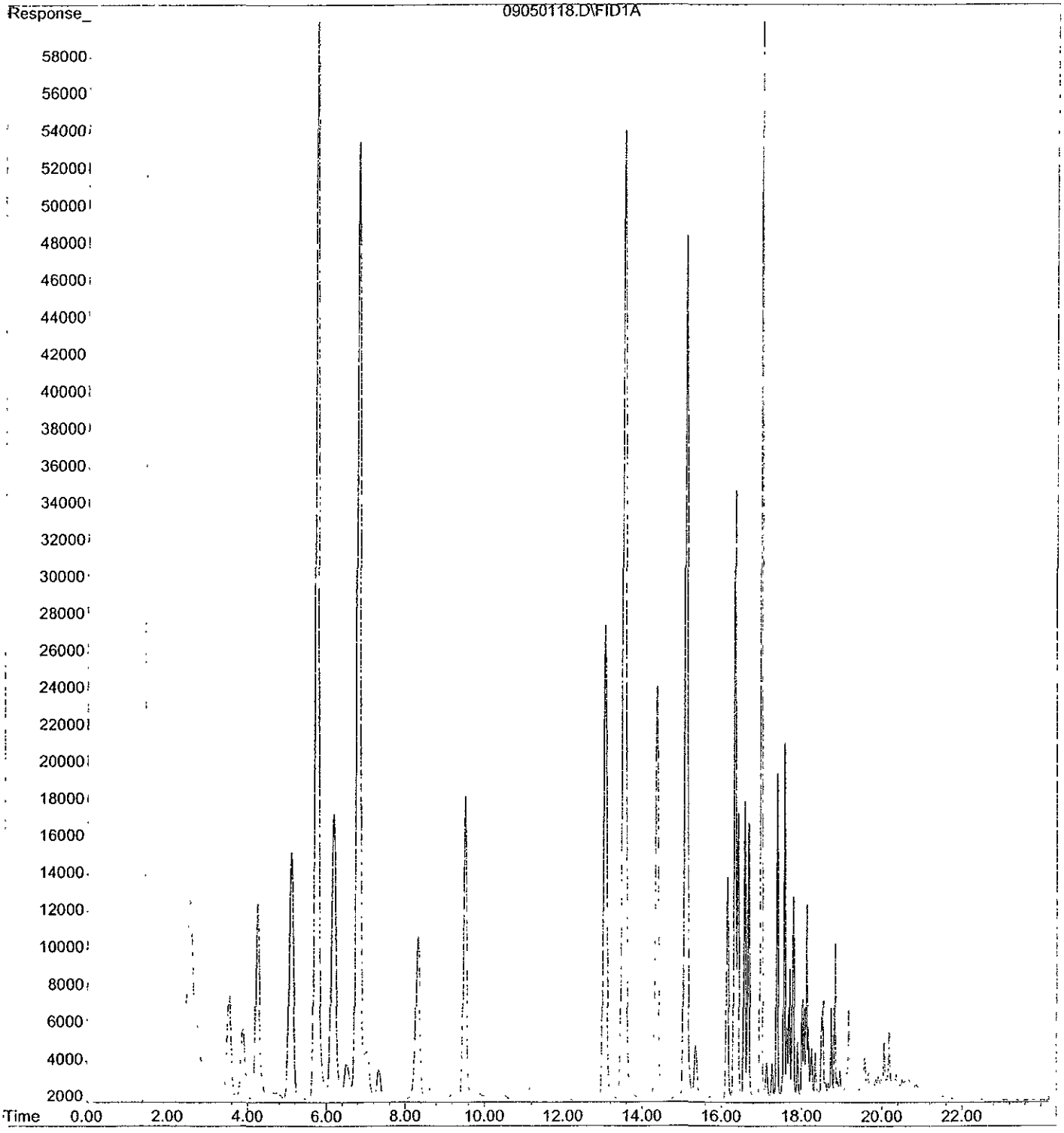
SB-B

File : E:\HPCHEM\3\DATAB\09060119.D
Operator : Thu
Acquired : 7 Sep 2001 7:35 am using AcqMethod GC2ANEW.M
Instrument : GC-2
Sample Name: 76879WRE
Misc Info : D,MO,WSG
Vial Number: 60



SB-D

File : D:\HPCHEM\2\DATA\09050118.D
Operator :
Acquired : 5 Sep 2001 9:15 pm using AcqMethod GC7B.M
Instrument : GC-7
Sample Name: 76880w
Misc Info :
Vial Number: 18



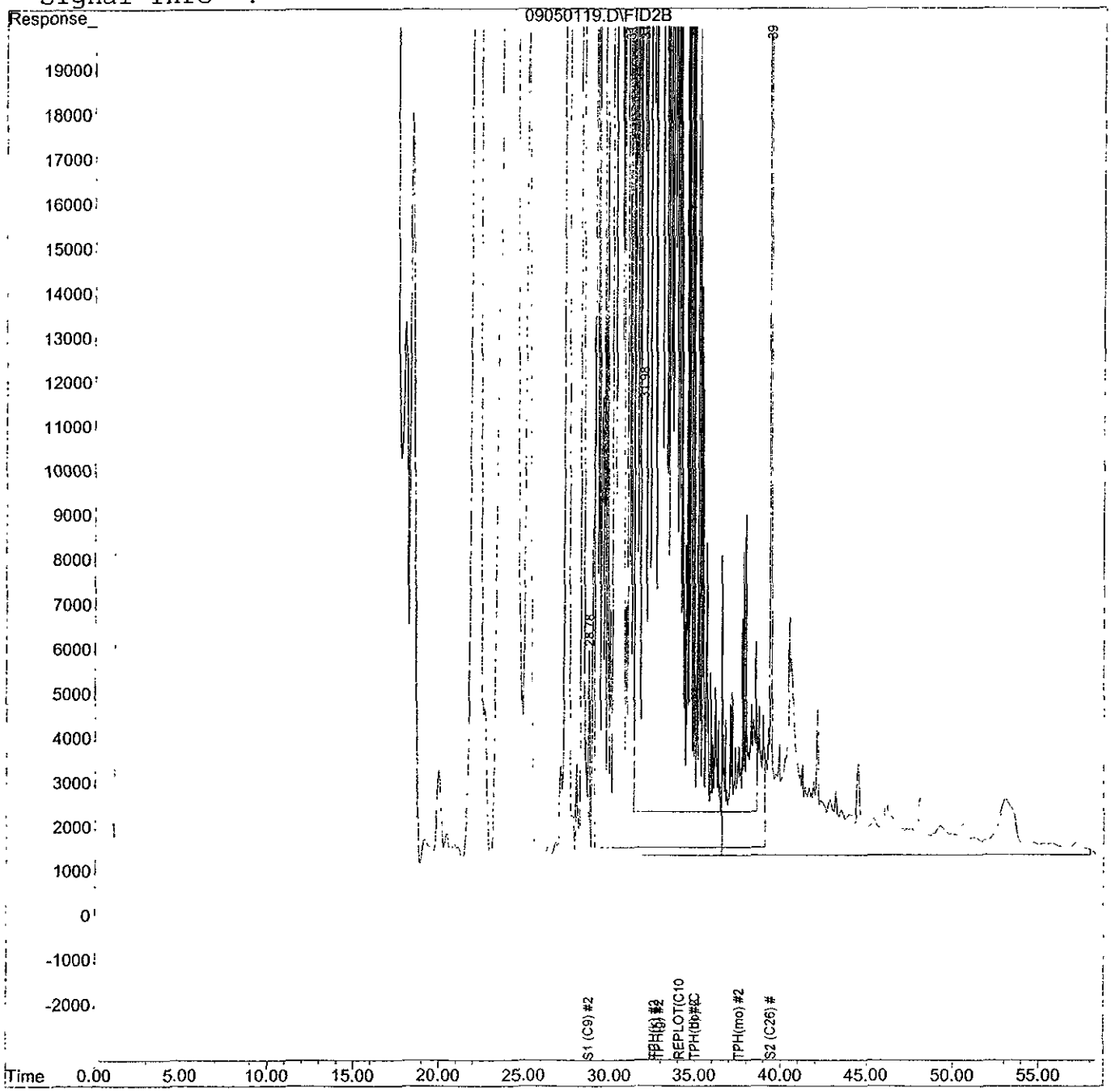
SB-E

Quantitation Report (Not Reviewed)

Data File : D:\HPCHEM\2\DATAB\09050119.D Vial: 60
Acq On : 6 Sep 2001 5:58 am Operator: Thu
Sample : 76880W Inst : GC-6
Misc : D,MO,WSG Multiplr: 1.00
IntFile : EVENTS.E
Quant Time: Nov 20 16:54 2001 Quant Results File: GC6BNEW.RES

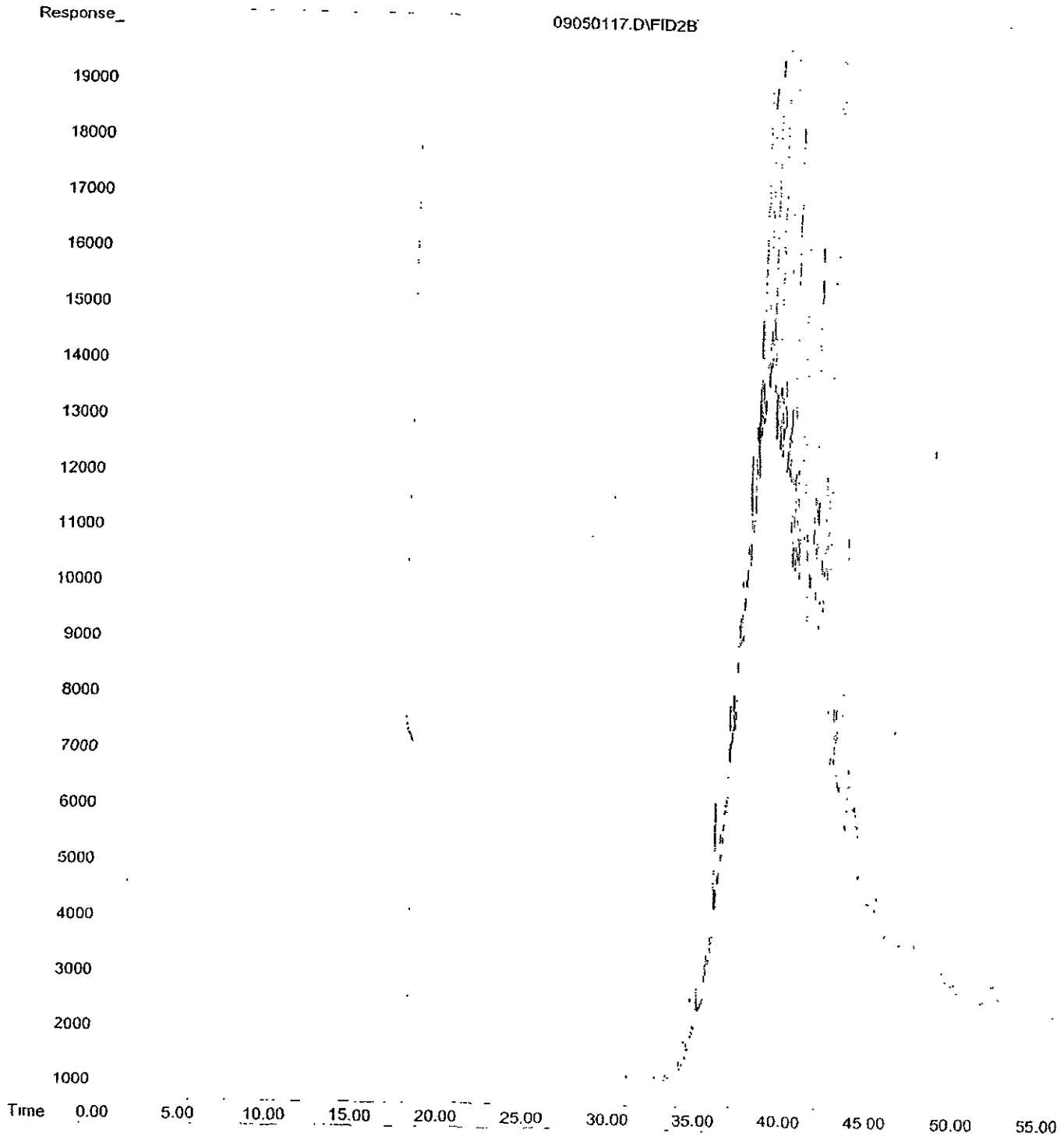
Quant Method : C:\HPCHEM\2\METHODS\GC6BNEW.M (Chemstation Integrator)
Title : GC-2B
Last Update : Fri May 05 10:34:57 2000
Response via : Multiple Level Calibration
DataAcq Meth : GC6ANEW.M

Volume Inj. :
Signal Phase :
Signal Info :



SB-E

File : D:\HPCHEM\2\DATAB\09050117.D
Operator : Thu
Acquired : 6 Sep 2001 4:15 am using AcqMethod GC6ANEW.M
Instrument : GC-6
Sample Name: 76881W
Misc Info : D,MO,WSG
Vial Number: 59



SB-F

27581 / 28462

McCAMPBELL ANALYTICAL INC.

110 2nd AVENUE SOUTH, #D7
PACHECO, CA 94553
Telephone: (925) 798-1620 Fax: (925) 798-1622

CHAIN OF CUSTODY RECORD

TURN AROUND TIME ☐ RUSH ☐ 24 HOUR ☐ 48 HOUR ☐ 5 DAY

Report To: ~~John Rigg~~ Bob Schultz Bill To: PORT of OAKLAND

Company: Cambria Environmental Technology

1144 65th Street, Suite C

Oakland, CA 94608

Tele: (510) 420-0700 Fax: (510) 420-9170

Project #: 458-1705 Project Name: EMBARCADERO CAL

Project Location: OAKLAND

Sampler Signature: K-E

SAMPLE ID	LOCATION	SAMPLING Date	SAMPLING Time	# Containers	Type Containers	MATRIX: Water	Soil	Air	Sludge	Other	METHOD PRESERVED: Ice	HCl	HNO3	Other	Analysis Request: BTEX & TPH as Gas (602/8020 – 8015) MTBE	TPH as Diesel (8015)	Total Petroleum Oil & Grease (5520 E&F/B&F)	Total Petroleum Hydrocarbons (418.1)	EPA 601 / 8010	BTEX ONLY (EPA 602 / 8020)	EPA 608 / 8080	EPA 608 / 8080 PCB's ONLY	EPA 624 / 8240 / 8260	EPA 625 / 8270	PAH's / PNA's by EPA 625 / 8270 (8310)	CAM-17 Metals	LUFT 5 Metals	Lead (7240/7421/239.2/6010)	RCI	Other: TPHmo 8015	MTBE 8260 Confirmation	Comments
SB-A-4.5	3.5	8/31/01	930	1	*		X				X				X	X									X					X	X	76862
SB-A-9.5	7.5		936	1			X				X																					H2O
SB-A-11.5	9.5		940	1			X				X																					76868
SB-B-4.5	3.5		11:57	1			X				X				X	X									X					X	X	76869 H
SB-B-7.5	6.5		11:58	1			X				X																					76870 H
SB-B-12.5	10.5		12:05	1			X				X																					76871
SB-D-4.5	3.5		1045	1			X				X				X	X									X					X	X	76872 H
SB-D-7.5	6.5		1055	1			X				X																					76873 H
SB-D-12.5	10.5		11:00	1			X				X																					76874
SB-E-4.5	3.5		730	1			X				X				X	X									X					X	X	76875 H
SB-E-7.5	6.0		740	1			X				X																					
SB-E-9.5	7.5		800	1			X				X																					
SB-F-4.5	3.5		835	1			X				X				X	X									X					X	X	
SB-F-7.0	5.5		855	1			X				X																					
SB-E-9.5	7.5		847	1			X				X																					

Relinquished By: K-E Date: Time: Received By: 9/4/01

Relinquished By: Date: Time: Received By:

Relinquished By: Date: Time: Received By:

Remarks:

*= tube - Silica Gel Clean up on TPHmo

** Confirm MTBE 8021 detections by 8260 or if detection Limit is greater than 50ppb.

22-4

APPENDIX E

Field Activity Descriptions

APPENDIX E

FIELD ACTIVITY DESCRIPTIONS

August 2001 Investigation

Field activities completed during the August 30, 2001 sampling program are presented below. The discussion is organized according to the nature of the individual activity.

Sampling Date:	August 30, 2001.
Scope of Work:	Iris-Cambria collected soil and grab groundwater samples from six (6) onsite borings in the vicinity of a former UST.
Personnel Present:	Kris Cejka, Cambria Senior Staff Geologist; John Riggi, Cambria Project Geologist and a California Registered Geologist; Steven Moore, Vironex Geoprobe operator.
Drilling Company:	Vironex of San Leandro, California (C57# 705927).
Drilling Methods:	Geoprobe™ hydraulic push. Each boring was hand-augered to 5 ft bgs (or less if restricted by refusal or obstacles in the borehole) as a safeguard to prevent damage to subsurface utilities.
Number of Borings:	Six (6). Boring SB-C was advanced to 4 ft bgs and could not be completed to groundwater because of subsurface obstacles.
Boring Depths:	Four to 11 ft bgs. Boring logs are included as Appendix A.
Concrete Coring:	On August 29, 2001, Osborne Concrete Coring of Oakland, California (Osborne), performed asphalt and concrete coring at the six boring locations. After coring the surface pavement, underlying gravel was excavated to expose a buried foundation(s). The buried foundation, that was encountered at all 6 locations, was then cored by Osborne using an extension device on the concrete corer. Surface pavement was approximately 6 inches thick and the buried foundation was approximately 6 to 12 inches thick.
Soil Sampling:	Soil samples were collected continuously from all borings during drilling and logged in accordance with the Unified Soil Classification System.

Groundwater Sampling: Grab groundwater samples were collected through 3/8"-inner diameter (ID) polyethylene tubing from borings SB-A, SB-B, SB-D, SB-E, and SB-F.

Backfill Method: All borings were backfilled to the surface with neat cement and completed with concrete patch.

Waste Disposal: All soil cuttings and rinsate were left onsite in Department of Transportation (DOT)-approved 55-gallon drums pending disposal by the Port.

October 2001 Investigation

Field activities completed during the October 2001 sampling program are presented below. The discussion is organized according to the nature of the individual activity.

Installation Date: October 9, 2001.

Scope of Work: Iris-Cambria advanced four (4) borings and completed all four as monitoring wells. Soil samples were collected from all borings. The wells were developed and sampled per Tri-Regional procedural guidelines.

Personnel Present: Kris Cejka, Cambria Senior Staff Geologist; and Barbara Jakub, R.G., Cambria Project Geologist.

Drilling Company: V&W Drilling of Rio Vista, California (C57# 702904).

Drilling Methods: Hollow-stem auger drill rig. Each boring was hand-augered to 5 ft bgs (or less if restricted by subsurface conditions) as a safeguard to prevent damage to subsurface utilities.

Number of Borings/Wells: Four (4).

Boring Depths: Prior to well installation, the borings were drilled to depths of between 13 and 15 ft bgs.

Concrete Coring: On October 8, 2001, Osborne Concrete Coring of Oakland, California (Osborne), performed asphalt and concrete coring at the four well locations. After coring the surface pavement, underlying soil was excavated to expose a buried foundation(s) or to a maximum depth of 5 ft bgs. The buried foundation(s) (encountered in locations

MW-2 and MW-3) was then cored by Osborne using an extension device on the concrete corer. In borings MW-2 and MW-3, surface pavement was approximately 6 inches thick, and the buried foundation(s) was approximately 10 to 11 inches thick. Borings MW-1 and MW-4 were installed on dirt surfaces and no buried foundation was encountered in either boring.

Soil Sampling: Soil samples were collected continuously from all borings during drilling and logged in accordance with the Unified Soil Classification System.

Well Development: On October 12, 2001, Iris-Cambria developed monitoring wells MW-1 through MW-4. During development of monitoring well MW-3, the bottom cap was dislodged from the well casing and the surge block could not be retrieved from the well. Well MW-3 can be sampled, although there is an obstruction in the well at approximately 9 ft bgs. Well depth measurements are included in Appendix G.

Groundwater Gauging: Groundwater was gauged in Site wells on October 12 (during well development), October 19 (during the first well sampling event), December 5 (near lower high tide and higher high tide, and the corresponding second and third sampling events), and December 19, 2001 (during lower low tide). Well caps were removed and water levels allowed to equilibrate for at least 15 minutes and until stable. During each gauging event, all four wells were gauged within a 30-minute time period. Field forms are included in Appendix G.

Groundwater Sampling: All four (4) site wells were sampled three times: on October 19, 2001, on December 5, 2001, and again 6 hours later on December 5, 2001. Groundwater samples were collected from Site wells MW-1, MW-2, and MW-4 after purging three well casing volumes of water from each well and waiting for at least 80% groundwater recharge to the well. The samples for MW-3 were collected pre-purge due to an obstruction in the well. In addition, samples were collected from MW-1 only on December 7, 2001 in HNO_3-preserved polyethylene containers for metals analysis. The samples collected for volatile analyses were placed in 40-ml VOAs while samples collected for petroleum hydrocarbons and SVOCs were placed in 1 liter unpreserved ambers. The sample bottles were labeled and placed in a cooled container for transport to McCampbell Analytical in Pacheco, California. Cambria's standard sampling procedures are presented in Appendix C. Well sampling forms are included in Appendix G.

Chemical Analysis: Soil and groundwater samples were sent under chain of custody control to McCampbell Analytical, Inc., of Pacheco, California. , and analyzed for: TPHg by EPA Method 8015; TPHd and TPHmo

by EPA Method 8015 with silica-gel cleanup; BTEX by EPA Method 8020; and SVOCs by EPA Method 8270. Soil samples were also analyzed for VOCs by EPA Method 8260. Groundwater samples from MW-1 on December 7, 2001 were analyzed for CAM 17 metals by EPA Method 6010. Laboratory analytical results are included in Appendix D.

Well Survey: Virgil Chavez Land Surveying of Vallejo, California, (State of California Licensed Land Surveyor No. 6323) surveyed the well top of casing (TOC) elevations relative to Port datum TP184 on October 30, 2001. Survey data is presented in Appendix H.

Waste Disposal: All soil cuttings and well development and purge water were left onsite in DOT-approved, 55-gallon drums pending disposal by the Port.

APPENDIX F

Geophysical Survey Report

NORCAL GEOPHYSICAL CONSULTANTS, INC.

September 27, 2001

Mr. Bob Shultz
Cambria Environmental Technology, Inc
1144 65th Street, Suite A
Oakland, CA 94008

Dear Mr Shultz:

This letter is submitted in reference to a ground penetrating radar (GPR) survey performed by NORCAL Geophysical Consultants, Inc. at 1275 Embarcadero Rd in Oakland, California. The GPR field survey was conducted on September 5, 2001 by NORCAL geophysicist Dan Jones. Site orientation was coordinated by Mr Kris Cejka of Cambria.

SITE DESCRIPTION AND PURPOSE

The site is a restaurant parking lot adjacent to a restaurant building that is no longer in use. Cambria advised us that a previous geophysical survey performed by others detected four isolated subsurface metal anomalies in this parking lot. The spray painted surface traces of these anomalies were visible on the site. In addition, previous environmental borings encountered concrete at a depth of approximately two feet ranging in thickness from four inches to one foot at various locations throughout the parking lot. The concrete may be that of a former building foundation at the site. The purpose of NORCAL's geophysical survey is two-fold: 1) to collect additional subsurface information at the four subsurface metal locations to determine if they may represent underground storage tanks (UST's) and 2) to delineate the boundary of the subsurface concrete (presumed foundation).

GEOPHYSICAL METHODOLOGY

Based on the anticipated required depth of investigation, the nature of the targets, and the high resolution needed to identify such objects, we chose the ground penetrating radar (GPR) method to investigate for both the UST's and the concrete foundation boundary.

GPR is a method that provides a continuous, high resolution cross-section depicting variations in the electrical properties of the shallow subsurface. The method is particularly sensitive to variations in electrical conductivity and electrical permittivity (the ability of a material to hold a charge when an electrical field is applied). The system operates by radiating electromagnetic pulses into the ground from an antenna as it is moved along the ground surface. Since most earth materials are partially transparent to electromagnetic energy, only a portion of the radar signal is reflected back to the surface from interfaces representing variations in electrical properties. When the signal encounters a metal object such as a UST, all of the incident energy is reflected. Lesser amounts of energy are reflected by non-metallic features such as as concrete blocks or backfill boundaries. The reflected signals are then received by the same antenna and are printed in cross-section form on a graphical recorder. Depending upon depth and/or thickness the resulting records can provide information regarding the location of UST's, sumps, buried debris, underground utilities, and variations in the shallow site materials.

Typically, UST's result in a high-amplitude, parabolic reflections at least as broad as the UST itself when the traverse is oriented perpendicular to the long axis of the UST. The GPR response of a concrete foundation is

a relatively flat reflector sometimes with steeply sloping diffractions off the edge. In addition, the presence of steel reinforcing bar within the concrete can help to identify the foundation on the "cross-sections", by manifesting itself as closely spaced high-amplitude reflections.

In some cases, site-specific soil properties can limit the effectiveness of the GPR method. For instance, clay-rich soil, conductive fill-material, or very wet soil can severely attenuate GPR signals, reducing the available depth of investigation and decreasing the resolution necessary to identify small subsurface variations. In addition, there may not be a significant enough contrast in electrical properties between the target of interest and the surrounding materials to identify the target

To complete the survey, we used a Geophysical Survey Systems, Inc SIR-2000 Subsurface interface Radar System equipped with a 500 megahertz (MHz) antenna. A 900 MHz antenna was used in addition to the 500 MHz antenna for the concrete delineation portion of the survey since it provides higher resolution

GPR SURVEY AND RESULTS

UST Investigation

To begin the survey, we verified locations of the subsurface metal anomalies with a specialized metal detector (Fisher TW-6 M-Scope). We confirmed that each anomaly did provide a significant metallic response. The approximate dimensions in feet of the metal anomalies (north-south by east-west) as outlined by others and confirmed by NORCAL are as follows: A1 - 12x7, A2 - 11x6, A3 - 5x4, and A4 - 3x3.

We then established a series of multiple orthogonally oriented GPR traverses over each anomaly, A1-A4, extending the traverses at least five feet in all directions past the metal response boundaries. We did not observe any significant isolated reflectors or characteristic reflection signatures of USTs at anomalies A1 and A2. At A3, a small isolated reflector was observed at the center of the metal response. The lateral extent of this feature is approximately 2-3 feet. Neither its shape nor lateral breadth is consistent with that of a UST. At A4, an approximately 2 foot by 2 foot flat feature was observed on the crossing GPR profiles at an approximated depth of less than 2 feet. This feature also is not interpreted as representing a possible UST due also to its limited lateral breadth and non-characteristic reflection character.

As we did not observe the source of the metal anomalies at A1 and A2 on the associated GPR profiles, the sources of A1 and A2 may lie deeper than the detection limits of the GPR in these locations (approximately 3 feet). For this reason, we can not rule out the possibility of potential USTs in these locations.

Concrete Foundation Delineation

We initially established approximately 10 GPR traverses over, and adjacent to, several borings within the parking lot where concrete foundation material was encountered at a depth of 2 feet. These traverses ranged in length from 25 to 90 feet long in an attempt to locate the boundary of the concrete material. We were unable to identify a consistent reflecting horizon at the anticipated depth of about two feet (using approximate asphalt/soil/fill GPR velocities) that correlated with the top of the encountered concrete. Our analysis of the data indicated that there is no reinforcement in the concrete which contributed to the lack of detection of the

concrete foundation. No combination of gains, filters, or alternative antennae frequencies resulted in the subsurface definition necessary to provide definitive detection of the concrete foundation boundary. We believe that there is not a significant electrical contrast between the concrete and the overlying fill material to detect this interface with confidence and subsequently map out the edge of the presumed foundation. Upon this determination, we recommended that the survey not proceed since the required information could not be obtained.

STANDARD CARE AND WARRANTY

The scope of NORCAL's services for this project consisted of using geophysical techniques to characterize the shallow subsurface. The accuracy of our findings is subject to specific site conditions and limitations inherent to the techniques used. We performed our services in a manner consistent with the level of skill ordinarily exercised by members of the profession currently employing similar techniques. No warranty, with respect to the performance of services or products delivered under this agreement, expressed or implied, is made by NORCAL.

We look forward to future investigations with Cambria Environmental Technology.

Respectfully,

NORCAL Geophysical Consultants, Inc.

Dan P. Jones
Geophysicist

Kenneth G. Blom
Geophysicist GP-887

DPJ/KGB/jm

APPENDIX G

Well Sampling Forms

CAMBRIA

WELL DEPTH MEASUREMENTS

Well ID	Time	Product Depth	Water Depth	Product Thickness	Well Depth	Comments
MW-1			7.15		14.80	
MW-2			5.75		14.80	
MW-3			6.60		12.60	
MW-4			8.15		14.25	

Project Name: Embarcadero Cove

Project Number: 458-1705

Measured By: L. Gill

Date: 10-12-01

F:\TEMPLATE\FORMS\FIELD\GW-DEPTH.WPD

CAMBRIA

WELL DEVELOPMENT FORM

Project Name: Embarcadero Cove	Cambria Mgr: BS	Well ID: MW-1
Project Number: 458-170	Date: 10-12-01	Well Yield:
Site Address: 1275 Embarcadero Cove Oakland, Ca	Development Method:	Well Diameter: 2"
		Technician(s): SG
Initial Depth to Water: 7.15	Total Well Depth: 14.80	Water Column Height: 7.65
Volume/ft: 0.16	1 Casing Volume: 1.22	10 Casing Volumes: 12.2
Purging Device: geo pump	Did Well Dewater?: yes	Total Gallons Purged: 5

Casing Volume = Water column height x Volume/ ft.

Well Diam	Volume/ft (gallons)
2"	0.16
4"	0.65
6"	1.47

Time	Activity	Water Depth	Gallons Purged	Comments
	no surge 7.15			temp / cond / pH
	purge		1	22.5 / 1791 / 7.95 brown silty
	"		2	22.7 / 1624 / 7.31 clear
	"		3	22.5 / 1329 / 7.55 clear
	"		4	22.4 / 1384 / 7.58 brown
	"		5	22.5 / 1320 / 7.32 clear dewatered
			6	DTB = 14.87
			7	
			8	
			9	
			10	
			11	
			12	

CAMBRIA

WELL DEVELOPMENT FORM

Project Name: Embarcadero Cove	Cambria Mgr: BS	Well ID: MW-2
Project Number: 458-170	Date: 10-12-01	Well Yield:
Site Address: 1275 Embarcadero Cove Oakland, Ca	Development Method:	Well Diameter: 2"
		Technician(s): SG
Initial Depth to Water: 5.75	Total Well Depth: 14.80	Water Column Height: 9.05
Volume/ft: 0.16	1 Casing Volume: 1.44	10 Casing Volumes: 14.4
Purging Device: geo pump	Did Well Dewater?:	Total Gallons Purged:

Casing Volume = Water column height x Volume/ ft.

Well Diam.	Volume/ft (gallons)
2"	0.16
4"	0.65
6"	1.47

Time	Activity	Water Depth	Gallons Purged	Comments			
	no surge 5.75		8	temp	pH	cond	
12:10	purge		1.5	22.7	7.06	1451	slightly cloudy
12:11	"		3.0	22.4	7.14	1720	clear
12:13	"		4.5	22.4	7.22	1321	"
12:14	"		6.0	22.4	7.24	1471	"
12:15	"		7.5	22.4	7.27	1452	"
12:16	"		9.0	22.7	7.25	1490	"
12:17	"		10.5	22.5	7.29	1375	"
12:18	"		12.0	22.5	7.25	1328	" dewatered
			13.5				DTB 14.85
			15.0				

CAMBRIA

WELL DEVELOPMENT FORM

Project Name: Embarcadero Cove	Cambria Mgr: BS	Well ID: MW-3
Project Number: 458-170	Date: 10-12-01	Well Yield:
Site Address: 1275 Embarcadero Cove Oakland, Ca	Development Method:	Well Diameter: 2"
		Technician(s): SG
Initial Depth to Water:	Total Well Depth:	Water Column Height:
Volume/ft: 0.16	1 Casing Volume:	10 Casing Volumes:
Purging Device: geo pump	Did Well Dewater?:	Total Gallons Purged:

1 Casing Volume = Water column height x Volume/ ft.

Well Diam.	Volume/ft (gallons)
2"	0.16
4"	0.65
6"	1.47

Time	Activity	Water Depth	Gallons Purged	Comments
	unable to develop			

CAMBRIA

WELL DEVELOPMENT FORM

Project Name: Embarcadero Cove	Cambria Mgr: BS	Well ID: MW-4
Project Number: 458-170	Date: 10-12-01	Well Yield:
Site Address: 1275 Embarcadero Cove Oakland, Ca	Development Method: surge block	Well Diameter: 2"
		Technician(s): SG
Initial Depth to Water: 8.15	Total Well Depth: 14.25	Water Column Height: 6.10
Volume/ft: 0.16	1 Casing Volume: 0.97	10 Casing Volumes: 9.76
Purging Device: gco pump	Did Well Dewater?: NO	Total Gallons Purged: 12

Casing Volume = Water column height x Volume/ ft.

Well Diam.	Volume/ft (gallons)
2"	0.16
4"	0.65
6"	1.47

Time	Activity	Water Depth	Gallons Purged	Comments: temp	pH	cond	
		8.15					
9:20	purge		1	20.6	7.21	1582	grey silty
9:21	"		2	20.9	7.29	1791	" "
9:22	"		3	20.5	7.54	1784	" "
9:23	"		4	20.7	7.59	1795	" "
9:24	"		5	20.5	7.31	1784	" "
9:25	"		6	20.9	7.35	1792	" "
9:30	"		7	20.4	7.20	1821	grey fine silt " "
9:45	"		8	20.5	7.25	1759	grey fine silt
9:58	"		9	21.7	7.20	1829	" "
10:00	"		10	21.7	7.28	1871	cloudy very little si
10:30	"		11	21.4	7.31	1829	clear
10:45	"		12	21.5	7.25	1870	clear
11:00	surged for 15 mins DTB 14.25						

CAMBRIA

WELL DEPTH MEASUREMENTS

Well ID	Time	Product Depth	Water Depth	Product Thickness	Well Depth	Comments
MW-1			7.22		14.87	
MW-2			5.94		14.85	
MW-3			6.65		11.94	
MW-4			8.22		14.30	

Project Name: Embarcadero Cove

Project Number: 458-1705

Measured By: Sanjiv Gill

Date: 10-19-01

F:\TEMPLATE\FORMS\FIELD\GW-DEPTH.WPD

CAMBRIA

WELL SAMPLING FORM

Project Name: Embarcadero Cove	Cambria Mgr: BS	Well ID: MW-1
Project Number: 458-1705	Date: 10-19-01	Well Yield: ----
Site Address:	Sampling Method: Disposable bailer	Well Diameter: 2" pvc
		Technician(s): SG
Initial Depth to Water: 7.22	Total Well Depth: 14.87	Water Column Height: 7.65
Volume/ft: 0.16	1 Casing Volume: 1.22	3 Casing Volumes: 3.66
Purging Device: disposable bailer	Did Well Dewater?: no	Total Gallons Purged: 3.5
Start Purge Time: 9:35	Stop Purge Time: 9:49	Total Time: 14 mins

1 Casing Volume = Water column height x Volume/ft

Well Diam	Volume/ft (gallons)
2"	0.16
4"	0.65
6"	1.47

Time	Casing Volume	Temp C	pH	Cond uS	Comments
9:40	1 1.5	18.7	7.91	1894	
9:45	2 2.5	20.4	7.34	1991	
9:50	3 3.5	21.1	7.25	1962	

Sample ID	Date	Time	Container Type	Preservative	Analytes	Analytic Method
MW-1	10-19-01	9:55	6 voa 2 Amber	HCl	SVOC'S TPHg BTEX TPHmo TPHd	
MW-						

TEMPLATE/FORMS/WELL SAMPLING FORM

CAMBRIA

WELL SAMPLING FORM

Project Name:	Embarcadero Cove	Cambria Mgr:	BS	Well ID: MW-	2
Project Number:	458-1705	Date:	10-19-01	Well Yield:	-----
Site Address:		Sampling Method:	Disposable bailer	Well Diameter:	2" pvc
				Technician(s):	SG
Initial Depth to Water:	5.94	Total Well Depth:	14.85	Water Column Height:	8.91
Volume/ft.	0.16	1 Casing Volume:	1.42	3 Casing Volumes:	4.27
Purging Device:	disposable bailer	Did Well Dewater?:	no	Total Gallons Purged:	4
Start Purge Time:	10:20	Stop Purge Time:	10:34	Total Time:	14 mins

1 Casing Volume = Water column height x Volume/ ft.

Well Diam.	Volume/ft (gallons)
2"	0.16
4"	0.65
6"	1.47

Time	Casing Volume	Temp C	pH	Cond uS	Comments
10:25	1.5	20.1	7.15	2017	
10:30	3	20.3	7.20	1522	
10:35	4	20.1	7.11	1684	

Sample ID	Date	Time	Container Type	Preservative	Analytes	Analytic Method
MW- 2	10-19-01	10:40	6 voa 2 Amber	HCl	8260's TPHg TPHmo TPHd	
MW-						

CAMBRIA

WELL SAMPLING FORM

Project Name: Embarcadero Cove	Cambria Mgr: BS	Well ID: MW-3
Project Number: 458-1705	Date: 10-19-01	Well Yield: -----
Site Address:	Sampling Method: Disposable bailer	Well Diameter: 2" pvc
		Technician(s): SG
Initial Depth to Water: 6.65	Total Well Depth: 11.94	Water Column Height:
Volume/ft: 0.16	1 Casing Volume:	3 Casing Volumes:
Purging Device:	Did Well Dewater?	Total Gallons Purged:
Start Purge Time:	Stop Purge Time:	Total Time:

1 Casing Volume = Water column height x Volume/ ft.

Well Diam	Volume/ft (gallons)
2"	0.16
4"	0.65
6"	1.47

Time	Casing Volume	Temp C	pH	Cond. uS	Comments
	1				
	2				
	3				
			NO purge		

Sample ID	Date	Time	Container Type	Preservative	Analytes	Analytic Method
MW-3	10-19-01	10:10	6 VOA 2 Amber	HCl	SVOC'S TPHg TPHmo TPHd	
MW-						

CAMBRIA

WELL SAMPLING FORM

Project Name: Embarcadero Cove	Cambria Mgr: BS	Well ID: MW-4
Project Number: 458-1705	Date: 10-19-01	Well Yield: ----
Site Address:	Sampling Method: Disposable bailer	Well Diameter: 2" pvc
		Technician(s): SG
Initial Depth to Water: 8.22	Total Well Depth: 14.30	Water Column Height: 6.08
Volume/ft: 0.16	1 Casing Volume: 0.97	3 Casing Volumes: 2.91
Purging Device: disposable bailer	Did Well Dewater?: no	Total Gallons Purged: 3
Start Purge Time: 9:00	Stop Purge Time: 9:14	Total Time: 14 mins

1 Casing Volume = Water column height x Volume/ ft.

Well Diam.	Volume/ft (gallons)
2"	0.16
4"	0.65
6"	1.47

Time	Casing Volume	Temp C	pH	Cond. uS	Comments
9:05	1 1	20.1	7.33	1870	
9:10	2 2	20.1	7.28	1940	
9:15	3 3	20.1	7.25	1972	

Sample ID	Date	Time	Container Type	Preservative	Analytes	Analytic Method
MW-4	10-19-01	9:20	6 voa 2 Amber	HCl	SVOC'S TPHg TPHmo TPHd	
MW-						

TEMPLATE FORM/SAMPLING FORM

CAMBRIA

WELL DEPTH MEASUREMENTS

Well ID	Time	Product Depth	Water Depth	Product Thickness	Well Depth	Comments
MW-1	6:20		6.70		14.80	
MW-2	6:10		5.35		14.80	
MW-3	6:15		5.80		obstruction	no purge
MW-4	6:17		7.52		14.25	
MW-1	11:49		7.29			
MW-2	11:43		5.80			
MW-3	11:45		6.95			
MW-4	11:47		8.05			
12-7-01 MW-1-A	5:40		6.85			
12-7-01 MW-1	11:40		7.15			

Project Name: Embarcadero Cove

Project Number: _____

Measured By: L. Dill

Date: 12-5-01

F:\TEMPLATE\FORMS\FIELD\GW-DEPTH.WPD

CAMBRIA

WELL SAMPLING FORM

Project Name: Embarcadero Cove	Camona Mgr: BS	Well ID: MW-1
Project Number: 458-1705	Date: 12-5-01	Well Yield: ----
Site Address: 1275 Embarcadero Cove Oakland, Ca	Sampling Method: Disposable bailer	Well Diameter: 2" pvc
		Technician(s): SC
Initial Depth to Water: 6.70	Total Well Depth: 14.80	Water Column Height: 8.10
Volume/ft: 0.16	1 Casing Volume: 1.29	3 Casing Volumes: 3.88
Purging Device: disposable bailer	Did Well Dewater? no	Total Gallons Purged: 4
Start Purge Time: 7:00	Stop Purge Time: 7:14	Total Time: 14 mins

Casing Volume = Water column height x Volume/ft.

Well Diam	Volume/ft (gallons)
2"	0.16
4"	0.65
6"	1.47

Time	Casing Volume	Temp C	pH	Cond uS	Comments
7:05	1.5	16.2	7.25	1270	
7:10	3	16.2	7.43	1974	
7:15	4	16.2	7.37	1922	

Sample ID	Date	Time	Container Type	Preservative	Analytes	Analysis Method
MW-1AM	12-5-01	7:20	VOA Amber	HCl		

CAMBRIA

WELL SAMPLING FORM

Project Name: Embarcadero Cove	Cambria Mgr: BS	Well ID: MW-1
Project Number: 458-1705	Date: 12-5-01	Well Yield: -----
Site Address: 1275 Embarcadero Cove Oakland, Ca	Sampling Method: Disposable bailer	Well Diameter: 2" pvc
		Technician(s): SS
Initial Depth to Water: 7.29	Total Well Depth: 14.80	Water Column Height: 7.51
Volume/ft: 0.16	1 Casing Volume: 1.20	3 Casing Volumes: 3.60
Purging Device: disposable bailer	Did Well Dewater?: no	Total Gallons Purged: 3
Start Purge Time: 12:30	Stop Purge Time: 12:44	Total Time: 14 mins

Casing Volume = Water column height x Volume/ft.

Well Diam.	Volume/ft.
2	0.16
4	0.65
6"	1.47

Time	Casing Volume	Temp. C	pH	Cond. uS	Comments
12:35	1	16.5	7.27	1920	
12:40	2	16.9	7.23	1924	
12:45	3	16.9	7.31	1922	

Sample ID	Date	Time	Container Type	Preservative	Analytes	Analytic Method
MW-1-PM	12-5-01	12:50	voa Amber	HCl		
MW-						

CAMBRIA

WELL SAMPLING FORM

Project Name: Embarcadero Cove	Cambria Mgr: BS	Well ID: MW-1
Project Number: 458-1705	Date: 12-7-01	Well Yield: ----
Site Address: 1275 Embarcadero Cove Oakland, Ca	Sampling Method: Disposable bailer	Well Diameter: 2" pvc
		Technician(s):
Initial Depth to Water: 7.15	Total Well Depth: 14.80	Water Column Height: 7.65
Volume/ft: 0.16	1 Casing Volume: 1.22	3 Casing Volumes: 3.66
Purging Device: disposable bailer	Did Well Dewater?: no	Total Gallons Purged 3
Start Purge Time: 12:45	Stop Purge Time: 11:59	Total Time: 14mins

1 Casing Volume = Water column height x Volume/ft.

Well Diam	Volume/ft (gallons)
2"	0.16
4"	0.65
5"	1.47

Time	Casing Volume	Temp. C	pH	Cond uS	Comments
12:50	1	16.9	7.24	2014	
12:55	2	17.1	7.24	2091	
12:00	3	17.3	7.31	2070	

Sample ID	Date	Time	Container Type	Preservative	Analytes	Analytic Method
MW-1-PM	12-7-01	12:05	poly	—	metals	
MW-						

DEC-17-2001 08:50 CHMBRKLH

CAMBRIA

WELL SAMPLING FORM

Project Name: Embarcadero Cove	Camona Mgr: BS	Well ID: MW-2
Project Number: 458-1705	Date: 12-5-01	Well Yield: -----
Site Address: 1275 Embarcadero Cove Oakland, Ca	Sampling Method: Disposable bailer	Well Diameter: 2" pvc
		Technician(s): SG
Initial Depth to Water: 5.35	Total Well Depth: 14.80	Water Column Height: 9.45
Volume/ft: 0.16	1 Casing Volume: 1.51	3 Casing Volumes: 4.53
Purging Device: disposable bailer	Did Well Dewater?: no	Total Gallons Purged: 4
Start Purge Time: 7:30	Stop Purge Time: 7:44	Total Time: 14 minutes

Casing Volume = Water column height x Volume/ft.

Well Diam.	Volume/ft. (gallons)
2"	0.16
4"	0.65
6"	1.47

Time	Casing Volume	Temp C	pH	Cond uS	Comments
7:35	1.5	16.5	7.12	1374	
7:40	3	16.9	7.20	1520	
7:45	4	16.3	7.18	1592	

Sample ID	Date	Time	Container Type	Preservative	Analytes	Analysis Method
MW-2-AM	12-5-01	7:50	VOA Amber	HCl		
MW-						

CAMBRIA

CAMBRIA

WELL SAMPLING FORM

Project Name: Embarcadero Cove	Cambria Mgr: BS	Well ID: MW-2
Project Number: 458-1705	Date: 12-5-01	Well Yield: -----
Site Address: 1275 Embarcadero Cove Oakland, Ca	Sampling Method: Disposable bailer	Well Diameter: 2" pvc
		Technician(s): SG
Initial Depth to Water: 5.80	Total Well Depth: 14.80	Water Column Height: 9.00
Volume/ft.: 0.16	Casing Volume: 1.44	3 Casing Volumes: 4.32
Purging Device: disposable bailer	Did Well Dewater?: NO	Total Gallons Purged: 4
Start Purge Time: 13:00	Stop Purge Time: 13:14	Total Time: 14minC

Casing Volume = Water column height x Volume/ft.

Well Diam	Volume/linear ft
2"	0.16
4"	0.65
5"	1.02

Time	Casing volume	Temp C	pH	Cond uS	Comments
13:05	1.5	16.4	7.24	1220	
13:10	3	16.9	7.20	1274	
13:15	4	16.7	7.20	1329	

Sample ID	Date	Time	Container Type	Preservative	Analytes	Analysis Method
MW-2-PM	12-5-01	13:20	VOA Amber	HCl		
MW-						

CAMBRIA

WELL SAMPLING FORM

Project Name: Embarcadero Cove	Cambria Mgr: BS	Well ID: MW-3
Project Number: 453-1705	Date: 12-5-01	Well Yield: -----
Site Address: 1705 Embarcadero Cove Oakland, Ca	Sampling Method: Disposable bailer	Well Diameter: 2" pvc
		Technician(s): SC
Initial Depth to Water: 5.80	Total Well Depth: —	Water Column Height:
Volume/ft:	1 Casing Volume:	3 Casing Volumes:
Purging Device:	Did Well Dewater?	Total Gallons Purged:
Start Purge Time:	Stop Purge Time:	Total Time:

Casing Volume = Water column height x Volume/ ft.

Well Diam.	Volume/ft (gallons)
2"	0.16
4"	0.65
6"	1.47

Time	Casing Volume	Temp. C	pH	Cond. uS	Comments
		NO Purge			

Sample ID	Date	Time	Container Type	Preservative	Analytes	Analytic Method
MW-3-AM		8:05				
MW-						

CAMBRIA

WELL SAMPLING FORM

Project Name: Embarcadero Cove	Cambria Mgr: BS	Well ID: MW-3
Project Number: 453-1705	Date: 12-5-01	Well Yield: -----
Site Address: 1705 Embarcadero Cove Oakland, Ca	Sampling Method: Disposable bailer	Well Diameter: 2" pvc
		Technician(s): SC
Initial Depth to Water: 6.95	Total Well Depth: —	Water Column Height:
Volume/ft.	1 Casing Volume:	3 Casing Volumes:
Purging Device:	Did Well Dewater?:	Total Gallons Purged:
Start Purge Time:	Stop Purge Time:	Total Time:

Casing Volume = Water column height x Volume/ft

Well Diam.	Volume/Equations
2"	0.16
4"	0.65
6"	1.47

Time	Casing Volume	Temp C	pH	Cond. uS	Comments
		NO Purge			

Sample ID	Date	Time	Container	Preservative	Analytes	Analytical Method
			Type			
MW-3-PM		1:30 PM				
MW-						

CAMBRIA

WELL SAMPLING FORM

Project Name: Embarcadero Cove	Cambria Mgr: BS	Well ID: MW-4 ~~MW-9~~
Project Number: 458-1705	Date: 12-5-01	Well Yield: -----
Site Address: 1275 Embarcadero Cove Oakland, Ca	Sampling Method: Disposable bailer	Well Diameter: 2" pvc
		Technician(s)
Initial Depth to Water: 7.52	Total Well Depth: 14.25	Water Column Height: 6.73
Volume/ft: 0.16 Carbon	1 Casing Volume: 1.07	3 Casing Volumes: 3.21
Purging Device: disposable bailer	Did Well Dewater?: no	Total Gallons Purged: 3
Start Purge Time: 6:30	Stop Purge Time: 6:44	Total Time: 14 mins

Casing Volume = Water column height x Volume/ft.

Well Diam.	Volume/foot
2"	0.16
4"	0.65
6"	1.47

Time	Casing Volume	Temp. C	pH	Cond uS	Comments
6:35	1	16.5	7.20	2529	
6:40	2	16.2	7.39	2017	
6:45	3	16.1	7.25	2084	

Sample ID	Date	Time	Container Type	Preservative	Analytes	Analytical Method
MW-4-011	12-5-01	6:50	Voa Amber	HCl		

CAMBRIA

WELL SAMPLING FORM

Project Name: Embarcadero Cove	Camona Mgr: BS	Well ID: MW-4
Project Number: 458-1705	Date: 12-5-01	Well Yield: -----
Site Address: 1275 Embarcadero Cove Oakland, Ca	Sampling Method: Disposable bailer	Well Diameter: 2" pvc
		Technician(s): SA
Initial Depth to Water: 8.05	Total Well Depth: 14.25	Water Column Height: 6.02
Volume/ft: 0.16	Casing Volume: 0.99	3 Casing Volumes: 2.97
Purging Device: disposable bailer	Did Well Dewater? no	Total Gallons Purged: 3
Start Purge Time: 11:55	Stop Purge Time: 12:09	Total Time: 14 mins

Casing Volume = Water column height x Volume/ft

Well Diam.	Volume/ft. (gallons)
2"	0.16
4"	0.65
6"	1.47

Time	Casing Volume	Temp. C	pH	Cond. uS	Comments
12:00	1	16.5	7.14	1250	
12:05	2	16.5	7.19	1270	
12:10	3	16.1	7.20	1328	

Sample ID	Date	Time	Container Type	Preservative	Analytes	Analysis Method
MW-4-PM	12-5-01	12:20	VOA Amber	HCl		

CAMBRIA

WELL DEPTH MEASUREMENTS

Well ID	Time	Product Depth	Water Depth	Product Thickness	Well Depth	Comments
MW-1	9:00		7.08			
MW-2	9:05		5.81			
MW-3	9:10		6.39			
MW-4	9:15		8.04			

Project Name: Embarcadero Cove

Project Number: 458-1705

Measured By: R. Lil

Date: 12-19-01

F:\TEMPLATE\FORMS\FIELD\GW-DEPTH.WPD

APPENDIX H

Survey Data

Virgil Chavez Land Surveying
312 Georgia Street, Suite 225
Vallejo, California 94590-5907
(707) 553-2476 • Fax (707) 553-8698

November 6, 2001
Project No. 2003-37

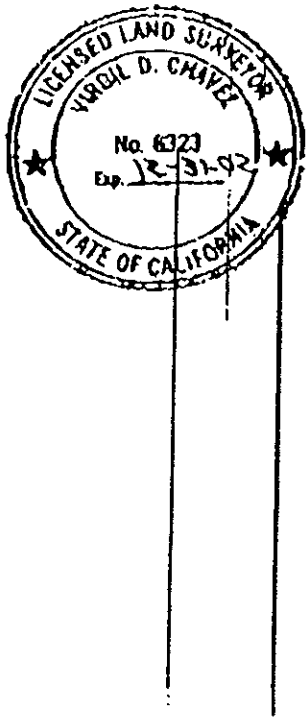
Kris Cejka
Cambria Environmental
1144 65th Street, Suite C
Oakland, CA 94608

Subject: Monitoring Well Survey
1275 Embarcadero Cove
Oakland, CA

Dear Kris:

This is to confirm that we have proceeded at your request to survey the ground water monitoring wells located at the above referenced location. The survey was performed on October 30, 2001. The benchmark used for the survey was a Port of Oakland benchmark "TP184". The coordinates are based on California State Coordinate System, Zone 3 (NAD 83) as per the Port of Oakland Record of Survey map recorded in Book 18 of Surveys, Page 50 . Measurements taken at approximate north side of top of box and top of casing.
Benchmark Elev. = 13.42 feet (Port of Oakland datum).

Well No.	Rim Elevation	TOC Elevation	Northing	Easting
MW - 1	12.33'	12.03'	2114056.08	6055754.02
MW - 2	11.72'	11.46'	2114007.51	6055751.15
MW - 3	12.79'	12.49'	2114047.29	6055715.16
MW - 4	13.28'	13.13'	2114088.29	6055740.30

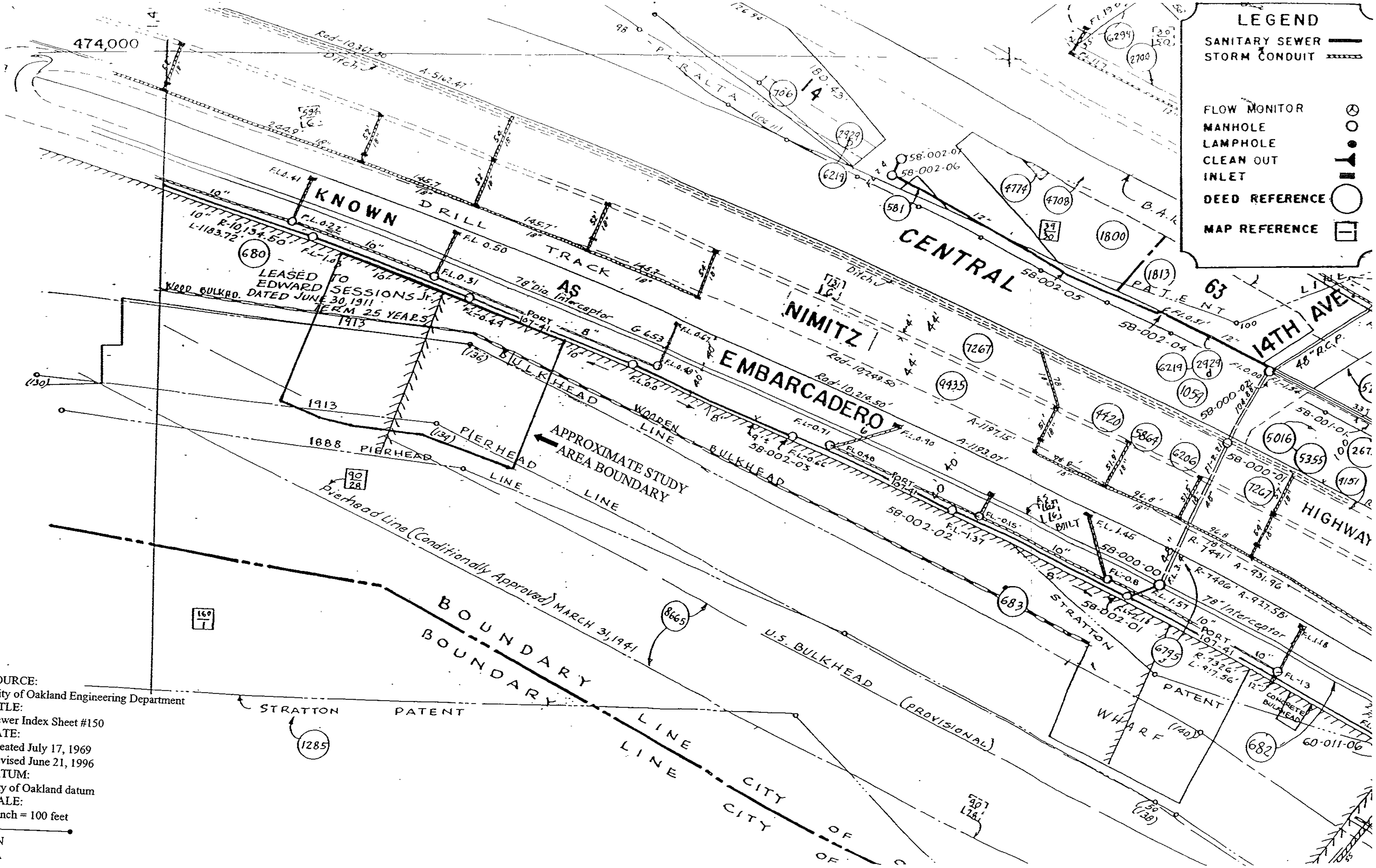


Sincerely,

Virgil D. Chavez, PLS 6823

APPENDIX I

City of Oakland Utility Map


LEGEND
SANITARY SEWER
STORM CONDUIT
FLOW MONITOR
MANHOLE
LAMPHOLE
CLEAN OUT
INLET
DEED REFERENCE
MAP REFERENCE
474,000
KNOWN AS NIMITZ
CENTRAL
EMBARCADERO
HIGHWAY
14TH AVE
DRILL TRACK
78" Dia. Interceptor
78" Interceptor
PERALTA
PATENT
LEASED TO EDWARD SESSIONS Jr. DATED JUNE 30, 1911 TERM 25 YEARS
WOOD BULKHD.
BULKHEAD
WOODEN LINE BULKHEAD
PIERHEAD
1888 PIERHEAD LINE
APPROXIMATE STUDY AREA BOUNDARY
Pierhead Line (Conditionally Approved) MARCH 31, 1941
BOUNDARY LINE CITY OF
U.S. BULKHEAD (PROVISIONAL)
STRATTON PATENT
STRATTON
WHARF
CONCRETE BULKHEAD
58-002-07
58-002-06
58-002-05
58-002-04
58-002-03
58-002-02
58-002-01
58-000-00
58-000-01
58-000-02
58-001-01
60-011-06
680
683
682
8665
1285
6795
6219
2929
1059
7267
9435
4420
5864
6206
5016
5355
9151
4774
4708
1800
1813
581
706
6294
2700

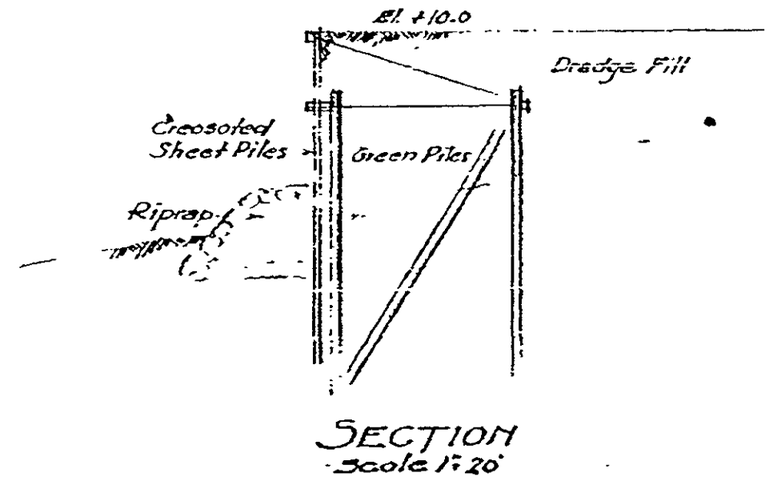
SOURCE:
City of Oakland Engineering Department
TITLE:
Sewer Index Sheet #150
DATE:
Created July 17, 1969
Revised June 21, 1996
DATUM:
City of Oakland datum
SCALE:
1 inch = 100 feet

N

APPENDIX J

Port of Oakland Inner Harbor Sheet Pile Bulkhead Diagram

BB-359



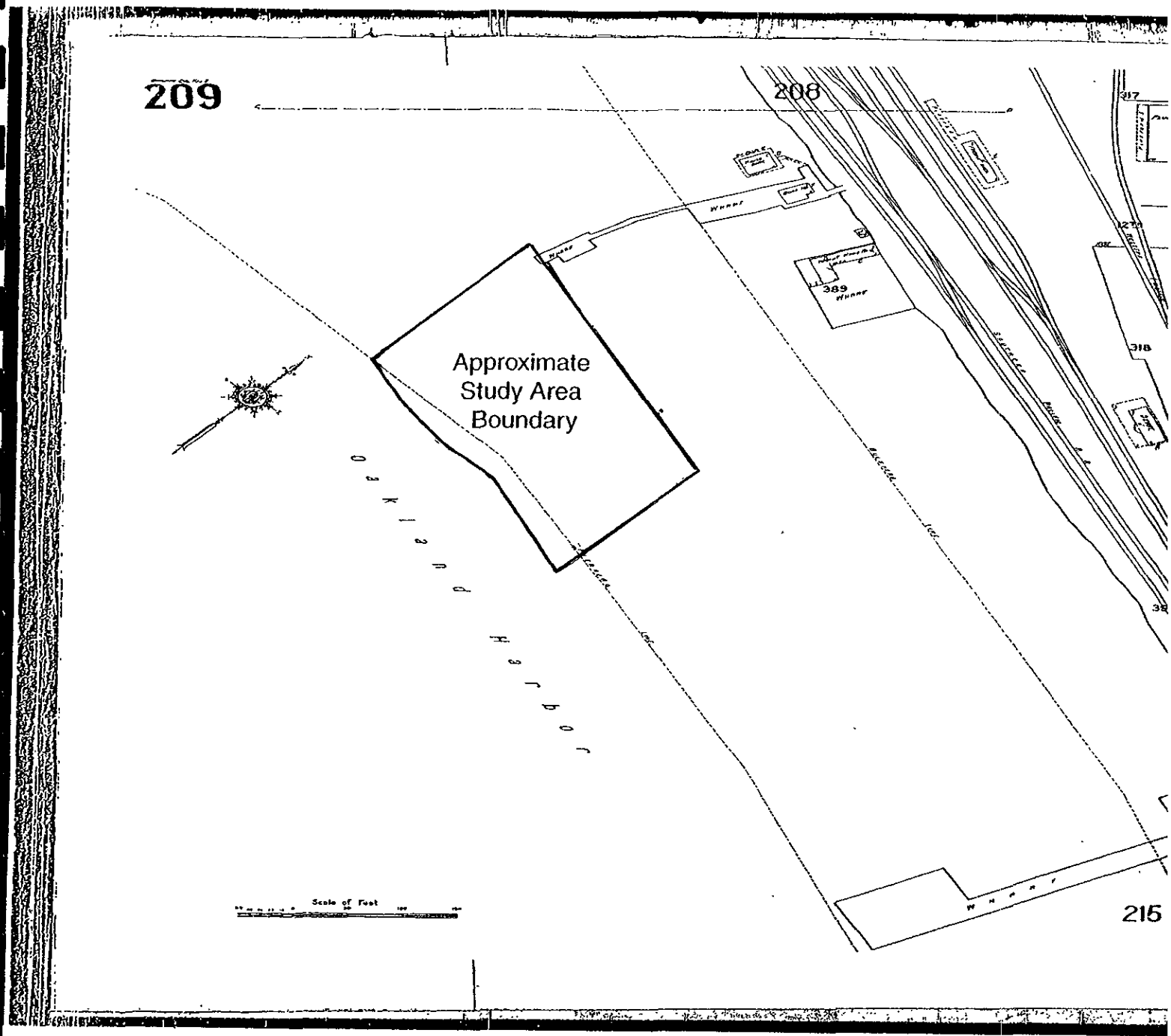
SECTION
Scale 1:20'

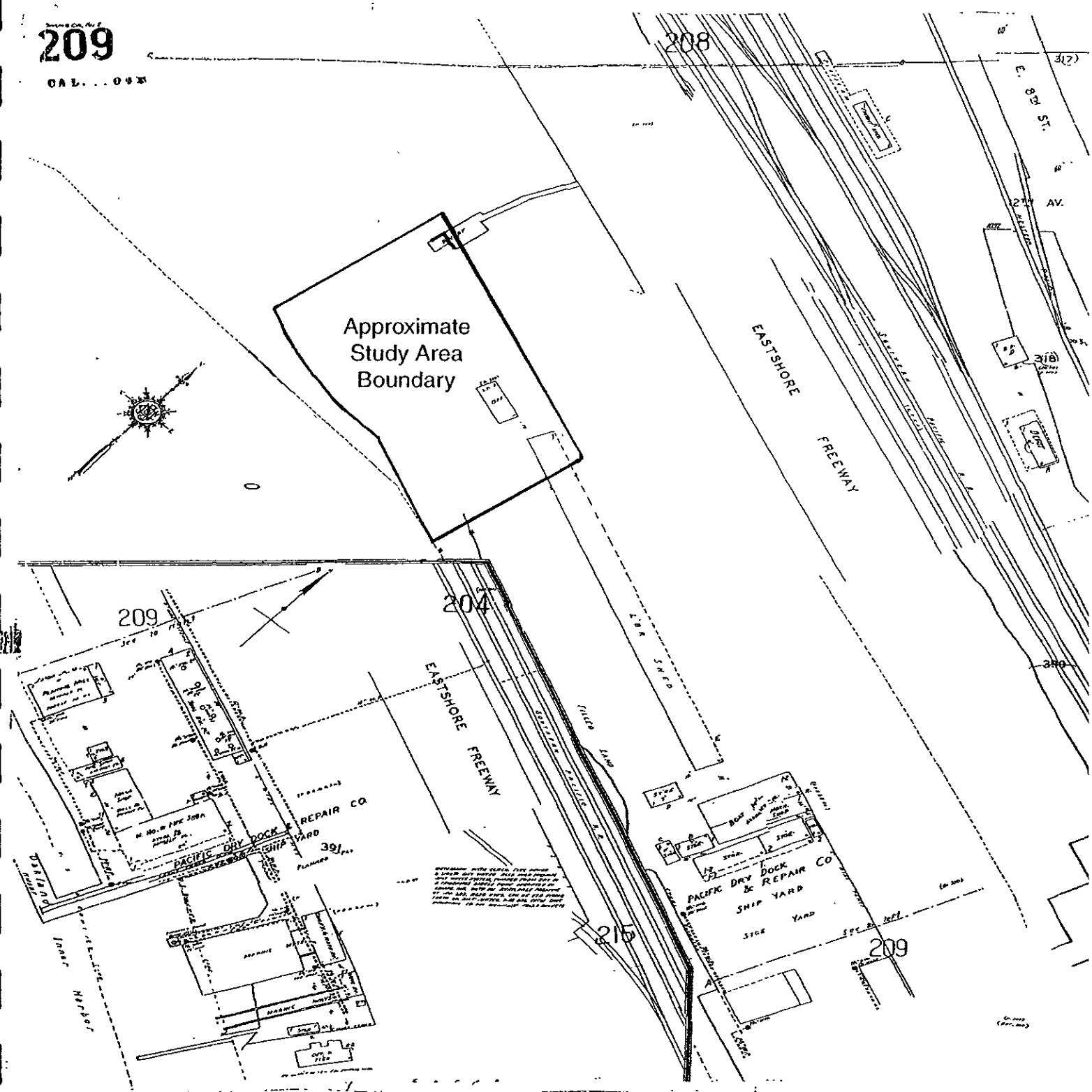
Preliminary for Estimate only.
3

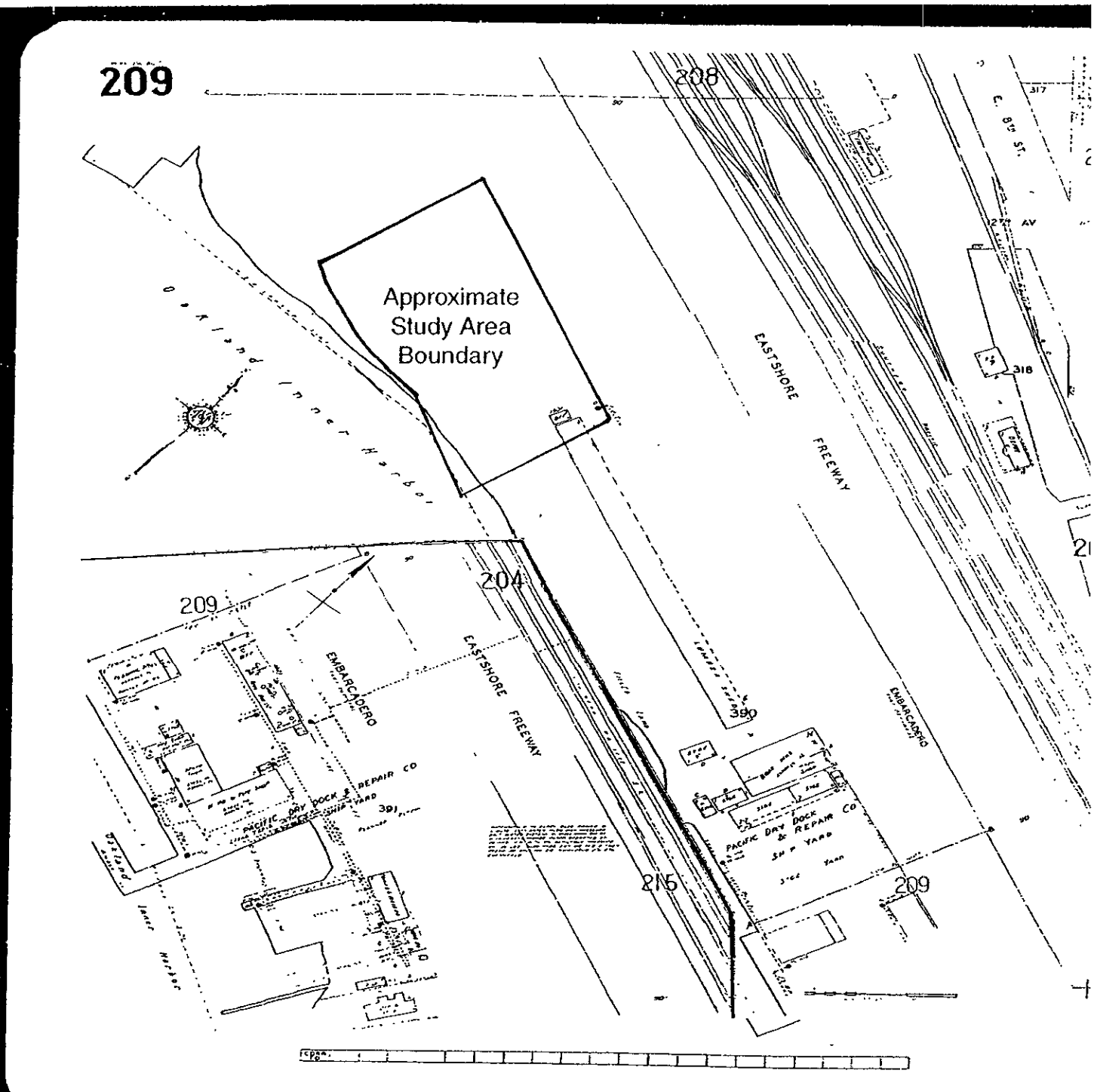
PORT OF OAKLAND OAKLAND, CALIFORNIA	
INNER HARBOR. SHEET PILE BULKHEAD FROM 9TH AVE. TO 18TH AVE.	
DATE Nov 17 1938 DRAWN BY CH SUBMITTED BY	SCALE CHECKED BY ASS'T CHIEF ENGINEER
SHEET 1 OF 1 SHEETS	FILE BB 359

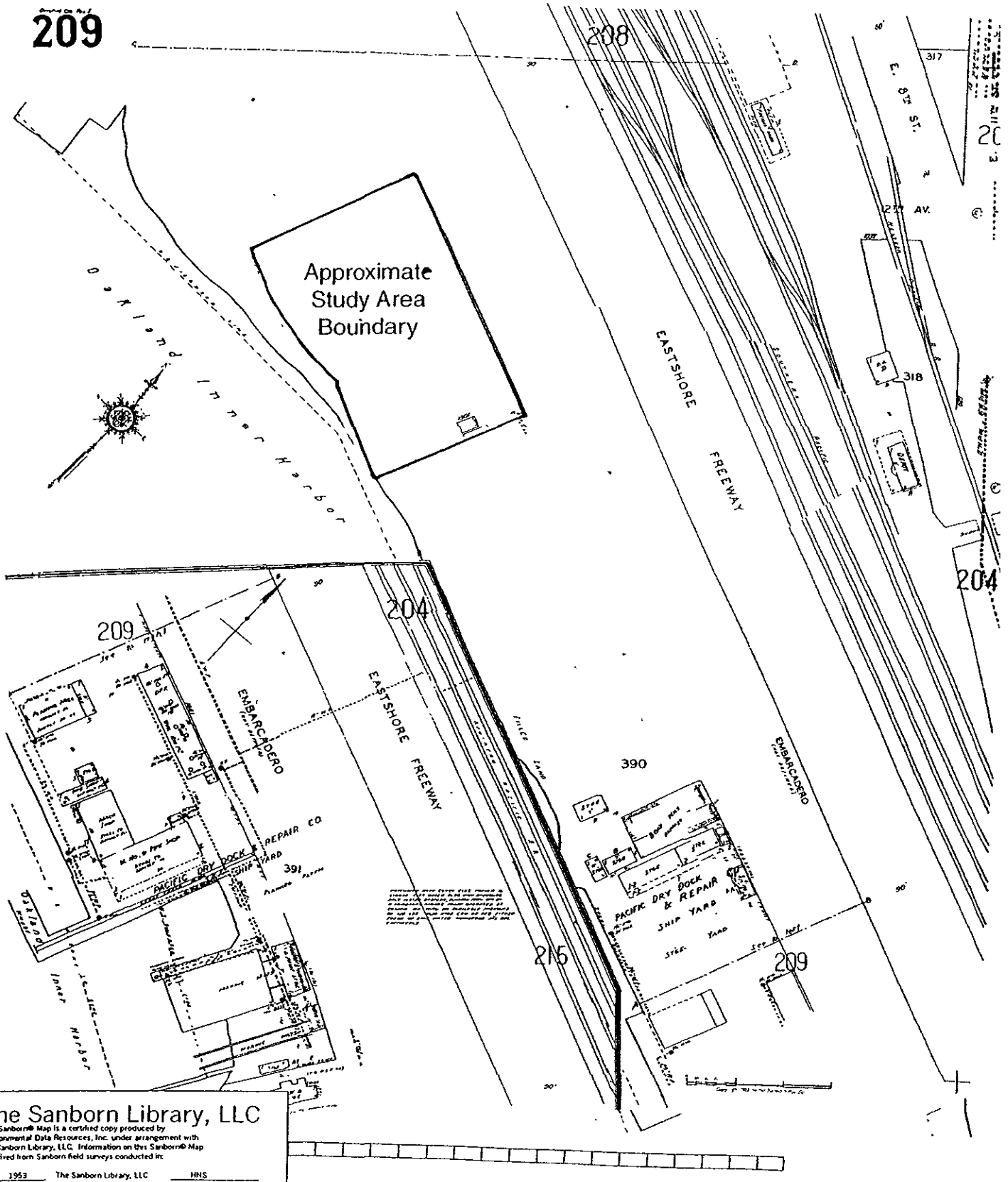
APPENDIX K

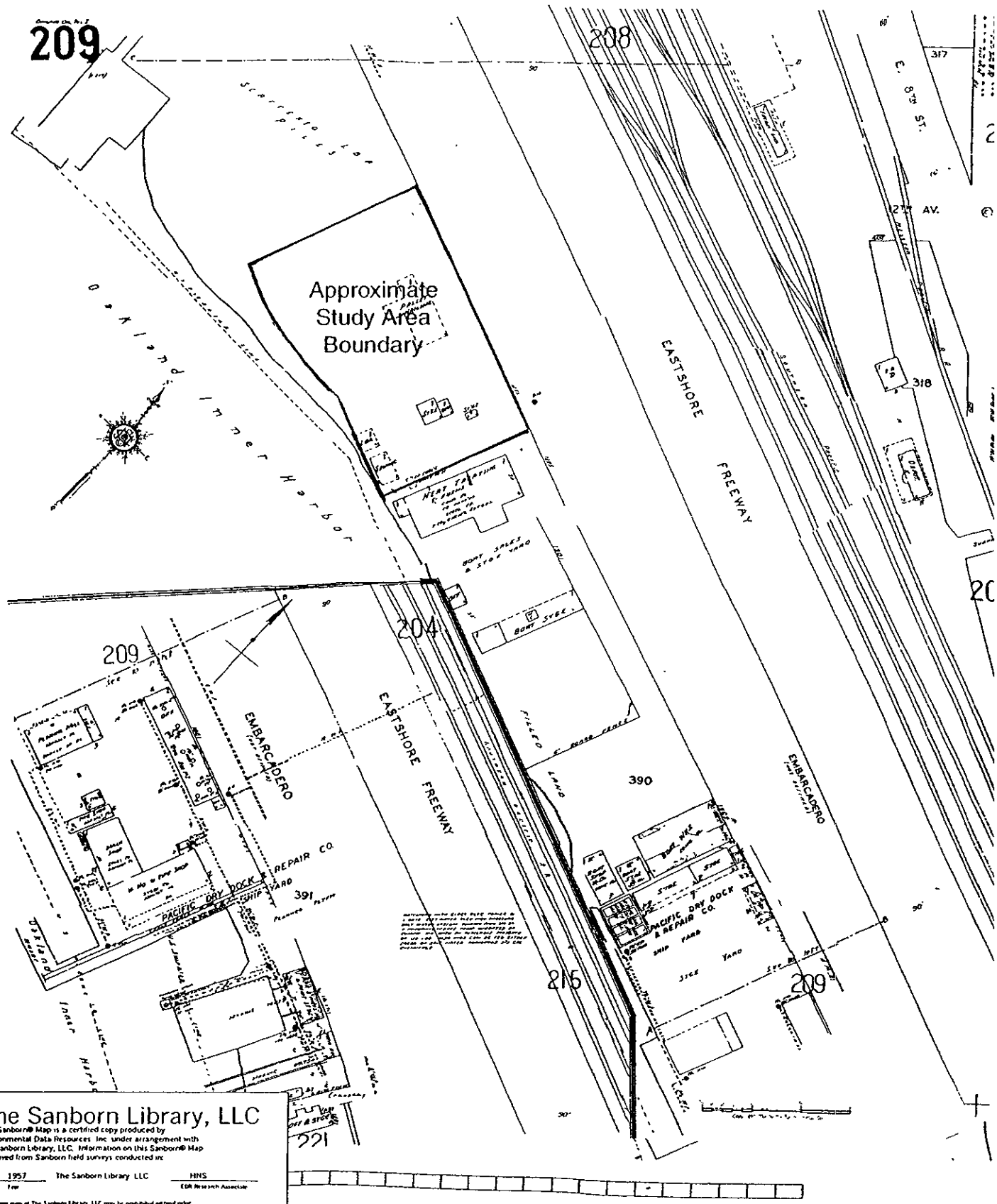
Sanborn Maps

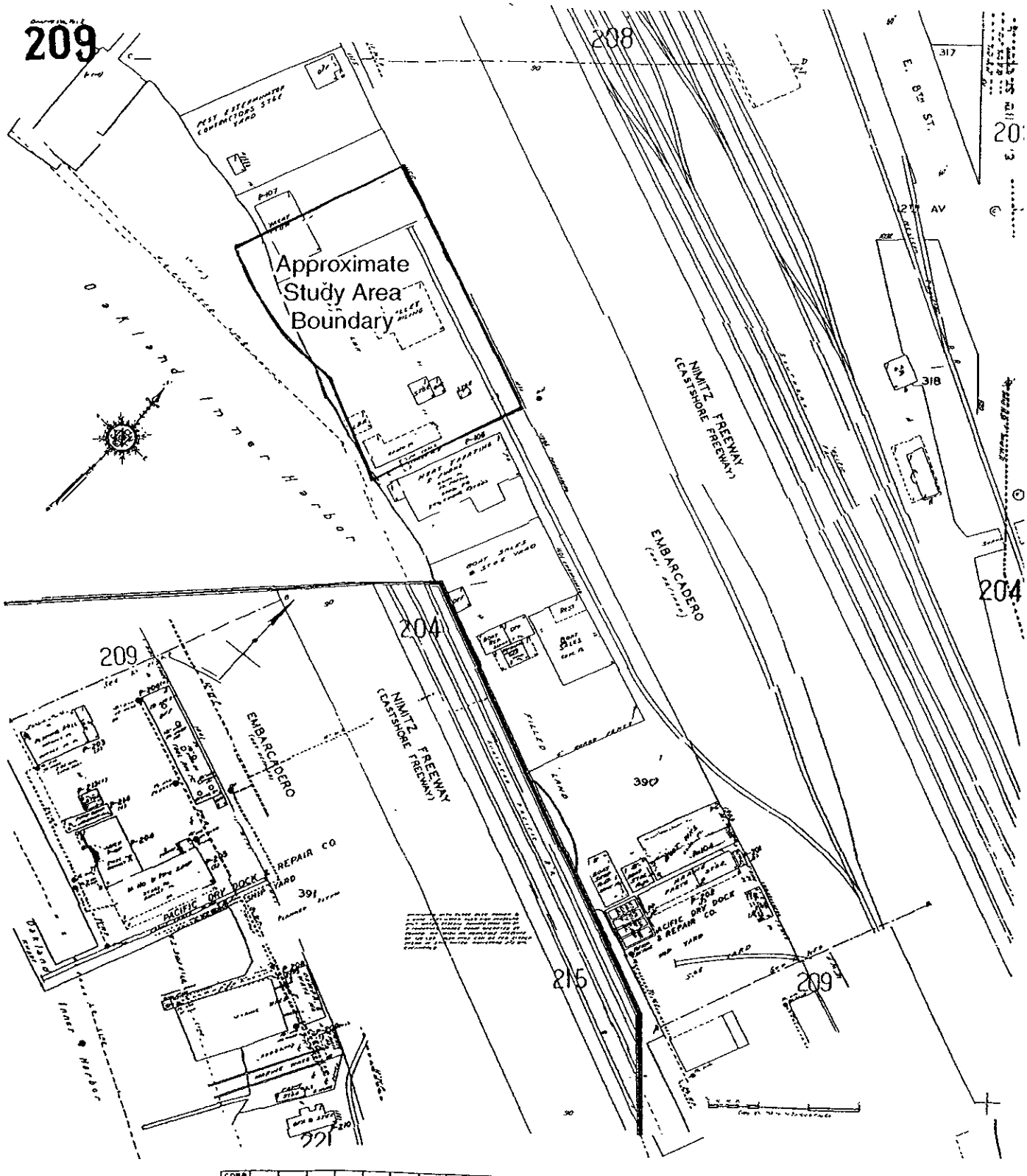


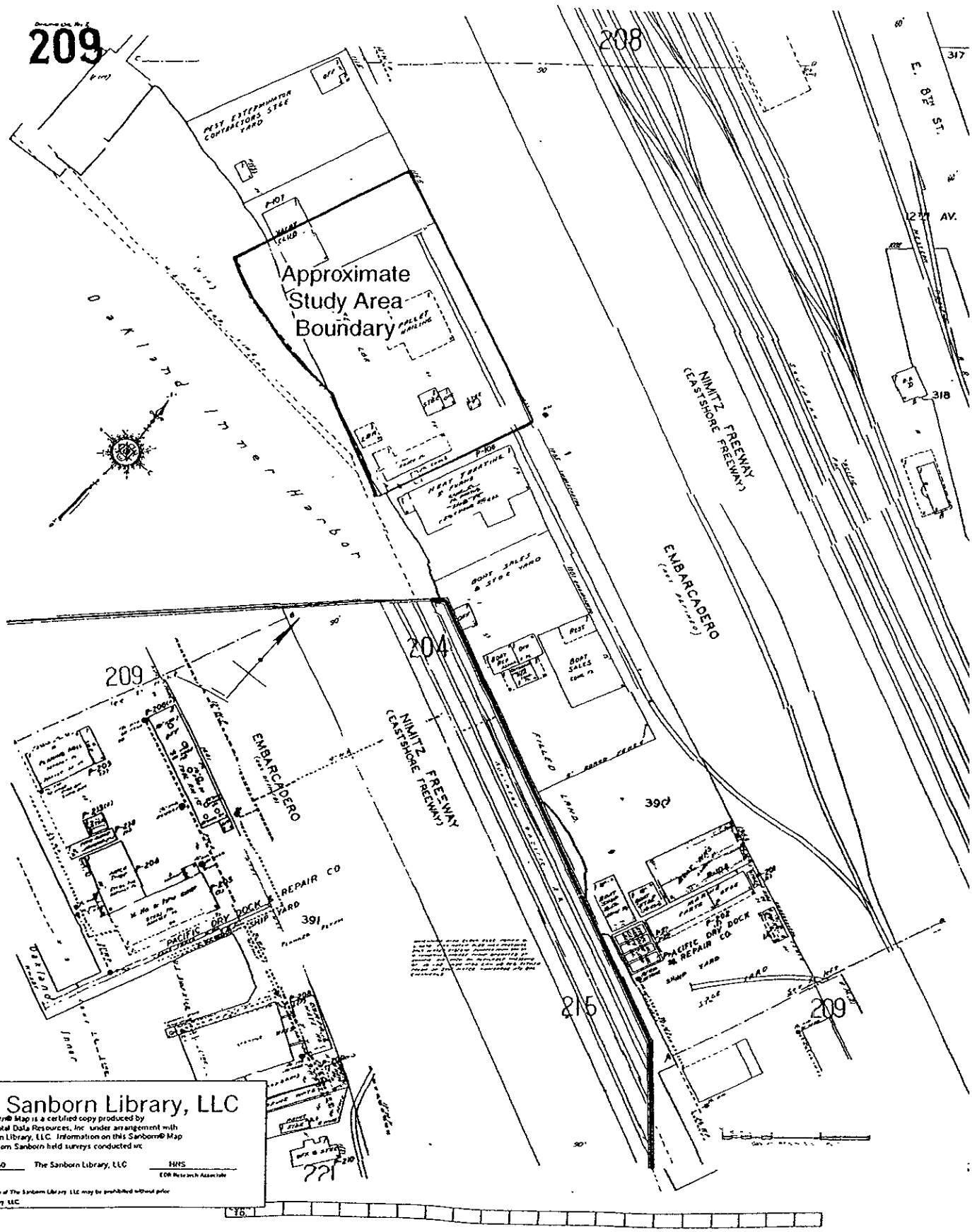


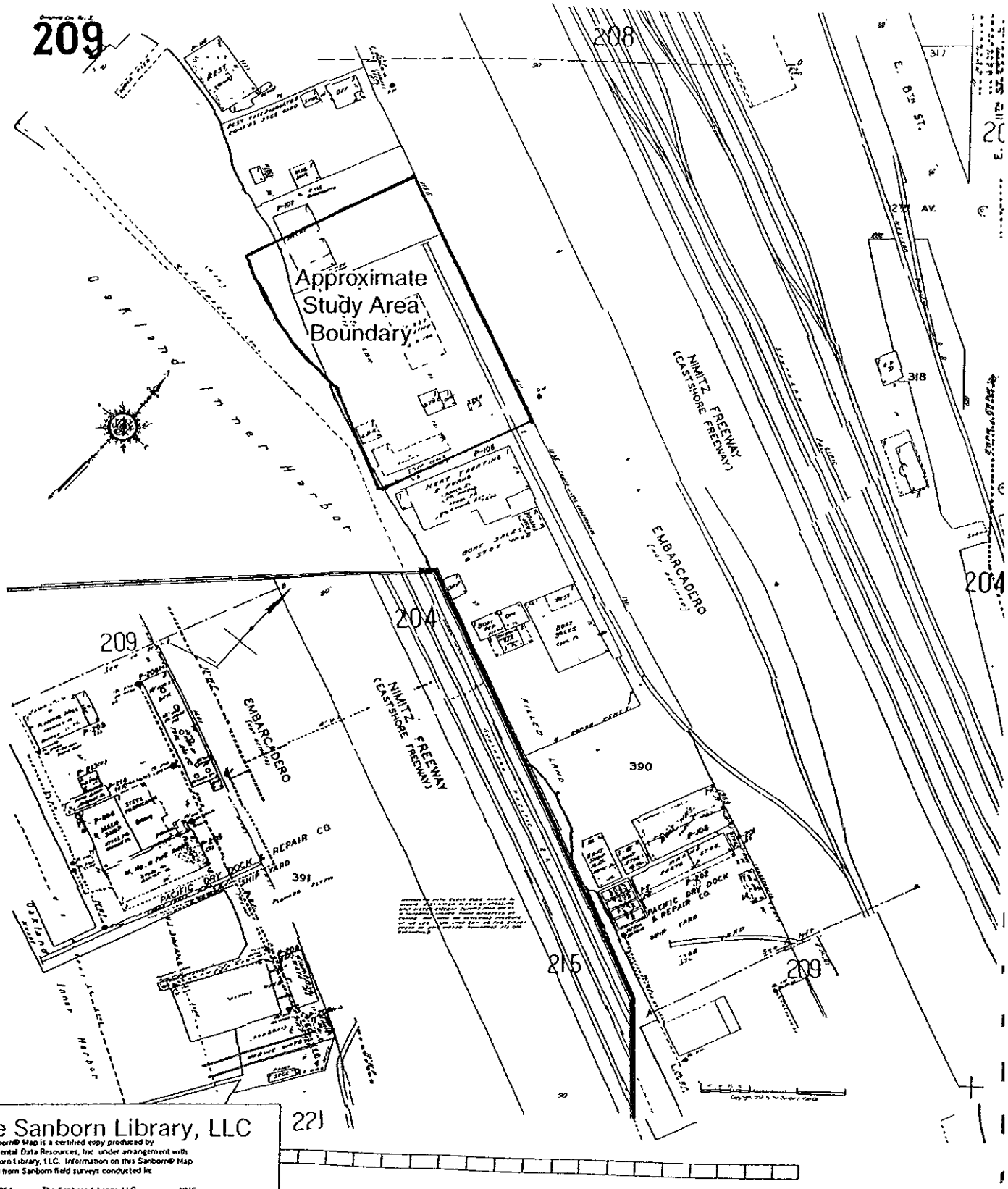












The Sanborn Library, LLC

This Sanborn® Map is a certified copy produced by Environmental Data Resources, Inc under arrangement with The Sanborn Library, LLC. Information on this Sanborn® Map is derived from Sanborn field surveys conducted in