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March 16, 2001

Ms. Susan Hugo  
Alameda County Health Care Services Agency  
1131 Harbor Bay Parkway, Suite 250  
Alameda, CA 94502-6577

Re: **Feasibility Test Report**  
Connell Automobile Dealership  
3093 Broadway  
Oakland, California  
StID #469



Dear Ms. Hugo:

On behalf of Messrs. George Hill and Gordon Linden, Cambria Environmental Technology, Inc. (Cambria) is submitting this *Feasibility Test Report* for the above-referenced site (Figure 1). The purpose of the feasibility test was to perform additional source removal, determine if significant source material is present beneath the site, and to provide data for evaluation of remedial alternatives in case source material is present. The feasibility test procedures, results and conclusions and a discussion are presented below.

Feasibility test results confirm that corrective action is merited at this site. Therefore, Cambria will commence preparation of the corrective action plan (CAP), as approved by the Alameda County Health Care Service Agency (ACHCSA) in a May 3, 1999 letter to property owners Messrs. Hill and Linden. The UST Cleanup Fund has pre-approved costs for CAP preparation. As discussed below, Cambria and the property owners would like to meet with the ACHCSA to ensure that the CAP is designed to fulfill specific requirements for case closure.

## FEASIBILITY TEST PROCEDURES AND RESULTS

Cambria conducted a dual-phase extraction (DVE) feasibility test during the week of September 25, 2000. Cambria had reviewed the results of previous site remediation activities (SPH recovery and vapor extraction from MW-6). Upon reviewing historic water level and analytic data, Cambria concluded that fluctuation of the water table is a significant factor controlling the presence of SPH in site wells and impacting the effectiveness of remedial efforts at the site. Cambria determined that DVE testing was appropriate at this site because DVE:

- Controls the groundwater elevation at the extraction point by creating a groundwater cone of depression;
- Removes SPH from within the well and from the area surrounding the well;

Oakland, CA  
San Ramon, CA  
Sonoma, CA  
Portland, OR

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- Enhances groundwater extraction rates;
- Extracts soil vapor from the dewatered formation;
- Evaluates several remedial techniques: soil vapor extraction, groundwater extraction, and combined soil and groundwater extraction;
- Targets the entire source area of concern: the vadose zone, the capillary fringe, and the saturated zone;
- Allows estimation of the residual mass of contaminants in the subsurface, and
- Increases the contaminant attenuation rate by removing source material and enhancing natural hydrocarbon degradation.



### **DVE Feasibility Test Procedures**

Cambria conducted the DVE feasibility test as outlined in the May 8, 2000 workplan. Since the areas surrounding the selected extraction points are heavily used (automotive service and new car sales), Cambria designed a testing protocol that minimized disruption to site operations, while allowing collection of the required data and SPH recovery.

Cambria performed DVE testing at the subject site using monitoring wells MW-1, MW-6, MW-14, and MW-15 (Figure 2). Individual extraction events were performed at each of the four existing wells. The DVE testing was conducted on five consecutive days commencing on September 25, 2000. The testing used a 5 horsepower positive-displacement vacuum pump to extract a combined soil vapor and water stream from a slotted PVC 'stinger' submerged in one well at a time. To minimize impact to site operations, the trailer-mounted DVE system was located remotely from each well and extraction piping was protected with wood and routed to the extraction/treatment system. Effluent vapors were treated by granular activated carbon. Extracted groundwater was collected in a portable tank, and was discharged into a remote and larger water storage tank at regular intervals.

Operational and monitoring data was collected periodically during each test. Hydrocarbon levels were monitored using a Flame Ionization Detector (FID). Vapor samples were collected in Tedlar bags at the beginning and end of each test. McCampbell Analytical, Inc., of Pacheco, California, analyzed the samples for total petroleum hydrocarbons as gasoline (TPHg) using EPA method 8015M and benzene, toluene, ethylbenzene, and xylenes (BTEX) using EPA method 8020. The most proximal well to the extraction point was monitored for vacuum influence and groundwater table depression. A flow totalizer was used to measure the extracted groundwater volume. SPH was gauged in the holding tank before and after each test using an interface probe.

**DVE Test Results**

Test data, influence data, and hydrocarbon removal data is summarized below in Tables A, B and C, respectively. Vapor-phase mass removal rates are summarized in Table 1. Certified laboratory analytical reports are provided in Attachment A. Field data sheets are provided in Attachment B.

**Table A – DVE Test Data**

Well	Duration (hours)	Applied Vacuum ("h <sub>2</sub> o)	Vapor Flow Rate (cfm)	Stinger Drawdown (ft)	Water Flow Rate (gpm)	Vapor Concentration (ppmv TPHg)	Vapor Removal Rate (lbs/day)
MW-1	7	160	60	4.6	0.02	8100	156
MW-1 step	0.75	48	15.5	4.6	<0.02	8100	154
MW-6	3.25	100	17.2	1.8	0.46	360	2
MW-6 supp	8	100	18	2.8	0.79	180	1
MW-14	2	140	52.3	1.5	<0.01	280	4.7
MW-15	8	100	18.6	1.3	0.02	1000	6

**Table B – Test Influence Data**

Well	Vacuum Influence ("h <sub>2</sub> o)	Drawdown (ft)	Distance from Extraction Well (ft)	Observation Well ID
MW-1	0.7	0.00	35	MW-14
MW-1 step	---	---	---	---
MW-6	0.01	0.10	60	MW-8
MW-6 supp	0.00	0.00	60	MW-8
MW-14	0.10	0.00	50	MW-15
MW-15	0.25	0.00	60	MW-9


**Table C – Hydrocarbon Removal Summary**

Well	Vapor Phase Hydrocarbons (pounds)	Aqueous Phase Hydrocarbons (pounds)	Extracted Water Volume (gallons)	Total Hydrocarbon Removal (pounds)
MW-1	18.09	0.001	9	18.1
MW-6	1.11	0.429	470	1.5
MW-14	0.43	<0.001	<1	0.4
MW-15	1.74	0.012	10	1.8
Total	21.37	0.442	489	21.8

No measurable thickness of separate-phase hydrocarbons was detected in the liquid collection tank.

### Well MW-6 Test Results

Well MW-6 was tested on Monday, September 25, 2000. The test was started at 11:45 AM, after equipment and test set-up was completed. An applied vacuum of approximately 100 inches of water column was sustained for 3 hours and 15 minutes. The stinger was set at a depth of 26 ft below ground surface (bgs), lowering the groundwater elevation in the well 1.8 ft. Air flow rates varied between 13 and 30 cubic feet per minute (cfm), with an average of 17.3 cfm.



FID readings varied between 1100 and 3000 parts per million by volume (ppmv), with an average of 1760 ppmv. Both the beginning and ending vapor sample analytical results were reported as 360 ppmv. Based on the analytical results, a linear correlation was used to correct the FID readings. The corrected FID readings varied between 788 and 1614 ppmv, with an average of 1075 ppmv. Based on corrected FID readings, 0.843 lbs. of vapor-phase TPHg was removed during MW-6 test #1. Conservatively, using laboratory analytical results only, 0.271 lbs. of vapor-phase TPHg was removed.

The flow totalizer measured 90 gallons of extracted groundwater over the duration of the test, yielding a groundwater extraction rate of 0.46 gallons per minute (gpm). SPH was present in well MW-6 prior to testing. During post-test monitoring, SPH re-entered the well. Groundwater samples were not been collected from MW-6 due to the presence of SPH. Using the most recent Total Volatile Hydrocarbon (TVH) concentration available (11/3/98: 110,000 ug/L), the liquid-phase hydrocarbon mass removed by the test was 0.083 lbs.

Vacuum influence was not observed in the most proximal well, MW-8. Groundwater table drawdown at MW-8 was gauged at 0.10 ft. MW-8 is located approximately 60 ft southeast of the extraction well MW-6.

### Well MW-15 Test Results

Well MW-15 was tested on Tuesday, September 26, 2000, starting at 9:15 AM. An applied vacuum of approximately 100 inches of water column was sustained for 8 hrs. The stinger was set at a depth of 25 ft bgs, lowering the groundwater elevation in the well 1.3 ft. Air flow rates varied between 11.8 and 21 cfm, with an average of 17.5 cfm.

FID readings varied between 1113 and 1723 ppmv, with an average of 1461 ppmv. The beginning and ending vapor sample analytical results were reported as 810 and 1000 ppmv, respectively. The corrected FID readings varied between 793 and 1059 ppmv, with an average of 945 ppmv. Based on corrected FID readings, 1.88 lbs. of vapor-phase TPHg was removed during the MW-15 test. Conservatively, using laboratory analytical results only, 1.74 lbs. of vapor-phase TPHg was removed.

The flow totalizer measured 10 gallons of extracted groundwater over the duration of the test, yielding a groundwater extraction rate of 0.02 gpm. Groundwater samples have not been collected from MW-15 recently due to the presence of SPH. Using the most recent Total Volatile Hydrocarbon (TVH) concentration available (5/26/98: 130,000 ug/L), the liquid-phase hydrocarbon mass removed by the test was 0.012 lbs.

The maximum vacuum influence in the most proximal well, MW-9, was measured at 0.25 inches of water column. MW-9 is located approximately 60 ft from the well MW-15. Groundwater table drawdown was not observed in MW-9.



### **Supplemental Well MW-6 Test Results**

To provide additional testing of MW-6, DVE testing was resumed on MW-6 on Wednesday, September 27, 2000, starting at 6:30 AM. An applied vacuum of approximately 100 inches of water column was sustained for the first 4 hrs. The stinger was set at a depth of 25 ft bgs, lowering the groundwater elevation in the well 0.8 ft. The vacuum was then increased to approximately 155 inches of water column for the remaining 4 hrs. Additionally, the stinger was lowered to 27 ft bgs, lowering the groundwater elevation an additional 2 ft. Air flow rates varied between 17.6 and 20.4 cfm, with an average of 18.8 cfm.

FID readings varied between 72 and 1400 ppmv, with an average of 655 ppmv. The beginning and ending vapor sample analytical results were reported as 670 and 180 ppmv, respectively. The corrected FID readings varied between 341 and 918 ppmv, with an average of 594 ppmv. Based on corrected FID readings, 1.01 lbs. of vapor-phase TPHg was removed during MW-6 test #2. Conservatively, using laboratory analytical results only, 0.839 lbs. of vapor-phase TPHg was removed. Similar to the previous testing of MW-6, the mass removal rate decreased by 50% or more by the end of the test.

The flow totalizer measured 380 gallons of extracted groundwater over the duration of the test, yielding a groundwater extraction rate of 0.79 gpm. SPH was present in well MW-6 prior to testing. During post-test monitoring, SPH re-entered the well. Groundwater samples have not been collected recently from MW-6 due to the presence of SPH. Using the most recent Total Volatile Hydrocarbon (TVH) concentration available (11/3/98: 110,000 ug/L), the liquid-phase hydrocarbon mass removed by the test was 0.349 lbs.

Vacuum influence and groundwater table drawdown at proximal wells were not measured.

### Well MW-14 Test Results

Well MW-14 was tested on Wednesday, September 27, 2000, starting at 3:00 PM. An applied vacuum of approximately 140 inches of water column was sustained for 2 hrs. The stinger was set at a depth of 25 ft bgs, lowering the groundwater elevation in the well 1.5 ft. Air flow rates varied between 40 and 55 cfm, with an average of 49.4 cfm.

FID readings varied between 278 and 418 ppmv, with an average of 365 ppmv. The beginning and ending vapor sample analytical results were reported as 360 and 280 ppmv, respectively. The corrected FID readings varied between 430 and 491 ppmv, with an average of 468 ppmv. Based on corrected FID readings, 0.629 lbs. of vapor-phase TPHg was removed during the MW-14 test. Conservatively, using laboratory analytical results only, 0.431 lbs. of vapor-phase TPHg was removed.

Liquid-phase mass removal is negligible due to the low volume of extracted groundwater.

The maximum vacuum influence in the most proximal well, MW-15, was measured at 0.10 inches of water column. MW-15 is located approximately 50 ft from well MW-14. Groundwater table drawdown was not observed in MW-15.

### Well MW-1 Test Results

Well MW-1 was tested on Thursday, September 28, 2000, starting at 8:30 AM, for a duration of 7 hrs. An applied vacuum of approximately 110 inches of water column was initially set. After an hour of operation, the applied vacuum was lowered to 60 inches of water column in an attempt to sustain a higher water table elevation. The adjustment was ineffective; therefore, the applied vacuum was increased to approximately 90 inches of water column. The stinger was set at a depth of 28 ft bgs, lowering the groundwater elevation in the well 4.6 ft. The applied vacuum was further increased to 160 inches of water column for the last hour of the test to maximize vapor extraction. Air flow rates varied between 8.9 and 60 cfm, with an average of 36.8 cfm.

FID readings varied between 913 and 20,770 ppmv, with an average of 6539 ppmv. The beginning and ending vapor sample analytical results were reported as 81 and 8100 ppmv, respectively. The corrected FID readings varied between 706 and 9344 ppmv, with an average of 3154 ppmv. Based on corrected FID readings, 17.7 lbs. of vapor-phase TPHg was removed during the MW-1 test. Using laboratory analytical results only, 18.1 lbs. of vapor-phase TPHg was removed.

The flow totalizer measured 9 gallons of extracted groundwater over the duration of the test, yielding a groundwater extraction rate of 0.02 gpm. Groundwater samples have not been collected from MW-1 due to the presence of SPH. Using the most recent Total Volatile Hydrocarbon (TVH) concentration

available (11/3/98: 200,000 ug/L), the liquid-phase hydrocarbon mass removed by the test was 0.001 lbs.

The most surprising development, was the significant increase in SPH thickness measured after DVE testing. The SPH thickness measured in well MW-1 was 0.32 ft prior to the test, and 0.76 ft on November 3, 2000 and 1.03 ft on December 1, 2000 despite the presence of absorbent socks in the well.

The maximum vacuum influence in the most proximal well, MW-14, was measured at 0.70 inches of water column. MW-14 is located approximately 35 ft from well MW-1. Groundwater table drawdown was not observed in MW-14.

### **Well MW-1 Step Test Results**

Following the 7-hour continuous DVE test, a step test was conducted on well MW-1. An initial vacuum of 12 inches of water column was applied to MW-1. The vacuum was increased to 24 and then 48 inches of water column after 15 minute operation intervals. The stinger was set at a depth of 28 ft bgs. Air flow rates were measured as 5, 8.5, and 15.5 cfm for the 15 minute intervals, respectively.


FID readings were 700, 12,290, and 19,380 ppmv for the intervals, respectively. Corrected FID readings are 614, 5655, and 8740 ppmv for the intervals, respectively. Based on corrected FID readings, 0.01, 0.16, and 0.45 lbs. of vapor-phase TPHg was removed for the interval, respectively.

### **Source Removal**

As shown above in Table C, approximately 22 pounds of hydrocarbons was removed during the test.

## FEASIBILITY TEST CONCLUSIONS

### Data Interpretation and Conclusions for Each Extraction Point



**Extraction Point MW-1:** Vapor-phase hydrocarbon removal rates were significantly higher in well MW-1 than other wells. The mass removal rates, which increased significantly over the duration of the test, were approximately 6.5 lbs/hour or 156 lbs/day in well MW-1. The MW-1 test produced the lowest initial vapor concentration and the highest final vapor concentration. The trend suggests the extraction process tapped the contaminant mass, and significant mass may be available and accessible from MW-1. The observed vacuum influence also suggests that vapor extraction (with dewatering by DVE) is effective. SPH was present in MW-1 prior to testing. Minimal groundwater was extracted from MW-1, and a significant cone of depression was not evident.

**Extraction Point MW-6:** As shown on Table 1, the mass removal rate was highest during the first hour of testing, and then remained fairly constant for the rest of the first test on MW-6. The supplemental testing of MW-6 exhibited a more clear decreasing trend. The more constant trend during the first test of MW-6 may be attributed to the shorter test period. Well MW-6 produced 70% (380 gallons) of the total groundwater extracted during site testing, and exhibited evident a cone of depression.


**Extraction Point MW-15:** Testing of well MW-15 demonstrated a slowly increasing vapor-phase mass removal trend. The MW-15 test also produced the highest initial hydrocarbon vapor concentration. The trend suggests the extraction process tapped the contaminant mass, and further mass removal may be achieved by extraction from MW-15. Additionally, the observance of vacuum influence in a nearby wells suggests vapor extraction could be effective from well MW-15. Minimal groundwater was extracted from MW-15, and a significant cone of depression was not evident.

**Extraction Point MW-14:** MW-14 testing demonstrated a fairly constant vapor-phase mass removal trend. Due to MW-14's close proximity to MW-1 and MW-15, testing data from MW-1 and MW-15 may be extrapolated to deduce effective vapor-phase mass removal from MW-14 over a longer period of time. Furthermore, a vacuum radius of influence was observed, which suggests effective vapor extraction. Minimal groundwater was extracted from MW-14, and an areally significant cone of depression was not evident.



### Overall Feasibility Test Conclusions

Based on our interpretation of the feasibility test results, Cambria reached the conclusions presented below.

- 
1. The elevated vapor-phase hydrocarbon concentration in MW-1 (8,100 ppmv TPHg) and the increased free product thickness in MW-1 after DVE testing indicates that a residual hydrocarbon source is present near well MW-1.
  2. The significant mass removal rate for soil vapor (up to 156 pounds TPHg/day) indicates that DVE is effective for removing hydrocarbons near MW-1.
  3. The limited mass removal rate (1-2 pounds/day TPHg) from MW-6 indicates that the short-term DVE with a 5-horsepower blower is not effective for remediating the remaining source material (free product) in well MW-6. Free product historically detected in well MW-6 could be submerged in well MW-6 and not readily accessible to short-term DVE. The short duration of DVE testing and the 2.8 feet of water drawdown may not have been sufficient to access the subsurface zone with historic free product. Please note that the SVE remedial activities on MW-6 conducted by prior consultants may have removed most or all of the free product historically detected near MW-6.
  4. The limited mass removal rates from MW-14 and MW-15 and lack of significant free product detected in wells MW-14 and MW-15 suggests: 1) there is not a significant source near wells MW-14 and MW-15, or 2) source material is submerged and inaccessible to the short-term DVE efforts conducted during the testing.
  5. The elevated vapor-phase mass removal rates for MW-1 suggest that soil vapor extraction (SVE) may be able to remediate source area hydrocarbons near MW-1 more cost effectively than DVE, which requires water extraction, treatment and disposal. Because the testing used DVE to extract groundwater and expose the MW-1 well screen for vapor extraction, the testing did not evaluate SVE without dewatering.
  6. Vacuum influence data suggests that DVE (and possibly SVE without DVE) achieved a radius of influence of 60 feet or greater.
  7. The observed vacuum influence and the vapor extraction flow rates suggest that DVE (and possibly SVE without DVE) could capture vapors created by air sparging (AS), if air sparging were implemented to enhance remediation of dissolved or submerged hydrocarbons

8. Combined SVE/AS could possibly be a very cost-effective remedial technique for the site. SVE could be used to volatilize free product, remediate vadose zone soil, encourage oxygen flow in the subsurface, and to capture hydrocarbon vapors created by sparging. Air sparging could be performed without SVE in areas like MW-6 where elevated hydrocarbon vapors were not detected, and near MW-1 after SVE or DVE removes elevated hydrocarbon vapor concentrations.
9. Other remedial techniques, such as more powerful or longer duration DVE or hydrogen peroxide injection via injection probes/wells, could also be performed to target any submerged free product.



## **DISCUSSION – REQUEST FOR CLOSURE PATH DETERMINATION**

Feasibility test results, the presence of free product in site wells, and the questionable stability of the dissolved plume confirm that corrective action is merited. CAP preparation has been approved by the ACHCSA and the Fund. Therefore, Cambria will begin preparing a CAP that evaluates several remedial techniques and recommends a cost-effective approach based on site conditions.

After you have an opportunity to review the information in this report, Cambria and the property owners would like to meet with the ACHCSA to discuss the scope of the CAP. The property owners are concerned that monitoring and free product removal have gone on for nearly 10 years, and that previous pre-approved tasks (such as risk assessment) identified by Cambria and the ACHCSA to facilitate closure were put on hold or cancelled by the ACHCSA. During the meeting with the ACHCSA, Cambria plans to discuss required elements of a CAP for moving this site towards closure by the ACHCSA and the Regional Water Quality Control Board.

**CLOSING**

To discuss corrective action plan requirements for facilitating case closure, or to address any questions or comments of yours regarding this report, please call Bob Clark-Riddell at (510) 420-3303 or Bob Schultz at (510) 420-3341.

Sincerely,

**Cambria Environmental Technology, Inc.**



Robert W. Schultz, R.G.  
Project Geologist

Bob Clark-Riddell, P.E.  
Principal Engineer

Figures:        1 – Vicinity Map  
                  2 – Site Plan

Tables:        1 – Vapor Phase Mass Removal Data

Attachments:  A – Certified Laboratory Analytical Report(s)  
                  B – Field Data Sheets

cc:            George Hill, 305 Sheridan Ave., Piedmont, CA 94611  
                  Gordon Linden, 101 Gleneden Ave., Oakland, CA 94611  
                  Paul Kibel, Fitzgerald, Abbott & Beardsley, LLP, 1221 Broadway, 21<sup>st</sup> Floor, Oakland, CA  
                  94612  
                  Leroy Griffin, Hazardous Materials Manager, Fire Department - OES, 1605 MLK Jr. Way,  
                  Oakland, CA 94612



H:\SB-2000\CONNELL\FIGURES\VICINITY-MAP.A

SOURCE: TOPOI MAPS

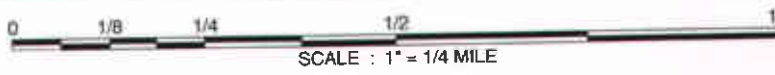


FIGURE  
**1**

**Connell Automobile Dealership**  
 3093 Broadway  
 Oakland, California



C A M B R I A

**Vicinity Map**

**EXPLANATION**

MW-1 ● Monitoring Well Location

Basemap from Subsurface Consultants, Inc.

WEBSTER STREET

HAWTHORNE STREET

3093 BROADWAY

BROOK STREET

BROADWAY

SIDEWALK

MW-11 ●

MW-1 ●

MW-14 ●

MW-15 ●

MW-6 ●

MW-9 ●

MW-8 ●

MW-10 ●

MW-4 ●

MW-2 ●

MW-7 ●

MW-3 ●

MW-5 ●

MW-13 ●



FIGURE  
**2**

Site Plan



C A M B R I A

Connell Oldsmobile

3093 Broadway  
Oakland, California

H:\SB-2000\CONNELL\FIGURES\SITEPLAN.DWG

# CAMBRIA

**Table 1: Vapor Mass Removal Data - Connell Automotive Dealership**

System Information				Hydrocarbon Concentrations			Mass Removal (Adjusted FID Based)			Mass Removal (Analytical based)		
Date	Well ID	Interval	System	TPHg <sup>1</sup> (ppmv)	FID Reading (ppmv)	Adjusted FID <sup>2</sup> (ppmv)	TPHg	Periodic	Cumulative	TPHg	Periodic	Cumulative
		Hours of Operation	Flow Rate				Removal Rate <sup>3</sup>	TPHg Removal	TPHg Removed <sup>4</sup>	Removal Rate <sup>3</sup>	TPHg Removal	TPHg Removed <sup>4</sup>
		(hours)	(CFM)				(#/hour)	(#)	(#)	(#/hour)	(#)	(#)
09/25/00	MW-6	0.25	30.0	<b>360</b>	3000	1,614	0.647	0.162	0.162	0.144	0.036	0.036
09/25/00	MW-6	0.50	20.7	360	3000	1,614	0.447	0.112	0.274	0.100	0.025	0.061
09/25/00	MW-6	0.75	16.8	360	1800	1,092	0.245	0.061	0.335	0.081	0.020	0.081
09/25/00	MW-6	1.00	17.0	360	1900	1,136	0.258	0.065	0.399	0.082	0.020	0.102
09/25/00	MW-6	1.25	17.1	360	1100	788	0.180	0.045	0.444	0.082	0.021	0.122
09/25/00	MW-6	1.50	16.6	360	1100	788	0.175	0.044	0.488	0.080	0.020	0.142
09/25/00	MW-6	1.75	15.4	360	1800	1,092	0.225	0.056	0.544	0.074	0.019	0.161
09/25/00	MW-6	2.00	13.0	360	1600	1,005	0.175	0.044	0.588	0.063	0.016	0.176
09/25/00	MW-6	2.25	15.2	360	1300	875	0.178	0.044	0.632	0.073	0.018	0.195
09/25/00	MW-6	2.50	17.0	360	1700	1,049	0.238	0.060	0.692	0.082	0.020	0.215
09/25/00	MW-6	2.75	13.7	360	1600	1,005	0.184	0.046	0.738	0.066	0.016	0.232
09/25/00	MW-6	3.00	15.3	360	1300	875	0.179	0.045	0.783	0.074	0.018	0.250
09/25/00	MW-6	3.25	17.2	<b>360</b>	1700	1,049	0.241	0.060	0.843	0.083	0.021	0.271
09/26/00	MW-15	0.25	18.2	790	1113	793	0.193	0.048	0.048	0.192	0.048	0.048
09/26/00	MW-15	0.50	17.7	796	1196	830	0.196	0.049	0.097	0.188	0.047	0.095
09/26/00	MW-15	0.75	15.9	803	1265	860	0.183	0.046	0.143	0.171	0.043	0.138
09/26/00	MW-15	1.00	16.1	<b>810</b>	1520	971	0.209	0.052	0.195	0.174	0.044	0.181
09/26/00	MW-15	1.50	11.8	824	1316	882	0.139	0.070	0.265	0.130	0.065	0.246
09/26/00	MW-15	2.00	17.6	837	1671	1,036	0.244	0.122	0.387	0.197	0.098	0.345
09/26/00	MW-15	2.50	17.3	851	1370	905	0.209	0.105	0.491	0.197	0.098	0.443
09/26/00	MW-15	3.00	18.0	864	1544	981	0.236	0.118	0.609	0.208	0.104	0.547
09/26/00	MW-15	4.00	17.8	891	1660	1,031	0.245	0.245	0.855	0.212	0.212	0.759

# CAMBRIA

**Table 1: Vapor Mass Removal Data - Connell Automotive Dealership**

System Information				Hydrocarbon Concentrations			Mass Removal (Adjusted FID Based)			Mass Removal (Analytical based)		
Date	Well ID	Interval	System	TPHg <sup>1</sup> (ppmv)	FID Reading (ppmv)	Adjusted FID <sup>2</sup> (ppmv)	TPHg	Periodic	Cumulative	TPHg	Periodic	Cumulative
		Hours of Operation	Flow Rate				Removal Rate <sup>3</sup>	TPHg Removal	TPHg Removed <sup>4</sup>	Removal Rate <sup>3</sup>	TPHg Removal	TPHg Removed <sup>4</sup>
		(hours)	(CFM)				(#/hour)	(#)	(#)	(#/hour)	(#)	(#)
09/26/00	MW-15	5.00	16.6	919	1525	973	0.216	0.216	1.071	0.204	0.204	0.963
09/26/00	MW-15	6.00	20.3	946	1723	1,059	0.287	0.287	1.358	0.257	0.257	1.220
09/26/00	MW-15	7.00	21.0	973	1471	949	0.266	0.266	1.624	0.273	0.273	1.493
09/26/00	MW-15	8.00	18.6	<b>1000</b>	1619	1,014	0.252	0.252	1.876	0.249	0.249	1.742
09/27/00	MW-6	0.25	18.8	686	767	643	0.162	0.040	0.040	0.172	0.043	0.043
09/27/00	MW-6	0.50	19.1	<b>670</b>	1109	792	0.202	0.051	0.091	0.171	0.043	0.086
09/27/00	MW-6	0.75	20.0	654	1277	865	0.231	0.058	0.149	0.175	0.044	0.130
09/27/00	MW-6	1.00	18.9	637	1400	918	0.232	0.058	0.207	0.161	0.040	0.170
09/27/00	MW-6	1.50	18.6	605	876	690	0.172	0.086	0.293	0.150	0.075	0.245
09/27/00	MW-6	2.00	18.1	572	905	703	0.170	0.085	0.378	0.138	0.069	0.314
09/27/00	MW-6	2.50	17.6	539	702	615	0.145	0.072	0.450	0.127	0.063	0.378
09/27/00	MW-6	3.00	18.7	507	704	616	0.154	0.077	0.527	0.127	0.063	0.441
09/27/00	MW-6	4.00	20.4	441	142	371	0.101	0.101	0.628	0.120	0.120	0.561
09/27/00	MW-6	5.00	18.7	376	122	362	0.091	0.091	0.719	0.094	0.094	0.655
09/27/00	MW-6	6.00	19.0	311	72	341	0.087	0.087	0.805	0.079	0.079	0.734
09/27/00	MW-6	7.00	18.8	245	274	429	0.108	0.108	0.913	0.062	0.062	0.796
09/27/00	MW-6	8.00	18.0	<b>180</b>	170	383	0.092	0.092	1.005	0.043	0.043	0.839
09/27/00	MW-14	0.25	40.0	373	375	472	0.253	0.063	0.063	0.200	0.050	0.050
09/27/00	MW-14	0.50	45.0	<b>360</b>	278	430	0.259	0.065	0.128	0.217	0.054	0.104
09/27/00	MW-14	0.75	51.0	347	390	479	0.327	0.082	0.210	0.236	0.059	0.163
09/27/00	MW-14	1.00	55.0	333	418	491	0.361	0.090	0.300	0.245	0.061	0.224

# CAMBRIA

**Table 1: Vapor Mass Removal Data - Connell Automotive Dealership**

System Information				Hydrocarbon Concentrations			Mass Removal (Adjusted FID Based)			Mass Removal (Analytical based)		
Date	Well ID	Interval	System	TPHg <sup>1</sup> (ppmv)	FID Reading (ppmv)	Adjusted FID <sup>2</sup> (ppmv)	TPHg	Periodic	Cumulative	TPHg	Periodic	Cumulative
		Hours of Operation	Flow Rate				Removal Rate <sup>3</sup>	TPHg Removal	TPHg Removed <sup>4</sup>	Removal Rate <sup>3</sup>	TPHg Removal	TPHg Removed <sup>4</sup>
		(hours)	(CFM)				(#/hour)	(#)	(#)	(#/hour)	(#)	(#)

CFM = Cubic feet per minute

TPHg = Total petroleum hydrocarbons as gasoline (C6-C12) by modified EPA Method 8015 in 1 liter tedlar bag samples

ppmv = Parts per million by volume

# = Pounds



# CAMBRIA

**Table 1: Vapor Mass Removal Data - Connell Automotive Dealership**

System Information				Hydrocarbon Concentrations			Mass Removal (Adjusted FID Based)			Mass Removal (Analytical based)		
Date	Well ID	Operation Interval (hours)	System Flow Rate (CFM)	TPHg <sup>1</sup> (ppmv)	FID Reading (ppmv)	Adjusted FID <sup>2</sup> (ppmv)	TPHg	Periodic	Cumulative	TPHg	Periodic	Cumulative
							Removal Rate <sup>3</sup> (#/hour)	TPHg Removal (#)	TPHg Removed <sup>4</sup> (#)	Removal Rate <sup>3</sup> (#/hour)	TPHg Removal (#)	TPHg Removed <sup>4</sup> (#)

**Abbreviations and Notes:**

- 1. Bold** TPHg concentrations lab analytical results. Non-bolded TPHg is an extrapolation based on analytical. TPHg analyzed by EPA Method 8015/8020 in 1 liter tedlar bag samples.
- FID readings adjusted by linear correlation of FID readings to laboratory analytical data (Adjusted FID = 0.435 x FID + 309.33)
- TPHg removal rate = Rate based on Bay Area Air Quality Management District's Manual of Procedures for Soil Vapor Extraction dated July 17, 1991.  
 (Rate = Concentration (ppmv) x system flow rate (cfm) x (1lb-mole/386ft<sup>3</sup>) x molecular weight (86 lb/lb-mole for TPHg) x 60 min/hour x 1/1,000,000)
- Cumulative TPHg removal = Removal rate multiplied by the hour-interval of operation plus the previous total

CFM = Cubic feet per minute

TPHg = Total petroleum hydrocarbons as gasoline (C6-C12) by modified EPA Method 8015 in 1 liter tedlar bag samples

ppmv = Parts per million by volume

# = Pounds

**ATTACHMENT A**

Certified Laboratory Analytical Report(s)



**McCAMPBELL ANALYTICAL INC.**

110 2nd Avenue South, #D7, Pacheco, CA 94553-5560  
 Telephone: 925-798-1620 Fax: 925-798-1622  
<http://www.mccampbell.com> E-mail: [main@mccampbell.com](mailto:main@mccampbell.com)

Cambria Environmental Technology 1144 65 <sup>th</sup> Street, Suite C Oakland, CA 94608	Client Project ID: #425-1580-035; Connell	Date Sampled: 09/25/00
	Client Contact: Bob Schultz	Date Received: 09/26/00
	Client P.O:	Date Extracted: 09/26-09/27/00
		Date Analyzed: 09/26-09/27/00

**Gasoline Range (C6-C12) Volatile Hydrocarbons as Gasoline\*, with Methyl tert-Butyl Ether\* & BTEX\***  
 EPA methods 5030, modified 8015, and 8020 or 602; California RWQCB (SF Bay Region) method GC/FID(5030)

Lab ID	Client ID	Matrix	TPH(g)*	MTBE	Benzene	Toluene	Ethylbenzene	Xylenes	% Recovery Surrogate
48719	MW6-A	Air	360,c,a	ND	21	17	1.3	5.2	...*
48720	MW6-B	Air	360,c,a	ND	20	17	1.4	5.4	115

\* ppm (mg/L) to ppmv (uL/L) conversion for TPH(g) assumes the molecular weight of gasoline to be equal to that of hexane.

Reporting Limit unless otherwise stated; ND means not detected above the reporting limit	Air	10 uL/L	1.5	0.15	0.15	0.15	0.25		
	S	1.0 mg/kg	0.05	0.005	0.005	0.005	0.005		

\* water and vapor samples are reported in uL/L(ppmv), wipe samples in ug/wipe, soil and sludge samples in mg/kg, and all TCLP and SPLP extracts in ug/L.

\* cluttered chromatogram; sample peak coelutes with surrogate peak

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



**McCAMPBELL ANALYTICAL INC.**

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

Cambria Environmental Technology 1144 65 <sup>th</sup> Street, Suite C Oakland, CA 94608	Client Project ID: #452-1580-035; Conney	Date Sampled: 09/26/00
	Client Contact: Bob Schultz	Date Received: 09/27/00
	Client P.O.:	Date Extracted: 09/27-09/28/00
		Date Analyzed: 09/27-09/28/00

**Gasoline Range (C6-C12) Volatile Hydrocarbons as Gasoline\*, with Methyl tert-Butyl Ether\* & BTEX\***  
 EPA methods 5031, modified 8015, and 8020 or 602; California RWQCB (SF Bay Region) method GCFID(5030)

Lab ID	Client ID	Matrix	TPH(g)*	MTBE	Benzene	Toluene	Ethylbenzene	Xylenes	% Recovery Surrogate
48814	MW15-A	Air	810,c,a	ND	31	23	1.2	5.0	116
48815	MW15-B	Air	1000,c,a	ND	40	29	1.4	8.9	---

\* ppm (mg/L) to ppmv (uL/L) conversion for TPH(g) assumes the molecular weight of gasoline to be equal to that of hexane.


Reporting Limit unless otherwise stated: ND means not detected above the reporting limit	Air	10 uL/L	1.5	0.15	0.15	0.15	0.25	
	S	1.0 mg/kg	0.05	0.005	0.005	0.005	0.005	


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

\* cluttered chromatogram; sample peak coelutes with surrogate peak

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

DHS Certification No. 1644

*Edward Hamilton* Edward Hamilton, Lab Director

 <b>McCAMPBELL ANALYTICAL INC.</b>	110 2nd Avenue South, #D7, Pacheco, CA 94553-5560 Telephone : 925-798-1620 Fax : 925-798-1622 <a href="http://www.mccampbell.com">http://www.mccampbell.com</a> E-mail: <a href="mailto:main@mccampbell.com">main@mccampbell.com</a>
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Cambria Environmental Technology 1144 65 <sup>th</sup> Street, Suite C Oakland, CA 94608	Client Project ID: #425-1580-035; Connel	Date Sampled: 09/27/00
	Client Contact: Bob Schultz	Date Received: 09/28/00
	Client P.O:	Date Extracted: 09/28-09/29/00
		Date Analyzed: 09/28-09/29/00

**Gasoline Range (C6-C12) Volatile Hydrocarbons as Gasoline\*, with Methyl tert-Butyl Ether\* & BTEX\***  
 EPA methods 5030, modified 8015, and 8020 or 602; California RWOCB (SF Bay Region) method GCFID(5030)

Lab ID	Client ID	Matrix	TPH(g)*	MTBE	Benzene	Toluene	Ethylbenzene	Xylenes	% Recovery Surrogate
48921	MW6-A	Air	670,c,u	ND	20	17	1.6	6.6	---
48922	MW6-B	Air	180,a	ND	14	15	1.0	5.7	106
18923	MW14-A	Air	360,a	ND	28	29	1.9	11	---
48924	MW 14-B	Air	280,a	ND<3	22	24	1.6	10	104

\* ppm (mg/L) to ppmv (uL/L) conversion for TPH(g) assumes the molecular weight of gasoline to be equal to that of hexane.

Reporting Limit unless otherwise stated; ND means not detected above the reporting limit	Matrix	TPH(g)	MTBE	Benzene	Toluene	Ethylbenzene	Xylenes
Air	10 uL/L	1.5	0.15	0.15	0.15	0.25	
S	1.0 mg/kg	0.05	0.005	0.005	0.005	0.005	

\* water and vapor samples are reported in uL/L(ppmv), wipe samples in ug/wipe, soil and sludge samples in mg/kg, and all TCE,P and SPI,P extracts in ug/L

\* cluttered chromatogram; sample peak coelutes with surrogate peak


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

 Edward Hamilton, Lab Director

TO BOB Schultz

FROM JASON

1 page

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

Cambria Environmental Technology 1144 65 <sup>th</sup> Street, Suite C Oakland, CA 94608	Client Project ID: #425-1580-035; Connell	Date Sampled: 09/28/00
	Client Contact: Bob Schultz	Date Received: 09/29/00
	Client P.O:	Date Extracted: 09/29-09/30/00
		Date Analyzed: 09/29-09/30/00

**Gasoline Range (C6-C12) Volatile Hydrocarbons as Gasoline\*, with Methyl tert-Butyl Ether\* & BTEX\***  
 EPA methods 5030, modified 8015, and 8020 or 602; California RWOCB (SF Bay Region) method GC/FID(5030)

Lab ID	Client ID	Matrix	TPH(g) <sup>†</sup>	MTBE	Benzene	Toluene	Ethylbenzene	Xylenes	% Recovery Surrogate
18978	MW1-A	Air	81.a	ND	2.8	5.5	0.91	6.6	99
48979	MW1-B	Air	8100.a	ND<85	400	370	39	190	---

\* ppm (mg/L) to ppmv (uL/L) conversion for TPH(g) assumes the molecular weight of gasoline to be equal to that of hexane.


Reporting Limit unless otherwise stated; ND means not detected above the reporting limit	Air	10 uL/L	1.5	0.15	0.15	0.15	0.25	
	S	1.0 mg/kg	0.05	0.005	0.005	0.005	0.005	

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

\* cluttered chromatogram; sample peak occludes with surrogate peak

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

22176 ZC 214

**McCAMPBELL ANALYTICAL INC.**

110 2<sup>nd</sup> AVENUE SOUTH, #D7  
PACHECO, CA 94553

Telephone: (925) 798-1620

Fax: (925) 798-1622

**CHAIN OF CUSTODY RECORD**

TURN AROUND TIME

RUSH  24 HOUR  48 HOUR  5 DAY

Report To: Bob Schultz Bill To:  
Company: Cambria Environmental Technology *Same*  
1144 65<sup>th</sup> Street, Suite C  
Oakland, CA 94608  
Tele: (510) 420-0700 Fax: (510) 420-9170  
Project #: *425-1580-035* Project Name: *Connell*  
Project Location: *3093 Broadway, Oakland*  
Sampler Signature: *[Signature]*

Analysis Request										Other	Comments	
<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	
<p> <input type="checkbox"/> BTEX &amp; TPH as Gas (602/620 + 8015) MTBE  <input type="checkbox"/> TPH as Diesel (8015)  <input type="checkbox"/> Total Petroleum Oil &amp; Grease (5520 E&amp;F/B&amp;F)  <input type="checkbox"/> Total Petroleum Hydrocarbons (418.1)  <input type="checkbox"/> EPA 601 / 8010  <input type="checkbox"/> BTEX ONLY (EPA 602 / 8020)  <input type="checkbox"/> EPA 608 / 8080  <input type="checkbox"/> EPA 608 / 8080 PCB's ONLY  <input type="checkbox"/> EPA 624 / 8240 / 8260  <input type="checkbox"/> EPA 625 / 8270  <input type="checkbox"/> PAH's / PNA's by EPA 625 / 8270 / 8310  <input type="checkbox"/> CAM-17 Metals  <input type="checkbox"/> LUFT 5 Metals  <input type="checkbox"/> Lead (7240/7421/239/26010)  <input type="checkbox"/> RCI  <input checked="" type="checkbox"/> <i>HYD's</i> </p>												
<i>MW6-A</i>	<i>Connell</i>	<i>9-25</i>	<i>12:45</i>	<i>1</i>	<i>BAG</i>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>					<i>48719</i>
<i>MW6-B</i>	<i>Connell</i>	<i>9-25</i>	<i>3:00</i>	<i>1</i>	<i>BAG</i>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>					<i>48720</i>

ICE  GOOD CONDITION HEAD SPACE ABSENT PRESERVATION APPROPRIATE CONTAINERS

VOAS P&G METALS OTHER

Relinquished By: *Greg Bentley* Date: *9-25* Time: *11:40* Received By: *[Signature]*  
 Relinquished By: *[Signature]* Date: *9-26* Time: *11:40* Received By: *[Signature]*  
 Relinquished By: *[Signature]* Date: *9-26* Time: *11:40* Received By: *[Signature]*

Remarks: Report in ppmv. Fax Results Reporting limit for TPHg of 10ppmv. (20ml injection)



McCAMPBELL ANALYTICAL INC.

110 2<sup>ND</sup> AVENUE SOUTH, #D7  
PACHECO, CA 94553

Telephone: (925) 798-1620

Fax: (925) 798-1622

70152 EC 217

CHAIN OF CUSTODY RECORD  
TURN AROUND TIME  RUSH  24 HOUR  48 HOUR  5 DAY

Report To: Bob Schultz

Bill To:

Company: Cambria Environmental Technology

1144 65<sup>th</sup> Street, Suite C  
Oakland, CA 94608

Same

Tele: (510) 420-0700

Fax: (510) 420-9170

Project #: 452-1580-035

Project Name: Connell

Project Location: Oakland

Sampler Signature:

SAMPLE ID	LOCATION	SAMPLING		# Containers	Type Containers	MATRIX					METHOD PRESERVED				Analysis Request												Other	Comments												
		Date	Time			Water	Soil	Air	Sludge	Other	Ice	HCl	HNO <sub>3</sub>	Other	BTEX & TPH as Gas (602/8020 + 8015) MTBE	TPH as Diesel (8015)	Total Petroleum Oil & Grease (5520 E&F&F)	Total Petroleum Hydrocarbons (418.1)	EPA 601 / 8010	BTEX ONLY (EPA 602 / 8020)	EPA 608 / 8080	EPA 608 / 8080 PCB's ONLY	EPA 624 / 8240 / 8260	EPA 625 / 8270	PAH's / PNA's by EPA 625 / 8270 / 8310	CAM-17 Metals			LUFT 5 Metals	Lead (7240/7421/239, 2/6010)	RCI									
MW15-A	Connell	9-26	10:15	1	BAG		X																																	48814
MW15-B	Connell	9-26	5:15	1	BAG		X																																48815	

Relinquished By: Green Bentley Date: 9-27 Time: Received By:

Relinquished By: [Signature] Date: 9-27 Time: 8:20 Received By: [Signature]

Relinquished By: [Signature] Date: 9-27 Time: 14:08 Received By: [Signature]

Remarks: Report in ppmv. Fax results Report limit for TPHg of 10 ppmv. (20 mL injection)

ICBN   
 STORAGE CONDITION   
 NO SPACE ABBENT   
 PRESERVATION   
 CONTAINERS   
 VOCs  METALS  OTHER

Sent By: MCCAMPBELL ANALYTICAL; 925 798 1620; Oct-4-00 11:06AM; Page 9/14

McCAMPBELL ANALYTICAL INC.

110 2<sup>nd</sup> AVENUE SOUTH, #D7  
PACHECO, CA 94553

Telephone: (925) 798-1620

Fax: (925) 798-1622

Report To: Bob Schultz

Bill To:

Company: Cambria Environmental Technology

*Home*

1144 65<sup>th</sup> Street, Suite C

Oakland, CA 94608

Tele: (510) 420-0700

Fax: (510) 420-9170

Project #: 425-1596-075

Project Name: *Connell*

Project Location: *Oakland*

Sampler Signature: *[Signature]*

22221 20217

CHAIN OF CUSTODY RECORD  
TURN AROUND TIME

RUSH  24 HOUR  48 HOUR  5 DAY

SAMPLE ID	LOCATION	SAMPLING		# Containers	Type Containers	MATRIX					METHOD PRESERVED		Analysis Request	Other	Comments	
		Date	Time			Water	Soil	Air	Sludge	Other	Ice	HCl				HNO <sub>3</sub>
MWG-A	Connell	9-27	7:00 <sup>A</sup>	1	BAG			X								
MWG-B			2:30 <sup>P</sup>	1												48921
MWH-A			3:30 <sup>P</sup>	1												48922
MWH-B			5:08 <sup>P</sup>	1												48923
																48924

Relinquished By: <i>Greg Bentley</i>	Date: 9/27	Time:	Received By: <i>Ron #224</i>
Relinquished By: <i>Scott #283</i>	Date: 9/28	Time: 1:45	Received By: <i>[Signature]</i>
Relinquished By:	Date:	Time:	Received By:

Remarks: Report in ppm. Fax Results For TPHg a reporting limit of 10ppm. (20ml injection)

Sent By: McCAMPBELL ANALYTICAL; 925 798 1620; Oct-4-00 11:07AM; Page 12/14

*re*

**ATTACHMENT B**

Field Data Sheets

# CAMBRIA

470  
669

## DUAL PHASE EXTRACTION TEST FIELD DATA SHEET

Project Name: Connell Automotive Dealership  
 Project Number: 425-1580-035  
 Technicians: Greg Bentley

Date: 9-25-00  
 Project Address: 3093 Broadway, Oakland  
 Equipment: Generator, Water Trailer, DVE

Extraction Well ID	Time (min)	Vacuum ("H2O)	Air Flow (cfm)	FID (ppm)	Vapor Sample (ID#)	Stinger Depth (ft bgs)	Tank H2O Volume (gal)	Tank SPH Volume (gal)	DTW (ft bgs)	Influence (Well ID)
										DTW / Vacuum (ft bgs / "H2O)
										MW8
MW6	11:45 0	Ø	Ø	Ø		26'	Ø	Ø	24.21	26-44 Ø
	12:00 15	97"	30	3000						
	12:15 30	97"	20.7	3000	MW6-A	FID 360				
	12:30 45	100"	16.8	1800						
	12:45 60	100"	17	1900						
	1:00 90	98"	17.1	1100						
	1:15 120	100"	16.6	1100						
	1:30 150	99"	15.4	1800						
	1:45 180	100"	13	1600						
	2:00 240	100"	15.2	1300						
	2:15 300	100"	17	1700						
	2:30 360	100"	13.7	1600						
	2:45 420	100"	15.3	1300						
	3:00 480	100"	17.2	1700	MW6-B		90		24.26	26.54 Ø

FID 360

Beginning Totalizer - 181360  
 End of Day - 181450  
 mw6

← 1 - 5 - 1 - 2 - 3 - 4 - 5 - 6 - 7 - 8 - 9 - 10 - 11 - 12

# CAMBRIA

## DUAL PHASE EXTRACTION TEST FIELD DATA SHEET

Project Name: Connell Automotive Dealership  
 Project Number: 425-1580-035  
 Technicians: Greg Bentley

Date: 9-26-00  
 Project Address: 3093 Broadway, Oakland  
 Equipment: \_\_\_\_\_

Extraction Well ID	Time (min)	Vacuum ("H2O)	Air Flow (cfm)	FID (ppm)	Vapor Sample (ID#)	Stinger Depth (ft bgs)	Tank H2O Volume (gal)	Tank SPH Volume (gal)	DTW (ft bgs)	Influence(Well ID)
										DTW / Vacuum (ft bgs / "H2O)
										MW9
0 MW15	9:15 0	0	0	0		25'	90		22.7	20.5
.25	9:30 15	100"	18.2	1113						.05
.5	9:45 30	100"	17.7	1196						
.75	10:00 45	100"	15.9	1265		Horiba				.2
1	10:15 60		16.1	1520	MW15-A	810				
1.5	10:45 90		11.8	1316						.25
2	11:15 120		17.6	1671						.25
2.5	11:45 150		17.3	1370						.20
3	12:15 180		18	1544						.2
4	1:15 240		17.8	1660						.15
5	2:15 300		16.6	1525						.00
6	3:15 360		20.3	1723						.08
7	4:15 420		21	1471						.00
8	5:15 480	100"	18.6	1619	MW15-B		280		24.15	20.51 .00

224  
227  
103

Horiba  
1000

END Horiba End of Day Totalizer - 181640

# CAMBRIA

## DUAL PHASE EXTRACTION TEST FIELD DATA SHEET

Project Name: Connell Automotive Dealership  
 Project Number: 425-1580-035  
 Technicians: Greg Bentley

Date: 9-27-00  
 Project Address: 3093 Broadway, Oakland  
 Equipment: \_\_\_\_\_

Extraction Well ID	Time (min)	Vacuum ("H2O)	Air Flow (cfm)	FID (ppm)	Vapor Sample (ID#)	Stinger Depth (ft bgs)	Tank H2O Volume (gal)	Tank SPH Volume (gal)	DTW (ft bgs)	Influence(Well ID)
										DTW / Vacuum (ft bgs / "H2O)
									DTW 24.15 DTW 24.22	<del>MWD-29</del>
<del>MWD-29</del>	6:30	0	0	0		25'		(280)	24.27	
	6:45	100	18.8	767		Horiba				MWD-29 ppm
	7:00 30	100	19.1	1109	<del>MWD-29</del>	670				
	7:15 45	100	20	1277						
	7:30 60	105	18.9	1400						
	8:00 90	105	18.6	876						
	8:30 120	105	18.1	905						
	9:00 150	105	17.6	702						
	9:30 180	105	18.7	704						
	10:30 240	140	20.4	142		26'6"				
	11:30 300	150	18.7	122		27'				
	12:30 360	155	19	72		27'				
	1:30 420	155	18.8	274		27'6"				
	2:30 480	160	18	170	<del>MWD-29</del>	27'6"		(600)	26.9'	

L180  
Horiba

End of Test Totalizer - 182020

# CAMBRIA

Project:	Connell Auto	Cambria Mgr:	Bob Schultz	Field Person:	GP
Project #:	425-1580-035	Date:	9-27-00	Well ID:	MW-14
Location:	3093 Broadway, Oakland				
Description of Tasks:	Dual Phase Extraction Test				

~~Well Recovery Test Data Sheet~~

Static DTW:	Drawdown DTW:	80% Recovery Level:
Start Pumping Time:	Total Gallons Pumped:	
Stop Pumping Time:	Flow Rate:	

Standard: 0-5 minutes, every 30 seconds; 5-15 minutes, every 60 seconds; 15-recovery, every 5 minutes (300 seconds)

Time	Elapsed Time	DTW (ft)	Vac	Flow	FID	Notes	Stinger Depth
3:00	0	23.47	0	0	0		25
3:15	15		140	40	375 ppm		
→ 3:30	30		140	45	278 ppm		Sample
3:45	45		140	51	390 ppm		
4:00	60		140	55	418 ppm		
4:30	90		140	53	378 ppm		
→ 5:00	120	24.13	140	52.3	350 ppm		Sample

Influence		Well MW-15	
0	23.79	0	
15		.05	
30		.10	
45		.10	
60		.10	
90		.10	
120	23.78	.10	

# CAMBRIA

## DUAL PHASE EXTRACTION TEST FIELD DATA SHEET

Project Name: Connell Automotive Dealership  
 Project Number: 425-1580-035  
 Technicians: Greg Bentley

Date: 9-28-00  
 Project Address: 3093 Broadway, Oakland  
 Equipment: \_\_\_\_\_

28.10  
23.7  
4.6

Extraction Well ID	Time (min)	Vacuum ("H2O)	Air Flow (cfm)	FID (ppm)	Vapor Sample (ID#)	Stinger Depth (ft bgs)	Tank H2O Volume (gal)	Tank SPH Volume (gal)	DTW (ft bgs)	Influence(Well ID)
										DTW / Vacuum (ft bgs / "H2O)
										MW14
MW1	8:30	0	0	0		25			23.39	73.52
	8:45	120	47.8	3160		28				.05
	9:00	100	42.1	2700	MW1-A	30	Horiba			.10
	9:15	70	58.3	2340	MW1-A	30	81			.10
	9:30	60	50.8	1496		29.5				.10
	10:00	50	8.9	913		28.1				.10
	10:30	100	33	4130		28				.10
	11:00	100	20	15,270		28				.25
	11:30	90	25	3950		26				.30
	12:30	85	40.6	2910		28				.10
	1:30	80	38.5	3130		29				.10
	2:50	160	56.5	20,770		27	Horiba			.55
	3:50	160+	60	17,700	MW1-A	8100			23.48	.70
		Vac @ Wellhead			MW1-B					

Lowered Vac to bring WL up.

opped stinger to y + increase Vapor Reading. No luck increased Vac optimize vapor pull.

begin step test

3:35	15	1.2	5cfm	700ppm
3:50	30	2.4	8.5	12,290
4:05	45	4.8	15.5	19,390

4:20 END step test.

MID 4,000



**Product Removal Form** Connell Automobile Dealership, Oakland, CA

By: GB Date: 11-3-00

Project and Task #: 425-1580-1

Well	Treatment	Time	Gallons Removed*	DTW/DTP	Comments
MW-1	SoakEase	12:45		24.14 23.36	Removed & Replaced sock
MW-6	Skimmer	12:30		24.30 24.21	
MW-14	SoakEase	1:00		23.6	No product detected

\* If SoakEase is removed, wring out used sock into bucket and estimate vol. removed. Saturated socks theoretically hold about 1 quart (0.25 gal) of product. Skimmer receptacle holds about 1/2 quart (0.14 gal) of product.

Notes Return w/ product bailer for MW-1

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No. of Product Drums Onsite: 1 (2) empty drums  
 Drum capacity available: \_\_\_\_\_ (1) 15 gal drum for socks  
 (2) Carbon drums  
 (1) Baker Tank

H:\SB-2004\UST Fund\Connell\NFP-removal-form.wpd

**QUICK FAX™ OfficeMax**

Date: \_\_\_\_\_ # Of Pages: \_\_\_\_\_

To: Bob Schultz From: G. Bentley

Co./Dept: \_\_\_\_\_ Co./Dept: \_\_\_\_\_

Fax: \_\_\_\_\_ Fax: \_\_\_\_\_

Phone: \_\_\_\_\_ Phone: \_\_\_\_\_

Note: Faxed-11-6-00 E-Mail: \_\_\_\_\_

**Product Removal Form** Connell Automobile Dealership, Oakland, CA

By: L. Hill Date: 12-1-00

Project and Task #: 425-1580-011

Well	Treatment	Time	Gallons Removed*	DTW/ DTP	Comments
MW-1	SoakEase	11:50	Soak contained in 0.25 gal 1 1/2 gallons bailed	<del>25.40</del> 24.57	Soak was completely saturated with SPA very strong odor <del>with</del> Honey color product
MW-6	Skimmer	11:59	~ 30 of <del>soak</del> 20 ml bailed	<del>24.38</del> 24.31	Skimmer is not working globbules very little SPA Skimmer contained water and very little product ~ 10 ml
MW-14	SoakEase	11:53	~ 10 ml soak bailed 0.035 gal	<del>23.90</del> 23.86	Strong odor very little SPA soak had very little SPA in it

\* If SoakEase is removed, wring out used sock into bucket and estimate vol. removed. Saturated socks theoretically hold about 1 quart (0.25 gal) of product. Skimmer receptacle holds about 1/2 quart (0.14 gal) of product.

Notes product in MW-6 is in globbular form a very thin layer was removed with first bail but after first bail globbules were removed (very strong odor) skimmer needs to be replaced (possibly with a skimmer containing hydrophobic filter)

MW-14 very strong odor SPA is not in layers but in globbular form (Removed ~ 1 gallon of water with SPA) Removed and replaced soak

MW-2 = very strong odor soak completely saturated with SPA

No. of Product Drums Ons. \_\_\_\_\_

Drum capacity available: \_\_\_\_\_ ns