THE MARTIN COMPANY

November 4, 1986

Mr. Lowell Miller
Hazardous Materials Unit
Alameda County Health Care Services
470 - 27th Street, Third Floor
Oakland, CA 94612

Re: Bay Center Project, Emeryville, California

Dear Lowell:

Enclosed please find a cover letter addressed to us from Joan Siegal of GSF, regarding the report, "Results of the Gas Emissions Test of the Bay Center Construction Site". Such report was Federal Expressed to you yesterday under separate cover.

If you have any questions, please feel free to contact me.

Sincerely,

Walter Kaczmarek
Partner, Bay Center Associates

Enclosure

WTK/pla

4256 Hacienda Drive, Suite 101 ♦ Pleasanton, CA 94566 ♦ (415) 463-3773

THE MARTIN COMPANY

November 3, 1986

Mr. Lowell Miller
Hazardous Materials Unit
Alameda County Health Care Services
470 - 27th Street, Third Floor
Oakland, CA 94612

Re: Bay Center Project, Emeryville, California

Dear Lowell:

Included for your review are two reports regarding our methane gas study, 1) "Results of the Gas Emissions Test of the Bay Center Construction Site" dated October 9, 1986, performed by GSF Energy Inc. 2) "Results of Monitoring of the Bay Center Site for Calderon Bill Compliance", dated October 9, 1986 performed by GSF Energy Inc. As you may know, GSF is a major consulting firm in the methane gas arena and is located in Long Beach, California. Their expertise in this arena is excellent.

Basically, the reports indicate that methane gas was virtually undetectable above the surface but was detectable below the surface in some areas. They indicate the potential for a methane problem is minimal. However, since some methane was found, GSF has recommended some procedures for us to follow to mitigate any potential risk to our buildings.

We are following their recommendations and are doing the following:

A) We are ventilating (with ventilation fans) elevator shafts and any other below surface areas in the buildings to prevent build-up. Also, we are putting a methane detector wired to an alarm system in those areas.

B) We will either mechanically ventilate or line with an impermeable material (liner or coating) all underground utility vaults/boxes. These vaults/boxes will be secured from public access, and access will not be allowed unless first checked by an explosimeter.

4256 Hacienda Drive, Suite 101 ♦ Pleasanton, CA 94566 ♦ (415) 463-3773

Lowell, these mitigations are currently being instituted by us in the project. If you have any questions or problems with this, please call me at (415) 463-3773. As you know, time is of the essence.

Sincerely,

Walter T. Kaczmarek
Partner, Bay Center Associates

Enclosures

WTK/pla

October 10, 1986

GSF Energy Inc.
2750 Signal Parkway
P.O. Box 1900
Long Beach, California
90801-1900

Bay Center Associates
The Martin Company
4256 Hacienda Drive, Suite #101
Pleasanton, California 94566

Attention: Mr. Walter T. Kaczmarek

Dear Mr. Kaczmarek,

Attached are two copies of "Results of the Gas Emissions Test of the Bay Center Construction Site". As stated in the report, our testing indicated that gas generation at the site is extremely low. The rate of methane production is lower than 0.2 MCFD (thousand feet per day) according to flux box measurements, and should not exceed 7 MCFD based on a calculation made using the results of an analysis of soil hydrocarbons. There are only trace amounts of organic compounds left in the filled portions of the site.

Based on these low gas generation rates, we believe that the buildings would be adequately protected by increasing ventilation in confined spaces such as the elevator shafts and utility boxes. We also recommend that one or more methane detectors be placed in each building during construction after the structure is enclosed to confirm that no methane buildup is occurring.

Thank you for giving us the opportunity of assisting you on this project. Please let us know if we can be of further help.

Sincerely,

Joan P. Siegal

Joan P. Siegal
Supervisor, Landfill Evaluation Services

Enclosure

RESULTS OF THE GAS EMISSIONS TEST OF THE BAY CENTER CONSTRUCTION SITE

GSF ENERGY INC.

October 9, 1986

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CALIFORNIA LEGISLATURE—1985–86 REGULAR SESSION

ASSEMBLY BILL No. 3525

Introduced by Assembly Member Campbell

February 20, 1986

An act relating to levees.

LEGISLATIVE COUNSEL'S DIGEST

AB 3525, as introduced, Campbell. Levees.

Existing law does not require the Department of Fish and Game to report to the Legislature on steps necessary to restore fisheries and riparian habitat.

This bill would require such a report, as specified, on or before January 1, 1988.

Vote: majority. Appropriation: no. Fiscal committee: yes. State-mandated local program: no.

The people of the State of California do enact as follows:

SECTION 1. The Department of Fish and Game shall report to the Legislature on or before January 1, 1988, on those steps it determines are necessary to restore anadromous and resident fisheries in the Sacramento River system and to restore riparian habitat along the Sacramento River.

O

1.0. EXECUTIVE SUMMARY

A four day test of the Bay Center Office Construction site was performed by GSF Energy Inc. (GSF) for the Martin Company, Sept. 3 through Sept. 6. The purpose of the test was to determine the quantity of methane gas emitting from the site, as an aid to the selection of proper gas control measures. The test involved four parts:

1. Monitoring of 12 probes for methane concentration and pressure. The probes were installed just above the water table (7-20 ft). One probe was sampled for detailed gas analysis by GC/MS.

2. Measurement of venting gas collected under flux boxes placed on the landfill surface.

3. Analysis of 10 refuse samples for % moisture, cellulose and total hydrocarbon content to determine gas reserves.

4. A site walkover with a portable flame ionization detector to determine surface methane concentrations.

Based on results of these tests, the following conclusions were drawn:

1. The rate of gas generation on the site is very low, no greater than 7 MCFD, and possibly substantially less. We base this conclusion on four lines of evidence:

   a. Flux Results. The highest methane concentration achieved in any flux box was 313 ppm in a box placed down the elevator shaft in building pad B. We calculated that for a methane buildup of only 313 ppm in a flux box over 24 h, total gas emitted by the landfill could not exceed 0.2 MCFD.

   b. Probe Pressures. The mean pressure at 12 probes was only 0.01 in. water.

   c. Spoils Analysis. Most debris at the site is construction materials - brick, wire and rock. Organic debris appeared to be limited to ash, wood and waste oils. Cellulose was undetectable at a sensitivity of 0.2% wet weight. Total gas reserves, based on hydrocarbon content, were estimated at 60 MMCF. Assuming 100% conversion of hydrocarbons into methane in 25 yr, we calculated an upper estimate for gas generation of 6.6 MCFD.

d. Site Walk. Methane was virtually undetectable (<5 ppm) over the entire landfill surface, except in open pits.

2. Despite the low generation rate, low surface permeabilities have caused a build-up of methane gas below the landfill surface. Methane concentrations at eight of 12 probes consistently exceeded 5%, and at five probes methane concentration ranged from 60% to 90%. Thus there is a need to protect non-ventilated areas at the surface from a build-up of methane to explosive concentrations. (Methane is explosive at concentrations between 5 and 15% only in the presence of air.)

3. Chlorinated hydrocarbons were below our detection limit of 50 ppm.

Our recommendations for gas control are as follows:

1. Elevator shafts and other areas likely to trap gas must be well ventilated to prevent the buildup of methane at explosive concentrations. Ventilation fans should be installed to aid in gas dissipation. The air intake for the ventilation system should be as far off the ground as possible (or at least 10 feet from the surface).

2. Elevator shafts should be equipped with an installed methane detector and alarm system.

3. Utility boxes should either be fully ventilated or lined with an impermeable liner or coating. The liner should be elastic enough not to crack even if the side walls or floor of the box crack. The boxes should be secured from public access. No access should be allowed to the boxes unless they are first checked for methane concentrations by an explosimeter.

2.0 SITE DESCRIPTION

The Bay Center Project is located in the City of Emeryville west of Bay Street, east of Lacoste Street and Highway 80, north of 64th Street and south of 65th Street (Exhibit 1). The site encompasses 16.5 acres. Three low rise office buildings and adjacent parking areas are currently under construction. Prior to its development as an office center, the site was used as a truck terminal by Garrett Freight lines.

The area was reclaimed from the San Francisco tidal plain after the construction of the East Shore highway in 1954. The site was filled by the City of Emeryville in the late 1950's. Fill materials were reported to be clean fill and non-municipal wastes (heavy metals and petroleum products were found). The site is basically flat, although it slopes gently to the north.

In 1985 a geotechnical study was performed by Geomatrix Consultants to provide engineering data prior to site development. As part of this study, 14 test borings were made (see Appendix 1). The study found that the upper 1.5 to 2.5 feet of soil was generally pavement materials and imported fill. A dark colored heterogeneous fill of sand, clay and construction debris was encountered below the pavement and imported fill materials and extended to a depth of 6 to 10 feet below grade. A layer of soft silty clay or loose sand was encountered below the heterogeneous fill and extended to a firm soil at a depth of 15 to 20 feet below grade. These are presumably natural deposits. No evidence of standard municipal refuse or paper products was found.

3.0. METHODS

3.1. Site Walk

A walkover survey was conducted on the morning of September 4, 1986, using a Heath DETECTO-PAK II flame ionization detector (FID) to determine ambient concentrations of total hydrocarbons as methane. Starting in the northwest corner of the site, we measured methane concentrations at approximately 50 ft intervals over most of the landfill surface, and more frequently within the trenches on building pads A and B.

3.2. Probe Installation and Monitoring

Thirteen probes were installed on Sept. 3 at the locations marked in Exhibit 1. Probe holes (10 in) were drilled to the depth of the water table, 7-20 ft. Probes were constructed of PVC pipe (20 ft) with 3 ft of slotting to allow gas migration. Following probe installation, bore holes were backfilled with 3/8 in. pea gravel, soil and bentonite, and probes were pressure capped. Caps were removed on Sept. 6 and temperature at the bottom of each probe bore was measured using an Omega 5800 with thermistor probe and 100 ft lead wire.

Methane concentrations in probes were measured twice daily on Sept. 4 and 5 using a non-destructive infrared detector (NDIR) retrofitted with a hand pump for sample delivery. Two NDIR's, models MEXA-221E and MEXA-321E, were used for this test. The 221E, a low-range instrument, was calibrated with 0.4% methane gas and used to measure concentrations <2.5%. The 321E, a high-range instrument, was calibrated with 3% methane standard and used to measure concentrations between 2.5% and 50%. Both instruments were calibrated at the beginning and end of each sampling period. Endpoint calibrations were always within 5% of initial settings.

Probe pressures were measured using a water magnahelix (Dwyer 2001) with range 0-1 in. water and sensitivity 0.01 in.

Duplicate samples of gas (500 cc) were obtained in stainless steel cylinders from all probes on Sept. 5 using a sample pump powered by the truck battery. Samples were returned to the laboratory for five gas (H_2, CO_2, O_2, N_2 and CH_4) analysis using a Carle 8700 GC with a Series Porpack Q, molsieve SA column and TCD Detector. In addition, samples taken at the six probes located in building pads A, B and C were analyzed for chlorinated hydrocarbons using a Varian 4600 gas chromatograph and Hall electrolytic conductivity detector. A single sample

cylinder from probe I in building pad B was sent to West Coast Analytical Services for detailed GC/MS analysis of priority pollutants at a detection limit of 100 ppb.

3.3. Flux Box Sampling

Five flux boxes (1-5) were placed on Sept. 4 near probes A, D, I, K, and L (Exhibit 1). Methane in boxes was measured by FID at 5-10 min intervals for 2 hours. Flux boxes were then left overnight and sampled again after 24 hours. Glass bulb samples were taken at three of the five boxes for measurement of ppm methane by GC.

Flux boxes were moved on Sept. 5 to the locations marked 6-10 on Exhibit 1. One box in each of pads A, B, and C was placed in a trench, while the 4th box was placed in an elevator shaft on pad B and the 5th on a slope back of pad C. Methane (ppm) in boxes was measured by FID at the time of initial placement and after approximately 24 hrs. Glass bulb samples were obtained from two of the boxes for measurement of ppm methane by GC. For comparison, we also sampled the ambient air for methane concentration.

3.4. Refuse Sampling

Refuse samples were taken at 10 probe locations at the time of drilling. Depth of the refuse layer was determined visually. Five replicate samples of spoils were collected in quart-size Ziploc bags and pH was determined using indicator paper. Refuse samples were labeled, double-bagged and shipped to the GSF laboratory for determination of moisture and organic content.

Percent moisture was determined as the difference in weight of a sample following drying for 48 hrs at 100C. Grindable materials were manually separated from nongrindables, then weighed and ground with a Wiley mill through a 2 mm sieve. The ground sample was mixed thoroughly and reground through a 0.5 mm sieve, dried and reweighed.

For determination of volatile organics, a dried and milled sample was ignited in a muffle furnace at 540C for two hr., then reweighed. For determination of cellulose, a dried and milled sample was hydrolyzed overnight in 66% sulfuric acid, then treated with a phenol-sulfuric acid mixture to form a colored complex. Absorption by the complex was measured spectrophotometrically at 485 nm and % cellulose calculated using a standard curve.

A single 100 g subsample from each probe bore was sent to Core Laboratories for determination of total hydrocarbons

(% wet weight) by EPA Method 3540. Briefly, this analysis involved a Soxhlet extraction with Freon 113 for four hours, after which weight of the hydrocarbon residue was determined.

4.0. RESULTS

4.1. Site Walk

The site walk was begun at 9:05 on the morning of Sept. 4, and ended at 10:00 a.m. Wind speeds ranged between 4 and 5 mph during the site walk. No methane above ambient was detected over the landfill surface. We measured 15 ppm methane in a ditch near pad B, and another 7 ppm in the sewer trench behind pad B.

4.2. Probe Results

Probe locations are shown in Exhibit 1; probe logs completed during drilling are contained in Appendix 2. In general, the probe profile indicated 3-6 ft of clean fill underlaid by 2-8 ft of debris. Water was encountered at 7-20 ft below grade. Temperature at the bottom of probes ranged from 68-78 degrees Fahrenheit.

Methane concentrations in probes ranged from a trace (0.08% at probe D, Exhibit 2) to >50% (probes A, C, E, G and H), the upper limit of detection for our instruments. Methane concentrations measured by NDIR in the field were in good agreement with those measured by GC in the lab (Exhibit 3); the mean difference between analytical methods was 0.84 $\pm$ S.D. 0.66%. Methane concentrations appeared to be greatest where the site was least developed; i.e. in pad C and in the eastern half of the site. Conversely, concentrations were very low in pad A and intermediate in pad B. Thus the trenching associated with construction may, at least in the short term, deplete methane trapped at the site.

Results of five gas analysis on probe samples are given in Exhibit 4. Gas composition was highly variable among probes, ranging from nearly aerobic (Probe D) to almost 90% methane (probe H); however, at none of the probes did gas composition approach that of standard landfill gas, which typically comprises 55% methane, 43% CO2. The low (0-6%) CO2 concentrations found here suggest that a carbon source more reduced than cellulose, possibly waste oil, is the primary substrate for methanogenesis at this site.

No chlorinated hydrocarbons were detected in any probe samples at a detection limit of 50 ppm. Probe pressures

EXHIBIT 2. Methane concentrations in probes (NDIR results). NA: not applicable.

Probe	4Sep86 1130	4Sep86 1700	5Sep86 1000	5Sep86 1900	Mean	SD
A	>50.00	>50.00	>50.00	>50.00	NA	NA
B	28.00	32.00	40.00	33.00	33.25	4.99
C	40.00	41.00	>50.00	>50.00	NA	NA
D	0.00	0.09	0.20	0.04	0.08	0.09
E	35.00	>50.00	>50.00	>50.00	NA	NA
F	15.00	26.00	38.00	29.00	27.00	9.49
G	>50.00	>50.00	>50.00	>50.00	NA	NA
H	40.00	>50.00	>50.00	>50.00	NA	NA
I	2.00	3.80	6.00	4.40	4.05	1.65
J	0.70	0.15	2.70	0.35	0.98	1.17
K	0.70	1.80	6.00	3.20	2.93	2.29
L	12.00	24.00	41.00	35.00	28.00	12.78

EXHIBIT 3. Methane concentrations in probes. Comparison of NDIR and GC results. NA: not applicable.

Probe	% Methane (NDIR)	% Methane (GC)	Difference
A	50.0+	74.05 (74.2/73.9)	NA
B	33.0	33.2 (33.8/32.6)	0.2
C	50.0+	64.2 (65.9/63.4)	NA
D	0.04	0.5 (0.5/0.5)	0.46
E	50.0+	61.3 (61.3/61.3)	NA
F	29.0	30.9 (32.3/29.5)	1.9
G	50.0+	79.35 (79.9/78.8)	NA
H	50.0+	88.8 (89.5/88.1)	NA
I	4.4	5.55 (6.0/5.1)	1.15
J	0.35	0.45 (0.4/0.5)	0.1
K	3.2	4.6 (4.1/5.1)	1.4
L	35.0	34.3 (34.3/34.3)	0.7
Mean	NA	39.8 ± SD 32.8	0.84 ± SD 0.66

EXHIBIT 4. Gas composition in probes sampled Sept. 5, 1986. Data represent the mean of duplicate samples. HC-X: chlorinated hydrocarbons (method sensitivity - 50 ppm).
ND: not detected; NS: no sample; NA: not applicable.

V/V %

Probe	H2	CO2	O2	N2	CH4	HC-X
A	<0.1	2.4	0.4	23.1	74.1	ND
B	<0.1	3.0	3.1	60.6	33.2	ND
C	<0.1	5.5	0.5	29.3	64.7	NS
D	<0.1	1.3	16.8	81.4	0.5	NS
E	<0.1	2.7	0.5	35.5	61.3	NS
F	<0.1	1.7	0.9	66.6	30.8	NS
G	<0.1	3.9	0.7	16.0	79.4	NS
H	<0.1	5.7	0.1	5.3	88.8	NS
I	<0.1	0.3	1.4	92.8	5.5	ND
J	<0.1	2.2	1.4	95.9	0.5	ND
K	<0.1	0.1	2.0	93.3	4.6	ND
L	<0.1	0.1	0.9	64.6	34.3	ND
Mean (SD)	<0.1	2.4 (1.9)	2.6 (4.6)	55.4 (32.4)	39.8 (32.8)	NA

were uniformly low, averaging only 0.01 in. water (Exhibit 5). This finding, together with results from the flux test presented below, suggests that the rate of gas generation is extremely low. Nevertheless, a reservoir of methane has slowly accumulated at the site, due to entrapment of the gas by a relatively impervious soil cover. While this gas poses no danger in the anoxic interior of the landfill, care must be taken so that gas venting through to the surface does not accumulate to the explosive limit for methane (5-15%) in air.

GC/MS analysis for trace components in a sample from Probe I indicated that vinyl chloride was present at 120 ppb. None of the other compounds listed in Appendix 3 were detected at a detection limit of 100 ppb.

4.3. Results of the flux test

Methane concentrations above background were undetectable with the FID in any of the flux boxes after 24 h. Glass bulb samples were analyzed in the lab for ppm methane; results are shown in Exhibit 6. The concentration of methane in boxes placed on the surface of building pads A and B was no greater than ambient (65 ppm), while concentrations in a box on pad C and a trench on pad A slightly exceeded ambient (136 ppm and 184 ppm, respectively). The highest concentration, 313 ppm, was detected after 24 h in a box placed down the elevator shaft on building pad B. This rate of gas accumulation (313 ppm/d) leads to an upper estimate for gas generation of 0.16 MCFD, based on the following calculation:

G = ppm CH4/day X (BV/AUB) X ALF; where

G = gas generation (MCFD) BV = box volume = 3.68 CF
AUB = area under the box = 770 sq in or 1.22 X 10E-4 acres
ALF = area of the landfill = 16.5 acres

Even if the 313 ppm concentration were built up over a much shorter time period, e.g. one hour, the rate of gas generation would still be low, at 3.8 MCFD.

4.4. Refuse Analysis

Results of the analysis of refuse samples are given in Exhibit 7. Mean sample depth was 8 ft, and pH was close to neutral, at 7.5. Refuse samples were dry, with a mean moisture content of 14.6%, indicating a very slow decay rate of organic materials.

EXHIBIT 5. Probe pressures (inches water). NS: not sampled.

Probe	4Sep86 1130	4Sep86 1700	5Sep86 1000	5Sep86 1900	Mean	SD
A	0.02	0.00	0.00	NS	0.01	0.01
B	0.02	0.00	0.00	NS	0.01	0.01
C	0.02	0.00	0.00	NS	0.01	0.01
D	0.00	0.00	0.00	NS	0.00	0.00
E	0.02	0.02	0.01	0.02	0.02	0.01
F	0.00	0.03	0.00	NS	0.01	0.02
G	0.02	0.00	0.00	NS	0.01	0.01
H	0.04	0.10	0.02	NS	0.05	0.04
I	0.02	0.00	0.00	NS	0.01	0.01
J	0.00	0.01	0.00	NS	0.00	0.01
K	0.02	0.00	0.00	NS	0.01	0.01
L	0.00	0.00	0.01	NS	0.00	0.01
Mean	0.01	0.02	0.00	NA	0.01	0.01

EXHIBIT 6. Methane concentration (measured by GC) in flux boxes after 24 hours. Ambient methane concentration in air sampled on Sept. 6 was 64.4 ppm.

Sample	Location	Date	Methane (ppm)
FB-1	Near probe A, on Pad C	9-5-86	136.0 (137.9/134.1)
FB-4	Near probe I, on Pad B	9-5-86	73.7
FB-5	Near probe K, on Pad A	9-5-86	68.6
FB-8	Down elevator shaft on Pad B	9-6-86	313.7
FB-9	Down trench, SE corner of Pad A	9-6-86	183.6
Mean			155.1 $\pm$ SD 100.5

EXHIBIT 7. Physical and chemical properties of refuse samples.
Data represent the mean (and SD) for five replicate samples.

Station	Sample Depth (feet)	pH	Moisture (% wet wt)	Volatiles (% wet wt)	Cellulose (% wet wt)	Hydrocarbons (% wet wt)
B	10	7.2	14.38 (1.61)	1.24 (1.25/1.23)	<0.2	0.134 (0.126/0.142)
C	8	ND	10.01 (1.18)	0.89 (0.91/0.86)	<0.2	0.614
D	5	ND	11.18 (2.96)	1.27	<0.2	0.561
E	8	7.6	16.88 (0.53)	1.45 (1.42/1.48)	<0.2	0.614
F	6.5	7.6	14.48 (1.17)	1.50	<0.2	0.368
I	9	7.6	16.02 (2.31)	1.20	<0.2	1.02
J	7	7.5	14.35 (2.57)	1.12	<0.2	0.402
K	8	7.6	18.73 (1.13)	1.05 (1.07/1.03)	<0.2	0.406 (0.534/0.278)
L	8	7.6	17.06 (2.54)	1.83	<0.2	0.089
M	8.5	7.6	14.10 (1.48)	2.30 (2.34/2.36)	<0.2	1.81
Mean	7.8	7.5	14.60 (2.85)	1.38 (0.41)	<0.2	0.602 (0.500)

The concentration of volatiles was very low at 1.4% wet weight, while cellulose was undetectable at a sensitivity of 1% grindables (<0.2% wet weight). By contrast, the cellulose content in fresh refuse is typically near 40%.

Because cellulose appeared to be unlikely as the substrate for methanogenesis, we hypothesized that hydrocarbon degradation might provide the source for methane production. Total hydrocarbons measured by Core Laboratories ranged from 0.09% to 1.8% of wet weight; the mean hydrocarbon content was 0.6%. This mean was used to estimate methane gas reserves of 60 MMCF, based on hydrocarbon decomposition as follows:

R = (FHC X DDS X TRL X ALF)/DMG; where

R = gas reserves (MCF)
FHC = fraction hydrocarbon (dry wt.) = 0.007 lb/lb soil)
DDS = density dry soil (From Geomatrix report = 100 lb/CF)
TRL = thickness of refuse layer = 5 ft
ALF = area of landfill = 16.5 acres = 718,740 sq ft
DMG = density methane gas = 42.28 lb/MCF

Assuming 100% decomposition of hydrocarbon reserves into methane gas over a period of 25 years, we arrive at a gas generation rate of 6.6 MCFD, almost 50 times the estimate derived from flux test data. However, we believe the new estimate to exaggerated because:

1. In the scientific literature, the anaerobic degradation of hydrocarbons is reported as nonexistent to exceedingly slow.

2. In any case, only certain components of petroleum hydrocarbons are biodegradable.

It is thus very unlikely that 100% of hydrocarbons would degrade to methane gas in 25 years. We have presented this calculation only as an upper limit to total gas reserves.

5.0. CONCLUSIONS AND RECOMMENDATIONS

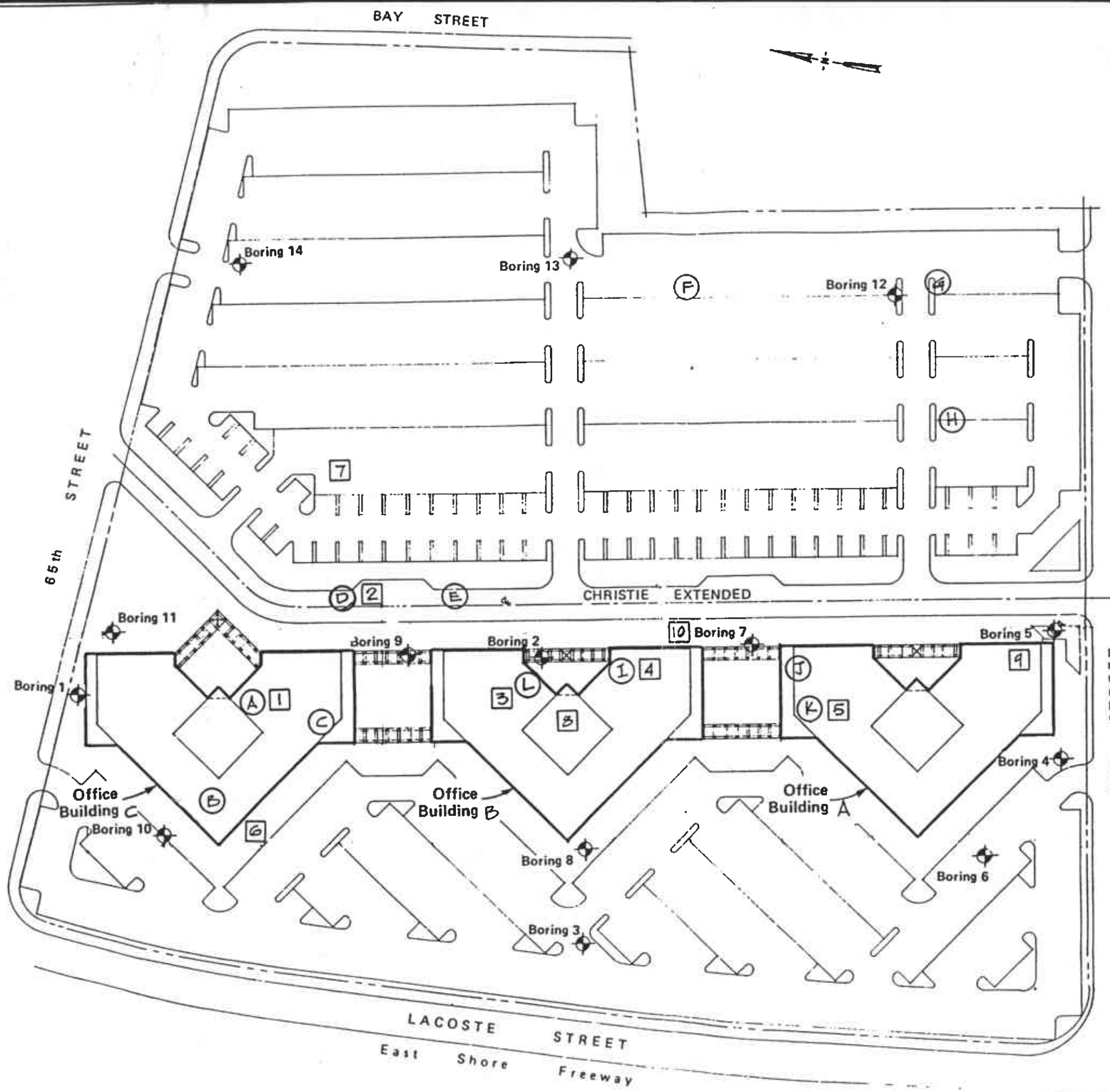
All available evidence leads to the conclusion that the rate of gas generation at this site is extremely low. This is consistent with the non-municipal content of the waste and the age of the refuse. However, there is methane gas on site, which has probably built up over a number of years by the slow anaerobic degradation of waste oils. The pattern of methane concentrations in probes suggests that, at least in the short term, this gas may be depleted by the trenching activities associated with construction. Nevertheless, certain precautions should be taken to ensure proper ventilation of site structures. In particular, we recommend:

1. Elevator shafts and other areas likely to trap gas must be well ventilated to prevent the buildup of methane at explosive concentrations. Ventilation fans should be installed to aid in gas dissipation. The air intake for the ventilation system should be as far off the ground as possible (or at least 10 feet from the surface).

2. Elevator shafts should be equipped with an installed methane detector and alarm system.

3. Utility boxes should either be fully ventilated or lined with an impermeable liner or coating. The liner should be elastic enough not to crack even if the side walls or floor of the box crack. The boxes should be secured from public access. No access should be allowed to the boxes unless they are first checked for methane concentrations by an explosimeter.

Exhibit 1



LEGEND

Boring 1 ⊕ Test Boring Locations

□ GSF FLUX BOX (1-10)

○ GSF PROBE (A-L)

CHRISTIE STREET

0 50 100 200 feet

SITE AND BORING LOCATION PLAN

Project No. 10848	BAY CENTER PROJECT Emeryville, California	Figure 1
Geomatrix Consultants		

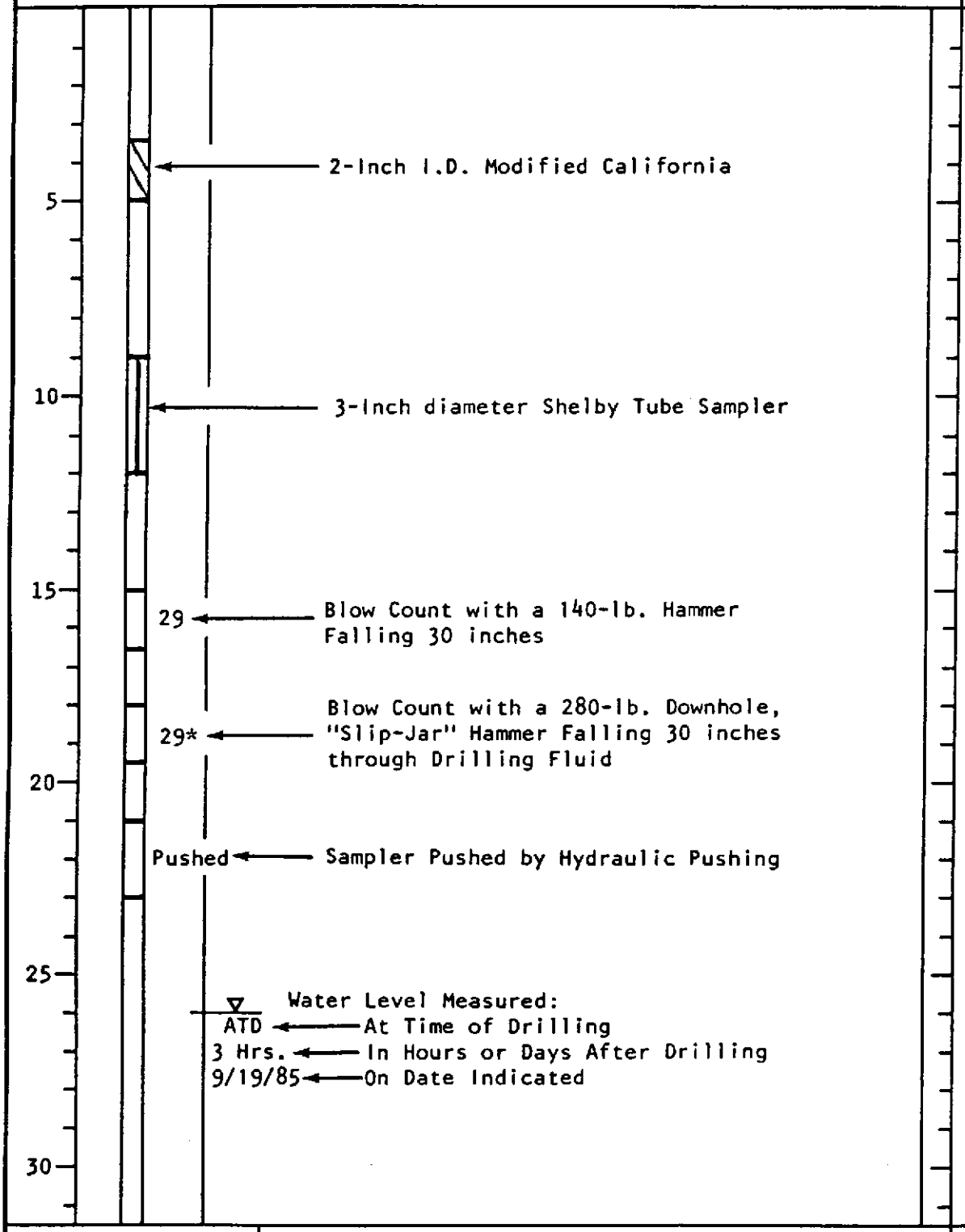
Project: BAY CENTER PROJECT Emeryville, California	BORING LOG LEGEND SHEET

Date Drilled: _____ Remarks: _____

Type of Boring: _____

Hammer Weight: _____

Depth, Ft.	Samples	Blows/Ft.	DESCRIPTION	LABORATORY TESTS: Moisture Content, %	Dry Density, pcf	Unconfined Compressive Strength, psf



Project No. 1084B	Geomatrix Consultants	Figure A-1

Project:	BAY CENTER PROJECT Emeryville, California	Log of Boring No. 1

Date Drilled: 4/23/85
Type of Boring: 8" Hollow Stem Auger
Hammer Weight: 140 lbs.
Remarks:
(See Legend Sheet for sampler types and hammer weights)

Surface Elevation: 11±

Depth, Ft.	Samples	Blows/Ft.	MATERIAL DESCRIPTION	LABORATORY TESTS: Moisture Content, %	Dry Density, pcf	Unconfined Compressive Strength, psf
			10" Asphalt Surfacing and Aggregate Base Material			
	1	12/6"	GRAVELLY CLAY FILL Stiff, moist, yellow-brown	--	---	----
	2	5/6"	CLAY FILL Soft to medium stiff, brown to black, with misc. debris	--	---	----
5	3	3/6"	▽ ATD	--	---	----
			SILTY CLAY (CH) Soft, grey			
10	4	3/6"	←Petroleum oder	--	---	----
			SANDY CLAY (CL) Stiff, grey-green			
15	5	20/6"		--	---	----
			SANDY CLAY (CL) Very stiff, brown			
20						
			SILTY SAND (SM) Dense to very dense, brown			
25	6	50/4"		--	---	----
			SILTY CLAY (CH) Stiff, blue-grey			
30						

Project: BAY CENTER PROJECT
Emeryville, California

Log of Boring No. 1 (Continued)

Depth, Ft.	Samples	Blows/Ft.	MATERIAL DESCRIPTION	Moisture Content, %	Dry Density, pcf	Unconfined Compressive Strength, psf
35	7	13/6"	SILTY CLAY (CH) Stiff, blue-grey	--	---	----
			SILTY SAND (SM) Medium dense, blue-grey			
			Bottom of Boring at 36'			
40						
45						
50						
55						
60						
65						

Project No. 1084B | Geomatrix Consultants | Figure A-3

Project: BAY CENTER PROJECT Emeryville, California	Log of Boring No. 2

Date Drilled: 4/23/85
Type of Boring: 8" Hollow Stem Auger
Hammer Weight: 140 lbs.
Remarks:
(See Legend Sheet for sampler types and hammer weights)

Surface Elevation: 14±

Depth, Ft.	Samples	Blows/Ft.	MATERIAL DESCRIPTION	LABORATORY TESTS: Moisture Content, %	Dry Density, pcf	Unconfined Compressive Strength, psf
			10" Asphalt Surfacing and Aggregate Base Material			
	1	27/6"	CLAYEY SAND FILL Medium dense, black, with misc. debris (burnt wood, metal, glass, copper wire and slag)	--	---	----
	2	38/6"	Stiff, black silty clay layer	--	---	----
5	3	26/6"	ATD	--	---	----
			SANDY CLAY FILL Stiff, brown			
			CLAYEY SAND (SC) Loose, blue-grey			
10	4	15/6"	SILTY CLAY (CH) Soft, black and green Petroleum oder	--	---	----
			Bottom of Boring at 10½'			
15						
20						
25						
30						

Project No. 1084B	Geomatrix Consultants	Figure A-4

Project: BAY CENTER PROJECT Emeryville, California	Log of Boring No. 3

Date Drilled: 4/23/85 Remarks:

Type of Boring: 8" Hollow Stem Auger

Hammer Weight: 140 lbs. (See Legend Sheet for sampler types and hammer weights)

Surface Elevation: 12±

Depth, Ft.	Samples	Blows/Ft.	MATERIAL DESCRIPTION	LABORATORY TESTS: Moisture Content, %	Dry Density, pcf	Unconfined Compressive Strength, psf
			14" Asphalt Surfacing and Aggregate Base Material			
	1	16/6"	CLAYEY SAND FILL Medium dense, moist, black, with glass, metal and pyrite like crystals	--	---	----
	2	3/6"	SAND FILL Loose, wet, grey	--	---	----
5	3	2/6"	SANDY CLAY FILL Stiff, moist, brown ATD ▽	--	---	----
			SILTY SAND FILL Loose, black			
			SILTY CLAY (CH) Soft, blue-grey, with some sand layers			
10	4	3/6"		--	---	----
			Bottom of Boring at 11'			
15						
20						
25						
30						

Project: BAY CENTER PROJECT Emeryville, California	Log of Boring No. 4

Date Drilled: 4/23/85
Type of Boring: 8" Hollow Stem Auger
Hammer Weight: 140 lbs.
Remarks:
(See Legend Sheet for sampler types and hammer weights)

Surface Elevation: 13±

Depth, Ft.	Samples	Blows/Ft.	MATERIAL DESCRIPTION	LABORATORY TESTS: Moisture Content, %	Dry Density, pcf	Unconfined Compressive Strength, psf
			12" Asphalt Surfacing and Aggregate Base			
			GRAVELLY CLAY FILL Stiff, moist, yellow-brown			
	1	22/6"	MIXED CLAY AND SAND FILL Black, with misc. debris	--	---	----
5	2	3/6"	← Seepage	--	---	----
			▽ ATD SILTY CLAY (CH) Soft, black, with organic material			
10	3	1/6"	← Petroleum oder	--	---	----
15	4	2/6"		--	---	----
			SILTY SAND (SM-SP) Loose, gray, with some clay layers			
20						
			SILTY CLAY (CL) Very stiff, brown			
25	5	12/6"		--	---	----
			SILTY SAND (SM-SP) Medium dense to dense, brown			
30						

Project No. 1084B	Geomatrix Consultants	Figure A-6

Project: BAY CENTER PROJECT
Emeryville, California

Log of Boring No. 4 (Continued)

Depth, Ft.	Samples	Blows/Ft.	MATERIAL DESCRIPTION	Moisture Content, %	Dry Density, pcf	Unconfined Compressive Strength, psf
35	6	15/6"	SILTY SAND (SM-SP) Medium dense to dense, brown	--	---	----
			Bottom of Boring at 36'			
40						
45						
50						
55						
60						
65						

Project No. 1084B | Geomatrix Consultants | Figure A-7

Project: BAY CENTER PROJECT Emeryville, California	Log of Boring No. 5

Date Drilled: 9/18/85 Remarks:

Type of Boring: 4" Rotary

Hammer Weight: 280 lbs. (See Legend Sheet for sampler types and hammer weights)

Surface Elevation: 14±

Depth, Ft.	Samples	Blows/Ft.	MATERIAL DESCRIPTION	LABORATORY TESTS: Moisture Content, %	Dry Density, pcf	Unconfined Compressive Strength, psf
			3" Asphalt Surfacing			
			CLAYEY SAND FILL Dense, brown, with rock fragments			
5			CLAYEY SAND FILL Loose, dark brown, with misc. debris (glass, wood, steel)			
			SILTY CLAY FILL Soft to medium stiff, dark grey, with misc. debris			
10	1	6*	Wood, brick, slag (oily)	28	94	----
15	2	4*		No Recovery		
20	3	52*	GRAVELLY SAND (SW) Dense, orange-brown	21	102	----
25	4	34*	SANDY CLAY (CL) Very stiff, orange-brown	No Recovery		
	5	31*	SILTY SAND (SP-SM) Dense, orange-brown	19	112	----
30	6	76/6"*		--	---	----

Project No. 1084B | Geometrix Consultants | Figure A-8

Project: BAY CENTER PROJECT
Emeryville, California

Log of Boring No. 5 (Continued)

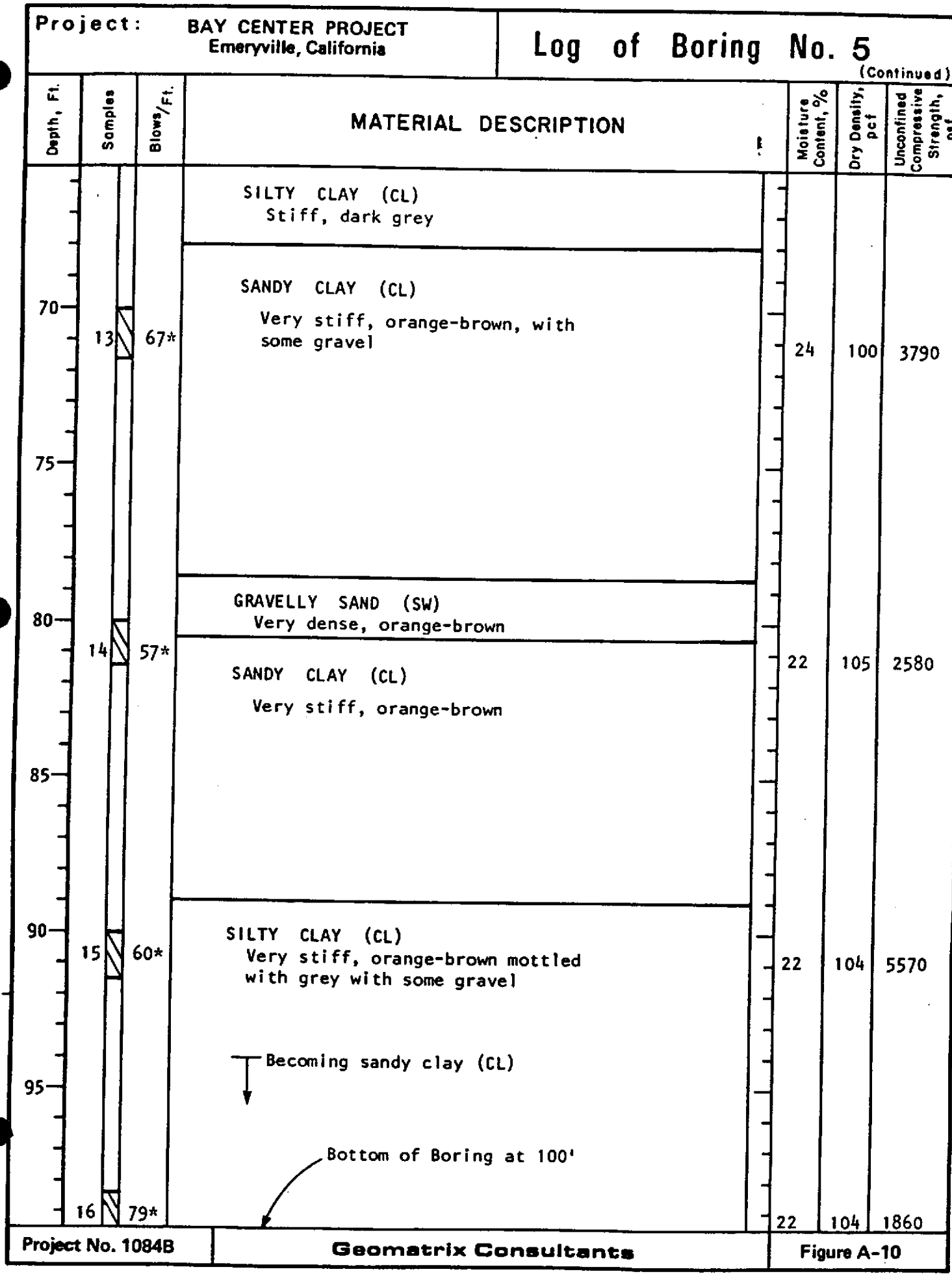
Depth, Ft.	Samples	Blows/Ft.	MATERIAL DESCRIPTION	Moisture Content, %	Dry Density, pcf	Unconfined Compressive Strength, psf
			SILTY SAND (SP-SM) Dense, orange-brown			
35	7	19*	SILTY CLAY (CL) Stiff, grey, with some sand	No Recovery		
	8	30*		19	111	1920
40	9	63/6"*	SILTY SAND (SM-SP) Very dense, dark grey	--	---	----
45	10	36*	SILTY CLAY (CL) Very stiff, dark gray	22	104	6150
			Becoming sandy clay			
50	11	59*	Becoming grey silty clay	20	108	6630
55						
			Becoming dark grey and stiff			
60	12	24*		40	80	2600
65						

Project No. 1084B | Geomatrix Consultants | Figure A-9

Project: BAY CENTER PROJECT
Emeryville, California

Log of Boring No. 5 (Continued)

Depth, Ft.	Samples	Blows/Ft.	MATERIAL DESCRIPTION	Moisture Content, %	Dry Density, pcf	Unconfined Compressive Strength, psf
			SILTY CLAY (CL) Stiff, dark grey			
70	13	67*	SANDY CLAY (CL) Very stiff, orange-brown, with some gravel	24	100	3790
75						
80	14	57*	GRAVELLY SAND (SW) Very dense, orange-brown SANDY CLAY (CL) Very stiff, orange-brown	22	105	2580
85						
90	15	60*	SILTY CLAY (CL) Very stiff, orange-brown mottled with grey with some gravel	22	104	5570
95			Becoming sandy clay (CL)			
	16	79*	Bottom of Boring at 100'	22	104	1860



Project No. 1084B | Geomatrix Consultants | Figure A-10

Project: BAY CENTER PROJECT Emeryville, California	Log of Boring No. 6

Date Drilled: 9/19/85 Remarks:

Type of Boring: 4" Rotary

Hammer Weight: 280 lbs. (See Legend Sheet for sampler types and hammer weights)

Depth, Ft.	Samples	Blows/Ft.	MATERIAL DESCRIPTION	LABORATORY TESTS: Moisture Content, %	Dry Density, pcf	Unconfined Compressive Strength, psf
			Surface Elevation: 15±			
			SILTY CLAY FILL Stiff, grey-brown, with gravel and misc. debris (metal, wire, etc.)			
5			Becoming soft and dark grey (debris includes bricks, glass, and metal)			
10	1	7*		--	---	----
15	2	2*	SILTY CLAY (FILL ?) Soft, light grey, with dark grey streaking	67	59	330
20	3	16*	CLAYEY SAND (SC) Medium dense, grey, with shells	--	---	----
			SILTY CLAY (CL) Stiff, orange-brown, with sand			
25	4	59*		--	---	----
			CLAYEY SAND (SC) Dense, grey-brown			
30	5	29*		19	111	----

Project No. 1084B	Geomatrix Consultants	Figure A-11

Project: BAY CENTER PROJECT
Emeryville, California

Log of Boring No. 6 (Continued)

Depth, Ft.	Samples	Blows/Ft.	MATERIAL DESCRIPTION	Moisture Content, %	Dry Density, pcf	Unconfined Compressive Strength, psf
35	6	70/6"*	CLAYEY SAND (SC) Dense, grey-brown	--	---	----
40	7	93*	SILTY CLAY (CL) Stiff, grey	--	---	----
45	8	63/6"*	SILTY SAND (SP-SM) Dense, dark grey	--	---	---
50	9	47*	SILTY CLAY (CL) Very stiff, dark grey, with some sand Becoming sandier	21	106	6590
55			Less sand			
60	10	98*	SILTY CLAY (CL) Very stiff, brown	--	---	----
65			Bottom of Boring at 61½'			

Project No. 1084B | Geomatrix Consultants | Figure A-12

Project: BAY CENTER PROJECT
Emeryville, California

Log of Boring No. 7

Date Drilled: 9/16/85
Type of Boring: 4" Rotary
Hammer Weight: 140 lbs.

Remarks:

(See Legend Sheet for sampler types and hammer weights)

Surface Elevation: 15±

Depth, Ft.	Samples	Blows/Ft.	MATERIAL DESCRIPTION	LABORATORY TESTS: Moisture Content, %	Dry Density, pcf	Unconfined Compressive Strength, psf
			4" Asphalt Surfacing			
			CLAYEY SAND FILL Dense, grey-brown, with rock fragments			
5			CLAYEY SAND FILL Loose, dark grey, with organic material and misc debris (metal, glass, wood, bricks, etc.)			
			Becoming more clayey with rocks, slag and oily materials			
10			Rock			
15						
20	1	16	SANDY CLAY (CL) Medium stiff to stiff, orange-brown	25	100	2350
25	2	21	Grading to grey-brown sandy clay (CL)	19	110	4780
30	3	34		23	101	----

Project No. 1084B | Geomatrix Consultants | Figure A-13

Project: BAY CENTER PROJECT
Emeryville, California

Log of Boring No. 7 (Continued)

Depth, Ft.	Samples	Blows/Ft.	MATERIAL DESCRIPTION	Moisture Content, %	Dry Density, pcf	Unconfined Compressive Strength, psf
35	4	87/6"	SILTY CLAY (CL) Stiff, dark grey, with some sand			
			SILTY SAND (SP-SM) Very dense, grey-brown	19	110	260
40	5	36	SANDY CLAY (CL) Stiff, dark grey	18	113	780
45	6	34		24	101	6340
			SILTY CLAY (CL) Very stiff, dark grey Becoming sandy clay			
50	7	43		18	111	5760
55			SILTY CLAY (CL) Very stiff, orange-brown Grading to grey silty clay			
60	8	30		35	87	4610
			Bottom of Boring at 60'			
65						

Project No. 1084B | Geomatrix Consultants | Figure A-14

Project: BAY CENTER PROJECT Emeryville, California	Log of Boring No. 8

Date Drilled: 9/17/85
Type of Boring: 4" Rotary
Hammer Weight: 140 and 280 lbs.
Remarks:
(See Legend Sheet for sampler types and hammer weights)

Depth, Ft.	Samples	Blows/Ft.	MATERIAL DESCRIPTION	LABORATORY TESTS: Moisture Content, %	Dry Density, pcf	Unconfined Compressive Strength, psf
			Surface Elevation: 13±			
			4" Asphalt Surfacing CLAYEY SAND FILL Medium dense, brown, with gravel			
			CLAYEY SAND FILL Loose, brown, with construction debris (concrete, bricks, rocks, steel)			
5			Becoming black and oily			
10	1	3	SILTY CLAY FILL Soft, dark grey (less debris)	28	95	----
15	2	18	SILTY SAND (SP-SM) Loose, dark grey, with some shells	--	---	----
20	3	34	SILTY SAND (SP-SM) Medium dense to dense, orange-brown	19	113	----
25	4	24	Medium stiff, orange-brown, sandy clay (CL)	18	112	2240
30	5	101	Becoming very dense	--	---	----

Project No. 1084B	Geomatrix Consultants	Figure A-15

Project: BAY CENTER PROJECT
Emeryville, California

Log of Boring No. 8 (Continued)

Depth, Ft.	Samples	Blows/Ft.	MATERIAL DESCRIPTION	Moisture Content, %	Dry Density, pcf	Unconfined Compressive Strength, psf
35	6	59/6"*	SILTY SAND (SP-SM) Very dense, orange-brown	--	---	----
40	7	57	SILTY SAND (SP-SM) Very dense, dark grey	--	---	----
45	8	49*	SANDY CLAY (CL) Very stiff, dark grey	22	105	7270
50	9	32*	Grading to clayey sand (SC) Increasing gravel content	16	115	1480
55			SANDY CLAY (CL) Very stiff, orange-brown Becoming silty clay (CL)			
60	10	46*	SILTY CLAY (CL) Stiff, gray-brown	31	90	2110
65						

Proj. No. | Geomatrix Consultants | Figure A-16

Project: BAY CENTER PROJECT
Emeryville, California

Log of Boring No. 8 (Continued)

Depth, Ft.	Samples	Blows/Ft.	MATERIAL DESCRIPTION	Moisture Content, %	Dry Density, pcf	Unconfined Compressive Strength, psf
			Increasing sand content Becoming plastic silty clay (CH)			
70	11	56*		21	105	6640
75			GRAVELLY SAND (SW) Very dense, orange-brown, with gravel to 1" diam.			
80	12	81/6"*		--	---	----
85						
90	13	72*	SILTY CLAY (CL) Very stiff, light grey	23	101	4730
95			Grading to grey-brown			
100	14	34/6"*	Bottom of Boring at 101½'	23	101	7570

Project No. 1084B | Geomatrix Consultants | Figure A-17

Project: BAY CENTER PROJECT Emeryville, California	Log of Boring No. 9

Date Drilled: 9/13/85
Type of Boring: 4" Rotary
Hammer Weight: 140 lbs.
Remarks:
(See Legend Sheet for sampler types and hammer weights)

Surface Elevation: 13±

Depth, Ft	Samples	Blows/Ft.	MATERIAL DESCRIPTION	LABORATORY TESTS: Moisture Content, %	Dry Density, pcf	Unconfined Compressive Strength, psf
			10" Asphalt Surfacing			
			CLAYEY SAND FILL Medium dense, grey			
5			CLAYEY FILL Medium stiff, green-grey, with organic material and misc. debris			
10			SILTY SAND FILL Loose, grey to black, with wood and rock fragments (slag ?)			
15	1	14	SILTY CLAY FILL Soft, black, with organic material, wood and glass (oily)	--	---	----
			SILTY SAND (SM-SP) Loose, black, with shells			
20	2	19	CLAYEY SAND (SC) Medium dense, orange-brown, with some gravel to 1/4" diam.	21	106	990
25	3	30	Grading to silty sand (SP-SM)	19	110	----
30	4	24	SILTY CLAY (CL-CH) Stiff, dark grey	37	82	3030

Project No. 1084B	Geomatrix Consultants	Figure A-18

Project: BAY CENTER PROJECT
Emeryville, California

Log of Boring No. 9 (Continued)

Depth, Ft.	Samples	Blows/Ft.	MATERIAL DESCRIPTION	Moisture Content, %	Dry Density, pcf	Unconfined Compressive Strength, psf
			SILTY CLAY (CL-CH) Stiff, dark grey			
35	5	28	SILTY SAND (SP-SM) Dense, brown to grey } Stiff, silty clay (CL-CH)	--	---	----
40	6	44	SANDY CLAY (CL) Very stiff, dark grey	--	---	----
45	7	44	SILTY CLAY (CL) Very stiff, grey-brown	18	111	6090
50	8	25		29	93	3860
55	9	17	SILTY CLAY (CL) Stiff, grey	39	81	3420
60			Bottom of Boring at 60'			
65						

Project No. 1084B | Geomatrix Consultants | Figure A-19

Project:	BAY CENTER PROJECT Emeryville, California	Log of Boring No. 10

Date Drilled: 9/12/85
Type of Boring: 4" Rotary
Hammer Weight: 140 lbs.
Remarks:
(See Legend Sheet for sampler types and hammer weights)

Surface Elevation: 12±

Depth, Ft.	Samples	Blows/Ft.	MATERIAL DESCRIPTION	LABORATORY TESTS: Moisture Content, %	Dry Density, pcf	Unconfined Compressive Strength, psf
			5" Concrete Slab			
			FILL Medium dense, clayey gravel			
			CLAYEY SAND FILL Loose, dark brown, with organic materials and misc. debris (wood, bricks, glass, etc.)			
5						
			CLAYEY FILL Soft, black, with organic material and debris			
10			Rock fragments (slag ?)			
15	1	Pushed	SILTY CLAY (CH) Soft, blue-grey	--	---	----
			SANDY CLAY (CL) Stiff, orange-brown, with some gravel			
			Increasing gravel content			
20	2	20	SILTY CLAY (CL-CH) Stiff, orange-brown	23	101	4880
			Becoming very stiff			
25	3	52		--	---	----
			SILTY SAND (SP-SM) Very dense, orange-brown			
30	4	23	SILTY CLAY (CL-CH) Stiff, grey	27	97	4590

Project: BAY CENTER PROJECT
Emeryville, California

Log of Boring No. 10 (Continued)

Depth, Ft.	Samples	Blows/Ft.	MATERIAL DESCRIPTION	Moisture Content, %	Dry Density, pcf	Unconfined Compressive Strength, psf
35	5	105	SILTY CLAY (CL-CH) Stiff, grey			
			SILTY SAND (SP-SM) Very dense, grey-brown	--	---	----
			SILTY CLAY (CL-CH) Stiff, grey			
40	6	110	SILTY SAND (SP-SM) Very dense, dark grey	--	---	----
			SANDY CLAY (CL) Stiff, dark grey			
45	7	18		23	102	2020
			Becoming light grey and very stiff			
50	8	66		17	101	7490
			Bottom of Boring at 51½'			
55						
60						
65						

Project No. 1084B | Geomatrix Consultants | Figure A-21

Project: BAY CENTER PROJECT Emeryville, California	Log of Boring No. 11

Date Drilled: 9/10/85 and 9/12/85 — Remarks:
Type of Boring: 4" Rotary
Hammer Weight: 140 lbs. — (See Legend Sheet for sampler types and hammer weights)

Surface Elevation: 11±

Depth, Ft.	Samples	Blows/Ft.	MATERIAL DESCRIPTION	LABORATORY TESTS: Moisture Content, %	Dry Density, pcf	Unconfined Compressive Strength, psf
			4" Asphalt Surfacing			
			CLAYEY SAND FILL Medium dense, brown, with rock fragments to 2" diam.			
			CLAYEY FILL Soft, dark brown, with misc. debris (wood, glass, slag, etc.)			
5			▽ 9/11/85 7:00am } Wood			
10						
	1	2	SILTY CLAY (CL-CH) Soft, dark grey, with some shells	44	76	----
15						
	2	25	SANDY CLAY (CL) Stiff, orange-brown, with some gravel	22	105	6330
20						
	3	38	SILTY SAND (SP-SM) Dense, brown	--	---	----
25						
	4	25	} Stiff, grey, silty clay (CL-CH)	27	95	3330
30						

Project No. 1084B	Geomatrix Consultants	Figure A-22

Project: BAY CENTER PROJECT
Emeryville, California

Log of Boring No. 11 (Continued)

Depth, Ft.	Samples	Blows/Ft.	MATERIAL DESCRIPTION	Moisture Content, %	Dry Density, pcf	Unconfined Compressive Strength, psf
	5	26	SILTY SAND (SP-SM) Dense, brown	28	94	2020
35			SILTY CLAY (CL) Stiff, dark grey			
	6	39		26	97	2550
40			GRAVELLY SAND Dense, grey-brown			
	7	30	SANDY CLAY (CL-CH) Stiff to very stiff, grey	23	102	2380
45			Increasing gravel content			
	8	25	SILTY CLAY (CH) Very stiff, grey, with some gravel	27	96	5470
50			Becoming brown			
	9	46		No Recovery		
55			Becoming blue-gray			
	10	39		--	---	----
60			SILTY SAND (SM-SP) Dense, blue-grey, with alternating strata of stiff silty clay			
	11	48		21	105	5610
65			SANDY CLAY (CL) Very stiff, brown mottled with grey			

Project No. 1084B | Geomatrix Consultants | Figure A-23

Project: BAY CENTER PROJECT
Emeryville, California

Log of Boring No. 11 (Continued)

Depth, Ft.	Samples	Blows/Ft.	MATERIAL DESCRIPTION	Moisture Content, %	Dry Density, pcf	Unconfined Compressive Strength, psf
	12	49	SANDY CLAY (CL) Very stiff, brown mottled with grey	--	---	----
70			GRAVELLY SAND (SW) Dense, orange-brown			
	13	55	GRAVELLY CLAY Very stiff, orange-brown	14	119	3700
75						
	14	32	SILTY CLAY (CL) Very stiff, light grey	21	105	7220
80			Becoming sandy clay			
	15	46		21	104	7760
85			CLAYEY SAND (SC) Dense, orange-brown, with some gravel to 3/4"			
	16	73		15	117	4280
90			SANDY CLAY Very stiff, orange-brown			
	17	90		17	113	7180
95			GRAVELLY SAND (SP) Very dense, orange-brown, with gravel to 1½" diam.			
	18	84	Bottom of Boring at 99½'	16	111	2960

Project No. 1084B | Geometrix Consultants | Figure A-24

Project: BAY CENTER PROJECT Emeryville, California	Log of Boring No. 12

Date Drilled: 9/19/85 Remarks:

Type of Boring: 6" Auger

Hammer Weight: — (See Legend Sheet for sampler types and hammer weights)

Depth, Ft.	Samples	Blows/Ft.	MATERIAL DESCRIPTION	LABORATORY TESTS: Moisture Content, %	Dry Density, pcf	Unconfined Compressive Strength, psf
			Surface Elevation: 14±			
			2" Asphalt Surfacing, 4" Aggregate Base			
			SANDY GRAVEL FILL Grey with some cobbles			
			SILTY CLAY FILL Dark grey, with sand and gravel and some bricks			
5						
			Bottom of Boring at 7'			
10						
15						
20						
25						
30						

Project: BAY CENTER PROJECT Emeryville, California	Log of Boring No. 13

Date Drilled: 9/19/85 Remarks:

Type of Boring: 6" Auger

Hammer Weight: ——— (See Legend Sheet for sampler types and hammer weights)

Depth, Ft.	Samples	Blows/Ft.	MATERIAL DESCRIPTION	LABORATORY TESTS: Moisture Content, %	Dry Density, pcf	Unconfined Compressive Strength, psf
			Surface Elevation: 12±			
			2" Asphalt Surfacing, 4" Aggregate Base			
			SILTY CLAY FILL Brown, with gravel			
			SILTY CLAY FILL Dark grey, with wood, metal, bricks, and wire			
5			Bottom of Boring at 5'			
10						
15						
20						
25						
30						

Project: BAY CENTER PROJECT
Emeryville, California

Log of Boring No. 14

Date Drilled: 9/19/85
Type of Boring: 6" Auger
Hammer Weight: ———
Remarks:
(See Legend Sheet for sampler types and hammer weights)

Depth, Ft.	Samples	Blows/Ft.	MATERIAL DESCRIPTION	LABORATORY TESTS: Moisture Content, %	Dry Density, pcf	Unconfined Compressive Strength, psf
			Surface Elevation: 12±			
			2" Asphalt Surfacing, 4" Aggregate Base			
			SANDY GRAVEL FILL Grey, with some cobbles			
			SILTY CLAY FILL Grey, with sand and gravel			
5			SILTY CLAY FILL Dark grey, with bricks, wood, rocks, metal, and wire			
			Bottom of Boring at 5'			
10						
15						
20						
25						
30						

Project No. 1084B

Geomatrix Consultants

Figure A-27

PROBE LOG

BAY CENTER CONSTRUCTION SITE
Emeryville, CA.

Probe: A Date: 9-3-86 Location: On Pad C

Depth	Composition	Comments
0 - 5	Clean Soil Rock Wood, Brick	Debris shallow
5 - 10	Clay Silt Clay	Bottom of debris at 7' No sample Water at 9'
10 - 15		
15 - 20		

Datum is Water Line

Final Bore Depth: 9' Temp.: 69.2°F

3/8" Peagravel (ft): 6 Soil (ft): 1

Bentonite (ft): 1 Soil (ft): 4

PROBE LOG

BAY CENTER CONSTRUCTION SITE
Emeryville, CA.

Probe: B Date: 9-3-86 Location: On Pad C

Depth	Composition	Comments
0 - 5	Clean Fill Rocks	
5 - 10	Debris Clay, few wires Some metal, wood	8' Sample at ~ 10', pH 7.2
10 - 15	More clay Brick Metal	End of debris at 13'
15 - 20	Silt	

Datum is Water Line

Final Bore Depth: 20' Temp.: 69.1°F

3/8" Peagravel (ft): 6 Soil (ft): 1

Bentonite (ft): 1 Soil (ft): 4

PROBE LOG

BAY CENTER CONSTRUCTION SITE
Emeryville, CA.

Probe: C Date: 9-3-86 Location: On Pad C

Depth	Composition	Comments
0 - 5	Clean soil Rock, wood Brick	
5 - 10	Clean soil, Clay	Sample at 8', too dry to determine pH
10 - 15	Wood scraps at 12' - 13'	Water at 14'
15 - 20		

Datum is Water Line

Final Bore Depth: 14' Temp.: 71°F

3/8" Peagravel (ft): 8 Soil (ft): 1

Bentonite (ft): 1 Soil (ft): 4

PROBE LOG

BAY CENTER CONSTRUCTION SITE
Emeryville, CA.

Probe: D Date: 9-3-86 Location: Behind Pad C

Depth	Composition	Comments
0 - 5	Clean soil Charred wood Rocks, bricks	
5 - 10	Dirt Bricks Silt	Sample at 5' - 6' too dry to determine pH Water at 7.5'
10 - 15		
15 - 20		

Datum is Water Line

Final Bore Depth: 7.5' Temp.: 68.2°F

3/8" Peagravel (ft): 3 Soil (ft): 0.5

Bentonite (ft): 0.5 Soil (ft): 3

PROBE LOG

50%

BAY CENTER CONSTRUCTION SITE
Emeryville, CA.

Probe: E Date: 9-3-86 Location: Behind Pad B

Depth	Composition	Comments
0 - 5	Clean soil	
5 - 10	Dark soil Rock Glass Metal, brick, ash	Start of debris at 7' Sample at 8', pH 7.6 Water at 10'
10 - 15		
15 - 20		

Datum is Water Line

Final Bore Depth: 10' Temp.: 70.8°F

3/8" Peagravel (ft): 4.5 Soil (ft): 1

Bentonite (ft): 1 Soil (ft): 4

PROBE LOG

BAY CENTER CONSTRUCTION SITE
Emeryville, CA.

Probe: F Date: 9-3-86 Location: Behind Pad A, near fence

Depth	Composition	Comments
0 - 5	Brick Wood	Debris shallow
5 - 10	Same Dark soil Metal	Sample at 6½', pH 7.6 Water at 7'
10 - 15		
15 - 20		

Datum is Water Line

Final Bore Depth: 7' Temp.: 70.5°F

3/8" Peagravel (ft): 3 Soil (ft): 0.5

Bentonite (ft): 0.5 Soil (ft): 3

PROBE LOG

BAY CENTER CONSTRUCTION SITE
Emeryville, CA.

Probe: G Date: 9-3-86 Location: Behind Pad A

Depth	Composition	Comments
0 - 5	Asphalt Rock, brick Green soil Metal	
5 - 10	Metal Brick Wood, rags Ash	4' of fill, rest clay No sample
10 - 15		Water at 14'
15 - 20		

Datum is Water Line

Final Bore Depth: 14' Temp.: 76.8°F

3/8" Peagravel (ft): 8 Soil (ft): 1

Bentonite (ft): 1 Soil (ft): 4

PROBE LOG

BAY CENTER CONSTRUCTION SITE
Emeryville, CA.

Probe: H Date: 9-3-86 Location: Behind Pad A

Depth	Composition	Comments
0 - 5	Asphalt Rocks, green soil Brick, wire	
5 - 10	Clay, rock Wood, brick Ash	Top of debris at 6½' Bottom of debris 8½' Water at 10'
10 - 15		No sample
15 - 20		

Datum is Water Line

Final Bore Depth: 10' Temp.: 71.9°F

3/8" Peagravel (ft): 4.5', brought up 2' Soil (ft): 0.5

Bentonite (ft): 1 Soil (ft): 3.5

PROBE LOG

BAY CENTER CONSTRUCTION SITE
Emeryville, CA.

Probe: I Date: 9-3-86 Location: On Pad B

Depth	Composition	Comments
0 - 5	Clean soil Rocks Brick, dark soil	
5 - 10	Ash, glass Wire Wood bits	Start of debris at 6' Sample at 9', pH 7.6
10 - 15	Brick	Water at 13'
15 - 20		

Datum is Water Line

Final Bore Depth: 13' Temp.: 70°F

3/8" Peagravel (ft): 7 Soil (ft): 1

Bentonite (ft): 1 Soil (ft): 4

PROBE LOG

BAY CENTER CONSTRUCTION SITE
Emeryville, CA.

Probe: J Date: 9-3-86 Location: On Pad A

Depth	Composition	Comments
0 - 5	Clean dirt Rubble, grit	
5 - 10	Wood, steel Debris, brick Ash, black & oily	Start of debris at 6' Sample at 7', pH 7.5 Debris layer is 1.5'
10 - 15		Water at 10'
15 - 20		

Datum is Water Line

Final Bore Depth: 10' Temp.: 78°F

3/8" Peagravel (ft): 4.5 Soil (ft): 1

Bentonite (ft): 1 Soil (ft): 4

PROBE LOG

BAY CENTER CONSTRUCTION SITE
Emeryville, CA.

Probe: K Date: 9-3-86 Location: On Pad A

Depth	Composition	Comments
0 - 5	Clean dirt	
5 - 10	Few bricks Ash - 7' Rubble	Ash layer about 2' Sample at 8', pH 7.6
10 - 15	Very few decomposables	Water at 12.5'
15 - 20		

Datum is Water Line

Final Bore Depth: 12.5' Temp.: 72.7°F

3/8" Peagravel (ft): 6.5 Soil (ft): 1

Bentonite (ft): 1 Soil (ft): 4

PROBE LOG

BAY CENTER CONSTRUCTION SITE
Emeryville, CA.

Probe: L Date: 9-3-86 Location: On Pad B

Depth	Composition	Comments
0 - 5	Dirt & rocks Clean soil Red brick	
5 - 10	Ash, debris Charred wood Steel	Start of debris at 6' Sample at 8', pH 7.6 Water at 10'
10 - 15		
15 - 20		

Datum is Water Line

Final Bore Depth: 10' Temp.: 69.4°F

3/8" Peagravel (ft): 4.5 Soil (ft): 1

Bentonite (ft): 1 Soil (ft): 4

PROBE LOG

BAY CENTER CONSTRUCTION SITE
Emeryville, CA.

Probe: M Date: 9-3-86 Location: Behind Pad B

Depth	Composition	Comments
0 - 5	Charred wood Green soil Brick, wood	
5 - 10	Brick, wood Metal Debris	Sample at 8½', pH 7.6 Water at 10½'
10 - 15		This probe was buried in dirt by a Caterpillar operator and was not sampled further.
15 - 20		

Datum is Water Line

Final Bore Depth: 10½' Temp.: ND

3/8" Peagravel (ft): 4.5 Soil (ft): 0.5

Bentonite (ft): 1 Soil (ft): 3.5

WEST COAST ANALYTICAL SERVICE, INC.

CLIENT: GETTY SYNTHETIC FUELS, INC.
SAMPLE: A2502
ANALYSIS TYPE: GAS PHASE VOLATILE COMPOUNDS

where

ORGANICS ANALYSIS DATA RESULTS

DATE RECEIVED:	09/19/86	GCMS FILENAME:	4104G1
LEVEL:	LOW	MATRIX:	GAS
DATE PREPARED:	10/02/86	DATE ANALYZED:	10/02/86
STANDARD ID:	GAS134, 137	INSTRUMENT ID:	5100
SAMPLE AMOUNT:	1ML		

CAS #	COMPOUND	CONC: PPB (V/V)	DETECTION LIMIT
74-87-3	CHLOROMETHANE	ND	100.
74-83-9	BROMOMETHANE	ND	100.
75-01-4	VINYL CHLORIDE	120.	100.
75-00-3	CHLOROETHANE	ND	100.
75-09-2	METHYLENE CHLORIDE	ND	100.
67-64-1	ACETONE	ND	100.
107-02-8	ACROLEIN	ND	100.
107-13-1	ACRYLONITRILE	ND	100.
75-15-0	CARBON DISULFIDE	ND	100.
75-35-4	1,1-DICHLOROETHENE	ND	100.
75-34-3	1,1-DICHLOROETHANE	ND	100.
156-60-5	TRANS-1,2-DICHLOROETHENE	ND	100.
540-59-0	CIS-1,2-DICHLOROETHYLENE	ND	100.
109-99-9	TETRAHYDROFURAN	ND	100.
75-71-8	DICHLORODIFLUOROMETHANE	ND	100.
75-69-4	TRICHLOROFLUOROMETHANE	ND	100.
76-13-1	FREON-TF	ND	100.
106-93-4	ETHYLENE DIBROMIDE	ND	100.
123-91-1	1,4-DIOXANE	ND	100.
96-12-8	1,2-DIBROMO-3-CHLOROPROPANE	ND	100.
67-66-3	CHLOROFORM	ND	100.
107-66-2	1,2-DICHLOROETHANE	ND	100.
78-93-3	2-BUTANONE	ND	100.
71-55-6	1,1,1-TRICHLOROETHANE	ND	100.
16-23-5	CARBON TETRACHLORIDE	ND	100.
108-05-4	VINYL ACETATE	ND	100.
75-27-4	BROMODICHLOROMETHANE	ND	100.
79-34-5	1,1,2,2-TETRACHLOROETHANE	ND	100.
78-87-5	1,2-DICHLOROPROPANE	ND	100.
10061-02-6	TRANS-1,3-DICHLOROPROPENE	ND	100.
79-01-6	TRICHLOROETHENE	ND	100.
124-48-1	CHLORODIBROMOMETHANE	ND	100.
79-00-5	1,1,2-TRICHLOROETHANE	ND	100.
71-43-2	BENZENE	ND	100.
10061-01-5	CIS-1,3-DICHLOROPROPENE	ND	100.
110-75-8	2-CHLOROETHYLVINYL ETHER	ND	100.
75-25-2	BROMOFORM	ND	100.
119-78-6	2-HEXANONE	ND	100.
108-10-1	4-METHYL-2-PENTANONE	ND	100.

WEST COAST ANALYTICAL SERVICE, INC.

CLIENT: GETTY SYNTHETIC FUELS, INC.
SAMPLE: A2502
ANALYSIS TYPE: GAS PHASE VOLATILE COMPOUNDS

ORGANICS ANALYSIS DATA RESULTS

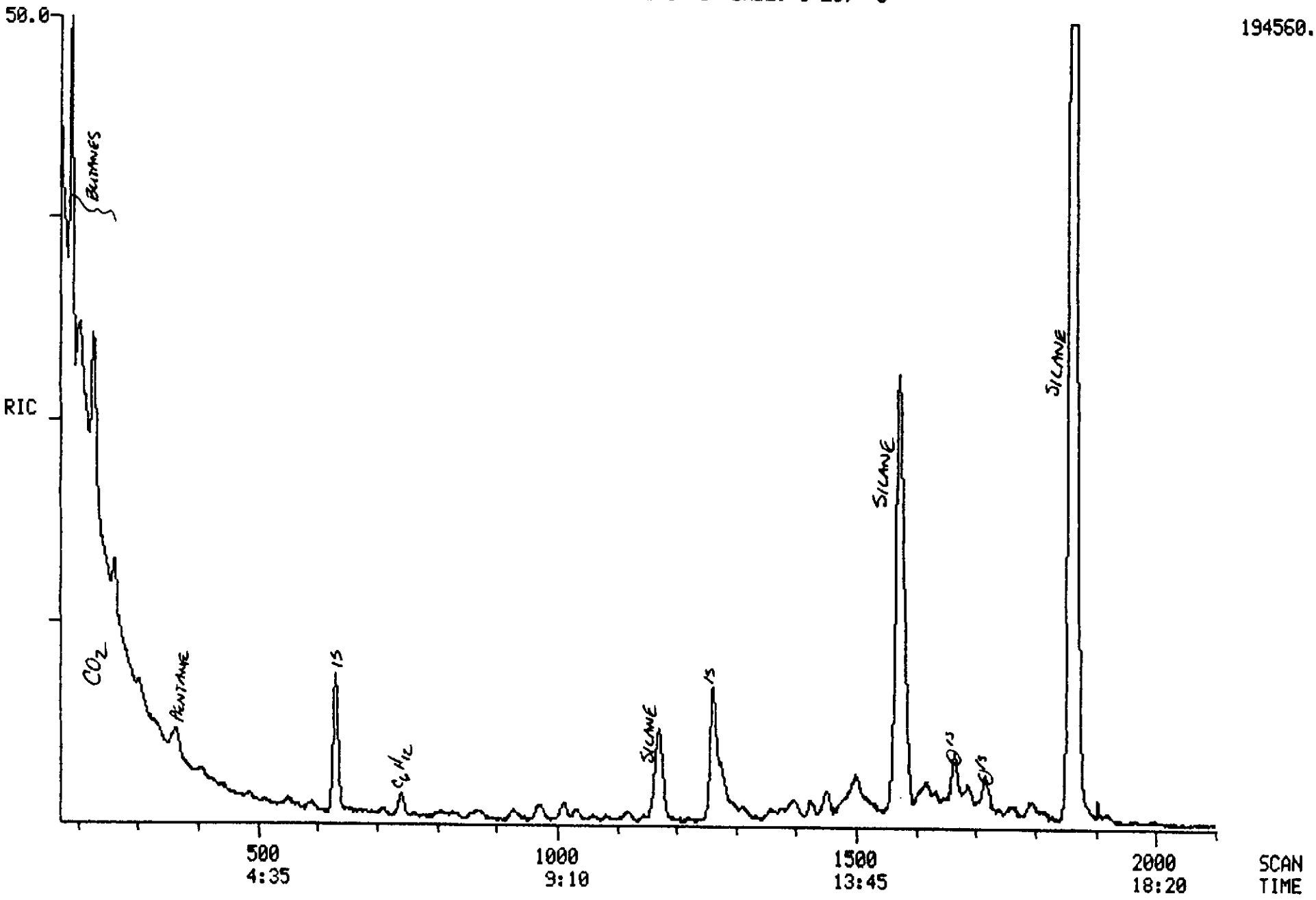
DATE RECEIVED:	09/19/86	GCMS FILENAME:	4104G1
LEVEL:	LOW	MATRIX:	GAS
DATE PREPARED:	10/02/86	DATE ANALYZED:	10/02/86
STANDARD ID:	GAS134, 137	INSTRUMENT ID:	5100
SAMPLE AMOUNT:	1ML		

CAS #	COMPOUND	CONC: PPB (V/V)	DETECTION LIMIT
127-18-4	TETRACHLOROETHENE	ND	100.
108-88-3	TOLUENE	ND	100.
108-90-7	CHLOROBENZENE	ND	100.
100-41-4	ETHYLBENZENE	ND	100.
100-42-5	STYRENE	ND	100.
95-47-6	TOTAL XYLENES	ND	100.
108-41-8	M-CHLOROTOLUENE	ND	100.
541-73-1	1,3-DICHLOROBENZENE	ND	100.
106-46-7	1,4-DICHLOROBENZENE	ND	100.
95-50-1	1,2-DICHLOROBENZENE	ND	100.
91-20-3	NAPHTHALENE	ND	100.

RIC
10/02/86 17:44:00
SAMPLE: GETTY - A2502 1ML
CONDS.: 30M X 0.32MM DB-1
RANGE: G 1,2100 LABEL: N 0, 4.0 QUAN: A 0, 1.0 J 0 BASE: U 20, 3

DATA: 4104G1 #1861
CALI: 82586C1 #3

SCANS 170 TO 2100



RESULTS OF MONITORING OF THE BAY CENTER SITE FOR CALDERON BILL COMPLIANCE

PREPARED FOR BAY CENTER ASSOCIATES

by

GSF ENERGY INC.

OCTOBER 9, 1986

TABLE OF CONTENTS

LIST OF EXHIBITS AND APPENDICES

1.0 SUMMARY OF RESULTS

The prescreening procedures prescribed in "Guidelines for AB 3525" were performed at the Bay Center construction site on September 3, 1986. No levels of methane above 5 ppm were found on a site walk using a flame ionization detector. Gas from a probe that was centrally located on the construction site contained 5.5% methane. Other than 120 ppb of vinyl chloride, no other list 1 compounds were found at the 100 ppb detection limit.

GSF recommends that no further testing be made of the site for the following reasons:

1. Virtually no methane was found above the construction site surface.

2. Test borings done on the site do not indicate sufficient organic materials to create a gas migration problem off site. Visual inspections of spoils from excavations indicate that mostly inert materials were deposited in the site.

3. The probe had less than 0.01" water pressure, indicating an extremely low generation rate.

4. The site is of sufficiently small size that the impact on the total air quality of the Bay Area should be negligible.

2.0 SITE DESCRIPTION

The Bay Center Project is located in the City of Emeryville west of Bay Street, east of Lacoste Street and Highway 80, north of 64th Street and south of 65th Street (Exhibit 1). The site encompasses 16.5 acres. Three low rise office buildings and adjacent parking areas are currently under construction. Prior to its development as an office center, the site was used as a truck terminal by Garrett Freight lines.

The area was reclaimed from the San Francisco tidal plain after the construction of the East Shore highway in 1954. The site was filled by the City of Emeryville in the late 1950's. Fill materials were reported to be clean fill and non-municipal wastes (heavy metals and petroleum products were found). The site is basically flat, although it slopes gently to the north.

In 1985 a geotechnical study was performed by Geomatrix Consultants to provide engineering data prior to site development. As part of this study, 14 test borings were made (see Appendix 1). The study found that the upper 1.5 to 2.5 feet of soil was generally pavement materials and imported fill. A dark colored heterogeneous fill of sand, clay and construction debris was encountered below the pavement and imported fill materials and extended to a depth of 6 to 10 feet below grade. A layer of soft silty clay or loose sand was encountered below the heterogeneous fill and extended to a firm soil at a depth of 15 to 20 feet below grade. These are presumably natural deposits. No evidence of standard municipal refuse or paper products was found.

3.0 METHODS

3.1 Site Walk

The site walk was conducted on the morning of September 4, 1986. A Heath DETECTO-PAC II flame ionization detector was used for the site walk. The instrument was calibrated as per the implementation guidelines, and was held a constant 3 inches above the ground by attaching the sample probe to a measuring wheel. The site was walked in an s-shaped pattern, starting in the north west corner, using a 50 foot distance between traverses of the site. Wind speed was monitored periodically during the walk.

3.2 Probe Installation

A centrally located area that was accessible to a drill rig (there was construction activity during the landfill test) was chosen for probe installation for AB 3525 monitoring. Since it was desired that refuse samples be taken, the probe was installed using a 10" auger, with the specifications described in Exhibit 2. These specifications have been used by GSF Energy over the last 7 years and have been found to provide an airtight seal around the boring.

3.3 Gas Sampling

Gas was first measured using a portable MEXA NDIR meter. This meter had been calibrated with 3% calibration gas prior to use. Approximately 200 ml were hand pumped through the meter until no further increase in methane concentrations were shown.

Gas was sampled using a stainless steel sample pump fitted with tygon tubing and operated by a 12 volt power supply. The pump has a 1/2" coupling for a 0.5 liter stainless steel sample cylinder. The pump has a throughput rate of approximately 2 liter/min. The sample bomb was cleaned prior to use by dimethylchlorosilane. We used the silanized cylinder in preference to recommended Tedlar bags because the silanizing agent deactivates the sampler surface, reducing compound adsorption.

Prior to gas sampling, the system was first purged by operating the pump with both valves of the sample bomb open for 30 seconds. The sample was then obtained by closing the downstream valve with the pump running. The sample was collected for 45 seconds.

3.4 GC/MS Analysis

The samples were sent to West Coast Analytical Services for GC/MS analysis for List 1 compounds at a detection limit of 100 ppb. The stated detection limit of AB3525 was not applicable to the samples collected at Emeryville due to relatively high concentrations of low molecular weight alkanes (non-priority pollutants) which interfered with chromatographic separation, MS detection of the specified compounds at the ppb level.

4.0 Results

4.1 Site Walk

Wind speeds were less than 5 mph during the site walk, which is typical for mornings in the Bay Area. No surface methane concentrations above 5 ppm were found. This is not surprising due to the absence of organic wastes noted in the well logs.

4.2 Gas Sampling

Methane content as determined by both NDIR and detailed chromatographic analysis was 5.5%. Analysis for trace components indicated that vinyl chloride was present at 120 ppb. None of the other compounds listed in Appendix 2 were detected at a detection limit of 100 ppb.

4.3 Probe Pressure

The probe pressure was 0.00" H20 which indicates the measured gas was most likely a trapped pocket from an extremely slow generating site, rather than an indication of active generation. GSF believes that a small amount of gas may have been generated by some of the waste oil which is noted in the well logs.

5.0 CONCLUSIONS

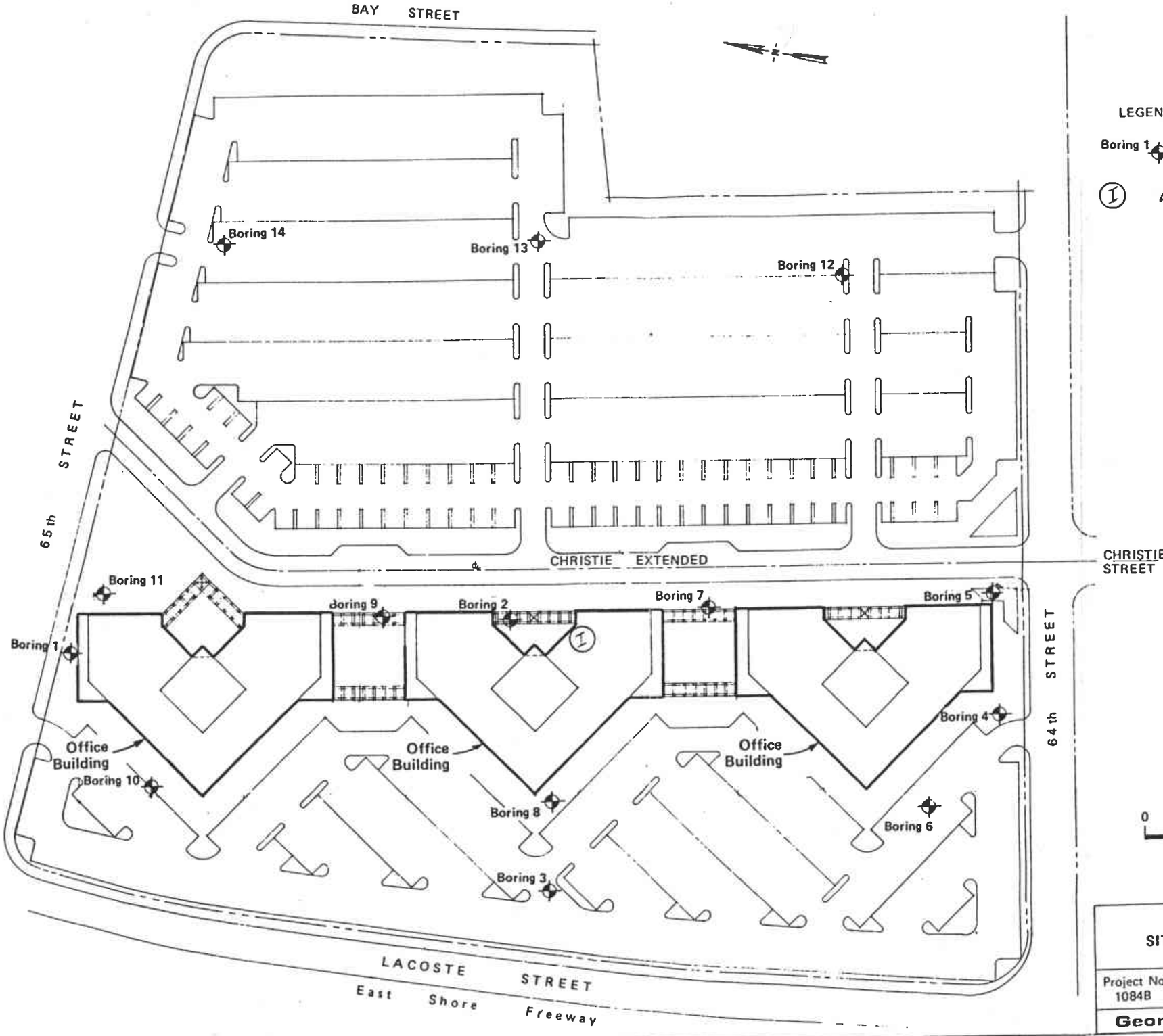
GSF does not recommend further testing of this site for several reasons:

1. Generation of gas is extremely low and should decline over time.

2. No measurable gas was found during the site walk.

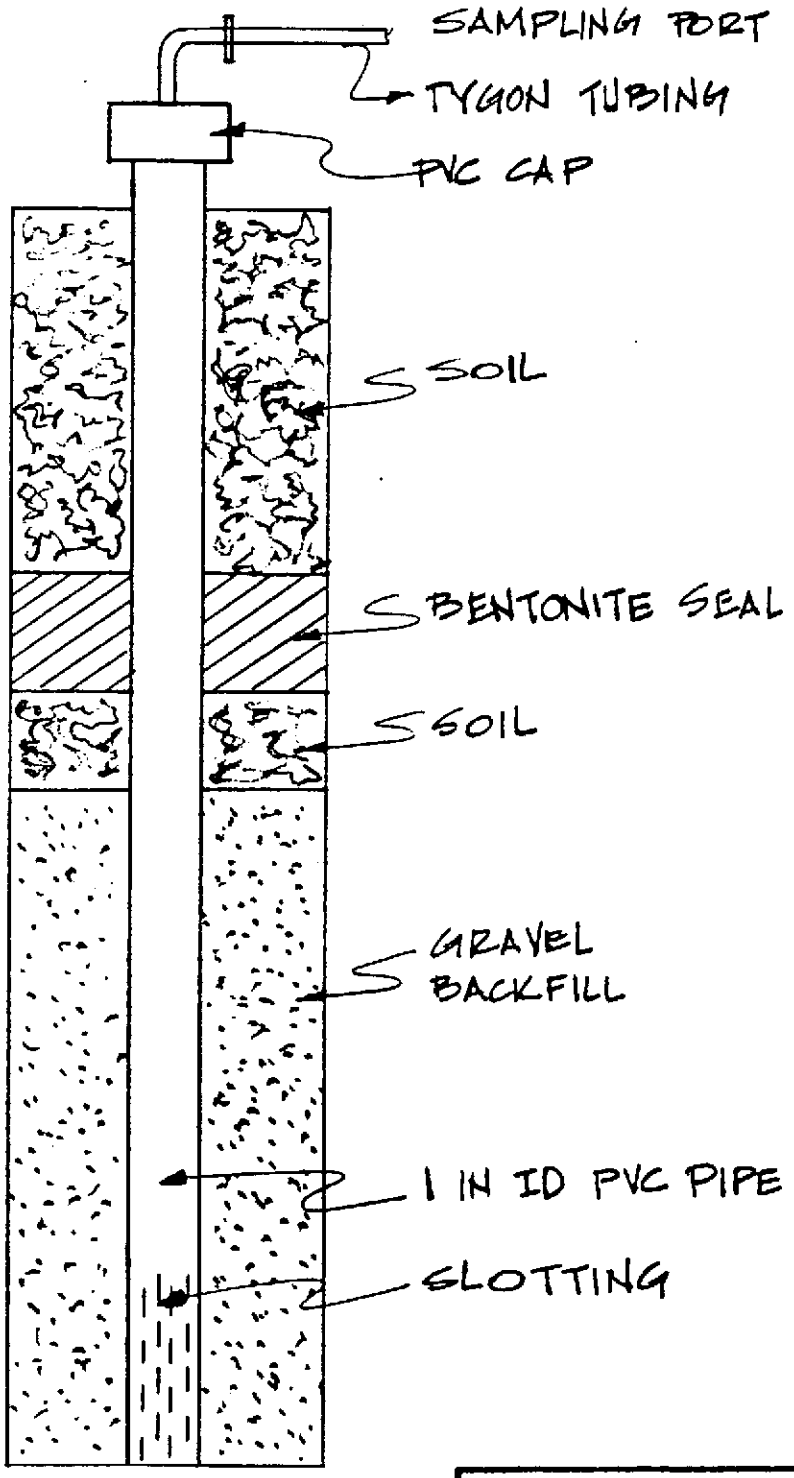
3. The site is of sufficiently small size that it would not significantly impact the air quality of the district.

Exhibit 1



SITE AND BORING LOCATION PLAN

Project No. 1084B	BAY CENTER PROJECT Emeryville, California	Figure 1
Geomatrix Consultants		



GSF Energy Inc.

PROBE DESIGN

Date	By	Drawing No	REV
10-10-86	N. B.	G-A3-47	
Scale NONE	App'd		

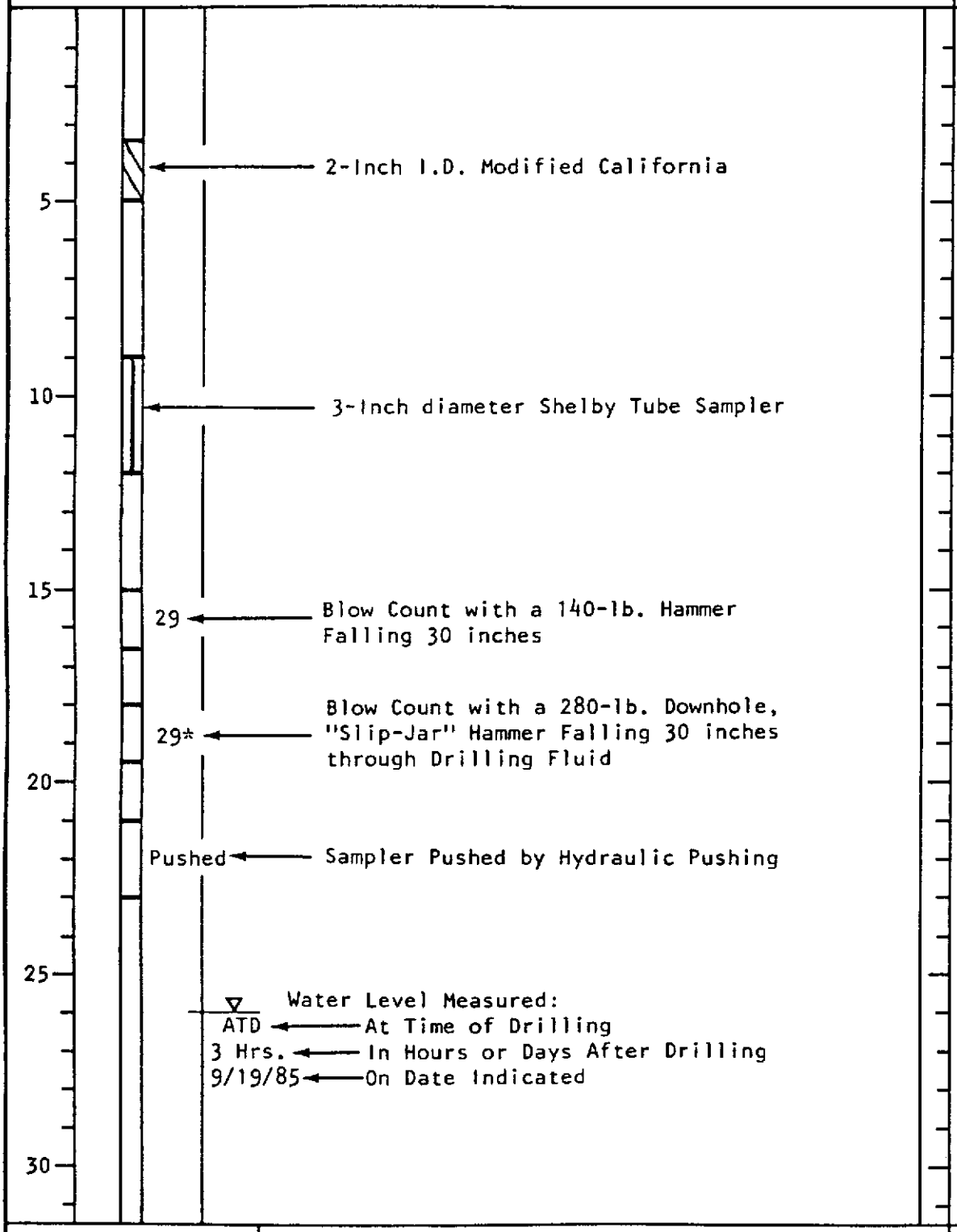
Project: BAY CENTER PROJECT Emeryville, California	BORING LOG LEGEND SHEET

Date Drilled: _____ Remarks: _____

Type of Boring: _____

Hammer Weight: _____

Depth, Ft.	Samples	Blows/Ft.	DESCRIPTION	LABORATORY TESTS: Moisture Content, %	Dry Density, pcf	Unconfined Compressive Strength, psf



Project No. 1084B	Geomatrix Consultants	Figure A-1

Project: BAY CENTER PROJECT
Emeryville, California

Log of Boring No. 1

Date Drilled: 4/23/85
Type of Boring: 8" Hollow Stem Auger
Hammer Weight: 140 lbs.
Remarks:
(See Legend Sheet for sampler types and hammer weights)

Surface Elevation: 11±

Depth, Ft.	Samples	Blows/Ft.	MATERIAL DESCRIPTION	LABORATORY TESTS: Moisture Content, %	Dry Density, pcf	Unconfined Compressive Strength, psf
			10" Asphalt Surfacing and Aggregate Base Material			
	1	12/6"	GRAVELLY CLAY FILL Stiff, moist, yellow-brown	--	---	----
	2	5/6"	CLAY FILL Soft to medium stiff, brown to black, with misc. debris	--	---	----
5	3	3/6"	▽ ATD	--	---	----
			SILTY CLAY (CH) Soft, grey			
10	4	3/6"	←Petroleum oder	--	---	----
			SANDY CLAY (CL) Stiff, grey-green			
15	5	20/6"	SANDY CLAY (CL) Very stiff, brown	--	---	----
20			SILTY SAND (SM) Dense to very dense, brown			
25	6	50/4"		--	---	----
30			SILTY CLAY (CH) Stiff, blue-grey			

Project No. 1084B | Geomatrix Consultants | Figure A-2

Project: BAY CENTER PROJECT
Emeryville, California

Log of Boring No. 1 (Continued)

Depth, Ft.	Samples	Blows/Ft.	MATERIAL DESCRIPTION	Moisture Content, %	Dry Density, pcf	Unconfined Compressive Strength, psf
35	7	13/6"	SILTY CLAY (CH) Stiff, blue-grey	--	---	----
			SILTY SAND (SM) Medium dense, blue-grey			
			Bottom of Boring at 36'			
40						
45						
50						
55						
60						
65						

Project No. 1084B | Geomatrix Consultants | Figure A-3

Project: BAY CENTER PROJECT
Emeryville, California

Log of Boring No. 2

Date Drilled: 4/23/85
Type of Boring: 8" Hollow Stem Auger
Hammer Weight: 140 lbs.

Remarks:

(See Legend Sheet for sampler types and hammer weights)

Surface Elevation: 14±

Depth, Ft.	Samples	Blows/Ft.	MATERIAL DESCRIPTION	LABORATORY TESTS: Moisture Content, %	Dry Density, pcf	Unconfined Compressive Strength, psf
			10" Asphalt Surfacing and Aggregate Base Material			
	1	27/6"	CLAYEY SAND FILL Medium dense, black, with misc. debris (burnt wood, metal, glass, copper wire and slag)	--	---	----
	2	38/6"	} Stiff, black silty clay layer	--	---	----
5	3	26/6"	▽ ATD	--	---	----
			SANDY CLAY FILL Stiff, brown			
			CLAYEY SAND (SC) Loose, blue-grey			
10	4	15/6"	SILTY CLAY (CH) Soft, black and green Petroleum oder	--	---	----
			Bottom of Boring at 10½'			
15						
20						
25						
30						

Project No. 1084B | Geomatrix Consultants | Figure A-4

Project: BAY CENTER PROJECT
Emeryville, California

Log of Boring No. 3

Date Drilled: 4/23/85
Type of Boring: 8" Hollow Stem Auger
Hammer Weight: 140 lbs.

Remarks:

(See Legend Sheet for sampler types and hammer weights)

Surface Elevation: 12±

Depth, Ft.	Samples	Blows/Ft.	MATERIAL DESCRIPTION	LABORATORY TESTS: Moisture Content, %	Dry Density, pcf	Unconfined Compressive Strength, psf
			14" Asphalt Surfacing and Aggregate Base Material			
	1	16/6"	CLAYEY SAND FILL Medium dense, moist, black, with glass, metal and pyrite like crystals	--	---	----
	2	3/6"		--	---	----
			SAND FILL Loose, wet, grey			
5	3	2/6"	SANDY CLAY FILL Stiff, moist, brown	--	---	----
			▽ ATD			
			SILTY SAND FILL Loose, black			
			SILTY CLAY (CH) Soft, blue-grey, with some sand layers			
10	4	3/6"		--	---	----
			Bottom of Boring at 11'			
15						
20						
25						
30						

Project No. 1084B | Geomatrix Consultants | Figure A-5

Project: BAY CENTER PROJECT Emeryville, California	Log of Boring No. 4

Date Drilled: 4/23/85
Type of Boring: 8" Hollow Stem Auger
Hammer Weight: 140 lbs.
Remarks:
(See Legend Sheet for sampler types and hammer weights)

Surface Elevation: 13±

Depth, Ft.	Samples	Blows/Ft.	MATERIAL DESCRIPTION	LABORATORY TESTS: Moisture Content, %	Dry Density, pcf	Unconfined Compressive Strength, psf
			12" Asphalt Surfacing and Aggregate Base			
			GRAVELLY CLAY FILL Stiff, moist, yellow-brown			
	1	22/6"	MIXED CLAY AND SAND FILL Black, with misc. debris	--	---	----
5	2	3/6"	← Seepage	--	---	----
			SILTY CLAY (CH) Soft, black, with organic material			
			▽ ATD			
10	3	1/6"	← Petroleum oder	--	---	----
15	4	2/6"		--	---	----
			SILTY SAND (SM-SP) Loose, gray, with some clay layers			
20						
			SILTY CLAY (CL) Very stiff, brown			
25	5	12/6"		--	---	----
			SILTY SAND (SM-SP) Medium dense to dense, brown			
30						

Project No. 1084B	Geomatrix Consultants	Figure A-6

Project: BAY CENTER PROJECT
Emeryville, California

Log of Boring No. 4 (Continued)

Depth, Ft.	Samples	Blows/Ft.	MATERIAL DESCRIPTION	Moisture Content, %	Dry Density, pcf	Unconfined Compressive Strength, psf
35	6	15/6"	SILTY SAND (SM-SP) Medium dense to dense, brown	--	---	----
			Bottom of Boring at 36'			
40						
45						
50						
55						
60						
65						

Project No. 1084B | Geomatrix Consultants | Figure A-7

Project: BAY CENTER PROJECT
Emeryville, California

Log of Boring No. 5

Date Drilled: 9/18/85
Type of Boring: 4" Rotary
Hammer Weight: 280 lbs.

Remarks:

(See Legend Sheet for sampler types and hammer weights)

Surface Elevation: 14±

Depth, Ft.	Samples	Blows/Ft.	MATERIAL DESCRIPTION	LABORATORY TESTS: Moisture Content, %	Dry Density, pcf	Unconfined Compressive Strength, psf
			3" Asphalt Surfacing			
			CLAYEY SAND FILL Dense, brown, with rock fragments			
5			CLAYEY SAND FILL Loose, dark brown, with misc. debris (glass, wood, steel)			
			SILTY CLAY FILL Soft to medium stiff, dark grey, with misc. debris			
10	1	6*	Wood, brick, slag (oily)	28	94	----
15	2	4*		No Recovery		
20	3	52*	GRAVELLY SAND (SW) Dense, orange-brown	21	102	----
25	4	34*	SANDY CLAY (CL) Very stiff, orange-brown	No Recovery		
	5	31*		19	112	----
30	6	76/6"*	SILTY SAND (SP-SM) Dense, orange-brown	--	---	----

Project No. 1084B | Geomatrix Consultants | Figure A-8

Project: BAY CENTER PROJECT
Emeryville, California

Log of Boring No. 5 (Continued)

Depth, Ft.	Samples	Blows/Ft.	MATERIAL DESCRIPTION	Moisture Content, %	Dry Density, pcf	Unconfined Compressive Strength, psf
			SILTY SAND (SP-SM) Dense, orange-brown			
35	7	19*	SILTY CLAY (CL) Stiff, grey, with some sand	No Recovery		
	8	30*		19	111	1920
40	9	63/6"*	SILTY SAND (SM-SP) Very dense, dark grey	--	---	----
45	10	36*	SILTY CLAY (CL) Very stiff, dark gray	22	104	6150
			Becoming sandy clay			
50	11	59*	Becoming grey silty clay	20	108	6630
55						
			Becoming dark grey and stiff			
60	12	24*		40	80	2600
65						

Project No. 1084B | Geomatrix Consultants | Figure A-9

Project: BAY CENTER PROJECT
Emeryville, California

Log of Boring No. 5 (Continued)

Depth, Ft.	Samples	Blows/Ft.	MATERIAL DESCRIPTION	Moisture Content, %	Dry Density, pcf	Unconfined Compressive Strength, psf
			SILTY CLAY (CL) Stiff, dark grey			
70	13	67*	SANDY CLAY (CL) Very stiff, orange-brown, with some gravel	24	100	3790
75						
80			GRAVELLY SAND (SW) Very dense, orange-brown			
	14	57*	SANDY CLAY (CL) Very stiff, orange-brown	22	105	2580
85						
90	15	60*	SILTY CLAY (CL) Very stiff, orange-brown mottled with grey with some gravel	22	104	5570
			Becoming sandy clay (CL)			
95						
	16	79*	Bottom of Boring at 100'	22	104	1860

Project No. 1084B | Geomatrix Consultants | Figure A-10

Project: BAY CENTER PROJECT Emeryville, California	Log of Boring No. 6

Date Drilled: 9/19/85 Remarks:

Type of Boring: 4" Rotary

Hammer Weight: 280 lbs. (See Legend Sheet for sampler types and hammer weights)

Surface Elevation: 15±

Depth, Ft.	Samples	Blows/Ft.	MATERIAL DESCRIPTION	LABORATORY TESTS: Moisture Content, %	Dry Density, pcf	Unconfined Compressive Strength, psf
5			SILTY CLAY FILL Stiff, grey-brown, with gravel and misc. debris (metal, wire, etc.) Becoming soft and dark grey (debris includes bricks, glass, and metal)			
10	1	7*		--	---	----
15	2	2*	SILTY CLAY (FILL ?) Soft, light grey, with dark grey streaking	67	59	330
20	3	16*	CLAYEY SAND (SC) Medium dense, grey, with shells	--	---	----
			SILTY CLAY (CL) Stiff, orange-brown, with sand			
25	4	59*		--	---	----
			CLAYEY SAND (SC) Dense, grey-brown			
30	5	29*		19	111	----

Project No. 1084B | Geomatrix Consultants | Figure A-11

Project: BAY CENTER PROJECT
Emeryville, California

Log of Boring No. 6 (Continued)

Depth, Ft.	Samples	Blows/Ft.	MATERIAL DESCRIPTION	Moisture Content, %	Dry Density, pcf	Unconfined Compressive Strength, psf
35	6	70/6" *	CLAYEY SAND (SC) Dense, grey-brown	--	---	----
40	7	93*	SILTY CLAY (CL) Stiff, grey	--	---	----
45	8	63/6" *	SILTY SAND (SP-SM) Dense, dark grey	--	---	---
50	9	47*	SILTY CLAY (CL) Very stiff, dark grey, with some sand Becoming sandier	21	106	6590
55			Less sand			
60	10	98*	SILTY CLAY (CL) Very stiff, brown	--	---	----
65			Bottom of Boring at 61½'			

Project No. 1084B | Geomatrix Consultants | Figure A-12

Project: BAY CENTER PROJECT Emeryville, California	Log of Boring No. 7

Date Drilled: 9/16/85 Remarks:

Type of Boring: 4" Rotary

Hammer Weight: 140 lbs. (See Legend Sheet for sampler types and hammer weights)

Surface Elevation: 15±

Depth, Ft.	Samples	Blows/Ft.	MATERIAL DESCRIPTION	LABORATORY TESTS: Moisture Content, %	Dry Density, pcf	Unconfined Compressive Strength, psf
			4" Asphalt Surfacing			
			CLAYEY SAND FILL Dense, grey-brown, with rock fragments			
			CLAYEY SAND FILL Loose, dark grey, with organic material and misc debris (metal, glass, wood, bricks, etc.)			
5			Becoming more clayey with rocks, slag and oily materials			
10			Rock			
15						
			SANDY CLAY (CL) Medium stiff to stiff, orange-brown			
20	1	16		25	100	2350
25			Grading to grey-brown sandy clay (CL)			
	2	21		19	110	4780
30	3	34		23	101	----

Project No. 1084B | Geomatrix Consultants | Figure A-13

Project: BAY CENTER PROJECT
Emeryville, California

Log of Boring No. 7 (Continued)

Depth, Ft.	Samples	Blows/Ft.	MATERIAL DESCRIPTION	Moisture Content, %	Dry Density, pcf	Unconfined Compressive Strength, psf
35	4	87/6"	SILTY CLAY (CL) Stiff, dark grey, with some sand			
			SILTY SAND (SP-SM) Very dense, grey-brown	19	110	260
40	5	36	SANDY CLAY (CL) Stiff, dark grey	18	113	780
45	6	34		24	101	6340
			SILTY CLAY (CL) Very stiff, dark grey Becoming sandy clay			
50	7	43		18	111	5760
55			SILTY CLAY (CL) Very stiff, orange-brown Grading to grey silty clay			
	8	30		35	87	4610
60			Bottom of Boring at 60'			
65						

Project No. 1084B | Geomatrix Consultants | Figure A-14

Project: BAY CENTER PROJECT Emeryville, California	Log of Boring No. 8

Date Drilled: 9/17/85 Remarks:

Type of Boring: 4" Rotary

Hammer Weight: 140 and 280 lbs. (See Legend Sheet for sampler types and hammer weights)

Depth, Ft.	Samples	Blows/Ft.	MATERIAL DESCRIPTION	LABORATORY TESTS: Moisture Content, %	Dry Density, pcf	Unconfined Compressive Strength, psf
			Surface Elevation: 13±			
			4" Asphalt Surfacing CLAYEY SAND FILL Medium dense, brown, with gravel			
5			CLAYEY SAND FILL Loose, brown, with construction debris (concrete, bricks, rocks, steel) Becoming black and oily			
10	1	3	SILTY CLAY FILL Soft, dark grey (less debris)	28	95	----
15	2	18	SILTY SAND (SP-SM) Loose, dark grey, with some shells	--	---	----
20	3	34	SILTY SAND (SP-SM) Medium dense to dense, orange-brown	19	113	----
25	4	24	Medium stiff, orange-brown, sandy clay (CL)	18	112	2240
30	5	101	Becoming very dense	--	---	----

Project No. 1084B	Geomatrix Consultants	Figure A-15

Project: BAY CENTER PROJECT
Emeryville, California

Log of Boring No. 8 (Continued)

Depth, Ft.	Samples	Blows/Ft.	MATERIAL DESCRIPTION	Moisture Content, %	Dry Density, pcf	Unconfined Compressive Strength, psf
35	6	59/6"*	SILTY SAND (SP-SM) Very dense, orange-brown	--	---	----
40	7	57	SILTY SAND (SP-SM) Very dense, dark grey	--	---	----
45	8	49*	SANDY CLAY (CL) Very stiff, dark grey	22	105	7270
50	9	32*	Grading to clayey sand (SC) Increasing gravel content	16	115	1480
55			SANDY CLAY (CL) Very stiff, orange-brown Becoming silty clay (CL)			
60	10	46*	SILTY CLAY (CL) Stiff, gray-brown	31	90	2110
65						

Proj. No. | Geomatrix Consultants | Figure A-16

Project: BAY CENTER PROJECT
Emeryville, California

Log of Boring No. 8 (Continued)

Depth, Ft.	Samples	Blows/Ft.	MATERIAL DESCRIPTION	Moisture Content, %	Dry Density, pcf	Unconfined Compressive Strength, psf
			Increasing sand content Becoming plastic silty clay (CH)			
70	11	56*		21	105	6640
75			GRAVELLY SAND (SW) Very dense, orange-brown, with gravel to 1" diam.			
80	12	81 6"*		--	---	----
85						
90	13	72*	SILTY CLAY (CL) Very stiff, light grey	23	101	4730
95			Grading to grey-brown			
100	14	34 6"*	Bottom of Boring at 101½'	23	101	7570

Project No. 1084B | Geomatrix Consultants | Figure A-17

Project: BAY CENTER PROJECT Emeryville, California	Log of Boring No. 9

Date Drilled: 9/13/85
Type of Boring: 4" Rotary
Hammer Weight: 140 lbs.
Remarks:
(See Legend Sheet for sampler types and hammer weights)

Surface Elevation: 13±

Depth, Ft.	Samples	Blows/Ft.	MATERIAL DESCRIPTION	LABORATORY TESTS: Moisture Content, %	Dry Density, pcf	Unconfined Compressive Strength, psf
			10" Asphalt Surfacing			
			CLAYEY SAND FILL Medium dense, grey			
5			CLAYEY FILL Medium stiff, green-grey, with organic material and misc. debris			
10			SILTY SAND FILL Loose, grey to black, with wood and rock fragments (slag ?)			
15			SILTY CLAY FILL Soft, black, with organic material, wood and glass (oily)			
	1	14		--	---	----
			SILTY SAND (SM-SP) Loose, black, with shells			
20	2	19	CLAYEY SAND (SC) Medium dense, orange-brown, with some gravel to 1/4" diam.	21	106	990
25	3	30	Grading to silty sand (SP-SM)	19	110	----
30	4	24	SILTY CLAY (CL-CH) Stiff, dark grey	37	82	3030

Project No. 1084B | Geomatrix Consultants | Figure A-18

Project: BAY CENTER PROJECT
Emeryville, California

Log of Boring No. 9 (Continued)

Depth, Ft.	Samples	Blows/Ft.	MATERIAL DESCRIPTION	Moisture Content, %	Dry Density, pcf	Unconfined Compressive Strength, psf
			SILTY CLAY (CL-CH) Stiff, dark grey			
35	5	28	SILTY SAND (SP-SM) Dense, brown to grey } Stiff, silty clay (CL-CH)	--	---	----
40	6	44	SANDY CLAY (CL) Very stiff, dark grey	--	---	----
45	7	44	SILTY CLAY (CL) Very stiff, grey-brown	18	111	6090
50	8	25		29	93	3860
55	9	17	SILTY CLAY (CL) Stiff, grey	39	81	3420
60			Bottom of Boring at 60'			
65						

Project No. 1084B | Geomatrix Consultants | Figure A-19

Project:	BAY CENTER PROJECT Emeryville, California	Log of Boring No. 10

Date Drilled: 9/12/85
Type of Boring: 4" Rotary
Hammer Weight: 140 lbs.
Remarks:
(See Legend Sheet for sampler types and hammer weights)

Surface Elevation: 12±

Depth, Ft.	Samples	Blows/Ft.	MATERIAL DESCRIPTION	LABORATORY TESTS: Moisture Content, %	Dry Density, pcf	Unconfined Compressive Strength, psf
			5" Concrete Slab			
			FILL Medium dense, clayey gravel			
			CLAYEY SAND FILL Loose, dark brown, with organic materials and misc. debris (wood, bricks, glass, etc.)			
5						
			CLAYEY FILL Soft, black, with organic material and debris			
10			Rock fragments (slag ?)			
15	1	Pushed	SILTY CLAY (CH) Soft, blue-grey	--	---	----
			SANDY CLAY (CL) Stiff, orange-brown, with some gravel			
20			Increasing gravel content			
	2	20	SILTY CLAY (CL-CH) Stiff, orange-brown	23	101	4880
			Becoming very stiff			
25	3	52		--	---	----
			SILTY SAND (SP-SM) Very dense, orange-brown			
30	4	23	SILTY CLAY (CL-CH) Stiff, grey	27	97	4590

Project: BAY CENTER PROJECT
Emeryville, California

Log of Boring No. 10 (Continued)

Depth, Ft.	Samples	Blows/Ft.	MATERIAL DESCRIPTION	Moisture Content, %	Dry Density, pcf	Unconfined Compressive Strength, psf
			SILTY CLAY (CL-CH) Stiff, grey			
35	5	105	SILTY SAND (SP-SM) Very dense, grey-brown	--	---	----
			SILTY CLAY (CL-CH) Stiff, grey			
40	6	110	SILTY SAND (SP-SM) Very dense, dark grey	--	---	----
			SANDY CLAY (CL) Stiff, dark grey			
45	7	18		23	102	2020
			Becoming light grey and very stiff			
50	8	66		17	101	7490
			Bottom of Boring at 51½'			
55						
60						
65						

Project No. 1084B | Geomatrix Consultants | Figure A-21

Project: BAY CENTER PROJECT Emeryville, California	Log of Boring No. 11

Date Drilled: 9/10/85 and 9/12/85
Type of Boring: 4" Rotary
Hammer Weight: 140 lbs.
Remarks:
(See Legend Sheet for sampler types and hammer weights)

Surface Elevation: 11±

Depth, Ft.	Samples	Blows/Ft.	MATERIAL DESCRIPTION	LABORATORY TESTS: Moisture Content, %	Dry Density, pcf	Unconfined Compressive Strength, psf
			4" Asphalt Surfacing			
			CLAYEY SAND FILL Medium dense, brown, with rock fragments to 2" diam.			
			CLAYEY FILL Soft, dark brown, with misc. debris (wood, glass, slag, etc.)			
5			▽ 9/11/85 7:00am } Wood			
10						
	1	2	SILTY CLAY (CL-CH) Soft, dark grey, with some shells	44	76	----
15						
	2	25	SANDY CLAY (CL) Stiff, orange-brown, with some gravel	22	105	6330
20						
	3	38	SILTY SAND (SP-SM) Dense, brown	--	---	----
25						
	4	25	} Stiff, grey, silty clay (CL-CH)	27	95	3330
30						

Project No. 1084B	Geomatrix Consultants	Figure A-22

Project: BAY CENTER PROJECT
Emeryville, California

Log of Boring No. 11 (Continued)

Depth, Ft.	Samples	Blows/Ft.	MATERIAL DESCRIPTION	Moisture Content, %	Dry Density, pcf	Unconfined Compressive Strength, psf
			SILTY SAND (SP-SM) Dense, brown			
	5	26		28	94	2020
35			SILTY CLAY (CL) Stiff, dark grey			
	6	39		26	97	2550
40			GRAVELLY SAND Dense, grey-brown			
	7	30	SANDY CLAY (CL-CH) Stiff to very stiff, grey	23	102	2380
45			Increasing gravel content			
			SILTY CLAY (CH) Very stiff, grey, with some gravel			
	8	25		27	96	5470
50			Becoming brown			
	9	46		No Recovery		
55			Becoming blue-gray			
	10	39		--	---	----
60			SILTY SAND (SM-SP) Dense, blue-grey, with alternating strata of stiff silty clay			
	11	48		21	105	5610
65			SANDY CLAY (CL) Very stiff, brown mottled with grey			

Project No. 1084B | Geomatrix Consultants | Figure A-23

Project: BAY CENTER PROJECT
Emeryville, California

Log of Boring No. 11 (Continued)

Depth, Ft.	Samples	Blows/Ft.	MATERIAL DESCRIPTION	Moisture Content, %	Dry Density, pcf	Unconfined Compressive Strength, psf
			SANDY CLAY (CL) Very stiff, brown mottled with grey			
	12	49		--	---	----
70			GRAVELLY SAND (SW) Dense, orange-brown			
			GRAVELLY CLAY			
	13	55	Very stiff, orange-brown	14	119	3700
75						
			SILTY CLAY (CL) Very stiff, light grey			
	14	32		21	105	7220
80			Becoming sandy clay			
	15	46		21	104	7760
85			CLAYEY SAND (SC) Dense, orange-brown, with some gravel to 3/4"			
	16	73		15	117	4280
90			SANDY CLAY Very stiff, orange-brown			
	17	90		17	113	7180
95			GRAVELLY SAND (SP) Very dense, orange-brown, with gravel to 1½" diam.			
	18	84	Bottom of Boring at 99½'	16	111	2960

Project No. 1084B | Geomatrix Consultants | Figure A-24

Project: BAY CENTER PROJECT
Emeryville, California

Log of Boring No. 12

Date Drilled: 9/19/85
Type of Boring: 6" Auger
Hammer Weight: —

Remarks:

(See Legend Sheet for sampler types and hammer weights)

Depth, Ft.	Samples	Blows/Ft.	MATERIAL DESCRIPTION	LABORATORY TESTS: Moisture Content, %	Dry Density, pcf	Unconfined Compressive Strength, psf
			Surface Elevation: 14±			
			2" Asphalt Surfacing, 4" Aggregate Base			
			SANDY GRAVEL FILL Grey with some cobbles			
			SILTY CLAY FILL Dark grey, with sand and gravel and some bricks			
5						
			Bottom of Boring at 7'			
10						
15						
20						
25						
30						

Project No. 1084B | Geomatrix Consultants | Figure A-25

Project: BAY CENTER PROJECT Emeryville, California	Log of Boring No. 13

Date Drilled: 9/19/85 Remarks:

Type of Boring: 6" Auger

Hammer Weight: ——— (See Legend Sheet for sampler types and hammer weights)

Depth, Ft.	Samples	Blows/Ft.	MATERIAL DESCRIPTION	LABORATORY TESTS: Moisture Content, %	Dry Density, pcf	Unconfined Compressive Strength, psf
			Surface Elevation: 12±			
			2" Asphalt Surfacing, 4" Aggregate Base			
			SILTY CLAY FILL Brown, with gravel			
			SILTY CLAY FILL Dark grey, with wood, metal, bricks, and wire			
5			Bottom of Boring at 5'			
10						
15						
20						
25						
30						

Project: BAY CENTER PROJECT
Emeryville, California

Log of Boring No. 14

Date Drilled: 9/19/85
Type of Boring: 6" Auger
Hammer Weight: ———
Remarks:
(See Legend Sheet for sampler types and hammer weights)

Depth, Ft.	Samples	Blows/Ft.	MATERIAL DESCRIPTION	LABORATORY TESTS: Moisture Content, %	Dry Density, pcf	Unconfined Compressive Strength, psf
			Surface Elevation: 12±			
			2" Asphalt Surfacing, 4" Aggregate Base			
			SANDY GRAVEL FILL Grey, with some cobbles			
			SILTY CLAY FILL Grey, with sand and gravel			
5			SILTY CLAY FILL Dark grey, with bricks, wood, rocks, metal, and wire			
			Bottom of Boring at 5'			
10						
15						
20						
25						
30						

Project No. 1084B | Geomatrix Consultants | Figure A-27

WEST COAST ANALYTICAL SERVICE, INC.

CLIENT: GETTY SYNTHETIC FUELS, INC.
SAMPLE: A2502
ANALYSIS TYPE: GAS PHASE VOLATILE COMPOUNDS

ORGANICS ANALYSIS DATA RESULTS

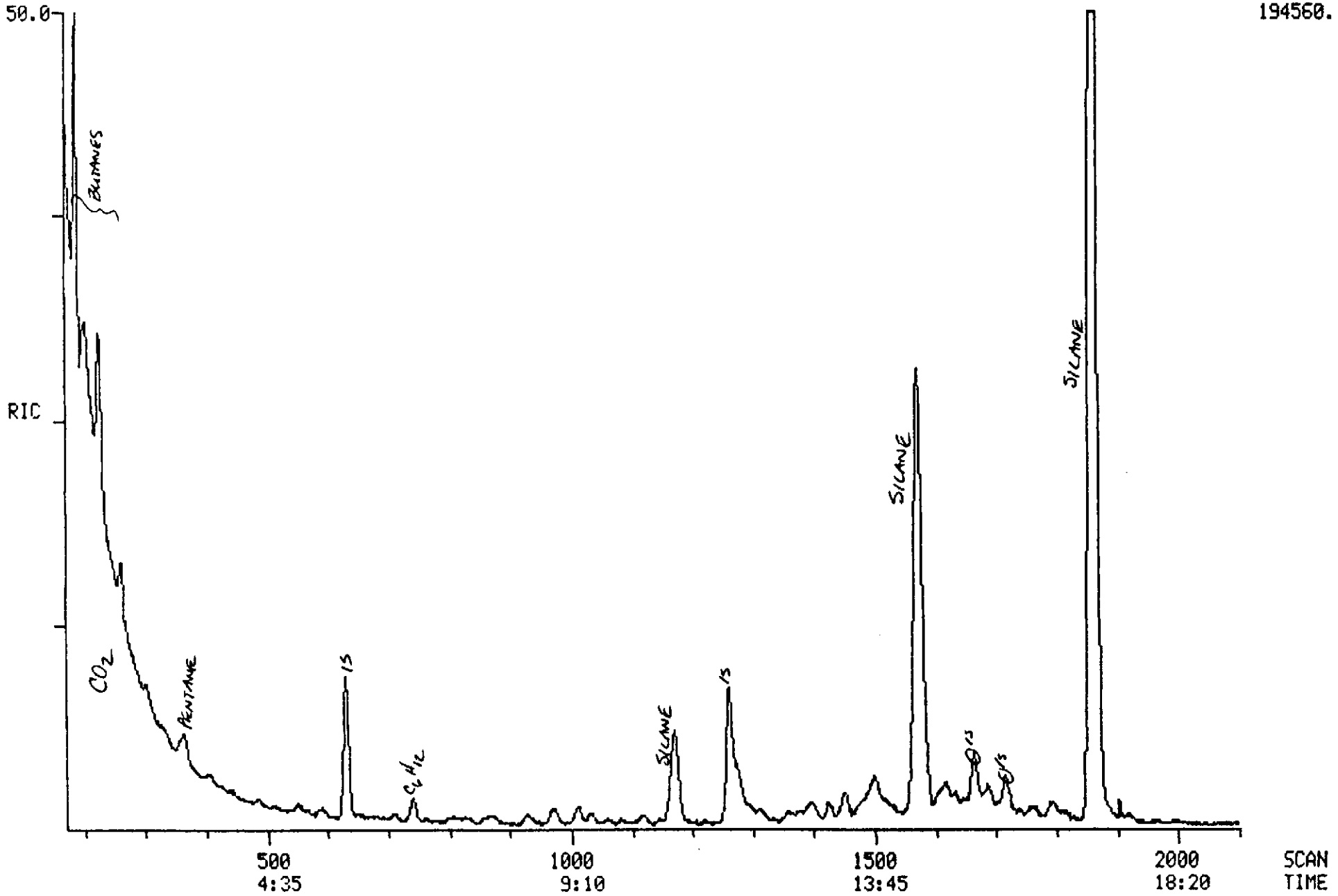
DATE RECEIVED:	09/19/86	GCMS FILENAME:	4104G1
LEVEL:	LOW	MATRIX:	GAS
DATE PREPARED:	10/02/86	DATE ANALYZED:	10/02/86
STANDARD ID:	GAS134, 137	INSTRUMENT ID:	5100
SAMPLE AMOUNT:	1ML		

CAS #	COMPOUND	CONC: PPB (V/V)	DETECTION LIMIT
74-87-3	CHLOROMETHANE	ND	100.
74-83-9	BROMOMETHANE	ND	100.
75-01-4	VINYL CHLORIDE	120.	100.
75-00-3	CHLOROETHANE	ND	100.
75-09-2	METHYLENE CHLORIDE	ND	100.
67-64-1	ACETONE	ND	100.
107-02-8	ACROLEIN	ND	100.
107-13-1	ACRYLONITRILE	ND	100.
75-15-0	CARBON DISULFIDE	ND	100.
75-35-4	1,1-DICHLOROETHENE	ND	100.
75-34-3	1,1-DICHLOROETHANE	ND	100.
156-60-5	TRANS-1,2-DICHLOROETHENE	ND	100.
540-59-0	CIS-1,2-DICHLOROETHYLENE	ND	100.
109-99-9	TETRAHYDROFURAN	ND	100.
75-71-8	DICHLORODIFLUOROMETHANE	ND	100.
75-69-4	TRICHLOROFLUOROMETHANE	ND	100.
76-13-1	FREON-TF	ND	100.
106-93-4	ETHYLENE DIBROMIDE	ND	100.
123-91-1	1,4-DIOXANE	ND	100.
96-12-8	1,2-DIBROMO-3-CHLOROPROPANE	ND	100.
67-66-3	CHLOROFORM	ND	100.
107-66-2	1,2-DICHLOROETHANE	ND	100.
78-93-3	2-BUTANONE	ND	100.
71-55-6	1,1,1-TRICHLOROETHANE	ND	100.
16-23-5	CARBON TETRACHLORIDE	ND	100.
108-05-4	VINYL ACETATE	ND	100.
75-27-4	BROMODICHLOROMETHANE	ND	100.
79-34-5	1,1,2,2-TETRACHLOROETHANE	ND	100.
78-87-5	1,2-DICHLOROPROPANE	ND	100.
10061-02-6	TRANS-1,3-DICHLOROPROPENE	ND	100.
79-01-6	TRICHLOROETHENE	ND	100.
124-48-1	CHLORODIBROMOMETHANE	ND	100.
79-00-5	1,1,2-TRICHLOROETHANE	ND	100.
71-43-2	BENZENE	ND	100.
10061-01-5	CIS-1,3-DICHLOROPROPENE	ND	100.
110-75-8	2-CHLOROETHYLVINYL ETHER	ND	100.
75-25-2	BROMOFORM	ND	100.
119-78-6	2-HEXANONE	ND	100.
108-10-1	4-METHYL-2-PENTANONE	ND	100.

RIC
10/02/86 17:44:00
SAMPLE: GETTY - A2502 1ML
CONDS.: 30M X 0.32MM DB-1
RANGE: G 1,2100 LABEL: N 0, 4.0 QUAN: A 0, 1.0 J 0 BASE: U 20, 3

DATA: 4104G1 #1861
CALI: 82586C1 #3

SCANS 170 TO 2100



WEST COAST ANALYTICAL SERVICE, INC.

CLIENT: GETTY SYNTHETIC FUELS, INC.
SAMPLE: A2502
ANALYSIS TYPE: GAS PHASE VOLATILE COMPOUNDS

ORGANICS ANALYSIS DATA RESULTS

DATE RECEIVED:	09/19/86	GCMS FILENAME:	4104G1
LEVEL:	LOW	MATRIX:	GAS
DATE PREPARED:	10/02/86	DATE ANALYZED:	10/02/86
STANDARD ID:	GAS134,137	INSTRUMENT ID:	5100
SAMPLE AMOUNT:	1ML		

CAS #	COMPOUND	CONC: PPB (V/V)	DETECTION LIMIT
127-18-4	TETRACHLOROETHENE	ND	100.
108-88-3	TOLUENE	ND	100.
108-90-7	CHLOROBENZENE	ND	100.
100-41-4	ETHYLBENZENE	ND	100.
100-42-5	STYRENE	ND	100.
95-47-6	TOTAL XYLENES	ND	100.
108-41-8	M-CHLOROTOLUENE	ND	100.
541-73-1	1,3-DICHLOROBENZENE	ND	100.
106-46-7	1,4-DICHLOROBENZENE	ND	100.
95-50-1	1,2-DICHLOROBENZENE	ND	100.
91-20-3	NAPHTHALENE	ND	100.