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8:55 am, Apr 06, 2010

Alameda County
Environmental Health

April 5, 2010

Ms. Barbara Jakub
Hazardous Materials Specialist
Alameda County Department of Environmental Health
1131 Harbor Bay Parkway, Suite 250
Alameda, California 94502

Subject: Indoor Air Survey Letter of Findings - EmeryBay Phase I Condo Parking Garage
6400 Christie Avenue, Emeryville, California

Dear Ms. Jakub:

INTRODUCTION AND BACKGROUND

On behalf of the property owner and “Responsible Party” (Emery Bay Commercial Association), Stellar Environmental Solutions, Inc. (Stellar Environmental) is submitting this Indoor Air Survey for the Emerybay Phase I Condos located at 6400 Christie Avenue in Emeryville, California. This is the second indoor air report for the property, the first having been completed in February 2009.

The subject property parcel was developed as early as 1958 with the Garrett Motor Freight Station, associated with Delta Lines, Inc. The Delta Lines complex contained an “Oil and Gas” building, located at the site of the present-day Emery Bay Phase I Condo complex and parking garage. The building remained on the property until 1986, when it was demolished to build the present-day structures. Twelve underground fuel storage tanks (UFSTs) containing diesel and gasoline were removed from the Emery Bay Phase I and Phase II Condo complex parcels in 1987, at which time soil and groundwater contamination was discovered. The site has undergone fuel tank-related investigations and remediation since 1988 (by Stellar Environmental since 2007).

The purpose of this survey is to determine if increasing the exchange rate of the heating, ventilation, and air-conditioning system (HVAC) has resulted in a decrease in contaminant concentrations within the ground floor office building. The previous indoor air survey conducted in February 2009 found levels of benzene and ethyl benzene above the Department of Toxic

Substance Control (DTSC) California Human Health Screening Levels (CHHSLs) and Regional Water Quality Control Board (Water Board) Environmental Screening Limits (ESLs) in the one location of the ground floor office suggested some indoor air quality risk.

The goals of this Stellar Environmental preliminary study were to:

- Follow the California Department of Toxic Substance Control (DTSC) guidance for conducting indoor air sampling;
- Collect one indoor air sample and one outdoor ambient air sample during normal office working hours (9:00 am to 5:00 pm); and
- Analyze the indoor air quality samples for the chemical constituents previously detected using EPA Method TO-15 (benzene, toluene, ethyl benzene, and total xylenes).

Figure 1 presents the general site location. Figure 2 is a site map of the property. Figures 3 and 4 show the downstairs and upstairs site plans, respectively, as well as sample locations and analytical results.

The Alameda County Department of Environmental Health (ACEH) has not issued a directive requesting this indoor survey; however, these studies have been conducted under ACEH oversight (Case number RO #2799) and in conformance with the DTSC guidance on vapor intrusion. This report has been uploaded to the ACEH ftp site and to the State Water Resources Control Board online GeoTracker system (Global ID SLT2O05561).

INDOOR AIR SAMPLING

Air Sampling Location Rationale

Based on the results of the February 2009 indoor air sampling event, during the March 2010 event one sample was placed in the kitchen area of the ground floor office (located in the southwestern corner of the building) and one sample was placed outside on the first floor condo/apartment space to serve as an ambient air sample. One additional sample, collected above the area of greatest contamination in the northwestern corner of the ground-floor garage, also contained concentrations above the CHHSL's and ESLs in the February 2009 sampling event. However, based on the open-air construction of the garage, this location does not pose an "indoor air" risk to building occupants. Samples taken in other areas of the garage and in the first floor living space (which is located above two levels of open-air garage) did not contain contaminant concentrations above the CHHSL's or ESLs.

Indoor Air Sampling Protocol

Ms. Teal Glass of Stellar Environmental completed the sampling setup at 8:30 am on March 22, 2010 and retrieved the sampling apparatus at 4:30 pm the same day. Photodocumentation of the sampling event is attached.

The indoor air sampling program generally followed the recent DTSC guidance entitled: *Evaluation and Mitigation of Subsurface Vapor Intrusion to Indoor Air* (DTSC, February 2005). The protocol used included:

- Samples were collected for analysis using Environmental Protection Agency (EPA) method TO-15 [used for integrated (greater than a few minutes) sampling events], which includes the contaminants of concern: benzene, toluene, ethyl benzene, and total xylenes which were reported in the previous indoor air sampling event;
- One air sample was collected from inside the kitchen area of the ground-floor office and one sample was collected outside on the first floor outdoor area;
- The indoor air sample and outdoor air sample were collected over an 8-hour period using 6-liter Summa® canister with a calibrated flow controller set at 11.5 milliliters per minute with the sample intake positioned approximately 3-5 feet above the building floor; and
- The samples were collected during the average period when the building would typically be occupied from 8:30 am until 4:30 pm.

The samples were maintained at ambient temperature, out of direct sunlight and transported by courier to Torrent Laboratory of Milpitas, California, a laboratory certified by the State of California Environmental Laboratory Accreditation Program (ELAP) for the analytical method utilized in this investigation.

REGULATORY CONSIDERATIONS

In December 2004, the Office of Environmental Health Hazard Assessment (OEHHA) on behalf of the California Environmental Protection Agency (CAL EPA) established their own risk equivalent to the Water Boards Environmental Screening Levels (ESLs), which are called California Human Health Screening Levels (CHHSLs). The CHHSLs, used by DTSC in their assessment of sites, address direct exposure to soil and vapor intrusion into buildings. The CHHSLs incorporate both environmental and human health risk considerations. In addition, the California Occupational Safety and Health Administration (CAL OSHA) has also established

Permissible Exposure Limits (PELs) that reflect the maximum permitted 8-hour average concentration limit of an airborne contaminant. The CAL OSHA standards, while more conservative, are similar to the federal OSHA standards. Both the Cal OSHA standards and federal standards are less conservative than the Water board or Cal EPA standards. In general the ESLs and CHHSLs use a more conservative risk factor of a 1 in 1,000,000 people excess cancer risk versus 1 in 10,000 people excess cancer risk used by CAL OSHA.

Cal EPA CHHSLs

CHHSLs were developed for the evaluation of indoor air and potential vapor intrusion into buildings based on soil gas data collected from less than 5 feet beneath an existing building foundation or the ground surface. Two sets of screening criteria are available for use based on residential/sensitive or industrial/commercial land use. It is important to note that CHHSLs, like ESLs, are not cleanup criteria nor should they be used to determine when impacts should be reported to a regulatory agency. Rather they are screening criteria used to evaluate sites for potential human health concerns where releases of hazardous materials to soils have occurred. CHHSLs are based on a target cancer risk of 10^{-6} and calculation of cumulative risk may be required at sites where multiple contaminants with similar health effects are present. For evaluation of commercial/industrial properties, it is highly recommended that site data be compared to CHHSLs for both residential/sensitive and commercial/industrial land use. Commercial/industrial CHHSLs should be used only under the oversight of a regulatory agency, as that agency will likely require a land use covenant that restricts use of the property to commercial/industrial land use.

INDOOR AIR SAMPLING ANALYTICAL RESULTS AND DISCUSSION

The indoor air sample collected in the kitchen area of the ground floor sales office contained benzene at $3.45 \mu\text{g}/\text{m}^3$, toluene at $4.41 \mu\text{g}/\text{m}^3$, ethyl benzene at $4.99 \mu\text{g}/\text{m}^3$, and total xylenes at $2.47 \mu\text{g}/\text{m}^3$. Of these concentrations, only benzene was detected above the “commercial property” CHHSL of $0.141 \mu\text{g}/\text{m}^3$. All detected concentrations above the CHHSL’s are below the Cal OSHA PELs.

A “control” outdoor (ambient) air sample was also collected in the outdoor courtyard area of the apartment/condominiums to provide background concentration. Benzene was also detected in this ambient air sample, at $1.72 \mu\text{g}/\text{m}^3$. This concentration is also above the CHHSL of $0.141 \mu\text{g}/\text{m}^3$ but below the PEL of $3,193 \mu\text{g}/\text{m}^3$. There were no other contaminants detected above the laboratory detection limits in the outdoor air sample.

Using the DTSC risk calculation sheet for benzene (modified to account for ambient air) and ethyl benzene (attached), the total risk is calculated to be $3.1E-6$ (there are no unit risk factors for toluene or ethyl benzene). Based on the results from the previous February 2009 indoor air sampling event (total risk factor of $7.4E-6$) two consecutive yearly indoor air sampling events have fallen within the DTSC recommendation range of between $10E-7$ and $10E-8$. Therefore, based on the DTSC guidance, the recommendation is that indoor air sampling event frequency may be reduced to every two years.

Table 1 shows the concentrations of indoor air contaminants detected during the 8-hour sampling event of March 22, 2010. Table 1 also shows the CHHSLs and OSHA PEL indoor air standards for the detected contaminants. The DTSC vapor intrusion risk calculation model, laboratory analytical results, and chain-of-custody record are attached.

CONCLUSIONS AND RECOMMENDATIONS

Based on the indoor air results, there is no immediate risk of exposure to commercial occupants of the building (the February 2009 event found no risk to residential occupants). In addition the increase in air exchange from last year to this year did, in general, reduce contaminant concentrations. However, it is recommended that air exchange in the management/security offices be additionally increased so that an exposure risk does not develop.

In general, once CHHSLs are exceeded, the need for and type of additional investigative and corrective actions are generally driven by the potential risk associated with the contamination, with input by the regulatory agency providing oversight, which in this case is the ACEH.

Indoor air risk can be mitigated by the increasing air exchange rates so that the air inside the building is flushed more frequently. The extent to which this is effective can be gauged by air monitoring under the new air exchange conditions.

Based on the findings of this and the previous investigations, Stellar Environmental recommends conducting another indoor air sampling event, as recommended by DTSC guidance, in two years, at approximately the same seasonal timeframe, around February-March 2012.

Stellar Environmental will upload this report to both the ACEH ftp site as well as the Water Board Geotracker site.

Ms. Barbara Jakub
ACEH
April 5, 2010
Page 6 of 8

We trust this review assists you in evaluating the salient environmental issues associated with the subject site. Please call the undersigned directly at (510) 644-3123 if you have any questions regarding this report of findings.

Sincerely,



Teal Glass, R.E.A.
Project Manager



Richard S. Makdisi, R.G., R.E.A.
Principal



Table 1
Indoor Air Sample Analytical Results – March 22, 2010
6400 Christie Avenue, Emeryville, California

Analyte	Indoor Air Sample Location	Outdoor Air Sample Location	CHHSL	ESL	Cal/OSHA PEL
	IA-2-1	OA-2-1			
Benzene	3.45	1.72	0.084 / 0.141	0.084 / 0.14	3,193
Toluene	4.41	ND	313 / 438	63 / 88	188,000
Ethyl Benzene	4.99	ND	NA	0.98 / 1.6	435,000
Xylenes	2.47	ND	730 / 1,020	21 / 29	435,000

Notes:

Cal/OSHA PEL = California Occupational Safety and Health Administration Permissible Exposure Limits.

CHHSL = California Human Health Screening Level for indoor air above which is in excess of a target cancer risk of 10^{-6} . Values for residential/commercial properties.

ESL = Water Board Environmental Screening Level for residential/commercial properties.

NA= There is no number available for this contaminant.

All concentrations are reported in micrograms per cubic meter ($\mu\text{g}/\text{m}^3$). Samples denoted with < are below the laboratory detection limit. All limits are the lowest possible detection limit possible by the laboratory. Samples were collected in the breathing zone between 3.5 and 5 feet above the top of the floor.

FIGURES



Image courtesy of the U.S. Geological Survey



SITE LOCATION ON AERIAL PHOTO

**6400 Christie Ave.
Emeryville, CA**

By: MJC

JANUARY 2008

Figure 1



2007-565-01



SITE PLAN AND ADJACENT LAND USE

6400 Christie Ave.
Emeryville, CA

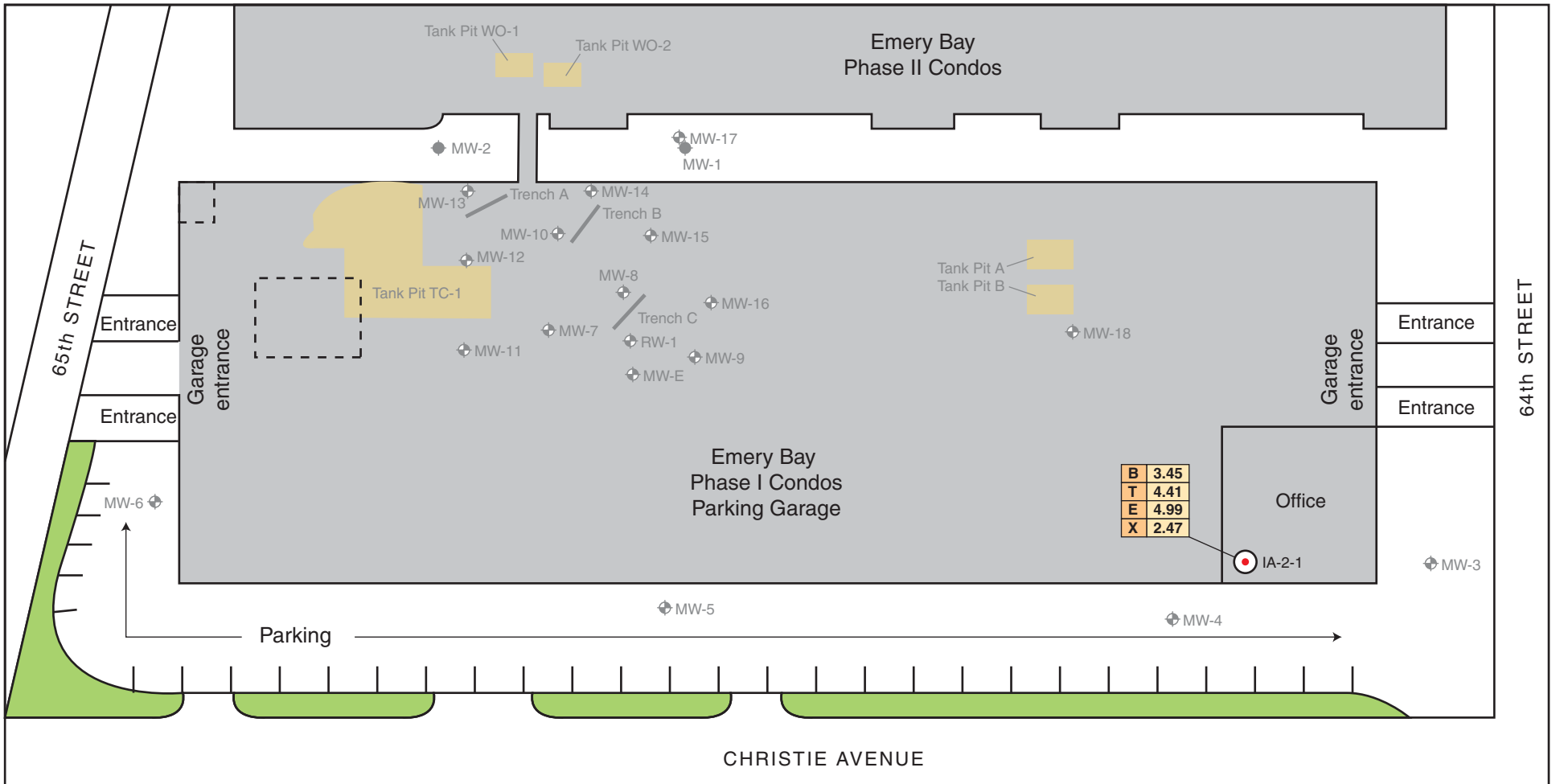
By: MJC

JANUARY 2008

Figure 2

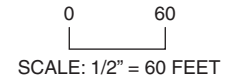


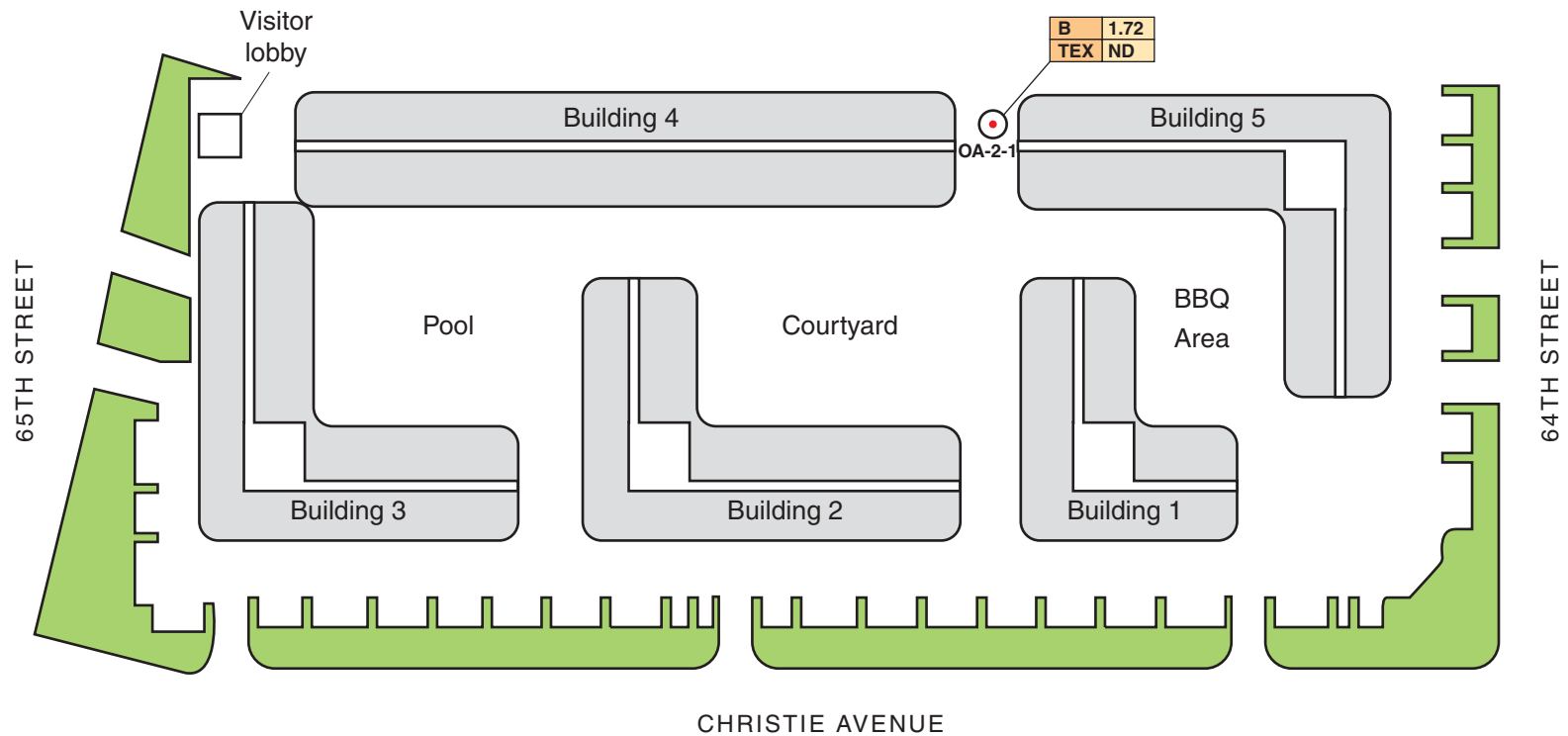
2007-65-07






LEGEND

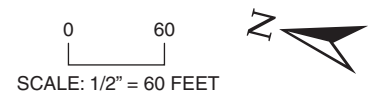
- ⊕ Monitoring well
 - ◆ Monitoring well (presumed abandoned)
 - Trench location
 - ⊙ Indoor air sampling location
 - Historical tank pit area
 - ▭ Gated storage area
 - ▭ Landscaping
 - B - Benzene
 - T - Toluene
 - E - Ethyl Benzene
 - X - Total Xylenes
- All results in micrograms per meter cubed (μm^3)





LEGEND

-  Indoor air sampling location
 -  Landscaping
 -  Hallways
 - B - Benzene
 - E - Ethyl Benzene
 - T - Toluene
 - X - Total Xylenes
- All results in micrograms per meter cubed (μm^3)



**FIRST FLOOR OUTDOOR AIR SAMPLING LOCATION
AND ANALYTICAL RESULTS
6400 Christie Ave., Emeryville, CA**

Figure 4

by: MJC

APRIL 2010

PHOTODOCUMENTATION



Subject: Indoor air sampling location IA-2-1 taken in the ground-floor sales office.

Site: 6400 Christie Avenue, Emeryville, California

Date Taken: March 22, 2010

Project No.: SES 2007-65

Photographer: T. Glass

Photo No.: 01



Subject: Indoor air sampling location OA-2-1 taken in the outdoor courtyard area.

Site: 6400 Christie Avenue, Emeryville, California

Date Taken: March 22, 2010

Project No.: SES 2007-65

Photographer: T. Glass

Photo No.: 02

**LABORATORY ANALYTICAL RESULTS, CHAIN
OF CUSTODY, AND DTSC RISK MODEL**



Stellar Environmental Solutions, Inc
2198 6th Street
Berkeley, California 94710
Tel: 510) 644-3123
RE: 6400 Christie Avenue, Emeryville

Work Order No.: 1003128

Dear Teal Glass:

Torrent Laboratory, Inc. received 2 sample(s) on March 23, 2010 for the analyses presented in the following Report.

All data for associated QC met EPA or laboratory specification(s) except where noted in the case narrative.

Torrent Laboratory, Inc. is certified by the State of California, ELAP #1991. If you have any questions regarding these test results, please feel free to contact the Project Management Team at (408)263-5258; ext 204.

Patti Sandrock

March 31, 2010

Date



Date: 3/31/2010

Client: Stellar Environmental Solutions, Inc

Project: 6400 Christie Avenue, Emeryville

Work Order: 1003128

CASE NARRATIVE

No issues encountered with the receiving, preparation, analysis or reporting of the results associated with this work order.



Sample Result Summary

Report prepared for: Teal Glass
Stellar Environmental Solutions, Inc

Date Received: 03/23/10
Date Reported: 03/31/10
1003128-001A

IA-2-1

<u>Parameters:</u>	<u>Analysis Method</u>	<u>DF</u>	<u>MDL</u>	<u>PQL</u>	<u>Results ug/m3</u>
Benzene	ETO15	1	0.68	1.6	3.45
Toluene	ETO15	1	0.95	1.9	4.41
m,p-Xylene	ETO15	1	1.6	4.3	4.99
o-Xylene	ETO15	1	0.82	2.2	2.47

0A-2-1

1003128-002A

<u>Parameters:</u>	<u>Analysis Method</u>	<u>DF</u>	<u>MDL</u>	<u>PQL</u>	<u>Results ug/m3</u>
Benzene	ETO15	1	0.68	1.6	1.72



SAMPLE RESULTS

Report prepared for: Teal Glass
Stellar Environmental Solutions, Inc

Date Received: 03/23/10
Date Reported: 03/31/10

Client Sample ID:	IA-2-1	Lab Sample ID:	1003128-001A
Project Name/Location:	6400 Christie Avenue, Emeryville	Sample Matrix:	Ambient Air
Project Number:		Certified Clean WO # :	
Date/Time Sampled:	03/22/10 / 0:00	Received PSI :	13.3
Canister/Tube ID:	463	Corrected PSI :	
Collection Volume (L):			

Parameters:	Analysis Method	Prep Date	Date Analyzed	DF	MDL	PQL	Results ug/m3	Results ppbv	Lab Qualifier	Analytical Batch	Prep Batch
Benzene	ETO15	NA	03/25/10	1	0.68	1.6	3.45	1.082		400431	NA
Toluene	ETO15	NA	03/25/10	1	0.95	1.9	4.41	1.170		400431	NA
Ethyl Benzene	ETO15	NA	03/25/10	1	1.0	2.2	ND	ND		400431	NA
m,p-Xylene	ETO15	NA	03/25/10	1	1.6	4.3	4.99	1.150		400431	NA
o-Xylene	ETO15	NA	03/25/10	1	0.82	2.2	2.47	0.569		400431	NA
(S) 4-Bromofluorobenzene	ETO15	NA	03/25/10	1	65	135	110	5.500		400431	NA

Client Sample ID:	0A-2-1	Lab Sample ID:	1003128-002A
Project Name/Location:	6400 Christie Avenue, Emeryville	Sample Matrix:	Ambient Air
Project Number:		Certified Clean WO # :	
Date/Time Sampled:	03/22/10 /	Received PSI :	14.8
Canister/Tube ID:	859	Corrected PSI :	
Collection Volume (L):			

Parameters:	Analysis Method	Prep Date	Date Analyzed	DF	MDL	PQL	Results ug/m3	Results ppbv	Lab Qualifier	Analytical Batch	Prep Batch
Benzene	ETO15	NA	03/25/10	1	0.68	1.6	1.72	0.539		400431	NA
Toluene	ETO15	NA	03/25/10	1	0.95	1.9	ND	ND		400431	NA
Ethyl Benzene	ETO15	NA	03/25/10	1	1.0	2.2	ND	ND		400431	NA
m,p-Xylene	ETO15	NA	03/25/10	1	1.6	4.3	ND	ND		400431	NA
o-Xylene	ETO15	NA	03/25/10	1	0.82	2.2	ND	ND		400431	NA
(S) 4-Bromofluorobenzene	ETO15	NA	03/25/10	1	65	135	127	6.350		400431	NA



MB Summary Report

Work Order:	1003128	Prep Method:	NA	Prep Date:	NA	Prep Batch:	NA
Matrix:	Air	Analytical Method:	ETO15	Analyzed Date:	03/25/10	Analytical Batch:	400431
Units:	ppbv						

Parameters	MDL	PQL	Method Blank Conc.
Dichlorodifluoromethane	0.30	1.00	0.480
1,1-Difluoroethane	0.18	0.500	ND
1,2-Dichlorotetrafluoroethane	0.70	2.00	ND
Chloromethane	0.15	0.500	ND
Vinyl Chloride	0.26	1.00	ND
1,3-Butadiene	0.20	0.500	ND
Bromomethane	0.18	0.500	ND
Chloroethane	0.19	0.500	ND
Trichlorofluoromethane	0.32	1.00	ND
1,1-Dichloroethene	0.15	0.500	ND
Freon 113	0.11	0.500	ND
Carbon Disulfide	0.26	1.00	ND
2-Propanol (Isopropyl Alcohol)	0.39	4.00	ND
Methylene Chloride	0.17	0.500	0.490
Acetone	0.37	4.00	ND
trans-1,2-Dichloroethene	0.16	0.500	ND
Hexane	0.15	0.500	ND
MTBE	0.24	0.500	ND
tert-Butanol	0.22	0.500	ND
Diisopropyl ether (DIPE)	0.21	0.500	ND
1,1-Dichloroethane	0.18	0.500	ND
ETBE	0.16	0.500	ND
cis-1,2-Dichloroethene	0.13	0.500	ND
Chloroform	0.25	1.00	ND
Vinyl Acetate	0.16	0.500	ND
Carbon Tetrachloride	0.14	0.500	ND
1,1,1-Trichloroethane	0.15	0.500	ND
2-Butanone (MEK)	0.21	0.500	ND
Ethyl Acetate	0.21	0.500	ND
Tetrahydrofuran	0.10	0.500	ND
Benzene	0.21	0.500	ND
TAME	0.086	0.500	ND
1,2-Dichloroethane (EDC)	0.24	0.500	ND
Trichloroethylene	0.26	1.00	ND
1,2-Dichloropropane	0.29	1.00	ND
Bromodichloromethane	0.13	0.500	ND
1,4-Dioxane	0.35	1.00	ND
trans-1,3-Dichloropropene	0.19	0.500	ND
Toluene	0.25	0.500	ND
4-Methyl-2-Pentanone (MIBK)	0.21	0.500	ND



MB Summary Report

Work Order:	1003128	Prep Method:	NA	Prep Date:	NA	Prep Batch:	NA
Matrix:	Air	Analytical Method:	ETO15	Analyzed Date:	03/25/10	Analytical Batch:	400431
Units:	ppbv						

Parameters	MDL	PQL	Method Blank Conc.
cis-1,3-Dichloropropene	0.25	0.500	ND
Tetrachloroethylene	0.23	0.500	ND
1,1,2-Trichloroethane	0.17	0.500	ND
Dibromochloromethane	0.20	0.500	ND
1,2-Dibromoethane (EDB)	0.27	1.00	ND
2-Hexanone	0.27	1.00	ND
Ethyl Benzene	0.23	0.500	ND
Chlorobenzene	0.15	0.500	ND
1,1,1,2-Tetrachloroethane	0.15	0.500	ND
m,p-Xylene	0.38	1.00	ND
o-Xylene	0.19	0.500	ND
Styrene	0.16	0.500	ND
Bromoform	0.11	0.500	ND
1,1,2,2-Tetrachloroethane	0.10	0.500	ND
4-Ethyl Toluene	0.17	0.500	ND
1,3,5-Trimethylbenzene	0.15	0.500	ND
1,2,4-Trimethylbenzene	0.14	0.500	ND
1,4-Dichlorobenzene	0.11	0.500	ND
1,3-Dichlorobenzene	0.14	0.500	ND
Benzyl Chloride	0.12	0.500	ND
1,2-Dichlorobenzene	0.15	0.500	ND
Hexachlorobutadiene	0.22	0.500	ND
1,2,4-Trichlorobenzene	0.46	1.00	ND
Naphthalene	0.28	1.00	ND
(S) 4-Bromofluorobenzene			106



LCS/LCSD Summary Report

Raw values are used in quality control assessment.

Work Order:	1003128	Prep Method:	NA	Prep Date:	NA	Prep Batch:	NA
Matrix:	Air	Analytical Method:	ETO15	Analyzed Date:	03/25/10	Analytical Batch:	400431
Units:	ppbv						

Parameters	MDL	PQL	Method Blank Conc.	Spike Conc.	LCS % Recovery	LCSD % Recovery	LCS/LCSD % RPD	% Recovery Limits	% RPD Limits	Lab Qualifier
1,1-Dichloroethene	0.15	0.500		20	129	130	0.425	65 - 135	30	
Benzene	0.21	0.500		20	121	129	6.30	65 - 135	30	
Trichloroethylene	0.26	1.00		20	106	112	5.31	65 - 135	30	
Toluene	0.25	0.500		20	108	115	5.56	65 - 135	30	
Chlorobenzene	0.15	0.500		20	95.7	102	5.98	65 - 135	30	
(S) 4-Bromofluorobenzene				20	95.0			65 - 135		



Laboratory Qualifiers and Definitions

DEFINITIONS:

Accuracy/Bias (% Recovery) - The closeness of agreement between an observed value and an accepted reference value.
Blank (Method/Preparation Blank) -MB/PB - An analyte-free matrix to which all reagents are added in the same volumes/proportions as used in sample processing. The method blank is used to document contamination resulting from the analytical process.
Duplicate - a field sample and/or laboratory QC sample prepared in duplicate following all of the same processes and procedures used on the original sample (sample duplicate, LCSD, MSD)
Laboratory Control Sample (LCS ad LCSD) - A known matrix spiked with compounds representative of the target analyte(s). This is used to document laboratory performance.
Matrix - the component or substrate that contains the analyte of interest (e.g., - groundwater, sediment, soil, waste water, etc)
Matrix Spike (MS/MSD) - Client sample spiked with identical concentrations of target analyte (s). The spiking occurs prior to the sample preparation and analysis. They are used to document the precision and bias of a method in a given sample matrix.
Method Detection Limit (MDL) - the minimum concentration of a substance that can be measured and reported with a 99% confidence that the analyte concentration is greater than zero
Practical Quantitation Limit (PQL) - a laboratory determined value at 2 to 5 times above the MDL that can be reproduced in a manner that results in a 99% confidence level that the result is both accurate and precise. PQLs reflect all preparation factors and/or dilution factors that have been applied to the sample during the preparation and/or analytical processes.
Precision (%RPD) - The agreement among a set of replicate/duplicate measurements without regard to known value of the replicates
Surrogate (S) or (Surr) - An organic compound which is similar to the target analyte(s) in chemical composition and behavior in the analytical process, but which is not normally found in environmental samples. Surrogates are used in most organic analysis to demonstrate matrix compatibility with the chosen method of analysis
Tentatively Identified Compound (TIC) - A compound not contained within the analytical calibration standards but present in the GCMS library of defined compounds. When the library is searched for an unknown compound, it can frequently give a tentative identification to the compound based on retention time and primary and secondary ion match. TICs are reported as estimates and are candidates for further investigation.
Units: the unit of measure used to express the reported result - mg/L and mg/Kg (equivalent to PPM - parts per million in liquid and solid), ug/L and ug/Kg (equivalent to PPB - parts per billion in liquid and solid), ug/m³ , mg.m³ , ppbv and ppmv (all units of measure for reporting concentrations in air), % (equivalent to 10000 ppm or 1,000,000 ppb), ug/Wipe (concentration found on the surface of a single Wipe usually taken over a 100cm ² surface)

LABORATORY QUALIFIERS:

<p>B - Indicates when the analyte is found in the associated method or preparation blank</p> <p>D - Surrogate is not recoverable due to the necessary dilution of the sample</p> <p>E - Indicates the reportable value is outside of the calibration range of the instrument but within the linear range of the instrument (unless otherwise noted) Values reported with an E qualifier should be considered as estimated.</p> <p>H- Indicates that the recommended holding time for the analyte or compound has been exceeded</p> <p>J- Indicates a value between the method MDL and PQL and that the reported concentration should be considered as estimated rather the quantitative</p> <p>NA - Not Analyzed</p> <p>N/A - Not Applicable</p> <p>NR - Not recoverable - a matrix spike concentration is not recoverable due to a concentration within the original sample that is greater than four times the spike concentration added</p> <p>R- The % RPD between a duplicate set of samples is outside of the absolute values established by laboratory control charts</p> <p>S- Spike recovery is outside of established method and/or laboratory control limits. Further explanation of the use of this qualifier should be included within a case narrative</p> <p>X -Used to indicate that a value based on pattern identification is within the pattern range but not typical of the pattern found in standards. Further explanation may or may not be provided within the sample footnote and/or the case narrative.</p>



Sample Receipt Checklist

Client Name: Stellar Environmental Solutions, Inc

Date and Time Received: 3/23/2010 15:30

Project Name: 6400 Christie Avenue, Emeryville

Received By: navin

Work Order No.: 1003128

Physically Logged By:

Checklist Completed By: Iorna

Carrier Name: Gold Bullet Courier

Chain of Custody (COC) Information

Chain of custody present? Yes
Chain of custody signed when relinquished and received? Yes
Chain of custody agrees with sample labels? Yes
Custody seals intact on sample bottles? Not Present

Sample Receipt Information

Custody seals intact on shipping container/cooler? Not Present
Shipping Container/Cooler In Good Condition? Yes
Samples in proper container/bottle? Yes
Samples containers intact? Yes
Sufficient sample volume for indicated test? Yes

Sample Preservation and Hold Time (HT) Information

All samples received within holding time? Yes
Container/Temp Blank temperature in compliance? Temperature: °C
Water-VOA vials have zero headspace? No VOA vials submitted
Water-pH acceptable upon receipt?

pH Checked by: pH Adjusted by:



Login Summary Report

Client ID:	TL5204 Stellar Environmental Solutions, Inc	QC Level:	
Project Name:	6400 Christie Avenue, Emeryville	TAT Requested:	5+ day:0
Project # :		Date Received:	3/23/2010
Report Due Date:	3/30/2010	Time Received:	15:30
Comments:	5 day TAT! Received 2 air samples for TO-15 (Modified list for BTEX only)		
Work Order # :	1003128		

<u>WO Sample ID</u>	<u>Client Sample ID</u>	<u>Collection Date/Time</u>	<u>Matrix</u>	<u>Scheduled Disposal</u>	<u>Sample On Hold</u>	<u>Test On Hold</u>	<u>Requested Tests</u>	<u>Subbed</u>
1003128-001A	IA-2-1	03/22/10 0:00	Air				A_TO-15MBTEX	
<u>Sample Note:</u>	Modified list of BTEX only.							
1003128-002A	0A-2-1	03/22/10	Air				A_TO-15MBTEX	
<u>Sample Note:</u>	Modified list of BTEX only.							



483 Sinclair Frontage Road
 Milpitas, CA 95035
 Phone: 408.263.5258
 FAX: 408.263.8293
 www.torrentlab.com

CHAIN OF CUSTODY

LAB WORK ORDER NO
 1003128

NOTE: SHADED AREAS ARE FOR TORRENT LAB USE ONLY

Company Name: **Stellar Environmental solutions, Inc** Location of Sampling: **6400 Christie Avenue, Emeryville, CA**
 Address: **2198 Sixth St.** Purpose: **Indoor Air Survey**
 City: **Berkeley** State: **CA** Zip Code: **94710** Special Instructions / Comments: *** Modified list of BTEX only**
 Telephone: **510-644-3123** FAX: **510-644-3859**
 REPORT TO: **Teal Glass** SAMPLER: **Teal Glass** P.O. #: **2007-65** EMAIL: **tglass@stellar-environmental.com**

TURNAROUND TIME: 10 Work Days 3 Work Days Noon - Nxt Day 7 Work Days 2 Work Days 2-8 Hours 5 Work Days 1 Work Day Other

SAMPLE TYPE: Storm Water Air Waste Water Other Ground Water Soil

REPORT FORMAT: QC Level IV EDF Excel / EDD

LAB ID	CLIENT'S SAMPLE I.D.	DATE / TIME SAMPLED	MATRIX	# OF CONT	CONT TYPE	TO-15 *	Initial Pressure	final Pressure	REMARKS
001A	IA-2-1	3-22-2010	Air	1	summa	✓	30	6	Cannister #463
002A	0A-2-1	3-22-2010	Air	1	summa	✓	30	2	Cannister #859
									Cannister #
									Cannister #
									Cannister #
									Cannister #
									Cannister #

Relinquished By: *[Signature]* Print: **Teal Glass** Date: **3-23-2010** Time: **1:00**
 Received By: *[Signature]* Print: **CHIAN** Date: **3-23-10** Time: **1:00**
 Relinquished By: *[Signature]* Print: **CHIAN** Date: **3-23-10** Time: **3:30**
 Received By: *[Signature]* Print: **NAVIN G** Date: **3-23-10** Time: **3:30 P.M.**

Were Samples Received in Good Condition? Yes NO Samples on Ice? Yes NO Method of Shipment **gold bullet** Sample seals intact? Yes NO N/A
 NOTE: Samples are discarded by the laboratory 30 days from date of receipt unless other arrangements are made. Page 1 of 1
 Log In By: *[Signature]* Date: **3/23/10** Log In Reviewed By: _____ Date: _____

Work Sheet: Risk Equation for Indoor Air Inhalation Exposure

Excess Cancer Risk

The equation below is used to calculate the theoretical excess cancer risk from inhalation exposure to volatile chemicals (*Interim Final Guidance for the Evaluation and Mitigation of Subsurface Vapor Intrusion to Indoor Air; DTSC, Dec 15, 2004*)

6400 Christie Avenue, Emeryville, California									
$\text{Risk, 6400 Christie} = \frac{(\text{Exposure Conc.}) (\text{Duration of Exposure}) (\text{Unit Risk per DTSC})}{(365 \text{ d/yr}) (70 \text{ yr. avg. life time})}$					$= \frac{(\text{Conc.}) (\text{EFa}) (\text{UoF})}{(\text{Atc}) (365 \text{ d/yr})}$				
as written in "Interim Final Guidance..."									
Where		ATc		Averaging time for carcinogens = 70 yr					
		EFa		Exposure frequency = (hour/day) * (day/year) * (Exposure duration in years)					
		UoF		Unit risk factor = increase in risk per ug/m3 chemical inhaled for 24 hr/day 365 day/yr					
DATA INPUT: Enter measured air concentrations in the Conc. cells (ug/m3).									
Chemical			Exposure				Unit Risk Factors		Risk
CAS No.	Chem	Conc. in air (ug/m3)	Work hour/day (Avg.)	Work day/year (Avg.)	Years at site (Avg.)	Unit Risk (DTSC Table)	ATc (year)		
71432	Benzene	3.45	8	250	15	2.9E-05	70	4.9E-06	
100414	Ethyl benzene	4.99	8	250	15	2.5E-06	70	6.1E-07	
TOTAL RISK*								5.5E-06	
* The total risk is equal to sum of the individual risks of the individual chemicals. There are no Unit Risk Factors for Toluene or Total xylenes Based on 8-hour indoor air sample collected March 22, 2010 by SES									

Resulting Actions

The TOTAL RISK* will be used to evaluate future actions.

Total Risk *	Immediate Action	Future Action
10E-05 or above	Inform Tenant	Mitigate Soil Vapor with SVE
below 10E-05 to 10E-06	Sampling, 2 times per yr	Track results
below 10E-06 to 10E-07	Sampling in 1 year	Track results
below 10E-07 to 10E-8	Sampling in 1 year	if 2 consecutive results are in this range, sampling frequency to be every 2 years
below 10E-08	no action required	no future sampling

* The Risk calculated using this spread sheet is a conservative value since the average employee is unlikely to work for 15 years with the indoor air being at the level it currently is.

**FEBRUARY 2009 INDOOR AIR SURVEY
RESULTS**
