REPORT ON INVESTIGATION OF IMPACTS FROM OFF-SITE SOURCES

Former Safeway Ice Cream Plant
2240 Filbert Street
Oakland, California

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PROFESSIONAL CERTIFICATION

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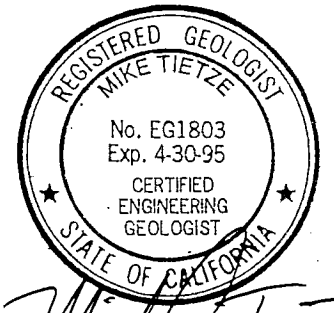

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REPORT ON INVESTIGATION OF IMPACTS FROM OFF-SITE SOURCES

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1.0 INTRODUCTION

This report presents the methods and results of the investigation of impacts from off-site sources conducted in September and October 1994 at the former Safeway Ice Cream Plant located at 2240 Filbert Street in Oakland, California (hereinafter the "Site"). The Site location is illustrated in Figure 1. The objective of this investigation was to evaluate the potential impact to the Site from petroleum fuel hydrocarbons and dry cleaning solvents, which could be migrating onto the Site in the shallow groundwater-bearing zone from three nearby, upgradient, leaking underground storage tank (LUST) incidents (MFG, 1994a and 1994b). McCulley, Frick & Gilman, Inc. (MFG) conducted the groundwater investigation on behalf of Western Investment Real Estate Trust (WIRET) in accordance with our proposal dated July 19, 1994.

The tasks described in this report include soil sampling and chemical analysis (Section 2.0), monitoring well installation and development (Section 3.0), and groundwater sampling and chemical analysis (Section 4.0). Conclusions of the groundwater investigation and recommendations for further work are discussed in Section 5.0. References cited in this report are listed in Section 6.0.

2.0 SOIL SAMPLING AND CHEMICAL ANALYSIS

The field investigation was performed on September 27, 1994 and included the following tasks: (1) drilling two soil borings; (2) collecting and analyzing soil samples from these borings; and (3) completing the soil borings as monitoring wells MW-1 and MW-2. The locations of the monitoring wells are shown in Figure 2. Monitoring well construction is discussed in Section 3.0.

Prior to drilling at the Site, permits for drilling the soil borings and constructing the monitoring wells were obtained from the Alameda County Zone 7 Water Agency (Zone 7) and the City of Oakland. Copies of the Zone 7 well permit and the City of Oakland Permit to Excavate in Streets are included in Appendices A and B, respectively. An encroachment permit for the installation of well MW-1 in Myrtle Street was obtained by WIRET from the City of Oakland.

2.1 FIELD METHODS

The soil borings were drilled using a CME 55 drilling rig. Drilling services were provided by Bayland Drilling, Inc. of Menlo Park, California. The borings were drilled using 8-inch outside diameter (o.d.) by 3.75-inch inside diameter (i.d.) hollow-stem augers.

Drilling and sampling equipment were steam cleaned prior to use for each boring. Soil cuttings and wash water generated during drilling were stored in 55-gallon drums, which were labeled and are being temporarily stored on the Site.

During drilling of borings MW-1 and MW-2, a Modified California split-spoon sampler (2.0-inch i.d.) was used to collect soil samples for visual description and for chemical analysis. The sampler was driven approximately 18 inches into the soil using a 140-pound, free-falling drive hammer with a 30-inch drop. Blow counts were recorded for every 6-inch sample interval and are noted on the boring logs in Appendix C. Soil samples were collected within brass liners inserted into the split-spoon samplers.

In boring MW-1, soil samples were collected from approximate depths of 3.5 to 5.0 feet below ground level (bgl), 8.5 feet to 16.5 feet bgl and 18.5 to 21.5 feet bgl. In boring MW-2, soil samples were collected at intervals of approximately 5 feet (Appendix C). The soils were described in the field for lithologic classification, color, relative moisture content and indications of contamination. Lithologic logs of the soil borings are included in Appendix C.

Following sample collection, the ends of each liner to be submitted to the analytical laboratory were covered with Teflon® sheets, capped with polyethylene lids, and then sealed with duct tape. The samples were labeled, placed in individual Ziploc® bags and then immediately placed in an insulated, ice-cooled chest. A chain-of-custody record was completed for the samples and accompanied the samples until receipt by the laboratory. A copy of the chain-of-custody record is provided in Appendix D.

Headspace measurements of soil from each drive interval from which a sample was collected for potential laboratory analysis were made in the field using a portable photoionization detector (PID) (Photovac Microtip Model MC-200), in accordance with MFG's written Standard Operating Procedures. The response factor of the PID was set so that the instrument would read in parts per million (ppm) as isobutylene. To prepare the soil for headspace measurement, the soil was sealed in a polyethylene Ziploc® bag with some air space, then broken up within the bag and agitated. The headspace reading was taken after approximately ten minutes by inserting the PID probe into the air space *within* the bag. The highest PID reading recorded for each sample is noted on the boring log opposite the respective sample interval (Appendix C). Field headspace measurements made during drilling of MW-1 appeared to be influenced by the presence of water vapor and therefore are not recorded on the log for this boring.

Following drilling and soil sampling, the soil borings were completed as monitoring wells. Monitoring well installation and development methods are discussed in Section 3.0.

The soils encountered during the drilling of boring MW-1 are described as follows. Asphalt and aggregate baserock (coarse gravel with sand and silt) underlain by hard subangular cobbles (cobblestones) was encountered from the surface to a depth of approximately 1.4 feet bgl. This material was underlain by silty clay from approximately 1.4 feet to 8.5 feet bgl and by sandy clay from approximately 8.5 to 10.4 feet bgl. Beneath this clayey stratum, interbedded gravel, gravel with sand, sand with gravel and sand were encountered to a depth of approximately 19.8 feet bgl. This

coarse grained (sand and gravel) stratum was underlain by sandy clay, clayey sand and fine sand, respectively, to the maximum depth explored of approximately 21.5 feet bgl. Free water was first encountered in the soils at a depth of approximately 12 feet bgl.

The materials encountered during drilling of MW-2 are described as follows. Asphalt underlain by baserock was encountered from the surface to a depth of approximately 1 foot bgl. The baserock was underlain by silty clay to the maximum depth explored of approximately 23.2 feet bgl. In the soil, free water was first observed in small, clay-filled channels (possible relict root holes) within silty clay sampled from a depth of approximately 18.5 to 20 feet bgl. Free water was measured in the augers at approximately 15 feet bgl at the time of drilling. Water levels in well MW-2 recovered relatively rapidly during well development (Section 3.2), suggesting that thin, water-yielding beds of coarse grained material may be present between the sampled intervals in this boring.

2.2 ANALYTICAL METHODS AND RESULTS

2.2.1 Analytical Methods

One soil sample collected from boring MW-1 from a depth of 11.5 to 12 feet bgl, and one soil sample collected from boring MW-2 from a depth of 14 to 14.5 feet bgl were submitted for chemical analysis to Sequoia Analytical (Sequoia) of Redwood City, California, a California Department of Health Services-certified analytical laboratory. The soil samples were analyzed for:

- Total Purgeable Petroleum Hydrocarbons (TPPH) as Gasoline (EPA Method 5030/modified EPA Method 8015);
- Total Extractable Petroleum Hydrocarbons (TEPH) as Diesel and Motor Oil (EPA Method 3550/modified EPA Method 8015);
- Benzene, Toluene, Ethylbenzene and total Xylenes (BTEX) (EPA Methods 5030/8020); and
- Halogenated Volatile Organic Compounds (EPA Method 8010).

Analytical results for these samples are presented in Table 1. Copies of the laboratory analytical report and chain-of-custody record for the samples are included in Appendix D.

2.2.2 Results of Soil Boring MW-1

TPPH as gasoline were detected in the soil sample collected from 11.5 to 12 feet bgl in boring MW-1 (MW-1-4-1) at a concentration of 7.9 milligrams per kilogram (mg/Kg). The laboratory described the chromatogram pattern for this sample as weathered gasoline with a carbon range of C7 (seven carbon atoms) to C12. Benzene and toluene were not detected in this sample. Ethylbenzene was detected at a concentration of 0.032 mg/Kg, and total xylenes were detected at a concentration of 0.079 mg/Kg (Table 1).

TEPH were detected at a concentration of 3.8 mg/Kg as diesel and 14 mg/Kg as motor oil in the above sample. The laboratory described the chromatogram pattern of the TEPH as diesel analysis as a non-diesel mixture of hydrocarbons with a carbon range less than C24. The laboratory described the chromatogram pattern of the TEPH as motor oil analysis as a mixture of motor oil and unidentified hydrocarbons with a carbon range of less than C18.

Halogenated volatile organic compounds were not detected at or above their respective laboratory method reporting limits in this sample (Appendix D).

2.2.3 Results of Soil Boring MW-2

None of the target constituents were detected at or above their respective laboratory method reporting limits in the soil sample collected from boring MW-2 (Table 1).

2.3 REVIEW OF SAMPLE CHROMATOGRAMS FROM MW-1

To further evaluate the nature of the hydrocarbons detected in soil sample MW-1-4-1, MFG obtained copies of the chromatograms for the TPPH and TEPH analyses and compared them to: (1) standard chromatograms provided by Sequoia; and (2) MFG's in-house library of chromatograms for petroleum product standards. Copies of the sample and standard chromatograms provided by Sequoia are included in Appendix F.

The TPPH as gasoline and BTEX chromatograms for sample MW-1-4-1 appear to be consistent with a weathered gasoline pattern. The more volatile (earlier eluting) and more soluble

(aromatic) compounds appear to have been preferentially removed from the hydrocarbon mixture, which elutes from C7 to C12. Based upon our review, the presence of a weathered solvent with the carbon range C7 to C12, which includes such candidates as Stoddard solvent and mineral spirits, or the presence of weathered kerosene, cannot be ruled out. The TEPH as diesel chromatogram for sample MW-1-4-1 indicates the presence of a mixture of hydrocarbon compounds generally lighter than diesel fuel, which is consistent with the presence of weathered gasoline and/or the other above mentioned petroleum products. The scattered peaks that are present later in the TEPH as diesel chromatogram do not appear to be representative of diesel fuel. The TEPH as motor oil chromatogram appears to be consistent with the presence of motor oil and also contains unidentified hydrocarbon peaks.

3.0 MONITORING WELL INSTALLATION AND DEVELOPMENT

3.1 MONITORING WELL INSTALLATION

Borings MW-1 and MW-2 were completed as monitoring wells on September 27, 1994. The wells were installed under the supervision of MFG. The well locations are shown in Figure 2. The construction details of the monitoring wells are included on the boring logs in Appendix C.

The monitoring wells were constructed inside of the hollow-stem augers as the auger flights were removed from the boreholes in small increments. The wells were constructed using 2-inch diameter, flush-threaded, PVC unperforated and slotted casing. Well screen with 0.020-inch slots was used in the construction of the wells. A flush-threaded PVC end cap was secured on the bottom of the slotted casing prior to lowering it through the center of the hollow-stem augers. The slotted casing intervals extend from approximately 10.1 to 19.8 feet bgl and 13.0 to 22.7 feet bgl in monitoring wells MW-1 and MW-2, respectively. The unperforated casing intervals extend from the top of the slotted sections to near the ground surface in both two wells.

A filter pack consisting of RMC Lonestar #2/12 sand was installed in wells MW-1 and MW-2 from the bottom of the well casings to approximately 1 to 1.5 feet above the slotted casing interval. Approximately 1 foot of bentonite pellets was then placed on top of the filter pack in each well and hydrated with distilled water. The remaining annular space, from the top of the bentonite pellets to approximately 0.8 feet bgl, was sealed with cement/bentonite grout. Locking watertight plugs were placed in the tops of the PVC well casings and were padlocked. The wells were completed at the surface in traffic-rated, steel well vaults set in concrete around the well heads.

3.2 MONITORING WELL DEVELOPMENT

The two monitoring wells were developed on September 30, 1994 by a combination of pumping, bailing and surging. Prior to beginning development in each well, the presence of a light immiscible layer or sheen (floating product) was checked using a clear, PVC bailer. No immiscible

layer or sheen was observed in the wells. During development, the temperature, pH and specific conductance of the groundwater removed from the wells were monitored. Each well was developed until these parameters were relatively stable and the groundwater removed was relatively free of sediment. During the development process, approximately 35 and 30 casing volumes (approximately 54 and 55 gallons) of water were removed from monitoring wells MW-1 and MW-2, respectively. During well development, a slight weathered hydrocarbon odor was observed in the groundwater purged from well MW-2. No odor was observed in the groundwater purged from well MW-1.

The water generated during development of the wells was placed in 55-gallon drums, which were labeled and are being temporarily stored at the Site.

Well development equipment was washed in a Liqui-Nox® detergent-water solution and rinsed with tap water prior to use in each well. Free product measurement equipment was washed in a Liqui-Nox® detergent-water solution, rinsed with tap water and rinsed with distilled water prior to use in each well.

4.0 GROUNDWATER SAMPLING AND CHEMICAL ANALYSIS

4.1 FIELD METHODS

The methods used to measure the water levels and collect groundwater samples from the monitoring wells are described below.

4.1.1 Water Level Measurement

MFG measured the water levels in monitoring wells MW-1 and MW-2 on October 3, 1994 using a weighted, graduated steel tape. The depth to groundwater in wells MW-1 and MW-2, was measured as 10.11 and 12.05 feet, respectively, below a measuring point marked on the north side of each well casing. This corresponds with a groundwater depth of about 11 feet bgl at MW-1 and 13 feet bgl at MW-2. Following water level measurement in each well, MFG checked for the presence of a light immiscible layer (free product) or sheen using a clear, PVC bailer. No free product or sheen was observed in the wells.

4.1.2 Groundwater Sampling

MFG collected groundwater samples from the two monitoring wells on October 3, 1994. Prior to sample collection, each well was purged using a Teflon® bailer. At least four casing volumes of groundwater were removed from monitoring wells MW-1 and MW-2 (approximately 7 and 8 gallons, respectively) during the purging process. The temperature, pH and specific conductance of the water were monitored and were relatively stable at the end of purging.

After purging, a groundwater sample was collected from each well using a Teflon® bailer. One bailer volume collected from each well was used to measure the temperature, pH and specific conductance of the sample. The field measured values of these parameters were as follows:

Sample	Temperature (°C)	pH	Specific Conductance (micromhos/cm at 25 °C)
MW-1	21	6.9	1,050
MW-2	22	7.1	1,000

The following groundwater samples were collected from each well and placed in containers supplied by the laboratory:

- Total Purgeable Petroleum Hydrocarbons (TPPH) as Gasoline and Benzene, Toluene, Ethylbenzene and total Xylenes (BTEX): three, 40-milliliter (ml) glass vials closed with screw caps with Teflon®-lined septa, containing hydrochloric acid placed in the vials by the laboratory for sample preservation;
- Total Extractable Petroleum Hydrocarbons (TEPH) as Diesel and Motor Oil: two, 1-liter amber glass bottles with Teflon®-lined lids; and
- Halogenated Volatile Organic Compounds: two, 40-ml glass vials closed with screw caps with Teflon®-lined septa, containing hydrochloric acid placed in the vials by the laboratory for sample preservation.

After filling, the groundwater sample containers were placed in an ice-cooled, insulated chest for transport to the laboratory for analysis. A chain-of-custody record was completed for the samples and accompanied the samples until receipt by the laboratory.

All equipment used in purging and sampling the wells was washed in a Liqui-Nox® detergent-water solution, rinsed with tap water, and then rinsed with distilled water before use in each well.

The water generated during purging and sampling of the wells was placed in 55-gallon drums, which were labeled and are being temporarily stored at the Site.

4.2 ANALYTICAL METHODS AND RESULTS

The groundwater samples were submitted for chemical analysis to Sequoia. The groundwater samples were analyzed for:

- TPPH as Gasoline (EPA Method 5030/modified EPA Method 8015);
- TEPH as Diesel and Motor Oil (EPA Method 3510/modified EPA Method 8015);
- BTEX (EPA Methods 5030/8020); and
- Halogenated Volatile Organic Compounds (EPA Method 8010).

The laboratory results are summarized in Table 2. Copies of the laboratory report and chain-of-custody record are included in Appendix E.

4.2.1 Well MW-1

TPPH as gasoline were detected in the groundwater sample collected from well MW-1 at 160 µg/L. The chromatogram pattern was described by the laboratory as weathered gasoline in the carbon range C6 to C12. Benzene, toluene, ethylbenzene and total xylenes were not detected at or above their respective laboratory method reporting limits in this sample (Table 2).

TEPH quantified against a diesel standard were detected in the groundwater sample collected from well MW-1 at a concentration of 84 micrograms per liter (µg/L). The laboratory described the TEPH chromatogram pattern as a non-diesel mixture of hydrocarbons with a carbon range less than C16. TEPH as motor oil were not detected at or above the laboratory method reporting limit in this sample.

Halogenated volatile organic compounds were not detected at or above their respective laboratory method reporting limits in this sample (Appendix E).

4.2.2 Well MW-2

TPPH as gasoline were detected in this sample at a concentration of 1,100 µg/L. The laboratory described the chromatogram pattern as a weathered gasoline in the carbon range C6 to C12. Benzene was detected in this sample at a concentration of 7.5 µg/L. Toluene, ethylbenzene and total xylenes were not detected at or above their respective laboratory method reporting limits in this sample.

TEPH quantified against a diesel standard were detected in the groundwater sample collected from well MW-2 at a concentration of 730 μg/L. The laboratory described the TEPH chromatogram pattern as a non-diesel mixture of hydrocarbons with a carbon range less than C16. TEPH as motor oil were not detected at or above the laboratory method reporting limit in this sample.

Halogenated volatile organic compounds were not detected at or above their respective laboratory method reporting limits in this sample (Appendix E).

4.3 REVIEW OF SAMPLE CHROMATOGRAMS

To further evaluate the nature of the hydrocarbons detected in the groundwater samples, MFG obtained copies of the chromatograms for the TPPH and TEPH analyses and compared them to: (1) standard chromatograms provided by Sequoia; and (2) MFG's in-house library of chromatograms for petroleum product standards. Copies of the sample and standard chromatograms provided by Sequoia are included in Appendix F.

4.3.1 Well MW-1

The TPPH as gasoline and BTEX chromatograms for sample MW-1 appear to be consistent with a weathered gasoline pattern. Many of the more volatile (earlier eluting) and more soluble (aromatic) compounds appear to have been preferentially removed from the hydrocarbon mixture, which elutes from C6 to C12. The mixture appears similar to, but somewhat lighter than, the hydrocarbons present in soil sample MW-1-4-1 (Section 2.3). Based upon MFG's review of the sample chromatograms, the presence of a weathered product with a carbon range C7 or C8 to C12, which includes such candidates as Stoddard solvent, mineral spirits and kerosene, cannot be ruled out. The TEPH as diesel chromatogram for this sample indicates the presence of a hydrocarbon mixture lighter than diesel with a carbon range less than C16, which is consistent with the presence of weathered gasoline and/or the other above mentioned petroleum products.

4.3.2 Well MW-2

The TPPH as gasoline and BTEX chromatograms for sample MW-2 appear to be generally consistent with the presence of weathered gasoline, but contain a concentration of larger peaks eluting

early in the chromatogram and a second concentration of larger peaks eluting late in the chromatogram. The early eluting peaks, together with the presence of benzene, suggest the presence of relatively fresh product in addition to the weathered gasoline. The concentration of late eluting peaks in the chromatogram suggests a heavier petroleum product could be present in addition to gasoline. The TEPH as diesel chromatogram pattern indicates the presence of a hydrocarbon mixture lighter than diesel with a carbon range less than C16, which is consistent with the presence of weathered gasoline and/or a heavier (approximately kerosene range) petroleum product.

5.0 CONCLUSIONS AND RECOMMENDATIONS

The agency file review discussed in our Phase II investigation report identified three upgradient fuel leak incidents as having a potential impact the subject Site (MFG, 1994b). These are: ARCO Station # 2169, located at 889 West Grand Avenue, approximately 300 feet east-southeast of well MW-1; a former Chevron Station # 9-1853, located at 850 West Grand Avenue, approximately 350 feet southeast of well MW-2; and Meaders Dry Cleaning, located at 800 West Grand Avenue, approximately 1,000 feet east-southeast of the Site. Our file review indicated that the lateral hydraulic (groundwater) gradient at the ARCO facility generally has ranged from the northwest to the north-northwest, and that the groundwater gradient at the former Chevron facility generally has ranged from the west to the northwest. Based upon these data, wells MW-1 and MW-2 are located near the upgradient boundaries of the subject Site and downgradient from the ARCO and Chevron sites, respectively. The Meaders Dry Cleaning facility appears to be upgradient of the Chevron facility.

5.1 MONITORING WELL MW-1

TPPH, TEPH, ethylbenzene and total xylenes were detected at relatively low concentrations in a soil sample from boring MW-1 at a depth of 11.5 to 12 feet bgl (near the water table). The laboratory described the TPPH chromatogram pattern as weathered gasoline. The laboratory described the TEPH chromatogram pattern as a non-diesel mixture. TEPH resembling motor oil were also detected. Based on MFG's review of the chromatograms for these analyses, the presence of weathered gasoline and motor oil is the most plausible explanation for the observed MW-1 chromatogram patterns; however, the presence of weathered Stoddard solvent, mineral spirits or kerosene cannot be ruled out.

In the groundwater sample from well MW-1, TPPH resembling weathered gasoline and TEPH described as a non-diesel mixture with a carbon range less than C16 were detected. TEPH as motor oil, BTEX and halogenated volatile organic compounds were not detected in this sample. The TPPH and TEPH as diesel chromatogram patterns appear generally similar to those for soil sample MW-1-4-

1, suggesting that the groundwater sample contains the dissolved phase of the same products found in the soil sample. These products are most likely weathered gasoline and motor oil; however, the presence of weathered Stoddard solvent, mineral spirits or kerosene cannot be eliminated. The potential sources of petroleum products (excluding motor oil) in the groundwater from well MW-1 include: (1) older releases from the ARCO facility (889 West Grand Avenue) and/or the former Chevron facility (850 West Grand Avenue) located upgradient of the vicinity of this well; (2) another upgradient, but as yet unreported, source; and (3) a nearby source at the Site. The subgrade soil beneath a layer of cobblestones underlying Myrtle Street at this location was observed to have a petroleum oil odor and is a potential source of the TEPH as motor oil found in the groundwater sample.

5.2 MONITORING WELL MW-2

In the groundwater sample from well MW-2, TPPH resembling weathered gasoline and TEPH described as a non-diesel mixture with a carbon range less than C16 were detected. Benzene was also detected at a concentration 7.5 μg/L. TEPH as motor oil, toluene, ethylbenzene, total xylenes and halogenated volatile organic compounds were not detected in this sample. Based on MFG's review of the chromatogram patterns for these analyses, the sample appears to contain a mixture of weathered and relatively fresh gasoline. A heavier petroleum product in the kerosene range may also be present. The presence of benzene and lighter gasoline components in the groundwater sample from this well suggest that these compounds may have migrated to the vicinity of well MW-2 from a relatively recent upgradient release. The closest upgradient sources with known releases of gasoline are the former Chevron facility (850 West Grand Avenue) and the ARCO facility (889 West Grand Avenue). The presence of what appears to be weathered gasoline and heavier (than gasoline) hydrocarbons in the groundwater sample from this well may indicate the migration of an older release from a service station or another upgradient, but as yet unreported, source.

5.3 RECOMMENDATIONS

To further investigate the nature and potential source(s) of the contaminants detected at wells MW-1 and MW-2, MFG recommends the following additional tasks:

(1) Obtain information regarding the groundwater gradient at the Site to further substantiate the locations of the potential contamination sources. This information could be obtained by incorporating wells MW-1 and MW-2 in the network of any additional monitoring wells installed at the Site. The top-of-casing elevations of wells MW-1 and MW-2 and the additional wells should be surveyed to the National Geodetic Vertical Datum of 1929 (NGVD). The water levels in all wells at the Site should be measured on the same day, within the shortest feasible time period. Alternately, the top-of-casing elevations at the ARCO and former Chevron facilities are reported to be surveyed to a "mean sea level" datum, which probably is the NGVD. If ARCO and/or Chevron agree to cooperate with WIRET in the collection of groundwater data, then the survey measurements should be checked and water levels in monitoring wells at all three sites should be measured on the same day. These measurements could be used to substantiate the regional groundwater gradient.

(2) Review up-to-date information in the Alameda County Department of Environmental Health files regarding the ARCO and former Chevron facilities, to further compare the data obtained for wells MW-1 and MW-2 during this investigation with current findings at nearby facilities. This review would include data regarding soil remediation at the former Chevron facility that occurred in June 1994 (MFG, 1994b).

(3) Collect and analyze additional groundwater samples from wells MW-1 and MW-2 to further substantiate current findings. In addition to analyses for TPPH, TEPH and BTEX, "fuel fingerprint" chromatographic analyses of the groundwater samples should be performed by a laboratory that specializes in the identification of petroleum hydrocarbons (e.g., Friedman and Bruya of Seattle, Washington).

(4) Obtain chromatograms of the soil and groundwater grab samples taken at the Site by Levine•Fricke in July 1994 (Levine•Fricke, 1994), if available. Review these chromatograms for comparison with the soil and groundwater samples obtained during this investigation.

6.0 REFERENCES

Levine•Fricke, 1994, Soil and Ground-Water Investigation Report, Former Safeway Ice Cream Manufacturing Plant, 2240 Filbert Street, Oakland, California: Prepared for Safeway Environmental Health and Safety Division and Western Investment Real Estate Trust, September 14.

McCulley, Frick & Gilman, Inc. (MFG), 1994a, Phase I Environmental Site Assessment Report, Safeway Ice Cream Plant, Oakland, California: Prepared for Western Investment Real Estate Trust, March 14.

McCulley, Frick & Gilman, Inc. (MFG), 1994b, Report on Limited Subsurface Investigation and Agency File Review (Phase II Environmental Site Assessment), Safeway Ice Cream Plant, Oakland, California: Prepared for Western Investment Real Estate Trust, June 29.

TABLE 1

CHEMICAL ANALYSES OF SOIL SAMPLES FOR TPPH, TEPH AND BTEX[1]

Former Safeway Ice Cream Plant
2240 Filbert Street
Oakland, California

SAMPLE NO.	DATE SAMPLED	BORING NUMBER	SAMPLE DEPTH (feet bgl[6])	TPPH as GASOLINE[2] (mg/Kg)	TEPH as MOTOR OIL[3] (mg/Kg)	TEPH as DIESEL[4] (mg/Kg)	BENZENE[5] (mg/Kg)	TOLUENE[5] (mg/Kg)	ETHYL-BENZENE[5] (mg/Kg)	TOTAL XYLENES[5] (mg/Kg)
		Reporting Limit		1.0	10	1.0	0.005	0.005	0.005	0.005
MW-1-4-1	27-Sep-94	MW-1	11.5-12.0	7.9[7]	14[8]	3.8[9]	ND[10] [0.01][11]	ND [0.01]	0.032	0.079
MW-2-3-2	27-Sep-94	MW-2	14.0-14.5	ND	ND	ND	ND	ND	ND	ND

NOTES:

1 TPPH = Total Purgeable Petroleum Hydrocarbons; TEPH = Total Extractable Petroleum Hydrocarbons; BTEX = benzene, toluene, ethylbenzene and total xylenes.
2 TPPH analyzed using EPA Method 5030/modified EPA Method 8015; quantified against a gasoline standard.
3 TEPH analyzed using EPA Method 3550/modified EPA Method 8015; quantified against a motor oil standard.
4 TEPH analyzed using EPA Method 3550/modified EPA Method 8015; quantified against a diesel standard.
5 Benzene, toluene, ethylbenzene and total xylenes analyzed using EPA Methods 5030/8020.
6 bgl = below ground level.
7 The laboratory noted that the sample contained weathered gasoline with a carbon range of C7 (7 carbon atoms) to C12.
8 The laboratory noted that the sample contained to a mixture of motor oil and unidentified hydrocarbons with a carbon range less than C18.
9 The laboratory noted that the sample contained a non-diesel mixture of hydrocarbons with a carbon range less than C24.
10 ND = not detected at or above the reporting limit indicated at top of column.
11 [ ] indicates reporting limit other than that indicated at top of column.

TABLE 2

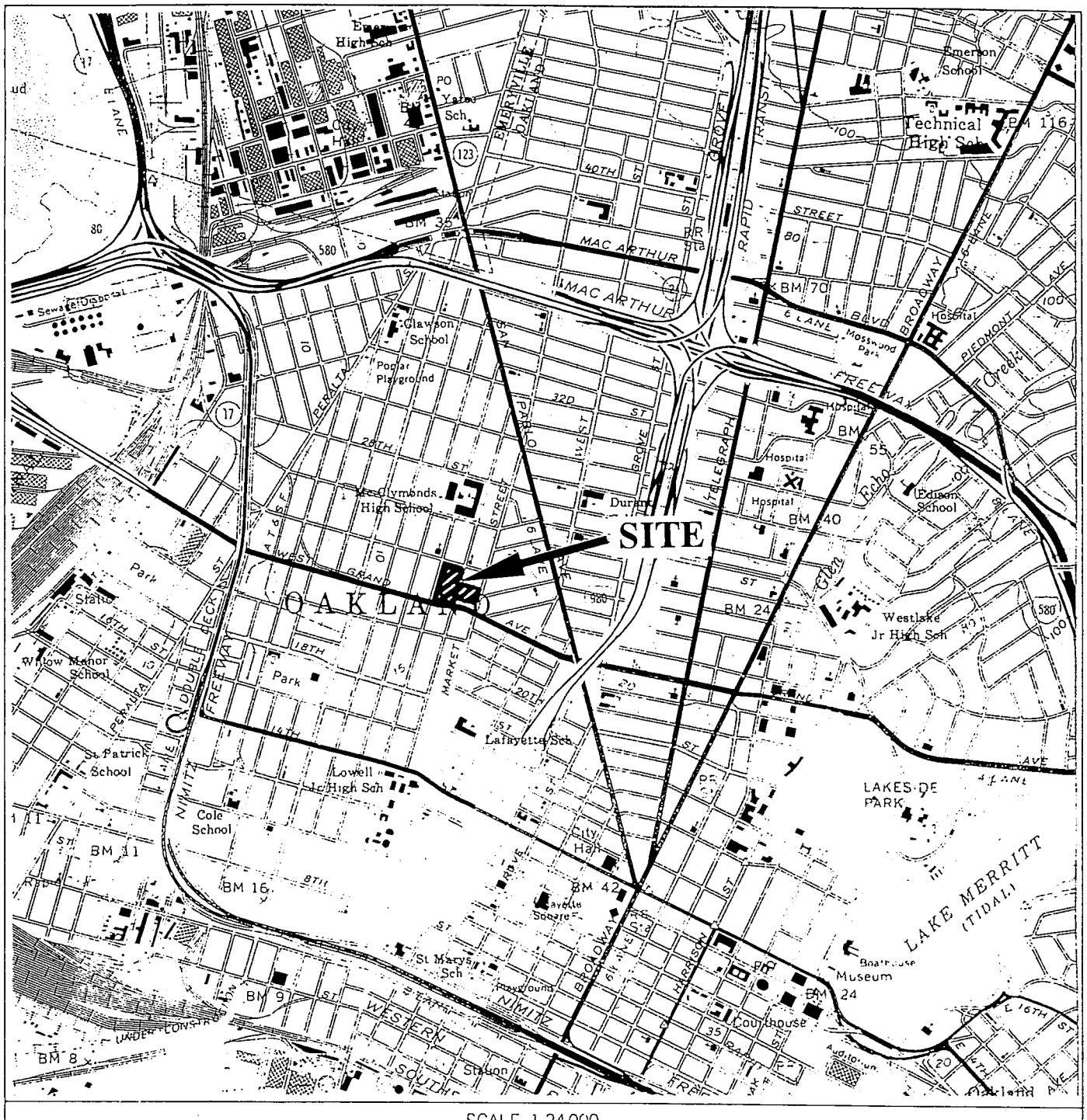
CHEMICAL ANALYSES OF GROUNDWATER SAMPLES FOR TPPH, TEPH AND BTEX[1]

Former Safeway Ice Cream Plant
2240 Filbert Street
Oakland, California

WELL NUMBER	SAMPLE NUMBER	DATE SAMPLED	TPPH as GASOLINE[2] (µg/L)	TEPH as DIESEL[3] (µg/L)	TEPH as MOTOR OIL[4] (µg/L)	BENZENE[5] (µg/L)	TOLUENE[5] (µg/L)	ETHYLBENZENE[5] (µg/L)	TOTAL XYLENES[5] (µg/L)
		Reporting Limit:	50	50	500	0.50	0.50	0.50	0.50
MW-1	MW-1	03-Oct-94	160[6]	84[7]	ND[8]	ND	ND	ND	ND
MW-2	MW-2	03-Oct-94	1,100[6]	730[7]	ND	7.5	ND [2.5][9]	ND [2.5]	ND [2.5]

NOTES:

1. TPPH = Total Purgeable Petroleum Hydrocarbons; TEPH = Total Extractable Petroleum Hydrocarbons; BTEX = benzene, toluene, ethylbenzene and total xylenes.
2. Total Purgeable Petroleum Hydrocarbons (TPPH) analyzed using EPA Method 5030/modified EPA Method 8015. Quantified against a gasoline standard.
3. Total Extractable Petroleum Hydrocarbons (TEPH) analyzed using EPA Method 3510/modified EPA Method 8015. Quantified against a diesel standard.
4. Total Extractable Petroleum Hydrocarbons (TEPH) analyzed using EPA Method 3510/modified EPA Method 8015. Quantified against a motor oil standard.
5. Benzene, toluene, ethylbenzene and total xylenes analyzed using EPA Methods 5030/8020.
6. The laboratory noted that the sample contained weathered gasoline in the carbon range C6 (6 carbon atoms) to C12.
7. The laboratory noted that the sample contained a non-diesel mixture of hydrocarbons with a carbon range of less than C16.
8. ND = not detected at or above the reporting limit indicated at top of column.
9. [ ] indicates reporting limit other than indicated at top of column.



SCALE 1 24 000

0 1 MILE

1000 0 1000 2000 3000 4000 5000 6000 FEET

0 1 KILOMETER

CONTOUR INTERVAL 20 FEET

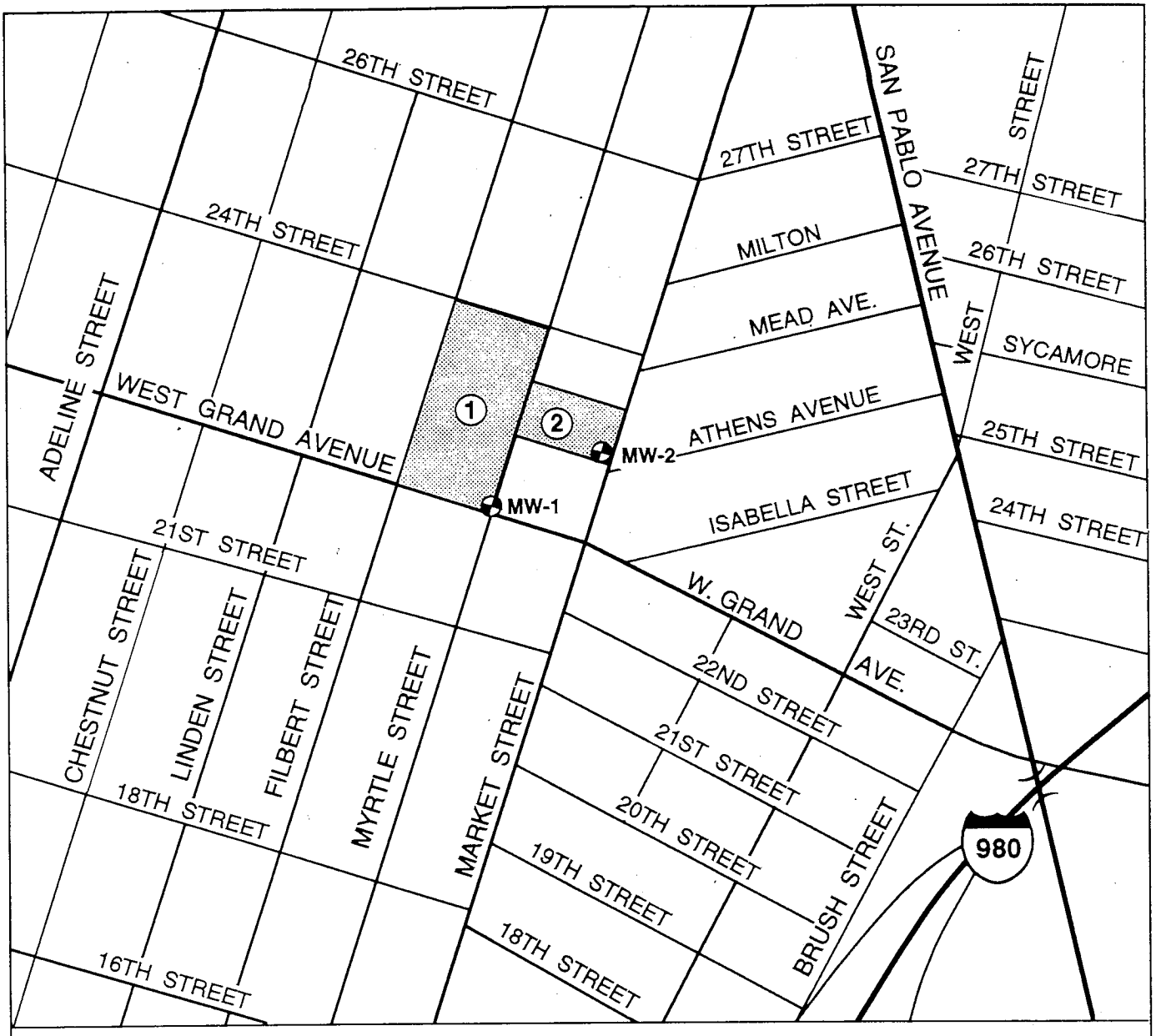
QUADRANGLE LOCATION

Source: USGS Topographic Map, Oakland West, Calif. Quadrangle

LOCATION MAP

Safeway Ice Cream Plant
2240 Filbert Street
Oakland, California

McCulley, Frick & Gilman, Inc.	Project No. 94-6112	Figure 1



Source: Thomas Brothers Maps, Alameda and Contra Costa Counties, 1989

0 500 Feet

Approximate scale

EXPLANATION

(1) 2240 Filbert Street (Former Safeway Ice Cream Plant)

(2) Former Safeway Ice Cream Plant Parking Lot

MW-2 Monitoring well location and designation

GROUNDWATER MONITORING WELL LOCATIONS
SAFEWAY ICE CREAM PLANT
2240 Filbert Street
Oakland, California

Project No.	Reviewed by:	Figure
94-6112		2

McCulley, Frick & Gilman, Inc.
Environmental Sciences and Engineering

APPENDIX A

Alameda County Zone 7 Water Agency
Drilling Permit

ZONE 7 WATER AGENCY

5997 PARKSIDE DRIVE PLEASANTON, CALIFORNIA 94588 VOICE (510) 484-2600
FAX (510) 462-3914

DRILLING PERMIT APPLICATION

FOR APPLICANT TO COMPLETE

LOCATION OF PROJECT 2240 Filbert Street
Oakland, CA

CLIENT
Name Western Investment Real Estate Trust
Address 3450 California Street 2nd Voice
City San Francisco, CA Zip 94118

APPLICANT
Name McCulley, Frick & Gilman, Inc.
Fax 415-495-7187
Address 5 3rd Street, Suite 400 Voice 415-495-7110
City San Francisco, CA Zip 94103

TYPE OF PROJECT

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

PROPOSED WATER SUPPLY WELL USE
Domestic ___ Industrial ___ Other ___
Municipal ___ Irrigation ___

DRILLING METHOD:
Mud Rotary ___ Air Rotary ___ Auger X
Cable ___ Other ___

DRILLER'S LICENSE NO. C-57 No: 554979

WELL PROJECTS
Drill Hole Diameter 8 in. Maximum
Casing Diameter 2 in. Depth 25 ft.
Surface Seal Depth ___ ft. Number 2

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

ESTIMATED STARTING DATE 8-5-94
ESTIMATED COMPLETION DATE 8-5-94

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

APPLICANT'S SIGNATURE [signature] Date 7-27-94

FOR OFFICE USE

PERMIT NUMBER 94530
LOCATION NUMBER ___

PERMIT CONDITIONS

Circled Permit Requirements Apply

(A.) GENERAL
1. A permit application should be submitted so as to arrive at the Zone 7 office five days prior to proposed starting date.
2. Submit to Zone 7 within 60 days after completion of permitted work the original Department of Water Resources Water Well Drillers Report or equivalent for well Projects, or drilling logs and location sketch for geotechnical projects.
3. Permit is void if project not begun within 90 days of approval date.

(B.) WATER WELLS, INCLUDING PIEZOMETERS
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. Minimum seal depth for monitoring wells is the maximum depth practicable or 20 feet.

C. GEOTECHNICAL. Backfill bore hole with compacted cuttings or heavy bentonite and upper two feet with compacted material. In areas of known or suspected contamination, tremied cement grout shall be used in place of compacted cuttings.

D. CATHODIC. Fill hole above anode zone with concrete placed by tremie.

E. WELL DESTRUCTION. See attached.

Approved Craig A. Mayfield Date 7-Sep-94

91992

APPENDIX B

City of Oakland

Permit to Excavate in Streets

X9401323
EVOV-195
A. FEE
Pd. 135

CITY OF OAKLAND

PERMIT TO EXCAVATE IN STREETS OR OTHER WORK AS SPECIFIED

LOCATION OF WORK: Myrtle Street (Street or Address) BETWEEN W. Grand (Street/Ave.) AND 24th St. (Specify)

PERMISSION TO EXCAVATE IN THE PUBLIC RIGHT-OF-WAY IS HEREBY GRANTED TO:

APPLICANT McCulley, Frick and Gilman, Inc.

ADDRESS 5 Third Street, San Francisco CA PHONE #: 415-495-7110

TYPE OF WORK: GAS ___ ELECTRIC ___ WATER ___ TELEPHONE ___ CABLE TV ___ SEWER ___ OTHER drilling (Specify)

NATURE OF WORK: installation of ~~two~~ one groundwater monitoring wells*

INSPECTION COSTS FOR UTILITY COMPANIES & ADDITIONAL INSPECTION HOURS WILL BE CHARGED IN CONFORMANCE WITH THE MASTER FEE SCHEDULE.

OWNER/BUILDER

I hereby affirm that I am exempt from the Contractor's License Law for the following reason (Sec. 7031.5. Business and Professions Code: Any city or county which requires a permit to construct, alter, improve, demolish, or repair any structure, prior to it's issuance, also requires the applicant for such permit to file a signed statement that he is licensed pursuant to the provisions of the Contractor's License Law Chapter 9 (commencing with Sec. 7000) of Division 3 of the Business and Professions Code, or that he is exempt therefrom and the basis for the alleged exemption. Any violation of Section 7031.5 by any applicant for a permit subjects the applicant to a civil penalty of not more than $500):

☐ I, as owner of the property, or my employees with wages as their sole compensation, will do the work, and the structure is not intended or offered for sale (Sec. 70044, Business and Professions Code: The Contractor's License Law does not apply to an owner of property who builds or improves thereon, and who does such work himself or through his own employees, provided that such improvements are not intended or offered for sale. If, however, the building or improvement is sold within one year of completion, the owner-builder will have the burden of proving that he did not build or improve for the purpose of sale).

☒ I, as owner of the property, am exempt from the sale requirements of the above due to: (1) I am improving my principal place of residence or appurtenances thereto, (2) the work will be performed prior to sale. (3) I have resided in the residence for the 12 months prior to completion of the work, and (4) I have not claimed exemption in this subdivision on more than two structures more than once during any three-year period. (Sec. 7044. Business and Professions Code).

☐ I, as owner of the property, am exclusively contracting with licensed contractors to construct the project (Sec. 7044, Business and Professions Code: The Contractor's License Law does not apply to an owner of property who builds or improves thereon, and who contracts for such projects with a contractor(s) licensed pursuant to the Contractor's License Law).

☑ I am exempt under Sec. ______, B&P.C. for this reason ______

[signature] (MFG) 9/27/94
Signature Date

WORKER'S COMPENSATION

I hereby affirm that I have a certificate of consent to self-insure, or a certificate of Workers' Compensation Insurance, or a certified copy thereof (Sec. 3800, Lab C.).

Policy # [illegible] Company Name [illegible]

☑ Certified copy is hereby furnished.

☐ Certified copy is filed with the city building inspection dept.

Signature ______ Date [illegible]

(This section need not be completed if the permit is for one hundred dollars ($100) or less.)

I certify that in the performance of the work for which this permit is issued, I shall not employ any person in any manner so as to become subject to the Workers' Compensation Laws of California.

Signature ______ Date [illegible]

NOTICE TO APPLICANT. If, after making this Certificate of Exemption, you should become subject to the Workers' Compensation provisions of the Labor Code, you must forthwith comply with such provisions or this permit shall be deemed revoked.

PERMIT VOID 90 DAYS FROM DATE OF ISSUE UNLESS EXTENSION GRANTED BY DIRECTOR OF PUBLIC WORKS.

Approximate Starting Date	DATE 9/27/94	
Approximate Completion Date	DATE 9/27/94	
HOLIDAY RESTRICTION (1 NOV — 1 JAN)	YES ___	NO X
LIMITED OPERATION AREA (7AM – 9AM / 4PM – 6PM)	YES ___	NO ___
DATE STREET LAST RESURFACED	DATE ___	
SPECIAL PAVING DETAIL REQUIRED	YES ___	NO ___

24-HOUR EMERGENCY PHONE NUMBER ______

PERMIT NOT VALID WITHOUT 24 HOUR NUMBER.

Telephone 238-3651 Forty-eight (48) HOURS BEFORE ACTUAL CONSTRUCTION.

ATTENTION

State law requires that contractor/owner call Underground Service Alert two working days before excavating to have below-ground utilities located. This permit is not valid uness applicant has secured an inquiry identification number issued by Underground Service Alert.

Call Toll Free: 800-642-2444 USA ID Number 310722

This permit issued pursuant to all provisions of Chapter 6, Article 2 of the Oakland Municipal Code.

This permit is granted upon the express condition that the permittee shall be responsible for all claims and liabilities arising out of work performed under the permit or arising out of permittee's failure to perform the obligations with respect to street maintenance. The permittee shall, and by acceptance of the permit agrees to defend, indemnify, save and hold harmless the City, its officers and employees, from and against any and all suits, claims or actions brought by any person for or on account of any bodily injuries, disease or illness or damage to persons and/or property sustained or arising in the construction of the work performed under the permit or in consequence of permittee's failure to perform the obligations with respect to street maintenance.

CONTRACTOR

I hereby affirm that I am licensed under provisions of Chapter 9 (commencing with Section 7000) of Division 3 of the Business and Professions Code, and my license is in full force and effect.

LICENSE # AND CLASS [illegible] CITY BUSINESS TAX # [illegible]

X ______ Date [illegible]
Signature of Contractor Owner or Agent

☒ Agent for [illegible] ☐ Contractor ☐ Owner

OFFICIAL USE ONLY

UTILITY COMPANY REPORT

Supervisor ______

Completion Date ______

CITY INSPECTOR'S REPORT

BACKFILL PAVING

Initials ______

Hours ______

Date ______

Concrete ______

Asphalt ______

Sidewalk ______

Size of Cut: Sq. Ft. ______ Inches ______

Paved by ______ Type ______

Bill No. ______

Charges Backfill ______

Paving ______

Paving Insp. ______

Traffic Striping Replaced ______ Date

APPROVED

Engineering Services ______ Date ______

Planning ______ Date ______

Field Services ______ Date ______

Construction ______ Date ______

Traffic Engineering ______ Date ______

Electrical Engineering ______ Date ______

DIRECTOR OF PUBLIC WORKS

APPROVED BY: [signature]

DATE: 9-27-94

EXTENSION GRANTED BY: ______

DATE: ______

* The work is being conducted is part of a hydrogeological site investigation. Drilling services will be provided by [illegible] with [illegible] drilling permit license

APPENDIX C

Soil Boring Logs and Monitoring Well Construction Details

ABBREVIATIONS/SYMBOLS USED IN BORING LOGS

GENERAL

PID - Photoionization Detector
OVM - Organic Vapor Meter
ppm - parts per million in air
sfc csg - surface casing
USCS - Unified Soil Classification System
NGVD - National Geodetic Vertical Datum of 1929
NA - Not Analyzed
bgl - below ground level

COLORS

v - very
lt - light
dk - dark
yel - yellow/yellowish
brn - brown/brownish
red-brn - reddish brown
a.a. - as above
(10YR 4/6) - Munsell notation (hue value/chroma)

SAND GRAIN SIZE

VF - Very Fine
F - Fine
Med - Medium
Crs - Coarse

DENSITY/STIFFNESS

Med - Medium
V - Very

GEOLOGICAL CONTACTS

——— - Sharp Contact
— — — - Gradational Contact

GEOTECHNICAL

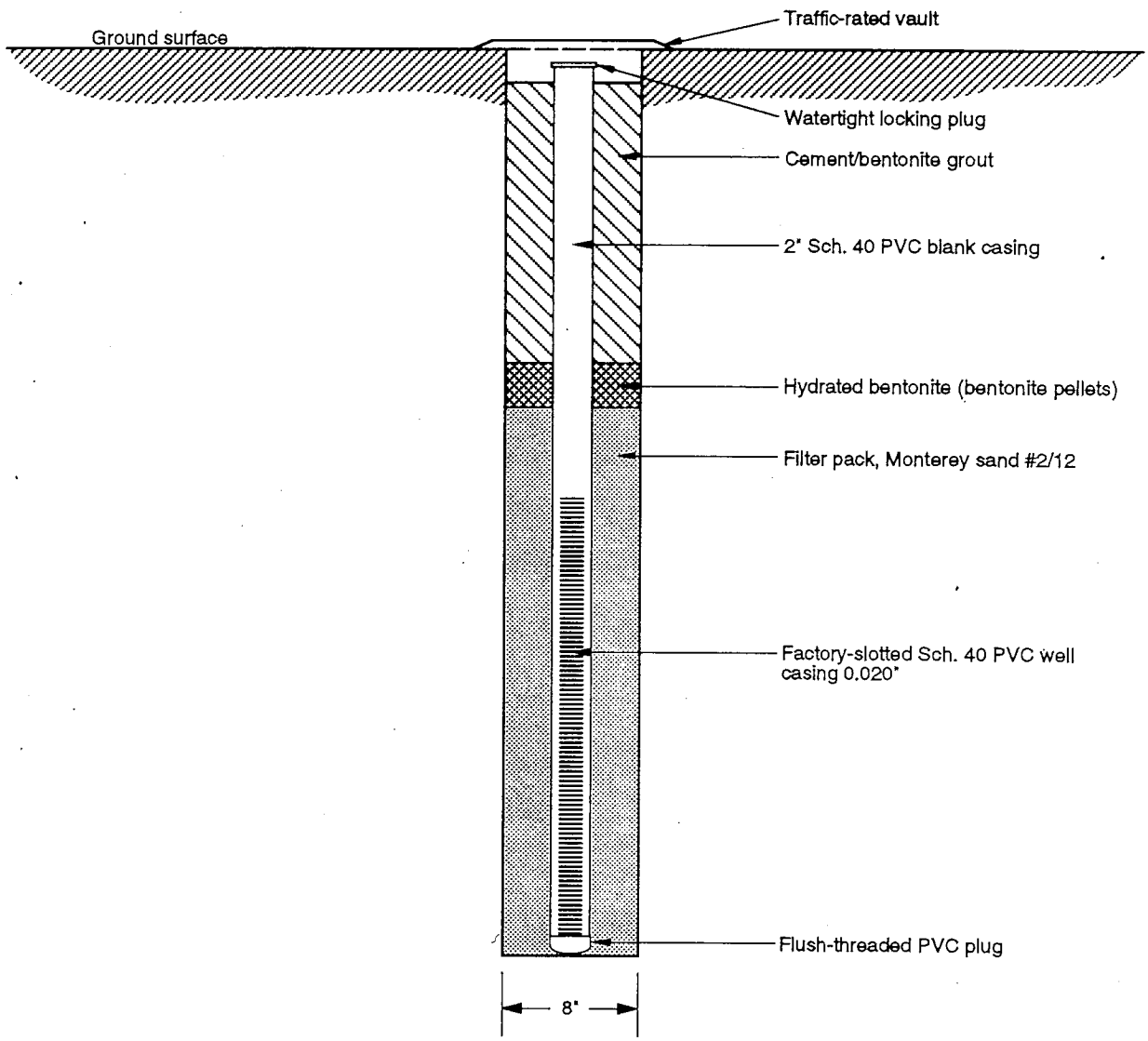
L.L. - Liquid Limit in percent
P.I. - Plasticity Index in percent
K - Vertical Hydraulic Conductivity (permeability) in cm/sec

MOISTURE CONTENT

▼ - Observed top of saturated soil interval

EXPLANATION FOR BORING LOGS

McCULLEY, FRICK & GILMAN, INC.



NOT TO SCALE

MONITORING WELL CONSTRUCTION DETAIL

Former Safeway Ice Cream Plant
2240 Filbert Street
Oakland, California

McCulley, Frick & Gilman, Inc.	Project No. 94-6112

Former Safeway Ice Cream Plant

LOG OF MONITORING WELL MW-1

BORING LOCATION: *2240 Filbert Street, Oakland, CA*		ELEVATION AND DATUM: *N/A*	
DRILLING AGENCY: *Bayland Drilling, Inc.*	DRILLER: *Steve Smith*	DRILL BIT: *8" O.D. auger*	DATE STARTED: *9/27/94*
DRILLING METHOD: *Hollow-stem auger*		BORING DEPTH: *21.5'*	DATE FINISHED: *9/27/94*
SIZE AND TYPE OF CASING: *2" flush-threaded SCH40 PVC; 0.020" slots*		WELL DEPTH: *20.5'*	CHECKED BY: *M. Tietze* C.E.G. No. EG1803
SAMPLING METHOD: *Drive sample, 140 lb. hammer*		LOGGED BY: *L. Golub*	
SAMPLER TYPE: *2" I.D. split-spoon*	LENGTH: *1.5'* DROP: *30"*		

DEPTH (feet)	DESCRIPTION	USCS CLASS	WELL CONSTRCT.	DEPTH (feet)	SAMPLING RUN NO (Recov)	SAMPLING BLOWS/ 6 in.	REMARKS (drill rate, fluid loss, odor, etc.)
	ASPHALT						
1	GRAVEL FILL (baserock), coarse gravel w/sand and silt, gray (2.5Y N5/), underlain by metamorphic sandstone cobbles, hard, fresh, dk gray, angular, damp	GW		1			
	SILTY CLAY, V dk gray (7.5YR N3/), damp	CH					strong oily odor (from cuttings)
2				2			
3				3			
4	SILTY CLAY, olive (5Y 4/3), trace yel brn (10YR 5/6) mottling, damp	CL		4	1 (1.5')	7 12 18	no odor Sample MW-1-1-2 (4 to 4.5' bgl)
5				5			
6				6			
7				7			
8				8			
9	SANDY CLAY W/SILT, olive (5Y 4/3), trace F gravel, trace yel brn (10YR 5/4) mottling, damp	CL		9	2 (1.5')	4 5 9	no odor Sample MW-1-2-2 (9 to 9.5' bgl)
	↓ increasing sand content						
10				10			
11	GRAVEL, dk rd brn (5YR 3/4), F gravel, subrounded/subangular, few F sand, few silt, local pale green (5G 6/2) mottling, damp	GW		11	3 (1.5')	7 10 17	no odor Sample MW-1-3-2 (10.5 to 11' bgl)
	↓ moist						
12				12	4 (1.5')	12 14 19	no odor Sample MW-1-4-1 (11.5 to 12' bgl)
13	GRAVEL W/SAND, dk rd brn (5YR 3/3), F gravel, subrounded/subangular, little coarse sand, trace silt, few yel red (5YR 5/6) mottling, saturated			13			
	↓ some coarse sand				5 (1.0')	16 18 27	no odor Sample MW-1-5-2 (13.5 to 14' bgl)
14				14			
15	SAND W/GRAVEL, med sand, color a.a.	SW		15			hydrocarbon odor (from cuttings)

Cement/bentonite grout

Bent.

#2/12 sand

Former Safeway Ice Cream Plant

LOG OF MONITORING WELL MW-1

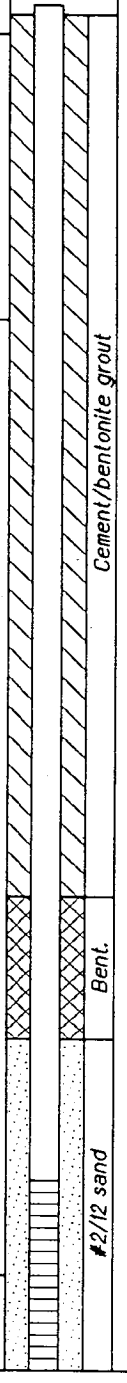
DEPTH (feet)	DESCRIPTION	USCS CLASS	WELL CONSTRCT.	DEPTH (feet)	SAMPLING RUN NO (Recov)	SAMPLING BLOWS/ 6 in.	REMARKS (drill rate, fluid loss, odor, etc.)
16	GRAVEL W/SAND, dk yel brn (10YR 4/6), subrounded/subangular, little coarse sand	GW	#2/12 sand	16	6 (1.5')	8 8 9	no odor
	SAND, rd brn (5YR 4/3), coarse, few gravel	SW					
17	GRAVEL W/SAND, dk yel brn (10YR 4/6), subrounded/subangular, little coarse sand	GW		17			
18				18			
19				19	7 (1.5')	10 12 16	no odor
20	SANDY CLAY, olive (5Y 4/4), F sand, trace silt	CL		20			
	CLAYEY SAND, olive (5Y 4/4), VF to F sand	SC	Bent.		8 (1.5')	11 14 16	no odor
21	SAND, olive (5Y 4/4), F sand, few rounded F gravel	SP		21			
	Bottom of boring at 21.5' bgl						
22				22			
23				23			
24				24			
25				25			
26				26			
27				27			
28				28			
29				29			
30				30			
31				31			
32				32			

Former Safeway Ice Cream Plant

LOG OF MONITORING WELL MW-2

BORING LOCATION: *2240 Filbert Street, Oakland, CA*		ELEVATION AND DATUM: *N/A*	
DRILLING AGENCY: *Bayland Drilling, Inc.*	DRILLER: *Steve Smith*	DRILL BIT: *8" O.D. auger*	DATE STARTED: *9/27/94*
DRILLING METHOD: *Hollow-stem auger*		BORING DEPTH: *23.2'*	DATE FINISHED: *9/27/94*
SIZE AND TYPE OF CASING: *2" flush-threaded SCH40 PVC; 0.020" slots*		WELL DEPTH: *23.2'*	CHECKED BY: *M. Tietze* *C.E.G. No. EG1803*
SAMPLING METHOD: *Drive sample, 140 lb. hammer*		LOGGED BY: *L. Golub*	
SAMPLER TYPE: *2" I.D. split-spoon*	LENGTH: *1.5'* DROP: *30"*		

DEPTH (feet)	DESCRIPTION	USCS CLASS	WELL CONSTRCT.	DEPTH (feet)	SAMPLING RUN NO (Recov)	SAMPLING BLOWS/ 6 in.	REMARKS (drill rate, fluid loss, odor, etc.)
0	ASPHALT			0			PID = ppm isobutylene background PID = 0.0 ppm
1	GRAVEL FILL (baserock), layer of fine gravel w/sand and silt, gray (2.5Y N5/), damp	GW		1			
	SILTY CLAY, black (2.5Y N2/), damp	CL					
2				2			PID = 0 ppm (from cuttings)
3				3			
4	↓ dk yel brn (10YR 4/4), few F gravel, subrounded			4	1 (1.5')	7 9 10	no odor Sample MW-2-1-3 (4.5 to 5' bgl) PID = 0.0 ppm
	SILTY CLAY, dk to V dk gray (2.5Y N/4 to N/3), damp	CH					
5				5			
6				6			
7				7			
8				8			
9	↓ dk gray (5Y 4/1), some dk yel brn (10YR 4/6) mottling, trace subrounded/ subangular F gravel, damp			9	2 (1.5')	7 10 10	no odor Sample MW-2-2-2 (9 to 9.5' bgl) PID = 0.0 ppm
10				10			
11				11			
12				12			
13				13			V slight oily odor (from cuttings)
14	SILTY CLAY W/GRAVEL, dk gray (5Y 4/1), F gravel, subrounded/subangular, damp	CL		14	3 (1.5')	6 10 9	no odor Sample MW-2-3-2 (14 to 14.5' bgl) PID = 0.0 ppm
15				15			



Former Safeway Ice Cream Plant

LOG OF MONITORING WELL MW-2

DEPTH (feet)	DESCRIPTION	USCS CLASS	WELL CONSTRCT.	DEPTH (feet)	SAMPLING RUN NO (Recov)	SAMPLING BLOWS/ 6 in.	REMARKS (drill rate, fluid loss, odor, etc.)
16–18	SILTY CLAY W/GRAVEL, a.a., F gravel, subrounded/subangular, damp	CL	#2/12 sand	16–18			(water level measured on the drill rods at the time of drilling)
19–21	SILTY CLAY, brn (10YR 5/3), 2–3mm diameter channels (possibly relict root channels) filled with soft clay, lt olive gray (5Y 6/2), free water inside the channels	CL		19–21	4 (1.5')	5 8 9	no odor Sample MW-2-4-1 (18.5 to 19' bgl) PID = 0.0 ppm
22–23	SILTY CLAY W/SAND, lt olive brn (2.5Y 5/4), F sand, trace Crs sand, wet	CL		22–23	5 (1.5')	6 7 10	no odor Sample MW-2-5-2 (22 to 22.5 bgl)
24–32	Bottom of boring at 23.2' bgl			24–32			

APPENDIX D

Laboratory Report and Chain-of-Custody Record for Soil Samples Submitted for Chemical Analysis

Sequoia Analytical

680 Chesapeake Drive, Redwood City, CA 94063, (415) 364-9600, FAX (415) 364-9233
1900 Bates Avenue, Suite L, Concord, CA 94520, (510) 686-9600, FAX (510) 686-9689
819 Striker Avenue, Suite 8, Sacramento, CA 95834, (916) 921-9600, FAX (916) 921-0100

McCulley, Frick & Gilman, Inc	Client Proj. ID: 94-6112, Wiret-Oakland	Received: 09/28/94
5 Third Street San Francisco, CA 94103 Attention: Mike Tietze	Lab Proj. ID: 9409l00	Reported: 10/13/94

LABORATORY NARRATIVE

The extraction method used for TPHD and Motor Oil was EPA 3550.

SEQUOIA ANALYTICAL

Christine Middleton
Project Manager

Sequoia Analytical

680 Chesapeake Drive, Redwood City, CA 94063, (415) 364-9600, FAX (415) 364-9233
1900 Bates Avenue, Suite L, Concord, CA 94520, (510) 686-9600, FAX (510) 686-9689
819 Striker Avenue, Suite 8, Sacramento, CA 95834, (916) 921-9600, FAX (916) 921-0100

McCulley, Frick & Gilman, Inc
5 Third Street
San Francisco, CA 94103

Attention: Mike Tietze

Client Proj. ID: 94-6112, Wiret-Oakland
Sample Descript: MW-2-3-2
Matrix: SOLID
Analysis Method: EPA 8010
Lab Number: 9409l00-01

Sampled: 09/27/94
Received: 09/28/94
Extracted: 10/07/94
Analyzed: 10/11/94
Reported: 10/13/94

QC Batch Number: GC1011948010EXA
Instrument ID: GCHP08

Halogenated Volatile Organics (EPA 8010)

Analyte	Detection Limit ug/Kg	Sample Results ug/Kg
Bromodichloromethane	5.0	N.D.
Bromoform	5.0	N.D.
Bromomethane	10	N.D.
Carbon Tetrachloride	5.0	N.D.
Chlorobenzene	5.0	N.D.
Chloroethane	10	N.D.
2-Chloroethylvinyl ether	10	N.D.
Chloroform	5.0	N.D.
Chloromethane	10	N.D.
Dibromochloromethane	5.0	N.D.
1,2-Dichlorobenzene	5.0	N.D.
1,3-Dichlorobenzene	5.0	N.D.
1,4-Dichlorobenzene	5.0	N.D.
1,1-Dichloroethane	5.0	N.D.
1,2-Dichloroethane	5.0	N.D.
1,1-Dichloroethene	5.0	N.D.
cis-1,2-Dichloroethene	5.0	N.D.
trans-1,2-Dichloroethene	5.0	N.D.
1,2-Dichloropropane	5.0	N.D.
cis-1,3-Dichloropropene	5.0	N.D.
trans-1,3-Dichloropropene	5.0	N.D.
Methylene chloride	50	N.D.
1,1,2,2-Tetrachloroethane	5.0	N.D.
Tetrachloroethene	5.0	N.D.
1,1,1-Trichloroethane	5.0	N.D.
1,1,2-Trichloroethane	5.0	N.D.
Trichloroethene	5.0	N.D.
Trichlorofluoromethane	5.0	N.D.
Vinyl chloride	10	N.D.

Surrogates	Control Limits %		% Recovery
1-Chloro-2-fluorobenzene	60	130	66

Analytes reported as N.D. were not present above the stated limit of detection.

SEQUOIA ANALYTICAL - ELAP #1210

Christine Middleton
Project Manager

Sequoia Analytical

680 Chesapeake Drive, Redwood City, CA 94063, (415) 364-9600, FAX (415) 364-9233
1900 Bates Avenue, Suite L, Concord, CA 94520, (510) 686-9600, FAX (510) 686-9689
819 Striker Avenue, Suite 8, Sacramento, CA 95834, (916) 921-9600, FAX (916) 921-0100

McCulley, Frick & Gilman, Inc
5 Third Street
San Francisco, CA 94103

Attention: Mike Tietze

Client Proj. ID: 94-6112, Wiret-Oakland
Sample Descript: MW-2-3-2
Matrix: SOLID
Analysis Method: EPA 8015 Mod
Lab Number: 9409100-01

Sampled: 09/27/94
Received: 09/28/94
Extracted: 10/06/94
Analyzed: 10/09/94
Reported: 10/13/94

QC Batch Number: 941002901
Instrument ID: GCHP5A

Total Extractable Petroleum Hydrocarbons (TEPH)

Analyte	Detection Limit mg/Kg	Sample Results mg/Kg
TEPH as Diesel	1.0	N.D.
Chromatogram Pattern:		

Surrogates	Control Limits %		% Recovery
n-Pentacosane (C25)	50	150	101

Analytes reported as N.D. were not present above the stated limit of detection.

SEQUOIA ANALYTICAL - ELAP #1210

Christine Middleton
Project Manager

Sequoia Analytical

680 Chesapeake Drive, Redwood City, CA 94063, (415) 364-9600, FAX (415) 364-9233
1900 Bates Avenue, Suite L, Concord, CA 94520, (510) 686-9600, FAX (510) 686-9689
819 Striker Avenue, Suite 8, Sacramento, CA 95834, (916) 921-9600, FAX (916) 921-0100

McCulley, Frick & Gilman, Inc
5 Third Street
San Francisco, CA 94103

Attention: Mike Tietze

Client Proj. ID: 94-6112, Wiret-Oakland
Sample Descript: MW-2-3-2
Matrix: SOLID
Analysis Method: 8015Mod/8020
Lab Number: 9409l00-01

Sampled: 09/27/94
Received: 09/28/94
Extracted: 10/06/94
Analyzed: 10/06/94
Reported: 10/13/94

QC Batch Number: GC100694BTEXEXA
Instrument ID: GCHP18

Total Purgeable Petroleum Hydrocarbons (TPPH) with BTEX

Analyte	Detection Limit mg/Kg	Sample Results mg/Kg
TPPH as Gas	1.0	N.D.
Benzene	0.0050	N.D.
Toluene	0.0050	N.D.
Ethyl Benzene	0.0050	N.D.
Xylenes (Total)	0.0050	N.D.
Chromatogram Pattern:		

Surrogates	Control Limits %		% Recovery
Trifluorotoluene	70	130	84

Analytes reported as N.D. were not present above the stated limit of detection.

SEQUOIA ANALYTICAL - ELAP #1210

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Project Manager

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McCulley, Frick & Gilman, Inc
5 Third Street
San Francisco, CA 94103

Attention: Mike Tietze

Client Proj. ID: 94-6112, Wiret-Oakland
Sample Descript: MW-2-3-2
Matrix: SOLID
Analysis Method: EPA 8015 Mod
Lab Number: 9409100-01

Sampled: 09/27/94
Received: 09/28/94
Extracted: 10/06/94
Analyzed: 10/07/94
Reported: 10/13/94

QC Batch Number: 941002901
Instrument ID: GCHP-4A

Fuel Fingerprint : Motor Oil

Analyte	Detection Limit mg/Kg	Sample Results mg/Kg
Extractable HC as Motor Oil Chromatogram Pattern:	10	N.D.

Surrogates	Control Limits %		% Recovery
n-Pentacosane (C25)	50	150	109

Analytes reported as N.D. were not present above the stated limit of detection.

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Project Manager

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McCulley, Frick & Gilman, Inc
5 Third Street
San Francisco, CA 94103

Attention: Mike Tietze

Client Proj. ID: 94-6112, Wiret-Oakland
Sample Descript: MW-1-4-1
Matrix: SOLID
Analysis Method: EPA 8010
Lab Number: 9409l00-02

Sampled: 09/27/94
Received: 09/28/94
Extracted: 10/07/94
Analyzed: 10/10/94
Reported: 10/13/94

QC Batch Number: GC1011948010EXA
Instrument ID: GCHP08

Halogenated Volatile Organics (EPA 8010)

Analyte	Detection Limit ug/Kg	Sample Results ug/Kg
Bromodichloromethane	5.0	N.D.
Bromoform	5.0	N.D.
Bromomethane	10	N.D.
Carbon Tetrachloride	5.0	N.D.
Chlorobenzene	5.0	N.D.
Chloroethane	10	N.D.
2-Chloroethylvinyl ether	10	N.D.
Chloroform	5.0	N.D.
Chloromethane	10	N.D.
Dibromochloromethane	5.0	N.D.
1,2-Dichlorobenzene	5.0	N.D.
1,3-Dichlorobenzene	5.0	N.D.
1,4-Dichlorobenzene	5.0	N.D.
1,1-Dichloroethane	5.0	N.D.
1,2-Dichloroethane	5.0	N.D.
1,1-Dichloroethene	5.0	N.D.
cis-1,2-Dichloroethene	5.0	N.D.
trans-1,2-Dichloroethene	5.0	N.D.
1,2-Dichloropropane	5.0	N.D.
cis-1,3-Dichloropropene	5.0	N.D.
trans-1,3-Dichloropropene	5.0	N.D.
Methylene chloride	50	N.D.
1,1,2,2-Tetrachloroethane	5.0	N.D.
Tetrachloroethene	5.0	N.D.
1,1,1-Trichloroethane	5.0	N.D.
1,1,2-Trichloroethane	5.0	N.D.
Trichloroethene	5.0	N.D.
Trichlorofluoromethane	5.0	N.D.
Vinyl chloride	10	N.D.

Surrogates	Control Limits %		% Recovery
1-Chloro-2-fluorobenzene	60	130	69

Analytes reported as N.D. were not present above the stated limit of detection.

SEQUOIA ANALYTICAL - ELAP #1210

Christine Middleton
Project Manager

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McCulley, Frick & Gilman, Inc
5 Third Street
San Francisco, CA 94103

Attention: Mike Tietze

Client Proj. ID: 94-6112, Wiret-Oakland
Sample Descript: MW-1-4-1
Matrix: SOLID
Analysis Method: EPA 8015 Mod
Lab Number: 9409l00-02

Sampled: 09/27/94
Received: 09/28/94
Extracted: 10/06/94
Analyzed: 10/09/94
Reported: 10/25/94

QC Batch Number: 941002901
Instrument ID: GCHP5B

Total Extractable Petroleum Hydrocarbons (TEPH)

Analyte	Detection Limit mg/Kg	Sample Results mg/Kg
TEPH as Diesel	1.0	3.8
Chromatogram Pattern: **Non Diesel Mix**		<C24

Surrogates	Control Limits %		% Recovery
n-Pentacosane (C25)	50	150	149

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OCT 27 1994
McCULLEY, FRICK & GILMAN, INC.

Analytes reported as N.D. were not present above the stated limit of detection.

SEQUOIA ANALYTICAL - ELAP #1210

Christine Middleton
Project Manager

Sequoia Analytical

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McCulley, Frick & Gilman, Inc
5 Third Street
San Francisco, CA 94103

Attention: Mike Tietze

Client Proj. ID: 94-6112, Wiret-Oakland
Sample Descript: MW-1-4-1
Matrix: SOLID
Analysis Method: 8015Mod/8020
Lab Number: 9409l00-02

Sampled: 09/27/94
Received: 09/28/94
Extracted: 10/06/94
Analyzed: 10/06/94
Reported: 10/25/94

QC Batch Number: GC100694BTEXEXA
Instrument ID: GCHP-06

Total Purgeable Petroleum Hydrocarbons (TPPH) with BTEX

Analyte	Detection Limit mg/Kg	Sample Results mg/Kg
TPPH as Gas	**2.0**	**7.9**
Benzene	0.010	N.D.
Toluene	0.010	N.D.
Ethyl Benzene	**0.010**	**0.032**
Xylenes (Total)	**0.010**	**0.079**
Chromatogram Pattern:		
Weathered Gas		**C7-C12**

Surrogates	Control Limits %		% Recovery
Trifluorotoluene	70	130	91

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McCULLEY, FRICK & GILMAN, INC.

Analytes reported as N.D. were not present above the stated limit of detection.

SEQUOIA ANALYTICAL - ELAP #1210

Christine Middleton

Christine Middleton
Project Manager

Sequoia Analytical

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McCulley, Frick & Gilman, Inc
5 Third Street
San Francisco, CA 94103

Attention: Mike Tietze

Client Proj. ID: 94-6112, Wiret-Oakland
Sample Descript: MW-1-4-1
Matrix: SOLID
Analysis Method: EPA 8015 Mod
Lab Number: 9409100-02

Sampled: 09/27/94
Received: 09/28/94
Extracted: 10/06/94
Analyzed: 10/07/94
Reported: 10/13/94

QC Batch Number: 941002901
Instrument ID: GCHP-4B

Fuel Fingerprint : Motor Oil

Analyte	Detection Limit mg/Kg	Sample Results mg/Kg
Extractable HC as Motor Oil	10	14
Chromatogram Pattern: **Motor Oil & Unidfd HC**		<C18

Surrogates	Control Limits %		% Recovery
n-Pentacosane (C25)	50	150	110

Analytes reported as N.D. were not present above the stated limit of detection.

SEQUOIA ANALYTICAL - ELAP #1210

Christine Middleton
Project Manager

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McCulley, Frick & Gilman, Inc
5 Third Street
San Francisco, CA 94103

Attention: Mike Tietze

Client Proj. ID: 94-6112, Wiret-Oakland
Sample Descript: Method Blank
Matrix: SOLID
Analysis Method: EPA 8010
Lab Number: 9409l00-03

Sampled:
Received: 09/28/94

Analyzed: 10/11/94
Reported: 10/13/94

QC Batch Number: GC1011948010EXA
Instrument ID: GCHP08

Halogenated Volatile Organics (EPA 8010)

Analyte	Detection Limit ug/Kg	Sample Results ug/Kg
Bromodichloromethane	5.0	N.D.
Bromoform	5.0	N.D.
Bromomethane	10	N.D.
Carbon Tetrachloride	5.0	N.D.
Chlorobenzene	5.0	N.D.
Chloroethane	10	N.D.
2-Chloroethylvinyl ether	10	N.D.
Chloroform	5.0	N.D.
Chloromethane	10	N.D.
Dibromochloromethane	5.0	N.D.
1,2-Dichlorobenzene	5.0	N.D.
1,3-Dichlorobenzene	5.0	N.D.
1,4-Dichlorobenzene	5.0	N.D.
1,1-Dichloroethane	5.0	N.D.
1,2-Dichloroethane	5.0	N.D.
1,1-Dichloroethene	5.0	N.D.
cis-1,2-Dichloroethene	5.0	N.D.
trans-1,2-Dichloroethene	5.0	N.D.
1,2-Dichloropropane	5.0	N.D.
cis-1,3-Dichloropropene	5.0	N.D.
trans-1,3-Dichloropropene	5.0	N.D.
Methylene chloride	50	N.D.
1,1,2,2-Tetrachloroethane	5.0	N.D.
Tetrachloroethene	5.0	N.D.
1,1,1-Trichloroethane	5.0	N.D.
1,1,2-Trichloroethane	5.0	N.D.
Trichloroethene	5.0	N.D.
Trichlorofluoromethane	5.0	N.D.
Vinyl chloride	10	N.D.

Surrogates	Control Limits %		% Recovery
1-Chloro-2-fluorobenzene	60	130	100

Analytes reported as N.D. were not present above the stated limit of detection.

SEQUOIA ANALYTICAL - ELAP #1210

Christine Middleton
Project Manager

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819 Striker Avenue, Suite 8, Sacramento, CA 95834, (916) 921-9600, FAX (916) 921-0100

McCulley, Frick & Gilman, Inc	Client Proj. ID: 94-6112, Wiret-Oakland	Sampled:
5 Third Street	Sample Descript: Method Blank	Received: 09/28/94
San Francisco, CA 94103	Matrix: SOLID	Extracted: 10/06/94
	Analysis Method: EPA 8015 Mod	Analyzed: 10/07/94
Attention: Mike Tietze	Lab Number: 9409l00-03	Reported: 10/13/94

QC Batch Number: 941002901
Instrument ID: GCHP5B

Total Extractable Petroleum Hydrocarbons (TEPH)

Analyte	Detection Limit mg/Kg	Sample Results mg/Kg
TEPH as Diesel	1.0	N.D.
Chromatogram Pattern:		

Surrogates	Control Limits %		% Recovery
n-Pentacosane (C25)	50	150	101

Analytes reported as N.D. were not present above the stated limit of detection.

SEQUOIA ANALYTICAL - ELAP #1210

Christine Middleton
Project Manager

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McCulley, Frick & Gilman, Inc	Client Proj. ID: 94-6112, Wiret-Oakland	Sampled:
5 Third Street	Sample Descript: Method Blank	Received: 09/28/94
San Francisco, CA 94103	Matrix: SOLID	Extracted: 10/06/94
	Analysis Method: 8015Mod/8020	Analyzed: 10/06/94
Attention: Mike Tietze	Lab Number: 9409l00-03	Reported: 10/13/94

QC Batch Number: GC100694BTEXEXA
Instrument ID: GCHP-18

Total Purgeable Petroleum Hydrocarbons (TPPH) with BTEX

Analyte	Detection Limit mg/Kg	Sample Results mg/Kg
TPPH as Gas	1.0	N.D.
Benzene	0.0050	N.D.
Toluene	0.0050	N.D.
Ethyl Benzene	0.0050	N.D.
Xylenes (Total)	0.0050	N.D.
Chromatogram Pattern:		

Surrogates	Control Limits %		% Recovery
Trifluorotoluene	70	130	88

Analytes reported as N.D. were not present above the stated limit of detection.

SEQUOIA ANALYTICAL - ELAP #1210

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Project Manager

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McCulley, Frick & Gilman, Inc	Client Proj. ID: 94-6112, Wiret-Oakland	Sampled:
5 Third Street	Sample Descript: Method Blank	Received: 09/28/94
San Francisco, CA 94103	Matrix: SOLID	Extracted: 10/06/94
	Analysis Method: EPA 8015 Mod	Analyzed: 10/07/94
Attention: Mike Tietze	Lab Number: 9409l00-03	Reported: 10/13/94

QC Batch Number: 941002901
Instrument ID: GCHP-4B

Fuel Fingerprint : Motor Oil

Analyte	Detection Limit mg/Kg	Sample Results mg/Kg
Extractable HC as Motor Oil Chromatogram Pattern:	10	N.D.

Surrogates	Control Limits %		% Recovery
n-Pentacosane (C25)	50	150	100

Analytes reported as N.D. were not present above the stated limit of detection.

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McCulley, Frick, & Gilman
5 Third Street, Suite 400
San Francisco, CA 94103
Attention: Mike Tletze

Client Project ID: 94-6112, Wiret-Oakland
Matrix: Solid
Work Order #: 9409100 01-02

Reported: Oct 12, 1994

QUALITY CONTROL DATA REPORT

Analyte:	1,1-Dichloro ethene	Trichloro ethene	Chlorobenzene
QC Batch#:	GC1011948010EXA	GC1011948010EXA	GC1011948010EXA
Analy. Method:	EPA 8010	EPA 8010	EPA 8010
Prep. Method:			
Analyst:	T. Costello	T. Costello	T. Costello
MS/MSD#:	941038101	941038101	941038101
Sample Conc.:	N.D.	N.D.	N.D.
Prepared Date:	10/7/94	10/7/94	10/7/94
Analyzed Date:	10/11/94	10/11/94	10/11/94
Instrument I.D.#:	GCHP-09	GCHP-09	GCHP-09
Conc. Spiked:	25 µg/L	25 µg/L	25 µg/L
Result:	16	25	15
MS % Recovery:	64	100	60
Dup. Result:	23	28	23
MSD % Recov.:	92	112	92
RPD:	36	11	42
RPD Limit:			

LCS #:	Not applicable
Prepared Date:	
Analyzed Date:	
Instrument I.D.#:	
Conc. Spiked:	
LCS Result:	
LCS % Recov.:	

MS/MSD LCS Control Limits	28-167	35-146	38-150

SEQUOIA ANALYTICAL

Christine L. Middleton
Project Manager

Please Note:
The LCS is a control sample of known, interferent-free matrix that is analyzed using the same reagents, preparation, and analytical methods employed for the samples. The matrix spike is an aliquot of sample fortified with known quantities of specific compounds and subjected to the entire analytical procedure. If the recovery of analytes from the matrix spike does not fall within specified control limits due to matrix interference, the LCS recovery is to be used to validate the batch.

** MS=Matrix Spike, MSD=MS Duplicate, RPD=Relative % Difference

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McCulley, Frick, & Gilman
5 Third Street, Suite 400
San Francisco, CA. 94103
Attention: Mike Tietze

Client Project ID: 94-6112, Wiret-Oakland
Matrix: Solid
Work Order #: 9409100 01-02
Reported: Oct 12, 1994

QUALITY CONTROL DATA REPORT

Analyte:	Benzene	Toluene	Ethylbenzene	Xylenes
QC Batch#:	GC100694-BTEX EXA	GC100694-BTEX EXA	GC100694-BTEX EXA	GC100694-BTEX EXA
Analy. Method:	EPA 8020	EPA 8020	EPA 8020	EPA 8020
Prep. Method:	EPA 5030	EPA 5030	EPA 5030	EPA 5030
Analyst:	R. Geckler	R. Geckler	R. Geckler	R. Geckler
MS/MSD #:	941006622	941006622	941006622	941006622
Sample Conc.:	N.D.	N.D.	N.D.	N.D.
Prepared Date:	10/6/94	10/6/94	10/6/94	10/6/94
Analyzed Date:	10/6/94	10/6/94	10/6/94	10/6/94
Instrument I.D.#:	GCHP-01	GCHP-01	GCHP-01	GCHP-01
Conc. Spiked:	0.20 mg/kg	0.20 mg/kg	0.20 mg/kg	0.60 mg/kg
Result:	0.15	0.15	0.16	0.47
MS % Recovery:	75	75	80	78
Dup. Result:	0.18	0.18	0.18	0.54
MSD % Recov.:	90	90	90	90
RPD:	18	18	12	14
RPD Limit:	0-50	0-50	0-50	0-50

LCS #: Not applicable

Prepared Date:
Analyzed Date:
Instrument I.D.#:
Conc. Spiked:

LCS Result:
LCS % Recov.:

MS/MSD
LCS
Control Limits

SEQUOIA ANALYTICAL

Christine L. Middleton
Project Manager

Please Note:
The LCS is a control sample of known, interferent-free matrix that is analyzed using the same reagents, preparation, and analytical methods employed for the samples. The matrix spike is an aliquot of sample fortified with known quantities of specific compounds and subjected to the entire analytical procedure. If the recovery of analytes from the matrix spike does not fall within specified control limits due to matrix interference, the LCS recovery is to be used to validate the batch.

** MS=Matrix Spike, MSD=MS Duplicate, RPD=Relative % Difference

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McCulley, Frick, & Gilman
5 Third Street, Suite 400
San Francisco, CA 94103
Attention: Mike Tietze

Client Project ID: 94-6112, Wiret-Oakland
Matrix: Solid

QC Sample Group: 9409100 01-02

Reported: Oct 12, 1994

QUALITY CONTROL DATA REPORT

ANALYTE	Diesel
Method:	EPA 8015 Mod
Analyst:	B. Ali
MS/MSD Batch#:	941002901
Date Prepared:	10/5/94
Date Analyzed:	10/6/94
Instrument I.D.#:	GCHP-5A
Conc. Spiked:	600 mg/kg
Matrix Spike % Recovery:	62
Matrix Spike Duplicate % Recovery:	67
Relative % Difference:	7.8

LCS Batch#:	Not applicable
Date Prepared:	
Date Analyzed:	
Instrument I.D.#:	
LCS % Recovery:	

% Recovery Control Limits:	28-122

SEQUOIA ANALYTICAL

Christine L. Middleton
Project Manager

Please Note:
The LCS is a control sample of known, interferent free matrix that is analyzed using the same reagents, preparation, and analytical methods employed for the samples. The matrix spike is an aliquot of sample fortified with known quantities of specific compounds and subjected to the entire analytical procedure. If the recovery of analytes from the matrix spike does not fall within specified control limits due to matrix interference, the LCS recovery is to be used to validate the batch.

9409100

CHAIN-OF-CUSTODY RECORD AND REQUEST FOR ANALYSIS

McCULLEY, FRICK & GILMAN, INC.

NO.

☐ 737 29th Street, Suite 202
Boulder, CO 80303
TEL: (303) 447-1823
FAX: (303) 447-1836

☐ 524 Bank Street, Suite 207
Wallace, ID 83873
TEL: (208) 556-6811
FAX: (208) 556-7271

☐ 5818 Balcones Dr., Suite 202
Austin, TX 78731
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FAX: (512) 454-4126

☑ 5 Third St., Suite 400
San Francisco, CA 94103
TEL: (415) 495-7110
FAX: (415) 495-7107

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McCULLEY, FRICK & GILMAN, INC.

PROJECT No.: 94-6112 PROJECT NAME: WIRET - OAKLAND PAGE: 1 OF: 1
SAMPLER (Signature): Lev Golub PROJECT MANAGER: MIKE TIETZE DATE: 9/27/94
METHOD OF SHIPMENT: Courier CARRIER/ WAYBILL NO. DESTINATION: SEQUOIA ANALYTICAL REDWOOD CITY
SPECIAL INSTRUCTIONS/HAZARDS:

SAMPLES

ANALYSIS REQUEST

Lab No.	Sample Identification	Sample Collection DATE	Sample Collection TIME	Matrix*	Preservation HCL	Preservation HNO_3	Preservation H_2SO_4	Preservation COLD	Preservation NONE	Preservation OTHER	Containers* VOL. (ml)	Containers* TYPE*	Containers* No.	Methods EPA 601/8010	Methods EPA 602/8020	Methods EPA 624/8240	Methods EPA 625/8270	Methods TPH as Gasoline	Methods TPH as Diesel	Methods BTEX	Methods EPA 8010	Handling HOLD	Handling RUSH	Handling STANDARD	REMARKS (Special handling procedures, specific analytical methods, observations, etc.)
	mw-2-1-3	9/27/94	15:00	SO				X			2"x6"	B	1									X			EPA Method 8010 -
	mw-2-2-2		15:05					X			2"x6"	B	1									X			Halogenated Volatile
	mw-2-3-2		15:15					X					1					X	X	X	X			X	Organic Compounds.
	mw-2-4-1		15:30					X					1									X			
	mw-2-5-3		15:50					X					1									X			TEPH as diesel and Motor Oil
	mw-1-1-2		10:20					X					1									X			(EPA 8015 mod / EPA 3550);
	mw-1-2-2		10:30					X					1									X			BTEX (EPA 8020);
	mw-1-3-2		10:40					X					1									X			TPPH as gas. (EPA 8015
	mw-1-4-1		10:45					X					1					X	X	X	X			X	modified / EPA 5030).
	mw-1-5-2	↓	10:55	↓				X			↓	↓	1									X			

TOTAL NUMBER OF CONTAINERS 10

LABORATORY COMMENTS/ CONDITION OF SAMPLES
Iced / 10°C

RELINQUISHED BY: SIGNATURE	PRINTED NAME	COMPANY	DATE	TIME
Lev Golub	LEV Golub	MFG	9/28/94 (FAX)	13:35
Charlie Westwater	C. Westwater	Sequoia	9/28/94	2:30
			9/29/94	1430

RECEIVED BY: SIGNATURE	PRINTED NAME	COMPANY
Charlie Westwater	C. Westwater	Sequoia
		LABORATORY
David Lawrence	David Lawrence	Sequoia

*KEY: Matrix AO-aqueous NA-nonaqueous SO-soil SL-sludge P-petroleum A-air OT-other Containers P-plastic G-glass T-teflon B-brass OT-other

DISTRIBUTION: PINK: Field Copy YELLOW: Laboratory Copy WHITE: Return to Originator

APPENDIX E

Laboratory Report and Chain-of-Custody Record for Groundwater Samples Submitted for Chemical Analysis

Sequoia Analytical

680 Chesapeake Drive, Redwood City, CA 94063, (415) 364-9600, FAX (415) 364-9233
1900 Bates Avenue, Suite L, Concord, CA 94520, (510) 686-9600, FAX (510) 686-9689
819 Striker Avenue, Suite 8, Sacramento, CA 95834, (916) 921-9600, FAX (916) 921-0100

McCulley, Frick & Gilman, Inc
5 Third Street
San Francisco, CA 94103

Attention: Mike Tietze

Client Proj. ID: 94-6112(3), Wiret-Oakland
Sample Descript: MW-1
Matrix: LIQUID
Analysis Method: EPA 8010
Lab Number: 9410113-01

Sampled: 10/03/94
Received: 10/03/94

Analyzed: 10/13/94
Reported: 10/17/94

QC Batch Number: GC101294801015A
Instrument ID: GCHP15

Halogenated Volatile Organics (EPA 8010)

Analyte	Detection Limit ug/L	Sample Results ug/L
Bromodichloromethane	0.50	N.D.
Bromoform	0.50	N.D.
Bromomethane	1.0	N.D.
Carbon Tetrachloride	0.50	N.D.
Chlorobenzene	0.50	N.D.
Chloroethane	1.0	N.D.
2-Chloroethylvinyl ether	1.0	N.D.
Chloroform	0.50	N.D.
Chloromethane	1.0	N.D.
Dibromochloromethane	0.50	N.D.
1,2-Dichlorobenzene	0.50	N.D.
1,3-Dichlorobenzene	0.50	N.D.
1,4-Dichlorobenzene	0.50	N.D.
1,1-Dichloroethane	0.50	N.D.
1,2-Dichloroethane	0.50	N.D.
1,1-Dichloroethene	0.50	N.D.
cis-1,2-Dichloroethene	0.50	N.D.
trans-1,2-Dichloroethene	0.50	N.D.
1,2-Dichloropropane	0.50	N.D.
cis-1,3-Dichloropropene	0.50	N.D.
trans-1,3-Dichloropropene	0.50	N.D.
Methylene chloride	5.0	N.D.
1,1,2,2-Tetrachloroethane	0.50	N.D.
Tetrachloroethene	0.50	N.D.
1,1,1-Trichloroethane	0.50	N.D.
1,1,2-Trichloroethane	0.50	N.D.
Trichloroethene	0.50	N.D.
Trichlorofluoromethane	0.50	N.D.
Vinyl chloride	1.0	N.D.

Surrogates	Control Limits %		% Recovery
1-Chloro-2-fluorobenzene	70	130	90

Analytes reported as N.D. were not present above the stated limit of detection.

SEQUOIA ANALYTICAL - ELAP #1210

Christine Middleton
Project Manager

Sequoia Analytical

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McCulley, Frick & Gilman, Inc
5 Third Street
San Francisco, CA 94103
Attention: Mike Tietze

Client Proj. ID: 94-6112(3), Wiret-Oakland
Lab Proj. ID: 9410113

Received: 10/03/94
Reported: 10/17/94

LABORATORY NARRATIVE

Samples MW-1 and MW-2 were extracted by EPA Method 3510 for the Total Extractable Petroleum Hydrocarbons and Fuel Fingerprint analyses.

SEQUOIA ANALYTICAL

Christine Middleton
Project Manager

Sequoia Analytical

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McCulley, Frick & Gilman, Inc
5 Third Street
San Francisco, CA 94103

Attention: Mike Tietze

Client Proj. ID: 94-6112(3), Wiret-Oakland
Sample Descript: MW-1
Matrix: LIQUID
Analysis Method: EPA 8015 Mod
Lab Number: 9410113-01

Sampled: 10/03/94
Received: 10/03/94
Extracted: 10/07/94
Analyzed: 10/09/94
Reported: 10/17/94

QC Batch Number: GC1006943510EXB
Instrument ID: GCHP5B

Total Extractable Petroleum Hydrocarbons (TEPH)

Analyte	Detection Limit ug/L	Sample Results ug/L
TEPH as Diesel	50	84
Chromatogram Pattern: **Non Diesel Mix**		<C16

Surrogates	Control Limits %		% Recovery
n-Pentacosane (C25)	50	150	114

Analytes reported as N.D. were not present above the stated limit of detection.

SEQUOIA ANALYTICAL - ELAP #1210

Christine Middleton
Project Manager

Sequoia Analytical

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McCulley, Frick & Gilman, Inc
5 Third Street
San Francisco, CA 94103

Attention: Mike Tietze

Client Proj. ID: 94-6112(3), Wiret-Oakland
Sample Descript: MW-1
Matrix: LIQUID
Analysis Method: EPA 8015 Mod
Lab Number: 9410113-01

Sampled: 10/03/94
Received: 10/03/94
Extracted: 10/07/94
Analyzed: 10/10/94
Reported: 10/17/94

QC Batch Number: GC1006943510EXB
Instrument ID: GCHP4A

Fuel Fingerprint : Motor Oil

Analyte	Detection Limit ug/L	Sample Results ug/L
Extractable HC as Motor Oil Chromatogram Pattern:	500	N.D.

Surrogates	Control Limits %		% Recovery
n-Pentacosane (C25)	50	150	112

Analytes reported as N.D. were not present above the stated limit of detection.

SEQUOIA ANALYTICAL - ELAP #1210

Christine Middleton
Project Manager

Sequoia Analytical

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819 Striker Avenue, Suite 8, Sacramento, CA 95834, (916) 921-9600, FAX (916) 921-0100

McCulley, Frick & Gilman, Inc	Client Proj. ID: 94-6112(3), Wiret-Oakland	Sampled: 10/03/94
5 Third Street	Sample Descript: MW-1	Received: 10/03/94
San Francisco, CA 94103	Matrix: LIQUID	
	Analysis Method: 8015Mod/8020	Analyzed: 10/05/94
Attention: Mike Tietze	Lab Number: 9410113-01	Reported: 10/17/94

QC Batch Number: GC100594BTEX03A
Instrument ID: GCHP03

Total Purgeable Petroleum Hydrocarbons (TPPH) with BTEX

Analyte	Detection Limit ug/L	Sample Results ug/L
TPPH as Gas	**50**	**160**
Benzene	0.50	N.D.
Toluene	0.50	N.D.
Ethyl Benzene	0.50	N.D.
Xylenes (Total)	0.50	N.D.
Chromatogram Pattern:		
Weathered Gas		**C6-C12**

Surrogates	Control Limits %		% Recovery
Trifluorotoluene	70	130	98

Analytes reported as N.D. were not present above the stated limit of detection.

SEQUOIA ANALYTICAL - ELAP #1210

Christine Middleton
Project Manager

Sequoia Analytical

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McCulley, Frick & Gilman, Inc
5 Third Street
San Francisco, CA 94103

Attention: Mike Tietze

Client Proj. ID: 94-6112(3), Wiret-Oakland
Sample Descript: MW-2
Matrix: LIQUID
Analysis Method: EPA 8010
Lab Number: 9410113-02

Sampled: 10/03/94
Received: 10/03/94

Analyzed: 10/13/94
Reported: 10/17/94

QC Batch Number: GC101294801015A
Instrument ID: GCHP15

Halogenated Volatile Organics (EPA 8010)

Analyte	Detection Limit ug/L	Sample Results ug/L
Bromodichloromethane	0.50	N.D.
Bromoform	0.50	N.D.
Bromomethane	1.0	N.D.
Carbon Tetrachloride	0.50	N.D.
Chlorobenzene	0.50	N.D.
Chloroethane	1.0	N.D.
2-Chloroethylvinyl ether	1.0	N.D.
Chloroform	0.50	N.D.
Chloromethane	1.0	N.D.
Dibromochloromethane	0.50	N.D.
1,2-Dichlorobenzene	0.50	N.D.
1,3-Dichlorobenzene	0.50	N.D.
1,4-Dichlorobenzene	0.50	N.D.
1,1-Dichloroethane	0.50	N.D.
1,2-Dichloroethane	0.50	N.D.
1,1-Dichloroethene	0.50	N.D.
cis-1,2-Dichloroethene	0.50	N.D.
trans-1,2-Dichloroethene	0.50	N.D.
1,2-Dichloropropane	0.50	N.D.
cis-1,3-Dichloropropene	0.50	N.D.
trans-1,3-Dichloropropene	0.50	N.D.
Methylene chloride	5.0	N.D.
1,1,2,2-Tetrachloroethane	0.50	N.D.
Tetrachloroethene	0.50	N.D.
1,1,1-Trichloroethane	0.50	N.D.
1,1,2-Trichloroethane	0.50	N.D.
Trichloroethene	0.50	N.D.
Trichlorofluoromethane	0.50	N.D.
Vinyl chloride	1.0	N.D.

Surrogates	Control Limits %		% Recovery
1-Chloro-2-fluorobenzene	70	130	95

Analytes reported as N.D. were not present above the stated limit of detection.

SEQUOIA ANALYTICAL - ELAP #1210

Christine Middleton
Project Manager

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McCulley, Frick & Gilman, Inc
5 Third Street
San Francisco, CA 94103

Attention: Mike Tietze

Client Proj. ID: 94-6112(3), Wiret-Oakland
Sample Descript: MW-2
Matrix: LIQUID
Analysis Method: EPA 8015 Mod
Lab Number: 9410113-02

Sampled: 10/03/94
Received: 10/03/94
Extracted: 10/07/94
Analyzed: 10/09/94
Reported: 10/17/94

QC Batch Number: GC1006943510EXB
Instrument ID: GCHP5B

Total Extractable Petroleum Hydrocarbons (TEPH)

Analyte	Detection Limit ug/L	Sample Results ug/L
TEPH as Diesel	50	730
Chromatogram Pattern: **Non Diesel Mix**		<C16

Surrogates	Control Limits %		% Recovery
n-Pentacosane (C25)	50	150	133

Analytes reported as N.D. were not present above the stated limit of detection.

SEQUOIA ANALYTICAL - ELAP #1210

Christine Middleton
Project Manager

Sequoia Analytical

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819 Striker Avenue, Suite 8, Sacramento, CA 95834, (916) 921-9600, FAX (916) 921-0100

McCulley, Frick & Gilman, Inc	Client Proj. ID: 94-6112(3), Wiret-Oakland	Sampled: 10/03/94
5 Third Street	Sample Descript: MW-2	Received: 10/03/94
San Francisco, CA 94103	Matrix: LIQUID	Extracted: 10/07/94
	Analysis Method: EPA 8015 Mod	Analyzed: 10/10/94
Attention: Mike Tietze	Lab Number: 9410113-02	Reported: 10/17/94

QC Batch Number: GC1006943510EXB
Instrument ID: GCHP4B

Fuel Fingerprint : Motor Oil

Analyte	Detection Limit ug/L	Sample Results ug/L
Extractable HC as Motor Oil . Chromatogram Pattern:	500	N.D.

Surrogates	Control Limits %		% Recovery
n-Pentacosane (C25)	50	150	90

Analytes reported as N.D. were not present above the stated limit of detection.

SEQUOIA ANALYTICAL - ELAP #1210

Christine Middleton
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819 Striker Avenue, Suite 8, Sacramento, CA 95834, (916) 921-9600, FAX (916) 921-0100

McCulley, Frick & Gilman, Inc	Client Proj. ID: 94-6112(3), Wiret-Oakland	Sampled: 10/03/94
5 Third Street	Sample Descript: MW-2	Received: 10/03/94
San Francisco, CA 94103	Matrix: LIQUID	
	Analysis Method: 8015Mod/8020	Analyzed: 10/05/94
Attention: Mike Tietze	Lab Number: 9410113-02	Reported: 10/17/94

QC Batch Number: GC100594BTEX03A
Instrument ID: GCHP03

Total Purgeable Petroleum Hydrocarbons (TPPH) with BTEX

Analyte	Detection Limit ug/L	Sample Results ug/L
TPPH as Gas	**250**	**1100**
Benzene	**2.5**	**7.5**
Toluene	2.5	N.D.
Ethyl Benzene	2.5	N.D.
Xylenes (Total)	2.5	N.D.
Chromatogram Pattern:		
Weathered Gas		C6-C12

Surrogates	Control Limits %		% Recovery
Trifluorotoluene	70	130	118

Analytes reported as N.D. were not present above the stated limit of detection.

SEQUOIA ANALYTICAL - ELAP #1210

Christine Middleton
Project Manager

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819 Striker Avenue, Suite 8, Sacramento, CA 95834, (916) 921-9600, FAX (916) 921-0100

McCulley, Frick & Gilman, Inc
5 Third Street
San Francisco, CA 94103

Attention: Mike Tietze

Client Proj. ID: 94-6112(3), Wiret-Oakland
Sample Descript: Method Blank, GBLK100594
Matrix: LIQUID
Analysis Method: 8015Mod/8020
Lab Number: 9410113-03

Sampled:
Received: 10/03/94

Analyzed: 10/05/94
Reported: 10/17/94

QC Batch Number: GC100594BTEX03A
Instrument ID: GCHP03

Total Purgeable Petroleum Hydrocarbons (TPPH) with BTEX

Analyte	Detection Limit ug/L	Sample Results ug/L
TPPH as Gas	50	N.D.
Benzene	0.50	N.D.
Toluene	0.50	N.D.
Ethyl Benzene	0.50	N.D.
Xylenes (Total)	0.50	N.D.
Chromatogram Pattern:		

Surrogates	Control Limits %		% Recovery
Trifluorotoluene	70	130	96

Analytes reported as N.D. were not present above the stated limit of detection.

SEQUOIA ANALYTICAL - ELAP #1210

Christine Middleton
Project Manager

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819 Striker Avenue, Suite 8, Sacramento, CA 95834, (916) 921-0600, FAX (916) 921-0100

McCulley, Frick & Gilman, Inc	Client Proj. ID: 94-6112(3), Wiret-Oakland	Sampled:
5 Third Street	Sample Descript: Method Blank, VBLK101294B	Received: 10/03/94
San Francisco, CA 94103	Matrix: LIQUID	
	Analysis Method: EPA 8010	Analyzed: 10/13/94
Attention: Mike Tietze	Lab Number: 9410113-03	Reported: 10/17/94

QC Batch Number: GC101294801015A
Instrument ID: GCHP15

Halogenated Volatile Organics (EPA 8010)

Analyte	Detection Limit ug/L	Sample Results ug/L
Bromodichloromethane	0.50	N.D.
Bromoform	0.50	N.D.
Bromomethane	1.0	N.D.
Carbon Tetrachloride	0.50	N.D.
Chlorobenzene	0.50	N.D.
Chloroethane	1.0	N.D.
2-Chloroethylvinyl ether	1.0	N.D.
Chloroform	0.50	N.D.
Chloromethane	1.0	N.D.
Dibromochloromethane	0.50	N.D.
1,2-Dichlorobenzene	0.50	N.D.
1,3-Dichlorobenzene	0.50	N.D.
1,4-Dichlorobenzene	0.50	N.D.
1,1-Dichloroethane	0.50	N.D.
1,2-Dichloroethane	0.50	N.D.
1,1-Dichloroethene	0.50	N.D.
cis-1,2-Dichloroethene	0.50	N.D.
trans-1,2-Dichloroethene	0.50	N.D.
1,2-Dichloropropane	0.50	N.D.
cis-1,3-Dichloropropene	0.50	N.D.
trans-1,3-Dichloropropene	0.50	N.D.
Methylene chloride	5.0	N.D.
1,1,2,2-Tetrachloroethane	0.50	N.D.
Tetrachloroethene	0.50	N.D.
1,1,1-Trichloroethane	0.50	N.D.
1,1,2-Trichloroethane	0.50	N.D.
Trichloroethene	0.50	N.D.
Trichlorofluoromethane	0.50	N.D.
Vinyl chloride	1.0	N.D.

Surrogates	Control Limits %		% Recovery
1-Chloro-2-fluorobenzene	70	130	87

Analytes reported as N.D. were not present above the stated limit of detection.

SEQUOIA ANALYTICAL - ELAP #1210

Christine Middleton

Christine Middleton
Project Manager

Sequoia Analytical

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819 Striker Avenue, Suite 8, Sacramento, CA 95834, (916) 921-9600, FAX (916) 921-0100

McCulley, Frick & Gilman, Inc	Client Proj. ID: 94-6112(3), Wiret-Oakland	Sampled:
5 Third Street	Sample Descript: Method Blank, DBLK100794	Received: 10/03/94
San Francisco, CA 94103	Matrix: LIQUID	Extracted: 10/07/94
	Analysis Method: EPA 8015 Mod	Analyzed: 10/09/94
Attention: Mike Tietze	Lab Number: 9410113-03	Reported: 10/17/94

QC Batch Number: GC1006943510EXB
Instrument ID: GCHP5B

Total Extractable Petroleum Hydrocarbons (TEPH)

Analyte	Detection Limit ug/L	Sample Results ug/L
TEPH as Diesel	50	N.D.
Chromatogram Pattern:		

Surrogates	Control Limits %		% Recovery
n-Pentacosane (C25)	50	150	101

Analytes reported as N.D. were not present above the stated limit of detection.

SEQUOIA ANALYTICAL - ELAP #1210

Christine Middleton
Project Manager

Sequoia Analytical

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McCulley, Frick & Gilman, Inc	Client Proj. ID: 94-6112(3), Wiret-Oakland	Sampled:
5 Third Street	Sample Descript: Method Blank, MBLK100794	Received: 10/03/94
San Francisco, CA 94103	Matrix: LIQUID	Extracted: 10/07/94
	Analysis Method: EPA 8015 Mod	Analyzed: 10/10/94
Attention: Mike Tietze	Lab Number: 9410113-03	Reported: 10/17/94

QC Batch Number: GC1006943510EXB
Instrument ID: GCHP4B

Fuel Fingerprint : Motor Oil

Analyte	Detection Limit ug/L	Sample Results ug/L
Extractable HC as Motor Oil Chromatogram Pattern:	500	N.D.

Surrogates	Control Limits %		% Recovery
n-Pentacosane (C25)	50	150	83

Analytes reported as N.D. were not present above the stated limit of detection.

SEQUOIA ANALYTICAL - ELAP #1210

Christine Middleton
Project Manager

Sequoia Analytical

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McCulley, Frick, & Gilman
5 Third Street, Suite 400
San Francisco, CA 94103
Attention: Mike Tietze

Client Project ID: 94-6112(3), Wiret-Oakland
Matrix: Liquid
Work Order #: 9410-113 01, 02
Reported: Oct 17, 1994

QUALITY CONTROL DATA REPORT

Analyte:	Benzene	Toluene	Ethyl Benzene	Xylenes
QC Batch#:	GC100594BTEX03A	GC100594BTEX03A	GC100594BTEX03A	GC100594BTEX03A
Analy. Method:	EPA 8020	EPA 8020	EPA 8020	EPA 8020
Prep. Method:	EPA 5030	EPA 5030	EPA 5030	EPA 5030
Analyst:	J. Minkel	J. Minkel	J. Minkel	J. Minkel
MS/MSD #:	9409E5504	9409E5504	9409E5504	9409E5504
Sample Conc.:	N.D	N.D.	N.D.	N.D.
Prepared Date:	10/5/94	10/5/94	10/5/94	10/5/94
Analyzed Date:	10/5/94	10/5/94	10/5/94	10/5/94
Instrument I.D.#:	GCHP03	GCHP03	GCHP03	GCHP03
Conc. Spiked:	10 µg/L	10 µg/L	10 µg/L	30 µg/L
Result:				
MS % Recovery:	100	100	100	103
Dup. Result:				
MSD % Recov.:	100	100	100	103
RPD:	0.0	0.0	0.0	0.0
RPD Limit:	0-50	0-50	0-50	0-50

LCS #:	Not applicable
Prepared Date:	
Analyzed Date:	
Instrument I.D.#:	
Conc. Spiked:	
LCS Result:	
LCS % Recov.:	

MS/MSD LCS Control Limits	71-133	720128	72-130	71-120

Please Note:
The LCS is a control sample of known, interferent-free matrix that is analyzed using the same reagents, preparation, and analytical methods employed for the samples. The matrix spike is an aliquot of sample fortified with known quantities of specific compounds and subjected to the entire analytical procedure. If the recovery of analytes from the matrix spike does not fall within specified control limits due to matrix interference, the LCS recovery is to be used to validate the batch.

SEQUOIA ANALYTICAL

Christine Middleton

Christine L. Middleton
Project Manager

** MS=Matrix Spike, MSD=MS Duplicate, RPD=Relative % Difference

Sequoia Analytical

680 Chesapeake Drive, Redwood City, CA 94063, (415) 364-9600, FAX (415) 364-9233
1900 Bates Avenue, Suite L, Concord, CA 94520, (510) 686-9600, FAX (510) 686-9689
819 Striker Avenue, Suite 8, Sacramento, CA 95834, (916) 921-9600, FAX (916) 921-0100

McCulley, Frick, & Gilman
5 Third Street, Suite 400
San Francisco, CA 94103
Attention: Mike Tietze

Client Project ID: 94-6112(3), Wiret-Oakland
Matrix: Liquid
Work Order #: 9410113 01, 02

Reported: Oct 17, 1994

QUALITY CONTROL DATA REPORT

Analyte:	1,1-Dichloro-ethene	Trichloro-ethene	Chloro-benzene
QC Batch#:	GC101294801015A	GC101294801015A	GC101294801015A
Analy. Method:	EPA 8010	EPA 8010	EPA 8010
Prep. Method:	EPA 5030	EPA 5030	EPA 5030
Analyst:	D. Nelson	D. Nelson	D. Nelson
MS/MSD #:	940912201	940912201	940912201
Sample Conc.:	N.D.	N.D.	N.D.
Prepared Date:	10/12/94	10/12/94	10/12/94
Analyzed Date:	10/12/94	10/12/94	10/12/94
Instrument I.D.#:	GCHP15	GCHP15	GCHP15
Conc. Spiked:	25 µg/L	25 µg/L	25 µg/L
Result:	23	22	22
MS % Recovery:	92	88	88
Dup. Result:	23	23	23
MSD % Recov.:	92	92	92
RPD:	0.0	4.4	4.4
RPD Limit:	0-50	0-50	0-50

LCS #:	Not applicable		
Prepared Date:			
Analyzed Date:			
Instrument I.D.#:			
Conc. Spiked:			
LCS Result:			
LCS % Recov.:			

MS/MSD LCS Control Limits	28-167	35-146	38-150

SEQUOIA ANALYTICAL

Christine L. Middleton
Project Manager

Please Note:
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** MS=Matrix Spike, MSD=MS Duplicate, RPD=Relative % Difference

Sequoia Analytical

680 Chesapeake Drive, Redwood City, CA 94063, (415) 364-9600, FAX (415) 364-9233
1900 Bates Avenue, Suite L, Concord, CA 94520, (510) 686-9600, FAX (510) 686-9689
819 Striker Avenue, Suite 8, Sacramento, CA 95834, (916) 921-9600, FAX (916) 921-0100

McCulley, Frick, & Gilman
5 Third Street, Suite 400
San Francisco, CA 94103
Attention: Mike Tietze

Client Project ID: 94-6112(3), Wiret-Oakland
Matrix: Liquid
Work Order #: 9410113 · 01, 02

Reported: Oct 17, 1994

QUALITY CONTROL DATA REPORT

Analyte:	Diesel
QC Batch#:	GC1006943510EXB
Analy. Method:	EPA 8015 Mod
Prep. Method:	EPA 3510
Analyst:	B. Ali
MS/MSD #:	941009801
Sample Conc.:	120
Prepared Date:	10/6/94
Analyzed Date:	10/7/94
Instrument I.D.#:	GCHP4B
Conc. Spiked:	600 µg/L
Result:	544
MS % Recovery:	70
Dup. Result:	545
MSD % Recov.:	71
RPD:	0.18
RPD Limit:	0-50

LCS #:	Not applicable
Prepared Date:	
Analyzed Date:	
Instrument I.D.#:	
Conc. Spiked:	
LCS Result:	
LCS % Recov.:	

MS/MSD LCS Control Limits	20-122

SEQUOIA ANALYTICAL

Christine Middleton

Christine L. Middleton
Project Manager

Please Note:
The LCS is a control sample of known, interferent-free matrix that is analyzed using the same reagents, preparation, and analytical methods employed for the samples. The matrix spike is an aliquot of sample fortified with known quantities of specific compounds and subjected to the entire analytical procedure. If the recovery of analytes from the matrix spike does not fall within specified control limits due to matrix interference, the LCS recovery is to be used to validate the batch.

** MS=Matrix Spike, MSD=MS Duplicate, RPD=Relative % Difference

CHAIN-OF-CUSTODY RECORD AND REQUEST FOR ANALYSIS

NO. _____

McCULLEY, FRICK & GILMAN, INC.

RECEIVED
OCT 20 1994
McCULLEY, FRICK & GILMAN, INC.

☐ 737 29th Street, Suite 202
Boulder, CO 80303
TEL: (303) 447-1823
FAX: (303) 447-1836

☐ 524 Bank Street, Suite 207
Wallace, ID 83873
TEL: (208) 556-6811
FAX: (208) 556-7271

☐ 5818 Balcones Dr., Suite 202
Austin, TX 78731
TEL: (512) 371-1667
FAX: (512) 454-4126

☑ 5 Third St., Suite 400
San Francisco, CA 94103
TEL: (415) 495-7110
FAX: (415) 495-7107

PROJECT No.: 94-6112(3) PROJECT NAME: WIRET - OAKLAND PAGE: 1 OF: 1
SAMPLER (Signature): Len Golub PROJECT MANAGER: MIKE TIETZE DATE: 10/3/94
METHOD OF SHIPMENT: personal delivery CARRIER/ WAYBILL NO. _____ DESTINATION: Sequoia analytical
SPECIAL INSTRUCTIONS/HAZARDS:

SAMPLES															ANALYSIS REQUEST																				
					Preservation						Containers*			Methods													Handling			
Lab No.	Sample Identification	Sample Collection DATE	Sample Collection TIME	Matrix*	HCL	HNO_3	H_2SO_4	COLD	NONE	OTHER	VOL. (ml)	TYPE*	No.	EPA 601/8010	EPA 602/8020	EPA 624/8240	EPA 625/8270	TPH as Gasoline	TPH as Diesel	BTEX	EPA 8010						HOLD	RUSH	STANDARD	REMARKS (Special handling procedures, specific analytical methods, observations, etc.)
01 A-C	mw-1	10-3-94	16:15	AQ	X			X			40	G	3					X		X								X	TEPH as diesel and
DE	mw-1		16:15		X			X			40		2								X							X	motor oil (EPA modif
FG	mw-1		16:15					X			1000		2						X									X	8015/extr 3550)
02 A-C	mw-2		15:00		X			X			40		3					X		X								X	
DE	mw-2		15:00		X			X			40		2								X							X	9410113
FG	mw-2		15:00					X			1000		2						X									X	

TOTAL NUMBER OF CONTAINERS 14

LABORATORY COMMENTS/ CONDITION OF SAMPLES good / 7°C

RELINQUISHED BY:					RECEIVED BY:		
SIGNATURE	PRINTED NAME	COMPANY	DATE	TIME	SIGNATURE	PRINTED NAME	COMPANY
Len Golub	Len Golub	MFG	10/3/94	18:30			
			10/3/94	1830		David Lawrence	LABORATORY Sequoia

*KEY: Matrix AQ-aqueous NA-nonaqueous SO-soil SL-sludge P-petroleum A-air OT-other Containers P-plastic G-glass T-teflon B-brass OT-other

DISTRIBUTION: PINK: Field Copy YELLOW: Laboratory Copy WHITE: Return to Originator

APPENDIX F

Laboratory Chromatograms for TPPH and TEPH Analyses
of Soil Sample MW-1-4-1 and Groundwater Samples MW-1 and MW-2

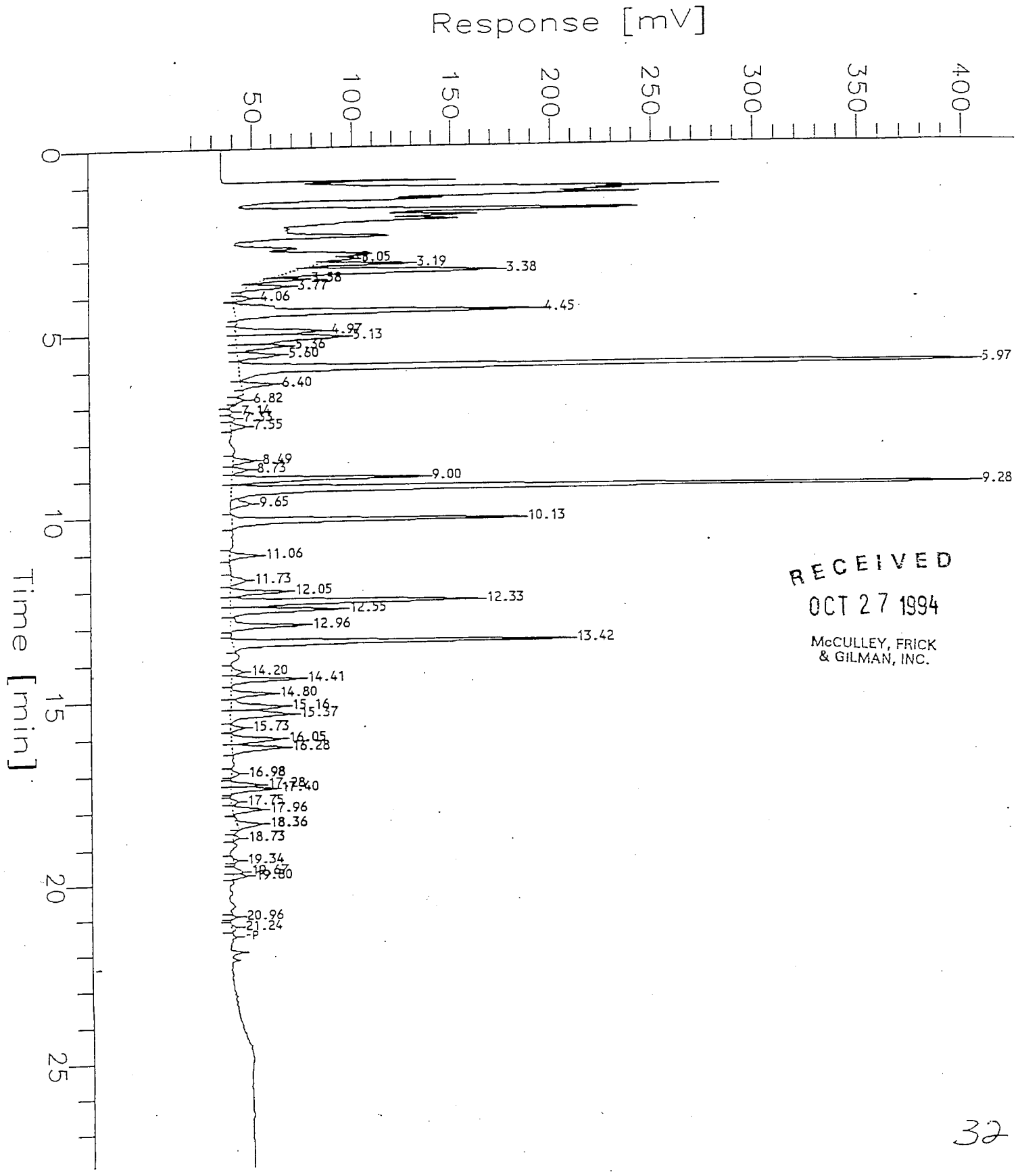
Chromatogram GAS STD

Sample Name : GSTD1006948
FileName : s:\ghp_06\1009\A06A003.raw
Method : TPH.ins
Start Time : 0.00 min
Scale Factor: -1.0

End Time : 27.99 min
Plot Offset: 15 mV

Sample #: STD091994
Date : 10/6/94 10:40
Time of Injection: 10/6/94 10:12
Low Point : 14.78 mV
Plot Scale: 390.0 mV

High Point : 404.78 mV



Software Version: 3.3 <4B11>

Sample Name : GSTD100694B
Sample Number: STD091994
Operator : CD

Time : 10/6/94 10:40
Study : SAL

Instrument : GCHP_06
AutoSampler : NONE
Rack/Vial : 0/0

Channel : A A/D mV Range : 1024

Interface Serial # :
Data Acquisition Time: 10/6/94 10:12
Delay Time : 0.00 min.
End Time : 27.99 min.
Sampling Rate : 1.2500 pts/sec

Raw Data File : S:\GHP_06\1009\A06A003.RAW
Result File : S:\GHP_06\1009\A06A003.RST
Instrument File: S:\GHP_06\MET_SEQ\TPH.ins
Process File : S:\GHP_06\MET_SEQ\TPH
Sample File : S:\GHP_06\MET_SEQ\TPH
Sequence File : S:\GHP_06\MET_SEQ\H061006.seq

Inj. Volume : 500 ul
Sample Amount : 1.0000

Area Reject : 0.000000
Dilution Factor : 1.00

TPH REPORT GCHP_06

Peak #	Time [min]	Component Name	Area [uV*sec]	Area [%]	BL
1	3.050		31860.70	0.19	*B
2	3.189		189688.07	1.15	B
3	3.383		781273.07	4.75	V
4	3.582		91209.88	0.55	V
5	3.766		128621.86	0.78	B
6	4.056		36115.38	0.22	B
7	4.454		1269845.81	7.72	B
8	4.970		346723.47	2.11	B
9	5.134		549905.28	3.34	V
10	5.362		188015.69	1.14	V
11	5.604		168511.40	1.02	V
12	5.966		3019368.17	18.35	V
13	6.399		104868.59	0.64	B
14	6.815		23294.72	0.14	B
15	7.139		10575.45	0.06	B
16	7.330		16382.28	0.10	V
17	7.548		55577.79	0.34	V
18	8.489		70983.12	0.43	B
19	8.734		53123.84	0.32	B
20	8.998		627734.21	3.81	V
21	9.278		2554706.67	15.52	V
22	9.653		94695.38	0.58	E
23	10.127		950758.99	5.78	B
24	11.060		94987.17	0.58	B
25	11.731		72429.34	0.44	B
26	12.053		195116.82	1.19	B
27	12.327		945810.10	5.75	V
28	12.548		378933.21	2.30	V
29	12.963		265663.25	1.61	V
30	13.420		1115310.73	6.78	B

Peak #	Time [min]	Component Name	Area [uV*sec]	Area [%]	BL
31	14.202		44886.66	0.27	B
32	14.412		221456.52	1.35	V
33	14.804		149803.92	0.91	V
34	15.163		230303.53	1.40	V
35	15.374		295797.72	1.80	V
36	15.730		41109.73	0.25	B
37	16.050		211013.15	1.28	V
38	16.283		206433.67	1.25	V
39	16.979		26221.09	0.16	B
40	17.281		94191.75	0.57	B
41	17.401		133419.12	0.81	V
42	17.751		22823.96	0.14	B
43	17.963		107363.04	0.65	V
44	18.362		98222.29	0.60	B
45	18.733		17996.25	0.11	B
46	19.337		13561.18	0.08	B
47	19.669		33943.81	0.21	B
48	19.795		42703.15	0.26	V
49	20.955		12473.96	0.08	B
50	21.244		20780.80	0.13	B
			16456595.79	100.00	

Missing Component Report

Component	Expected Retention (Sample File)
All Components Were Found	

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McCULLEY, FRICK & GILMAN, INC.

$TA = \frac{16457 - 835\ TFT}{15622}$

$CF_{GAS} = \frac{15622}{2500\ mg.} = 6.2$

90% = 1.1

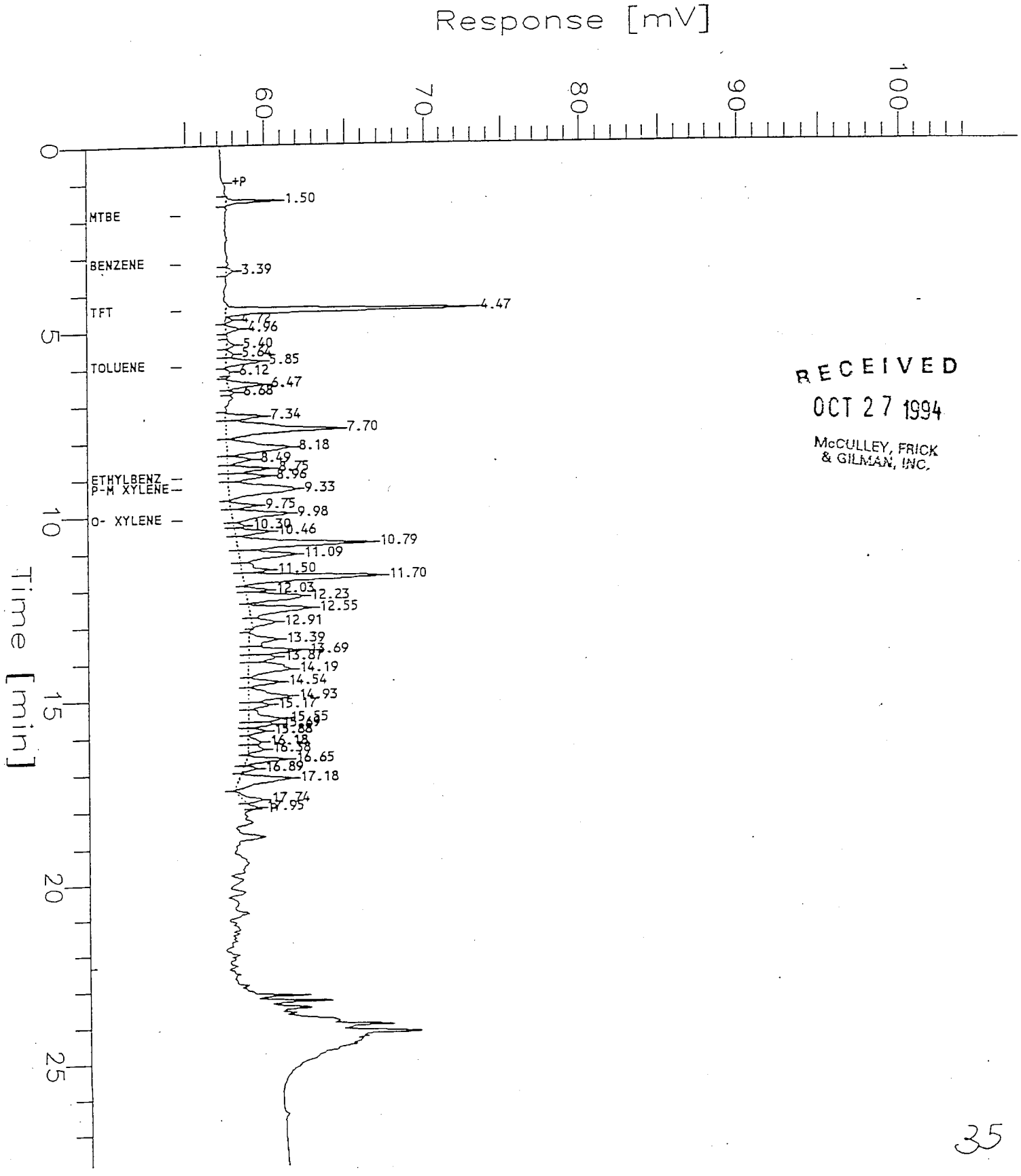
(11)

Chromatogram

MW-1-4-1

Sample Name : G9409I00-2-RE
FileName : s:\ghp_06\1009\A068011.raw
Method : TPH.ins
Start Time : 0.00 min
End Time : 27.99 min
Scale Factor: -1.0
Plot Offset: 55 mV

Sample #: MW-1-4-1
Date : 10/6/94 16:17
Time of Injection: 10/6/94 15:49
Low Point : 54.66 mV
High Point : 104.66 mV
Plot Scale: 50.0 mV



Software Version: 3.3 <4B11>
Sample Name : G9409I00-2-RE
Sample Number: MW-1-4-1
Operator : CD

Time : 10/6/94 16:17
Study : MFG

Instrument : GCHP_06
AutoSampler : NONE
Rack/Vial : 0/0

Channel : B A/D mV Range : 1024

Interface Serial # :
Data Acquisition Time: 10/6/94 15:49
Delay Time : 0.00 min.
End Time : 27.99 min.
Sampling Rate : 1.2500 pts/sec

RECEIVED
OCT 27 1994
McCULLEY, FRICK & GILMAN, INC.

Raw Data File : S:\GHP_06\1009\A06B011.RAW
Result File : S:\GHP_06\1009\A06B011.RST
Instrument File: S:\GHP_06\MET_SEQ\TPH.ins
Process File : S:\GHP_06\MET_SEQ\BTEX
Sample File : S:\GHP_06\MET_SEQ\BTEX
Sequence File : S:\GHP_06\MET_SEQ\H061006.seq

Inj. Volume : 500 ul
Sample Amount : 1.0000

Area Reject : 0.000000
Dilution Factor : 1.00

MF=2

BTEX REPORT GCHP_06

Peak #	Time [min]	Component Name	Area [uV*sec]	Area [%]	BL	SOIL PPM	LIQUID PPB
1	1.502	MTBE	14208.47	1.22	B	0.0299	1.4960
2	3.393		3132.58	0.27	B	6.2652e-06	0.0003
3	4.466	TFT	103855.47	8.90	B	0.1824 9%	9.1190
4	4.717		2850.23	0.24	E	5.7005e-06	0.0003
5	4.961		6123.48	0.52	B	1.2247e-05	0.0006
6	5.395		3201.32	0.27	B	6.4026e-06	0.0003
7	5.636		3636.79	0.31	B	7.2736e-06	0.0004
8	5.852		18336.18	1.57	V	3.6672e-05	0.0018
9	6.122		1355.67	0.12	B	2.7113e-06	0.0001
10	6.474		18243.33	1.56	B	3.6487e-05	0.0018
11	6.681		1543.86	0.13	V	3.0877e-06	0.0002
12	7.338		17488.52	1.50	B	3.4977e-05	0.0017
13	7.701		88695.32	7.60	V	0.0002	0.0089
14	8.178		55911.05	4.79	V	0.0001	0.0056
15	8.494		13126.80	1.13	V	2.6254e-05	0.0013
16	8.747		21402.59	1.83	V	4.2805e-05	0.0021
17	8.959	ETHYLBENZENE	23222.84	1.99	V	0.0162 0.032	0.8089
18	9.325	P-M XYLENE	67137.57	5.75	V	0.0395 0.079	1.9752
19	9.749		12349.14	1.06	B	2.4698e-05	0.0012
20	9.984		39568.52	3.39	V	7.9137e-05	0.0040
21	10.296		4704.53	0.40	V	9.4091e-06	0.0005
22	10.460		17599.09	1.51	V	3.5198e-05	0.0018
23	10.792		85468.88	7.33	V	0.0002	0.0085
24	11.085		39770.14	3.41	V	7.9540e-05	0.0040
25	11.498		16725.05	1.43	V	3.3450e-05	0.0017
26	11.699		82957.16	7.11	V	0.0002	0.0083
27	12.034		8518.54	0.73	B	1.7037e-05	0.0009
28	12.229		39919.62	3.42	V	7.9839e-05	0.0040
29	12.546		40890.27	3.50	V	8.1781e-05	0.0041
30	12.910		13246.05	1.14	V	2.6492e-05	0.0013

Confirm EB, XpM on a DE-5 column

30

Peak #	Time [min]	Component Name	Area [uV*sec]	Area [%]	BL	SOIL PPM	LIQUID PPB
31	13.385		21295.83	1.83	B	4.2592e-05	0.0021
32	13.689		27732.18	2.38	V	5.5464e-05	0.0028
33	13.869		15469.41	1.33	V	3.0939e-05	0.0015
34	14.191		38943.46	3.34	V	7.7887e-05	0.0039
35	14.540		15459.70	1.33	V	3.0919e-05	0.0015
36	14.932		33235.92	2.85	V	6.6472e-05	0.0033
37	15.167		10807.96	0.93	V	2.1616e-05	0.0011
38	15.547		24714.52	2.12	V	4.9429e-05	0.0025
39	15.691		10094.90	0.87	V	2.0190e-05	0.0010
40	15.876		7660.62	0.66	V	1.5321e-05	0.0008
41	16.184		7851.49	0.67	V	1.5703e-05	0.0008
42	16.376		8965.25	0.77	V	1.7931e-05	0.0009
43	16.654		20035.88	1.72	B	4.0072e-05	0.0020
44	16.892		5952.14	0.51	V	1.1904e-05	0.0006
45	17.175		39587.45	3.39	V	7.9175e-05	0.0040
46	17.740		11521.32	0.99	B	2.3043e-05	0.0012
47	17.950		2144.43	0.18	*V	4.2889e-06	0.0002
			1166661.54	100.00		0.2699	13.4948

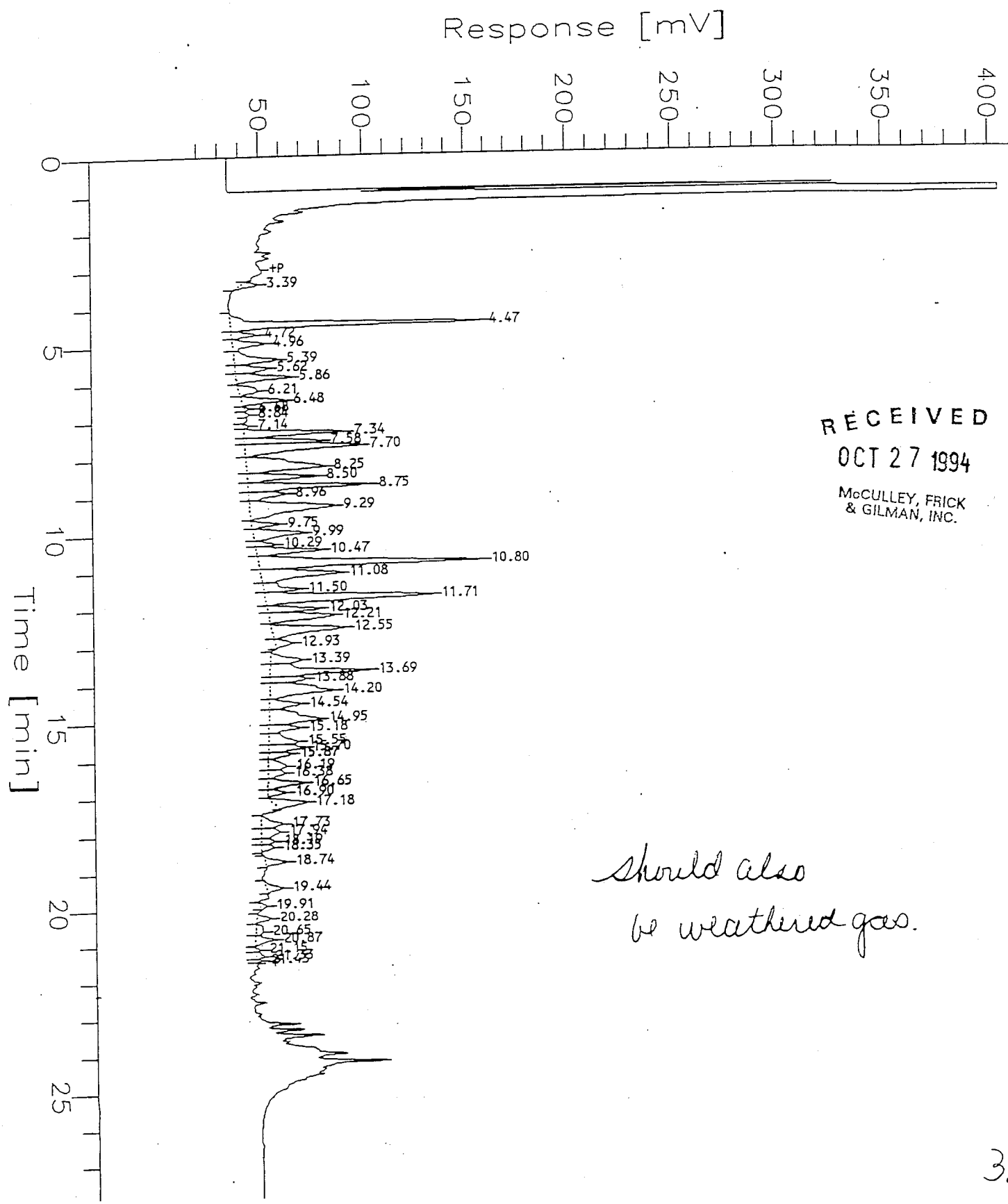
Missing Component Report

Component	Expected Retention (Sample File)
BENZENE	3.178
TOLUENE	5.952
O- XYLENE	10.111

Chromatogram

Sample Name : G9409I00-2-RE
FileName : s:\ghp_06\1009\A06A011.raw
Method : TPH.ins
Start Time : 0.00 min
Scale Factor: -1.0
End Time : 27.99 min
Plot Offset: 15 mV

Sample #: MW-1-4-1
Date : 10/6/94 16:17
Time of Injection: 10/6/94 15:49
Low Point : 14.83 mV
Plot Scale: 390.0 mV
High Point : 404.83 mV



Should also be weathered gas.

Software Version: 3.3 <4B11>
Sample Name : G9409I00-2-RE
Sample Number: MW-1-4-1
Operator : CD

Time : 10/6/94 16:17
Study : MFG

Instrument : GCHP_06
AutoSampler : NONE
Rack/Vial : 0/0

Channel : A A/D mV Range : 1024

Interface Serial # :
Data Acquisition Time: 10/6/94 15:49
Delay Time : 0.00 min.
End Time : 27.99 min.
Sampling Rate : 1.2500 pts/sec

Raw Data File : S:\GHP_06\1009\A06A011.RAW
Result File : S:\GHP_06\1009\A06A011.RST
Instrument File: S:\GHP_06\MET_SEQ\TPH.ins
Process File : S:\GHP_06\MET_SEQ\TPH
Sample File : S:\GHP_06\MET_SEQ\TPH
Sequence File : S:\GHP_06\MET_SEQ\H061006.seq

Inj. Volume : 500 ul
Sample Amount : 1.0000

Area Reject : 0.000000
Dilution Factor : 1.00

TPH REPORT GCHP_06

Peak #	Time [min]	Component Name	Area [uV*sec]	Area [%]	BL
1	3.390		55198.47	0.42	B
2	4.466		894501.75	6.79	B
3	4.722		86388.49	0.66	V
4	4.960		134099.39	1.02	V
5	5.386		226363.40	1.72	V
6	5.619		151155.01	1.15	V
7	5.858		227524.03	1.73	V
8	6.212		109956.40	0.84	B
9	6.476		173037.14	1.31	V
10	6.682		12078.51	0.09	V
11	6.836		8292.93	0.06	B
12	7.144		13668.01	0.10	B
13	7.336		363727.20	2.76	V
14	7.579		269688.68	2.05	V
15	7.702		588292.28	4.47	V
16	8.248		575499.18	4.37	V
17	8.500		276306.21	2.10	V
18	8.748		462460.02	3.51	V
19	8.959		162092.87	1.23	V
20	9.291		604906.25	4.59	V
21	9.751		88955.84	0.68	B
22	9.990		257083.55	1.95	V
23	10.294		65930.90	0.50	V
24	10.465		259159.61	1.97	V
25	10.800		1068561.17	8.12	V
26	11.082		448634.44	3.41	V
27	11.502		167130.62	1.27	V
28	11.712		826241.42	6.28	V
29	12.030		181262.00	1.38	V
30	12.213		338516.06	2.57	V

Peak #	Time [min]	Component Name	Area [uV*sec]	Area [%]	BL
31	12.551		388214.34	2.95	B
32	12.929		72472.70	0.55	V
33	13.387		159828.49	1.21	B
34	13.689		469560.46	3.57	V
35	13.879		143358.73	1.09	V
36	14.198		452706.17	3.44	V
37	14.543		147463.74	1.12	V
38	14.947		385378.94	2.93	V
39	15.178		133241.00	1.01	V
40	15.546		174500.82	1.33	V
41	15.700		145644.20	1.11	V
42	15.866		89968.33	0.68	V
43	16.190		112881.32	0.86	V
44	16.381		75682.11	0.57	V
45	16.650		162629.44	1.24	V
46	16.904		64221.87	0.49	V
47	17.177		151344.21	1.15	B
48	17.732		113542.47	0.86	B
49	17.944		113695.76	0.86	V
50	18.189		51662.40	0.39	V
51	18.345		48938.38	0.37	V
52	18.738		79506.63	0.60	B
53	19.440		68195.06	0.52	B
54	19.912		22126.65	0.17	B
55	20.277		55935.23	0.42	B
56	20.651		56413.48	0.43	B
57	20.871		77441.49	0.59	V
58	21.145		9862.24	0.07	B
59	21.329		34147.35	0.26	V
60	21.433		9377.73	0.07	V
			13166653.59	100.00	

Missing Component Report

Component	Expected Retention (Sample File)
All Components Were Found	

TA = 13167 − 895 TH = 12272

TPH = 12272 / (250)(6.25) = 79

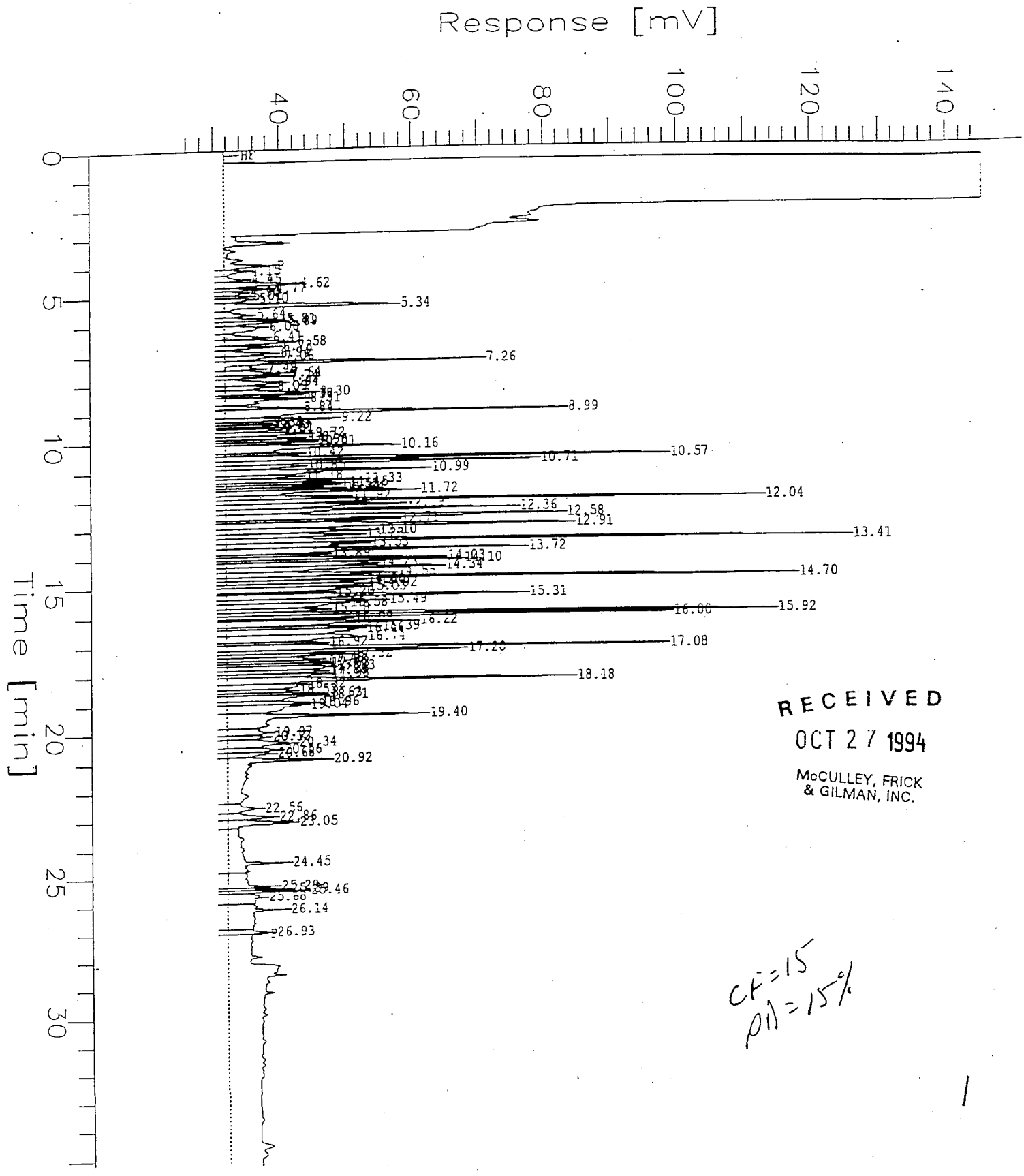
Chromatogram DIESEL STANDARD

Sample Name : DSTD100994
FileName : s:\ghp_05\1009\109B002.raw
Method : H05A. ns
Start Time : 0.00 min
Scale Factor: -1.0

End Time : 35.60 min
Plot Offset: 26 mV

Sample #: 300 PPM
Date : 10/9/94 16:54
Time of Injection: 10/9/94 16:12
Low Point : 25.53 mV
Plot Scale: 120.0 mV

High Point : 145.53 mV



CF = 15
RU = 15%

1

Software Version: 3.3 <4B11>
Sample Name : DSTD100994
Sample Number: 300 PPM
Operator : NH

Time : 10/9/94 16:54
Study :

Instrument : GCHP_05
AutoSampler : HP7673A
Rack/Vial : 1/52

Channel : B A/D mV Range : 1024

Interface Serial # :
Data Acquisition Time: 10/9/94 16:12
Delay Time : 0.00 min.
End Time : 35.60 min.
Sampling Rate : 2.5000 pts/sec

Raw Data File : S:\GHP_05\1009\109B002.RAW
Result File : S:\GHP_05\1009\109B002.RST
Instrument File: S:\GHP_05\MET_SEQ\H05A
Process File : S:\GHP_05\MET_SEQ\H05B.prc
Sample File : S:\GHP_05\MET_SEQ\H05B.smp
Sequence File : s:\ghp_05\met_seq\h051009.seq

Inj. Volume : 3 ul
Sample Amount : 1.0000

Area Reject : 0.000000
Dilution Factor : 1.00

DIESEL REPORT GCHP_05B

Peak #	Time [min]	Component Name	Area [uV*sec]	Area [%]	BL	SOIL PPM	LIQUID PPB
	14.000	TPH-D	13764219.20	94.50		16.6194	664.7746
111	24.447		237674.28	1.63	*V	0.0040	0.1584
112	25.287		107510.24	0.74	*V	0.0018	0.0717
113	25.389		33545.47	0.23	*V	0.0006	0.0224
114	25.464		43438.88	0.30	*V	0.0007	0.0290
115	25.684		100516.73	0.69	*V	0.0017	0.0670
116	26.139		232247.13	1.59	*V	0.0039	0.1548
117	26.931		45479.97	0.31	*V	0.0008	0.0303
			14564631.91	100.00		16.6327	665.3082

Group Report For : TPH-D

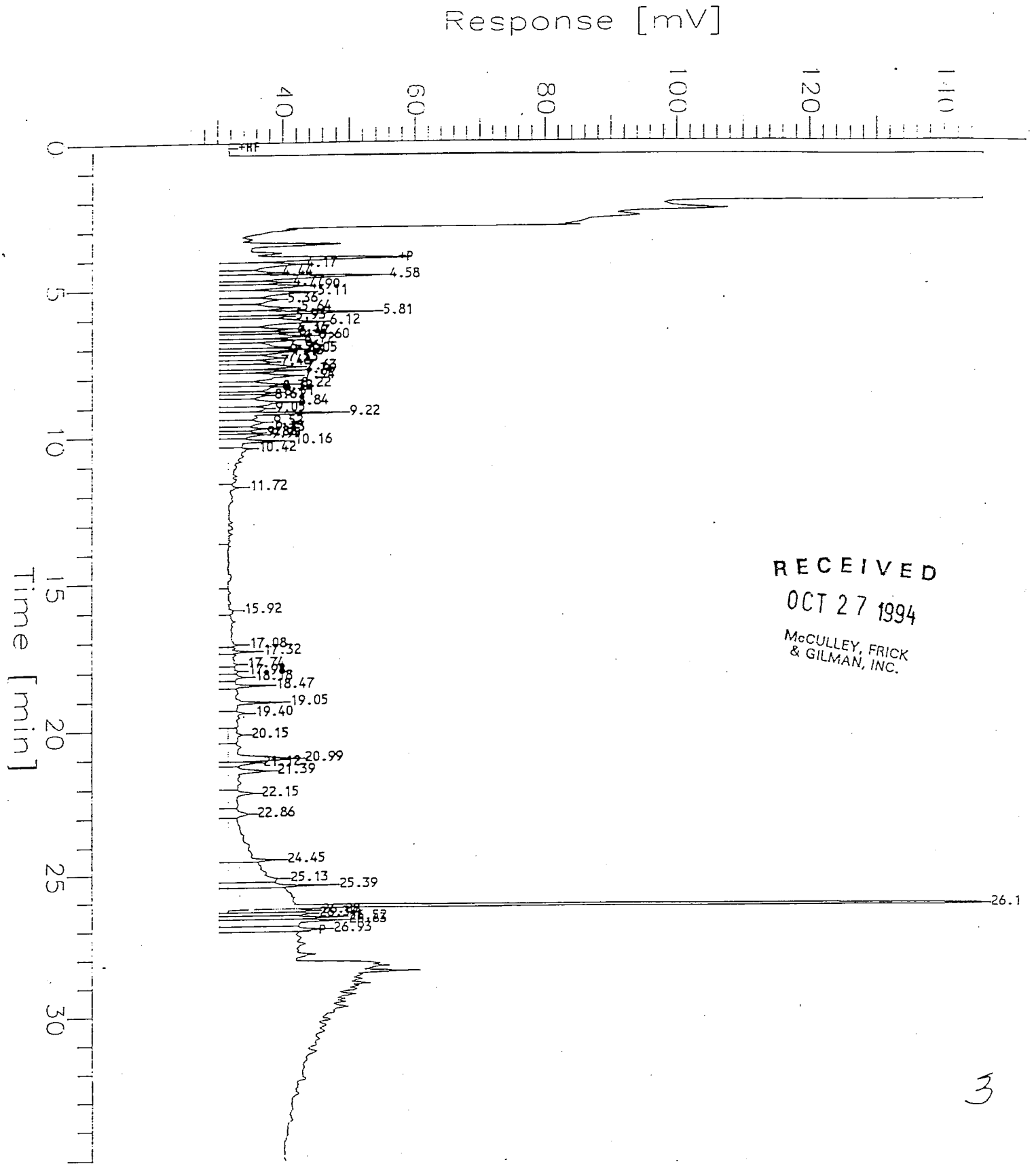
Peak #	Time [min]	Component Name	Area [uV*sec]	Area [%]	BL	SOIL PPM	LIQUID PPB
0	4.154		18691.75	0.14	*B	0.0003	0.0125
0	4.445		17011.83	0.12	*B	0.0003	0.0113
0	4.616		75258.26	0.55	*B	0.0013	0.0502
0	4.765		30002.87	0.22	*B	0.0005	0.0200
0	4.895		16398.33	0.12	*B	0.0003	0.0109
0	5.013		13104.55	0.10	*B	0.0002	0.0087
0	5.103		27718.57	0.20	*B	0.0005	0.0185
0	5.338		158230.59	1.15	*B	0.0026	0.1055
0	5.637		25034.52	0.18	*B	0.0004	0.0167
0	5.805		43062.85	0.31	*B	0.0007	0.0287
0	5.890		42397.77	0.31	*B	0.0007	0.0283
0	6.063		56482.60	0.41	*B	0.0009	0.0377
0	6.408		41728.86	0.30	*B	0.0007	0.0278
0	6.584		88159.33	0.64	*B	0.0015	0.0588
0	6.727		36472.60	0.26	*B	0.0006	0.0243
0	6.943		44946.57	0.33	*B	0.0007	0.0300

2

Chromatogram MW-1-4-1

Sample Name : D9409100-2
FileName : s:\ghp_05\1009\1098003.raw
Method : H05A.ins
Start Time : 0.00 min End Time : 35.60 min
Scale Factor: -1.0 Plot Offset: 26 mV

Sample #: 20:1 Page 1 of 1
Date : 10/9/94 17:31
Time of Injection: 10/9/94 16:55
Low Point : 25.58 mV High Point : 145.58 mV
Plot Scale: 120.0 mV



3

Software Version: 3.3 <4B11>
Sample Name : D9409I00-2
Sample Number: 20:1
Operator : NH

Time : 10/9/94 17:31
Study :

Instrument : GCHP_05
AutoSampler : HP7673A
Rack/Vial : 1/53

Channel : B A/D mV Range : 1024

Interface Serial # :
Data Acquisition Time: 10/9/94 16:55
Delay Time : 0.00 min.
End Time : 35.60 min.
Sampling Rate : 2.5000 pts/sec

Raw Data File : S:\GHP_05\1009\109B003.RAW
Result File : S:\GHP_05\1009\109B003.RST
Instrument File: S:\GHP_05\MET_SEQ\H05A.ins
Process File : S:\GHP_05\MET_SEQ\H05B
Sample File : S:\GHP_05\MET_SEQ\H05B
Sequence File : S:\GHP_05\MET_SEQ\H051009.SEQ

Inj. Volume : 3 ul
Sample Amount : 1.0000

Area Reject : 0.000000
Dilution Factor : 1.00

DIESEL REPORT GCHP_05B

Peak #	Time [min]	Component Name	Area [uV*sec]	Area [%]	BL	SOIL PPM	L1QUID PPB
	14.000	TPH-D	3490356.18	49.99		4.2144	168.5748
53	24.447		251266.84	3.60	*V	0.0042	0.1675
54	25.132		252462.58	3.62	*V	0.0042	0.1683
55	25.392		118163.55	1.69	*V	0.0020	0.0788
56	26.145		2298939.09	32.93	*V	0.0383	1.5326
57	26.280		75531.76	1.08	*E	0.0013	0.0504
58	26.388		78877.45	1.13	*V	0.0013	0.0526
59	26.522		104675.63	1.50	*V	0.0017	0.0698
60	26.632		177949.68	2.55	*V	0.0030	0.1186
61	26.932		133649.89	1.91	*V	0.0022	0.0891
			6981872.65	100.00		4.2726	170.9025

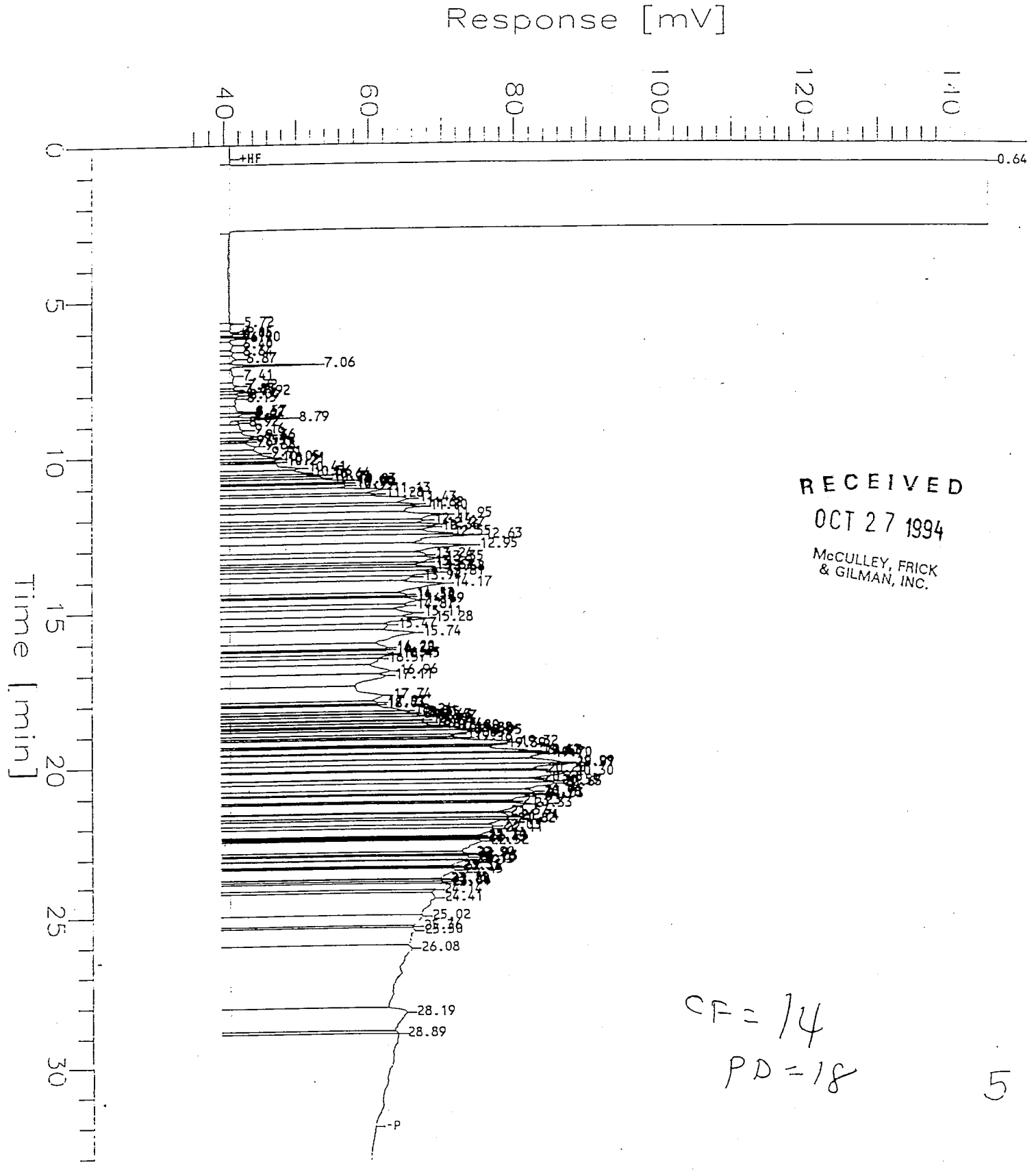
Group Report For : TPH-D

Peak #	Time [min]	Component Name	Area [uV*sec]	Area [%]	BL	SOIL PPM	L1QUID PPB
0	4.166		105739.51	3.03	*B	0.0018	0.0705
0	4.437		51036.63	1.46	*B	0.0009	0.0340
0	4.576		173588.32	4.97	*B	0.0029	0.1157
0	4.774		48458.56	1.39	*B	0.0008	0.0323
0	4.900		94111.60	2.70	*B	0.0016	0.0627
0	5.106		121996.79	3.50	*B	0.0020	0.0813
0	5.356		77888.94	2.23	*B	0.0013	0.0519
0	5.636		84518.98	2.42	*B	0.0014	0.0563
0	5.805		132768.58	3.80	*B	0.0022	0.0885
0	5.929		52288.11	1.50	*B	0.0009	0.0349
			[illegible]	4.41	*B	0.0026	0.1025

Chromatogram MOTOR OIL STANDARD

Sample Name : MSTD100794
FileName : s:\ghp_04\1009\0078002.raw
Method : GREASE.ins
Start Time : 0.00 min End Time : 33.92 min
Scale Factor: -1.0 Plot Offset: 35 mV

Sample #: 600 PPM Page 1 of 1
Date : 10/7/94 09:57
Time of Injection: 10/7/94 09:23
Low Point : 35.08 mV High Point : 145.08 mV
Plot Scale: 110.0 mV



CF = 14
PD = 18

5

Software Version: 3.3 <4B11>
Sample Name : MSTD100794
Sample Number: 600 PPM
Operator : BA

Time : 10/7/94 09:57
Study :

Instrument : GCHP_04
AutoSampler : HP7673A
Rack/Vial : 1/52

Channel : B A/D mV Range : 1024

Interface Serial # :
Delay Time : 0.00 min.
End Time : 33.92 min.
Sampling Rate : 2.5000 pts/sec

Data Acquisition Time: 10/7/94 09:23

Raw Data File : S:\GHP_04\1009\O07B002.RAW
Result File : S:\GHP_04\1009\O07B002.RST
Instrument File: S:\GHP_04\MET_SEQ\GREASE.ins
Process File : S:\GHP_04\MET_SEQ\GREASE-B
Sample File : S:\GHP_04\MET_SEQ\GREASE-B
Sequence File : S:\GHP_04\MET_SEQ\H041007.SEQ

Inj. Volume : 3 ul
Sample Amount : 1.0000

Area Reject : 0.000000
Dilution Factor : 1.00

GREASE REPORT GCHP_04 INJ. B

Peak #	Time [min]	Component Name	Area [uV*sec]	Area [%]	BL	SOIL PPM	L1QUID PPB
1	0.637		78726144.10	72.02	*B	1.3121	52.4841
2	5.722		2682.39	2e-03	*V	4.4707e-05	0.0018
	15.500	TPH-MOIL	25050533.83	22.92		66.7448	2669.7907
128	25.019		546199.69	0.50	*V	0.0091	0.3641
129	25.356		100164.30	0.09	*V	0.0017	0.0668
130	25.499		841563.28	0.77	*V	0.0140	0.5610
131	26.082		2836439.65	2.59	*V	0.0473	1.8910
132	28.187		1065312.92	0.97	*V	0.0178	0.7102
133	28.887		145152.76	0.13	*V	0.0024	0.0968
			1.09314e+08	100.00		68.1492	2725.9665

Group Report For : TPH-MOIL

Peak #	Time [min]	Component Name	Area [uV*sec]	Area [%]	BL	SOIL PPM	L1QUID PPB
0	6.053		2235.90	9e-03	*B	3.7265e-05	0.0015
0	6.136		1139.38	5e-03	*B	1.8990e-05	0.0008
0	6.200		4778.58	0.02	*B	7.9643e-05	0.0032
0	6.404		4363.40	0.02	*B	7.2723e-05	0.0029
0	6.639		3357.10	0.01	*B	5.5952e-05	0.0022
0	6.869		7154.83	0.03	*B	0.0001	0.0048
0	7.063		32014.38	0.13	*B	0.0005	0.0213
0	7.406		9578.91	0.04	*B	0.0002	0.0064
0	7.724		7474.24	0.03	*B	0.0001	0.0050
0	7.850		2854.12	0.01	*B	4.7569e-05	0.0019
0	7.920		9926.44	0.04	*B	0.0002	0.0066
0	8.036		7204.95	0.03	*B	0.0001	0.0048

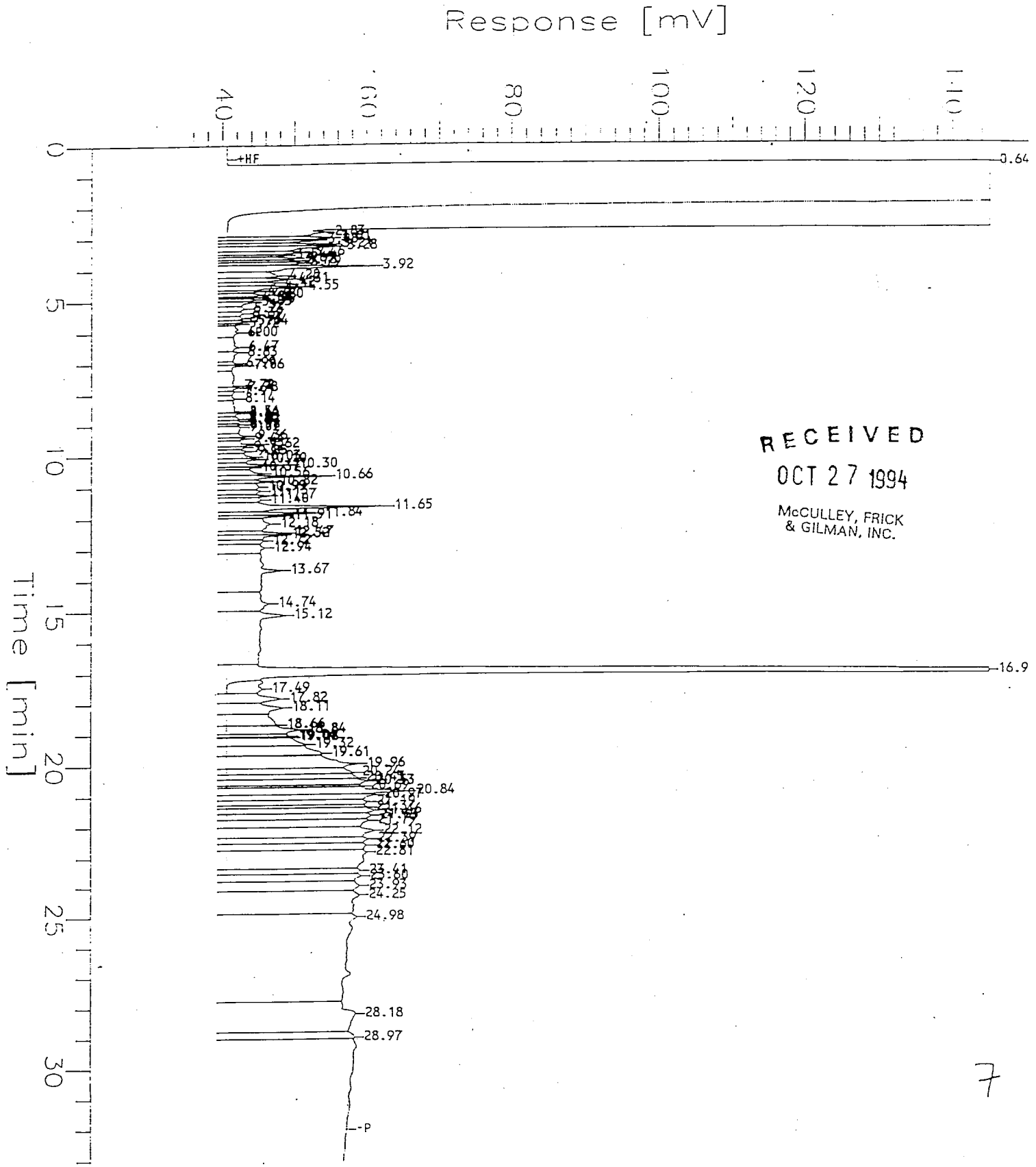
6

Chromatogram

MW-1-4-1

Sample Name : M9409100-2
FileName : s:\ghp_04\1009\0078013.raw
Method : GREASE.ins
Start Time : 0.00 min End Time : 33.92 min
Scale Factor: -1.0 Plot Offset: 35 mV

Sample #: 20:1
Date : 10/7/94 17:55
Time of Injection: 10/7/94 17:21
Low Point : 35.06 mV High Point : 145.06 mV
Plot Scale: 110.0 mV



Software Version: 3.3 <4B11>
Sample Name : M9409I00-2
Sample Number: 20:1
Operator : BA

Time : 10/7/94 17:55
Study :

Instrument : GCHP_04
AutoSampler : HP7673A
Rack/Vial : 1/63

Channel : B A/D mV Range : 1024

Interface Serial # :
Data Acquisition Time: 10/7/94 17:21
Delay Time : 0.00 min.
End Time : 33.92 min.
Sampling Rate : 2.5000 pts/sec

Raw Data File : S:\GHP_04\1009\O07B013.RAW
Result File : S:\GHP_04\1009\O07B013.RST
Instrument File: S:\GHP_04\MET_SEQ\GREASE.ins
Process File : S:\GHP_04\MET_SEQ\GREASE-B
Sample File : S:\GHP_04\MET_SEQ\GREASE-B
Sequence File : S:\GHP_04\MET_SEQ\H041007.seq

Inj. Volume : 3 ul
Sample Amount : 1.0000

Area Reject : 0.000000
Dilution Factor : 1.00

GREASE REPORT GCHP_04 INJ. B

Peak #	Time [min]	Component Name	Area [uV*sec]	Area [%]	BL	SOIL PPM	LIQUID PPB
1	0.637		65227048.66	66.39	*B	1.0871	43.4847
2	2.826		16607138.01	16.90	*E	0.2768	11.0714
3	3.012		91245.81	0.09	*V	0.0015	0.0608
4	3.077		56497.64	0.06	*V	0.0009	0.0377
5	3.214		72516.57	0.07	*V	0.0012	0.0483
6	3.278		113456.64	0.12	*V	0.0019	0.0756
7	3.458		58874.53	0.06	*V	0.0010	0.0392
8	3.540		33770.63	0.03	*V	0.0006	0.0225
9	3.648		50703.07	0.05	*V	0.0008	0.0338
10	3.727		37175.63	0.04	*V	0.0006	0.0248
11	3.792		52872.21	0.05	*V	0.0009	0.0352
12	3.920		135738.18	0.14	*V	0.0023	0.0905
13	4.199		70547.21	0.07	*V	0.0012	0.0470
14	4.307		54736.74	0.06	*V	0.0009	0.0365
15	4.420		42936.21	0.04	*V	0.0007	0.0286
16	4.551		59690.81	0.06	*V	0.0010	0.0398
17	4.672		18978.76	0.02	*V	0.0003	0.0127
18	4.796		30994.50	0.03	*V	0.0005	0.0207
19	4.875		10889.43	0.01	*V	0.0002	0.0073
20	4.954		19667.12	0.02	*V	0.0003	0.0131
21	5.034		24420.96	0.02	*V	0.0004	0.0163
22	5.241		18980.55	0.02	*V	0.0003	0.0127
23	5.392		17461.57	0.02	*V	0.0003	0.0116
24	5.538		14079.54	0.01	*V	0.0002	0.0094
25	5.637		11849.31	0.01	*V	0.0002	0.0079
26	5.718		6684.11	7e-03	*V	0.0001	0.0045
	15.500	TPH-MOIL	14061718.45	14.31		37.4661	1498.6445
100	28.179		1002883.99	1.02	*V	0.0167	0.6686
101	28.972		241931.96	0.25	*V	0.0040	0.1613

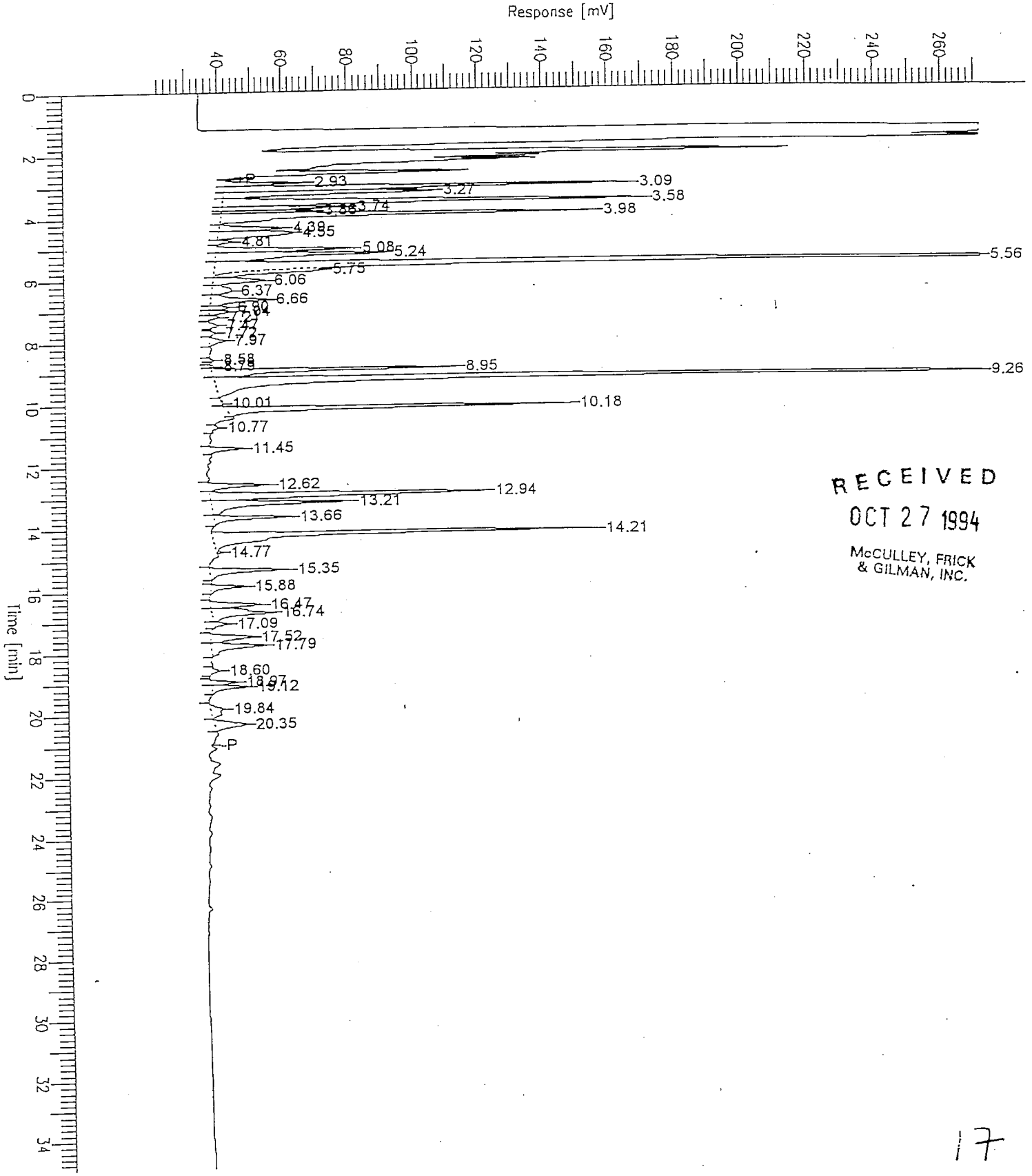
8

Chromatogram

GAS STD.

Sample Name : GSTD100594A
FileName : S:\GHP_03\1009\004A033.raw
Method : TPH
Start Time : 0.00 min
End Time : 34.99 min
Scale Factor: -1.0
Plot Offset: 22 mV

Sample #:
Date : 10/5/94 06:17
Time of Injection: 10/5/94 03:41
Low Point : 21.74 mV
High Point : 271.74 mV
Plot Scale: 250.0 mV



Software Version: 4.0<3H19>
Sample Name :
Sample Number:
Operator :

Time : 10/5/94 06:17
Study :

Instrument : GHP_03
AutoSampler : NONE
Rack/Vial : -12543/1

Channel : A A/D mV Range : 1024

Interface Serial # : NONE Data Acquisition Time: 10/5/94 03:41
Delay Time : 0.00 min.
End Time : 34.99 min.
Sampling Rate : 1.2500 pts/sec

Raw Data File : S:\GHP_03\1009\O04A033.RAW
Result File : S:\GHP_03\1009\O04A033.RST
Inst Method : S:\GHP_03\MET_SEQ\TPH from S:\GHP_03\1009\O04A033.RST
Proc Method : S:\GHP_03\MET_SEQ\TPH.mth
Calib Method : S:\GHP_03\MET_SEQ\TPH.mth
Sequence File : S:\GHP_03\MET_SEQ\H031004.SEQ

Sample Volume : 1.0000
Sample Amount : 1.0000

Area Reject : 0.000000
Dilution Factor : 1.00

TPH REPORT GCHP_03

Peak #	Time [min]	Area [uV*sec]	Area [%]	BL
1	2.934	123554.21	0.84	B
2	3.094	869421.48	5.88	V
3	3.271	457639.60	3.10	V
4	3.575	1015960.73	6.88	V
5	3.743	209639.43	1.42	V
6	3.858	149110.69	1.01	V
7	3.977	773700.07	5.24	V
8	4.386	145603.28	0.99	V
9	4.546	248435.16	1.68	V
10	4.808	22968.35	0.16	V
11	5.077	282423.04	1.91	B
12	5.239	476936.64	3.23	V
13	5.564	2442757.95	16.53	V
14	5.752	233165.05	1.58	E
15	6.060	145530.53	0.99	V
16	6.374	83826.51	0.57	V
17	6.661	157101.68	1.06	V
18	6.901	39749.59	0.27	V

Peak #	Time [min]	Area [uV*sec]	Area [%]	BL
19	7.041	42264.49	0.29	V
20	7.208	17917.50	0.12	V
21	7.474	17330.98	0.12	B
22	7.718	7857.03	0.05	B
23	7.965	39515.08	0.27	B
24	8.584	4684.78	0.03	B
25	8.794	4010.80	0.03	B
26	8.948	500025.91	3.38	V
27	9.259	2031752.80	13.75	V
28	10.005	5025.68	0.03	V
29	10.184	648430.46	4.39	B
30	10.766	6111.11	0.04	B
31	11.451	63299.09	0.43	B
32	12.622	125866.43	0.85	B
33	12.938	699514.16	4.73	V
34	13.206	347059.72	2.35	V
35	13.660	161357.61	1.09	V
36	14.209	913589.23	6.18	B
37	14.766	5735.01	0.04	E
38	15.354	181922.20	1.23	B
39	15.881	70717.85	0.48	B
40	16.473	125006.33	0.85	B
41	16.741	221876.70	1.50	V
42	17.090	25892.27	0.18	V
43	17.524	136821.55	0.93	B
44	17.791	160908.15	1.09	V
45	18.596	18003.39	0.12	B
46	18.966	51750.75	0.35	B
47	19.120	85604.66	0.58	V
48	19.837	64335.86	0.44	B
49	20.345	112306.36	0.76	B
		14774017.94	100.00	

Missing Component Report
Component Expected Retention (Calibration File)

All components were found

686 (480 – 892)

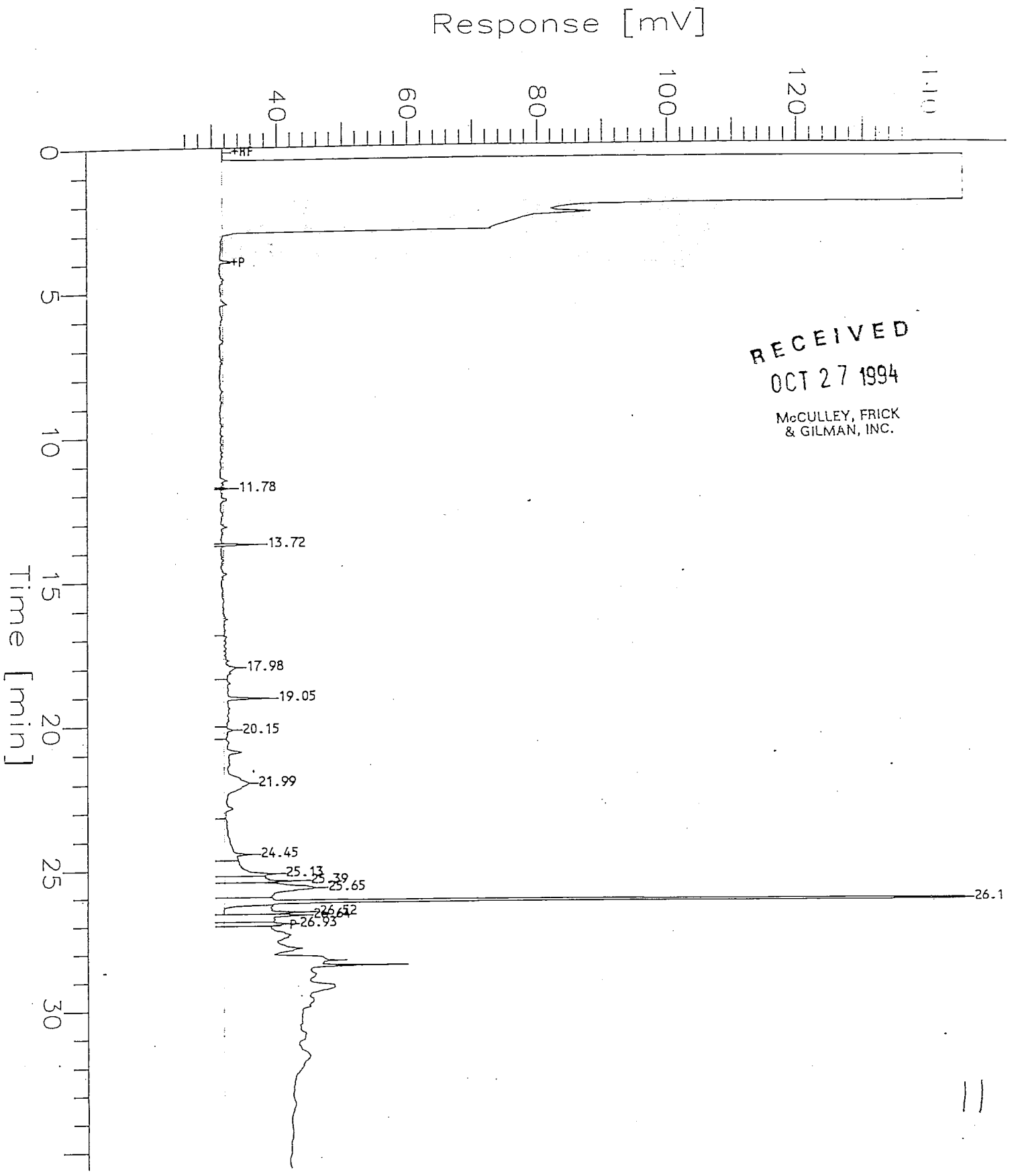
$\frac{14774 - 686}{2500\,mg} = 5.64$

19

Chromatogram METHOD BLANK

Sample Name : DBLK100794
FileName : s:\ghp_05\1009\109B007.raw
Method : H05A.ins
Start Time : 0.00 min
Scale Factor: -1.0
End Time : 35.60 min
Plot Offset: 25 mV

Sample #: 500:1
Date : 10/9/94 20:22
Time of Injection: 10/9/94 19:46
Low Point : 25.11 mV
Plot Scale: 120.0 mV
High Point : 145.11 mV



11

Software Version: 3.3 <4B11>
Sample Name : DBLK100794
Sample Number: 500:1
Operator : NH

Time : 10/9/94 20:22
Study :

Instrument : GCHP_05
AutoSampler : HP7673A
Rack/Vial : 1/57

Channel : B A/D mV Range : 1024

Interface Serial # :
Data Acquisition Time: 10/9/94 19:46
Delay Time : 0.00 min.
End Time : 35.60 min.
Sampling Rate : 2.5000 pts/sec

Raw Data File : S:\GHP_05\1009\109B007.RAW
Result File : S:\GHP_05\1009\109B007.RST
Instrument File: S:\GHP_05\MET_SEQ\H05A.ins
Process File : S:\GHP_05\MET_SEQ\H05B
Sample File : S:\GHP_05\MET_SEQ\H05B
Sequence File : S:\GHP_05\MET_SEQ\H051009.SEQ

Inj. Volume : 3 ul
Sample Amount : 1.0000

Area Reject : 0.000000
Dilution Factor : 1.00

DIESEL REPORT GCHP_05B

Peak #	Time [min]	Component Name	Area [uV*sec]	Area [%]	BL	SOIL PPM	L1QUID PPB
	14.000	TPH-D	348874.61	12.08		0.4212	16.8497
7	24.453		91174.14	3.16	*V	0.0015	0.0608
8	25.134		120343.59	4.17	*V	0.0020	0.0802
9	25.394		103756.06	3.59	*V	0.0017	0.0692
10	25.651		305490.32	10.58	*V	0.0051	0.2037
11	26.145		1561286.06	54.07	*V	0.0260	1.0409
12	26.523		142931.02	4.95	*E	0.0024	0.0953
13	26.636		142987.32	4.95	*V	0.0024	0.0953
14	26.934		70469.35	2.44	*V	0.0012	0.0470
			2887312.47	100.00		0.4635	18.5420

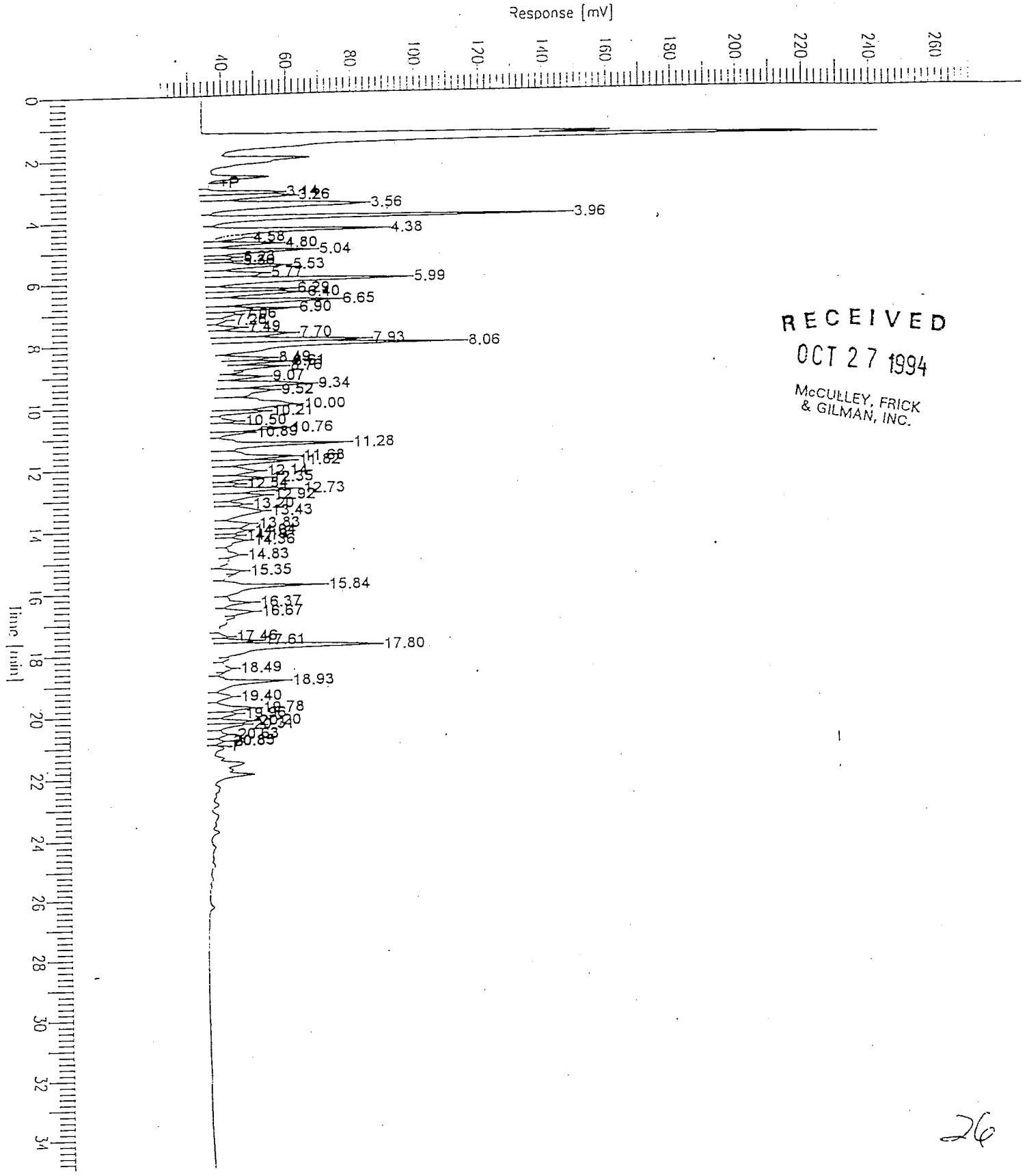
Group Report For : TPH-D

Peak #	Time [min]	Component Name	Area [uV*sec]	Area [%]	BL	SOIL PPM	L1QUID PPB
0	11.783		2141.91	0.61	*B	3.5699e-05	0.0014
0	13.721		15179.38	4.35	*B	0.0003	0.0101
0	17.982		48465.45	13.89	*B	0.0008	0.0323
0	19.054		86888.28	24.91	*B	0.0014	0.0579
0	20.153		15832.79	4.54	*B	0.0003	0.0106
0	21.986		180366.81	51.70	*B	0.0030	0.1202
			348874.61	100.00		0.0058	0.2326

Chromatogram MW-1

Sample Name : G9410113-01C
FileName : S:\GHP_03\1009\005A008.raw
Method : TPH
Start Time : 0.00 min
Scale Factor: -1.0
End Time : 34.99 min
Plot Offset: 22 mV

Sample #: MW-1
Date : 10/5/94 13:05
Time of Injection: 10/5/94 12:30
Low Point : 21.59 mV
Plot Scale: 250.0 mV
High Point : 271.59 mV



Software Version: 4.0<3H19>
Sample Name : G9410113-01C
Sample Number: MW-1
Operator :

Time : 10/5/94 13:05
Study : MFG

Instrument : GHP_03
AutoSampler : NONE
Rack/Vial : -12543/1

Channel : A A/D mV Range : 1024

Interface Serial # : NONE Data Acquisition Time: 10/5/94 12:30
Delay Time : 0.00 min.
End Time : 34.99 min.
Sampling Rate : 1.2500 pts/sec

Raw Data File : S:\GHP_03\1009\O05A008.RAW
Result File : S:\GHP_03\1009\O05A008.RST
Inst Method : S:\GHP_03\MET_SEQ\TPH from S:\GHP_03\1009\O05A008.RST
Proc Method : S:\GHP_03\MET_SEQ\TPH
Calib Method : S:\GHP_03\MET_SEQ\TPH
Sequence File : S:\GHP_03\MET_SEQ\H031005.SEQ

Sample Volume : 1.0000
Sample Amount : 1.0000

Area Reject : 0.000000
Dilution Factor : 1.00

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TPH REPORT GCHP_03

Peak #	Time [min]	Area [uV*sec]	Area [%]	BL
1	3.142	153799.95	1.56	B
2	3.261	196231.88	2.00	V
3	3.557	544914.18	5.54	V
4	3.962	641516.79	6.52	B
5	4.375	399420.53	4.06	B
6	4.584	68674.90	0.70	E
7	4.804	124756.30	1.27	V
8	5.037	214998.64	2.19	V
9	5.231	39120.85	0.40	V
10	5.361	33818.54	0.34	V
11	5.527	179887.25	1.83	V
12	5.765	140488.77	1.43	V
13	5.988	464434.24	4.72	V
14	6.286	146538.69	1.49	V
15	6.404	189694.82	1.93	V
16	6.652	306700.76	3.12	V
17	6.903	155963.65	1.59	V
18	7.057	47659.47	0.48	V

Peak #	Time [min]	Area [uV*sec]	Area [%]	BL
19	7.260	19691.85	0.20	V
20	7.485	44422.74	0.45	B
21	7.704	187882.82	1.91	V
22	7.925	314179.08	3.20	V
23	8.058	633779.85	6.45	V
24	8.486	83294.88	0.85	B
25	8.611	86497.14	0.88	V
26	8.762	67517.20	0.69	V
27	9.069	61886.20	0.63	B
28	9.344	227381.13	2.31	V
29	9.521	165442.76	1.68	V
30	9.995	359990.54	3.66	V
31	10.205	82981.40	0.84	V
32	10.500	30308.31	0.31	B
33	10.762	205706.00	2.09	V
34	10.891	43928.68	0.45	V
35	11.276	301267.41	3.06	B
36	11.681	205016.87	2.08	V
37	11.824	154516.95	1.57	V
38	12.139	123555.00	1.26	V
39	12.352	92108.96	0.94	V
40	12.537	31668.63	0.32	V
41	12.733	165507.96	1.68	V
42	12.921	117800.83	1.20	V
43	13.197	40707.86	0.41	V
44	13.432	179631.78	1.83	V
45	13.832	83936.08	0.85	V
46	14.037	52752.04	0.54	V
47	14.194	26792.67	0.27	V
48	14.360	55152.95	0.56	V
49	14.825	32355.53	0.33	B
50	15.349	24242.48	0.25	B
51	15.844	267492.78	2.72	B
52	16.370	64117.37	0.65	V
53	16.670	49606.23	0.50	B
54	17.461	13712.05	0.14	B
55	17.610	62459.07	0.64	V
56	17.797	461105.17	4.69	V
57	18.493	18083.74	0.18	B
58	18.926	174620.44	1.78	B
59	19.403	40666.07	0.41	B
60	19.784	100722.50	1.02	B
61	19.962	46755.49	0.48	V
62	20.201	71515.07	0.73	V
63	20.314	66628.06	0.68	V
64	20.632	30499.63	0.31	V
65	20.852	14515.93	0.15	V
		9833024.39	100.00	

$$\frac{9833 - 642}{(100)(5.64)} = 160$$

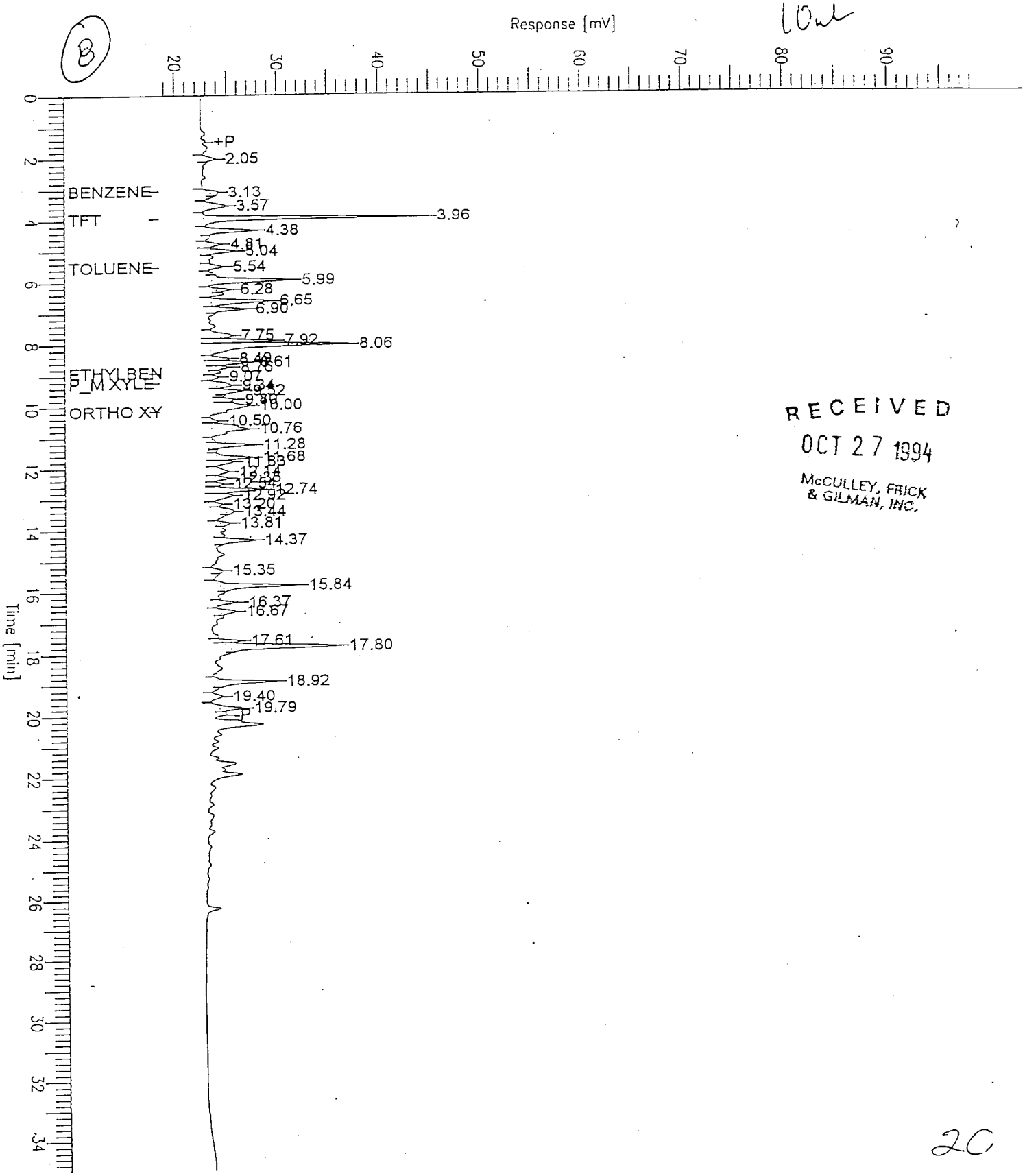
Chromatogram

MW-1

Sample Name : G9410113-01C
FileName : S:\GHP_03\1009\005B008.raw
Method : TPH
Start Time : 0.00 min End Time : 34.99 min
Scale Factor: -1.0 Plot Offset: 19 mV

Sample #: MW-1 Page 1 of 1
Date : 10/5/94 13:05
Time of Injection: 10/5/94 12:30
Low Point : 18.52 mV High Point : 98.52 mV
Plot Scale: 80.0 mV

Low



2C

Software Version: 4.0<3H19>
Sample Name : G9410113-01C
Sample Number: MW-1
Operator :

Time : 10/5/94 13:05
Study : MFG

Instrument : GHP_03
AutoSampler : NONE
Rack/Vial : -12543/1

Channel : B A/D mV Range : 1024

Interface Serial # : NONE Data Acquisition Time: 10/5/94 12:30
Delay Time : 0.00 min.
End Time : 34.99 min.
Sampling Rate : 1.2500 pts/sec

Raw Data File : S:\GHP_03\1009\O05B008.RAW
Result File : S:\GHP_03\1009\O05B008.RST
Inst Method : S:\GHP_03\MET_SEQ\TPH from S:\GHP_03\1009\O05B008.RST
Proc Method : S:\GHP_03\MET_SEQ\BTEX
Calib Method : S:\GHP_03\MET_SEQ\BTEX
Sequence File : S:\GHP_03\MET_SEQ\H031005.SEQ

Sample Volume : 1.0000
Sample Amount : 1.0000

Area Reject : 5000.000000
Dilution Factor : 1.00

BTEX REPORT GCHP_03

Peak #	Time [min]	Area [uV*sec]	Area [%]	BL	Component Name	LIQUID PPB	AIR PPB
1	2.046	6629.27	0.61	B		0.0007	0.0001
2	3.128	8028.18	0.74	B	BENZENE	0.1960	0.0392
3	3.568	21543.32	1.98	B		0.0022	0.0004
4	3.961	130181.20	11.99	B	TFT	9.8197	1.9639
5	4.375	30886.93	2.84	B		0.0031	0.0006
6	4.806	9265.98	0.85	B		0.0009	0.0002
7	5.036	17736.18	1.63	V		0.0018	0.0004
8	5.539	8681.65	0.80	B	TOLUENE	0.2405	0.0481
9	5.987	58002.46	5.34	B		0.0058	0.0012
10	6.275	8124.72	0.75	B		0.0008	0.0002
11	6.651	43611.70	4.02	B		0.0044	0.0009
12	6.902	17732.88	1.63	V		0.0018	0.0004
13	7.752	19828.06	1.83	B		0.0020	0.0004
14	7.924	39918.66	3.68	V		0.0040	0.0008
15	8.057	108743.68	10.01	V		0.0109	0.0022
16	8.488	10195.74	0.94	B		0.0010	0.0002
17	8.611	20976.99	1.93	V		0.0021	0.0004
18	8.760	7003.89	0.64	V		0.0007	0.0001

Peak #	Time [min]	Area [uV*sec]	Area [%]	BL	Component Name	LIQUID PPB	AIR PPB
20	9.343	14752.70	1.36	B	P_M XYLENES	0.3990	0.0798
21	9.521	13419.57	1.24	V		0.0013	0.0003
22	9.802	7829.67	0.72	B		0.0008	0.0002
23	10.003	23347.90	2.15	V		0.0023	0.0005
25	10.760	48833.66	4.50	V		0.0049	0.0010
26	11.277	20847.44	1.92	B		0.0021	0.0004
27	11.681	24683.63	2.27	B		0.0025	0.0005
28	11.826	11897.01	1.10	V		0.0012	0.0002
29	12.141	11709.33	1.08	V		0.0012	0.0002
30	12.350	8886.48	0.82	V		0.0009	0.0002
31	12.537	5352.10	0.49	B		0.0005	0.0001
32	12.736	35085.52	3.23	V		0.0035	0.0007
33	12.917	15651.47	1.44	V		0.0016	0.0003
35	13.442	7789.44	0.72	B		0.0008	0.0002
36	13.808	5591.03	0.51	B		0.0006	0.0001
37	14.365	20090.59	1.85	B		0.0020	0.0004
39	15.843	51090.84	4.70	B		0.0051	0.0010
40	16.370	11585.44	1.07	B		0.0012	0.0002
41	16.667	11860.85	1.09	B		0.0012	0.0002
42	17.608	9867.90	0.91	B		0.0010	0.0002
43	17.795	93643.30	8.62	V		0.0094	0.0019
44	18.924	38677.58	3.56	B		0.0039	0.0008
45	19.402	9554.74	0.88	B		0.0010	0.0002
46	19.785	16762.50	1.54	B		0.0017	0.0003
		1085902.19	100.00			10.7477	2.1495

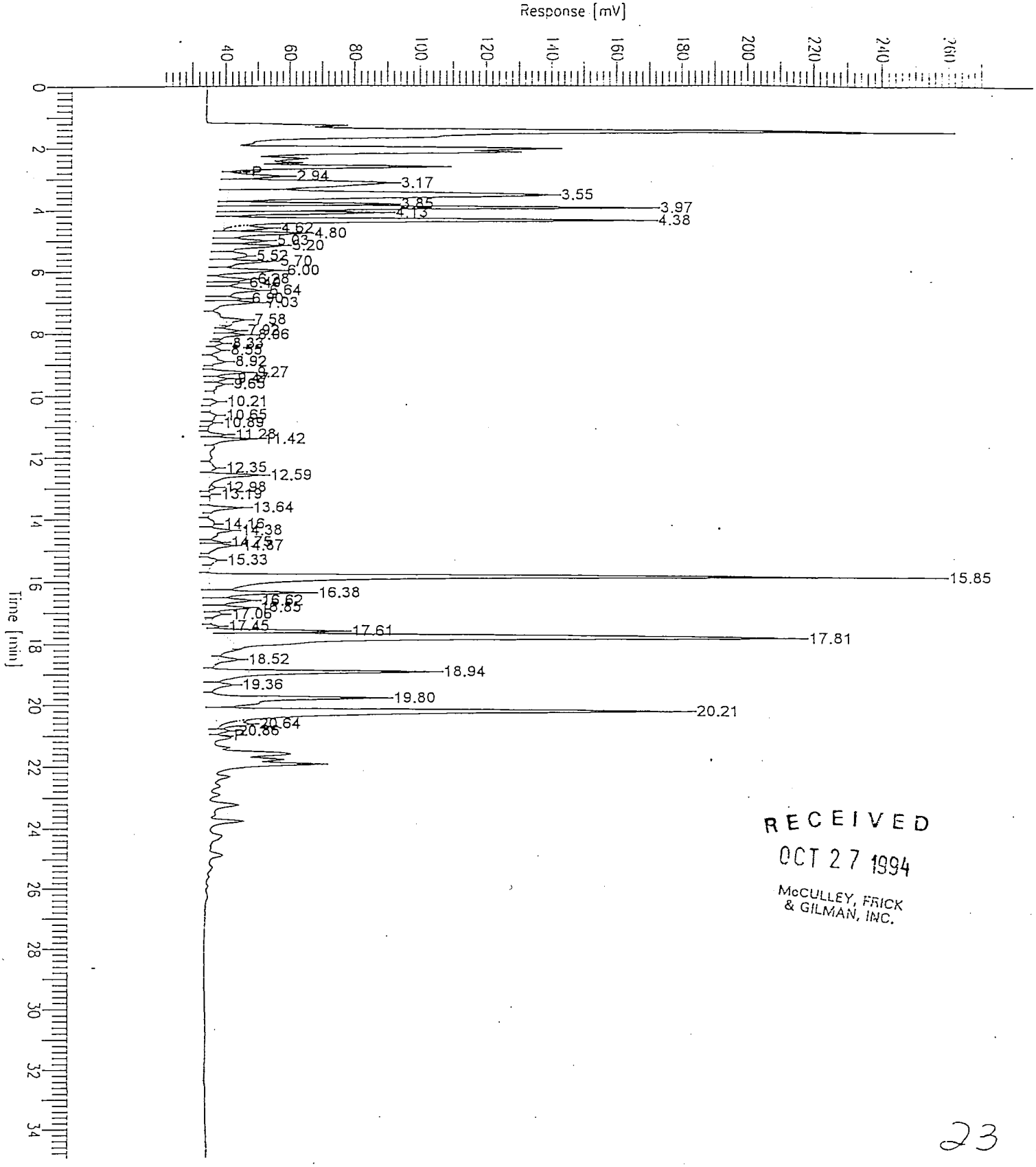
Missing Component Report

Component	Expected Retention (Calibration File)
ETHYLBENZENE	8.942
ORTHO XYLENE	10.179

Chromatogram

Sample Name : G9410113-02C
FileName : S:\GHP_03\1009\005A020.raw
Method : TPH
Start Time : 0.00 min End Time : 34.99 min
Scale Factor: -1.0 Plot Offset: 22 mV

Sample #: ~~MW-~~2
Date : 10/5/94 20:08
Time of Injection: 10/5/94 19:33
Low Point : 21.60 mV High Point : 271.60 mV
Plot Scale: 250.0 mV



Software Version: 4.0<3H19>
Sample Name : G9410113-02C
Sample Number: MW-2
Operator :

Time : 10/5/94 20:08
Study : MFG

Instrument : GHP_03
AutoSampler : NONE
Rack/Vial : 9985/1

Channel : A A/D mV Range : 1024

Interface Serial # : NONE Data Acquisition Time: 10/5/94 19:33
Delay Time : 0.00 min.
End Time : 34.99 min.
Sampling Rate : 1.2500 pts/sec

Raw Data File : S:\GHP_03\1009\O05A020.RAW
Result File : S:\GHP_03\1009\O05A020.RST
Inst Method : S:\GHP_03\MET_SEQ\TPH from S:\GHP_03\1009\O05A020.RST
Proc Method : S:\GHP_03\MET_SEQ\TPH
Calib Method : S:\GHP_03\MET_SEQ\TPH
Sequence File : S:\GHP_03\MET_SEQ\H031005.SEQ

Sample Volume : 1.0000
Sample Amount : 1.0000

Area Reject : 0.000000
Dilution Factor : 1.00

TPH REPORT GCHP_03

Peak #	Time [min]	Area [uV*sec]	Area [%]	BL
1	2.935	116139.63	0.87	*B
2	3.171	660037.01	4.96	V
3	3.548	1240782.33	9.31	V
4	3.849	292513.98	2.20	V
5	3.966	773949.24	5.81	V
6	4.126	261731.69	1.96	V
7	4.376	927282.09	6.96	V
8	4.621	95693.71	0.72	E
9	4.795	187345.11	1.41	V
10	5.033	98411.11	0.74	V
11	5.195	153843.71	1.15	V
12	5.519	96439.61	0.72	V
13	5.700	125750.96	0.94	V
14	5.998	143694.55	1.08	V
15	6.276	70499.87	0.53	B
16	6.397	53466.76	0.40	V
17	6.638	156010.24	1.17	V
18	6.899	59900.98	0.45	V

Peak #	Time [min]	Area [uV*sec]	Area [%]	BL
19	7.033	93597.81	0.70	V
20	7.584	50808.16	0.38	B
21	7.921	24671.90	0.19	B
22	8.055	42158.75	0.32	V
23	8.328	6666.32	0.05	B
24	8.552	17203.89	0.13	B
25	8.924	33925.90	0.25	B
26	9.272	70676.27	0.53	B
27	9.473	30659.22	0.23	V
28	9.652	25396.33	0.19	V
29	10.210	9770.27	0.07	B
30	10.646	21640.42	0.16	B
31	10.892	7602.55	0.06	V
32	11.279	27697.02	0.21	B
33	11.422	88643.70	0.67	V
34	12.354	19982.04	0.15	B
35	12.594	123391.45	0.93	V
36	12.980	12052.21	0.09	E
37	13.192	3024.69	0.02	B
38	13.639	62723.34	0.47	B
39	14.160	23986.30	0.18	B
40	14.378	75264.42	0.57	V
41	14.752	21330.00	0.16	V
42	14.868	59572.78	0.45	V
43	15.329	19080.15	0.14	B
44	15.849	1748023.99	13.12	B
45	16.376	233553.27	1.75	V
46	16.624	103821.09	0.78	V
47	16.849	84103.22	0.63	V
48	17.057	16388.98	0.12	V
49	17.453	6936.73	0.05	B
50	17.613	212666.60	1.60	V
51	17.810	1752204.95	13.15	V
52	18.522	49627.97	0.37	B
53	18.935	530003.48	3.98	B
54	19.362	50133.08	0.38	V
55	19.799	495068.45	3.72	B
56	20.210	1451010.01	10.89	V
57	20.635	79577.67	0.60	E
58	20.857	22154.24	0.17	V
		13320292.24	100.00	

$\frac{13320 - 774}{5.64\ (2\text{ml})} = (1100)$

Missing Component Report

Component	Expected Retention (Calibration File)
All components were found	

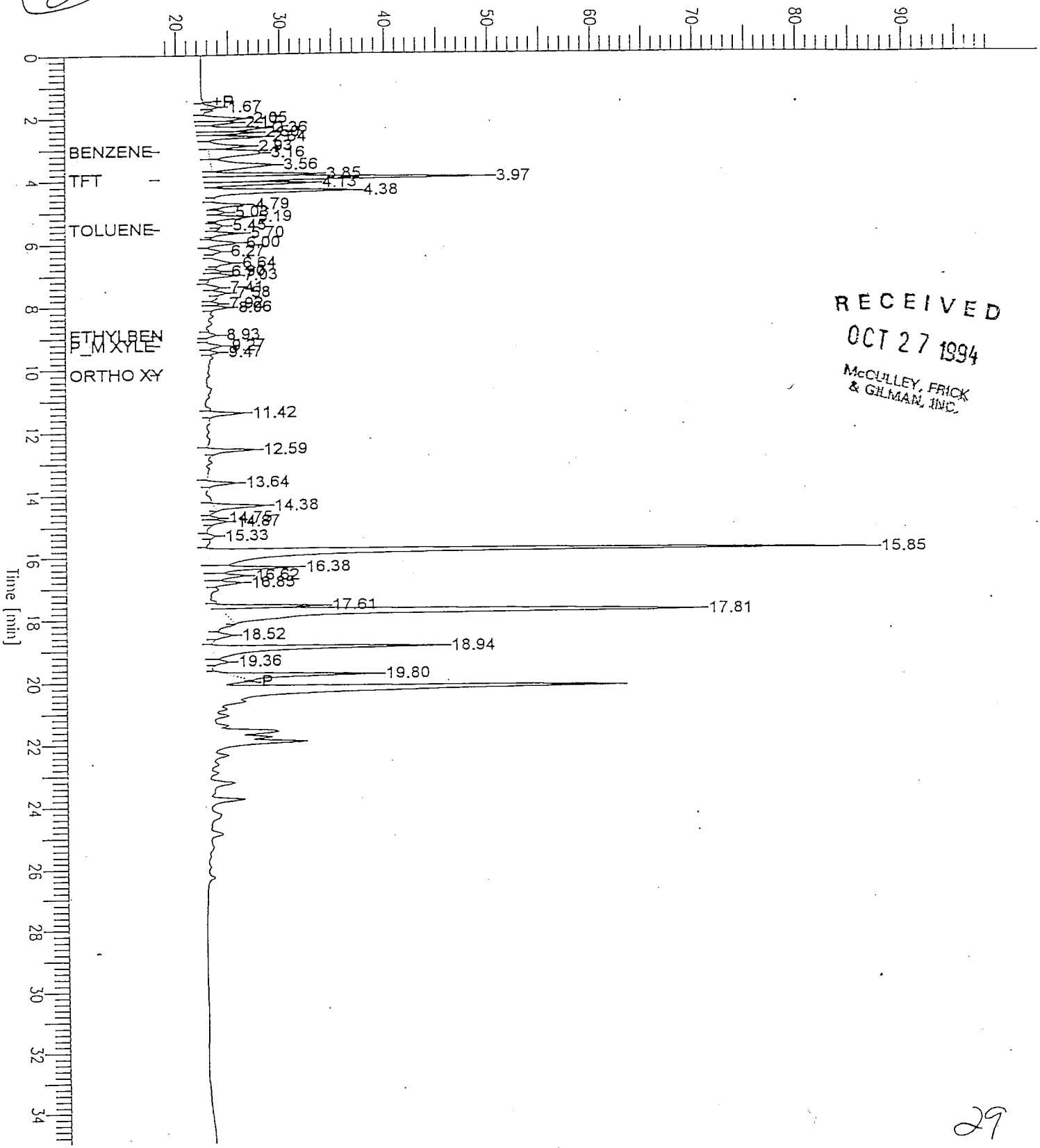
Chromatogram MW-2

Sample Name : G9410113-02C
FileName : S:\GHP_03\1009\005B020.raw
Method : TPH
Start Time : 0.00 min End Time : 34.99 min
Scale Factor: -1.0 Plot Offset: 18 mV

Sample #: MW-2 Page 1 of 1
Date : 10/5/94 20:09
Time of Injection: 10/5/94 19:33
Low Point : 18.40 mV High Point : 98.40 mV
Plot Scale: 80.0 mV

2 mL

Response [mV]



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Software Version: 4.0<3H19>
Sample Name : G9410113-02C
Sample Number: MW-2
Operator :

Time : 10/5/94 20:09
Study : MFG

Instrument : GHP_03
AutoSampler : NONE
Rack/Vial : 9985/1

Channel : B A/D mV Range : 1024

Interface Serial # : NONE Data Acquisition Time: 10/5/94 19:33
Delay Time : 0.00 min.
End Time : 34.99 min.
Sampling Rate : 1.2500 pts/sec

Raw Data File : S:\GHP_03\1009\O05B020.RAW
Result File : S:\GHP_03\1009\O05B020.RST
Inst Method : S:\GHP_03\MET_SEQ\TPH from S:\GHP_03\1009\O05B020.RST
Proc Method : S:\GHP_03\MET_SEQ\BTEX
Calib Method : S:\GHP_03\MET_SEQ\BTEX
Sequence File : S:\GHP_03\MET_SEQ\H031005.SEQ

Sample Volume : 1.0000
Sample Amount : 1.0000

Area Reject : 5000.000000
Dilution Factor : 1.00

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BTEX REPORT GCHP_03

x5

Peak #	Time [min]	Area [uV*sec]	Area [%]	BL	Component Name	LIQUID PPB	AIR PPB
1	1.673	5342.60	0.23	B		0.0005	0.0001
2	2.050	26997.13	1.19	B		0.0027	0.0005
3	2.170	15997.26	0.70	V		0.0016	0.0003
4	2.359	40753.04	1.79	V		0.0041	0.0008
5	2.495	21260.89	0.93	V		0.0021	0.0004
6	2.637	30910.55	1.36	V		0.0031	0.0006
7	2.934	28602.43	1.26	V		0.0029	0.0006
8	3.164	61099.37	2.68	V	BENZENE	7.5 1.4920	0.2984
9	3.557	68363.13	3.00	V		0.0068	0.0014
10	3.849	57049.65	2.51	V		0.0057	0.0011
11	3.966	156007.57	6.85	V	TFT	11.7678	2.3536
12	4.126	49030.33	2.15	V		0.0049	0.0010
13	4.378	89057.93	3.91	B		0.0089	0.0018
14	4.792	17067.43	0.75	B		0.0017	0.0003
16	5.193	17422.23	0.77	B		0.0017	0.0003
18	5.699	13157.03	0.58	B		0.0013	0.0003
19	6.001	19861.42	0.87	B		0.0020	0.0004
20	6.267	6030.19	0.26	B		0.0006	0.0001

Peak #	Time [min]	Area [uV*sec]	Area [%]	BL	Component Name	LIQUID PPB	AIR PPB
21	6.641	11498.08	0.51	B		0.0011	0.0002
23	7.031	12474.58	0.55	V		0.0012	0.0002
24	7.411	6148.47	0.27	B		0.0006	0.0001
25	7.583	5514.51	0.24	B		0.0006	0.0001
27	8.055	8564.92	0.38	V		0.0009	0.0002
29	9.269	8462.55	0.37	B	P_M XYLENES	Hn 0.2289	0.0458
31	11.423	17499.26	0.77	B		0.0017	0.0003
32	12.594	24684.45	1.08	B		0.0025	0.0005
33	13.639	15355.95	0.67	B		0.0015	0.0003
34	14.378	32593.25	1.43	B		0.0033	0.0007
36	14.867	8304.00	0.36	V		0.0008	0.0002
38	15.849	503401.05	22.12	B		0.0503	0.0101
39	16.376	61774.20	2.71	V		0.0062	0.0012
40	16.623	24328.34	1.07	V		0.0024	0.0005
41	16.849	15900.68	0.70	V		0.0016	0.0003
42	17.613	56197.96	2.47	B		0.0056	0.0011
43	17.809	464451.91	20.40	V		0.0464	0.0093
44	18.522	9787.87	0.43	B		0.0010	0.0002
45	18.935	169779.88	7.46	B		0.0170	0.0034
46	19.361	8105.02	0.36	V		0.0008	0.0002
47	19.799	87353.90	3.84	B		0.0087	0.0017
		2276191.00	100.00			13.6937	2.7387

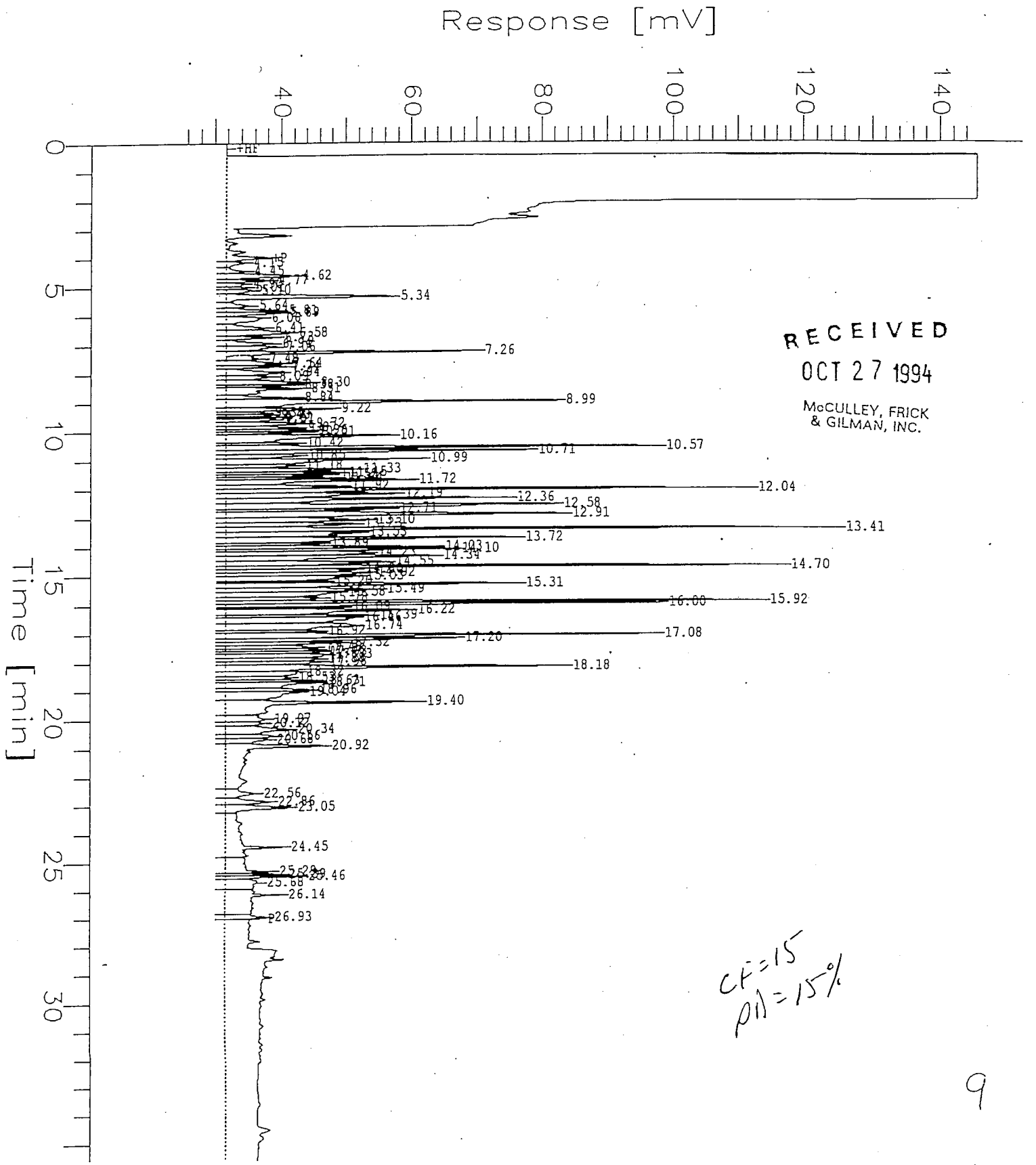
Missing Component Report

Component	Expected Retention (Calibration File)
TOLUENE	5.562
ORTHO XYLENE	10.179

Chromatogram DIESEL STANDARD

Sample Name : DSTD100994
FileName : s:\ghp_05\1009\109B002.raw
Method : H05A.ins
Start Time : 0.00 min End Time : 35.60 min
Scale Factor: -1.0 Plot Offset: 26 mV

Sample #: 300 PPM Page 1 of 1
Date : 10/9/94 16:54
Time of Injection: 10/9/94 16:12
Low Point : 25.53 mV High Point : 145.53 mV
Plot Scale: 120.0 mV



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CF = 15
pH = 15%

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Software Version: 3.3 <4B11>
Sample Name : DSTD100994
Sample Number: 300 PPM
Operator : NH

Time : 10/9/94 16:54
Study :

Instrument : GCHP_05
AutoSampler : HP7673A
Rack/Vial : 1/52

Channel : B A/D mV Range : 1024

Interface Serial # :
Delay Time : 0.00 min.
End Time : 35.60 min.
Sampling Rate : 2.5000 pts/sec

Data Acquisition Time: 10/9/94 16:12

Raw Data File : S:\GHP_05\1009\109B002.RAW
Result File : S:\GHP_05\1009\109B002.RST
Instrument File: S:\GHP_05\MET_SEQ\H05A
Process File : S:\GHP_05\MET_SEQ\H05B.prc
Sample File : S:\GHP_05\MET_SEQ\H05B.smp
Sequence File : s:\ghp_05\met_seq\h051009.seq

Inj. Volume : 3 ul
Sample Amount : 1.0000

Area Reject : 0.000000
Dilution Factor : 1.00

DIESEL REPORT GCHP_05B

Peak #	Time [min]	Component Name	Area [uV*sec]	Area [%]	BL	SOIL PPM	L1QUID PPB
	14.000	TPH-D	13764219.20	94.50		16.6194	664.7746
111	24.447		237674.28	1.63	*V	0.0040	0.1584
112	25.287		107510.24	0.74	*V	0.0018	0.0717
113	25.389		33545.47	0.23	*V	0.0006	0.0224
114	25.464		43438.88	0.30	*V	0.0007	0.0290
115	25.684		100516.73	0.69	*V	0.0017	0.0670
116	26.139		232247.13	1.59	*V	0.0039	0.1548
117	26.931		45479.97	0.31	*V	0.0008	0.0303
			14564631.91	100.00		16.6327	665.3082

Group Report For : TPH-D

Peak #	Time [min]	Component Name	Area [uV*sec]	Area [%]	BL	SOIL PPM	L1QUID PPB
0	4.154		18691.75	0.14	*B	0.0003	0.0125
0	4.445		17011.83	0.12	*B	0.0003	0.0113
0	4.616		75258.26	0.55	*B	0.0013	0.0502
0	4.765		30002.87	0.22	*B	0.0005	0.0200
0	4.895		16398.33	0.12	*B	0.0003	0.0109
0	5.013		13104.55	0.10	*B	0.0002	0.0087
0	5.103		27718.57	0.20	*B	0.0005	0.0185
0	5.338		158230.59	1.15	*B	0.0026	0.1055
0	5.637		25034.52	0.18	*B	0.0004	0.0167
0	5.805		43062.85	0.31	*B	0.0007	0.0287
0	5.890		42397.77	0.31	*B	0.0007	0.0283
0	6.063		56482.60	0.41	*B	0.0009	0.0377
0	6.408		41728.86	0.30	*B	0.0007	0.0278
0	6.584		88159.33	0.64	*B	0.0015	0.0588
0	6.727		36472.60	0.26	*B	0.0006	0.0243
0	6.943		44946.57	0.33	*B	0.0007	0.0300
0	7.060		59424.96	0.43	*B	0.0010	0.0396

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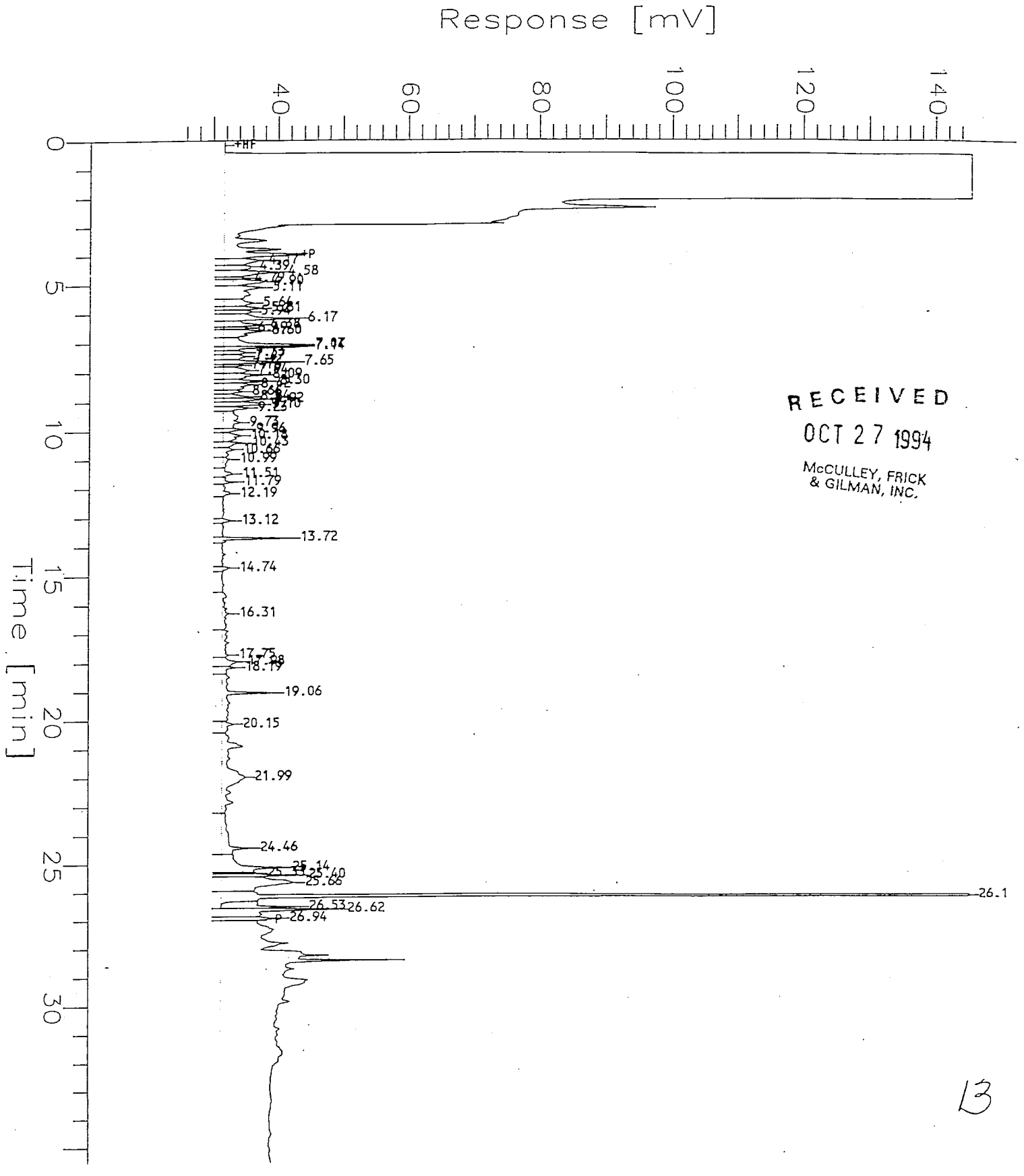
Chromatogram

MW-1

Sample Name : D9410113-1
FileName : s:\ghp_05\1009\1098011.raw
Method : H05A.ins
Start Time : 0.00 min
End Time : 35.60 min
Scale Factor: -1.0
Plot Offset: 25 mV

Sample #: 500:1
Date : 10/9/94 23:12
Time of Injection: 10/9/94 22:36
Low Point : 25.47 mV
High Point : 145.47 mV
Plot Scale: 120.0 mV



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Software Version: 3.3 <4B11>
Sample Name : D9410113-1 Time : 10/9/94 23:12
Sample Number: 500:1 Study :
Operator : NH

Instrument : GCHP_05 Channel : B A/D mV Range : 1024
AutoSampler : HP7673A
Rack/Vial : 1/61

Interface Serial # : Data Acquisition Time: 10/9/94 22:36
Delay Time : 0.00 min.
End Time : 35.60 min.
Sampling Rate : 2.5000 pts/sec

Raw Data File : S:\GHP_05\1009\109B011.RAW
Result File : S:\GHP_05\1009\109B011.RST
Instrument File: S:\GHP_05\MET_SEQ\H05A.ins
Process File : S:\GHP_05\MET_SEQ\H05B
Sample File : S:\GHP_05\MET_SEQ\H05B
Sequence File : S:\GHP_05\MET_SEQ\H051009.SEQ

Inj. Volume : 3 ul Area Reject : 0.000000
Sample Amount : 1.0000 Dilution Factor : 1.00

DIESEL REPORT GCHP_05B

Peak #	Time [min]	Component Name	Area [uV*sec]	Area [%]	BL	SOIL PPM	LIQUID PPB
	14.000	TPH-D	1935457.78	42.88		2.3369	93.4774
48	24.455		93764.14	2.08	*V	0.0016	0.0625
49	25.138		128884.26	2.86	*V	0.0021	0.0859
50	25.327		19281.46	0.43	*V	0.0003	0.0129
51	25.398		49372.14	1.09	*V	0.0008	0.0329
52	25.659		222650.75	4.93	*V	0.0037	0.1484
53	26.148		1763489.32	39.07	*V	0.0294	1.1757
54	26.528		94421.50	2.09	*E	0.0016	0.0629
55	26.624		152840.87	3.39	*V	0.0025	0.1019
56	26.937		54016.94	1.20	*V	0.0009	0.0360
			4514179.17	100.00		2.3799	95.1965

Group Report For : TPH-D

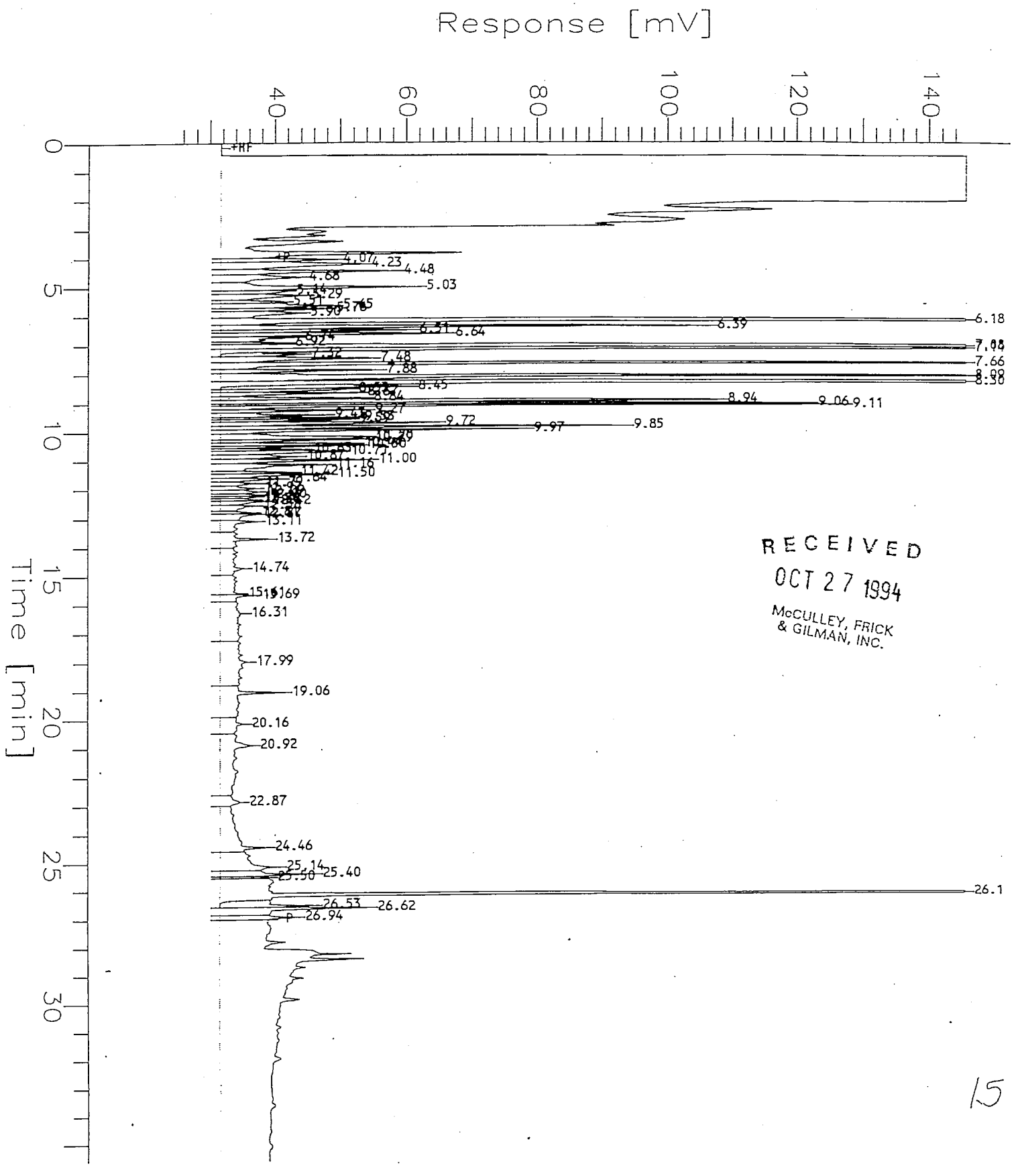
Peak #	Time [min]	Component Name	Area [uV*sec]	Area [%]	BL	SOIL PPM	LIQUID PPB
0	4.172		56689.01	2.93	*B	0.0009	0.0378
0	4.390		38492.72	1.99	*B	0.0006	0.0257
0	4.577		70251.97	3.63	*B	0.0012	0.0468
0	4.786		15723.24	0.81	*B	0.0003	0.0105
0	4.900		56806.72	2.94	*B	0.0009	0.0379
0	5.107		105091.90	5.43	*B	0.0018	0.0701
0	5.638		52006.90	2.69	*B	0.0009	0.0347
0	5.811		34806.52	1.80	*B	0.0006	0.0232
0	5.937		29435.29	1.52	*B	0.0005	0.0196
0	6.170		85116.21	4.40	*B	0.0014	0.0567
0	6.381		44100.33	2.28	*B	0.0007	0.0294

Chromatogram

MW-2

Sample Name : D9410113-2
FileName : s:\ghp_05\1009\1098010.raw
Method : H05A.ins
Start Time : 0.00 min End Time : 35.60 min
Scale Factor: -1.0 Plot Offset: 26 mV

Sample #: 500:1 Page 1 of 1
Date : 10/9/94 22:29
Time of Injection: 10/9/94 21:53
Low Point : 25.60 mV High Point : 145.60 mV
Plot Scale: 120.0 mV



Software Version: 3.3 <4B11>
Sample Name : D9410113-2
Sample Number: 500:1
Operator : NH

Time : 10/9/94 22:29
Study :

Instrument : GCHP_05
AutoSampler : HP7673A
Rack/Vial : 1/60

Channel : B A/D mV Range : 1024

Interface Serial # :
Data Acquisition Time: 10/9/94 21:53
Delay Time : 0.00 min.
End Time : 35.60 min.
Sampling Rate : 2.5000 pts/sec

Raw Data File : S:\GHP_05\1009\109B010.RAW
Result File : S:\GHP_05\1009\109B010.RST
Instrument File: S:\GHP_05\MET_SEQ\H05A.ins
Process File : S:\GHP_05\MET_SEQ\H05B
Sample File : S:\GHP_05\MET_SEQ\H05B
Sequence File : S:\GHP_05\MET_SEQ\H051009.SEQ

Inj. Volume : 3 ul
Sample Amount : 1.0000

Area Reject : 0.000000
Dilution Factor : 1.00

DIESEL REPORT GCHP_05B

Peak #	Time [min]	Component Name	Area [uV*sec]	Area [%]	BL	SOIL PPM	LIQUID PPB
	14.000	TPH-D	16644356.04	84.56		20.0969	803.8775
73	24.455		247835.38	1.26	*V	0.0041	0.1652
74	25.140		205002.09	1.04	*V	0.0034	0.1367
75	25.399		103832.52	0.53	*V	0.0017	0.0692
76	25.502		31911.02	0.16	*V	0.0005	0.0213
77	26.147		2057247.02	10.45	*V	0.0343	1.3715
78	26.529		125585.18	0.64	*E	0.0021	0.0837
79	26.622		184908.24	0.94	*V	0.0031	0.1233
80	26.935		83248.18	0.42	*V	0.0014	0.0555
		=	19683925.67	100.00		20.1476	805.9038

Group Report For : TPH-D

Peak #	Time [min]	Component Name	Area [uV*sec]	Area [%]	BL	SOIL PPM	LIQUID PPB
0	4.066		105503.70	0.63	*B	0.0018	0.0703
0	4.233		202735.01	1.22	*B	0.0034	0.1352
0	4.477		153622.01	0.92	*B	0.0026	0.1024
0	4.676		115557.61	0.69	*B	0.0019	0.0770
0	5.026		198265.69	1.19	*B	0.0033	0.1322
0	5.138		67743.15	0.41	*B	0.0011	0.0452
0	5.291		95500.62	0.57	*B	0.0016	0.0637
0	5.509		55877.07	0.34	*B	0.0009	0.0373
0	5.652		119628.64	0.72	*B	0.0020	0.0798
0	5.757		74408.77	0.45	*B	0.0012	0.0496
0	5.904		110611.51	0.66	*B	0.0018	0.0737
0	6.176		2443398.01	14.68	*B	0.0407	1.6289