

Detterman, Mark, Env. Health

From: Richard Makdisi [Rmakdisi@stellar-environmental.com]
Sent: Wednesday, July 08, 2015 3:04 PM
To: Detterman, Mark, Env. Health
Cc: Erin M Corder Schaefer; James Arnold; Steve Bittman
Subject: Indoor Air Survey Sampling Event 2 Letter of Findings Presenting the Impacts from LFC No RO0000063 on the Corder Properties -1475 and 1483 67th Street, Emeryville, California.
Attachments: Report--Round 2 Indoor Air Sampling Re Impacts From RO0000063-June 2015.pdf

Hi Mark,

Attached is the Indoor Air Survey Sampling Event 2 Letter of for the Corder Properties -1475 and 1483 67th Street, Emeryville, California.

The 2nd indoor air sampling event corroborates the first sampling event, showing there are vapor intrusion impacts resulting from the upgradient former McGrath Steel (LFC No. RO0000063, Global ID T0600102099) site on the cited Corder Properties.

It would be great if you could find the time to review this before our meeting at 11 AM next Tuesday, July 14th.

Also if you could give us an update on whether the RPs have responded to your April 23, 2015 Notice to Comply letter sent to remind them of their non-compliance to your September 15, 2014 letter.

We request our report be added to the Geotracker record for the McGrath Steel site as our documents the impacts to the Corder properties from the upgradient hydrocarbon plume.

Look forward to seeing you at the meeting with Corder Property owner Erin Corder and counsel Jim Arnold next week.

Regards--Richard

RICHARD S. MAKDISI, P.G. | PRESIDENT

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GEOSCIENCE & ENGINEERING CONSULTING

July 8, 2015

Mr. Mark Detterman
Hazardous Materials Specialist
Alameda County Department of Environmental Health
Local Oversight Program
1131 Harbor Bay Parkway, Suite 250
Alameda, California 94502

Ms. Erin M. Corder-Schaefer
Corder Family Emeryville Properties, LP
2156 Corte Dorado Espuela
Alpine, CA 91901

Subject: Indoor Air Survey Sampling Event 2 Letter of Findings—1475 and 1483 67th Street,
Emeryville, California.

Dear Mr. Detterman and Ms. Corder-Schaefer:

INTRODUCTION AND BACKGROUND

This June 2015 indoor air monitoring event at the two Corder property buildings downgradient from known former McGrath Steel underground fuel storage tank (UFST) site is the second indoor air monitoring event conducted by Stellar Environmental Solutions, Inc. (Stellar Environmental), the first one being in October 2014. This survey has been commissioned by Corder Family Emeryville Properties, LLC. The indoor air monitoring was initially prompted by known McGrath Steel hydrocarbon plume site (Alameda County Fuel Leak Case #RO0000063; Global ID T0600102099) and specifically the June 2014 indoor air results reported by AllWest Environmental at the adjacent McGrath Steel office and warehouse complex located at 6655/ Hollis Street/1471 67th Street. The concern is the impact of the McGrath Steel hydrocarbon plume on the downgradient Corder properties.

Leakage from the McGrath Steel former underground fuel storage tanks (UST) system under the 67th Street sidewalk that was removed in 1996 became apparent in numerous subsequent investigations. The hydrocarbon leak resulted in fuel hydrocarbon contamination of soil and

groundwater beneath 67th Street and the plume is also indicated to be beneath at least part of the 1475 and 1483 67th Street, Corder property buildings, and to be impacting indoor air quality.

The AllWest indoor air survey is described in the July 21, 2014 AllWest document, "Indoor air Quality Monitoring Report, Former McGrath Steel, 6655 Hollis and 1471 67th Street, Emeryville, California (Alameda County Fuel Leak Case #RO0000063)". However, it should be noted that AllWest conducted a 24-hour indoor air test that is typically used for evaluating indoor air impacts to residential land use versus the 8-hour indoor air test called for in regulatory guidance to evaluate commercial land use spaces. The five AllWest indoor air samples were all located within the McGrath Steel property. Regulatory oversight of this case is being provided by Mr. Mark Detterman of Alameda County Environmental Health Services (ACEHS).

Benzene concentrations in four of the five AllWest indoor air samples exceeded the Regional Water Quality Control Board-San Francisco Bay Region (Water Board) indoor air commercial Environmental Screening Levels (ESLs) for benzene of 0.42 $\mu\text{g}/\text{m}^3$. Benzene did not exceed its applicable ESL in the sample collected along the north wall of the warehouse building, adjacent to the former UST source area locations, or in the outdoor ambient air sample. According to the AllWest report, based on uniform concentrations in indoor and outdoor air samples, and on benzene concentrations being lowest in the sample location closest to the original UST source area, it was AllWest's opinion that benzene, carbon tetrachloride and several other detected VOCs were atmospheric contaminants which did not originate from the known UST source area.

Based on a review of the July 2014 AllWest indoor air quality report and of subsurface investigations conducted at the McGrath site to date by Weiss Associates (1998-2005) and AllWest (2013-2014), Stellar Environmental recommended indoor air sampling of the buildings adjacent to the 1471 67th Street McGrath warehouse as the logical next step to address the issue of whether the known hydrocarbon plume from the former McGrath Steel site is impacting the indoor air in adjacent buildings at 1475 and 1483 67th Street.

The indoor air samples IA-1 through IA-4 collected in November 2014 by Stellar Environmental all contained concentrations of benzene above the "commercial property" ESL of 0.42 $\mu\text{g}/\text{m}^3$, ranging from 1.1 $\mu\text{g}/\text{m}^3$ to 9.5 $\mu\text{g}/\text{m}^3$. This compares with the lower 0.54 $\mu\text{g}/\text{m}^3$ to 0.79 $\mu\text{g}/\text{m}^3$ benzene range reported by the July 2014 AllWest study. The November 2014 outdoor control sample OA-1 contained 1.3 $\mu\text{g}/\text{m}^3$ benzene. Three out of four of the indoor air samples exceeded the 100 $\mu\text{g}/\text{m}^3$ commercial ESL for TPH as gasoline with concentrations ranging from 61 $\mu\text{g}/\text{m}^3$ to 360 $\mu\text{g}/\text{m}^3$. The outdoor sample contained 140 $\mu\text{g}/\text{m}^3$ TPHg. One sample exceeded the naphthalene ESL of 0.36 $\mu\text{g}/\text{m}^3$ at a concentration of 0.88 $\mu\text{g}/\text{m}^3$, with the outdoor control sample

containing 0.17 $\mu\text{g}/\text{m}^3$ naphthalene. Detections of toluene, ethylbenzene and xylenes did not exceed their respective ESLs in any of the samples.

The indoor air sample with the highest concentrations of the constituents analyzed for was sample IA-4 located in the front office of 1483 67th Street. Sample IA-3 located in the office area of 1475 67th Street contained the lowest concentrations.

The 1475 67th Street building adjoins directly to the west of the McGrath warehouse and is a 15,000 square foot industrial building constructed in the 1940's. The building is occupied by Metalco, a metal anodizing business. 1483 67th Street adjoins directly to the west of the Metalco building and is a 13,000 square foot industrial structure occupied by Architectural Metal Works, which is a metal working shop for the building industry. Figure 1 presents the general site location. Figure 2 is a site map of the property and surrounding sites.

The specific goals of this second Stellar Environmental were to:

- Follow the California Department of Toxic Substance Control (DTSC) guidance for conducting indoor air sampling in commercial buildings;
- Collect four indoor air samples and one outdoor ambient air sample during normal office working hours (8:00 am to 4:00 pm);
- Analyze the indoor air quality samples for established contaminants in the subsurface using EPA Method TO-15 for Total Petroleum Hydrocarbons as gasoline (TPHg), benzene, toluene, ethylbenzene, total xylenes and naphthalene for which there are existing indoor air regulatory ESLs and
- Compare the sampling results to 2013 RWQCB indoor air guidance ESLs for commercial property.

JUNE 2015 INDOOR AIR SAMPLING

Air Sampling Location Rationale

This indoor air investigation and associated report is informed from the initial Stellar Environmental November 2014 indoor air sampling event. The specific locations of the indoor air survey samples reproduced, to the extent practical, the same locations at three of the four indoor air sampling locations from where the samples were collected in November 2014. This approach is recommended to confirm seasonal variations in the indoor air contaminants of concern (COC). The sample point IA-4a location was selected to evaluate if there appears to be any significant difference in the indoor air concentrations further inside the building away from

the previous 2014 sample IA-4 that showed the highest hydrocarbon concentrations. Sample IA-4 was in a small office while IA-4a is located further inside the open warehouse space architecture of the building and serves as a better indicator of the extent of the vapor intrusion from the McGrath Steel facility hydrocarbon plume. Figure 3 depicts the sample locations.

Indoor Air Sampling Protocol

Mr. Henry Pietropaoli, of Stellar Environmental completed the sampling setup at 8:00 am on Thursday June 18, 2015 and retrieved the sampling apparatus at 4:00 pm the same day, after checking the sampling canisters during the day to make sure they were operating properly. Photodocumentation of the sampling event is attached.

The indoor air sampling program generally followed the DTSC guidance entitled: the *Evaluation and Mitigation of Subsurface Vapor Intrusion to Indoor Air* (DTSC, August, 2011). 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, ethylbenzene, and total xylenes. In addition, TPHg and Naphthalene were included as analytes. These gasoline related compounds have a higher relative vapor pressure than diesel fuel, the other McGrath site contaminant, and are more likely to find their way into indoor air space from beneath the surface.
- The indoor and outdoor air samples 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 8:00 am until 4:00 pm.

The five air samples were maintained at ambient temperature, out of direct sunlight and transported by courier to McCampbell Analytical of Pittsburg, 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 Water Board also established their Environmental Screening Levels (ESL's) which have superseded CHHSLs in that DTSC stopped updating them by 2013.

The Water Board ESLs were most recently updated in December 2013 and now include values for indoor air for gasoline range petroleum hydrocarbons (TPG-gasoline) and their benzene, toluene, ethylbenzene and xylenes (BTEX) components. The concentrations from this survey are compared to the Water Board 2013 Environmental Screening Levels (ESL) guidance as that has superseded the CHHSLs, which are no longer being updated. The CHHSL and ESLs historically had very similar values. 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 associated with a given industry. The PELs are to be applied to occupational exposure (such as exposure to dry cleaner chemicals for workers at dry cleaners or petroleum exposure for workers at a petroleum service station) and are not applicable in this case. The CAL OSHA standards, while more conservative, are similar to the federal OSHA standards. Both the Cal OSHA standards and federal standards are law versus guidance and are significantly less conservative than the Cal EPA Water Board ESL's the indoor air sample sin this report are compared against.

It is important to note that neither CHHSLs nor ESLs, were conceived as a cleanup criteria nor stipulate regulatory agency action. Rather, the ESLs are Tier 1 conservative screening criteria used to evaluate sites for potential human health or environmental exposure concerns where releases of hazardous materials to soils or groundwater have occurred. And they serve as indicators source of contamination concerns that can carry environmental liability.

INDOOR AIR SAMPLING ANALYTICAL RESULTS AND DISCUSSION

The indoor air samples IA-1a through IA-4a for the current study all contained concentrations of benzene above the "commercial property" ESL of $0.42 \mu\text{g}/\text{m}^3$, ranging from $0.69 \mu\text{g}/\text{m}^3$ to $1.7 \mu\text{g}/\text{m}^3$ in the Corder Family Emeryville property buildings downgradient of the McGrath petroleum UST site. This is a decrease from the November 2014 Stellar Environmental benzene results which ranged from $1.1 \mu\text{g}/\text{m}^3$ to $9.5 \mu\text{g}/\text{m}^3$ in those building although one of the locations changed. The downgradient indoor air samples showed higher concentrations compared with the $0.54 \mu\text{g}/\text{m}^3$ to $0.79 \mu\text{g}/\text{m}^3$ benzene range reported by the July 2014 AllWest study at the McGrath facility, suggesting the McGrath facility sourced petroleum plume is migrating beneath the downgradient Corder properties.

The outdoor control sample OA-1 contained 0.7 $\mu\text{g}/\text{m}^3$ benzene. All four of the indoor air samples exceeded the 100 $\mu\text{g}/\text{m}^3$ commercial ESL for TPH as gasoline with concentrations ranging from 190 $\mu\text{g}/\text{m}^3$ to 320 $\mu\text{g}/\text{m}^3$. The outdoor sample contained 100 $\mu\text{g}/\text{m}^3$ TPHg. One sample (IA-4a) exceeded the naphthalene ESL of 0.36 $\mu\text{g}/\text{m}^3$ at a concentration of 0.52 $\mu\text{g}/\text{m}^3$, with the outdoor control sample containing 0.21 $\mu\text{g}/\text{m}^3$ naphthalene. Detections of toluene, ethylbenzene and xylenes did not exceed their respective ESLs in any of the samples.

The indoor air sample with the highest concentrations of the constituents analyzed for was sample IA-4a located by the west wall of the shop of 1483 67th Street. The November 2104 results showed the highest results in this same building but in the front office. Sample IA-3 located in the office area of 1475 67th Street contained the lowest range of concentrations.

As part of the indoor air testing process, the outdoor control sample is collected to provide a meaningful comparison between indoor air and outdoor air concentrations. This comparison is considered in terms of the cumulative indoor air risk associated with the target volatile chemicals. Specific risk considerations would include the exposure scenario being evaluated (e.g., residential, industrial/commercial, school-based) and the risk associated with target volatile chemicals measured in outdoor air for the appropriate exposure scenario. When conducting a vapor intrusion/indoor air assessment, the outdoor ambient air data are used to interpret the measured indoor air concentrations, not to adjust the indoor air concentrations for risk assessment purposes. In the case of the current indoor air sampling results, outdoor air COC concentrations in sample OA-1a were lower than any of the indoor air sample concentrations. This comparison suggests that a vapor intrusion mechanism is involved in the contribution to the indoor air total COC concentrations detected inside the subject buildings.

Table 1 shows the concentrations of indoor air and ambient contaminants detected during the 8-hour sampling event of November 14, 2014 and for June 18, 2015. Table 1 also shows the ESLs indoor air standards for the detected contaminants. Photo-documentation and laboratory analytical results and chain-of-custody record are attached.

CONCLUSIONS AND RECOMMENDATIONS

Based on the indoor air results, there is some risk of exposure from benzene, naphthalene and TPH-gasoline vapor intrusion to occupants of both buildings, based on their respective concentrations being above the regulatory ESLs with benzene as the primary risk driver. In general, once ESLs are exceeded, the need for a 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 ACEHS.

*Ms. Erin M. Corder-Shaefer
Corder Family Emeryville Properties, LP
July 8, 2015
Page 7 of 6*

The two indoor air sampling events, coupled with the Allwest monitoring events since 2013 shows the flow direction of the groundwater to be to the southwest, projecting beneath the 1475 and 1483 67th Street Corder buildings. The geometry and concentration of the hydrocarbons in groundwater beneath the Corder buildings needs to be evaluated to gain a better perspective of the environmental liability and risks associated with it not being mitigated and the most effective way to remediate the plume.

Indoor air risk can be mitigated by the increasing mechanical means such as increasing air exchange rates so that the air inside the sales offices areas of the buildings is flushed more frequently. The effectiveness of this can be gauged by future air monitoring under the recommended increased air exchange conditions. The only effective manner to reduce the longer term risk is through remediation of the hydrocarbon groundwater plume that is the source of the benzene and TPHg vapor intrusion.

Based on the findings of this and the previous investigations, Stellar Environmental recommends conducting another indoor air sampling event within 6 months, by December 2015. Also recommended is the installation of six to eight investigatory bores to soil (capillary fringe) and grab-groundwater data in the 1475 and 1483 67th Street spaces to delineate the plume better. As the lines of evidence all point to the upgradient McGrath Steel site as being responsible, the McGrath Steel Responsible Parties (RP) should ideally be directed to complete the work with active ACEHS oversight. 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,



Steve Bittman,
Senior Geologist & Project Manager



Richard S. Makdisi, P.G.
Principal Geochemist & President

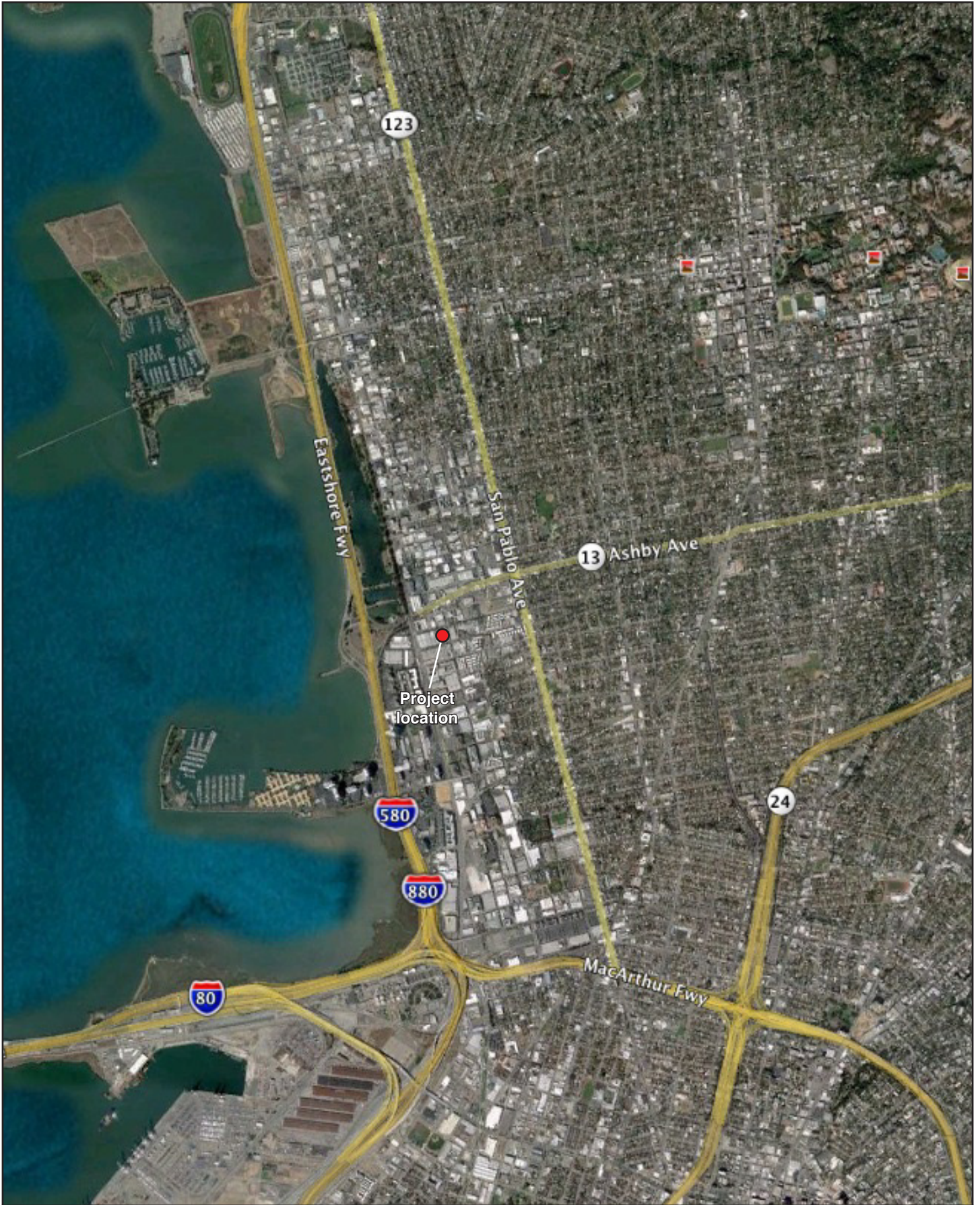


Table 1
Indoor Air Sample Analytical Results –November 14, 2014 and June 18, 2015
Eight Hour Test
1475 and 1483 67th Street, Emeryville, California

NOVEMBER 14, 2014 TO-15 INDOOR AIR SURVEY						
Analyte	Indoor Air Sample- NE Corner 1475 67 th Street Building	Indoor Air Sample- Central 1475 67 th Street Building	Indoor Air Sample- Office in NW Corner 1475 67 th Street Building	Indoor Air Sample- Office in 1483 67 th Street Building	Outdoor Air (Ambient) Sample- in Front of 1475 67 th Street Building	2013 Commercial ESL
	IA-1	IA-2	IA-3	IA-4	OA-1	
Benzene	3.0	1.2	1.1	9.5	1.3	0.42
Toluene	16	4.2	8.2	17	2.5	1,300
Ethyl Benzene	3.2	0.64	0.58	4.3	0.65	4.9
Total Xylenes	16	3.3	3.0	21	3.4	440
Total TPHg	240	150	61	360	140	100
Naphthalene	0.18	0.15	0.19	0.88	0.17	0.36
JUNE 18, 2015 TO-15 INDOOR AIR SURVEY						
Analyte	Indoor Air Sample- NE Corner 1475 67 th Street Building	Indoor Air Sample- Central 1475 67 th Street Building	Indoor Air Sample- Office in NW Corner 1475 67 th Street Building	Indoor Air Sample- Mid-point, west wall 1483 67 th Street Building	Outdoor Air (Ambient) Sample- in Front of 1475 67 th Street Building	2013 Commercial ESL
	IA-1A	IA-2A	IA-3A	IA-4A*	OA-1A	
Benzene	1.0	0.69	0.91	1.7	0.70	0.42
Toluene	6.0	3.2	3.2	17	1.9	1,300
Ethyl Benzene	0.86	0.56	0.51	2.3	0.60	4.9
Total Xylenes	4.2	2.7	2.3	12	2.8	440
Total TPHg	190	210	220	320	100	100
Naphthalene	0.27	0.21	0.28	0.52	0.21	0.36

Notes: All values in $\mu\text{g}/\text{m}^3$ **Bold** type designatd exceeding guidance value. Cal/OSHA PEL = California Occupational Safety and Health Administration Permissible Exposure Limit ESL = Water Board Environmental Screening Level for commercial properties (December 2013). 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. * after the smaple IA-4A denoted that this sample was not in the same location in June 2015 and November 2014.

FIGURES



SITE LOCATION MAP

1475 and 1483 67th St.
Emeryville, CA

By: MJC

JUNE 2015

Figure 1



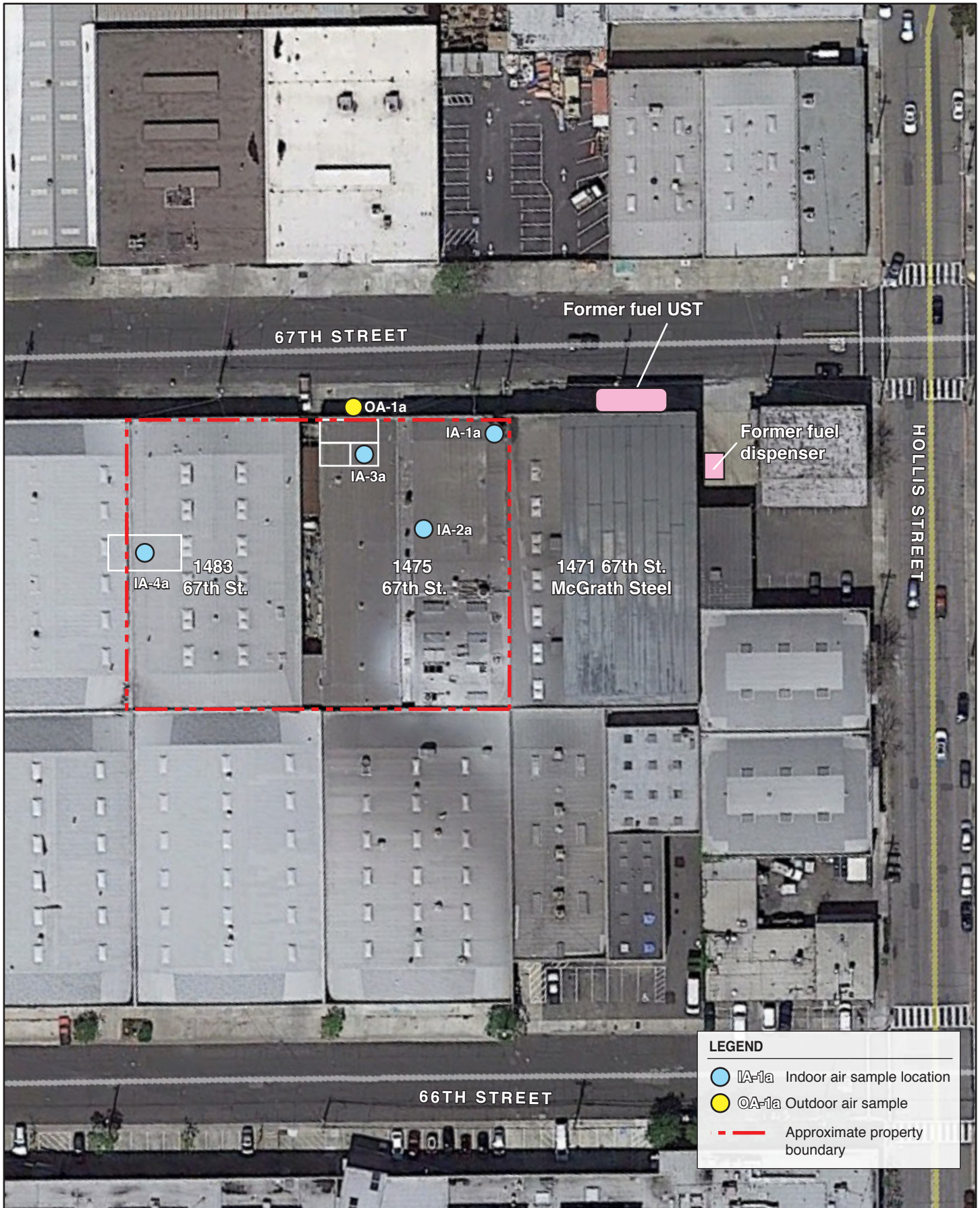


LEGEND

- - - - - Approximate property boundary

	SITE PLAN AND SURROUNDING SITES			
	1475 and 1483 67th St. Emeryville, CA	By: MJC	JUNE 2015	
Figure 2				

2014-56-03



SITE PLAN AND INDOOR AIR SAMPLE LOCATIONS

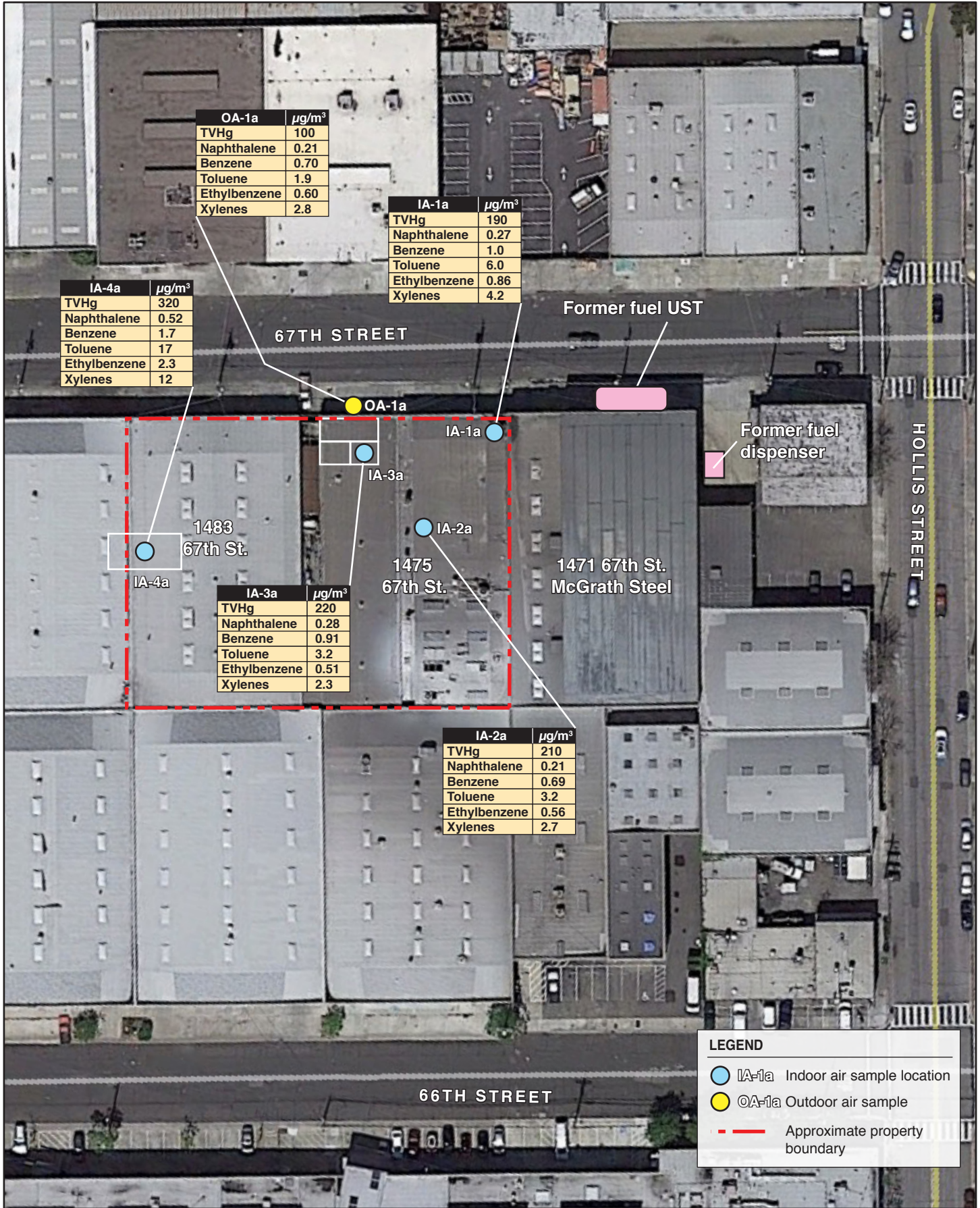
1475 and 1483 67th St.
Emeryville, CA

By: MJC

JUNE 2015

Figure 3





2014-56-06



INDOOR AIR SAMPLE ANALYTICAL RESULTS, JUNE 18, 2015

1475 and 1483 67th St.
Emeryville, CA

By: MJC

JUNE 2015

Figure 4



PHOTODOCUMENTATION



Subject: Indoor air sampling location (IA-1a) in NE corner 1475 67th Street

Site: 1475/1483 67th Street, Emeryville, California

Date Taken: June 18, 2015

Project No.: SES 2014-56

Photographer: H. Pietropaoli

Photo No.: 01



Subject: Indoor ambient air sampling location (IA-2a) near 1475 67th Street building center

Site: 1475/1483 67th Street, Emeryville, California

Date Taken: June 18, 2015

Project No.: SES 2014-56

Photographer: H. Pietropaoli

Photo No.: 02



Subject: Indoor air sampling location (IA-3a) in 1475 67th Street sales office near 67th Street.

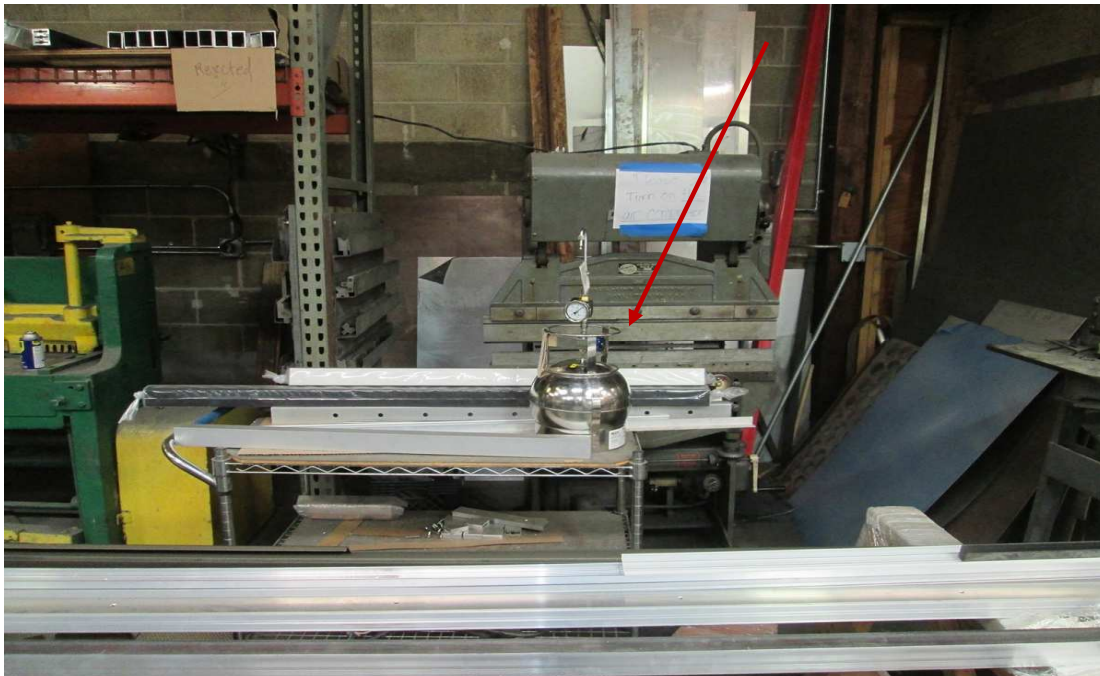
Site: 1475/1483 67th Street, Emeryville, California

Date Taken: June 18, 2015

Project No.: SES 2014-56

Photographer: H. Pietropaoli

Photo No.: 03



Subject: Indoor air sampling location (IA-4a) in 1483 67th Street by the west wall.

Site: 1475/1483 67th Street,, Emeryville, California

Date Taken: June 18, 2015

Project No.: SES 2014-56

Photographer: H. Pietropaoli

Photo No.: 04



Subject: Outdoor air sampling location (OA-1a) above front door at 1475 67th Street

Site: 1475/1483 67th Street, Emeryville, California

Date Taken: June 18, 2015

Project No.: SES 2014-56

Photographer: H. Pietropaoli

Photo No.: 05

STELLAR ENVIRONMENTAL SOLUTIONS, INC.

**LABORATORY ANALYTICAL RESULTS, CHAIN
OF CUSTODYRECORD**



McC Campbell Analytical, Inc.

"When Quality Counts"

Analytical Report

WorkOrder: 1506896

Report Created for: Stellar Environmental Solutions
2198 Sixth St. #201
Berkeley, CA 94710

Project Contact: Henry Pietropaoli
Project P.O.:
Project Name: #2014-56; Corder

Project Received: 06/19/2015

Analytical Report reviewed & approved for release on 06/29/2015 by:

Angela Rydelius,
Laboratory Manager

The report shall not be reproduced except in full, without the written approval of the laboratory. The analytical results relate only to the items tested. Results reported conform to the most current NELAP standards, where applicable, unless otherwise stated in the case narrative.





Glossary of Terms & Qualifier Definitions

Client: Stellar Environmental Solutions
Project: #2014-56; Corder
WorkOrder: 1506896

Glossary Abbreviation

95% Interval	95% Confident Interval
DF	Dilution Factor
DI WET	(DISTLC) Waste Extraction Test using DI water
DISS	Dissolved (direct analysis of 0.45 µm filtered and acidified water sample)
DUP	Duplicate
EDL	Estimated Detection Limit
ITEF	International Toxicity Equivalence Factor
LCS	Laboratory Control Sample
MB	Method Blank
MB % Rec	% Recovery of Surrogate in Method Blank, if applicable
MDL	Method Detection Limit
ML	Minimum Level of Quantitation
MS	Matrix Spike
MSD	Matrix Spike Duplicate
N/A	Not Applicable
ND	Not detected at or above the indicated MDL or RL
NR	Data Not Reported due to matrix interference or insufficient sample amount.
PF	Prep Factor
RD	Relative Difference
RL	Reporting Limit (The RL is the lowest calibration standard in a multipoint calibration.)
RPD	Relative Percent Deviation
RRT	Relative Retention Time
SPK Val	Spike Value
SPKRef Val	Spike Reference Value
SPLP	Synthetic Precipitation Leachate Procedure
TCLP	Toxicity Characteristic Leachate Procedure
TEQ	Toxicity Equivalents
WET (STLC)	Waste Extraction Test (Soluble Threshold Limit Concentration)

Quality Control Qualifiers

F2 LCS recovery for this compound is outside of acceptance limits.



Analytical Report

Client: Stellar Environmental Solutions
Project: #2014-56; Corder
Date Received: 6/19/15 20:48
Date Prepared: 6/24/15-6/25/15

WorkOrder: 1506896
Extraction Method: TO15
Analytical Method: TO15
Unit: µg/m³

TPH gas in µg/m³

Client ID	Lab ID	Matrix	Date Collected	Instrument	Batch ID
OA-1a	1506896-001A	Indoor Air	06/18/2015 16:05	GC24	106870

Initial Pressure (psia)	Final Pressure (psia)	Analyst(s)
14.01	14.01	AK

Analytes	Result	RL	DF	Date Analyzed
TPH(g)	100	36	1	06/24/2015 21:38
Surrogates	REC (%)	Limits		
1,2-DCA-d4	100	70-130		06/24/2015 21:38

Client ID	Lab ID	Matrix	Date Collected	Instrument	Batch ID
IA-4a	1506896-002A	Indoor Air	06/18/2015 16:07	GC24	106870

Initial Pressure (psia)	Final Pressure (psia)	Analyst(s)
14.36	14.36	AK

Analytes	Result	RL	DF	Date Analyzed
TPH(g)	320	36	1	06/24/2015 22:39
Surrogates	REC (%)	Limits		
1,2-DCA-d4	101	70-130		06/24/2015 22:39

Client ID	Lab ID	Matrix	Date Collected	Instrument	Batch ID
IA-3a	1506896-003A	Indoor Air	06/18/2015 16:08	GC24	106870

Initial Pressure (psia)	Final Pressure (psia)	Analyst(s)
13.53	13.53	AK

Analytes	Result	RL	DF	Date Analyzed
TPH(g)	220	36	1	06/24/2015 23:37
Surrogates	REC (%)	Limits		
1,2-DCA-d4	98	70-130		06/24/2015 23:37

(Cont.)



Analytical Report

Client: Stellar Environmental Solutions
Project: #2014-56; Corder
Date Received: 6/19/15 20:48
Date Prepared: 6/24/15-6/25/15

WorkOrder: 1506896
Extraction Method: TO15
Analytical Method: TO15
Unit: µg/m³

TPH gas in µg/m³

Client ID	Lab ID	Matrix	Date Collected	Instrument	Batch ID
IA-2a	1506896-004A	Indoor Air	06/18/2015 16:10	GC24	106870

Initial Pressure (psia)	Final Pressure (psia)	Analyst(s)
12.78	12.78	AK

Analytes	Result	RL	DF	Date Analyzed
TPH(g)	210	36	1	06/25/2015 00:39
Surrogates	REC (%)	Limits		
1,2-DCA-d4	96	70-130		06/25/2015 00:39

Client ID	Lab ID	Matrix	Date Collected	Instrument	Batch ID
IA-1a	1506896-005A	Indoor Air	06/18/2015 16:11	GC24	106870

Initial Pressure (psia)	Final Pressure (psia)	Analyst(s)
13.12	13.12	AK

Analytes	Result	RL	DF	Date Analyzed
TPH(g)	190	36	1	06/25/2015 01:36
Surrogates	REC (%)	Limits		
1,2-DCA-d4	97	70-130		06/25/2015 01:36



Analytical Report

Client: Stellar Environmental Solutions
Project: #2014-56; Corder
Date Received: 6/19/15 20:48
Date Prepared: 6/24/15-6/25/15

WorkOrder: 1506896
Extraction Method: TO15
Analytical Method: TO15
Unit: µg/m³

Volatile Organic Compounds in µg/m³

Client ID	Lab ID	Matrix	Date Collected	Instrument	Batch ID
OA-1a	1506896-001A	Indoor Air	06/18/2015 16:05	GC24	106870

Initial Pressure (psia)	Final Pressure (psia)	Analyst(s)
14.01	14.01	AK

Analytes	Result	RL	DF	Date Analyzed
Benzene	0.70	0.032	1	06/24/2015 21:38
Ethylbenzene	0.60	0.44	1	06/24/2015 21:38
Methyl-t-butyl ether (MTBE)	ND	0.37	1	06/24/2015 21:38
Naphthalene	0.21	0.11	1	06/24/2015 21:38
Toluene	1.9	0.38	1	06/24/2015 21:38
Xylenes, Total	2.8	1.3	1	06/24/2015 21:38
<u>Surrogates</u>	<u>REC (%)</u>	<u>Limits</u>		
1,2-DCA-d4	97	70-130		06/24/2015 21:38
Toluene-d8	101	70-130		06/24/2015 21:38
4-BFB	106	70-130		06/24/2015 21:38

Client ID	Lab ID	Matrix	Date Collected	Instrument	Batch ID
IA-4a	1506896-002A	Indoor Air	06/18/2015 16:07	GC24	106870

Initial Pressure (psia)	Final Pressure (psia)	Analyst(s)
14.36	14.36	AK

Analytes	Result	RL	DF	Date Analyzed
Benzene	1.7	0.032	1	06/24/2015 22:39
Ethylbenzene	2.3	0.44	1	06/24/2015 22:39
Methyl-t-butyl ether (MTBE)	ND	0.37	1	06/24/2015 22:39
Naphthalene	0.52	0.11	1	06/24/2015 22:39
Toluene	17	0.38	1	06/24/2015 22:39
Xylenes, Total	12	1.3	1	06/24/2015 22:39
<u>Surrogates</u>	<u>REC (%)</u>	<u>Limits</u>		
1,2-DCA-d4	97	70-130		06/24/2015 22:39
Toluene-d8	99	70-130		06/24/2015 22:39
4-BFB	107	70-130		06/24/2015 22:39

(Cont.)



Analytical Report

Client: Stellar Environmental Solutions
Project: #2014-56; Corder
Date Received: 6/19/15 20:48
Date Prepared: 6/24/15-6/25/15

WorkOrder: 1506896
Extraction Method: TO15
Analytical Method: TO15
Unit: µg/m³

Volatile Organic Compounds in µg/m³

Client ID	Lab ID	Matrix	Date Collected	Instrument	Batch ID
IA-3a	1506896-003A	Indoor Air	06/18/2015 16:08	GC24	106870

Initial Pressure (psia)	Final Pressure (psia)	Analyst(s)
13.53	13.53	AK

Analytes	Result	RL	DF	Date Analyzed
Benzene	0.91	0.032	1	06/24/2015 23:37
Ethylbenzene	0.51	0.44	1	06/24/2015 23:37
Methyl-t-butyl ether (MTBE)	ND	0.37	1	06/24/2015 23:37
Naphthalene	0.28	0.11	1	06/24/2015 23:37
Toluene	3.2	0.38	1	06/24/2015 23:37
Xylenes, Total	2.3	1.3	1	06/24/2015 23:37
Surrogates	REC (%)	Limits		
1,2-DCA-d4	95	70-130		06/24/2015 23:37
Toluene-d8	100	70-130		06/24/2015 23:37
4-BFB	109	70-130		06/24/2015 23:37

Client ID	Lab ID	Matrix	Date Collected	Instrument	Batch ID
IA-2a	1506896-004A	Indoor Air	06/18/2015 16:10	GC24	106870

Initial Pressure (psia)	Final Pressure (psia)	Analyst(s)
12.78	12.78	AK

Analytes	Result	RL	DF	Date Analyzed
Benzene	0.69	0.032	1	06/25/2015 00:39
Ethylbenzene	0.56	0.44	1	06/25/2015 00:39
Methyl-t-butyl ether (MTBE)	ND	0.37	1	06/25/2015 00:39
Naphthalene	0.21	0.11	1	06/25/2015 00:39
Toluene	3.2	0.38	1	06/25/2015 00:39
Xylenes, Total	2.7	1.3	1	06/25/2015 00:39
Surrogates	REC (%)	Limits		
1,2-DCA-d4	93	70-130		06/25/2015 00:39
Toluene-d8	101	70-130		06/25/2015 00:39
4-BFB	108	70-130		06/25/2015 00:39

(Cont.)



Analytical Report

Client: Stellar Environmental Solutions
Project: #2014-56; Corder
Date Received: 6/19/15 20:48
Date Prepared: 6/24/15-6/25/15

WorkOrder: 1506896
Extraction Method: TO15
Analytical Method: TO15
Unit: µg/m³

Volatile Organic Compounds in µg/m³

Client ID	Lab ID	Matrix	Date Collected	Instrument	Batch ID
IA-1a	1506896-005A	Indoor Air	06/18/2015 16:11	GC24	106870

Initial Pressure (psia)	Final Pressure (psia)	Analyst(s)
13.12	13.12	AK

Analytes	Result	RL	DF	Date Analyzed
Benzene	1.0	0.032	1	06/25/2015 01:36
Ethylbenzene	0.86	0.44	1	06/25/2015 01:36
Methyl-t-butyl ether (MTBE)	ND	0.37	1	06/25/2015 01:36
Naphthalene	0.27	0.11	1	06/25/2015 01:36
Toluene	6.0	0.38	1	06/25/2015 01:36
Xylenes, Total	4.2	1.3	1	06/25/2015 01:36

Surrogates	REC (%)	Limits	Date Analyzed
1,2-DCA-d4	94	70-130	06/25/2015 01:36
Toluene-d8	101	70-130	06/25/2015 01:36
4-BFB	108	70-130	06/25/2015 01:36



Quality Control Report

Client: Stellar Environmental Solutions
Date Prepared: 6/26/15
Date Analyzed: 6/24/15
Instrument: GC24
Matrix: Soilgas
Project: #2014-56; Corder

WorkOrder: 1506896
BatchID: 106870
Extraction Method: TO15
Analytical Method: TO15
Unit: nL/L
Sample ID: MB/LCS-106870

QC Summary Report for TO15

Analyte	MB Result	LCS Result	RL	SPK Val	MB SS %REC	LCS %REC	LCS Limits
Acetone	ND	-	25	-	-	-	-
Acrolein	ND	22.9	0.50	25	-	92	60-140
Acrylonitrile	ND	25.1	0.50	25	-	100	60-140
tert-Amyl methyl ether (TAME)	ND	27.0	0.50	25	-	107	60-140
Benzene	ND	22.7	0.50	25	-	91	60-140
Benzyl chloride	ND	31.7	0.50	25	-	127	60-140
Bromodichloromethane	ND	24.6	0.50	25	-	98	60-140
Bromoform	ND	30.6	0.50	25	-	122	60-140
Bromomethane	ND	20.0	0.50	25	-	80	60-140
1,3-Butadiene	ND	24.2	0.50	25	-	97	60-140
2-Butanone (MEK)	ND	-	25	-	-	-	-
t-Butyl alcohol (TBA)	ND	27.3	10	25	-	109	60-140
Carbon Disulfide	ND	25.3	0.50	25	-	101	60-140
Carbon Tetrachloride	ND	25.4	0.50	25	-	102	60-140
Chlorobenzene	ND	27.0	0.50	25	-	108	60-140
Chloroethane	ND	18.1	0.50	25	-	72	60-140
Chloroform	ND	21.7	0.50	25	-	87	60-140
Chloromethane	ND	26.7	0.50	25	-	107	60-140
Cyclohexane	ND	20.6	5.0	25	-	82	60-140
Dibromochloromethane	ND	30.2	0.50	25	-	121	60-140
1,2-Dibromo-3-chloropropane	ND	29.8	0.012	25	-	119	60-140
1,2-Dibromoethane (EDB)	ND	26.4	0.50	25	-	105	60-140
1,2-Dichlorobenzene	ND	30.3	0.50	25	-	121	60-140
1,3-Dichlorobenzene	ND	30.6	0.50	25	-	122	60-140
1,4-Dichlorobenzene	ND	30.0	0.50	25	-	120	60-140
Dichlorodifluoromethane	ND	26.7	0.50	25	-	107	60-140
1,1-Dichloroethane	ND	26.0	0.50	25	-	104	60-140
1,2-Dichloroethane (1,2-DCA)	ND	22.8	0.50	25	-	91	60-140
1,1-Dichloroethene	ND	25.9	0.50	25	-	104	60-140
cis-1,2-Dichloroethene	ND	26.4	0.50	25	-	106	60-140
trans-1,2-Dichloroethene	ND	26.2	0.50	25	-	105	60-140
1,2-Dichloropropane	ND	22.3	0.50	25	-	89	60-140
cis-1,3-Dichloropropene	ND	27.6	0.50	25	-	110	60-140
trans-1,3-Dichloropropene	ND	26.1	0.50	25	-	104	60-140
1,2-Dichloro-1,1,2,2-tetrafluoroethane	ND	25.8	0.50	25	-	103	60-140
Diisopropyl ether (DIPE)	ND	23.8	0.50	25	-	95	60-140
1,4-Dioxane	ND	25.0	0.50	25	-	100	60-140
Ethanol	ND	-	50	-	-	-	-
Ethyl acetate	ND	25.5	0.50	25	-	102	60-140
Ethyl tert-butyl ether (ETBE)	ND	24.5	0.50	25	-	98	60-140

(Cont.)



Quality Control Report

Client: Stellar Environmental Solutions
Date Prepared: 6/26/15
Date Analyzed: 6/24/15
Instrument: GC24
Matrix: Soilgas
Project: #2014-56; Corder

WorkOrder: 1506896
BatchID: 106870
Extraction Method: TO15
Analytical Method: TO15
Unit: nL/L
Sample ID: MB/LCS-106870

QC Summary Report for TO15

Analyte	MB Result	LCS Result	RL	SPK Val	MB SS %REC	LCS %REC	LCS Limits
Ethylbenzene	ND	27.2	0.50	25	-	109	60-140
4-Ethyltoluene	ND	29.6	0.50	25	-	119	60-140
Freon 113	ND	26.0	0.50	25	-	104	60-140
Heptane	ND	24.2	5.0	25	-	97	60-140
Hexachlorobutadiene	ND	35.7	0.50	25	-	143, F2	60-140
Hexane	ND	25.0	5.0	25	-	100	60-140
2-Hexanone	ND	26.9	0.50	25	-	108	60-140
4-Methyl-2-pentanone (MIBK)	ND	31.0	0.50	25	-	124	60-140
Methyl-t-butyl ether (MTBE)	ND	26.9	0.50	25	-	107	60-140
Methylene chloride	ND	24.4	0.50	25	-	98	60-140
Methyl methacrylate	ND	25.9	0.50	25	-	104	60-140
Naphthalene	ND	64.9	1.0	50	-	130	60-140
Propene	ND	-	50	-	-	-	-
Styrene	ND	27.9	0.50	25	-	112	60-140
1,1,1,2-Tetrachloroethane	ND	25.3	0.50	25	-	101	60-140
1,1,2,2-Tetrachloroethane	ND	25.7	0.50	25	-	103	60-140
Tetrachloroethene	ND	25.5	0.50	25	-	102	60-140
Tetrahydrofuran	ND	24.0	0.50	25	-	96	60-140
Toluene	ND	26.3	0.50	25	-	105	60-140
1,2,4-Trichlorobenzene	ND	36.0	0.50	25	-	144, F2	60-140
1,1,1-Trichloroethane	ND	31.0	0.50	25	-	124	60-140
1,1,2-Trichloroethane	ND	25.3	0.50	25	-	101	60-140
Trichloroethene	ND	23.3	0.50	25	-	93	60-140
Trichlorofluoromethane	ND	23.7	0.50	25	-	95	60-140
1,2,4-Trimethylbenzene	ND	29.5	0.50	25	-	118	60-140
1,3,5-Trimethylbenzene	ND	27.1	0.50	25	-	108	60-140
Vinyl Acetate	ND	27.2	0.50	25	-	109	60-140
Vinyl Chloride	ND	20.2	0.50	25	-	81	60-140
Xylenes, Total	ND	83.8	1.5	75	-	112	60-140

Surrogate Recovery

1,2-DCA-d4	495	491		500	99	98	60-140
Toluene-d8	510	501		500	102	100	60-140
4-BFB	508	503		500	102	101	60-140

1534 Willow Pass Rd
Pittsburg, CA 94565-1701
(925) 252-9262

CHAIN-OF-CUSTODY RECORD

WorkOrder: 1506896

ClientCode: SESB

WaterTrax
 WriteOn
 EDF
 Excel
 EQulS
 Email
 HardCopy
 ThirdParty
 J-flag

Report to:
 Henry Pietropaoli
 Stellar Environmental Solutions
 2198 Sixth St. #201
 Berkeley, CA 94710
 510-644-3123 FAX: 510-644-3859

Email: hpietropaoli@stellar-environmental.com; r
 cc/3rd Party:
 PO:
 ProjectNo: #2014-56; Corder

Bill to:
 Accounts Payable
 Stellar Enviornmental Solutions
 2198 Sixth St. #201
 Berkeley, CA 94710
 lwheeler@stellar-environmental.com

Requested TAT: 5 days

Date Received: 06/19/2015

Date Printed: 06/19/2015

Lab ID	Client ID	Matrix	Collection Date	Hold	Requested Tests (See legend below)												
					1	2	3	4	5	6	7	8	9	10	11	12	
1506896-001	OA-1a	Indoor Air	6/18/2015 16:05	<input type="checkbox"/>	A	A											
1506896-002	IA-4a	Indoor Air	6/18/2015 16:07	<input type="checkbox"/>	A	A											
1506896-003	IA-3a	Indoor Air	6/18/2015 16:08	<input type="checkbox"/>	A	A											
1506896-004	IA-2a	Indoor Air	6/18/2015 16:10	<input type="checkbox"/>	A	A											
1506896-005	IA-1a	Indoor Air	6/18/2015 16:11	<input type="checkbox"/>	A	A											

Test Legend:

1	15_SCAN-SIM_Indoor(ug/m	2	3AS_SCAN-SIM_INDOOR(U	3		4		5	
6		7		8		9		10	
11		12							

The following SamplIDs: 001A, 002A, 003A, 004A, 005A contain testgroup.

Prepared by: Jena Alfaro

Comments:

NOTE: Soil samples are discarded 60 days after results are reported unless other arrangements are made (Water samples are 30 days). Hazardous samples will be returned to client or disposed of at client expense.



WORK ORDER SUMMARY

Client Name: STELLAR ENVIRONMENTAL SOLUTIONS

QC Level: LEVEL 2

Work Order: 1506896

Project: #2014-56; Corder

Client Contact: Henry Pietropaoli

Date Received: 6/19/2015

Comments:

Contact's Email: hpietropaoli@stellar-environmental.com;
 rmakdisi@stellar-

WaterTrax WriteOn EDF Excel Fax Email HardCopy ThirdParty J-flag

Lab ID	Client ID	Matrix	Test Name	Containers /Composites	Bottle & Preservative	De-chlorinated	Collection Date & Time	TAT	Sediment Content	Hold	SubOut
1506896-001A	OA-1a	Indoor Air	TO15 + TPHgas for Indoor Air	1	6L Summa	<input type="checkbox"/>	6/18/2015 16:05	5 days		<input type="checkbox"/>	
1506896-002A	IA-4a	Indoor Air	TO15 + TPHgas for Indoor Air	1	6L Summa	<input type="checkbox"/>	6/18/2015 16:07	5 days		<input type="checkbox"/>	
1506896-003A	IA-3a	Indoor Air	TO15 + TPHgas for Indoor Air	1	6L Summa	<input type="checkbox"/>	6/18/2015 16:08	5 days		<input type="checkbox"/>	
1506896-004A	IA-2a	Indoor Air	TO15 + TPHgas for Indoor Air	1	6L Summa	<input type="checkbox"/>	6/18/2015 16:10	5 days		<input type="checkbox"/>	
1506896-005A	IA-1a	Indoor Air	TO15 + TPHgas for Indoor Air	1	6L Summa	<input type="checkbox"/>	6/18/2015 16:11	5 days		<input type="checkbox"/>	

NOTES: - STLC and TCLP extractions require 2 days to complete; therefore, all TATs begin after the extraction is completed (i.e., One-day TAT yields results in 3 days from sample submission).

- MAI assumes that all material present in the provided sampling container is considered part of the sample - MAI does not exclude any material from the sample prior to sample preparation unless requested in writing by the client.



McCampbell Analytical, Inc.

1534 Willow Pass Rd. / Pittsburg, Ca. 94565-1701
www.mccampbell.com / main@mccampbell.com
Telephone: (877) 252-9262 / Fax: (925) 252-9269

ISO 6894

CHAIN OF CUSTODY RECORD

TURN AROUND TIME: RUSH 1 Day 2 Day 3 Day 5 DAY
GeoTracker EDF PDF EDD EQUIS 10 DAY
UST Clean Up Fund Project Claim #

Report To: Bill To: SAME
Company: Stellar Environmental Solution
2198 Sixth St Berkeley, CA
E-Mail:
Tele: (510) 644-3123 Fax: (
Project #: 2014-56 Project Name: Corder
Project Location: 1475 + 1483 67th St Emeryville CA
Sampler Signature: Hay Pietropoli

Analysis Requested

Helium Shroud SN#

Other:
Notes: Please Specify units if different than defaults VOCs is ug/m3 and fixed gas is uL/L. Leak check default is IPA.

Field Sample ID (Location)	Collection		Canister SN#	12.5 m/min Sampler Kit SN# manifold
	Date	Time		
OA-1a	6/18/15	1605	4753	
IA-4a		1607	4741	
IA-3a		1608	L4772	
IA-2a		1610	3651	
IA-1a		1611	L4766	

VOCs by TO-15 (ug/m3)	8010 by TO-15 (ug/m3)	TPH(g) (ug/m3)	LEED (inc. 4PCH, Formaldehyde, CO, Total VOCs)	Fixed Gas: CO2, Methane, Ethane, Ethylene, Acetylene, CO (please circle or indicate in notes) uL/L	Fixed Gas: O2, N2 (please circle) uL/L	Fixed Gas: Propane uL/L	Helium Leak Check (%)	Leak Check (IPA, Norflorane, 1,1-difluoroethane) ug/m3	APH: Aliphatic and/or Aromatic (please circle) ug/m3	Other: TO15/Gas Range Organics
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Matrix		Cannister Pressure/ Vacuum	
Soilgas	Indoor Air	Initial	Final
X	X	-29	-2
X	X	-30	-1.5
X	X	-28	-1
X	X	-30	-5
X	X	-30	-4.5

Relinquished By: Hay Pietropoli Date: 6/19/15 Time: 1330 Received By: [Signature]
 Relinquished By: [Signature] Date: 6/19/15 Time: 1605 Received By: [Signature]
 Relinquished By: [Signature] Date: [] Time: [] Received By: []

Temp (°C): _____ Work Order #: _____
 Condition: _____
 Custody Seals Intact?: Yes _____ No _____ None _____
 Shipped Via: COURIER

RLS to meet Commercial ESLs

Analyze all TPH gas, naphthalene, BTEX, MTBE by TO15/GRO



Sample Receipt Checklist

Client Name: **Stellar Environmental Solutions** Date and Time Received: **6/19/2015 8:48:43 PM**
 Project Name: **#2014-56; Corder** Login Reviewed by: **Jena Alfaro**
 WorkOrder No: **1506896** Matrix: Indoor Air Carrier: Bernie Cummins (MAI Courier)

Chain of Custody (COC) Information

Chain of custody present? Yes No
 Chain of custody signed when relinquished and received? Yes No
 Chain of custody agrees with sample labels? Yes No
 Sample IDs noted by Client on COC? Yes No
 Date and Time of collection noted by Client on COC? Yes No
 Sampler's name noted on COC? Yes No

Sample Receipt Information

Custody seals intact on shipping container/cooler? Yes No NA
 Shipping container/cooler in good condition? Yes No
 Samples in proper containers/bottles? Yes No
 Sample containers intact? Yes No
 Sufficient sample volume for indicated test? Yes No

Sample Preservation and Hold Time (HT) Information

All samples received within holding time? Yes No
 Sample/Temp Blank temperature Temp: NA
 Water - VOA vials have zero headspace / no bubbles? Yes No NA
 Sample labels checked for correct preservation? Yes No
 pH acceptable upon receipt (Metal: <2; 522: <4; 218.7: >8)? Yes No NA
 Samples Received on Ice? Yes No

UCMR3 Samples:

Total Chlorine tested and acceptable upon receipt for EPA 522? Yes No NA
 Free Chlorine tested and acceptable upon receipt for EPA 218.7, 300.1, 537, 539? Yes No NA

* NOTE: If the "No" box is checked, see comments below.

 Comments: