CAMBRIA

July 13, 1998

Mr. Scott Seery
Alameda County Health Care Services Agency
Environmental Health Services
1131 Harbor Bay Parkway, Suite 250
Alameda, California 94502

Re: **System Installation Report**
Former Shell Branded Service Station
15275 Washington Avenue
San Leandro, California
WIC# 204-6852-1108
Cambria Project # 240-0933

Dear Mr. Seery:

On behalf of Equilon Enterprises LLC (Equilon), Cambria Environmental Technology (Cambria) is submitting this system installation report for the site referenced above. The soil vapor extraction system (SVE) was constructed in accordance with the June 24, 1997 Corrective Action Plan (CAP), submitted by Enviros, Inc. of Sonoma, California and approved in the Alameda County Health Care Services Agency (ACHCSA) January 12, 1998 letter to Shell Oil Products Company (Shell). The objective of the CAP was to remediate the hydrocarbon source area to levels of which natural attenuation would remediate any residual hydrocarbons. Enviros recommended installing a SVE system for source area hydrocarbon removal and to limit the volatilization of hydrocarbons to indoor air. Presented below are a site summary, system installation and startup activities, and future remedial activities.

SITE SUMMARY

Site Location: The site is located at the intersection of Lewelling and Washington Avenue in San Leandro, California (Figure 1).

Site Lithology: The subsurface geology consists primarily of a low permeability clay (CL and CH) with interspersed discreet stingers of sand (SC, SM and SP) and silt (ML).

Ground Water Depth and Flow Direction: Stabilized depths to ground water have ranged from approximately 4.5 to 9 feet below ground surface (ft bgs). Historical ground water flow has been predominately to the south/southwest.

Underground Storage Tank (UST) Removal: On June 6, 1987, the waste oil tank was replaced with

Oakland, CA
Sonoma, CA
Portland, OR
Seattle, WA

Cambria Environmental Technology, Inc.

1144 65th Street
Suite B
Oakland, CA 94608
Tel (510) 420-0700
Fax (510) 420-9170

June 22, 1987. Soils were over-excavated to a depth of 13 ft bgs and approximately 2 to 4 ft beyond the dimensions of the waste oil tank.

On June 9, 1987, four fuel USTs were removed; 2-5,000 gallon tanks, 1-8,000 gallon tank and 1-7,500 gallon tank. These tank removals are described in the Kaprealian Engineering, Inc. report dated June 24, 1987. Due to exposed underground utilities, over-excavation was not performed. Approximately 500 cubic yards of soil were stockpiled on-site for aeration.

Well Installations: A total of nineteen monitoring wells and one soil vapor extraction well have been installed at the site. In May 1987, wells, S-2 and S-4 were destroyed during on-site construction activities.

Remedial Activities: In March 1990, GeoStrategies, Inc. (GSI) performed a variable discharge pump test in Well SR-1, and slug tests in wells S-1, S-3, S-5, S-7, S-9, S-10, S-13, S-14 and S-16. The variable test lasted 52 minutes at a pumping rate of 2 gallons per minute. The results of these tests indicated the aquifer beneath the subject property demonstrated very low yield. Data derived from the slug tests indicated transmissivity values ranged from 408 to 11,000 gallons per day per foot. GSI recommended that the Benzene Transport Model developed by Shell be used to track plume attenuation.

Enviros, Inc. of Sonoma, California performed a one-day soil vapor extraction test on July 30, 1997. Enviros concluded the use of SVE is viable for removal of residual hydrocarbons present in soils and ground water at the site.

SYSTEM INSTALLATION AND STARTUP ACTIVITIES

Air Discharge Permit: Prior to system installation, Cambria obtained an air discharge permit from Bay Area Air Quality Management District (BAAQMD). Permit #18341 is included in Attachment A.

Remediation Well Installation: Prior to system installation, Cambria constructed one SVE well (SV-1). The construction details were presented in a report dated May 14, 1998.

Wellhead Modification: Prior to system installation, **Cambria modified wells S-1, S-3, S-5, S-7, S-8 and SR-1 to allow SVE. In addition, two horizontal SVE pipes were installed 3 ft bgs on the east and west sides of the existing building** (Figure 1).

System Installation: Each of the modified wells and the two horizontal sve pipes were manifolded below grade to a concrete pad and connected to a 100 cubic feet per minute (cfm) King, Buck/Hasstech all electric, catalytic oxidizer.

Startup Testing and System Performance: **Source testing of the SVE system was conducted on May 18, 1998. Continuous operation of the SVE system began on May 21, 1998.** Source test sample results indicate

the influent concentration of TPHg to the catox was 1600 parts per million by volume (ppmv). Based on source test results, the average TPHg removal rate was calculated at 33 pounds per day (ppd). An SVE system performance summary is presented in Table 1.

Noise Survey: On June 3, 1998 Cambria conducted a noise survey to determine the decibel (db) level surrounding the remediation equipment enclosure. Decibel readings were collected using a Greenlee model 93-20 sound level meter with a range of 35-120 db. While the remediation equipment was turned off, background db levels ranged from 60-74 db, when measuring adjacent to the nearest residence in proximity to the remediation compound. **With the remediation equipment operating, the db levels ranged from 62-76 db when measuring adjacent to the nearest residence** in proximity to the remediation compound.

While the remediation equipment is operating the db level adjacent to the nearest residence increases from approximately 60 db to approximate 62 db. However, peak db readings near the residence were 74-76 db depending on the amount and type of traffic on Lewelling Avenue. In our opinion, the noise generated from the operation of the remediation equipment is negligible when compared to background traffic noise in the area.

System Operation and Maintenance (O&M): **Cambria will conduct two O&M visits during each month** of operation to optimize hydrocarbon removal rates from the system, and to perform the required analyses to verify that the system is operating within the BAAQMD permit conditions.

Quarterly Reporting: Cambria will include a remediation system performance summary concurrently with quarterly ground water monitoring reports. The system performance summary parameters reported include hydrocarbon concentrations in extracted vapor, system flow rates, hydrocarbon removal rates, and hydrocarbon emission rates.

System Shutdown: When the hydrocarbon concentrations decrease to low, asymptotic concentrations and system cycling does not result in cost-effective hydrocarbon removal rates, we will submit a request to shut down the remediation system.

FUTURE REMEDIAL ACTIVITIES

ORC Installation: Upon completion of SVE activities and system shutdown, Cambria may install ORCs in several selected site wells to expedite natural attenuation of hydrocarbons in ground water. Cambria will measure dissolved oxygen (DO) concentrations in site wells to establish baseline DO concentrations for correlation with existing hydrocarbon quarterly monitoring data.

ORC Operation and Maintenance: After installing the ORCs, Cambria will measure DO concentrations during quarterly monitoring events. Once the DO concentrations decrease to pre-ORC levels, the ORCs may be replaced depending on aqueous-phase hydrocarbon concentrations.

Hydrocarbon and DO Monitoring During Monitoring Events: Wells containing ORCs will not be purged prior to hydrocarbon sampling since it would remove oxygen-laden ground water.

CLOSING

We appreciate the opportunity to work with you on this project. Please call Darryk Ataide at (510)-420-3339 if you have any questions or comments.

Sincerely,
Cambria Environmental Technology, Inc.

D. Ataide

Darryk Ataide
Project Scientist

Diane M. Lundquist, P.E.
Principal Engineer

G:\Snl15275\SVEinstallrpt.WPD

Attachments A - BAAQMD Permit To Operate
B - Analytical Results From SVE System Sampling

cc: Mr. Alex Perez, Shell Oil Products Company, P.O. Box 8080, Martinez, CA 94553
Mr. John Verber, Larson and Burnham, 1901 Harrison St., 11th Floor, Oakland, CA 94604
Mr. Jonathan W. Redding, Fitzgerald, Abbott and Beardsley, 1221 Broadway, 21st Floor, Oakland, CA 94612
Mr. Richard P. Waxman, Wendel, Rosen, Black and Dean, 1111 Broadway, 24th Floor, Oakland, CA 94607
Mr. Mike Bakaldin, San Leandro Fire Department, 835 E. 14th St., San Leandro, CA 94577

Table 1. Soil Vapor Extraction System Performance and Summary - Former Shell Service Station, WIC # 204-6852-1008, 15275 Washington Ave., San Leandro, California

Date	Interval Days of Operation	System Flow Rate	System Vacuum	Operating Temp.[1]	Hydrocarbon Concentrations						TPHg Removal Rate	Cumulative TPHg Removal	Emission Rates		TPHg Destruction Efficiency	Comments
					Influent			Effluent								
					OVA	TPHg	Benzene	OVA	TPHg	Benzene			TPHg Rate	Benzene Rate		
	(days)	(CFM)	("H2O)	(Degrees F)	(ppmv)						(#/day)	(#)	(#/day)	(#/day)		
05/18/98	0.125	65	20	1,003	---	1,600	47	---	<14	<0.16	33	4	<0.29	<0.003	>99.1%	Startup

Notes and Abbreviations:

1 = Center oxidizer temperature, inlet temperature set point is 650 degrees F.
CFM = Cubic feet per minute.
ppmv = parts per million by volume.
# = pounds.
--- = not analyzed or not measured.
SVE = Soil vapor extraction.
TPHg = Total Petroleum Hydrocarbons as Gasoline (C6-C12), by modified EPA Method 8015.
Benzene by EPA Method 8020.
OVA = Organic vapor analyzer.
TPHg REMOVAL/EMISSION RATE = lab concentration(ppmv) x system flow rate (cfm) x (1lb-mole/386ft3) x molecular weight (86 lb/lb-mole for TPHg, 78 lb/lb-mole for benzene) x 1440 min/day x 1/1,000,000.
TOTAL TPHg REMOVAL = Average of the current and previous removal rates multiplied by the day-interval of operation plus the previous total.

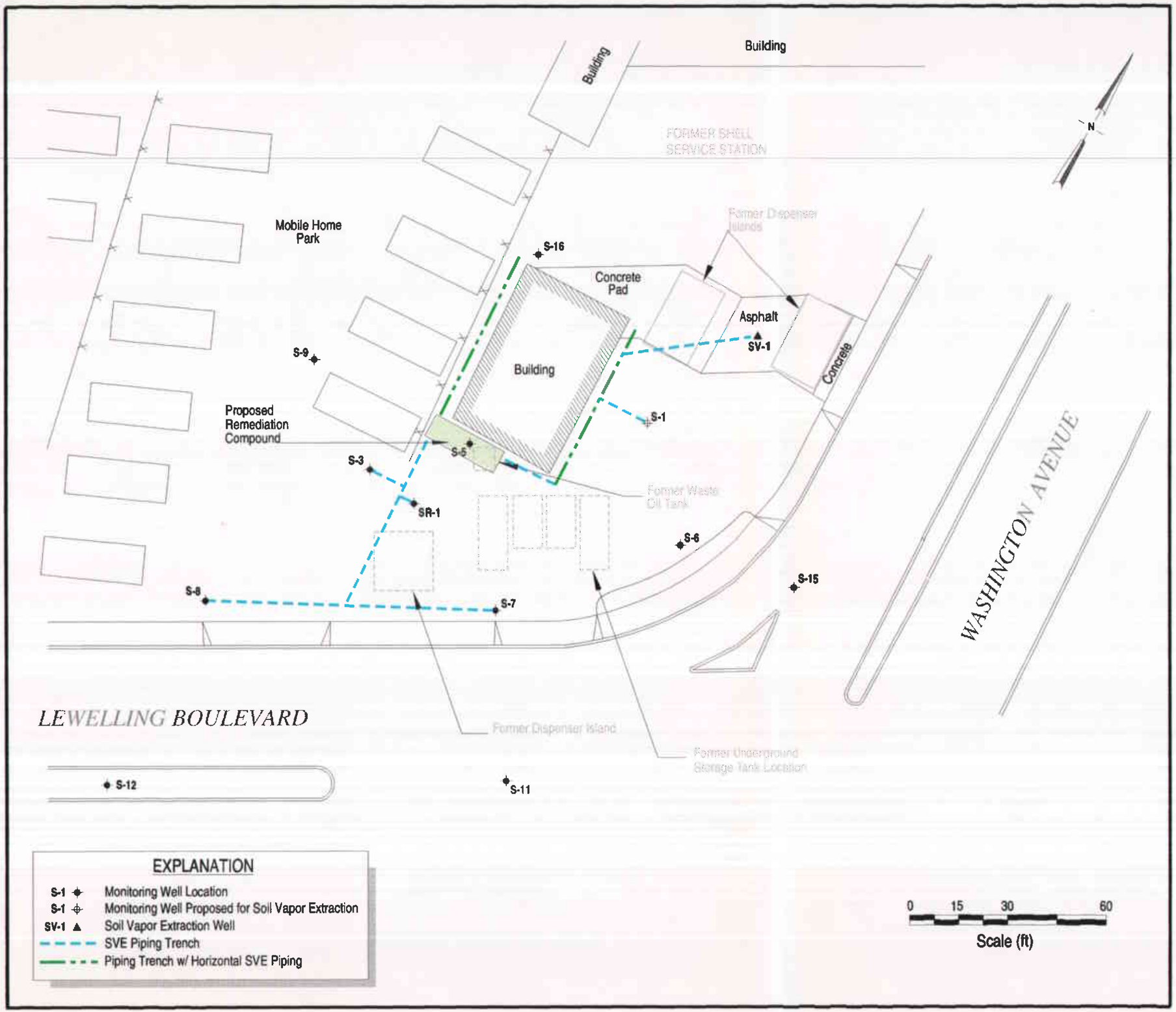
5/18/98 = source test, sytem operated for 3 hours then shut down, system restarted 5/21/98 for continuous operation

Former Shell Service Station

15275 Washington Avenue

San Leandro, California

Site Plan



CAMBRIA
Environmental Technology, Inc.

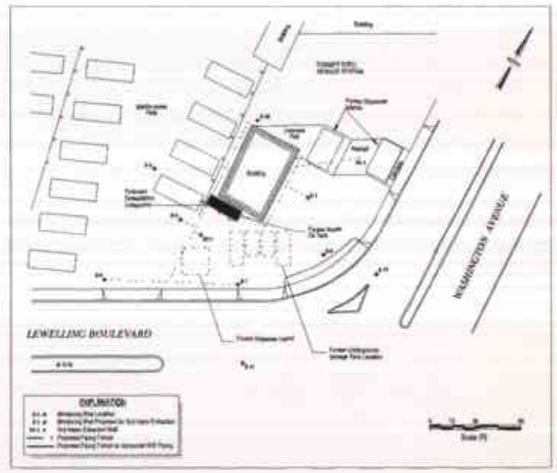


FIGURE 1

06/09/98

G:\SNL\15275\FIGURES\SITE-PLN.DWG

ATTACHMENT A

BAAQMD Permit To Operate

BAY AREA AIR QUALITY MANAGEMENT DISTRICT

May 15, 1998

Former Shell Service Station
c/o Cambria Environmental Technology, Inc
1144 65th Street, Suite B
Oakland CA 94608

Attention: Darryk Ataide

Application Number: 18341
Equipment Location:
15275 Washington Avenue
San Leandro CA 94579

Dear Applicant:

Enclosed is your Permit to Operate the following:

S-1 Soil Vapor Extraction System consisting of a 250 max scfm vacuum blower, and ancillary equipment, abated by A-1, SVE Abatement System, consisting of either an Internal Combustion Engine, Thermal Oxidizer, Catalytic Oxidizer, or at least two (200 lb minimum capacity) Carbon Adsorption Vessels arranged in series

All Permits should be posted in a clearly visible and accessible place on or near the equipment to be operated, or kept available for inspection at any time.

Operation of this equipment in violation of District Regulations or any permit conditions is subject to penalty action.

In the absence of specific permit conditions to the contrary, the throughputs, fuel and material consumptions, capacities and hours of operation described in your permit application will be considered maximum allowable limits. A new permit will be required before any increase in these parameters, or change in raw material handled may be made.

Please include your permit number with any correspondence with the District. If you have any questions on this matter, please call, Robert E. Cave, Air Quality Engineer II at (415) 749-5048.

Very truly yours,

Ellen Garvey
Executive Officer
Air Pollution Control Officer

by _____
Permit Services Division

BFB:REC:es
Enclosures

BAY AREA AIR QUALITY MANAGEMENT DISTRICT

PERMIT TO OPERATE No. 18341

PLANT No. 11769

SOURCE No. 1

FORMER SHELL SERVICE STATION

IS HEREBY GRANTED A PERMIT TO OPERATE THE FOLLOWING EQUIPMENT:

Soil Vapor Extraction system consisting of a 250 max scfm vacuum blower, and ancillary equipment, abated by A-1, SVE Abatement System, consisting of either an Internal Combustion Engine, Thermal Oxidizer, Catalytic Oxidizer, or at least two (200 lb minimum capacity) Carbon Adsorption Vessels arranged in series

LOCATED AT: 15275 Washington Avenue
San Leandro CA 94579

See attached Condition No.: **15661**

(*All permit conditions must be complied with at all times**)

ELLEN GARVEY
EXECUTIVE OFFICER
AIR POLLUTION CONTROL OFFICER

Date: May 15, 1998

By _____
Permit Services Division

EXPIRATION DATE: May 15, 1999

THIS PERMIT DOES NOT AUTHORIZE ANY VIOLATION OF THE RULES AND REGULATIONS OF THE BAAQMD OR THE HEALTH AND SAFETY CODE OF THE STATE OF CALIFORNIA. THIS PERMIT IS NOT TRANSFERABLE TO ANOTHER PERSON WITHOUT APPROVAL FROM THE DISTRICT.

* ***Compliance with conditions contained in this permit does not mean that the permittee is currently in compliance with District Rules and Regulations. It is the responsibility of the permittee to have knowledge of and be in compliance with all District Rules and Regulations.***

COND# 15661 ----------

Application 18341;plant 11769;Source S-1

1. Precursor Organic Compound (POC) emissions from Source S-1 shall be abated by A-1, SVE Abatement System, consisting of either an Internal Combustion Engine, Thermal Oxidizer, Catalytic Oxidizer, or at least two (200 lbs minimum capacity) Activated Carbon Vessels arranged in series, during all periods of operation. Start-up and subsequent operation of each abatement device shall take place only after written notification of same has been received by the District's Permit Services Division. Soil vapor flow shall not exceed 250 scfm.
2. The POC abatement efficiency of Abatement Device A-1 shall be maintained at a minimum of 98.5% by weight for inlet POC concentrations greater than or equal to 2000 ppmv (measured as C6). For inlet concentrations below 2000 ppmv and greater than or equal to 200 ppmv, a minimum abatement efficiency of 97% shall be maintained. For inlet concentrations below 200 ppmv, a minimum abatement efficiency of 90% shall be maintained. The minimum abatement efficiency shall be waived if outlet POC concentrations are shown to be less than 10 ppmv (measured as C6). In no event shall Benzene emissions to the atmosphere exceed 0.060 pounds per day.
3. To determine compliance with Condition 2, during operation of the Internal Combustion Engine, the operator of this equipment shall:
   a. Analyze inlet gas stream to determine the flow rate and concentration of total POC present for each of the first three days of operation. Thereafter, the inlet gas shall be analyzed to determine the flow rate and concentration of POC once every 30 days.
   b. Analyze exhaust gas to determine the flow rate, and the concentration of Benzene and POC present for each of the first three days of operation. Thereafter, the exhaust gas shall be analyzed to determine the concentration of benzene and POC present once every 30 days.
   c. Calculate the Benzene emission rate in pounds per day based on the exhaust gas analysis and the operating exhaust flow rate. The soil vapor flow rate shall be decreased, if necessary, to demonstrate compliance with Condition 2.
   d. Calculate the POC abatement efficiency based on the inlet and exhaust gas analysis. For the purpose of determining compliance with condition 2, the POC concentration shall be reported as hexane.
   e. Submit to the District's Permit Services Division the test results and emission calculations for the first three days of operation within one month from start-up. Samples shall be analyzed according to modified EPA test methods 8015 and 8020 or their equivalent to determine the

concentrations of POC and Benzene.

4. The operator of this source shall maintain the following information for each month of operation of the Internal Combustion Engine:
   a. Days and hours of operation.
   b. Inlet and exhaust flow rate.
   c. Inlet and exhaust sampling date.
   d. Analysis results.
   e. Calculated POC abatement efficiency.
   f. Calculated emissions of Benzene in pounds per day.

   All measurements, records and data required to be maintained by the operator shall be retained and made available for inspection by the District for at least two years following the date the data is recorded.
5. While operating as a Thermal Oxidizer, the minimum operating temperature of A-1 shall not be less than 1400 degrees Fahrenheit. While operating as a Catalytic Oxidizer, the minimum operating temperature of A-1 shall not be less than 600 degrees Fahrenheit.
6. To determine compliance with Condition Number 5, the Thermal/Catalytic Oxidizer shall be equipped with continuous measuring and temperature recording instrumentation. The temperature data collected from the temperature recorder shall be maintained in a file which shall be available for District inspection for a period of at least 2 years following the date on which such data are recorded.
7. To determine compliance with Condition 2, within ten days after start-up of the Thermal Oxidizer, and within ten days after start-up of the Catalytic Oxidizer, the operator of this source shall:
   a. Analyze inlet gas stream to determine the flow rate and concentration of POC present.
   b. Analyze exhaust gas to determine the flow rate, and the concentration of Benzene and POC present.
   c. Calculate the Benzene emission rate in pounds per day based on the exhaust gas analysis and the operating exhaust flow rate. The soil vapor flow rate shall be decreased, if necessary, to demonstrate compliance with Condition 2.
   d. Calculate the POC abatement efficiency based on the inlet and exhaust gas analysis. For the purpose of determining compliance with condition 2, the POC concentration shall be reported as hexane.
   e. Submit to the District's Permit Services Division the test results and emission calculations within one month of the testing date. Samples shall be analyzed according to modified EPA test methods 8015 and 8020 or their equivalent to determine the concentrations of POC and Benzene.
8. The operator of this source shall maintain the following records for each month of operation of the Thermal/Catalytic Oxidizer:
   a. Days and hours of operation.
   b. Each emission test, analysis or monitoring results logged-in for the day of operation they were taken.
   c. Analysis results for any catalyst plugs removed from the bed to determine remaining life of the

catalyst. Such records shall be retained and made available for inspection by the District for two years following the date the data is recorded.

9. During operation of the Activated Carbon Vessels, the operator of this source shall monitor with a photo-ionization detector (PID), flame-ionization detector (FID), or other method approved in writing by the Air Pollution Control Officer at the following locations:
   a. At the inlet to the second to last Carbon vessel in series.
   b. At the inlet to the last Carbon vessel in series.
   c. At the outlet of the Carbon vessel that is last in series prior to venting to the atmosphere.

   When using an FID to monitor breakthrough, readings may be taken with and without a Carbon filter tip fitted on the FID probe. Concentrations measured with the Carbon filter tip in place shall be considered methane for the purpose of these permit conditions.
10. These monitor readings shall be recorded in a monitoring log at the time they are taken. The monitoring results shall be used to estimate the frequency of Carbon change-out necessary to maintain compliance with conditions number 11 and 12, and shall be conducted on a daily basis. The operator of this source may propose for District review, based on actual measurements taken at the site during operation of the source, that the monitoring schedule be changed based on the decline in organic emissions and/or the demonstrated breakthrough rates of the carbon vessels. Written approval by the District's Permit Services Division must be received by the operator prior to a change to the monitoring schedule.
11. The second to last Carbon vessel shall be immediately changed out with unspent carbon upon breakthrough, defined as the detection at its outlet of the higher of the following:
   a. 10 % of the inlet stream concentration to the carbon bed.
   b. 10 ppmv (measured as C6).12. The last Carbon vessel shall be immediately changed out with unspent Carbon upon detection at its outlet of 10 ppmv (measured as C6).
13. The operator of this source shall maintain the following information for each month of operation of the Activated Carbon Vessels:
   a. Hours and time of operation.
   b. Each emission test, analysis or monitoring results logged in for the day of operation they were taken.
   c. The number of Carbon vessels removed from service.

   Such records shall be retained and made available for inspection by the District for two years following the date the data is recorded.
14. Any non-compliance with conditions number 1, 2, 5, 11, and/or 12 shall be reported to the Compliance and Enforcement Division at the time that it is first discovered. The submittal shall detail the corrective action taken and shall include the data showing the exceedance as well as the time of occurrence.
15. The operator shall maintain a file containing all

measurements, records and other data that are required to be collected pursuant to the various provisions of this conditional Authority to Construct/Permit to Operate. All measurements, records and data required to be maintained by the operator shall be retained for at least two years following the date the data is recorded.

16. Upon final completion of the remediation project, the operator of Source S-1 shall notify the Permit Services Division within two weeks of decommissioning the operation.

ATTACHMENT B

Analytical Results For SVE System Sampling

Sequoia Analytical

680 Chesapeake Drive, Redwood City, CA 94063, (650) 364-9600, FAX (650) 364-9233
404 N. Wiget Lane, Walnut Creek, CA 94598, (510) 988-9600, FAX (510) 988-9673
819 Striker Avenue, Suite 8, Sacramento, CA 95834, (916) 921-9600, FAX (916) 921-0100
1455 McDowell Blvd. North, Ste. D, Petaluma, CA 94954, (707) 792-1865, FAX (707) 792-0342

Cambria
1144 65th St. Suite C
Oakland, CA 94608
Attention: Brian Busch

Project: Shell 15275 Washington

Enclosed are the results from samples received at Sequoia Analytical on May 19, 1998. The requested analyses are listed below:

SAMPLE #	SAMPLE DESCRIPTION		DATE COLLECTED	TEST METHOD
9805C49 -01	AIR,	SYS-INF	05/18/98	Purgeable TPH/BTEX (Air)
9805C49 -02	AIR,	SYS-EFF	05/18/98	Purgeable TPH/BTEX (Air)

Please contact me if you have any questions. In the meantime, thank you for the opportunity to work with you on this project.

Very truly yours,

SEQUOIA ANALYTICAL

Peggy Penner
Project Manager

Sequoia Analytical

680 Chesapeake Drive, Redwood City, CA 94063, (650) 364-9600, FAX (650) 364-9233
404 N. Wiget Lane, Walnut Creek, CA 94598, (510) 988-9600, FAX (510) 988-9673
819 Striker Avenue, Suite 8, Sacramento, CA 95834, (916) 921-9600, FAX (916) 921-0100
1455 McDowell Blvd. North, Ste. D, Petaluma, CA 94954, (707) 792-1865, FAX (707) 792-0342

Cambria	Client Proj. ID: Shell 15275 Washington	Sampled: 05/18/98
1144 65th St. Suite C	Sample Descript: SYS-INF	Received: 05/19/98
Oakland, CA 94608	Matrix: AIR	
	Analysis Method: 8015Mod/8020	Analyzed: 05/20/98
Attention: Brian Busch	Lab Number: 9805C49-01	Reported: 05/20/98

QC Batch Number: GC052998BTEX03A
Instrument ID: GCHP3

Total Purgeable Petroleum Hydrocarbons (TPPH) with BTEX

Analyte	Detection Limit ppmV	Sample Results ppmV
TPPH as Gas	**140**	**1600**
Benzene	**1.6**	**47**
Toluene	**1.3**	**7.4**
Ethyl Benzene	**1.2**	**8.1**
Xylenes (Total)	**1.2**	**25**
Chromatogram Pattern:		**C6-C12**

Surrogates	Control Limits %		% Recovery
Trifluorotoluene	70	130	109

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

SEQUOIA ANALYTICAL - ELAP #1210

Peggy Penner
Project Manager

Sequoia Analytical

680 Chesapeake Drive, Redwood City, CA 94063, (650) 364-9600, FAX (650) 364-9233
404 N. Wiget Lane, Walnut Creek, CA 94598, (510) 988-9600, FAX (510) 988-9673
819 Striker Avenue, Suite 8, Sacramento, CA 95834, (916) 921-9600, FAX (916) 921-0100
1455 McDowell Blvd. North, Ste. D, Petaluma, CA 94954, (707) 792-1865, FAX (707) 792-0342

Cambria	Client Proj. ID: Shell 15275 Washington	Sampled: 05/18/98
1144 65th St. Suite C	Sample Descript: SYS-EFF	Received: 05/19/98
Oakland, CA 94608	Matrix: AIR	
	Analysis Method: 8015Mod/8020	Analyzed: 05/20/98
Attention: Brian Busch	Lab Number: 9805C49-02	Reported: 05/20/98

QC Batch Number: GC052098BTEX02A
Instrument ID: GCHP2

Total Purgeable Petroleum Hydrocarbons (TPPH) with BTEX

Analyte	Detection Limit ppmV	Sample Results ppmV
TPPH as Gas	14	N.D.
Benzene	0.16	N.D.
Toluene	0.13	N.D.
Ethyl Benzene	0.12	N.D.
Xylenes (Total)	0.12	N.D.
Chromatogram Pattern:		

Surrogates	Control Limits %		% Recovery
Trifluorotoluene	70	130	90

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

SEQUOIA ANALYTICAL - ELAP #1210

Peggy Penner
Project Manager

Sequoia Analytical

680 Chesapeake Drive, Redwood City, CA 94063, (650) 364-9600, FAX (650) 364-9233
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Cambria
1144 65th St., Ste. C
Oakland, CA 94608
Attention: Brian Busch

Client Project ID: Shell 15275 Washington

QC Sample Group: 9805C49-01

Reported: May 21, 1998

QUALITY CONTROL DATA REPORT

Matrix: Liquid
Method: EPA 8015
Analyst: . DEMARTINI

ANALYTE Gasoline

QC Batch #: GC052098BTEX03A

Sample No.: GW9805C13-1
Date Prepared: 5/20/98
Date Analyzed: 5/20/98
Instrument I.D.#: GCHP03

Sample Conc., ug/L: N.D.
Conc. Spiked, ug/L: 250

Matrix Spike, ug/L: 250
% Recovery: 100.0

Matrix
pike Duplicate, ug/L: 190
% Recovery: 76

elative % Difference: 27

RPD Control Limits: 0-25

LCS Batch#: GAWBLK052098A

Date Prepared: 5/20/98
Date Analyzed: 5/20/98
Instrument I.D.#: GCHP03

Conc. Spiked, ug/L: 250

LCS Recovery, ug/L: 220
LCS % Recovery: 88

Percent Recovery Control Limits:

MS/MSD	60-140
LCS	70-130

Quality Assurance Statement: All standard operating procedures and quality control requirements have been met.

SEQUOIA ANALYTICAL

Peggy Penner
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.