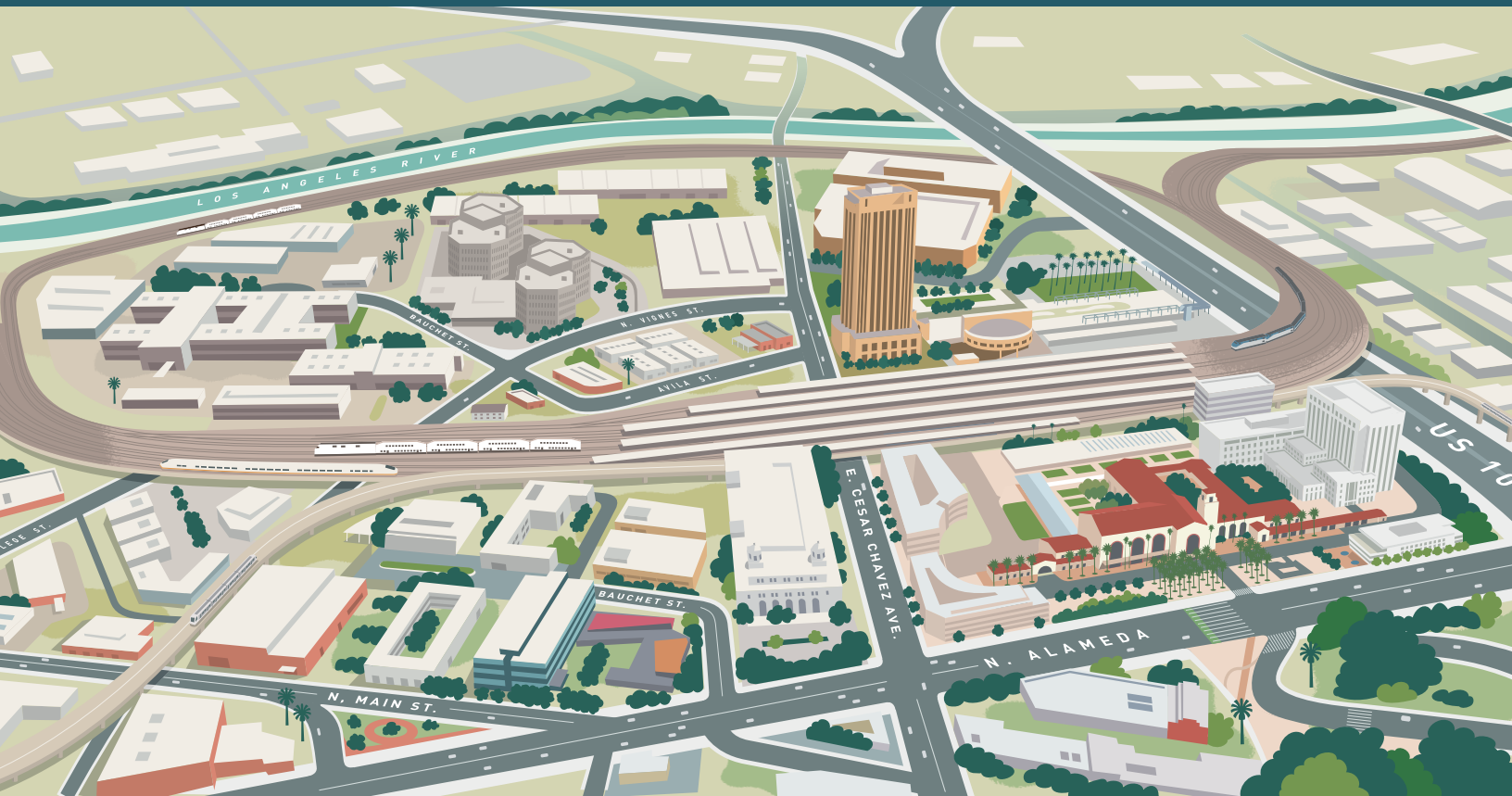


Link Union Station

DRAFT – Phase I Environmental Site Assessment

October 2016



Metro

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Table 3
Soil Import Criteria
Risk Management Plan
Proposed Blossom Plaza Development Site
900 Broadway, Los Angeles, California

| Chemical | Regional Screening Levels ¹ (mg/kg) | Background Concentration (mg/kg) |
|---|---|-------------------------------------|
| Total Petroleum Hydrocarbons (TPH) | | |
| TPH-Diesel | -- | -- |
| TPH-Gasoline | -- | -- |
| TPH-Residual (Oil and Grease) | -- | -- |
| Volatile Organic Compounds (VOCs) | | |
| Benzene | 1.1 | -- |
| Ethylbenzene | 5.4 | -- |
| Toluene | 5,000 | -- |
| p-Xylene | 600 | -- |
| m-Xylene | 590 | -- |
| o-Xylene | 690 | -- |
| Xylenes (Total) | 630 | -- |
| Polynuclear Aromatic Hydrocarbons (PAHs) | | |
| Acenaphthene | 3,400 | -- |
| Anthracene | 17,000 | -- |
| Benz[a]anthracene | 0.15 | -- |
| Benzo[j]fluoranthene | 0.38 | -- |
| Benzo[a]pyrene | 0.015 | -- |
| Benzo[b]fluoranthene | 0.15 | -- |
| Benzo[k]fluoranthene | 1.5 | -- |
| Chrysene | 15 | -- |
| Dibenz[a,h]anthracene | 0.015 | -- |
| Dibenzo[a,e]pyrene | 0.038 | -- |
| Dimethylbenz(a)anthracene, 7,12- | 0.00043 | -- |
| Fluoranthene | 2,300 | -- |
| Fluorene | 2,300 | -- |
| Indeno[1,2,3-cd]pyrene | 0.15 | -- |
| Methylnaphthalene, 1- | 16 | -- |
| Methylnaphthalene, 2- | 230 | -- |
| Naphthalene | 3.60 | -- |
| Nitropyrene, 4- | 0.38 | -- |
| Pyrene | 1,700 | -- |
| Metals | | |
| Aluminum | 77,000 | -- |
| Antimony | 31 | -- |
| Arsenic | 0.61 | 6 |
| Barium | 15,000 | -- |
| Beryllium | 160 | -- |
| Cadmium | 70 | -- |
| Chromium (total) | -- | -- |
| Chromium (VI) | 0.29 | -- |
| Cobalt | 23 | -- |
| Copper | 3,100 | -- |
| Lead | 400 | -- |
| Manganese | -- | -- |
| Mercury | 10 | -- |
| Molybdenum | 390 | -- |
| Nickel | 1,500 | -- |
| Selenium | 390 | -- |
| Silver | 390 | -- |
| Thallium | 0.78 | -- |
| Vanadium | 390 | -- |
| Zinc | 23,000 | -- |

Notes:

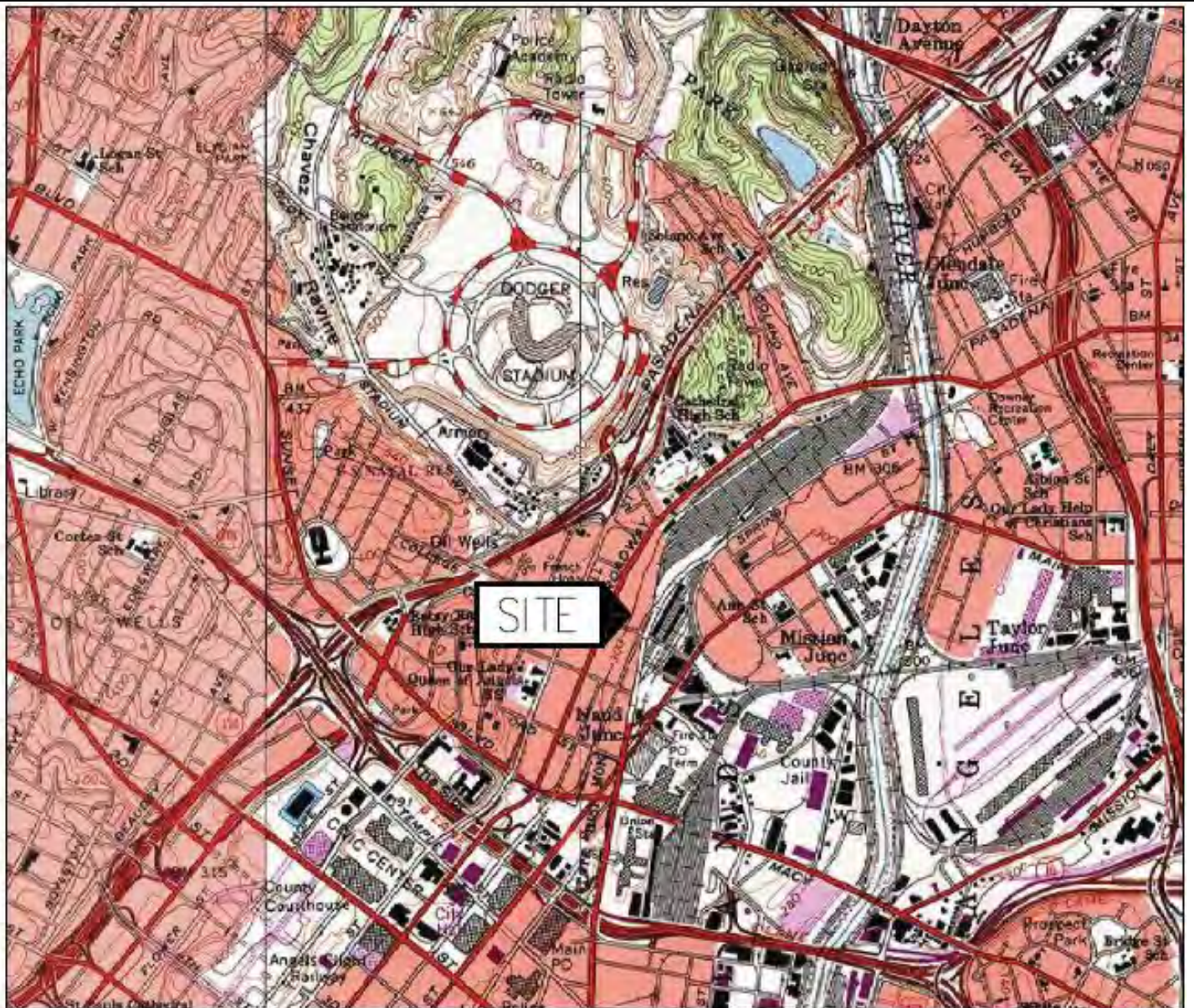
-- = not established

mg/kg = milligrams per kilogram

1. United States Environmental Protection Agency Region 9, Regional Screening Levels (RSLs), May 2013.

2. Final Report - Background Metals at Los Angeles Unified School Sites, California Department of Toxic Substances Control
California Environmental Protection Agency, 6 January 2005


FIGURES



REFERENCE: USGS 7.5-MINUTE LOS ANGELES QUADRANGLE (JULY 1981).

Site Location Map

Risk Management Plan
 Proposed Blossom Plaza Development Site
 900 Broadway, Los Angeles, California

| | | |
|--------------|-----------|---|
| October 2013 | Figure: 1 |  |
|--------------|-----------|---|



- EXPLANATION**
- O-3 FEBRUARY 2005 AQUIFER TESTING INVESTIGATION OBSERVATION WELLS (4953-03-3444)
 - P-2 FEBRUARY 2005 AQUIFER TESTING INVESTIGATION PIEZOMETER (4953-03-3444)
 - E-1 FEBRUARY 2005 AQUIFER TESTING INVESTIGATION EXTRACTION WELL (4953-03-3444)
 - CPT-1 FEBRUARY 2005 CONE PENETROMETER TEST BORING (4953-03-3444)
 - 33/D4 MARCH 2008 METHANE AND HYDROGEN SULFIDE INVESTIGATION (4953-03-3440)
 - MW-1 DECEMBER 2004 MONITORING WELL INSTALLED BY CITY OF LOS ANGELES, DEPT. OF PUBLIC WORKS, GEOTECHNICAL ENGINEERING DIVISION
 - B-16 MARCH 2004 BORING (4953-03-3442)
 - B-19 MARCH 2004 GEOPROBE BORING (4953-03-3442)
 - B-11 FEBRUARY 2004 BORING (4953-03-3441)
 - PRIOR INVESTIGATION (A-81135)
 - 20a PRIOR INVESTIGATION (70111-0-0041)
 - "BENT" BORING LOCATION AND NUMBER
 - B-15B GEOPROBE REDRILLED THROUGH BORING B-15
 - PREVIOUS UST LOCATION (REMOVED 1956)
 - A A' LOCATION OF CROSS SECTION
- NOTE: MONITORING WELL NOT CONSTRUCTED AT MW-4; BORING TERMINATED

- REFERENCES:**
1. SITE PLAN DATED FEBRUARY 2, 2004 AND PROVIDED BY NAKADA & ASSOCIATES, INC.
 2. MONITORING WELLS SURVEYED BY DULIN & BOYNTON LICENSED SURVEYORS FEBRUARY 2005.
 3. A.L.T.A./ACSM LAND TITLE SURVEY DATED JANUARY 31, 2003 BY MOLLENHAJER GROUP.

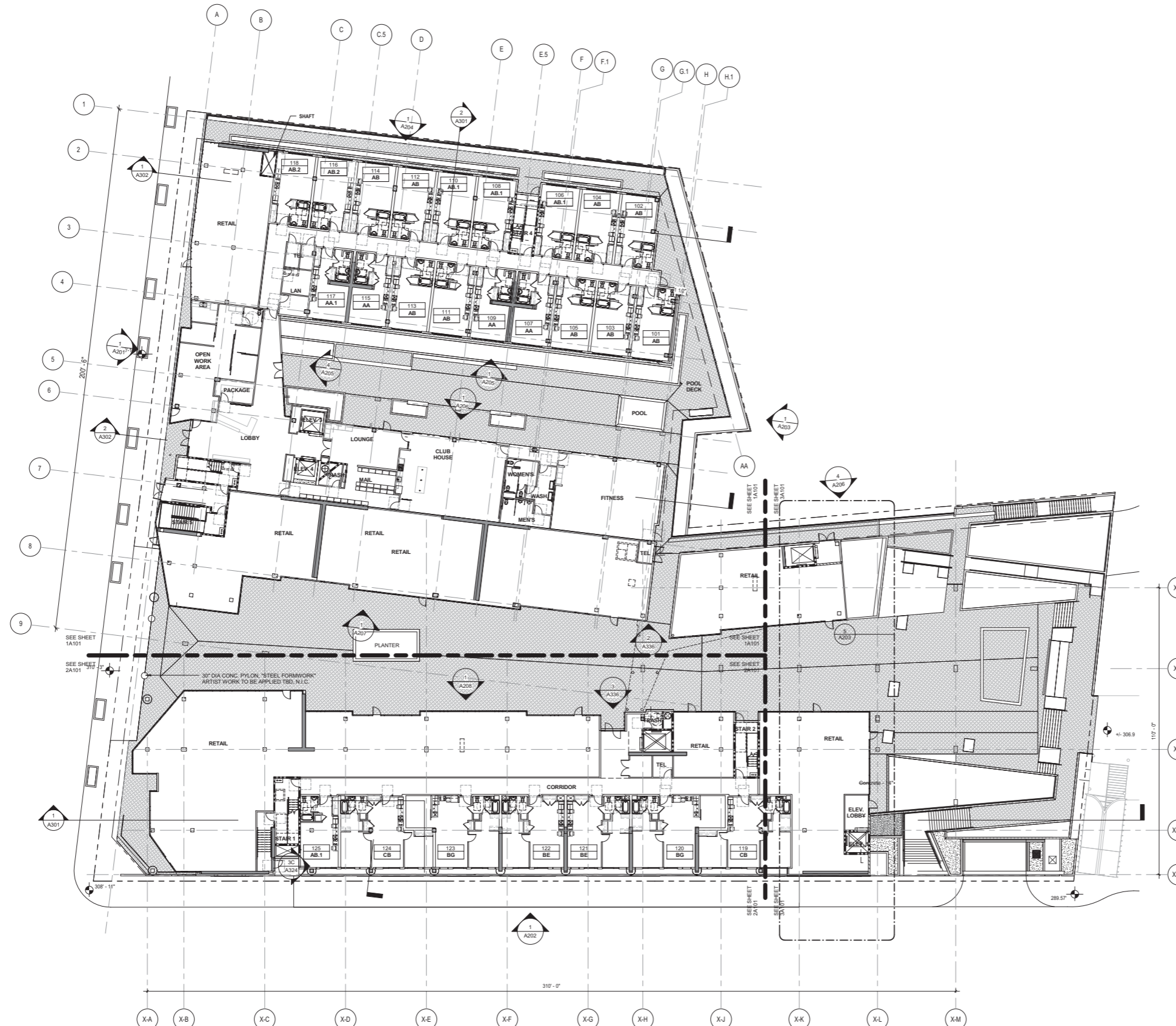
Existing Site Plan

Risk Management Plan
Proposed Blossom Plaza Development Site
900 Broadway, Los Angeles, California

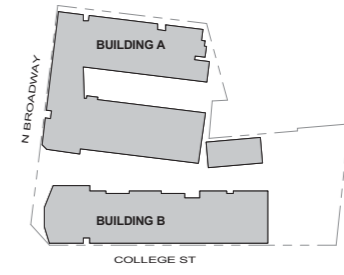
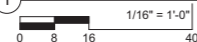
| | | |
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| October 2013 | Figure: 2 | |
|--------------|-----------|--|

SCALE: 1"=50'

Scale 0 25 50 feet



1 GROUND FLOOR PLAN - OVERALL PLAN



BUILDING KEYPLAN

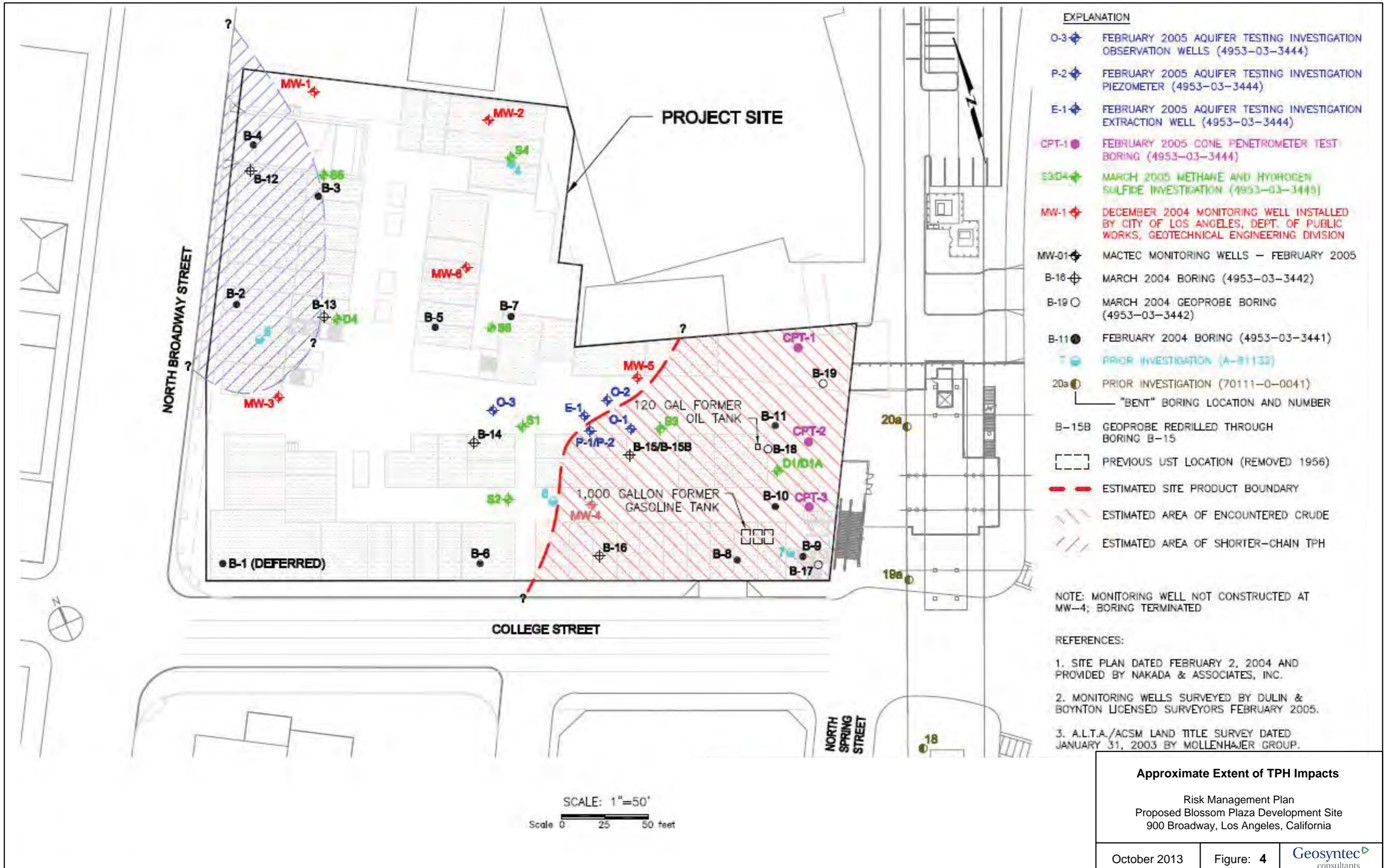
Development Layout Plan

Risk Management Plan
 Proposed Blossom Plaza Development Site
 900 Broadway, Los Angeles, California

October 2013

Figure: 3





- EXPLANATION**
- O-3 ◆ FEBRUARY 2005 AQUIFER TESTING INVESTIGATION OBSERVATION WELLS (4953-03-3444)
 - P-2 ◆ FEBRUARY 2005 AQUIFER TESTING INVESTIGATION PIEZOMETER (4953-03-3444)
 - E-1 ◆ FEBRUARY 2005 AQUIFER TESTING INVESTIGATION EXTRACTION WELL (4953-03-3444)
 - CPT-1 ● FEBRUARY 2005 CONE PENETROMETER TEST BORING (4953-03-3444)
 - S3D4 ◆ MARCH 2005 METHANE AND HYDROGEN SULFIDE INVESTIGATION (4953-03-3445)
 - MW-1 ◆ DECEMBER 2004 MONITORING WELL INSTALLED BY CITY OF LOS ANGELES, DEPT. OF PUBLIC WORKS, GEOTECHNICAL ENGINEERING DIVISION
 - MW-01 ◆ MACTEC MONITORING WELLS - FEBRUARY 2005
 - B-16 ◆ MARCH 2004 BORING (4953-03-3442)
 - B-19 ○ MARCH 2004 GEOPROBE BORING (4953-03-3442)
 - B-11 ● FEBRUARY 2004 BORING (4953-03-3441)
 - T ● PRIOR INVESTIGATION (A-81133)
 - 20a ● PRIOR INVESTIGATION (70111-0-0041)
 - "BENT" BORING LOCATION AND NUMBER
 - B-15B ● GEOPROBE REDRILLED THROUGH BORING B-15
 - [] PREVIOUS UST LOCATION (REMOVED 1956)
 - - - ESTIMATED SITE PRODUCT BOUNDARY
 - /// ESTIMATED AREA OF ENCOUNTERED CRUDE
 - /// ESTIMATED AREA OF SHORTER-CHAIN TPH

NOTE: MONITORING WELL NOT CONSTRUCTED AT MW-4; BORING TERMINATED

REFERENCES:

1. SITE PLAN DATED FEBRUARY 2, 2004 AND PROVIDED BY NAKADA & ASSOCIATES, INC.
2. MONITORING WELLS SURVEYED BY DULIN & BOYNTON LICENSED SURVEYORS FEBRUARY 2005.
3. A.L.T.A./ACSM LAND TITLE SURVEY DATED JANUARY 31, 2003 BY MOLLENHAJER GROUP.

Approximate Extent of TPH Impacts

Risk Management Plan
Proposed Blossom Plaza Development Site
900 Broadway, Los Angeles, California

| | | |
|--------------|-----------|--------------------------|
| October 2013 | Figure: 4 | Geosyntec consultants |
|--------------|-----------|--------------------------|

SCALE: 1"=50'

Scale 0 25 50 feet

| B4 | | |
|------------------------|-------|--------|
| Concentrations: mg/kg | Depth | |
| March 2004 | 22' | 46' |
| TEPH-D | ND | ND |
| TEPH-G | ND | 4.3 |
| TEPH-O | ND | ND |
| Toluene | ND | 1.33 |
| Ethylbenzene | ND | 1.08 |
| Xylenes | ND | 8.07 |
| 1,2,4-Trimethylbenzene | ND | 7.77 |
| 1,3,5-Trimethylbenzene | ND | 2.29 |
| Isopropylbenzene | ND | 0.246 |
| n-Butylbenzene | ND | 0.478 |
| n-Propylbenzene | ND | 0.837 |
| Naphthalene | ND | 1.77 |
| p-Isopropyltoluene | ND | 0.35 |
| sec-Butylbenzene | ND | 0.1467 |
| Other VOCs | ND | ND |
| Fuel Oxygenates | ND | ND |

| B8 | | |
|------------------------|--------|--------|
| Concentrations: mg/kg | Depth | |
| March 2004 | 40' | 45' |
| TEPH-D | 3 | ND |
| TEPH-G | 141 | ND |
| TEPH-O | ND | ND |
| Benzene | 0.0501 | 0.1023 |
| Toluene | 3.96 | 2.45 |
| Ethylbenzene | 3.82 | 0.388 |
| Xylenes | 18.9 | 2.16 |
| 1,2,4-Trimethylbenzene | 9.24 | 0.471 |
| 1,3,5-Trimethylbenzene | 2.46 | 0.1193 |
| Isopropylbenzene | 0.467 | ND |
| n-Butylbenzene | 0.517 | ND |
| n-Propylbenzene | 1.33 | ND |
| Naphthalene | 1.36 | 0.258 |
| p-Isopropyltoluene | 0.303 | ND |
| sec-Butylbenzene | 0.1257 | ND |
| Other VOCs | ND | ND |
| Fuel Oxygenates | ND | ND |

| B6 | | |
|-----------------------|-------|-----|
| Concentrations: mg/kg | Depth | |
| March 2004 | 34' | 52' |
| TEPH-D | ND | ND |
| TEPH-G | ND | ND |
| TEPH-O | ND | ND |
| VOCs | ND | ND |
| Fuel Oxygenates | ND | ND |

| B5 | | |
|-----------------------|-------|-----|
| Concentrations: mg/kg | Depth | |
| March 2004 | 20' | 35' |
| TEPH-D | ND | ND |
| TEPH-G | ND | ND |
| TEPH-O | ND | ND |
| VOCs | ND | ND |
| Fuel Oxygenates | ND | ND |

| B11 | | |
|-----------------------|-------|-----|
| Concentrations: mg/kg | Depth | |
| March 2004 | 28' | 40' |
| TEPH-D | ND | 260 |
| TEPH-G | ND | ND |
| TEPH-O | ND | 500 |
| VOCs | ND | ND |
| Fuel Oxygenates | ND | ND |

| B10 | | |
|------------------------|---------|-----|
| Concentrations: mg/kg | Depth | |
| March 2004 | 30' | 40' |
| TEPH-D | ND | 715 |
| TEPH-G | ND | 4.2 |
| TEPH-O | ND | 620 |
| Benzene | 0.016 | ND |
| Toluene | 0.0021 | ND |
| Ethylbenzene | 0.094 | ND |
| Xylenes | 0.3 | ND |
| 1,2,4-Trimethylbenzene | 0.055 | ND |
| 1,3,5-Trimethylbenzene | 0.012 | ND |
| Isopropylbenzene | 0.00467 | ND |
| n-Propylbenzene | 0.0055 | ND |
| Naphthalene | 0.0094 | ND |
| Other VOCs | ND | ND |
| Fuel Oxygenates | ND | ND |

EXPLANATION

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- P-2 FEBRUARY 2005 AQUIFER TESTING INVESTIGATION PIEZOMETER (4953-03-3444)
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- CPT-1 FEBRUARY 2005 CONE PENETROMETER TEST BORING (4953-03-3444)
- S3/D4 MARCH 2005 METHANE AND HYDROGEN SULFIDE INVESTIGATION (4953-03-3446)
- MW-1 DECEMBER 2004 MONITORING WELL INSTALLED BY CITY OF LOS ANGELES, DEPT. OF PUBLIC WORKS, GEOTECHNICAL ENGINEERING DIVISION
- B-16 MARCH 2004 BORING (4953-03-3442)
- B-19 MARCH 2004 GEOPROBE BORING (4953-03-3442)
- B-11 FEBRUARY 2004 BORING (4953-03-3441)
- PRIOR INVESTIGATION (A-B-11.52)
- 20a PRIOR INVESTIGATION (70111-0-0041)
- BORING LOCATION AND NUMBER
- B-15B GEOPROBE REDRILLED THROUGH BORING B-15
- PREVIOUS UST LOCATION (REMOVED 1956)

NOTE: MONITORING WELL NOT CONSTRUCTED AT MW-4; BORING TERMINATED

REFERENCES:

1. SITE PLAN DATED FEBRUARY 2, 2004 AND PROVIDED BY NAKADA & ASSOCIATES, INC.
2. MONITORING WELLS SURVEYED BY DULIN & BOYNTON LICENSED SURVEYORS FEBRUARY 2005.
3. A.L.T.A./ACSM LAND TITLE SURVEY DATED JANUARY 31, 2003 BY MOLLENHAJER GROUP.

SCALE: 1"=50'

Scale 0 25 50 feet

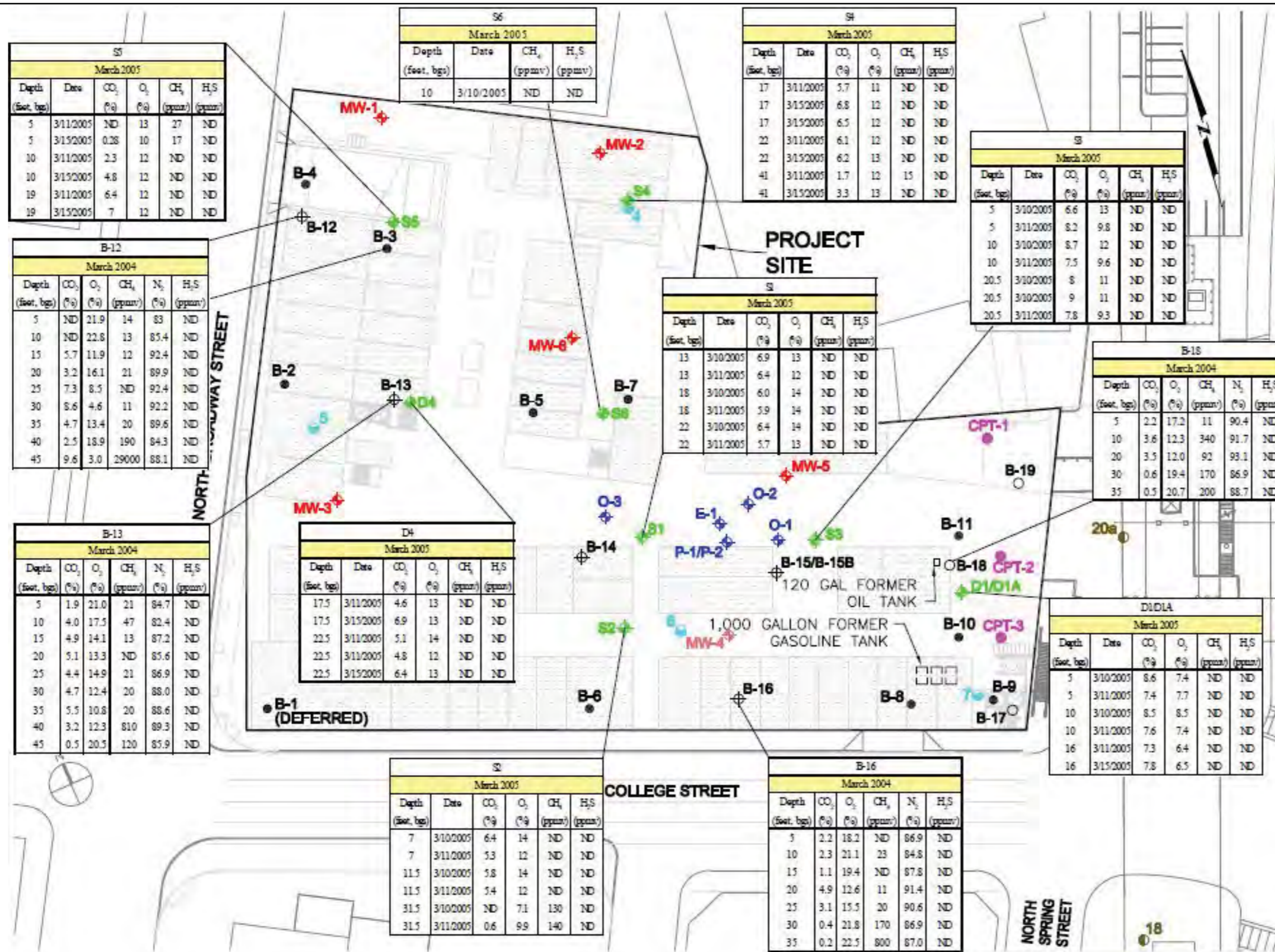
TPH/VOC Concentrations in Soil

Risk Management Plan
Proposed Blossom Plaza Development Site
900 Broadway, Los Angeles, California

October 2013

Figure: 5

Geosyntec
consultants



- EXPLANATION**
- O-3 FEBRUARY 2005 AQUIFER TESTING INVESTIGATION OBSERVATION WELLS (4953-03-3444)
 - P-2 FEBRUARY 2005 AQUIFER TESTING INVESTIGATION PIEZOMETER (4953-03-3444)
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 - CPT-1 FEBRUARY 2005 CONE PENETROMETER TEST BORING (4953-03-3444)
 - S3/D4 MARCH 2005 METHANE AND HYDROGEN SULFIDE INVESTIGATION (4953-03-3445)
 - MW-1 DECEMBER 2004 MONITORING WELL INSTALLED BY CITY OF LOS ANGELES, DEPT. OF PUBLIC WORKS, GEOTECHNICAL ENGINEERING DIVISION
 - B-16 MARCH 2004 BORING (4953-03-3442)
 - B-19 MARCH 2004 GEOPROBE BORING (4953-03-3442)
 - B-11 FEBRUARY 2004 BORING (4953-03-3441)
 - PRIOR INVESTIGATION (A-B1139)
 - 20a PRIOR INVESTIGATION (70111-0-0041)
 - "BENT" BORING LOCATION AND NUMBER
 - B-15B GEOPROBE REDRILLED THROUGH BORING B-15
 - PREVIOUS UST LOCATION (REMOVED 1956)

NOTE: MONITORING WELL NOT CONSTRUCTED AT MW-4; BORING TERMINATED

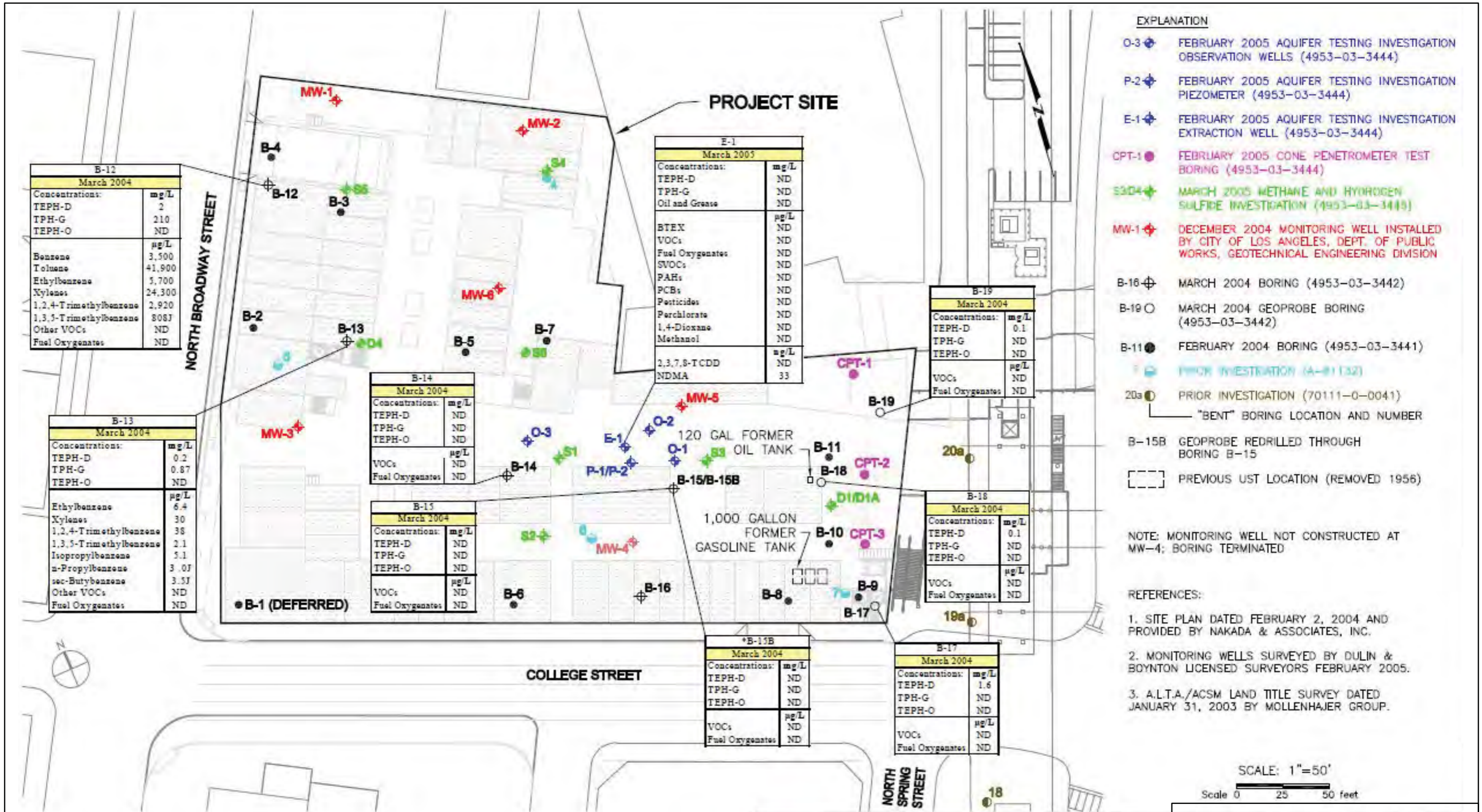
- REFERENCES:**
1. SITE PLAN DATED FEBRUARY 2, 2004 AND PROVIDED BY NAKADA & ASSOCIATES, INC.
 2. MONITORING WELLS SURVEYED BY DULIN & BOYNTON LICENSED SURVEYORS FEBRUARY 2005.
 3. A.L.T.A./ACSM LAND TITLE SURVEY DATED JANUARY 31, 2003 BY MOLLENHAJER GROUP.

SCALE: 1"=50'
Scale 0 25 50 feet

Methane Concentrations in Soil Gas

Risk Management Plan
Proposed Blossom Plaza Development Site
900 Broadway, Los Angeles, California

| | | |
|--------------|-----------|--|
| October 2013 | Figure: 6 | |
|--------------|-----------|--|



EXPLANATION

- O-3 FEBRUARY 2005 AQUIFER TESTING INVESTIGATION OBSERVATION WELLS (4953-03-3444)
- P-2 FEBRUARY 2005 AQUIFER TESTING INVESTIGATION PIEZOMETER (4953-03-3444)
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- S3D4 MARCH 2005 METHANE AND HYDROGEN SULFIDE INVESTIGATION (4953-03-3444)
- MW-1 DECEMBER 2004 MONITORING WELL INSTALLED BY CITY OF LOS ANGELES, DEPT. OF PUBLIC WORKS, GEOTECHNICAL ENGINEERING DIVISION
- B-16 MARCH 2004 BORING (4953-03-3442)
- B-19 MARCH 2004 GEOPROBE BORING (4953-03-3442)
- B-11 FEBRUARY 2004 BORING (4953-03-3441)
- TYPICAL INVESTIGATION (A-81132)
- 20a PRIOR INVESTIGATION (70111-0-0041)
- "BENT" BORING LOCATION AND NUMBER
- B-15B GEOPROBE REDRILLED THROUGH BORING B-15
- PREVIOUS UST LOCATION (REMOVED 1956)

NOTE: MONITORING WELL NOT CONSTRUCTED AT MW-4; BORING TERMINATED

REFERENCES:

1. SITE PLAN DATED FEBRUARY 2, 2004 AND PROVIDED BY NAKADA & ASSOCIATES, INC.
2. MONITORING WELLS SURVEYED BY DULIN & BOYNTON LICENSED SURVEYORS FEBRUARY 2005.
3. A.L.T.A./ACSM LAND TITLE SURVEY DATED JANUARY 31, 2003 BY MOLLENHAJER GROUP.

SCALE: 1"=50'
Scale 0 25 50 feet

| B-12 | |
|------------------------|--------|
| March 2004 | |
| Concentrations: | mg/L |
| TEPH-D | 2 |
| TPH-G | 210 |
| TEPH-O | ND |
| | µg/L |
| Benzene | 3,500 |
| Toluene | 41,900 |
| Ethylbenzene | 5,700 |
| Xylenes | 24,300 |
| 1,2,4-Trimethylbenzene | 2,920 |
| 1,3,5-Trimethylbenzene | 8087 |
| Other VOCs | ND |
| Fuel Oxygenates | ND |

| B-13 | |
|------------------------|------|
| March 2004 | |
| Concentrations: | mg/L |
| TEPH-D | 0.2 |
| TPH-G | 0.87 |
| TEPH-O | ND |
| | µg/L |
| Ethylbenzene | 6.4 |
| Xylenes | 30 |
| 1,2,4-Trimethylbenzene | 38 |
| 1,3,5-Trimethylbenzene | 2.1 |
| Isopropylbenzene | 5.1 |
| n-Propylbenzene | 3.07 |
| sec-Butylbenzene | 3.57 |
| Other VOCs | ND |
| Fuel Oxygenates | ND |

| B-14 | |
|-----------------|------|
| March 2004 | |
| Concentrations: | mg/L |
| TEPH-D | ND |
| TPH-G | ND |
| TEPH-O | ND |
| | µg/L |
| VOCs | ND |
| Fuel Oxygenates | ND |

| B-15 | |
|-----------------|------|
| March 2004 | |
| Concentrations: | mg/L |
| TEPH-D | ND |
| TPH-G | ND |
| TEPH-O | ND |
| | µg/L |
| VOCs | ND |
| Fuel Oxygenates | ND |

| E-1 | |
|-----------------|------|
| March 2005 | |
| Concentrations: | mg/L |
| TEPH-D | ND |
| TPH-G | ND |
| Oil and Grease | ND |
| | µg/L |
| BTEX | ND |
| VOCs | ND |
| Fuel Oxygenates | ND |
| SVOCs | ND |
| PAHs | ND |
| PCBs | ND |
| Pesticides | ND |
| Perchlorate | ND |
| 1,4-Dioxane | ND |
| Methanol | ND |
| | mg/L |
| 1,3,7,8-TCDD | ND |
| NDMA | 33 |

| *B-15B | |
|-----------------|------|
| March 2004 | |
| Concentrations: | mg/L |
| TEPH-D | ND |
| TPH-G | ND |
| TEPH-O | ND |
| | µg/L |
| VOCs | ND |
| Fuel Oxygenates | ND |

| B-17 | |
|-----------------|------|
| March 2004 | |
| Concentrations: | mg/L |
| TEPH-D | 1.6 |
| TPH-G | ND |
| TEPH-O | ND |
| | µg/L |
| VOCs | ND |
| Fuel Oxygenates | ND |

| B-19 | |
|-----------------|------|
| March 2004 | |
| Concentrations: | mg/L |
| TEPH-D | 0.1 |
| TPH-G | ND |
| TEPH-O | ND |
| | µg/L |
| VOCs | ND |
| Fuel Oxygenates | ND |

| B-18 | |
|-----------------|------|
| March 2004 | |
| Concentrations: | mg/L |
| TEPH-D | 0.1 |
| TPH-G | ND |
| TEPH-O | ND |
| | µg/L |
| VOCs | ND |
| Fuel Oxygenates | ND |

TPH/VOC Concentrations in Groundwater

Risk Management Plan
Proposed Blossom Plaza Development Site
900 Broadway, Los Angeles, California

| | | |
|--------------|-----------|--|
| October 2013 | Figure: 7 | |
|--------------|-----------|--|

APPENDIX A

Environmental Health and Safety Plan Outline

APPENDIX A

Example Environmental Health and Safety Plan Outline

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- 2.0 BACKGROUND
 - 2.1 Summary of Environmental Conditions
- 3.0 DESCRIPTION OF TASKS AND PROJECT ORGANIZATION
 - 3.1 Description of Tasks
 - 3.2 Project Personnel and Description of Responsibilities
 - 3.3 Subcontractors
- 4.0 HAZARD EVALUATION AND CONTROL
 - 4.1 Chemical Hazards and Controls
 - 4.2 Physical Hazards and Controls
 - 4.3 Personal Protective Clothing and Equipment
 - 4.4 Air Monitoring and Site Action Levels
- 5.0 HEALTH AND SAFETY REQUIREMENTS
 - 5.1 Training and Medical Monitoring Requirements
 - 5.2 Observations, Meetings and Documentation
 - 5.3 Site Control and Safe Work Practices
 - 5.4 General Decontamination Procedures
 - 5.5 Confined Space Entry
- 6.0 EMERGENCY RESPONSE PLAN
 - 6.1 Medical Procedures and Emergency Telephone Numbers
 - 6.2 Emergency Evacuation Procedures
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| Figure 2 | Site Plan |
| Figure 3 | Hospital Route Map |

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| Table 2 | Project Contacts |
| Table 3 | Symptoms and Treatment of Heat and Cold Stress |
| Table 4 | General Physical Hazards and Controls |
| Table 5 | Personal Protective Clothing/Equipment |
| Table 6 | Air Monitoring Action Levels |
| Table 7 | Emergency Contacts |

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| Appendix B | Tailgate Safety Meeting Form |

Approval and Certification of Environmental Health and Safety Plan

Project Name: _____

Project Number/ID: _____

"This Project Specific Environmental Health and Safety Plan and Attachments were prepared under my direction to comply with applicable occupational health and safety standards, including, but not limited to OSHA 1910.120"

Certified Industrial Hygienist Signature and Stamp

Date

APPENDIX B

DTSC Soil Import Advisory

Information Advisory

Clean Imported Fill Material



October 2001

DEPARTMENT OF TOXIC SUBSTANCES CONTROL

It is DTSC's mission to restore, protect and enhance the environment, to ensure public health, environmental quality and economic vitality, by regulating hazardous waste, conducting and overseeing cleanups, and developing and promoting pollution prevention.

State of California



California
Environmental
Protection Agency



Executive Summary

This fact sheet has been prepared to ensure that inappropriate fill material is not introduced onto sensitive land use properties under the oversight of the DTSC or applicable regulatory authorities. Sensitive land use properties include those that contain facilities such as hospitals, homes, day care centers, and schools. This document only focuses on human health concerns and ecological issues are not addressed.

It identifies those types of land use activities that may be appropriate when determining whether a site may be used as a fill material source area. It also provides guidelines for the appropriate types of analyses that should be performed relative to the former land use, and for the number of samples that should be collected and analyzed based on the estimated volume of fill material that will need to be used. The information provided in this fact sheet is not regulatory in nature, rather is to be used as a guide, and in most situations the final decision as to the acceptability of fill material for a sensitive land use property is made on a case-by-case basis by the appropriate regulatory agency.

Introduction

The use of imported fill material has recently come under scrutiny because of the instances where contaminated soil has been brought onto an otherwise clean site. However, there are currently no established standards in the statutes or regulations that address environmental requirements for imported fill material. Therefore, the California Environmental Protection Agency, Department of Toxic Substances Control (DTSC) has prepared this fact sheet to identify procedures that can be used to minimize the possibility of introducing contaminated soil onto a site that requires imported fill material. Such sites include those that are undergoing site remediation, corrective action, and closure activities overseen by DTSC or the appropriate regulatory agency. These procedures may also apply to construction projects that will result in sensitive land uses. The intent of this fact sheet is to protect people who live on or otherwise use a sensitive land use property. By using this fact sheet as a guide, the reader will minimize the chance of introducing fill material that may result in potential risk to human health or the environment at some future time.

The energy challenge facing California is real. Every Californian needs to take immediate action to reduce energy consumption. For a list of simple ways you can reduce demand and cut your energy costs, see our website at www.dtsc.ca.gov.

Overview

Both natural and manmade fill materials are used for a variety of purposes. Fill material properties are commonly controlled to meet the necessary site specific engineering specifications. Because most sites requiring fill material are located in or near urban areas, the fill materials are often obtained from construction projects that generate an excess of soil, and from demolition debris (asphalt, broken concrete, etc.). However, materials from those types of sites may or may not be appropriate, depending on the proposed use of the fill, and the quality of the assessment and/or mitigation measures, if necessary. Therefore, unless material from construction projects can be demonstrated to be free of contami-

nation and/or appropriate for the proposed use, the use of that material as fill should be avoided.

Selecting Fill Material

In general, the fill source area should be located in nonindustrial areas, and not from sites undergoing an environmental cleanup. Nonindustrial sites include those that were previously undeveloped, or used solely for residential or agricultural purposes. If the source is from an agricultural area, care should be taken to insure that the fill does not include former agricultural waste process byproducts such as manure or other decomposed organic material. Undesirable sources of fill material include industrial and/or commercial sites where hazardous ma-

Potential Contaminants Based on the Fill Source Area

| Fill Source: | Target Compounds |
|--|--|
| Land near to an existing freeway | Lead (EPA methods 6010B or 7471A), PAHs (EPA method 8310) |
| Land near a mining area or rock quarry | Heavy Metals (EPA methods 6010B and 7471A), asbestos (polarized light microscopy), pH |
| Agricultural land | Pesticides (Organochlorine Pesticides: EPA method 8081A or 8080A; Organophosphorus Pesticides: EPA method 8141A; Chlorinated Herbicides: EPA method 8151A), heavy metals (EPA methods 6010B and 7471A) |
| Residential/acceptable commercial land | VOCs (EPA method 8021 or 8260B, as appropriate and combined with collection by EPA Method 5035), semi-VOCs (EPA method 8270C), TPH (modified EPA method 8015), PCBs (EPA method 8082 or 8080A), heavy metals including lead (EPA methods 6010B and 7471A), asbestos (OSHA Method ID-191) |

**The recommended analyses should be performed in accordance with USEPA SW-846 methods (1996). Other possible analyses include Hexavalent Chromium: EPA method 7199*

Recommended Fill Material Sampling Schedule

Area of Individual Borrow Area

Sampling Requirements

2 acres or less

Minimum of 4 samples

2 to 4 acres

Minimum of 1 sample every 1/2 acre

4 to 10 acres

Minimum of 8 samples

Greater than 10 acres

Minimum of 8 locations with 4 subsamples per location

Volume of Borrow Area Stockpile

Samples per Volume

Up to 1,000 cubic yards

1 sample per 250 cubic yards

1,000 to 5,000 cubic yards

4 samples for first 1000 cubic yards + 1 sample per each additional 500 cubic yards

Greater than 5,000 cubic yards

12 samples for first 5,000 cubic yards + 1 sample per each additional 1,000 cubic yards

materials were used, handled or stored as part of the business operations, or unpaved parking areas where petroleum hydrocarbons could have been spilled or leaked into the soil. Undesirable commercial sites include former gasoline service stations, retail strip malls that contained dry cleaners or photographic processing facilities, paint stores, auto repair and/or painting facilities. Undesirable industrial facilities include metal processing shops, manufacturing facilities, aerospace facilities, oil refineries, waste treatment plants, etc. Alternatives to using fill from construction sites include the use of fill material obtained from a commercial supplier of fill material or from soil pits in rural or suburban areas. However, care should be taken to ensure that those materials are also uncontaminated.

Documentation and Analysis

In order to minimize the potential of introducing contaminated fill material onto a site, it is necessary

to verify through documentation that the fill source is appropriate and/or to have the fill material analyzed for potential contaminants based on the location and history of the source area. Fill documentation should include detailed information on the previous use of the land from where the fill is taken, whether an environmental site assessment was performed and its findings, and the results of any testing performed. It is recommended that any such documentation should be signed by an appropriately licensed (CA-registered) individual. If such documentation is not available or is inadequate, samples of the fill material should be chemically analyzed. Analysis of the fill material should be based on the source of the fill and knowledge of the prior land use.

Detectable amounts of compounds of concern within the fill material should be evaluated for risk in accordance with the DTSC Preliminary Endangerment Assessment (PEA) Guidance Manual. If

metal analyses are performed, only those metals (CAM 17 / Title 22) to which risk levels have been assigned need to be evaluated. At present, the DTSC is working to establish California Screening Levels (CSL) to determine whether some compounds of concern pose a risk. Until such time as these CSL values are established, DTSC recommends that the DTSC PEA Guidance Manual or an equivalent process be referenced. This guidance may include the Regional Water Quality Control Board's (RWQCB) guidelines for reuse of non-hazardous petroleum hydrocarbon contaminated soil as applied to Total Petroleum Hydrocarbons (TPH) only. The RWQCB guidelines should not be used for volatile organic compounds (VOCs) or semi-volatile organic compounds (SVOCS). In addition, a standard laboratory data package, including a summary of the QA/QC (Quality Assurance/Quality Control) sample results should also accompany all analytical reports.

When possible, representative samples should be collected at the borrow area while the potential fill material is still in place, and analyzed prior to removal from the borrow area. In addition to performing the appropriate analyses of the fill material, an appropriate number of samples should also be determined based on the approximate volume or area of soil to be used as fill material. The table above can be used as a guide to determine the number of samples needed to adequately characterize the fill material when sampled at the borrow site.

Alternative Sampling

A Phase I or PEA may be conducted prior to sampling to determine whether the borrow area may have been impacted by previous activities on the property. After the property has been evaluated, any sampling that may be required can be determined during a meeting with DTSC or appropriate regulatory agency. However, if it is not possible to analyze the fill material at the borrow area or determine that it is appropriate for use via a Phase I or PEA, it is recommended that one (1) sample per truckload be collected and analyzed for all com-

pounds of concern to ensure that the imported soil is uncontaminated and acceptable. (See chart on Potential Contaminants Based on the Fill Source Area for appropriate analyses). This sampling frequency may be modified upon consultation with the DTSC or appropriate regulatory agency if all of the fill material is derived from a common borrow area. However, fill material that is not characterized at the borrow area will need to be stockpiled either on or off-site until the analyses have been completed. In addition, should contaminants exceeding acceptance criteria be identified in the stockpiled fill material, that material will be deemed unacceptable and new fill material will need to be obtained, sampled and analyzed. Therefore, the DTSC recommends that all sampling and analyses should be completed prior to delivery to the site to ensure the soil is free of contamination, and to eliminate unnecessary transportation charges for unacceptable fill material.

Composite sampling for fill material characterization may or may not be appropriate, depending on quality and homogeneity of source/borrow area, and compounds of concern. Compositing samples for volatile and semivolatile constituents is not acceptable. Composite sampling for heavy metals, pesticides, herbicides or PAH's from unanalyzed stockpiled soil is also unacceptable, unless it is stockpiled at the borrow area and originates from the same source area. In addition, if samples are composited, they should be from the same soil layer, and not from different soil layers.

When very large volumes of fill material are anticipated, or when larger areas are being considered as borrow areas, the DTSC recommends that a Phase I or PEA be conducted on the area to ensure that the borrow area has not been impacted by previous activities on the property. After the property has been evaluated, any sampling that may be required can be determined during a meeting with the DTSC.

For further information, call Richard Coffman, Ph.D., R.G., at (818) 551-2175.



November 13, 2013
Project: IRLA13006

Ms. Mia Hunt
California Department of Toxic Substances Control
9211 Oakdale Avenue
Chatsworth, California 91311

Via: Electronic Mail mia.hunt@dtsc.ca.gov

Re: Response to DTSC Comments Dated October 31, 2013
Vapor Intrusion (VI) Human Health Risk Evaluation
Blossom Plaza Development, Los Angeles, California

Dear Ms. Hunt:

Pursuant to the request of Forest City Development (Forest City), AMEC Environment and Infrastructure, Inc. (AMEC), has reviewed comments regarding the Vapor Intrusion (VI) Human Health Risk Evaluation (HHRE) Report¹ received from the California Department of Toxic Substances Control (DTSC) dated October 31, 2013². The HHRE was prepared to present results of potential human health risks related to potential vapor intrusion of volatile organic compounds (VOCs) in soil vapor based on soil vapor survey data collected at the proposed Blossom Plaza Development project located at 900 North Broadway in Los Angeles, California (site).

As requested by Forest City, AMEC is responding to the comments received from DTSC. DTSC's comments are shown in bold print below; and our response follows in normal print.

- 1. Page 2: Please elaborate on the statement "...ventilation system operation is discontinuous and actual operation will vary based on demand." Specifically, please discuss the control system that will be implemented to monitor and maintain adequate ventilation (i.e., approximately 5 air exchanges per hour) in the parking structure over time.**

The ventilation system in the underground parking structure will operate intermittently based on the need to mitigate automobile exhaust in the parking structure. Intermittent operation is used to conserve energy during times of low vehicle travel in the parking structure. Operation of the ventilation system is interlocked with carbon monoxide monitoring instruments located at various locations throughout the parking structure. If carbon monoxide concentrations exceed threshold levels at one of the monitoring stations, then the ventilation system is activated.

¹ AMEC Environment and Infrastructure, Inc. (2013) "Vapor Intrusion Human Health Risk Assessment" letter to Ms. Mia Hunt, California Department of Toxic Substances Control dated October 11, 2013.

² California Department of Toxic Substances Control (2013) "Review of Vapor Intrusion Human Health Risk Evaluation prepared by AMEC" received via electronic mail on October 31.

Ms. Mia Hunt
California Department of Toxic Substances Control
November 13, 2013
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While the operating capacity of the ventilation system is more than 5 air exchanges per hour, the actual operation will be less than operating capacity due to the intermittent operation. To provide a more realistic estimate of the operating capacity, a factor of 1.5 air exchanges per hour was used as an assumption for estimating human health risks associated with vapor intrusion.

- 2. Page 5: Please provide supporting information on the assumption of 4-ft low-permeability engineered fill beneath the foundation in the site-specific modeling, or an alternative analysis can be performed using 1 foot of engineered fill and 3 feet of loamy sand (similar to those used in the default building modeling).**

An analysis using a 0.5 foot of engineered fill was conducted and is intended to represent site-specific conditions and the proposed development. However, the loamy sand layer was not added to this scenario. The soil vapor samples were collected in the sandy silt layer rather than the more shallow loamy sand material that will be excavated when the subterranean garage is installed. Specifically, the revised site-specific modeling scenario is 15 feet of sand, underlain by 0.5 foot of engineered fill, and 3 feet of native soil, for Stratum A, B, and C, respectively (Attachment A-1). Default OEHHA parameters for sand and engineered fill were used in the model. For the native sandy silt (Stratum C), soil classifications were matched with the corresponding soil type in the J&E model. Default total porosities based on silt loam and sandy loam and site-specific soil physical measurements (dry bulk density and moisture content) were used to estimate air and water-filled porosities (Attachment A-2). The average porosities for six samples were then used to characterize native soil. The results of the revising the analysis (for this comment and comment #3 below) indicate that the estimated total noncancer HI is 0.2 and the cancer risk is 1×10^{-6} for the future resident in the proposed multi-level building, which are at or below acceptable risk levels. The revised HHRE is attached for reference.

- 3. Page 6: HERO does not support the air flow transfer factor of 7% that was used in the site-specific modeling, as it is just an average value from a Minnesota multifamily building study (CEE 2004) and may not represent the worse-case scenario. The CEE study mentioned several factors that affect inter-floor and inter-unit air flow, including thermal stack effect, elevator shaft as a conduit, and utility layout/penetrations, which led to significant variability of air flows among different building units. For a more protective screening evaluation, HERO used a value of 26% reported for three new 3-story buildings in the Pacific Northwest from another study cited in the CEE report. This would increase the estimated risks by approximately 4 folds in the site-specific scenarios, but they are still at or below the target risk thresholds and would not alter the conclusions of the HHRE.**

An analysis using a value of 26% for inter-floor air flow was conducted in conjunction with the analysis performed in response to Comment #2 above. As previously discussed, the total noncancer HI and cancer risk are still below target risk thresholds.

Ms. Mia Hunt
California Department of Toxic Substances Control
November 13, 2013
Page 3

- 4. Provided that the above comments can be adequately addressed, HERO would support the key conclusion of the HHRE, i.e., the residual petroleum-related VOCs detected in soil vapor do not pose an unacceptable risk to future occupants in the proposed multi-level buildings. HERO also supports the recommendation to re-evaluate the health risks if the site would be redeveloped with slab-on-grade residential buildings as the calculated cancer risk in the default building modeling exceeds the target risk of 1E-6. Please note that the assumed thickness of soil stratum (30 feet of loamy sand and 10 feet of native soil) in the default building modeling appear arbitrary and should be modified to reflect actual soil profiles in the plan, if needed.**

DTSC's comment is acknowledged. The assumed thickness of soil stratum used in the model are estimated based on cross-sections and actual soil profiles reported during previous geotechnical and environmental investigations performed at the site. Modeling 40 feet of lithology was complex. To simplify the lithology for this hypothetical scenario within the constraints of a three-layer model, native lithology was simplified into two layers: default loamy sand and a site-specific sandy silt. As described in the HHRE report, extensive excavation will occur as part of the site development, including excavation of the loamy sand material.

AMEC concurs with DTSC's recommendation to re-evaluate potential vapor intrusion risks in the event that site development plans change from the conditions used in the modeling in this HHRE.

Thank you for your assistance with this project. If you have any questions, please call the undersigned at (949) 642-0245.

Sincerely yours,
AMEC

A handwritten signature in blue ink, appearing to read "C. H. Hardcastle".

Calvin H. Hardcastle, PE
Principal Engineer

cc: James Ostrom – Forest City Development
Frank Fralliccardi – Forest City Development
Nicholas Targ – HK Law
Randy Brandt – Geosyntec

November 13, 2013

Project IRLA130061

Ms. Mia Hunt
Project Manager
Brownfields & Environmental Restoration Program
Cal/EPA Department of Toxic Substances Control
9211 Oakdale Avenue
Chatsworth, California 91311

Via Email: mia.hunt@dtsc.ca.gov

Subject: Vapor Intrusion (VI) Human Health Risk Evaluation
Blossom Plaza Development
900 North Broadway, Los Angeles

Dear Ms. Hunt:

On behalf of Forest City Development, AMEC Environment and Infrastructure, Inc. (AMEC), has prepared the following report to present the results of a vapor intrusion (VI) human health risk evaluation (HHRE) conducted at the Blossom Plaza site located at 900 N. Broadway in Los Angeles, California. The HHRE was conducted based on soil vapor sampling collected at the Blossom Plaza site in September 2013.

SITE BACKGROUND

AMEC collected soil vapor samples to further evaluate potential human health risks associated with environmental impacts encountered at the site during previous site assessments. The environmental impacts were described in reports prepared by Mactec in 2004 and 2005. As discussed in those reports, the environmental impacts were attributed to potentially offsite sources, such as releases from petroleum storage tanks to the west and northwest and crude oil impacts to the southeast. The estimated extent of impacts from petroleum hydrocarbons, based on data obtained in 2004 and 2005, is shown on Figure 1. Potential chemicals of concern (COCs) at the site include petroleum hydrocarbons and aromatic volatile organic compounds such as fuel constituents. In addition, the Blossom Plaza site is located within a Methane Zone as designated by the City of Los Angeles. On this basis, COCs also include methane and hydrogen sulfide.

The proposed Blossom Plaza includes the construction of a mixed-use development, consisting of three five-story structures with a common podium over a 1- to 3-level subgrade parking structure located at the northeast corner of College Street and North Broadway in Los Angeles, California. A portion of the podium will include a plaza. The existing site grade slopes from the west side of the site at Elevation 310 to the east side at Elevation 290. The podium will be at Elevation 310. Excavation of the site is also expected to occur over the entire footprint of the property to approximate Elevation 273 feet.

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As discussed above, the Blossom Plaza site is located within a Methane Zone. Previous investigative work conducted at the site indicated that methane mitigation measures will be required. The level of mitigation measures have been selected based on discussions between Forest City's consultants and the City of Los Angeles Department of Building and Safety and the mitigation measures are expected to consist of a membrane barrier impervious to methane, a methane monitoring and alarm system, and mechanical ventilation in lowest occupied level of the parking structure. The methane membrane barrier material has not been selected at this time.

Five groundwater monitoring wells are currently located at the site. Historically, groundwater elevations have been measured at elevations ranging from approximately 264 to 275 feet above mean sea level. These historical measurements suggest that the building foundation may be at or slightly submerged below the water table depending on fluctuating site conditions such that there may be no vadose zone underlying the building foundation as was the case during 2005. The groundwater elevation was at approximate Elevation 265, or 8 feet below the total depth of the planned excavation, on September 11, 2013.

Based on the historical groundwater elevations, the building foundation will require protection from potential damage from hydrostatic forces caused by groundwater. Blossom Plaza has elected to provide the proposed building with a mat foundation, which consists of a 36-inch thick concrete slab. The mat foundation serves to reduce potential differential settlement by distributing the weight of the building over a larger area, as well as to protect the foundation from potential damage by hydrostatic forces. A permanent dewatering system will not be used.

Typical methane mitigation measures in the City of Los Angeles also consist of a passive or, in some cases, active venting systems beneath the building foundation (i.e., sub-slab venting system). However in order for the sub-slab venting system to be effective, a dewatering system is required to lower the groundwater elevation so that the venting system is exposed to unsaturated soil. In consideration that a permanent dewatering system will not be used, Blossom Plaza applied for, and received, a variance from the City of Los Angeles to eliminate the requirement to install a sub-slab venting system.

The lowest occupied floor of the proposed Blossom Plaza development is an underground parking structure at an approximate Elevation 277, and is situated on a mat foundation that is 36-inches thick and underlain by engineered fill. The parking structure will be mechanically ventilated by an on-demand system activated by carbon monoxide monitors located in the parking structure. As required by the California Mechanical Code, the ventilation system will be designed based on the number of parking spaces in the parking structure and will have a capacity of 350 cubic feet per minute per parking space, or the approximate equivalent of 5.1 air exchanges per hour. The ventilation system operation is discontinuous and actual operation will vary based on demand.

SOIL VAPOR SAMPLING OVERVIEW

AMEC submitted a work plan for the planned soil vapor investigation to the California Department of Toxic Substances Control (DTSC) on September 16, 2013. DTSC reviewed the work plan and approved the work plan, with comments, for implementation on September 18, 2013. AMEC incorporated DTSC's comments into the work plan and evaluation of the soil vapor survey data during the HHRE.

The objective of the soil vapor sampling program was to characterize the presence and nature of volatile organic compounds (primarily aromatics associated with refined and naturally occurring petroleum hydrocarbons), methane, and hydrogen sulfide gas in the vadose zone beneath the proposed building foundation.

To meet this objective, AMEC collected soil vapor samples from seven (7) locations at the site, as shown on Figure 1. An attempt was made to collect a soil vapor sample from an eighth location (SV-2); however the sampling equipment was not able to penetrate to the target sampling depth during a total of five attempts to collect the sample in proximity to location SV-2. This location was abandoned after the fifth attempt to collect the sample was unsuccessful.

Results of the laboratory analyses indicated the presence of volatile organic compounds (VOCs) in one of the seven samples analyzed (SV-1). The list of detected VOCs included xylenes, ethylbenzene, toluene, isopropylbenzene, 4-isopropyltoluene, n-propylbenzene, 1,3,5-trimethylbenzene, and 1,2,4-trimethylbenzene. No chlorinated VOCs were detected. The sole sample with VOC detections was located on the northwest corner of the property, which is an area previously identified to be impacted by petroleum hydrocarbons from a potential off-site source of gasoline compounds. Methane was detected in four of the seven soil vapor samples; and hydrogen sulfide was not detected in any of the soil vapor samples.

The HHRE evaluated baseline health impacts from potential vapor intrusion of these VOCs into the indoor air of future buildings with a slab-on-grade foundation in addition to the proposed multilevel building. Methane was not evaluated for chronic toxicity because methane is a simple asphyxiant.

A summary of the soil vapor investigation is contained in a companion document to this letter titled Soil Vapor Sampling Results dated October 3, 2013.

DEVELOPMENT OF RISK-BASED SCREENING LEVELS

Hazard indices (HIs) for non-cancer health effects and carcinogenic risks were estimated for future residential and commercial exposure scenarios. The HIs and carcinogenic risks were estimated for the VOCs detected in sample SV-1 by comparing the soil vapor data to risk-based soil vapor criteria. To comply with DTSC policy to use the most current and conservative OEHHA and U.S. EPA toxicity criteria, the soil vapor criteria were derived using the lowest (most conservative) risk-based target indoor air concentrations from the May 2013 U.S. EPA Regional Screening Levels (RSLs) and the San Francisco Regional Water Quality Control

Board Environmental Screening Levels (ESLs). In addition, DTSC's alternative air screening levels recommended in lieu of RSLs were also reviewed for detected chemicals (DTSC, 2013a). Specifically, to derive a soil vapor screening level, the lowest indoor air screening level for each exposure scenario (residential or commercial) was divided by a soil vapor-to-indoor air attenuation factor modeled consistent with the methodology presented by the DTSC Vapor Intrusion Guidance and the Office of Environmental Health Hazard Assessment (OEHHA) for California Human Health Screening Levels (CHHSLs). Alternatively, the lowest indoor air screening level was multiplied by the soil vapor-to-indoor air attenuation factor to estimate an indoor air concentration.

Risk and non-cancer health effects were not calculated for isopropyltoluene as neither OEHHA nor U.S. EPA have derived toxicity values for this compound. The risk-based soil vapor criteria used to estimate health risks from vapor intrusion are presented in Table 1 for both the slab-on-grade scenarios and the mixed residential/commercial use of the multiple floors above the proposed basement garage.

CALCULATION OF SITE-SPECIFIC ATTENUATION FACTORS

Maximum detected analytical results from soil vapor were used to estimate volatilization from the subsurface to indoor air using the Johnson & Ettinger (J&E) vapor transport model, as published by U.S. EPA (2004) and adopted by DTSC with appropriate updates for California toxicity criteria. The J&E model incorporates both convective and diffusive mechanisms for estimating the transport of chemical vapors emanating from the subsurface into indoor spaces located directly above or in close proximity to a source of chemicals. The model is a one-dimensional analytical solution to convective and diffusive vapor transport into indoor spaces and provides an estimated attenuation factor (AF) that relates the vapor concentration in the indoor space to the vapor concentration at the source. As parameterized by U.S. EPA, the J&E model spreadsheets have two levels, screening and advanced. Screening spreadsheets have most model parameters set equal to central tendency or upper bound values; values for the most sensitive parameters may be user-defined. In the advanced spreadsheets, site-specific data may be input for all model parameters. To reduce the number of model spreadsheets necessary, AMEC modified the advanced soil vapor model spreadsheets to evaluate multiple chemicals and subsequently, used to estimate the AFs for the multiple exposure scenarios evaluated in this HHRE. An AF relates the chemical concentration in soil vapor to the resulting concentration in indoor air and is dependent on chemical properties, soil characteristics, and building conditions.

Modeling with Default Slab-on-Grade Building Characteristics

In response to Preliminary Endangerment Assessment documents prepared by Mactec, DTSC requested that exposure scenarios with default building characteristics be evaluated in addition to a site-specific building layout (DTSC, 2013b). VOCs were detected in only one sample collected at 41 feet bgs. Therefore, the baseline modeling for the hypothetical slab-on-grade buildings was modeled assuming a building with default characteristics was built above this vapor source. With the exception of partially adjusting for native soil type and conditions, default

parameters used are consistent with the CHHSLs methodology (OEHHA, 2005) and DTSC guidance (2011) for the both future resident and commercial worker as presented in Attachment A. Based on geologic cross-sections, the site primarily includes four lithologic layers between the surface and the soil vapor sampling depth: artificial fill, silt and clay, sand, and sandy silt. To simplify the lithology for this hypothetical scenario within the constraints of a three-layer model, a default one-foot layer of engineered fill was modeled followed by 30 feet of a loamy sand evaluated with default properties and 10 feet of sandy silt evaluated with the site-specific characteristics presented in Attachment A 2.

Site-Specific Modeling with Proposed Building Characteristics

Soil vapor samples were collected between approximately 20.5 and 41 feet below ground surface (bgs) depending on the grade of the site surface. However, the sample intervals were selected based on elevations between 273.5 and 270 feet above mean sea level (msl) in order to represent vapor approximately 3.5 feet below the bottom of the foundation of the proposed building. Therefore, the modeling for the proposed residential scenario above a multilevel subterranean parking garage was performed for a 18.5-foot bgs soil vapor sampling depth. This is an equivalent depth to represent vapor located 3.5-feet below the future foundation (12-foot standard basement, 3-foot thick high density concrete slab (i.e., mat foundation), 0.5 foot of engineered fill, and 3 feet of native soil separation). The modeled scenario assumes that a low permeability "engineered fill" of one-half foot will be developed by scarifying and recompacting the soil underneath the foundation on top of the native soil. Default U.S. EPA and OEHHA parameters were used in the model for soil and engineered fill, respectively.

For native soil, a sandy silt to silty sand is present at the elevation where soil vapor samples were collected based on boring logs and soil testing results from geotechnical laboratories. These soil classifications were matched with the corresponding soil types used in the J&E model. Default total porosities based on soil type and soil physical measurements (dry bulk density and moisture content) were used to estimate air and water-filled porosities (Attachment A-2). The average porosities for six samples were then used to characterize native soil.

Although the mechanical ventilation system in the garage is being designed for an approximate air exchange rate (AER) of 5.1 exchanges per hour, an average commercial AER of 1.5 (U.S. EPA, 2011) was used to be conservative. Other default parameters used in the modeling are consistent with the CHHSLs methodology (OEHHA, 2005) and DTSC guidance (2011) as presented in Attachment A.

Attachment A-1 summarizes the input parameters used in the vapor intrusion model and A-2 summarizes the geotechnical results evaluated for native soil characteristics. The individual model spreadsheets are contained in Attachments A-3 through A-5.

Multiple Level Vapor Transfer

The proposed building plans include up to three subgrade parking levels with an approximate footprint of approximately 83,000 square feet and mixed residential/commercial use of the five

levels above the garage. Future residents and commercial workers would be occupying the upper levels of the building; however, the modeling performed (and described above) to calculate the site-specific soil vapor criteria assumes that future occupants would be exposed to predicted basement vapor concentrations full-time for their 25 to 30 year occupancy.

To reasonably estimate the predicted health risks from a multiple level separation from the basement that would be in contact with the subsurface, vapor transfer between floors was evaluated. A vapor transfer factor was applied to estimate potential health risks from first level indoor air concentrations rather than a sub-grade garage. An maximum fraction of inter-unit flow was selected based on tracer gas studies performed in support of an environmental tobacco smoke study in multifamily buildings (CEE, 2004). Specifically, a factor of twenty-six percent was the maximum flow measured in new three-story buildings in the Pacific Northwest that was selected to adjust the potential health risks and characterize more relevant exposure.

ESTIMATED NON-CANCER AND CARCINOGENIC RISK

A non-cancer hazard index of less than or equal to 1 indicates acceptable levels of exposure for chemicals having an additive effect. However, in this HHRE, a screening-level hazard index was calculated by summing the hazard quotients for all chemicals, regardless of the toxicity endpoint, as recommended by regulatory agency guidance. This approach is generally believed to overestimate the potential for non-carcinogenic health effects due to simultaneous exposure to multiple chemicals because it does not account for different toxicity endpoints. However, this approach can be used as a screening tool to rapidly identify those exposure scenarios for which exposure to multiple chemicals does not pose a non-carcinogenic health risk.

Estimates of lifetime excess cancer risk of less than one-in-one-million (1×10^{-6}) associated with exposure to chemicals are considered to be so low as to not warrant any further investigation or analysis. Therefore, a cancer risk of 1×10^{-6} is considered a point of departure for risk management decisions. Cancer risks in the 1×10^{-6} to 1×10^{-4} range do not necessarily mean that adverse health effects will be observed. Current methodology for estimating the carcinogenic potential of chemicals does not likely underestimate the true risk, but could overestimate the true risk by a considerable degree. Pursuant to the California Safe Drinking Water & Toxic Enforcement Act of 1986 (Proposition 65), OEHHA has established a no significant risk level at one-in-one hundred thousand (1×10^{-5} ; CCR Title 27, Division 4, §25703). In fact, many air management districts consider 1×10^{-5} to be an acceptable risk level for managing air emissions under the Toxics Hot Spots program.

The HIs and carcinogenic risks estimated for both the residential and commercial/industrial exposure above the site-specific basement and the slab-on-grade scenario are calculated in Tables 2 through 5 and the results are summarized below. The health risk estimates presented assume that there is no methane barrier mitigating exposure.

| Property Scenario | Noncancer Hazard Index | DTSC Acceptable Threshold | Potential Carcinogenic Risk | DTSC Risk Management Range |
|---|------------------------|---------------------------|-----------------------------|----------------------------|
| Residential Slab-on-Grade | 0.8 | 1.0 | 6E-06 | 1E-06 to 1E-04 |
| Commercial/Industrial Slab-on-Grade | 0.09 | | 6E-07 | |
| Site-Specific; Residential Above Basement | 0.2 | | 1E-06 | |
| Site-Specific; Commercial Above Basement | 0.04 | | 3E-07 | |

CONCLUSIONS

Modeling with Default Slab-on-Grade Building Characteristics

The total noncancer HIs estimated for the residential and commercial/industrial slab-on-grade construction scenarios are 0.8 and 0.09, respectively, which are below the regulatory threshold of 1.0. The estimated excess cancer risks for the residential and commercial/industrial slab-on-grade construction scenarios are 6×10^{-6} and 6×10^{-7} , respectively, which are within and below the regulatory risk management range of 1×10^{-6} to 1×10^{-4} .

Site-Specific Modeling with Proposed Building Characteristics

The total noncancer HIs estimated for the residential and commercial exposure above a site-specific basement are 0.2 and 0.04, respectively, which are below the regulatory threshold of 1.0. The estimated excess cancer risks for the residential and commercial exposure above a site-specific basement are 1×10^{-6} and 3×10^{-7} , respectively, which are at or below the target risk level of 1×10^{-6} .

Uncertainties Associated with Exposure and Risk Estimates

- These estimates assume a conservative air exchange rate of 1.5 exchanges per hour, when the ventilation in the basement may be three times greater because of ventilation requirements due to car emissions.
- Biodegradation, which refers to the process by which chemical compounds are altered through the biological activity of microorganisms in the subsurface, was not considered. Field studies have indicated that biodegradation of petroleum hydrocarbons at sites can be significant because it is generally recognized that petroleum hydrocarbons will rapidly biodegrade in the presence of oxygen (i.e., when conditions are aerobic), resulting in reduced concentrations by several orders of

magnitude over relatively short vertical distances and limiting the potential for vapor intrusion in unsaturated soil.

- Risk estimates were derived using conservative transport and exposure parameters that assume constant exposure points over a 25- to 30-year period.
- This assessment conservatively assumes a single level garage structure. In reality, the project plan calls for up to three sub levels. Increasing the total volume of the garage structure, while maintaining the size of the building footprint, will reduce the amount of chemicals potentially reaching the indoor air space of residents and commercial workers at ground level.
- The estimated attenuation factors are dependent on porosity and moisture content. Soil lithology beneath the parking structure is likely to vary across the site both vertically and horizontally, which may lead to variation in flux from different areas, which results in uncertainty in the estimation of potential risks. To account for this uncertainty, the average of six soil physical measurements was used to estimate the flux from soil vapor.
- The analysis assumes that the maximum concentrations are uniformly distributed below the entire footprint of the garage slab foundation. The results from the most recent soil vapor investigation supports that this assumption is conservative. Thus, the risk estimates presented herein are likely overestimates.
- In addition, although methane mitigation measures will be required before site development, the exposure and risk estimates presented for all scenarios assume no mitigation.

Based on the health risk evaluation of the September 2013 soil vapor data set, the residual petroleum-related VOCs detected in soil vapor beneath the northwest corner of the proposed building do not pose an unacceptable vapor intrusion risk relative to future occupancy in a multilevel building under the conditions evaluated. However, if the site is redeveloped with default slab-on-grade residential buildings on the northern portion of the property, the health risks should be re-evaluated.

CLOSING

If you have any questions, please contact either of the undersigned at (949) 642-0245.

Sincerely yours,
AMEC Environment & Infrastructure, Inc.



Caryn A. Kelly
Senior Toxicologist



Calvin H. Hardcastle, PE
Principal Engineer

Enclosures

| | |
|--------------|---|
| Table 1 | Calculation of Soil Vapor Criteria |
| Table 2 | Risks and Hazard Indices Estimated for the Inhalation of Indoor Air – Resident – Slab-on-Grade Foundation |
| Table 3 | Risks and Hazard Indices Estimated for the Inhalation of Indoor Air – Commercial Worker – Slab-on-Grade Foundation |
| Table 4 | Risks and Hazard Indices Estimated for the Inhalation of Indoor Air – Site-Specific Resident – Multiple Floor Levels |
| Table 5 | Risks and Hazard Indices Estimated for the Inhalation of Indoor Air – Site-Specific Commercial Worker – Multiple Floor Levels |
| Figure 1 | Soil Vapor Sample Locations |
| Attachment A | Johnson & Ettinger Model Input Parameters and Output |

REFERENCES

- Center for Energy and Environment (CEE), 2004, Reduction of Environmental Tobacco Smoke Transfer in Minnesota Multifamily Buildings Using Air Sealing and Ventilation Treatments, November 2004.
- Department of Toxic Substances Control (DTSC), 2011, Guidance for the Evaluation and Mitigation of Subsurface Vapor Intrusion to Indoor Air (Vapor Intrusion Guidance). California Environmental Protection Agency. October.
- DTSC Office of Human and Ecological Risk (HERO), 2013a, HHRA Note Number 3, DTSC recommended methodology for use of U.S. EPA Regional Screening Levels (RSLs) in the Human Health Risk Assessment process at hazardous waste sites and permitted facilities, May 21, 2013.
- DTSC, 2013b, Review of Preliminary Endangerment Assessment Equivalent Documents, Blossom Plaza, 900 North Broadway, Los Angeles (Site Code: 301619), August 27, 2013.
- Office of Environmental Health Hazard Assessment (OEHHA), 2005, Human-Exposure-Based Screening Numbers Developed to Aid Estimation of Cleanup Costs for Contaminated Soil, California Environmental Protection Agency, January.
- Regional Water Quality Control Board, San Francisco Bay Region, 2013, ESL Workbook, May.
- U.S. EPA, 2004, User's Guide for Evaluating Subsurface Vapor Intrusion into Buildings: Office of Emergency and Remedial Response, February 22.
- U.S. EPA, 2011, Exposure Factors Handbook, 2011 Edition, Table 19-27. Air Exchange Rates in Commercial Buildings by Building Type, September.
- U.S. EPA, 2013, Regional Screening Levels for Chemical Contaminants at Superfund Sites, Regions 3, 6, & 9, Oak Ridge National Laboratory, May.

TABLES

TABLE 1

CALCULATION OF SOIL VAPOR CRITERIA

Blossom Plaza
900 North Broadway
Los Angeles, California

Concentrations are presented in micrograms per liter (µg/l)

| | | Ethyl benzene | Isopropylbenzene (Cumene) | n-Propyl benzene | Toluene | 1,2,4-TMB | 1,3,5-TMB | m/p-Xylenes | o-Xylene |
|--|--------------------------|---------------|---------------------------|------------------|----------|-----------|-----------|-------------|----------|
| Residential Indoor Air Screening Levels | | | | | | | | | |
| Cancer | SFRWQCB ESL ¹ | 0.00097 | NC | NC | NC | NC | NC | NC | NC |
| | USEPA RSL ² | 0.00097 | | | | | | | |
| Noncancer | SFRWQCB ESL ¹ | 1.0 | -- | -- | 0.31 | -- | -- | 0.1 | 0.1 |
| | USEPA RSL ² | 1.0 | 0.42 | 1.0 | 5.2 | 0.0073 | -- | 0.1 | 0.1 |
| | DTSC Note ³ | -- | -- | -- | 0.31 | -- | 0.037 | -- | -- |
| Lowest Cancer value | | 0.00097 | NC | NC | NC | NC | NC | NC | NC |
| Lowest Noncancer value | | 1.0 | 0.42 | 1.0 | 0.31 | 0.0073 | 0.037 | 0.1 | 0.1 |
| Commercial Indoor Air Screening Levels | | | | | | | | | |
| Cancer | SFRWQCB ESL ¹ | 0.0049 | NC | NC | NC | NC | NC | NC | NC |
| | USEPA RSL ² | 0.0049 | | | | | | | |
| Noncancer | SFRWQCB ESL ¹ | 4.4 | -- | -- | 1.3 | -- | -- | 0.44 | 0.44 |
| | USEPA RSL ² | 4.4 | 1.8 | 4.4 | 22 | 0.031 | -- | 0.44 | 0.44 |
| | DTSC Note ³ | -- | -- | -- | 1.3 | -- | 0.15 | -- | -- |
| Lowest Cancer value | | 0.0049 | NC | NC | NC | NC | NC | NC | NC |
| Lowest Noncancer value | | 4.4 | 1.8 | 4.4 | 1.3 | 0.031 | 0.15 | 0.44 | 0.44 |
| Slab-on-Grade Soil Vapor Screening Levels | | | | | | | | | |
| Attenuation Factors - 41 feet bgs ⁴ | Residential | 3.81E-05 | 3.31E-05 | 3.07E-05 | 4.42E-05 | 3.10E-05 | 3.08E-05 | 3.91E-05 | 4.43E-05 |
| | Commercial | 1.91E-05 | 1.65E-05 | 1.53E-05 | 2.21E-05 | 1.55E-05 | 1.54E-05 | 1.96E-05 | 2.21E-05 |
| Soil Vapor Screening Level - Residential | Cancer ⁵ | 2.5E+01 | NC | NC | NC | NC | NC | NC | NC |
| | Noncancer ⁵ | 2.6E+04 | 1.3E+04 | 3.3E+04 | 7.0E+03 | 2.4E+02 | 1.2E+03 | 2.6E+03 | 2.3E+03 |
| Soil Vapor Screening Level - Commercial | Cancer ⁵ | 2.6E+02 | NC | NC | NC | NC | NC | NC | NC |
| | Noncancer ⁵ | 2.3E+05 | 1.1E+05 | 2.9E+05 | 5.9E+04 | 2.0E+03 | 9.7E+03 | 2.3E+04 | 2.0E+04 |

TABLE 1

CALCULATION OF SOIL VAPOR CRITERIA

Blossom Plaza
900 North Broadway
Los Angeles, California

Concentrations are presented in micrograms per liter (µg/l)

| | | Ethyl benzene | Isopropylbenzene (Cumene) | n-Propyl benzene | Toluene | 1,2,4-TMB | 1,3,5-TMB | m/p-Xylenes | o-Xylene |
|---|------------------------|---------------|---------------------------|------------------|----------|-----------|-----------|-------------|----------|
| Site-Specific Soil Vapor Screening Levels (Multilevel Building Above Parking Garage) | | | | | | | | | |
| Site-Specific Attenuation Factor - 3 feet below foundation ⁴ | Residential | 3.57E-05 | 3.11E-05 | 2.90E-05 | 4.10E-05 | 2.93E-05 | 2.92E-05 | 3.66E-05 | 4.11E-05 |
| | Commercial | 3.57E-05 | 3.11E-05 | 2.90E-05 | 4.10E-05 | 2.93E-05 | 2.92E-05 | 3.66E-05 | 4.11E-05 |
| Soil Vapor Screening Level - Residential | Cancer ⁵ | 2.7E+01 | NC | NC | NC | NC | NC | NC | NC |
| | Noncancer ⁵ | 2.8E+04 | 1.3E+04 | 3.5E+04 | 7.6E+03 | 2.5E+02 | 1.3E+03 | 2.7E+03 | 2.4E+03 |
| Soil Vapor Screening Level - Commercial | Cancer ⁵ | 1.4E+02 | NC | NC | NC | NC | NC | NC | NC |
| | Noncancer ⁵ | 1.2E+05 | 5.8E+04 | 1.5E+05 | 3.2E+04 | 1.1E+03 | 5.1E+03 | 1.2E+04 | 1.1E+04 |

Notes

1. Regional Water Quality Control Board, San Francisco Bay Region (SFRWQCB), 2013, ESL Workbook, May.
2. U.S. EPA, 2013, Regional Screening Levels for Chemical Contaminants at Superfund Sites, Regions 3, 6, & 9, Oak Ridge National Laboratory, May. <http://www.epa.gov/reg3hwmd/risk/human/rb-concentration_table/index.htm>
3. DTSC Office of Human and Ecological Risk (HERO), May 21, 2013, HHRA Note Number 3, DTSC recommended methodology for use of U.S. EPA Regional Screening Levels (RSLs) in the Human Health Risk Assessment process at hazardous waste sites and permitted facilities.
4. Slab-on-Grade and Site-Specific soil vapor to indoor air attenuation factors (AF) were developed using the Johnson & Ettinger Vapor Intrusion model. The models and input parameters are attached and described in the text.
5. Soil Vapor Screening Levels were derived by dividing the lowest Cancer and Noncancer Target Indoor Air Screening Levels by the AF.

Abbreviations

bgs = below ground surface
NC= not carcinogenic
-- = not available

TABLE 2

**RISKS AND HAZARD INDICES ESTIMATED FOR THE INHALATION OF INDOOR AIR
- RESIDENT - SLAB-ON-GRADE FOUNDATION**

Blossom Plaza
900 North Broadway
Los Angeles, California

| Chemical | Soil Vapor Concentration (µg/L) | Soil Vapor Screening Level (µg/L) | | Noncancer Hazard Index ¹ | Cancer Risk ² |
|------------------------|---------------------------------|-----------------------------------|---------|-------------------------------------|--------------------------|
| | | Noncancer | Cancer | | |
| Ethylbenzene | 150 | 2.6E+04 | 2.5E+01 | 5.7E-03 | 6E-06 |
| Isopropyl (Cumene) | 20 | 1.3E+04 | -- | 1.6E-03 | -- |
| n-Propylbenzene | 28 | 3.3E+04 | -- | 8.6E-04 | -- |
| Toluene | 1.2 | 7.0E+03 | -- | 1.7E-04 | -- |
| 1,2,4-Trimethylbenzene | 110 | 2.4E+02 | -- | 4.7E-01 | -- |
| 1,3,5-Trimethylbenzene | 45 | 1.2E+03 | -- | 3.8E-02 | -- |
| m/p-Xylenes | 590 | 2.6E+03 | -- | 2.3E-01 | -- |
| o-Xylene | 15 | 2.3E+03 | -- | 6.6E-03 | -- |
| Total | | | | 8E-01 | 6.E-06 |

Notes

1. Noncancer Hazard Index = Soil Vapor Concentration / Noncancer Screening Level

2. Cancer Risk = Soil Vapor Concentration / Cancer Screening Level x 1x10⁻⁶

Abbreviations

-- = not applicable

TABLE 3

**RISKS AND HAZARD INDICES ESTIMATED FOR THE INHALATION OF INDOOR AIR
- COMMERCIAL WORKER - SLAB-ON-GRADE FOUNDATION**

Blossom Plaza
900 North Broadway
Los Angeles, California

| Chemical | Soil Vapor Concentration (µg/L) | Soil Vapor Screening Level (µg/L) | | Noncancer Hazard Index ¹ | Cancer Risk ² |
|------------------------|---------------------------------|-----------------------------------|---------|-------------------------------------|--------------------------|
| | | Noncancer | Cancer | | |
| Ethylbenzene | 150 | 2.3E+05 | 2.6E+02 | 6.5E-04 | 6E-07 |
| Isopropyl (Cumene) | 20 | 1.1E+05 | -- | 1.8E-04 | -- |
| n-Propylbenzene | 28 | 2.9E+05 | -- | 9.8E-05 | -- |
| Toluene | 1.2 | 5.9E+04 | -- | 2.0E-05 | -- |
| 1,2,4-Trimethylbenzene | 110 | 2.0E+03 | -- | 5.5E-02 | -- |
| 1,3,5-Trimethylbenzene | 45 | 9.7E+03 | -- | 4.6E-03 | -- |
| m/p-Xylenes | 590 | 2.3E+04 | -- | 2.6E-02 | -- |
| o-Xylene | 15 | 2.0E+04 | -- | 7.5E-04 | -- |
| Total | | | | 9E-02 | 6.E-07 |

Notes

1. Noncancer Hazard Index = Soil Vapor Concentration / Noncancer Screening Level
2. Cancer Risk = Soil Vapor Concentration / Cancer Screening Level x 1x10⁻⁶

Abbreviation

-- = not applicable

TABLE 4

**RISKS AND HAZARD INDICES ESTIMATED FOR THE INHALATION OF INDOOR AIR
- SITE-SPECIFIC RESIDENT - MULTIPLE FLOOR LEVELS**

Blossom Plaza
900 North Broadway
Los Angeles, California

| Chemical | Soil Vapor Concentration (µg/L) | Predicted Basement Concentration ¹ (µg/L) | Predicted Indoor Air Concentration ² (Next Level) (µg/L) | Indoor Screening Level (µg/L) | | Noncancer Hazard Index ³ | Cancer Risk ⁴ |
|------------------------|---------------------------------|--|---|-------------------------------|---------|-------------------------------------|--------------------------|
| | | | | Noncancer | Cancer | | |
| Ethylbenzene | 150 | 5.35E-03 | 1.39E-03 | 1.0 | 0.00097 | 1.4E-03 | 1E-06 |
| Isopropyl (Cumene) | 20 | 6.23E-04 | 1.62E-04 | 0.42 | -- | 3.9E-04 | -- |
| n-Propylbenzene | 28 | 8.11E-04 | 2.11E-04 | 1.0 | -- | 2.1E-04 | -- |
| Toluene | 1.2 | 4.92E-05 | 1.28E-05 | 0.31 | -- | 4.1E-05 | -- |
| 1,2,4-Trimethylbenzene | 110 | 3.22E-03 | 8.38E-04 | 0.0073 | -- | 1.1E-01 | -- |
| 1,3,5-Trimethylbenzene | 45 | 1.31E-03 | 3.41E-04 | 0.037 | -- | 9.2E-03 | -- |
| m/p-Xylenes | 590 | 2.16E-02 | 5.61E-03 | 0.1 | -- | 5.6E-02 | -- |
| o-Xylene | 15 | 6.17E-04 | 1.60E-04 | 0.1 | -- | 1.6E-03 | -- |
| Total | | | | | | 0.2 | 1.E-06 |

Notes

1. Predicted Basement Concentration = Soil Vapor Concentration x Site-Specific Building Residential AF
2. Predicted Indoor Air Concentration (floor above basement garage) = Predicted Basement Concentration x 26% air flow transfer factor
Maximum fraction of inter-unit flow based on tracer gas studies in new three-story buildings in the Pacific Northwest (CEE, 2004)
3. Noncancer Hazard Index = Predicted Indoor Air Concentration / Noncancer Screening Level
4. Cancer Risk = Predicted Indoor Air Concentration / Cancer Screening Level x 1x10⁻⁶

Abbreviations

AF = attenuation factor
-- = not applicable

Reference

CEE, 2004 = Center for Energy and Environment, Reduction of Environmental Tobacco Smoke Transfer in Minnesota Multifamily Buildings Using Air Sealing and Ventilation Treatments, November 2004.

TABLE 5

RISKS AND HAZARD INDICES ESTIMATED FOR THE INHALATION OF INDOOR AIR
 - SITE-SPECIFIC COMMERCIAL WORKER - MULTIPLE FLOOR LEVELS

Blossom Plaza
 900 North Broadway
 Los Angeles, California

| Chemical | Soil Vapor Concentration (µg/L) | Predicted Basement Concentration ¹ (µg/L) | Predicted Indoor Air Concentration ² (Next Level) (µg/L) | Indoor Screening Level (µg/L) | | Noncancer Hazard Index ³ | Cancer Risk ⁴ |
|------------------------|---------------------------------|--|---|-------------------------------|--------|-------------------------------------|--------------------------|
| | | | | Noncancer | Cancer | | |
| Ethylbenzene | 150 | 5.35E-03 | 1.39E-03 | 4.4 | 0.0049 | 3.2E-04 | 3E-07 |
| Isopropyl (Cumene) | 20 | 6.23E-04 | 1.62E-04 | 1.8 | -- | 9.0E-05 | -- |
| n-Propylbenzene | 28 | 8.11E-04 | 2.11E-04 | 4.4 | -- | 4.8E-05 | -- |
| Toluene | 1.2 | 4.92E-05 | 1.28E-05 | 1.3 | -- | 9.8E-06 | -- |
| 1,2,4-Trimethylbenzene | 110 | 3.22E-03 | 8.38E-04 | 0.031 | -- | 2.7E-02 | -- |
| 1,3,5-Trimethylbenzene | 45 | 1.31E-03 | 3.41E-04 | 0.15 | -- | 2.3E-03 | -- |
| m/p-Xylenes | 590 | 2.16E-02 | 5.61E-03 | 0.44 | -- | 1.3E-02 | -- |
| o-Xylene | 15 | 6.17E-04 | 1.60E-04 | 0.44 | -- | 3.6E-04 | -- |
| Total | | | | | | 0.04 | 3.E-07 |

Notes

1. Predicted Basement Concentration = Soil Vapor Concentration x Site-Specific Building Commercial AF
2. Predicted Indoor Air Concentration (floor above basement garage) = Predicted Basement Concentration x 26% air flow transfer factor
 Maximum fraction of inter-unit flow based on tracer gas studies in new three-story buildings in the Pacific Northwest (CEE, 2004).
3. Noncancer Hazard Index = Predicted Indoor Air Concentration / Noncancer Screening Level
4. Cancer Risk = Predicted Indoor Air Concentration / Cancer Screening Level x 1x10⁻⁶

Abbreviations

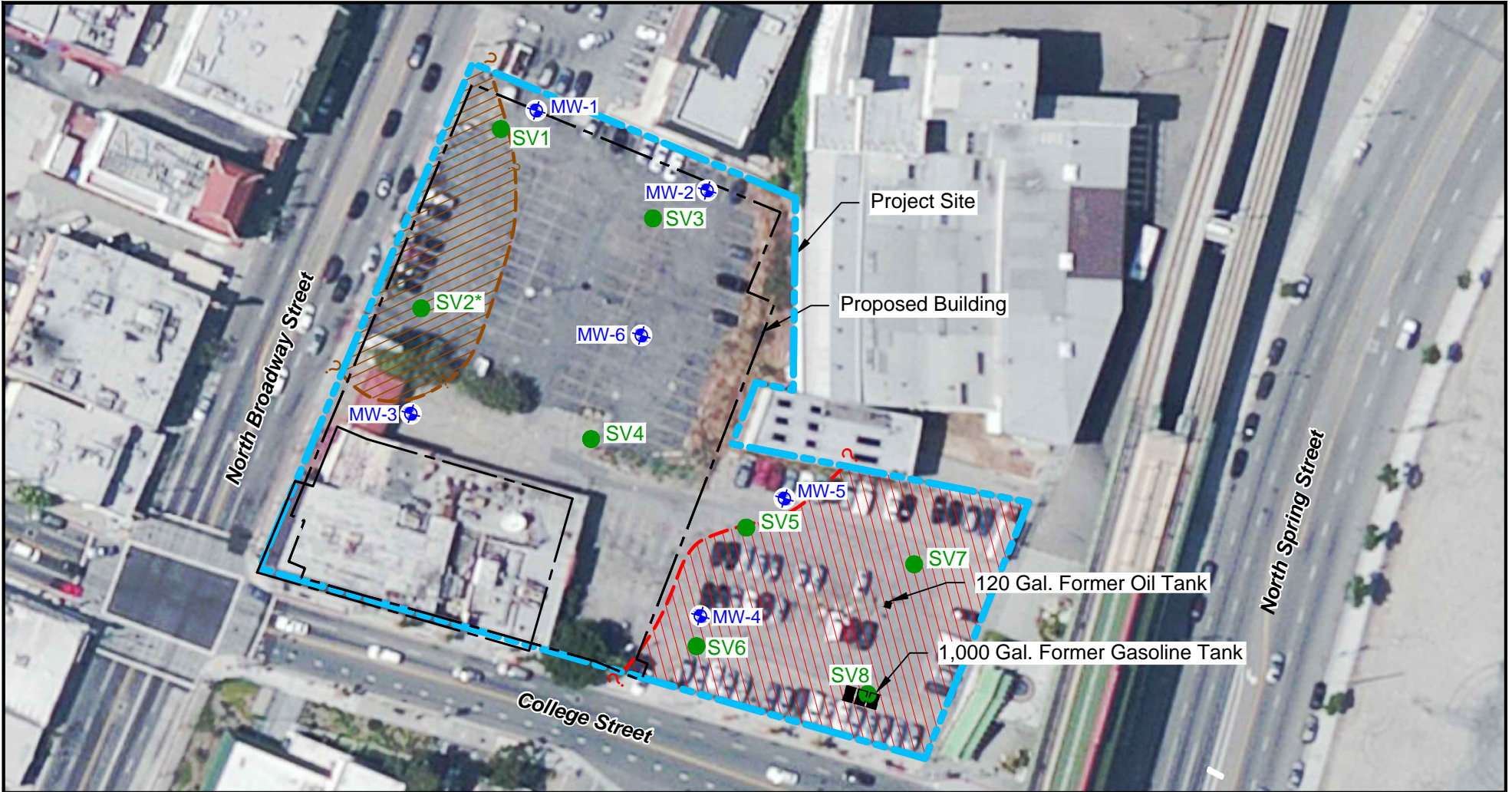
AF = attenuation factor

-- = not applicable

Reference

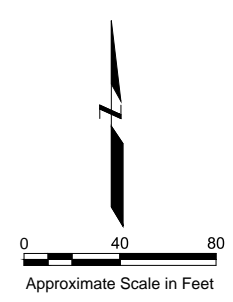
CEE, 2004 = Center for Energy and Environment, Reduction of Environmental Tobacco Smoke Transfer in Minnesota Multifamily Buildings Using Air Sealing and Ventilation Treatments, November 2004.

FIGURE



Explanation

- SV8 ● Soil vapor sampling location
- MW-5 ● Groundwater monitoring well
- - - Estimated site product boundary
- [Red Hatched Box] Estimated area of encountered crude
- [Orange Hatched Box] Estimated area of shorter-chain total petroleum hydrocarbons
- * Soil vapor well not installed



Basemap modified from ESRI World Imagery, 2013.

| | | |
|---|----------------|--------------------------|
| SOIL VAPOR SAMPLING LOCATIONS Blossom Plaza Forest City Development Los Angeles, California | | |
| By: pah | Date: 09/27/13 | Project No. 4953-13-0061 |
| | | Figure 1 |



ATTACHMENT A

Johnson & Ettinger Model Input Parameters and Output

**ATTACHMENT A-1
JOHNSON AND ETINGER MODEL INPUT PARAMETERS**

Blossom Plaza
900 North Broadway
Los Angeles, California

| Parameter | Symbol | Units | Value | | | | Rationale |
|---|--------------------|-------------------------------------|---------------------------|--------------------------|---|------------------------|---|
| | | | Residential Slab-on-Grade | Commercial Slab-on-Grade | Rationale | Site-Specific Basement | |
| Depth below grade to bottom of enclosed floor space | L _F | (cm) | 9 | 9 | OEHHA, 2005 | 457.2 | 15 ft, site-specific; basement height (12 feet) + 3-foot slab |
| Soil gas sample depth | L _s | (cm)/(ft) | 1250 | 1250 | 41 feet bgs; depth of SV-1 | 563.9 | 18.5 ft; Equivalent site-specific sampling depth; 3.5 ft below bottom of foundation |
| Soil temperature | T _s | (°C) | 22 | 22 | Regional; U.S. EPA, 2004 | 22 | Regional; U.S. EPA, 2004 |
| Soil Vapor Permeability | K _v | (cm ²) | S | S | OEHHA, 2005 | S | OEHHA, 2005 |
| Soil type – Stratum A | -- | -- | SIC | SIC | Silty clay; OEHHA, 2005 designation for engineered fill | S | Sand; OEHHA, 2005, future buildings |
| Thickness of Soil Stratum A | h _A | (cm) | 30 | 30 | OEHHA, 2005 | 457.2 | U.S. EPA, 2004; Stratum A must ≥ L _F |
| Soil dry bulk density – Stratum A | ρ _b | (g/cm ³) | 1.8 | 1.8 | OEHHA, 2005 | 1.66 | Sand; default |
| Soil total porosity – Stratum A | n | -- | 0.3 | 0.3 | OEHHA, 2005 | 0.375 | Sand; default |
| Soil water-filled porosity – Stratum A | θ _w | (cm ³ /cm ³) | 0.15 | 0.15 | OEHHA, 2005 | 0.054 | Sand; default |
| Soil type – Stratum B | -- | -- | LS | LS | Loamy sand; U.S. EPA, 2004, 12 to 25% fines | SIC | Silty clay; OEHHA, 2005 designation for engineered fill |
| Thickness of Soil Stratum B | h _B | (cm) | 914 | 914 | Site-specific | 15.2 | Site-specific; 0.5 foot |
| Soil dry bulk density – Stratum B | ρ _b | (g/cm ³) | 1.62 | 1.62 | Loamy sand; default, U.S. EPA, 2004 | 1.8 | OEHHA, 2005 |
| Soil total porosity – Stratum B | n | -- | 0.39 | 0.39 | | 0.3 | OEHHA, 2005 |
| Soil water-filled porosity – Stratum B | θ _w | (cm ³ /cm ³) | 0.076 | 0.076 | | 0.15 | OEHHA, 2005 |
| Soil type – Stratum C | -- | -- | SIL | SIL | Site-specific | SIL | Site-specific; silty loam in USDA, sandy silt in USCS |
| Thickness of Soil Stratum C | h _C | (cm) | 305 | 305 | Site-specific | 91.4 | Site-specific; 3 feet |
| Soil dry bulk density – Stratum C | ρ _b | (g/cm ³) | 1.75 | 1.75 | Site-specific; | 1.75 | Site-specific; Attachment A-2 |
| Soil total porosity – Stratum C | n | -- | 0.422 | 0.422 | Attachment A-2 | 0.422 | Site-specific; Attachment A-2 |
| Soil water-filled porosity – Stratum C | θ _w | (cm ³ /cm ³) | 0.293 | 0.293 | | 0.293 | Site-specific; Attachment A-2 |
| Enclosed Space Floor Thickness | L _{crack} | (cm) | 9 | 9 | OEHHA, 2005 | 91.44 | Site-specific; high density concrete, 3-foot slab |
| Soil/Building pressure differential | DP | (g/cm-s ²) | 40 | 40 | DTSC, 2011 | 40 | Default; DTSC, 2011 |
| Length of building | L _B | (cm)/(ft) | 1000 (30 ft) | 1000 (30 ft) | OEHHA, 2005; | 8700 | 83,000 square foot building; |
| Width of building | W _B | (cm)/(ft) | 1000 (30 ft) | 1000 (30 ft) | DTSC, 2011 | 8700 | equivalent |
| Height of building | H _B | (cm)/(ft) | 244 (8 ft) | 244 (8 ft) | OEHHA, 2005 | 366 (12 ft) | Default basement height; U.S. EPA, 2004 |
| Floor-wall Seam Crack Width | w | (cm) | 0.1 | 0.1 | U.S. EPA, 2004 | 0.1 | Default; U.S. EPA, 2004 |
| Crack-to-total-area ratio | h | (--) | 0.005 | 0.005 | DTSC, 2011 | 0.005 | DTSC, 2011 |
| Indoor air exchange rate | ER | (1/hr) | 0.5 | 1.0 | OEHHA, 2005; DTSC, 2011 | 1.5 | Mean commercial building; U.S. EPA, 2011 |
| Average Vapor Flow Rate | Q _{soil} | (L/min) | 5 | 5 | OEHHA, 2005; DTSC, 2011 | 378 | Default of 5 L/min adjusted for larger site-specific building footprint area per DTSC, 2011 |

Abbreviations:

°C = degrees Celsius

cm = centimeter

cm² = centimeter squared

cm³/cm³ = cubic centimeter per cubic centimeter

ft = feet

L = liter

s² = seconds squared

g = grams

hr = hour

min = minute

USDA = U.S. Department of Agriculture soil classification

USCS = Unified Soil Classification System

References:

Office of Environmental Health Hazard Assessment (OEHHA), 2005, Human-Exposure-Based Screening Numbers Developed to Aid Estimation of Cleanup Costs for Contaminated Soil. January.

Department of Toxic Substances Control (DTSC), 2011, Guidance for the Evaluation and Mitigation of Subsurface Vapor Intrusion to Indoor Air (Vapor Intrusion Guidance). October.

U.S. EPA, 2004, User's Guide for Evaluating Subsurface Vapor Intrusion into Buildings: Office of Emergency and Remedial Response, February 22.

ATTACHMENT A-2
SOIL CHARACTERISTIC PROPERTIES

Blossom Plaza
900 North Broadway
Los Angeles, California

| Boring ¹ ID | Depth ² (ft.) | Grain Size Description ³ | Moisture Content (% wt) | Density | | Total Porosity ⁴ (%vb) | Air-filled Porosity ⁵ (%vb) | Water-filled Porosity ⁶ (%vb) |
|---------------------------|-----------------------------|--|-------------------------------|-----------------------------------|----------------------|---|--|--|
| | | | | Dry Bulk (lb/ft ³) | (g/cm ³) | | | |
| B-2 | 35-40 | Sandy silt (ML) | 27.1 | 96 | 1.54 | 43.9 | 2.2 | 41.7 |
| B-3 | 35-40 | Sandy silt (ML) | -- | -- | -- | -- | -- | -- |
| B-4 | 35-40 | Sand to Sandy clay (SW-SC) | 17.1 | 112 | 1.79 | 38.7 | 8.0 | 30.7 |
| B-103 | 35-40 | Sandy silt (ML) | -- | -- | -- | -- | -- | -- |
| B-5 | 37-39 | Sandy silt (ML) | 16.0 | 109 | 1.75 | 43.9 | 16.0 | 27.9 |
| B-6 | 29-34 | Sandy silt (ML) | 15.1 | 107 | 1.71 | 43.9 | 18.0 | 25.9 |
| B-7 | 32-37 | Sandy silt (ML) | 19.0 | 109 | 1.75 | 43.9 | 10.7 | 33.2 |
| B-8 | 17-22 | Silty sand (SM-SW) | 8.3 | 123 | 1.97 | 38.7 | 22.3 | 16.4 |
| AVERAGE | | | | | 1.75 | 42.2 | 12.9 | 29.3 |

Notes:

¹ Shaded borings are the closest to location of VOCs detected in soil vapor at northern corner of property (SV-1).

² Depth of interval described is located at the approximate elevation of soil vapor samples.

³ Soil description for samples B-2 through B-8 were presented in Mactec's *Report of Geotechnical Investigation* (2004) and determined by sieve analysis and hydrometer analysis; B-103 soil type was confirmed by Atterberg limits (ASTM D 4318) and presented in AMEC's *Supplemental Geotechnical Investigation* (2013).

⁴ Total Porosity; defaults (U.S. EPA, 2004) based on soil type

⁵ Air-Filled Porosity = (Total Porosity/100) - (Dry Bulk Density x Moisture content/100) x 100

⁶ Water-Filled Porosity = Total Porosity - Air-Filled Porosity

Abbreviations:

% wt = Percent weight

lb/ft³ = pounds per cubic foot

g/cm³ = grams per centimeter cubed

%vb = Bulk volume

SG-ADV
Version 3.1; 02/04

Reset to
Defaults

AMEC
modified by CAK; 07/13
Mult. Chemical; version 3.1.4

Soil Gas Concentration Data

| ENTER Chemical CAS No. (numbers only, no dashes) | ENTER Soil gas conc., C _g (µg/m ³) | OR | ENTER Soil gas conc., C _g (ppmv) | Chemical |
|--|--|----|--|------------------------|
| 100414 | 1.50E+05 | | | Ethylbenzene |
| 98828 | 2.00E+04 | | | Cumene |
| 103651 | 2.80E+04 | | | n-Propylbenzene |
| 108883 | 1.20E+03 | | | Toluene |
| 95636 | 4.50E+04 | | | 1,2,4-Trimethylbenzene |
| 108678 | 1.10E+05 | | | 1,3,5-Trimethylbenzene |
| 95476 | 1.50E+04 | | | o-Xylene |
| 106423 | 5.90E+05 | | | p-Xylene |

ENTER
U.S. EPA or
Cal-EPA

Cal-EPA

MORE
↓

| ENTER Depth below grade to bottom of enclosed space floor, L _F (cm) | ENTER Soil gas sampling depth below grade, L _S (cm) | ENTER Average soil temperature, T _S (°C) | ENTER Totals must add up to value of L _s (cell F24) | | | ENTER Soil stratum A SCS soil type (used to estimate soil vapor permeability) | OR | ENTER User-defined stratum A soil vapor permeability, k _v (cm ²) |
|---|--|--|---|-----|-----|--|----|---|
| Thickness of soil stratum A, h _A (cm) | Thickness of soil stratum B, (Enter value or 0) h _B (cm) | Thickness of soil stratum C, (Enter value or 0) h _C (cm) | | | | | | |
| 9 | 1250 | 22 | 30 | 914 | 305 | S | | |

MORE
↓

| ENTER Stratum A SCS soil type Lookup Soil Parameters | ENTER Stratum A soil dry bulk density, ρ _b ^A (g/cm ³) | ENTER Stratum A soil total porosity, n ^A (unitless) | ENTER Stratum A soil water-filled porosity, θ _w ^A (cm ³ /cm ³) | ENTER Stratum B SCS soil type Lookup Soil Parameters | ENTER Stratum B soil total bulk density, ρ _b ^B (g/cm ³) | ENTER Stratum B soil total porosity, n ^B (unitless) | ENTER Stratum B soil water-filled porosity, θ _w ^B (cm ³ /cm ³) | ENTER Stratum C SCS soil type Lookup Soil Parameters | ENTER Stratum C soil dry bulk density, ρ _b ^C (g/cm ³) | ENTER Stratum C soil total porosity, n ^C (unitless) | ENTER Stratum C soil water-filled porosity, θ _w ^C (cm ³ /cm ³) |
|---|--|---|--|---|--|---|--|---|--|---|--|
| SIC | 1.8 | 0.3 | 0.15 | LS | 1.62 | 0.39 | 0.076 | SIL | 1.75 | 0.422 | 0.293 |

MORE
↓

| ENTER Enclosed space floor thickness, L _{crack} (cm) | ENTER Soil-bldg. pressure differential, ΔP (g/cm-s ²) | ENTER Enclosed space floor length, L _B (cm) | ENTER Enclosed space floor width, W _B (cm) | ENTER Enclosed space height, H _B (cm) | ENTER Floor-wall seam crack width, w (cm) | ENTER Indoor air exchange rate, ER (1/h) | ENTER Average vapor flow rate into bldg. OR Leave blank to calculate Q _{soil} (L/m) |
|---|--|--|---|---|--|---|--|
| 9 | 40 | 1000 | 1000 | 244 | 0.1 | 0.5 | 5 |

| ENTER Averaging time for carcinogens, AT _C (yrs) | ENTER Averaging time for noncarcinogens, AT _{NC} (yrs) | ENTER Exposure duration, ED (yrs) | ENTER Exposure frequency, EF (days/yr) |
|--|--|---|--|
| 70 | 30 | 30 | 350 |

END

CHEMICAL PROPERTIES

| | Diffusivity in air, D_a (cm^2/s) | Diffusivity in water, D_w (cm^2/s) | Henry's law constant at reference temperature, H ($\text{atm}\cdot\text{m}^3/\text{mol}$) | Henry's law constant reference temperature, T_R ($^\circ\text{C}$) | Enthalpy of vaporization at the normal boiling point, $\Delta H_{v,b}$ (cal/mol) | Normal boiling point, T_B ($^\circ\text{K}$) | Critical temperature, T_C ($^\circ\text{K}$) | Molecular weight, MW (g/mol) | Unit risk factor, URF ($\mu\text{g}/\text{m}^3$) ⁻¹ | Reference conc., RfC (mg/m^3) |
|------------------------|---|---|--|---|---|--|---|---|--|--|
| Ethylbenzene | 7.50E-02 | 7.80E-06 | 7.86E-03 | 25 | 8,501 | 409.34 | 617.20 | 106.17 | 2.5E-06 | 1.0E+00 |
| Cumene | 6.50E-02 | 7.10E-06 | 1.46E-02 | 25 | 10,335 | 425.56 | 631.10 | 120.19 | 0.0E+00 | 4.0E-01 |
| n-Propylbenzene | 6.01E-02 | 7.83E-06 | 1.07E-02 | 25 | 9,123 | 432.20 | 630.00 | 120.19 | 0.0E+00 | 1.0E+00 |
| Toluene | 8.70E-02 | 8.60E-06 | 6.62E-03 | 25 | 7,930 | 383.78 | 591.79 | 92.14 | 0.0E+00 | 3.0E-01 |
| 1,2,4-Trimethylbenzene | 6.06E-02 | 7.92E-06 | 6.14E-03 | 25 | 9,369 | 442.30 | 649.17 | 120.20 | 0.0E+00 | 7.0E-03 |
| 1,3,5-Trimethylbenzene | 6.02E-02 | 8.67E-06 | 5.87E-03 | 25 | 9,321 | 437.89 | 637.25 | 120.20 | 0.0E+00 | 3.5E-02 |
| o-Xylene | 8.70E-02 | 1.00E-05 | 5.18E-03 | 25 | 8,661 | 417.60 | 630.30 | 106.17 | 0.0E+00 | 1.0E-01 |
| p-Xylene | 7.69E-02 | 8.44E-06 | 7.64E-03 | 25 | 8,525 | 411.52 | 616.20 | 106.17 | 0.0E+00 | 1.0E-01 |

| | Exposure duration, τ (sec) | Source-building separation, L_T (cm) | Stratum A soil air-filled porosity, θ_a^A (cm^3/cm^3) | Stratum B soil air-filled porosity, θ_a^B (cm^3/cm^3) | Stratum C soil air-filled porosity, θ_a^C (cm^3/cm^3) | Stratum A effective total fluid saturation, S_{Te} (cm^3/cm^3) | Stratum A soil intrinsic permeability, k_i (cm^2) | Stratum A soil relative air permeability, k_{rg} (cm^2) | Stratum A soil effective vapor permeability, k_v (cm^2) | Floor-wall seam perimeter, X_{crack} (cm) | Soil gas conc. ($\mu\text{g}/\text{m}^3$) | Bldg. ventilation rate, $Q_{building}$ (cm^3/s) |
|------------------------|---------------------------------|--|--|--|--|--|--|--|--|---|---|---|
| Ethylbenzene | 9.46E+08 | 1240.68 | 0.150 | 0.314 | 0.129 | 0.393 | 1.01E-07 | 0.520 | 5.27E-08 | 4,000 | 1.50E+05 | 3.39E+04 |
| Cumene | 9.46E+08 | 1240.68 | 0.150 | 0.314 | 0.129 | 0.393 | 1.01E-07 | 0.520 | 5.27E-08 | 4,000 | 2.00E+04 | 3.39E+04 |
| n-Propylbenzene | 9.46E+08 | 1240.68 | 0.150 | 0.314 | 0.129 | 0.393 | 1.01E-07 | 0.520 | 5.27E-08 | 4,000 | 2.80E+04 | 3.39E+04 |
| Toluene | 9.46E+08 | 1240.68 | 0.150 | 0.314 | 0.129 | 0.393 | 1.01E-07 | 0.520 | 5.27E-08 | 4,000 | 1.20E+03 | 3.39E+04 |
| 1,2,4-Trimethylbenzene | 9.46E+08 | 1240.68 | 0.150 | 0.314 | 0.129 | 0.393 | 1.01E-07 | 0.520 | 5.27E-08 | 4,000 | 4.50E+04 | 3.39E+04 |
| 1,3,5-Trimethylbenzene | 9.46E+08 | 1240.68 | 0.150 | 0.314 | 0.129 | 0.393 | 1.01E-07 | 0.520 | 5.27E-08 | 4,000 | 1.10E+05 | 3.39E+04 |
| o-Xylene | 9.46E+08 | 1240.68 | 0.150 | 0.314 | 0.129 | 0.393 | 1.01E-07 | 0.520 | 5.27E-08 | 4,000 | 1.50E+04 | 3.39E+04 |
| p-Xylene | 9.46E+08 | 1240.68 | 0.150 | 0.314 | 0.129 | 0.393 | 1.01E-07 | 0.520 | 5.27E-08 | 4,000 | 5.90E+05 | 3.39E+04 |

| | Area of enclosed space below grade, A_B (cm^2) | Crack-to-total area ratio, η (unitless) | Crack depth below grade, Z_{crack} (cm) | Enthalpy of vaporization at ave. soil temperature, $\Delta H_{v,TS}$ (cal/mol) | Henry's law constant at ave. soil temperature, H_{TS} ($\text{atm}\cdot\text{m}^3/\text{mol}$) | Henry's law constant at ave. soil temperature, H'_{TS} (unitless) | Vapor viscosity at ave. soil temperature, μ_{TS} (g/cm-s) | Stratum A effective diffusion coefficient, D_A^{eff} (cm^2/s) | Stratum B effective diffusion coefficient, D_B^{eff} (cm^2/s) | Stratum C effective diffusion coefficient, D_C^{eff} (cm^2/s) | Total overall effective diffusion coefficient, D_T^{eff} (cm^2/s) | Diffusion path length, L_d (cm) |
|--|---|--|---|--|--|---|---|---|---|---|---|-----------------------------------|
|--|---|--|---|--|--|---|---|---|---|---|---|-----------------------------------|

| | | | | | | | | | | | | |
|------------------------|----------|----------|---|--------|----------|----------|----------|----------|----------|----------|----------|---------|
| Ethylbenzene | 1.00E+06 | 5.00E-03 | 9 | 10,017 | 6.62E-03 | 2.73E-01 | 1.79E-04 | 1.50E-03 | 1.04E-02 | 4.63E-04 | 1.63E-03 | 1240.68 |
| Cumene | 1.00E+06 | 5.00E-03 | 9 | 12,475 | 1.18E-02 | 4.87E-01 | 1.79E-04 | 1.30E-03 | 9.03E-03 | 4.00E-04 | 1.41E-03 | 1240.68 |
| n-Propylbenzene | 1.00E+06 | 5.00E-03 | 9 | 11,212 | 8.79E-03 | 3.63E-01 | 1.79E-04 | 1.21E-03 | 8.35E-03 | 3.71E-04 | 1.30E-03 | 1240.68 |
| Toluene | 1.00E+06 | 5.00E-03 | 9 | 9,023 | 5.67E-03 | 2.34E-01 | 1.79E-04 | 1.75E-03 | 1.21E-02 | 5.37E-04 | 1.89E-03 | 1240.68 |
| 1,2,4-Trimethylbenzene | 1.00E+06 | 5.00E-03 | 9 | 11,541 | 5.04E-03 | 2.08E-01 | 1.79E-04 | 1.22E-03 | 8.42E-03 | 3.75E-04 | 1.32E-03 | 1240.68 |
| 1,3,5-Trimethylbenzene | 1.00E+06 | 5.00E-03 | 9 | 11,521 | 4.82E-03 | 1.99E-01 | 1.79E-04 | 1.21E-03 | 8.36E-03 | 3.73E-04 | 1.31E-03 | 1240.68 |
| o-Xylene | 1.00E+06 | 5.00E-03 | 9 | 10,268 | 4.34E-03 | 1.79E-01 | 1.79E-04 | 1.75E-03 | 1.21E-02 | 5.39E-04 | 1.90E-03 | 1240.68 |
| p-Xylene | 1.00E+06 | 5.00E-03 | 9 | 10,107 | 6.42E-03 | 2.65E-01 | 1.79E-04 | 1.54E-03 | 1.07E-02 | 4.75E-04 | 1.67E-03 | 1240.68 |

| | Convection path length, L_p (cm) | Source vapor conc., C_{source} ($\mu\text{g}/\text{m}^3$) | Crack radius, r_{crack} (cm) | Average vapor flow rate into bldg., Q_{soil} (cm^3/s) | Crack effective diffusion coefficient, D^{crack} (cm^2/s) | Area of crack, A_{crack} (cm^2) | Exponent of equivalent foundation Pelet number, $\exp(Pe^f)$ (unitless) | Infinite source indoor attenuation coefficient, α (unitless) | Infinite source bldg. conc., $C_{building}$ ($\mu\text{g}/\text{m}^3$) | Unit risk factor, URF ($\mu\text{g}/\text{m}^3$) ⁻¹ | Reference conc., RfC (mg/m^3) |
|--|------------------------------------|---|--------------------------------|---|---|--|---|---|--|--|---|
|--|------------------------------------|---|--------------------------------|---|---|--|---|---|--|--|---|

| | | | | | | | | | | | |
|------------------------|---|----------|------|----------|----------|----------|----------|----------|----------|---------|---------|
| Ethylbenzene | 9 | 1.50E+05 | 1.25 | 8.33E+01 | 1.50E-03 | 5.00E+03 | 2.00E+43 | 3.81E-05 | 5.72E+00 | 2.5E-06 | 1.0E+00 |
| Cumene | 9 | 2.00E+04 | 1.25 | 8.33E+01 | 1.30E-03 | 5.00E+03 | 9.37E+49 | 3.31E-05 | 6.61E-01 | NA | 4.0E-01 |
| n-Propylbenzene | 9 | 2.80E+04 | 1.25 | 8.33E+01 | 1.21E-03 | 5.00E+03 | 1.09E+54 | 3.07E-05 | 8.58E-01 | NA | 1.0E+00 |
| Toluene | 9 | 1.20E+03 | 1.25 | 8.33E+01 | 1.75E-03 | 5.00E+03 | 2.13E+37 | 4.42E-05 | 5.30E-02 | NA | 3.0E-01 |
| 1,2,4-Trimethylbenzene | 9 | 4.50E+04 | 1.25 | 8.33E+01 | 1.22E-03 | 5.00E+03 | 3.79E+53 | 3.10E-05 | 1.40E+00 | NA | 7.0E-03 |
| 1,3,5-Trimethylbenzene | 9 | 1.10E+05 | 1.25 | 8.33E+01 | 1.21E-03 | 5.00E+03 | 8.49E+53 | 3.08E-05 | 3.39E+00 | NA | 3.5E-02 |
| o-Xylene | 9 | 1.50E+04 | 1.25 | 8.33E+01 | 1.75E-03 | 5.00E+03 | 2.09E+37 | 4.43E-05 | 6.64E-01 | NA | 1.0E-01 |
| p-Xylene | 9 | 5.90E+05 | 1.25 | 8.33E+01 | 1.54E-03 | 5.00E+03 | 1.70E+42 | 3.91E-05 | 2.31E+01 | NA | 1.0E-01 |

END

Note:
Shaded values used to calculate slab-on-grade soil vapor screening levels in risk evaluation.

SG-ADV
Version 3.1; 02/04

Reset to
Defaults

AMEC
modified by CAK; 07/13
Mult. Chemical; version 3.1.4

Soil Gas Concentration Data

| ENTER Chemical CAS No. (numbers only, no dashes) | ENTER Soil gas conc., C _g (µg/m ³) | OR | ENTER Soil gas conc., C _g (ppmv) | Chemical |
|--|--|----|--|------------------------|
| 100414 | 1.50E+05 | | | Ethylbenzene |
| 98828 | 2.00E+04 | | | Cumene |
| 103651 | 2.80E+04 | | | n-Propylbenzene |
| 108883 | 1.20E+03 | | | Toluene |
| 95636 | 4.50E+04 | | | 1,2,4-Trimethylbenzene |
| 108678 | 1.10E+05 | | | 1,3,5-Trimethylbenzene |
| 95476 | 1.50E+04 | | | o-Xylene |
| 106423 | 5.90E+05 | | | p-Xylene |

ENTER
U.S. EPA or
Cal-EPA

Cal-EPA

MORE
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| ENTER Depth below grade to bottom of enclosed space floor, L _F (cm) | ENTER Soil gas sampling depth below grade, L _S (cm) | ENTER Average soil temperature, T _S (°C) | ENTER Totals must add up to value of L _s (cell F24) | | | ENTER Soil stratum A SCS soil type (used to estimate soil vapor permeability) | OR | ENTER User-defined stratum A soil vapor permeability, k _v (cm ²) |
|---|--|--|---|-------|-----|--|----|---|
| Thickness of soil stratum A, h _A (cm) | Thickness of soil stratum B, (Enter value or 0) h _B (cm) | Thickness of soil stratum C, (Enter value or 0) h _C (cm) | | | | | | |
| 9 | 1250 | 22 | 30 | 914.4 | 305 | S | | |

MORE
↓

| ENTER Stratum A SCS soil type Lookup Soil Parameters | ENTER Stratum A soil dry bulk density, ρ _b ^A (g/cm ³) | ENTER Stratum A soil total porosity, n ^A (unitless) | ENTER Stratum A soil water-filled porosity, θ _w ^A (cm ³ /cm ³) | ENTER Stratum B SCS soil type Lookup Soil Parameters | ENTER Stratum B soil total bulk density, ρ _b ^B (g/cm ³) | ENTER Stratum B soil total porosity, n ^B (unitless) | ENTER Stratum B soil water-filled porosity, θ _w ^B (cm ³ /cm ³) | ENTER Stratum C SCS soil type Lookup Soil Parameters | ENTER Stratum C soil dry bulk density, ρ _b ^C (g/cm ³) | ENTER Stratum C soil total porosity, n ^C (unitless) | ENTER Stratum C soil water-filled porosity, θ _w ^C (cm ³ /cm ³) |
|---|--|---|--|---|--|---|--|---|--|---|--|
| SIC | 1.8 | 0.3 | 0.15 | LS | 1.62 | 0.39 | 0.076 | SIL | 1.75 | 0.422 | 0.293 |

MORE
↓

| ENTER Enclosed space floor thickness, L _{crack} (cm) | ENTER Soil-bldg. pressure differential, ΔP (g/cm-s ²) | ENTER Enclosed space floor length, L _B (cm) | ENTER Enclosed space floor width, W _B (cm) | ENTER Enclosed space height, H _B (cm) | ENTER Floor-wall seam crack width, w (cm) | ENTER Indoor air exchange rate, ER (1/h) | ENTER Average vapor flow rate into bldg. OR Leave blank to calculate Q _{soil} (L/m) |
|---|--|--|---|---|--|---|--|
| 9 | 40 | 1000 | 1000 | 244 | 0.1 | 1 | 5 |

| ENTER Averaging time for carcinogens, AT _C (yrs) | ENTER Averaging time for noncarcinogens, AT _{NC} (yrs) | ENTER Exposure duration, ED (yrs) | ENTER Exposure frequency, EF (days/yr) |
|--|--|---|--|
| 70 | 25 | 25 | 250 |

END

CHEMICAL PROPERTIES

| | Diffusivity in air, D_a (cm^2/s) | Diffusivity in water, D_w (cm^2/s) | Henry's law constant at reference temperature, H ($\text{atm}\cdot\text{m}^3/\text{mol}$) | Henry's law constant reference temperature, T_R ($^{\circ}\text{C}$) | Enthalpy of vaporization at the normal boiling point, $\Delta H_{v,b}$ (cal/mol) | Normal boiling point, T_B ($^{\circ}\text{K}$) | Critical temperature, T_C ($^{\circ}\text{K}$) | Molecular weight, MW (g/mol) | Unit risk factor, URF ($\mu\text{g}/\text{m}^3$) ⁻¹ | Reference conc., RfC (mg/m^3) |
|------------------------|---|---|--|---|---|--|---|---|--|--|
| Ethylbenzene | 7.50E-02 | 7.80E-06 | 7.86E-03 | 25 | 8,501 | 409.34 | 617.20 | 106.17 | 2.5E-06 | 1.0E+00 |
| Cumene | 6.50E-02 | 7.10E-06 | 1.46E-02 | 25 | 10,335 | 425.56 | 631.10 | 120.19 | 0.0E+00 | 4.0E-01 |
| n-Propylbenzene | 6.01E-02 | 7.83E-06 | 1.07E-02 | 25 | 9,123 | 432.20 | 630.00 | 120.19 | 0.0E+00 | 1.0E+00 |
| Toluene | 8.70E-02 | 8.60E-06 | 6.62E-03 | 25 | 7,930 | 383.78 | 591.79 | 92.14 | 0.0E+00 | 3.0E-01 |
| 1,2,4-Trimethylbenzene | 6.06E-02 | 7.92E-06 | 6.14E-03 | 25 | 9,369 | 442.30 | 649.17 | 120.20 | 0.0E+00 | 7.0E-03 |
| 1,3,5-Trimethylbenzene | 6.02E-02 | 8.67E-06 | 5.87E-03 | 25 | 9,321 | 437.89 | 637.25 | 120.20 | 0.0E+00 | 3.5E-02 |
| o-Xylene | 8.70E-02 | 1.00E-05 | 5.18E-03 | 25 | 8,661 | 417.60 | 630.30 | 106.17 | 0.0E+00 | 1.0E-01 |
| p-Xylene | 7.69E-02 | 8.44E-06 | 7.64E-03 | 25 | 8,525 | 411.52 | 616.20 | 106.17 | 0.0E+00 | 1.0E-01 |

| | Exposure duration, τ (sec) | Source-building separation, L_T (cm) | Stratum A soil air-filled porosity, θ_a^A (cm^3/cm^3) | Stratum B soil air-filled porosity, θ_a^B (cm^3/cm^3) | Stratum C soil air-filled porosity, θ_a^C (cm^3/cm^3) | Stratum A effective total fluid saturation, S_{te} (cm^3/cm^3) | Stratum A soil intrinsic permeability, k_i (cm^2) | Stratum A soil relative air permeability, k_{rg} (cm^2) | Stratum A soil effective vapor permeability, k_v (cm^2) | Floor-wall seam perimeter, X_{crack} (cm) | Soil gas conc. ($\mu\text{g}/\text{m}^3$) | Bldg. ventilation rate, $Q_{building}$ (cm^3/s) |
|------------------------|---------------------------------|--|--|--|--|--|--|--|--|---|---|---|
| Ethylbenzene | 7.88E+08 | 1240.68 | 0.150 | 0.314 | 0.129 | 0.393 | 1.01E-07 | 0.520 | 5.27E-08 | 4,000 | 1.50E+05 | 6.78E+04 |
| Cumene | 7.88E+08 | 1240.68 | 0.150 | 0.314 | 0.129 | 0.393 | 1.01E-07 | 0.520 | 5.27E-08 | 4,000 | 2.00E+04 | 6.78E+04 |
| n-Propylbenzene | 7.88E+08 | 1240.68 | 0.150 | 0.314 | 0.129 | 0.393 | 1.01E-07 | 0.520 | 5.27E-08 | 4,000 | 2.80E+04 | 6.78E+04 |
| Toluene | 7.88E+08 | 1240.68 | 0.150 | 0.314 | 0.129 | 0.393 | 1.01E-07 | 0.520 | 5.27E-08 | 4,000 | 1.20E+03 | 6.78E+04 |
| 1,2,4-Trimethylbenzene | 7.88E+08 | 1240.68 | 0.150 | 0.314 | 0.129 | 0.393 | 1.01E-07 | 0.520 | 5.27E-08 | 4,000 | 4.50E+04 | 6.78E+04 |
| 1,3,5-Trimethylbenzene | 7.88E+08 | 1240.68 | 0.150 | 0.314 | 0.129 | 0.393 | 1.01E-07 | 0.520 | 5.27E-08 | 4,000 | 1.10E+05 | 6.78E+04 |
| o-Xylene | 7.88E+08 | 1240.68 | 0.150 | 0.314 | 0.129 | 0.393 | 1.01E-07 | 0.520 | 5.27E-08 | 4,000 | 1.50E+04 | 6.78E+04 |
| p-Xylene | 7.88E+08 | 1240.68 | 0.150 | 0.314 | 0.129 | 0.393 | 1.01E-07 | 0.520 | 5.27E-08 | 4,000 | 5.90E+05 | 6.78E+04 |

| | Area of enclosed space below grade, A_B (cm^2) | Crack-to-total area ratio, η (unitless) | Crack depth below grade, Z_{crack} (cm) | Enthalpy of vaporization at ave. soil temperature, $\Delta H_{v,TS}$ (cal/mol) | Henry's law constant at ave. soil temperature, H_{TS} ($\text{atm}\cdot\text{m}^3/\text{mol}$) | Henry's law constant at ave. soil temperature, H'_{TS} (unitless) | Vapor viscosity at ave. soil temperature, μ_{TS} (g/cm-s) | Stratum A effective diffusion coefficient, D^{eff}_A (cm^2/s) | Stratum B effective diffusion coefficient, D^{eff}_B (cm^2/s) | Stratum C effective diffusion coefficient, D^{eff}_C (cm^2/s) | Total overall effective diffusion coefficient, D^{eff}_T (cm^2/s) | Diffusion path length, L_d (cm) |
|--|---|--|---|--|--|---|---|---|---|---|---|-----------------------------------|
|--|---|--|---|--|--|---|---|---|---|---|---|-----------------------------------|

| | | | | | | | | | | | | |
|------------------------|----------|----------|---|--------|----------|----------|----------|----------|----------|----------|----------|---------|
| Ethylbenzene | 1.00E+06 | 5.00E-03 | 9 | 10,017 | 6.62E-03 | 2.73E-01 | 1.79E-04 | 1.50E-03 | 1.04E-02 | 4.63E-04 | 1.63E-03 | 1240.68 |
| Cumene | 1.00E+06 | 5.00E-03 | 9 | 12,475 | 1.18E-02 | 4.87E-01 | 1.79E-04 | 1.30E-03 | 9.03E-03 | 4.00E-04 | 1.41E-03 | 1240.68 |
| n-Propylbenzene | 1.00E+06 | 5.00E-03 | 9 | 11,212 | 8.79E-03 | 3.63E-01 | 1.79E-04 | 1.21E-03 | 8.35E-03 | 3.71E-04 | 1.30E-03 | 1240.68 |
| Toluene | 1.00E+06 | 5.00E-03 | 9 | 9,023 | 5.67E-03 | 2.34E-01 | 1.79E-04 | 1.75E-03 | 1.21E-02 | 5.37E-04 | 1.89E-03 | 1240.68 |
| 1,2,4-Trimethylbenzene | 1.00E+06 | 5.00E-03 | 9 | 11,541 | 5.04E-03 | 2.08E-01 | 1.79E-04 | 1.22E-03 | 8.42E-03 | 3.75E-04 | 1.32E-03 | 1240.68 |
| 1,3,5-Trimethylbenzene | 1.00E+06 | 5.00E-03 | 9 | 11,521 | 4.82E-03 | 1.99E-01 | 1.79E-04 | 1.21E-03 | 8.36E-03 | 3.73E-04 | 1.31E-03 | 1240.68 |
| o-Xylene | 1.00E+06 | 5.00E-03 | 9 | 10,268 | 4.34E-03 | 1.79E-01 | 1.79E-04 | 1.75E-03 | 1.21E-02 | 5.39E-04 | 1.90E-03 | 1240.68 |
| p-Xylene | 1.00E+06 | 5.00E-03 | 9 | 10,107 | 6.42E-03 | 2.65E-01 | 1.79E-04 | 1.54E-03 | 1.07E-02 | 4.75E-04 | 1.67E-03 | 1240.68 |

| | Convection path length, L_p (cm) | Source vapor conc., C_{source} ($\mu\text{g}/\text{m}^3$) | Crack radius, r_{crack} (cm) | Average vapor flow rate into bldg., Q_{soil} (cm^3/s) | Crack effective diffusion coefficient, D^{crack} (cm^2/s) | Area of crack, A_{crack} (cm^2) | Exponent of equivalent foundation Peclet number, $\exp(Pe^f)$ (unitless) | Infinite source indoor attenuation coefficient, α (unitless) | Infinite source bldg. conc., $C_{building}$ ($\mu\text{g}/\text{m}^3$) | Unit risk factor, URF ($\mu\text{g}/\text{m}^3$) ⁻¹ | Reference conc., RfC (mg/m^3) |
|--|------------------------------------|---|--------------------------------|---|---|--|--|---|--|--|---|
|--|------------------------------------|---|--------------------------------|---|---|--|--|---|--|--|---|

| | | | | | | | | | | | |
|------------------------|---|----------|------|----------|----------|----------|----------|----------|----------|---------|---------|
| Ethylbenzene | 9 | 1.50E+05 | 1.25 | 8.33E+01 | 1.50E-03 | 5.00E+03 | 2.00E+43 | 1.91E-05 | 2.86E+00 | 2.5E-06 | 1.0E+00 |
| Cumene | 9 | 2.00E+04 | 1.25 | 8.33E+01 | 1.30E-03 | 5.00E+03 | 9.37E+49 | 1.65E-05 | 3.31E-01 | NA | 4.0E-01 |
| n-Propylbenzene | 9 | 2.80E+04 | 1.25 | 8.33E+01 | 1.21E-03 | 5.00E+03 | 1.09E+54 | 1.53E-05 | 4.29E-01 | NA | 1.0E+00 |
| Toluene | 9 | 1.20E+03 | 1.25 | 8.33E+01 | 1.75E-03 | 5.00E+03 | 2.13E+37 | 2.21E-05 | 2.65E-02 | NA | 3.0E-01 |
| 1,2,4-Trimethylbenzene | 9 | 4.50E+04 | 1.25 | 8.33E+01 | 1.22E-03 | 5.00E+03 | 3.79E+53 | 1.55E-05 | 6.98E-01 | NA | 7.0E-03 |
| 1,3,5-Trimethylbenzene | 9 | 1.10E+05 | 1.25 | 8.33E+01 | 1.21E-03 | 5.00E+03 | 8.49E+53 | 1.54E-05 | 1.70E+00 | NA | 3.5E-02 |
| o-Xylene | 9 | 1.50E+04 | 1.25 | 8.33E+01 | 1.75E-03 | 5.00E+03 | 2.09E+37 | 2.21E-05 | 3.32E-01 | NA | 1.0E-01 |
| p-Xylene | 9 | 5.90E+05 | 1.25 | 8.33E+01 | 1.54E-03 | 5.00E+03 | 1.70E+42 | 1.96E-05 | 1.15E+01 | NA | 1.0E-01 |

END

Note:
Shaded values used to calculate slab-on-grade soil vapor screening levels in risk evaluation.

SG-ADV
Version 3.1; 02/04

Reset to
Defaults

AMEC
modified by CAK; 07/13
Mult. Chemical; version 3.1.4

Soil Gas Concentration Data

| ENTER Chemical CAS No. (numbers only, no dashes) | ENTER Soil gas conc., C _g (µg/m ³) | OR | ENTER Soil gas conc., C _g (ppmv) | Chemical |
|--|--|----|--|------------------------|
| 100414 | 1.50E+05 | | | Ethylbenzene |
| 98828 | 2.00E+04 | | | Cumene |
| 103651 | 2.80E+04 | | | n-Propylbenzene |
| 108883 | 1.20E+03 | | | Toluene |
| 95636 | 4.50E+04 | | | 1,2,4-Trimethylbenzene |
| 108678 | 1.10E+05 | | | 1,3,5-Trimethylbenzene |
| 95476 | 1.50E+04 | | | o-Xylene |
| 106423 | 5.90E+05 | | | p-Xylene |

ENTER
U.S. EPA or
Cal-EPA

Cal-EPA

MORE
↓

| ENTER Depth below grade to bottom of enclosed space floor, L _F (cm) | ENTER Soil gas sampling depth below grade, L _S (cm) | ENTER Average soil temperature, T _S (°C) | ENTER Totals must add up to value of L _s (cell F24) | | | ENTER Soil stratum A SCS soil type (used to estimate soil vapor permeability) | OR | ENTER User-defined stratum A soil vapor permeability, k _v (cm ²) |
|---|--|--|---|------|-------|--|----|---|
| Thickness of soil stratum A, h _A (cm) | Thickness of soil stratum B, (Enter value or 0) h _B (cm) | Thickness of soil stratum C, (Enter value or 0) h _C (cm) | | | | | | |
| 457.2 | 563.9 | 22 | 457.2 | 15.2 | 91.44 | S | | |

MORE
↓

| ENTER Stratum A SCS soil type Lookup Soil Parameters | ENTER Stratum A soil dry bulk density, ρ _b ^A (g/cm ³) | ENTER Stratum A soil total porosity, n ^A (unitless) | ENTER Stratum A soil water-filled porosity, θ _w ^A (cm ³ /cm ³) | ENTER Stratum B SCS soil type Lookup Soil Parameters | ENTER Stratum B soil total bulk density, ρ _b ^B (g/cm ³) | ENTER Stratum B soil total porosity, n ^B (unitless) | ENTER Stratum B soil water-filled porosity, θ _w ^B (cm ³ /cm ³) | ENTER Stratum C SCS soil type Lookup Soil Parameters | ENTER Stratum C soil dry bulk density, ρ _b ^C (g/cm ³) | ENTER Stratum C soil total porosity, n ^C (unitless) | ENTER Stratum C soil water-filled porosity, θ _w ^C (cm ³ /cm ³) |
|---|--|---|--|---|--|---|--|---|--|---|--|
| S | 1.66 | 0.375 | 0.054 | SIC | 1.8 | 0.3 | 0.15 | SIL | 1.75 | 0.422 | 0.293 |

MORE
↓

| ENTER Enclosed space floor thickness, L _{crack} (cm) | ENTER Soil-bldg. pressure differential, ΔP (g/cm-s ²) | ENTER Enclosed space floor length, L _B (cm) | ENTER Enclosed space floor width, W _B (cm) | ENTER Enclosed space height, H _B (cm) | ENTER Floor-wall seam crack width, w (cm) | ENTER Indoor air exchange rate, ER (1/h) | ENTER Average vapor flow rate into bldg. OR Leave blank to calculate Q _{soil} (L/m) |
|---|--|--|---|---|--|---|--|
| 91.44 | 40 | 8700 | 8700 | 366 | 0.1 | 1.5 | 378 |

| ENTER Averaging time for carcinogens, AT _C (yrs) | ENTER Averaging time for noncarcinogens, AT _{NC} (yrs) | ENTER Exposure duration, ED (yrs) | ENTER Exposure frequency, EF (days/yr) |
|--|--|---|--|
| 70 | 30 | 30 | 350 |

END

| | Diffusivity in air, D_a (cm^2/s) | Diffusivity in water, D_w (cm^2/s) | Henry's law constant at reference temperature, H ($\text{atm}\cdot\text{m}^3/\text{mol}$) | Henry's law constant reference temperature, T_R ($^\circ\text{C}$) | Enthalpy of vaporization at the normal boiling point, $\Delta H_{v,b}$ (cal/mol) | Normal boiling point, T_B ($^\circ\text{K}$) | Critical temperature, T_C ($^\circ\text{K}$) | Molecular weight, MW (g/mol) | Unit risk factor, URF ($\mu\text{g}/\text{m}^3$) ⁻¹ | Reference conc., RfC (mg/m^3) |
|------------------------|---|---|--|---|---|--|---|---|--|--|
| Ethylbenzene | 7.50E-02 | 7.80E-06 | 7.86E-03 | 25 | 8,501 | 409.34 | 617.20 | 106.17 | 2.5E-06 | 1.0E+00 |
| Cumene | 6.50E-02 | 7.10E-06 | 1.46E-02 | 25 | 10,335 | 425.56 | 631.10 | 120.19 | 0.0E+00 | 4.0E-01 |
| n-Propylbenzene | 6.01E-02 | 7.83E-06 | 1.07E-02 | 25 | 9,123 | 432.20 | 630.00 | 120.19 | 0.0E+00 | 1.0E+00 |
| Toluene | 8.70E-02 | 8.60E-06 | 6.62E-03 | 25 | 7,930 | 383.78 | 591.79 | 92.14 | 0.0E+00 | 3.0E-01 |
| 1,2,4-Trimethylbenzene | 6.06E-02 | 7.92E-06 | 6.14E-03 | 25 | 9,369 | 442.30 | 649.17 | 120.20 | 0.0E+00 | 7.0E-03 |
| 1,3,5-Trimethylbenzene | 6.02E-02 | 8.67E-06 | 5.87E-03 | 25 | 9,321 | 437.89 | 637.25 | 120.20 | 0.0E+00 | 3.5E-02 |
| o-Xylene | 8.70E-02 | 1.00E-05 | 5.18E-03 | 25 | 8,661 | 417.60 | 630.30 | 106.17 | 0.0E+00 | 1.0E-01 |
| p-Xylene | 7.69E-02 | 8.44E-06 | 7.64E-03 | 25 | 8,525 | 411.52 | 616.20 | 106.17 | 0.0E+00 | 1.0E-01 |

| | Exposure duration, τ (sec) | Source-building separation, L_T (cm) | Stratum A soil air-filled porosity, θ_a^A (cm ³ /cm ³) | Stratum B soil air-filled porosity, θ_a^B (cm ³ /cm ³) | Stratum C soil air-filled porosity, θ_a^C (cm ³ /cm ³) | Stratum A effective total fluid saturation, S_{ie} (cm ³ /cm ³) | Stratum A soil intrinsic permeability, k_i (cm ²) | Stratum A soil relative air permeability, k_{rg} (cm ²) | Stratum A soil effective vapor permeability, k_v (cm ²) | Floor-wall seam perimeter, X_{crack} (cm) | Soil gas conc. (µg/m ³) | Bldg. ventilation rate, $Q_{building}$ (cm ³ /s) |
|------------------------|---------------------------------|--|--|--|--|--|---|---|---|---|-------------------------------------|---|
| Ethylbenzene | 9.46E+08 | 106.68 | 0.321 | 0.150 | 0.129 | 0.003 | 1.01E-07 | 0.998 | 1.01E-07 | 34,800 | 1.50E+05 | 1.15E+07 |
| Cumene | 9.46E+08 | 106.68 | 0.321 | 0.150 | 0.129 | 0.003 | 1.01E-07 | 0.998 | 1.01E-07 | 34,800 | 2.00E+04 | 1.15E+07 |
| n-Propylbenzene | 9.46E+08 | 106.68 | 0.321 | 0.150 | 0.129 | 0.003 | 1.01E-07 | 0.998 | 1.01E-07 | 34,800 | 2.80E+04 | 1.15E+07 |
| Toluene | 9.46E+08 | 106.68 | 0.321 | 0.150 | 0.129 | 0.003 | 1.01E-07 | 0.998 | 1.01E-07 | 34,800 | 1.20E+03 | 1.15E+07 |
| 1,2,4-Trimethylbenzene | 9.46E+08 | 106.68 | 0.321 | 0.150 | 0.129 | 0.003 | 1.01E-07 | 0.998 | 1.01E-07 | 34,800 | 4.50E+04 | 1.15E+07 |
| 1,3,5-Trimethylbenzene | 9.46E+08 | 106.68 | 0.321 | 0.150 | 0.129 | 0.003 | 1.01E-07 | 0.998 | 1.01E-07 | 34,800 | 1.10E+05 | 1.15E+07 |
| o-Xylene | 9.46E+08 | 106.68 | 0.321 | 0.150 | 0.129 | 0.003 | 1.01E-07 | 0.998 | 1.01E-07 | 34,800 | 1.50E+04 | 1.15E+07 |
| p-Xylene | 9.46E+08 | 106.68 | 0.321 | 0.150 | 0.129 | 0.003 | 1.01E-07 | 0.998 | 1.01E-07 | 34,800 | 5.90E+05 | 1.15E+07 |

| | Area of enclosed space below grade, A_B (cm ²) | Crack-to-total area ratio, η (unitless) | Crack depth below grade, Z_{crack} (cm) | Enthalpy of vaporization at ave. soil temperature, $\Delta H_{v,TS}$ (cal/mol) | Henry's law constant at ave. soil temperature, H_{TS} (atm-m ³ /mol) | Henry's law constant at ave. soil temperature, H'_{TS} (unitless) | Vapor viscosity at ave. soil temperature, μ_{TS} (g/cm-s) | Stratum A effective diffusion coefficient, D_A^{eff} (cm ² /s) | Stratum B effective diffusion coefficient, D_B^{eff} (cm ² /s) | Stratum C effective diffusion coefficient, D_C^{eff} (cm ² /s) | Total overall effective diffusion coefficient, D_T^{eff} (cm ² /s) | Diffusion path length, L_d (cm) |
|--|--|--|---|--|---|---|---|---|---|---|---|-----------------------------------|
|--|--|--|---|--|---|---|---|---|---|---|---|-----------------------------------|

| | | | | | | | | | | | | |
|------------------------|----------|----------|-------|--------|----------|----------|----------|----------|----------|----------|----------|--------|
| Ethylbenzene | 9.16E+07 | 5.00E-03 | 457.2 | 10,017 | 6.62E-03 | 2.73E-01 | 1.79E-04 | 1.21E-02 | 1.50E-03 | 4.63E-04 | 5.13E-04 | 106.68 |
| Cumene | 9.16E+07 | 5.00E-03 | 457.2 | 12,475 | 1.18E-02 | 4.87E-01 | 1.79E-04 | 1.05E-02 | 1.30E-03 | 4.00E-04 | 4.44E-04 | 106.68 |
| n-Propylbenzene | 9.16E+07 | 5.00E-03 | 457.2 | 11,212 | 8.79E-03 | 3.63E-01 | 1.79E-04 | 9.72E-03 | 1.21E-03 | 3.71E-04 | 4.11E-04 | 106.68 |
| Toluene | 9.16E+07 | 5.00E-03 | 457.2 | 9,023 | 5.67E-03 | 2.34E-01 | 1.79E-04 | 1.41E-02 | 1.75E-03 | 5.37E-04 | 5.96E-04 | 106.68 |
| 1,2,4-Trimethylbenzene | 9.16E+07 | 5.00E-03 | 457.2 | 11,541 | 5.04E-03 | 2.08E-01 | 1.79E-04 | 9.80E-03 | 1.22E-03 | 3.75E-04 | 4.16E-04 | 106.68 |
| 1,3,5-Trimethylbenzene | 9.16E+07 | 5.00E-03 | 457.2 | 11,521 | 4.82E-03 | 1.99E-01 | 1.79E-04 | 9.73E-03 | 1.21E-03 | 3.73E-04 | 4.14E-04 | 106.68 |
| o-Xylene | 9.16E+07 | 5.00E-03 | 457.2 | 10,268 | 4.34E-03 | 1.79E-01 | 1.79E-04 | 1.41E-02 | 1.75E-03 | 5.39E-04 | 5.98E-04 | 106.68 |
| p-Xylene | 9.16E+07 | 5.00E-03 | 457.2 | 10,107 | 6.42E-03 | 2.65E-01 | 1.79E-04 | 1.24E-02 | 1.54E-03 | 4.75E-04 | 5.27E-04 | 106.68 |

| | Convection path length, L_p (cm) | Source vapor conc., C_{source} (µg/m ³) | Crack radius, r_{crack} (cm) | Average vapor flow rate into bldg., Q_{soil} (cm ³ /s) | Crack effective diffusion coefficient, D^{crack} (cm ² /s) | Area of crack, A_{crack} (cm ²) | Exponent of equivalent foundation Peclet number, $\exp(Pe^f)$ (unitless) | Infinite source indoor attenuation coefficient, α (unitless) | Infinite source bldg. conc., $C_{building}$ (µg/m ³) | Unit risk factor, URF (µg/m ³) ⁻¹ | Reference conc., RfC (mg/m ³) |
|--|------------------------------------|---|--------------------------------|---|---|---|--|---|--|--|---|
|--|------------------------------------|---|--------------------------------|---|---|---|--|---|--|--|---|

| | | | | | | | | | | | |
|------------------------|-------|----------|-------|----------|----------|----------|----------|----------|----------|---------|---------|
| Ethylbenzene | 457.2 | 1.50E+05 | 13.16 | 6.31E+03 | 1.21E-02 | 4.58E+05 | 1.28E+45 | 3.57E-05 | 5.35E+00 | 2.5E-06 | 1.0E+00 |
| Cumene | 457.2 | 2.00E+04 | 13.16 | 6.31E+03 | 1.05E-02 | 4.58E+05 | 1.11E+52 | 3.11E-05 | 6.23E-01 | NA | 4.0E-01 |
| n-Propylbenzene | 457.2 | 2.80E+04 | 13.16 | 6.31E+03 | 9.72E-03 | 4.58E+05 | 1.95E+56 | 2.90E-05 | 8.11E-01 | NA | 1.0E+00 |
| Toluene | 457.2 | 1.20E+03 | 13.16 | 6.31E+03 | 1.41E-02 | 4.58E+05 | 7.69E+38 | 4.10E-05 | 4.92E-02 | NA | 3.0E-01 |
| 1,2,4-Trimethylbenzene | 457.2 | 4.50E+04 | 13.16 | 6.31E+03 | 9.80E-03 | 4.58E+05 | 6.70E+55 | 2.93E-05 | 1.32E+00 | NA | 7.0E-03 |
| 1,3,5-Trimethylbenzene | 457.2 | 1.10E+05 | 13.16 | 6.31E+03 | 9.73E-03 | 4.58E+05 | 1.57E+56 | 2.92E-05 | 3.21E+00 | NA | 3.5E-02 |
| o-Xylene | 457.2 | 1.50E+04 | 13.16 | 6.31E+03 | 1.41E-02 | 4.58E+05 | 7.69E+38 | 4.11E-05 | 6.17E-01 | NA | 1.0E-01 |
| p-Xylene | 457.2 | 5.90E+05 | 13.16 | 6.31E+03 | 1.24E-02 | 4.58E+05 | 9.84E+43 | 3.66E-05 | 2.16E+01 | NA | 1.0E-01 |

END

Note:
Shaded values used to calculate site-specific soil vapor screening levels in risk evaluation.

Memorandum

Date: 13 March 2015

To: Mr. Javier Hinojosa, Department of Toxic Substances Control

Cc: Mr. Nathan Arnold, Forest City Blossom, LP
Mr. James Ostrom, Forest City Blossom, LP
Mr. Frank Frallicciardi, Forest City Blossom, LP
Mr. Nicholas Targ, Holland & Knight, LLP
Ms. Nuna Tersibashian, City of Los Angeles

From: Ms. Wendy Key, Geosyntec Consultants, Inc.
Mr. Randy Brandt, Geosyntec Consultants, Inc.

Subject: Final Utility Trench Sampling Results
Blossom Plaza Development
900 North Broadway, Los Angeles, California
Geosyntec Project: WR1777

Dear Mr. Hinojosa:

Geosyntec Consultants, Inc. (Geosyntec) on behalf of Forest City Blossom, LP (Forest City) has prepared this Final Utility Trench Sampling Results Memorandum (Memorandum) to document the steps and procedures which were taken to assess offsite fill material located in planned utility trenches proximate to the Blossom Plaza Development Site located at 900 North Broadway in Los Angeles, California (Site). The Department of Toxic Substances Control (DTSC) had required, per the Voluntary Cleanup Agreement¹ (VCA) between Forest City and the DTSC and the protocol documented in the Risk Management Plan² (RMP), that representative fill samples be obtained from offsite utility trenches to assess the presence of lead and evaluate appropriate

¹ DTSC, 2013. Voluntary Cleanup Agreement, Docket No. HSA VCA 12/13-094, Blossom Plaza, 900 North Broadway, Los Angeles, California 90012, 9 June 2013.

² Geosyntec, 2013. Risk Management Plan, Proposed Blossom Plaza Development Site, 900 Broadway, Los Angeles, California, 10 December, 2013.

disposal options due to the presence of lead-impacted soil discovered on-site during excavation activities³.

Sampling Methodology

Utility trenches selected for sampling are shown in Figure 1. While several utility trench excavations are planned, the target trenches are the largest (longest and deepest) utility trenches planned for installation on both North Broadway and College Street and are believed to be representative of the material that will be encountered in all of the utility trenches. Consistent with the procedures outlined in Geosyntec's Final Utility Trench Sampling Memorandum⁴, potholes were installed to the maximum planned depth of excavation at each trench with two potholes per trench to allow for representative sample collection.

Two potholes were advanced on North Broadway (T1-NW and T1-SE) and two potholes were advanced on College Street (T2-N and T2-S). Each pothole was excavated using a backhoe equipped with a two-foot wide bucket. Potholes installed on Broadway were 7 feet long and 10 feet deep (T1-NW) and 5 feet long and 8.5 feet deep (T1-SE). One soil sample (vertical field composite consisting of a small amount of soil taken from each bucket excavated from the pothole and placed/combined in a laboratory supplied jar) was collected from T1-NW from depths ranging from 20 inches to 10 feet below ground surface (bgs) and one soil (vertical field composite) sample was collected from T1-SE from depths ranging from 1 to 8.5 feet bgs.

Potholes installed on College Street were 7 feet long and 6 feet deep (T2-S) and 5 feet long and 2.5 feet deep (T2-N). Two soil samples (vertical field composites) were collected from T2-N (T2-N-1 and T2-N-2) at depths ranging from 1.5 to 6 feet bgs and two soil samples (vertical field composites) were collected from T2-S (T2-S-1 and T2-S-2) at depths ranging from 1.25 to 2.5 feet bgs.

The soil samples collected were submitted to Eurofins CalScience analytical laboratory in Garden Grove, California and analyzed for the following constituents as summarized in the table below:

³ Geosyntec, 2014. Final Unexpected Condition Response Action Completion Report, Blossom Plaza Development, 900 North Broadway, Los Angeles, California, 10 October 2014.

⁴ Geosyntec, 2015. Final Utility Trench Sampling Memorandum, Blossom Plaza Development, 900 North Broadway, Los Angeles, California, 6 January 2015.

| Constituent | US EPA Analysis Method | Composite | | Trench 1 (T1) Samples Analyzed | Trench 2 (T2) Samples Analyzed |
|--|------------------------|-----------|------------|--------------------------------|--|
| | | Field | Laboratory | | |
| Title 22 Metals | 6010B/7071 | X | X | Composite (T1-NW and T1-SE) | Composite (T2-N-1, T2-N-2, T2-S-1, and T2-S-2) |
| Volatile Organic Constituents (VOCs) | 8260 | X | | T1-NW and T1-SE | T2-N-1, T2-N-2, T2-S-1, and T2-S-2 |
| Total Petroleum Hydrocarbons (TPH) | 8015 | X | | T1-NW and T1-SE | T2-N-1, T2-N-2, T2-S-1, and T2-S-2 |
| Semi-Volatile Organic Constituents (SVOCs) | 8270C | X | X | Composite (T1-NW and T1-SE) | Composite (T2-N-1, T2-N-2, T2-S-1, and T2-S-2) |

Results

Soil encountered in the potholes installed on Broadway generally consisted of clayey sands and sandy clays with some silt, gravel, and cobbles (fill). Some concrete debris was noted at a depth of approximately 4 feet bgs in T1-NW. No evidence of fill materials containing glass, slag, or other significant construction debris similar to that encountered in the on-site Blossom Plaza excavations was observed in the potholes installed during sampling activities. Native soil was not encountered in the potholes to the depths explored.

Soil encountered in the potholes installed on College Street generally consisted of clayey sands with silt, gravel, and cobbles (fill). No evidence of fill materials containing glass, slag, or other significant construction debris similar to that encountered in the on-site Blossom Plaza excavations was observed in the potholes installed during sampling activities. Native soil was not encountered in the potholes to the depths explored.

Laboratory analytical results are provided as Attachment 1. Results showed that the VOCs and SVOCs in soil are not present above laboratory reporting limits. Metals concentrations reported in soil were generally below Regional Screening Levels (RSL) and consistent with background concentrations as identified in Table 3 of the RMP (Geosyntec, 2013). Lead concentrations ranged from 10.5 milligrams per kilogram (mg/kg) in the composite sample collected from T2 on College Street and 10.9 mg/kg in the composite sample collected from T1 on Broadway. Total petroleum hydrocarbons (TPH) in the diesel range (C10-28) were reported at a concentration of 8.2 milligrams per kilogram (mg/kg) in one sample (T1-NW) on Broadway. TPH concentrations in the diesel range and residual oil range (C28-C44) were reported as present in soil collected from College Avenue with TPH as diesel values reported at concentrations ranging from 5.2 mg/kg to 33 mg/kg. TPH as residual oil was reported at concentrations ranging from 107 mg/kg

to 170 mg/kg. These concentrations are below the screening levels of 100 mg/kg for TPH as diesel and 500 mg/kg for TPH as residual oil established in the RMP for reuse. As such, additional waste profiling analyses such as Soluble Threshold Limit Concentration (STLC) and Toxic Characterization Leaching Procedure (TCLP) was not conducted.

Conclusion and Construction Completion

Based on the above results, it was Geosyntec's opinion that the soil that was planned to be excavated from the utility trenches could be either: i) re-used as trench backfill following utility installation; ii) re-used on the Blossom Plaza Site in accordance with the conditions specified in the Risk Management Plan; or, iii) disposed offsite as non-hazardous waste.

Due to space restraints and construction logistics preventing the storage of excavated soil at the Site, the General Contractor elected to dispose the soil offsite as non-hazardous waste. Soil excavated from the Broadway utility trenches (approximately 90 cubic yards) was taken to ConGlobal Industries, Inc.'s (a construction material recycling company) facility located in Wilmington, California. Due to the higher TPH concentrations in soil from College Street, excavated soil from the utility trenches on College Street (approximately 121 cubic yards) was disposed at Waste Connections, Inc.'s Chiquita Canyon Landfill in Castaic, California and manifested as Class III non-hazardous waste.

If you have any questions or wish to discuss this memorandum, please contact Wendy Key (916-637-8326) or Randy Brandt (510-285-2736).

ATTACHMENTS:

Figure 1: Utility Sampling Location Map
Attachment 1: Laboratory Analytical Data

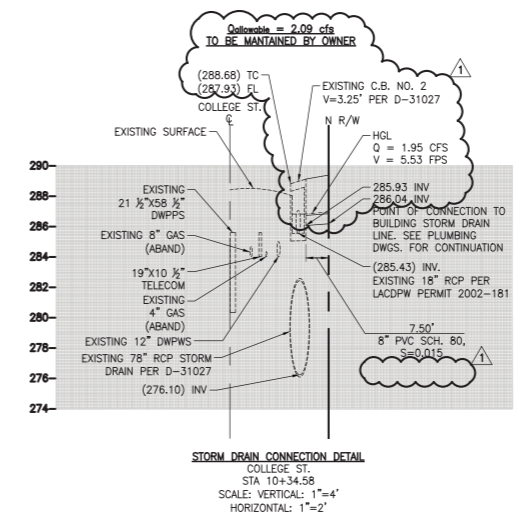
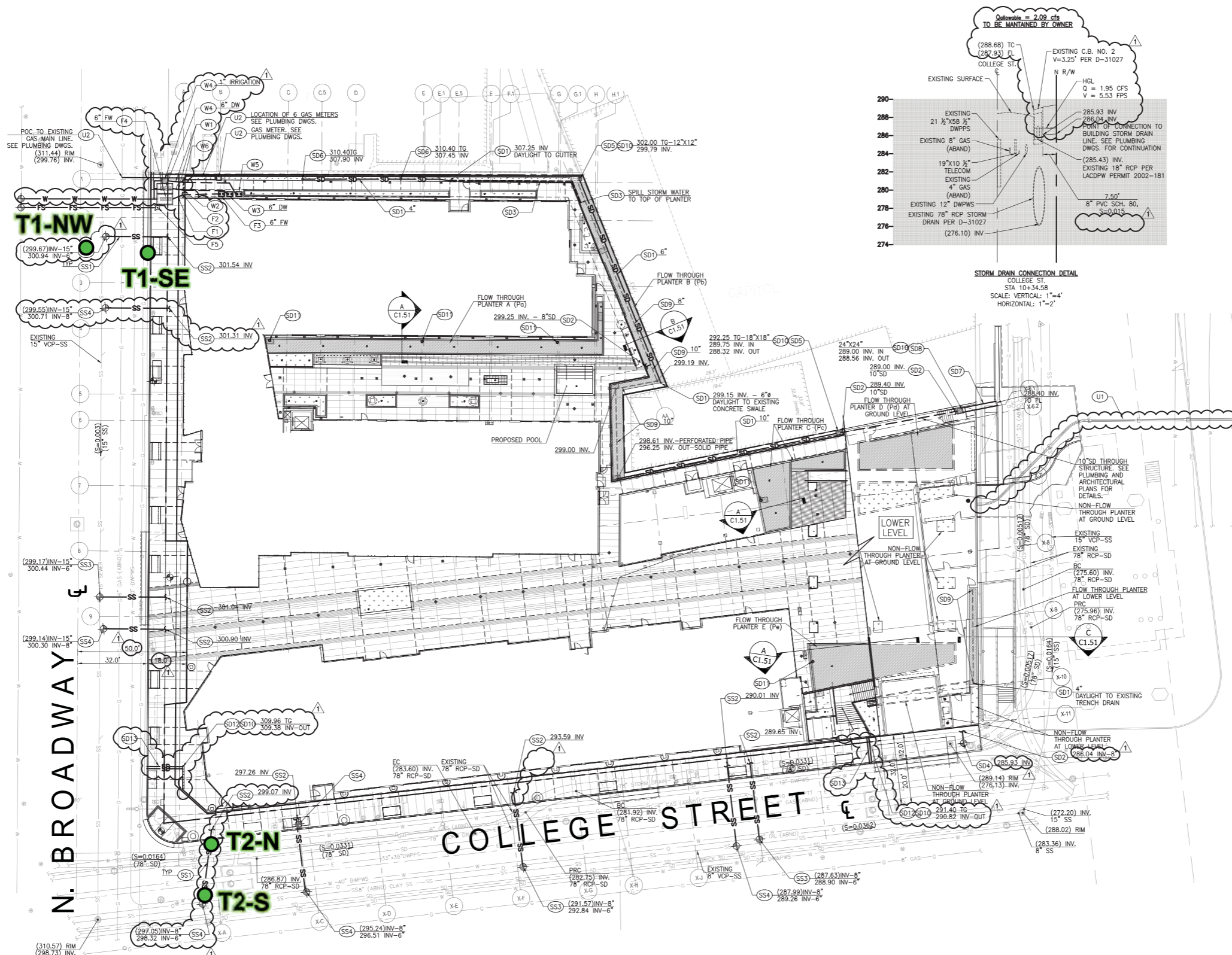


1111 Broadway Suite 600
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www.geosyntec.com

ATTACHMENTS

Final Utility Trench Sampling Results Memo_150313

engineers | scientists | innovators



- UTILITY CONSTRUCTION NOTES:**
- STORM DRAIN**
- (SD1) PVC, SDR-35 STORM DRAIN PIPE PER DETAIL 1, SHEET C5.00 SIZE AND SLOPE PER PLAN.
 - (SD2) POINT OF CONNECTION 5 FEET FROM BUILDING FACE. COORDINATE AND MATCH LOCATION WITH PLUMBING DRAWINGS. PROVIDE REDUCING FITTINGS AS REQUIRED TO MATCH SIZE OF PLUMBING LINES. SEE PLUMBING DRAWINGS FOR CONTINUATION.
 - (SD3) GUTTER PER ARCHITECTURAL.
 - (SD4) POINT OF CONNECTION TO EXISTING STORM DRAIN SYSTEM PER APWA STD. PLAN 335-2, CASE 1 AND LA COUNTY FLOOD CONTROL DISTRICT PERMIT NO. T201304548. CONNECT TO EXISTING CATCH BASIN. VERIFY IN FIELD INVERT ELEVATION.
 - (SD5) CAST-IN-PLACE CONCRETE CATCH BASIN PER DETAIL 4, SHEET C5.00. SEE PLAN FOR SIZE.
 - (SD6) 6" DIA. PLANTER DRAIN PER DETAIL 5, SHEET C5.00.
 - (SD7) 24" WIDE PARKWAY DRAIN PER APWA STD. PLAN 151-2.
 - (SD8) CUSTOM Poured IN PLACE TRANSITION BOX WITH 24"x24" FRAME AND COVER.
 - (SD9) PERFORATED PVC PIPE, SDR 35. SEE PLAN FOR SIZE AND INVERT ELEVATIONS.
 - (SD10) PROVIDE "NO DUMPING" SYMBOL PER DETAIL 1, HEREON.
 - (SD11) DOWNSPOUT. SEE PLUMBING AND ARCHITECTURAL DRAWINGS.
 - (SD12) INSTALL NDS DURA SLOPE TRENCH DRAINS WITH ADA COMPLIANT/HEEL PROOF GRATING. PROVIDE FLOORGR LOPRO TRENCH DRAIN FILTER INSERT FG-TDF4. INSTALL PER MANUFACTURER'S RECOMMENDATIONS.
 - (SD13) 2-4" CIP CURB DRAIN PER APWA STD. PLAN 150-3.

- SANITARY SEWER**
- (SS1) VCP SANITARY SEWER PIPE PER DETAIL 1, SHEET C5.00 SIZE AND SLOPE PER PLAN.
 - (SS2) POINT OF CONNECTION 5 FEET FROM BUILDING FACE. COORDINATE AND MATCH LOCATION WITH PLUMBING DRAWINGS. PROVIDE REDUCING FITTINGS AS REQUIRED TO MATCH SIZE OF PLUMBING LINES. SEE PLUMBING DRAWINGS FOR CONTINUATION.
 - (SS3) POINT OF CONNECTION TO EXISTING SEWER MAIN LINE. PROVIDE NEW HOUSE CONNECTION PER DETAIL 2, SHEET C5.00. CONTRACTOR TO OBTAIN A SEWER CONNECTION PERMIT FROM THE CITY OF LA DEPARTMENT OF PUBLIC WORKS.
 - (SS4) CONNECT TO EXISTING SEWER LATERAL OR WYE. CONTRACTOR TO FIELD VERIFY THE ELEVATION AND CONDITION OF EXISTING LATERAL. IF EXISTING LATERAL IS NOT FEASIBLE FOR CONNECTION, EXTEND P.O.C TO SEWER MAIN LINE AND PROVIDE NEW CONNECTION PER CITY OF LOS ANGELES STANDARDS. CONTRACTOR TO OBTAIN A SEWER CONNECTION PERMIT FROM THE CITY OF LA DEPARTMENT OF PUBLIC WORKS.

- DOMESTIC WATER**
- (W1) PVC C-900 DOMESTIC WATER PIPE PER DETAIL 1, SHEET C5.00 SIZE PER PLAN.
 - (W2) POINT OF CONNECTION 5 FEET FROM BUILDING FACE. SEE PLUMBING DRAWINGS FOR CONTINUATION.
 - (W3) BACKFLOW PREVENTION DEVICE PER PLUMBING DRAWINGS.
 - (W4) WATER METER VAULT. INSTALLATION BY DEPARTMENT OF WATER AND POWER. SHOWN FOR COORDINATION PURPOSES ONLY. CONTRACTOR TO COORDINATE WATER SERVICE CONNECTION WITH LOCAL PROVIDER.
 - (W5) BACKFLOW PREVENTION DEVICE PER IRRIGATION PLANS.
 - (W6) IRRIGATION P.O.C. SEE IRRIGATION PLANS.

- FIRE WATER**
- (F1) PVC C-900 FIRE WATER PIPE PER DETAIL 1, SHEET C5.00 SIZE AND MATERIAL PER PLAN.
 - (F2) POINT OF CONNECTION 5 FEET FROM BUILDING FACE. SEE PLUMBING DRAWINGS FOR CONTINUATION.
 - (F3) BACKFLOW PREVENTION DEVICE PER PLUMBING DRAWINGS.
 - (F4) WATER METER VAULT. INSTALLATION BY DEPARTMENT OF WATER AND POWER. SHOWN FOR COORDINATION PURPOSES ONLY. CONTRACTOR TO COORDINATE FIRE WATER SERVICE CONNECTION WITH LOCAL PROVIDER.
 - (F5) FIRE HYDRANT. INSTALLATION BY DEPARTMENT OF WATER AND POWER. CONTRACTOR TO COORDINATE FIRE SERVICE CONNECTION WITH LOCAL PROVIDER.

- OTHER UTILITIES**
- (U1) ELECTRICAL CONDUIT. SEE ELECTRICAL DRAWINGS FOR DETAILS AND SPECIFICATIONS. SHOWN FOR COORDINATION PURPOSES ONLY.
 - (U2) GAS LINE / METERS. SEE PLUMBING AND GAS COMPANY DRAWINGS FOR DETAILS AND SPECIFICATIONS. SHOWN FOR COORDINATION PURPOSES ONLY.

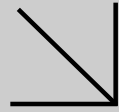
- LEGEND:**
- EXISTING PROPERTY LINE
 - PROPOSED PROPERTY LINE
 - SHORING LINE
 - FLOW THROUGH PLANTER (SEE C1.51 FOR DETAILS)
 - NON-FLOW THROUGH PLANTER AREA/LANDSCAPE (REFER TO LANDSCAPING PLANS FOR DETAILS)

T2-S Utility Trench Sampling Location

Utility Trench Sampling Locations

Blossom Plaza Development
900 North Broadway, Los Angeles, California

| | | |
|--------------|-----------|--------------------------|
| January 2015 | Figure: 1 | Geosyntec consultants |
|--------------|-----------|--------------------------|



WORK ORDER NUMBER: 15-01-0618

The difference is service



AIR | SOIL | WATER | MARINE CHEMISTRY

Analytical Report For

Client: Geosyntec Consultants

Client Project Name: Blossom Plaza Utility Trench Sampling /
WR1777-04

Attention: Wendy Key
3043 Gold Canal Drive
Suite 201
Rancho Cordova, CA 95670-6394

Approved for release on 01/14/2015 by:
Stephen Nowak
Project Manager

ResultLink ▶

Email your PM ▶



Eurofins Calscience, Inc. (Calscience) certifies that the test results provided in this report meet all NELAC requirements for parameters for which accreditation is required or available. Any exceptions to NELAC requirements are noted in the case narrative. The original report of subcontracted analyses, if any, is attached to this report. The results in this report are limited to the sample(s) tested and any reproduction thereof must be made in its entirety. The client or recipient of this report is specifically prohibited from making material changes to said report and, to the extent that such changes are made, Calscience is not responsible, legally or otherwise. The client or recipient agrees to indemnify Calscience for any defense to any litigation which may arise.

Contents

Client Project Name: Blossom Plaza Utility Trench Sampling / WR1777-04
 Work Order Number: 15-01-0618

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Condition Upon Receipt:

Samples were received under Chain-of-Custody (COC) on 01/13/15. They were assigned to Work Order 15-01-0618.

Unless otherwise noted on the Sample Receiving forms all samples were received in good condition and within the recommended EPA temperature criteria for the methods noted on the COC. The COC and Sample Receiving Documents are integral elements of the analytical report and are presented at the back of the report.

Holding Times:

All samples were analyzed within prescribed holding times (HT) and/or in accordance with the Calscience Sample Acceptance Policy unless otherwise noted in the analytical report and/or comprehensive case narrative, if required.

Any parameter identified in 40CFR Part 136.3 Table II that is designated as "analyze immediately" with a holding time of ≤ 15 minutes (40CFR-136.3 Table II, footnote 4), is considered a "field" test and the reported results will be qualified as being received outside of the stated holding time unless received at the laboratory within 15 minutes of the collection time.

Quality Control:

All quality control parameters (QC) were within established control limits except where noted in the QC summary forms or described further within this report.

Additional Comments:

Air - Sorbent-extracted air methods (EPA TO-4A, EPA TO-10, EPA TO-13A, EPA TO-17): Analytical results are converted from mass/sample basis to mass/volume basis using client-supplied air volumes.

New York NELAP air certification does not certify for all reported methods and analytes, reference the accredited items here: http://www.calscience.com/PDF/New_York.pdf

Solid - Unless otherwise indicated, solid sample data is reported on a wet weight basis, not corrected for % moisture. All QC results are always reported on a wet weight basis.

Subcontractor Information:

Unless otherwise noted below (or on the subcontract form), no samples were subcontracted.

Sample Summary

| | |
|---|--|
| Client: Geosyntec Consultants 3043 Gold Canal Drive, Suite 201 Rancho Cordova, CA 95670-6394 | Work Order: 15-01-0618 Project Name: Blossom Plaza Utility Trench Sampling / WR1777-04 PO Number: Date/Time Received: 01/13/15 07:30 Number of Containers: 3 |
|---|--|

Attn: Wendy Key

| Sample Identification | Lab Number | Collection Date and Time | Number of Containers | Matrix |
|---------------------------|--------------|--------------------------|----------------------|--------|
| T1-NW | 15-01-0618-1 | 01/13/15 00:30 | 1 | Solid |
| T1-SE | 15-01-0618-2 | 01/13/15 02:00 | 1 | Solid |
| Composite (T1-NW & T1-SE) | 15-01-0618-3 | 01/13/15 00:30 | 1 | Solid |

Detections Summary

Client: Geosyntec Consultants
 3043 Gold Canal Drive, Suite 201
 Rancho Cordova, CA 95670-6394

Work Order: 15-01-0618
 Project Name: Blossom Plaza Utility Trench Sampling /
 WR1777-04
 Received: 01/13/15

Attn: Wendy Key

Page 1 of 1

Client SampleID

| Analyte | Result | Qualifiers | RL | Units | Method | Extraction |
|--|--------|------------|-------|-------|---------------|------------|
| T1-NW (15-01-0618-1) | | | | | | |
| C6-C44 Total | 8.2 | | 5.0 | mg/kg | EPA 8015B (M) | EPA 3550B |
| Composite (T1-NW & T1-SE) (15-01-0618-3) | | | | | | |
| Arsenic | 3.60 | | 0.750 | mg/kg | EPA 6010B | EPA 3050B |
| Barium | 155 | | 0.500 | mg/kg | EPA 6010B | EPA 3050B |
| Beryllium | 0.452 | | 0.250 | mg/kg | EPA 6010B | EPA 3050B |
| Chromium | 18.2 | | 0.250 | mg/kg | EPA 6010B | EPA 3050B |
| Cobalt | 9.71 | | 0.250 | mg/kg | EPA 6010B | EPA 3050B |
| Copper | 22.7 | B | 0.500 | mg/kg | EPA 6010B | EPA 3050B |
| Lead | 10.9 | | 0.500 | mg/kg | EPA 6010B | EPA 3050B |
| Molybdenum | 0.681 | | 0.250 | mg/kg | EPA 6010B | EPA 3050B |
| Nickel | 18.1 | | 0.250 | mg/kg | EPA 6010B | EPA 3050B |
| Vanadium | 38.6 | | 0.250 | mg/kg | EPA 6010B | EPA 3050B |
| Zinc | 62.3 | B | 1.00 | mg/kg | EPA 6010B | EPA 3050B |

Subcontracted analyses, if any, are not included in this summary.

Analytical Report

| | |
|--|--|
| Geosyntec Consultants 3043 Gold Canal Drive, Suite 201 Rancho Cordova, CA 95670-6394 | Date Received: 01/13/15 Work Order: 15-01-0618 Preparation: EPA 3550B Method: EPA 8015B (M) Units: mg/kg |
| Project: Blossom Plaza Utility Trench Sampling / WR1777-04 | Page 1 of 3 |

| Client Sample Number | Lab Sample Number | Date/Time Collected | Matrix | Instrument | Date Prepared | Date/Time Analyzed | QC Batch ID |
|----------------------|-----------------------|---------------------------|--------------|--------------|-----------------|---------------------------|-------------------|
| T1-NW | 15-01-0618-1-A | 01/13/15 00:30 | Solid | GC 47 | 01/13/15 | 01/13/15 13:05 | 150113B01A |

Comment(s): - The total concentration includes individual carbon range concentrations (estimated), if any, below the RL reported as ND.

| <u>Parameter</u> | <u>Result</u> | <u>RL</u> | <u>DF</u> | <u>Qualifiers</u> |
|------------------|-----------------|-----------------------|-------------------|-------------------|
| C6 | ND | 5.0 | 1.00 | |
| C7 | ND | 5.0 | 1.00 | |
| C8 | ND | 5.0 | 1.00 | |
| C9-C10 | ND | 5.0 | 1.00 | |
| C11-C12 | ND | 5.0 | 1.00 | |
| C13-C14 | ND | 5.0 | 1.00 | |
| C15-C16 | ND | 5.0 | 1.00 | |
| C17-C18 | ND | 5.0 | 1.00 | |
| C19-C20 | ND | 5.0 | 1.00 | |
| C21-C22 | ND | 5.0 | 1.00 | |
| C23-C24 | ND | 5.0 | 1.00 | |
| C25-C28 | ND | 5.0 | 1.00 | |
| C29-C32 | ND | 5.0 | 1.00 | |
| C33-C36 | ND | 5.0 | 1.00 | |
| C37-C40 | ND | 5.0 | 1.00 | |
| C41-C44 | ND | 5.0 | 1.00 | |
| C6-C44 Total | 8.2 | 5.0 | 1.00 | |
| | | | | |
| <u>Surrogate</u> | <u>Rec. (%)</u> | <u>Control Limits</u> | <u>Qualifiers</u> | |
| n-Octacosane | 91 | 61-145 | | |

RL: Reporting Limit. DF: Dilution Factor. MDL: Method Detection Limit.

Analytical Report

| | | |
|----------------------------------|----------------|---------------|
| Geosyntec Consultants | Date Received: | 01/13/15 |
| 3043 Gold Canal Drive, Suite 201 | Work Order: | 15-01-0618 |
| Rancho Cordova, CA 95670-6394 | Preparation: | EPA 3550B |
| | Method: | EPA 8015B (M) |
| | Units: | mg/kg |

Project: Blossom Plaza Utility Trench Sampling / WR1777-04 Page 2 of 3

| Client Sample Number | Lab Sample Number | Date/Time Collected | Matrix | Instrument | Date Prepared | Date/Time Analyzed | QC Batch ID |
|----------------------|-----------------------|---------------------------|--------------|--------------|-----------------|---------------------------|-------------------|
| T1-SE | 15-01-0618-2-A | 01/13/15 02:00 | Solid | GC 47 | 01/13/15 | 01/13/15 13:22 | 150113B01A |

| <u>Parameter</u> | <u>Result</u> | <u>RL</u> | <u>DF</u> | <u>Qualifiers</u> |
|----------------------|---------------------|---------------------------|-----------------------|-------------------|
| C6 | ND | 4.9 | 1.00 | |
| C7 | ND | 4.9 | 1.00 | |
| C8 | ND | 4.9 | 1.00 | |
| C9-C10 | ND | 4.9 | 1.00 | |
| C11-C12 | ND | 4.9 | 1.00 | |
| C13-C14 | ND | 4.9 | 1.00 | |
| C15-C16 | ND | 4.9 | 1.00 | |
| C17-C18 | ND | 4.9 | 1.00 | |
| C19-C20 | ND | 4.9 | 1.00 | |
| C21-C22 | ND | 4.9 | 1.00 | |
| C23-C24 | ND | 4.9 | 1.00 | |
| C25-C28 | ND | 4.9 | 1.00 | |
| C29-C32 | ND | 4.9 | 1.00 | |
| C33-C36 | ND | 4.9 | 1.00 | |
| C37-C40 | ND | 4.9 | 1.00 | |
| C41-C44 | ND | 4.9 | 1.00 | |
| C6-C44 Total | ND | 5.0 | 1.00 | |
| <u>Surrogate</u> | <u>Rec. (%)</u> | <u>Control Limits</u> | <u>Qualifiers</u> | |
| n-Octacosane | 98 | 61-145 | | |

RL: Reporting Limit. DF: Dilution Factor. MDL: Method Detection Limit.

Analytical Report

| | | |
|----------------------------------|----------------|---------------|
| Geosyntec Consultants | Date Received: | 01/13/15 |
| 3043 Gold Canal Drive, Suite 201 | Work Order: | 15-01-0618 |
| Rancho Cordova, CA 95670-6394 | Preparation: | EPA 3550B |
| | Method: | EPA 8015B (M) |
| | Units: | mg/kg |

Project: Blossom Plaza Utility Trench Sampling / WR1777-04 Page 3 of 3

| Client Sample Number | Lab Sample Number | Date/Time Collected | Matrix | Instrument | Date Prepared | Date/Time Analyzed | QC Batch ID |
|----------------------|------------------------|---------------------|--------------|-----------------------|-----------------|-----------------------|-------------------|
| Method Blank | 099-15-490-1355 | N/A | Solid | GC 47 | 01/13/15 | 01/13/15 11:51 | 150113B01A |
| <u>Parameter</u> | | <u>Result</u> | | <u>RL</u> | | <u>DF</u> | <u>Qualifiers</u> |
| C6 | | ND | | 5.0 | | 1.00 | |
| C7 | | ND | | 5.0 | | 1.00 | |
| C8 | | ND | | 5.0 | | 1.00 | |
| C9-C10 | | ND | | 5.0 | | 1.00 | |
| C11-C12 | | ND | | 5.0 | | 1.00 | |
| C13-C14 | | ND | | 5.0 | | 1.00 | |
| C15-C16 | | ND | | 5.0 | | 1.00 | |
| C17-C18 | | ND | | 5.0 | | 1.00 | |
| C19-C20 | | ND | | 5.0 | | 1.00 | |
| C21-C22 | | ND | | 5.0 | | 1.00 | |
| C23-C24 | | ND | | 5.0 | | 1.00 | |
| C25-C28 | | ND | | 5.0 | | 1.00 | |
| C29-C32 | | ND | | 5.0 | | 1.00 | |
| C33-C36 | | ND | | 5.0 | | 1.00 | |
| C37-C40 | | ND | | 5.0 | | 1.00 | |
| C41-C44 | | ND | | 5.0 | | 1.00 | |
| <u>Surrogate</u> | | <u>Rec. (%)</u> | | <u>Control Limits</u> | | <u>Qualifiers</u> | |
| n-Octacosane | | 96 | | 61-145 | | | |

RL: Reporting Limit. DF: Dilution Factor. MDL: Method Detection Limit.

Analytical Report

| | | |
|----------------------------------|----------------|------------|
| Geosyntec Consultants | Date Received: | 01/13/15 |
| 3043 Gold Canal Drive, Suite 201 | Work Order: | 15-01-0618 |
| Rancho Cordova, CA 95670-6394 | Preparation: | EPA 3050B |
| | Method: | EPA 6010B |
| | Units: | mg/kg |

Project: Blossom Plaza Utility Trench Sampling / WR1777-04 Page 1 of 2

| Client Sample Number | Lab Sample Number | Date/Time Collected | Matrix | Instrument | Date Prepared | Date/Time Analyzed | QC Batch ID |
|--------------------------------------|-----------------------|---------------------------|--------------|-----------------|-----------------|---------------------------|-------------------|
| Composite (T1-NW & T1-SE) | 15-01-0618-3-A | 01/13/15 00:30 | Solid | ICP 7300 | 01/13/15 | 01/13/15 18:11 | 150113L01 |
| <u>Parameter</u> | | <u>Result</u> | <u>RL</u> | | <u>DF</u> | | <u>Qualifiers</u> |
| Antimony | | ND | 0.750 | | 1.00 | | |
| Arsenic | | 3.60 | 0.750 | | 1.00 | | |
| Barium | | 155 | 0.500 | | 1.00 | | |
| Beryllium | | 0.452 | 0.250 | | 1.00 | | |
| Cadmium | | ND | 0.500 | | 1.00 | | |
| Chromium | | 18.2 | 0.250 | | 1.00 | | |
| Cobalt | | 9.71 | 0.250 | | 1.00 | | |
| Copper | | 22.7 | 0.500 | | 1.00 | | B |
| Lead | | 10.9 | 0.500 | | 1.00 | | |
| Molybdenum | | 0.681 | 0.250 | | 1.00 | | |
| Nickel | | 18.1 | 0.250 | | 1.00 | | |
| Selenium | | ND | 0.750 | | 1.00 | | |
| Silver | | ND | 0.250 | | 1.00 | | |
| Thallium | | ND | 0.750 | | 1.00 | | |
| Vanadium | | 38.6 | 0.250 | | 1.00 | | |
| Zinc | | 62.3 | 1.00 | | 1.00 | | B |

RL: Reporting Limit. DF: Dilution Factor. MDL: Method Detection Limit.

Analytical Report

Geosyntec Consultants
3043 Gold Canal Drive, Suite 201
Rancho Cordova, CA 95670-6394

Date Received: 01/13/15
Work Order: 15-01-0618
Preparation: EPA 3050B
Method: EPA 6010B
Units: mg/kg

Project: Blossom Plaza Utility Trench Sampling / WR1777-04

Page 2 of 2

| Client Sample Number | Lab Sample Number | Date/Time Collected | Matrix | Instrument | Date Prepared | Date/Time Analyzed | QC Batch ID |
|----------------------|-------------------------|---------------------|--------------|-----------------|-----------------|-----------------------|------------------|
| Method Blank | 097-01-002-20164 | N/A | Solid | ICP 7300 | 01/13/15 | 01/13/15 17:58 | 150113L01 |

| <u>Parameter</u> | <u>Result</u> | <u>RL</u> | <u>DF</u> | <u>Qualifiers</u> |
|------------------|---------------|-----------|-----------|-------------------|
| Antimony | ND | 0.750 | 1.00 | |
| Arsenic | ND | 0.750 | 1.00 | |
| Barium | ND | 0.500 | 1.00 | |
| Beryllium | ND | 0.250 | 1.00 | |
| Cadmium | ND | 0.500 | 1.00 | |
| Chromium | ND | 0.250 | 1.00 | |
| Cobalt | ND | 0.250 | 1.00 | |
| Copper | 0.711 | 0.500 | 1.00 | |
| Lead | ND | 0.500 | 1.00 | |
| Molybdenum | ND | 0.250 | 1.00 | |
| Nickel | ND | 0.250 | 1.00 | |
| Selenium | ND | 0.750 | 1.00 | |
| Silver | ND | 0.250 | 1.00 | |
| Thallium | ND | 0.750 | 1.00 | |
| Vanadium | ND | 0.250 | 1.00 | |
| Zinc | 1.09 | 1.00 | 1.00 | |

Return to Contents

RL: Reporting Limit. DF: Dilution Factor. MDL: Method Detection Limit.

Analytical Report

| | | |
|----------------------------------|----------------|-----------------|
| Geosyntec Consultants | Date Received: | 01/13/15 |
| 3043 Gold Canal Drive, Suite 201 | Work Order: | 15-01-0618 |
| Rancho Cordova, CA 95670-6394 | Preparation: | EPA 7471A Total |
| | Method: | EPA 7471A |
| | Units: | mg/kg |

Project: Blossom Plaza Utility Trench Sampling / WR1777-04 Page 1 of 1

| Client Sample Number | Lab Sample Number | Date/Time Collected | Matrix | Instrument | Date Prepared | Date/Time Analyzed | QC Batch ID |
|--------------------------------------|-----------------------|---------------------------|--------------|-------------------|-----------------|---------------------------|------------------|
| Composite (T1-NW & T1-SE) | 15-01-0618-3-A | 01/13/15 00:30 | Solid | Mercury 05 | 01/13/15 | 01/13/15 22:18 | 150113L07 |

| <u>Parameter</u> | <u>Result</u> | <u>RL</u> | <u>DF</u> | <u>Qualifiers</u> |
|------------------|---------------|-----------|-----------|-------------------|
| Mercury | ND | 0.0833 | 1.00 | |

| | | | | | | | |
|---------------------|-----------------------|------------|--------------|-------------------|-----------------|---------------------------|------------------|
| Method Blank | 099-16-272-877 | N/A | Solid | Mercury 05 | 01/13/15 | 01/13/15 21:21 | 150113L07 |
|---------------------|-----------------------|------------|--------------|-------------------|-----------------|---------------------------|------------------|

| <u>Parameter</u> | <u>Result</u> | <u>RL</u> | <u>DF</u> | <u>Qualifiers</u> |
|------------------|---------------|-----------|-----------|-------------------|
| Mercury | ND | 0.0833 | 1.00 | |

Analytical Report

| | | |
|----------------------------------|----------------|------------|
| Geosyntec Consultants | Date Received: | 01/13/15 |
| 3043 Gold Canal Drive, Suite 201 | Work Order: | 15-01-0618 |
| Rancho Cordova, CA 95670-6394 | Preparation: | EPA 3545 |
| | Method: | EPA 8270C |
| | Units: | mg/kg |

Project: Blossom Plaza Utility Trench Sampling / WR1777-04 Page 1 of 6

| Client Sample Number | Lab Sample Number | Date/Time Collected | Matrix | Instrument | Date Prepared | Date/Time Analyzed | QC Batch ID |
|--------------------------------------|-----------------------|---------------------------|--------------|-----------------|-----------------|---------------------------|------------------|
| Composite (T1-NW & T1-SE) | 15-01-0618-3-A | 01/13/15 00:30 | Solid | GC/MS TT | 01/13/15 | 01/14/15 13:26 | 150113L03 |

| <u>Parameter</u> | <u>Result</u> | <u>RL</u> | <u>DF</u> | <u>Qualifiers</u> |
|------------------------------|---------------|-----------|-----------|-------------------|
| Acenaphthene | ND | 0.50 | 1.00 | |
| Acenaphthylene | ND | 0.50 | 1.00 | |
| Aniline | ND | 0.50 | 1.00 | |
| Anthracene | ND | 0.50 | 1.00 | |
| Azobenzene | ND | 0.50 | 1.00 | |
| Benzidine | ND | 10 | 1.00 | |
| Benzo (a) Anthracene | ND | 0.50 | 1.00 | |
| Benzo (a) Pyrene | ND | 0.50 | 1.00 | |
| Benzo (b) Fluoranthene | ND | 0.50 | 1.00 | |
| Benzo (g,h,i) Perylene | ND | 0.50 | 1.00 | |
| Benzo (k) Fluoranthene | ND | 0.50 | 1.00 | |
| Benzoic Acid | ND | 2.5 | 1.00 | |
| Benzyl Alcohol | ND | 0.50 | 1.00 | |
| Bis(2-Chloroethoxy) Methane | ND | 0.50 | 1.00 | |
| Bis(2-Chloroethyl) Ether | ND | 2.5 | 1.00 | |
| Bis(2-Chloroisopropyl) Ether | ND | 0.50 | 1.00 | |
| Bis(2-Ethylhexyl) Phthalate | ND | 0.50 | 1.00 | |
| 4-Bromophenyl-Phenyl Ether | ND | 0.50 | 1.00 | |
| Butyl Benzyl Phthalate | ND | 0.50 | 1.00 | |
| 4-Chloro-3-Methylphenol | ND | 0.50 | 1.00 | |
| 4-Chloroaniline | ND | 0.50 | 1.00 | |
| 2-Chloronaphthalene | ND | 0.50 | 1.00 | |
| 2-Chlorophenol | ND | 0.50 | 1.00 | |
| 4-Chlorophenyl-Phenyl Ether | ND | 0.50 | 1.00 | |
| Chrysene | ND | 0.50 | 1.00 | |
| Di-n-Butyl Phthalate | ND | 0.50 | 1.00 | |
| Di-n-Octyl Phthalate | ND | 0.50 | 1.00 | |
| Dibenz (a,h) Anthracene | ND | 0.50 | 1.00 | |
| Dibenzofuran | ND | 0.50 | 1.00 | |
| 1,2-Dichlorobenzene | ND | 0.50 | 1.00 | |
| 1,3-Dichlorobenzene | ND | 0.50 | 1.00 | |
| 1,4-Dichlorobenzene | ND | 0.50 | 1.00 | |
| 3,3'-Dichlorobenzidine | ND | 10 | 1.00 | |
| 2,4-Dichlorophenol | ND | 0.50 | 1.00 | |
| Diethyl Phthalate | ND | 0.50 | 1.00 | |

RL: Reporting Limit. DF: Dilution Factor. MDL: Method Detection Limit.

Analytical Report

| | | |
|--|----------------|-------------|
| Geosyntec Consultants | Date Received: | 01/13/15 |
| 3043 Gold Canal Drive, Suite 201 | Work Order: | 15-01-0618 |
| Rancho Cordova, CA 95670-6394 | Preparation: | EPA 3545 |
| | Method: | EPA 8270C |
| | Units: | mg/kg |
| Project: Blossom Plaza Utility Trench Sampling / WR1777-04 | | Page 2 of 6 |

| <u>Parameter</u> | <u>Result</u> | <u>RL</u> | <u>DF</u> | <u>Qualifiers</u> |
|----------------------------|---------------|-----------|-----------|-------------------|
| Dimethyl Phthalate | ND | 0.50 | 1.00 | |
| 2,4-Dimethylphenol | ND | 0.50 | 1.00 | |
| 4,6-Dinitro-2-Methylphenol | ND | 2.5 | 1.00 | |
| 2,4-Dinitrophenol | ND | 2.5 | 1.00 | |
| 2,4-Dinitrotoluene | ND | 0.50 | 1.00 | |
| 2,6-Dinitrotoluene | ND | 0.50 | 1.00 | |
| Fluoranthene | ND | 0.50 | 1.00 | |
| Fluorene | ND | 0.50 | 1.00 | |
| Hexachloro-1,3-Butadiene | ND | 0.50 | 1.00 | |
| Hexachlorobenzene | ND | 0.50 | 1.00 | |
| Hexachlorocyclopentadiene | ND | 2.5 | 1.00 | |
| Hexachloroethane | ND | 0.50 | 1.00 | |
| Indeno (1,2,3-c,d) Pyrene | ND | 0.50 | 1.00 | |
| Isophorone | ND | 0.50 | 1.00 | |
| 2-Methylnaphthalene | ND | 0.50 | 1.00 | |
| 1-Methylnaphthalene | ND | 0.50 | 1.00 | |
| 2-Methylphenol | ND | 0.50 | 1.00 | |
| 3/4-Methylphenol | ND | 0.50 | 1.00 | |
| N-Nitroso-di-n-propylamine | ND | 0.50 | 1.00 | |
| N-Nitrosodimethylamine | ND | 0.50 | 1.00 | |
| N-Nitrosodiphenylamine | ND | 0.50 | 1.00 | |
| Naphthalene | ND | 0.50 | 1.00 | |
| 4-Nitroaniline | ND | 0.50 | 1.00 | |
| 3-Nitroaniline | ND | 0.50 | 1.00 | |
| 2-Nitroaniline | ND | 0.50 | 1.00 | |
| Nitrobenzene | ND | 2.5 | 1.00 | |
| 4-Nitrophenol | ND | 0.50 | 1.00 | |
| 2-Nitrophenol | ND | 0.50 | 1.00 | |
| Pentachlorophenol | ND | 2.5 | 1.00 | |
| Phenanthrene | ND | 0.50 | 1.00 | |
| Phenol | ND | 0.50 | 1.00 | |
| Pyrene | ND | 0.50 | 1.00 | |
| Pyridine | ND | 0.50 | 1.00 | |
| 1,2,4-Trichlorobenzene | ND | 0.50 | 1.00 | |
| 2,4,6-Trichlorophenol | ND | 0.50 | 1.00 | |
| 2,4,5-Trichlorophenol | ND | 0.50 | 1.00 | |

| <u>Surrogate</u> | <u>Rec. (%)</u> | <u>Control Limits</u> | <u>Qualifiers</u> |
|------------------|-----------------|-----------------------|-------------------|
| 2-Fluorobiphenyl | 71 | 27-120 | |

RL: Reporting Limit. DF: Dilution Factor. MDL: Method Detection Limit.

Analytical Report

| | | |
|--|----------------|-------------|
| Geosyntec Consultants | Date Received: | 01/13/15 |
| 3043 Gold Canal Drive, Suite 201 | Work Order: | 15-01-0618 |
| Rancho Cordova, CA 95670-6394 | Preparation: | EPA 3545 |
| | Method: | EPA 8270C |
| | Units: | mg/kg |
| Project: Blossom Plaza Utility Trench Sampling / WR1777-04 | | Page 3 of 6 |

| <u>Surrogate</u> | <u>Rec. (%)</u> | <u>Control Limits</u> | <u>Qualifiers</u> |
|----------------------|-----------------|-----------------------|-------------------|
| 2-Fluorophenol | 82 | 25-120 | |
| Nitrobenzene-d5 | 72 | 33-123 | |
| p-Terphenyl-d14 | 71 | 27-159 | |
| Phenol-d6 | 83 | 26-122 | |
| 2,4,6-Tribromophenol | 95 | 18-138 | |

Analytical Report

| | | |
|----------------------------------|----------------|------------|
| Geosyntec Consultants | Date Received: | 01/13/15 |
| 3043 Gold Canal Drive, Suite 201 | Work Order: | 15-01-0618 |
| Rancho Cordova, CA 95670-6394 | Preparation: | EPA 3545 |
| | Method: | EPA 8270C |
| | Units: | mg/kg |

Project: Blossom Plaza Utility Trench Sampling / WR1777-04 Page 4 of 6

| Client Sample Number | Lab Sample Number | Date/Time Collected | Matrix | Instrument | Date Prepared | Date/Time Analyzed | QC Batch ID |
|----------------------|------------------------|---------------------|--------------|-----------------|-----------------|---------------------------|------------------|
| Method Blank | 099-12-549-3164 | N/A | Solid | GC/MS TT | 01/13/15 | 01/14/15 12:49 | 150113L03 |

| Parameter | Result | RL | DF | Qualifiers |
|------------------------------|--------|------|------|------------|
| Acenaphthene | ND | 0.50 | 1.00 | |
| Acenaphthylene | ND | 0.50 | 1.00 | |
| Aniline | ND | 0.50 | 1.00 | |
| Anthracene | ND | 0.50 | 1.00 | |
| Azobenzene | ND | 0.50 | 1.00 | |
| Benzidine | ND | 10 | 1.00 | |
| Benzo (a) Anthracene | ND | 0.50 | 1.00 | |
| Benzo (a) Pyrene | ND | 0.50 | 1.00 | |
| Benzo (b) Fluoranthene | ND | 0.50 | 1.00 | |
| Benzo (g,h,i) Perylene | ND | 0.50 | 1.00 | |
| Benzo (k) Fluoranthene | ND | 0.50 | 1.00 | |
| Benzoic Acid | ND | 2.5 | 1.00 | |
| Benzyl Alcohol | ND | 0.50 | 1.00 | |
| Bis(2-Chloroethoxy) Methane | ND | 0.50 | 1.00 | |
| Bis(2-Chloroethyl) Ether | ND | 2.5 | 1.00 | |
| Bis(2-Chloroisopropyl) Ether | ND | 0.50 | 1.00 | |
| Bis(2-Ethylhexyl) Phthalate | ND | 0.50 | 1.00 | |
| 4-Bromophenyl-Phenyl Ether | ND | 0.50 | 1.00 | |
| Butyl Benzyl Phthalate | ND | 0.50 | 1.00 | |
| 4-Chloro-3-Methylphenol | ND | 0.50 | 1.00 | |
| 4-Chloroaniline | ND | 0.50 | 1.00 | |
| 2-Chloronaphthalene | ND | 0.50 | 1.00 | |
| 2-Chlorophenol | ND | 0.50 | 1.00 | |
| 4-Chlorophenyl-Phenyl Ether | ND | 0.50 | 1.00 | |
| Chrysene | ND | 0.50 | 1.00 | |
| Di-n-Butyl Phthalate | ND | 0.50 | 1.00 | |
| Di-n-Octyl Phthalate | ND | 0.50 | 1.00 | |
| Dibenz (a,h) Anthracene | ND | 0.50 | 1.00 | |
| Dibenzofuran | ND | 0.50 | 1.00 | |
| 1,2-Dichlorobenzene | ND | 0.50 | 1.00 | |
| 1,3-Dichlorobenzene | ND | 0.50 | 1.00 | |
| 1,4-Dichlorobenzene | ND | 0.50 | 1.00 | |
| 3,3'-Dichlorobenzidine | ND | 10 | 1.00 | |
| 2,4-Dichlorophenol | ND | 0.50 | 1.00 | |
| Diethyl Phthalate | ND | 0.50 | 1.00 | |

RL: Reporting Limit. DF: Dilution Factor. MDL: Method Detection Limit.

Analytical Report

| | | |
|--|----------------|-------------|
| Geosyntec Consultants | Date Received: | 01/13/15 |
| 3043 Gold Canal Drive, Suite 201 | Work Order: | 15-01-0618 |
| Rancho Cordova, CA 95670-6394 | Preparation: | EPA 3545 |
| | Method: | EPA 8270C |
| | Units: | mg/kg |
| Project: Blossom Plaza Utility Trench Sampling / WR1777-04 | | Page 5 of 6 |

| <u>Parameter</u> | <u>Result</u> | <u>RL</u> | <u>DF</u> | <u>Qualifiers</u> |
|----------------------------|---------------|-----------|-----------|-------------------|
| Dimethyl Phthalate | ND | 0.50 | 1.00 | |
| 2,4-Dimethylphenol | ND | 0.50 | 1.00 | |
| 4,6-Dinitro-2-Methylphenol | ND | 2.5 | 1.00 | |
| 2,4-Dinitrophenol | ND | 2.5 | 1.00 | |
| 2,4-Dinitrotoluene | ND | 0.50 | 1.00 | |
| 2,6-Dinitrotoluene | ND | 0.50 | 1.00 | |
| Fluoranthene | ND | 0.50 | 1.00 | |
| Fluorene | ND | 0.50 | 1.00 | |
| Hexachloro-1,3-Butadiene | ND | 0.50 | 1.00 | |
| Hexachlorobenzene | ND | 0.50 | 1.00 | |
| Hexachlorocyclopentadiene | ND | 2.5 | 1.00 | |
| Hexachloroethane | ND | 0.50 | 1.00 | |
| Indeno (1,2,3-c,d) Pyrene | ND | 0.50 | 1.00 | |
| Isophorone | ND | 0.50 | 1.00 | |
| 2-Methylnaphthalene | ND | 0.50 | 1.00 | |
| 1-Methylnaphthalene | ND | 0.50 | 1.00 | |
| 2-Methylphenol | ND | 0.50 | 1.00 | |
| 3/4-Methylphenol | ND | 0.50 | 1.00 | |
| N-Nitroso-di-n-propylamine | ND | 0.50 | 1.00 | |
| N-Nitrosodimethylamine | ND | 0.50 | 1.00 | |
| N-Nitrosodiphenylamine | ND | 0.50 | 1.00 | |
| Naphthalene | ND | 0.50 | 1.00 | |
| 4-Nitroaniline | ND | 0.50 | 1.00 | |
| 3-Nitroaniline | ND | 0.50 | 1.00 | |
| 2-Nitroaniline | ND | 0.50 | 1.00 | |
| Nitrobenzene | ND | 2.5 | 1.00 | |
| 4-Nitrophenol | ND | 0.50 | 1.00 | |
| 2-Nitrophenol | ND | 0.50 | 1.00 | |
| Pentachlorophenol | ND | 2.5 | 1.00 | |
| Phenanthrene | ND | 0.50 | 1.00 | |
| Phenol | ND | 0.50 | 1.00 | |
| Pyrene | ND | 0.50 | 1.00 | |
| Pyridine | ND | 0.50 | 1.00 | |
| 1,2,4-Trichlorobenzene | ND | 0.50 | 1.00 | |
| 2,4,6-Trichlorophenol | ND | 0.50 | 1.00 | |
| 2,4,5-Trichlorophenol | ND | 0.50 | 1.00 | |

| <u>Surrogate</u> | <u>Rec. (%)</u> | <u>Control Limits</u> | <u>Qualifiers</u> |
|------------------|-----------------|-----------------------|-------------------|
| 2-Fluorobiphenyl | 69 | 27-120 | |

RL: Reporting Limit. DF: Dilution Factor. MDL: Method Detection Limit.

Analytical Report

| | | |
|--|----------------|-------------|
| Geosyntec Consultants | Date Received: | 01/13/15 |
| 3043 Gold Canal Drive, Suite 201 | Work Order: | 15-01-0618 |
| Rancho Cordova, CA 95670-6394 | Preparation: | EPA 3545 |
| | Method: | EPA 8270C |
| | Units: | mg/kg |
| Project: Blossom Plaza Utility Trench Sampling / WR1777-04 | | Page 6 of 6 |

| <u>Surrogate</u> | <u>Rec. (%)</u> | <u>Control Limits</u> | <u>Qualifiers</u> |
|----------------------|-----------------|-----------------------|-------------------|
| 2-Fluorophenol | 73 | 25-120 | |
| Nitrobenzene-d5 | 66 | 33-123 | |
| p-Terphenyl-d14 | 68 | 27-159 | |
| Phenol-d6 | 72 | 26-122 | |
| 2,4,6-Tribromophenol | 83 | 18-138 | |

Analytical Report

Geosyntec Consultants
 3043 Gold Canal Drive, Suite 201
 Rancho Cordova, CA 95670-6394

Date Received: 01/13/15
 Work Order: 15-01-0618
 Preparation: EPA 5030C
 Method: EPA 8260B
 Units: ug/kg

Project: Blossom Plaza Utility Trench Sampling / WR1777-04

Page 1 of 6

| Client Sample Number | Lab Sample Number | Date/Time Collected | Matrix | Instrument | Date Prepared | Date/Time Analyzed | QC Batch ID |
|----------------------|-------------------|---------------------|--------|------------|---------------|--------------------|-------------|
| T1-NW | 15-01-0618-1-A | 01/13/15 00:30 | Solid | GC/MS RR | 01/13/15 | 01/13/15 15:12 | 150113L004 |

| Parameter | Result | RL | DF | Qualifiers |
|-----------------------------|--------|-----|------|------------|
| Acetone | ND | 130 | 1.00 | |
| Benzene | ND | 5.0 | 1.00 | |
| Bromobenzene | ND | 5.0 | 1.00 | |
| Bromochloromethane | ND | 5.0 | 1.00 | |
| Bromodichloromethane | ND | 5.0 | 1.00 | |
| Bromoform | ND | 5.0 | 1.00 | |
| Bromomethane | ND | 25 | 1.00 | |
| 2-Butanone | ND | 50 | 1.00 | |
| n-Butylbenzene | ND | 5.0 | 1.00 | |
| sec-Butylbenzene | ND | 5.0 | 1.00 | |
| tert-Butylbenzene | ND | 5.0 | 1.00 | |
| Carbon Disulfide | ND | 50 | 1.00 | |
| Carbon Tetrachloride | ND | 5.0 | 1.00 | |
| Chlorobenzene | ND | 5.0 | 1.00 | |
| Chloroethane | ND | 5.0 | 1.00 | |
| Chloroform | ND | 5.0 | 1.00 | |
| Chloromethane | ND | 25 | 1.00 | |
| 2-Chlorotoluene | ND | 5.0 | 1.00 | |
| 4-Chlorotoluene | ND | 5.0 | 1.00 | |
| Dibromochloromethane | ND | 5.0 | 1.00 | |
| 1,2-Dibromo-3-Chloropropane | ND | 10 | 1.00 | |
| 1,2-Dibromoethane | ND | 5.0 | 1.00 | |
| Dibromomethane | ND | 5.0 | 1.00 | |
| 1,2-Dichlorobenzene | ND | 5.0 | 1.00 | |
| 1,3-Dichlorobenzene | ND | 5.0 | 1.00 | |
| 1,4-Dichlorobenzene | ND | 5.0 | 1.00 | |
| Dichlorodifluoromethane | ND | 5.0 | 1.00 | |
| 1,1-Dichloroethane | ND | 5.0 | 1.00 | |
| 1,2-Dichloroethane | ND | 5.0 | 1.00 | |
| 1,1-Dichloroethene | ND | 5.0 | 1.00 | |
| c-1,2-Dichloroethene | ND | 5.0 | 1.00 | |
| t-1,2-Dichloroethene | ND | 5.0 | 1.00 | |
| 1,2-Dichloropropane | ND | 5.0 | 1.00 | |
| 1,3-Dichloropropane | ND | 5.0 | 1.00 | |
| 2,2-Dichloropropane | ND | 5.0 | 1.00 | |

RL: Reporting Limit. DF: Dilution Factor. MDL: Method Detection Limit.

Analytical Report

| | | |
|----------------------------------|----------------|------------|
| Geosyntec Consultants | Date Received: | 01/13/15 |
| 3043 Gold Canal Drive, Suite 201 | Work Order: | 15-01-0618 |
| Rancho Cordova, CA 95670-6394 | Preparation: | EPA 5030C |
| | Method: | EPA 8260B |
| | Units: | ug/kg |

Project: Blossom Plaza Utility Trench Sampling / WR1777-04 Page 2 of 6

| <u>Parameter</u> | <u>Result</u> | <u>RL</u> | <u>DF</u> | <u>Qualifiers</u> |
|---------------------------------------|---------------|-----------|-----------|-------------------|
| 1,1-Dichloropropene | ND | 5.0 | 1.00 | |
| c-1,3-Dichloropropene | ND | 5.0 | 1.00 | |
| t-1,3-Dichloropropene | ND | 5.0 | 1.00 | |
| Ethylbenzene | ND | 5.0 | 1.00 | |
| 2-Hexanone | ND | 50 | 1.00 | |
| Isopropylbenzene | ND | 5.0 | 1.00 | |
| p-Isopropyltoluene | ND | 5.0 | 1.00 | |
| Methylene Chloride | ND | 50 | 1.00 | |
| 4-Methyl-2-Pentanone | ND | 50 | 1.00 | |
| Naphthalene | ND | 50 | 1.00 | |
| n-Propylbenzene | ND | 5.0 | 1.00 | |
| Styrene | ND | 5.0 | 1.00 | |
| 1,1,1,2-Tetrachloroethane | ND | 5.0 | 1.00 | |
| 1,1,2,2-Tetrachloroethane | ND | 5.0 | 1.00 | |
| Tetrachloroethene | ND | 5.0 | 1.00 | |
| Toluene | ND | 5.0 | 1.00 | |
| 1,2,3-Trichlorobenzene | ND | 10 | 1.00 | |
| 1,2,4-Trichlorobenzene | ND | 5.0 | 1.00 | |
| 1,1,1-Trichloroethane | ND | 5.0 | 1.00 | |
| 1,1,2-Trichloroethane | ND | 5.0 | 1.00 | |
| 1,1,2-Trichloro-1,2,2-Trifluoroethane | ND | 50 | 1.00 | |
| Trichloroethene | ND | 5.0 | 1.00 | |
| 1,2,3-Trichloropropane | ND | 5.0 | 1.00 | |
| 1,2,4-Trimethylbenzene | ND | 5.0 | 1.00 | |
| Trichlorofluoromethane | ND | 50 | 1.00 | |
| 1,3,5-Trimethylbenzene | ND | 5.0 | 1.00 | |
| Vinyl Acetate | ND | 50 | 1.00 | |
| Vinyl Chloride | ND | 5.0 | 1.00 | |
| p/m-Xylene | ND | 5.0 | 1.00 | |
| o-Xylene | ND | 5.0 | 1.00 | |
| Methyl-t-Butyl Ether (MTBE) | ND | 5.0 | 1.00 | |

| <u>Surrogate</u> | <u>Rec. (%)</u> | <u>Control Limits</u> | <u>Qualifiers</u> |
|------------------------|-----------------|-----------------------|-------------------|
| 1,4-Bromofluorobenzene | 91 | 60-132 | |
| Dibromofluoromethane | 113 | 63-141 | |
| 1,2-Dichloroethane-d4 | 113 | 62-146 | |
| Toluene-d8 | 102 | 80-120 | |

RL: Reporting Limit. DF: Dilution Factor. MDL: Method Detection Limit.

Analytical Report

Geosyntec Consultants
 3043 Gold Canal Drive, Suite 201
 Rancho Cordova, CA 95670-6394

Date Received: 01/13/15
 Work Order: 15-01-0618
 Preparation: EPA 5030C
 Method: EPA 8260B
 Units: ug/kg

Project: Blossom Plaza Utility Trench Sampling / WR1777-04

Page 3 of 6

| Client Sample Number | Lab Sample Number | Date/Time Collected | Matrix | Instrument | Date Prepared | Date/Time Analyzed | QC Batch ID |
|----------------------|-------------------|---------------------|--------|------------|---------------|--------------------|-------------|
| T1-SE | 15-01-0618-2-A | 01/13/15 02:00 | Solid | GC/MS RR | 01/13/15 | 01/13/15 17:29 | 150113L004 |

| Parameter | Result | RL | DF | Qualifiers |
|-----------------------------|--------|-----|------|------------|
| Acetone | ND | 120 | 1.00 | |
| Benzene | ND | 4.9 | 1.00 | |
| Bromobenzene | ND | 4.9 | 1.00 | |
| Bromochloromethane | ND | 4.9 | 1.00 | |
| Bromodichloromethane | ND | 4.9 | 1.00 | |
| Bromoform | ND | 4.9 | 1.00 | |
| Bromomethane | ND | 25 | 1.00 | |
| 2-Butanone | ND | 49 | 1.00 | |
| n-Butylbenzene | ND | 4.9 | 1.00 | |
| sec-Butylbenzene | ND | 4.9 | 1.00 | |
| tert-Butylbenzene | ND | 4.9 | 1.00 | |
| Carbon Disulfide | ND | 49 | 1.00 | |
| Carbon Tetrachloride | ND | 4.9 | 1.00 | |
| Chlorobenzene | ND | 4.9 | 1.00 | |
| Chloroethane | ND | 4.9 | 1.00 | |
| Chloroform | ND | 4.9 | 1.00 | |
| Chloromethane | ND | 25 | 1.00 | |
| 2-Chlorotoluene | ND | 4.9 | 1.00 | |
| 4-Chlorotoluene | ND | 4.9 | 1.00 | |
| Dibromochloromethane | ND | 4.9 | 1.00 | |
| 1,2-Dibromo-3-Chloropropane | ND | 9.8 | 1.00 | |
| 1,2-Dibromoethane | ND | 4.9 | 1.00 | |
| Dibromomethane | ND | 4.9 | 1.00 | |
| 1,2-Dichlorobenzene | ND | 4.9 | 1.00 | |
| 1,3-Dichlorobenzene | ND | 4.9 | 1.00 | |
| 1,4-Dichlorobenzene | ND | 4.9 | 1.00 | |
| Dichlorodifluoromethane | ND | 4.9 | 1.00 | |
| 1,1-Dichloroethane | ND | 4.9 | 1.00 | |
| 1,2-Dichloroethane | ND | 4.9 | 1.00 | |
| 1,1-Dichloroethene | ND | 4.9 | 1.00 | |
| c-1,2-Dichloroethene | ND | 4.9 | 1.00 | |
| t-1,2-Dichloroethene | ND | 4.9 | 1.00 | |
| 1,2-Dichloropropane | ND | 4.9 | 1.00 | |
| 1,3-Dichloropropane | ND | 4.9 | 1.00 | |
| 2,2-Dichloropropane | ND | 4.9 | 1.00 | |

RL: Reporting Limit. DF: Dilution Factor. MDL: Method Detection Limit.

Analytical Report

| | | |
|----------------------------------|----------------|------------|
| Geosyntec Consultants | Date Received: | 01/13/15 |
| 3043 Gold Canal Drive, Suite 201 | Work Order: | 15-01-0618 |
| Rancho Cordova, CA 95670-6394 | Preparation: | EPA 5030C |
| | Method: | EPA 8260B |
| | Units: | ug/kg |

Project: Blossom Plaza Utility Trench Sampling / WR1777-04 Page 4 of 6

| <u>Parameter</u> | <u>Result</u> | <u>RL</u> | <u>DF</u> | <u>Qualifiers</u> |
|---------------------------------------|---------------|-----------|-----------|-------------------|
| 1,1-Dichloropropene | ND | 4.9 | 1.00 | |
| c-1,3-Dichloropropene | ND | 4.9 | 1.00 | |
| t-1,3-Dichloropropene | ND | 4.9 | 1.00 | |
| Ethylbenzene | ND | 4.9 | 1.00 | |
| 2-Hexanone | ND | 49 | 1.00 | |
| Isopropylbenzene | ND | 4.9 | 1.00 | |
| p-Isopropyltoluene | ND | 4.9 | 1.00 | |
| Methylene Chloride | ND | 49 | 1.00 | |
| 4-Methyl-2-Pentanone | ND | 49 | 1.00 | |
| Naphthalene | ND | 49 | 1.00 | |
| n-Propylbenzene | ND | 4.9 | 1.00 | |
| Styrene | ND | 4.9 | 1.00 | |
| 1,1,1,2-Tetrachloroethane | ND | 4.9 | 1.00 | |
| 1,1,2,2-Tetrachloroethane | ND | 4.9 | 1.00 | |
| Tetrachloroethene | ND | 4.9 | 1.00 | |
| Toluene | ND | 4.9 | 1.00 | |
| 1,2,3-Trichlorobenzene | ND | 9.8 | 1.00 | |
| 1,2,4-Trichlorobenzene | ND | 4.9 | 1.00 | |
| 1,1,1-Trichloroethane | ND | 4.9 | 1.00 | |
| 1,1,2-Trichloroethane | ND | 4.9 | 1.00 | |
| 1,1,2-Trichloro-1,2,2-Trifluoroethane | ND | 49 | 1.00 | |
| Trichloroethene | ND | 4.9 | 1.00 | |
| 1,2,3-Trichloropropane | ND | 4.9 | 1.00 | |
| 1,2,4-Trimethylbenzene | ND | 4.9 | 1.00 | |
| Trichlorofluoromethane | ND | 49 | 1.00 | |
| 1,3,5-Trimethylbenzene | ND | 4.9 | 1.00 | |
| Vinyl Acetate | ND | 49 | 1.00 | |
| Vinyl Chloride | ND | 4.9 | 1.00 | |
| p/m-Xylene | ND | 4.9 | 1.00 | |
| o-Xylene | ND | 4.9 | 1.00 | |
| Methyl-t-Butyl Ether (MTBE) | ND | 4.9 | 1.00 | |

| <u>Surrogate</u> | <u>Rec. (%)</u> | <u>Control Limits</u> | <u>Qualifiers</u> |
|------------------------|-----------------|-----------------------|-------------------|
| 1,4-Bromofluorobenzene | 94 | 60-132 | |
| Dibromofluoromethane | 107 | 63-141 | |
| 1,2-Dichloroethane-d4 | 106 | 62-146 | |
| Toluene-d8 | 101 | 80-120 | |

RL: Reporting Limit. DF: Dilution Factor. MDL: Method Detection Limit.

Analytical Report

| | | |
|----------------------------------|----------------|------------|
| Geosyntec Consultants | Date Received: | 01/13/15 |
| 3043 Gold Canal Drive, Suite 201 | Work Order: | 15-01-0618 |
| Rancho Cordova, CA 95670-6394 | Preparation: | EPA 5030C |
| | Method: | EPA 8260B |
| | Units: | ug/kg |

Project: Blossom Plaza Utility Trench Sampling / WR1777-04 Page 5 of 6

| Client Sample Number | Lab Sample Number | Date/Time Collected | Matrix | Instrument | Date Prepared | Date/Time Analyzed | QC Batch ID |
|----------------------|------------------------|---------------------|--------------|-----------------|-----------------|-----------------------|-------------------|
| Method Blank | 099-12-796-9269 | N/A | Solid | GC/MS RR | 01/13/15 | 01/13/15 14:17 | 150113L004 |

| <u>Parameter</u> | <u>Result</u> | <u>RL</u> | <u>DF</u> | <u>Qualifiers</u> |
|-----------------------------|---------------|-----------|-----------|-------------------|
| Acetone | ND | 120 | 1.00 | |
| Benzene | ND | 5.0 | 1.00 | |
| Bromobenzene | ND | 5.0 | 1.00 | |
| Bromochloromethane | ND | 5.0 | 1.00 | |
| Bromodichloromethane | ND | 5.0 | 1.00 | |
| Bromoform | ND | 5.0 | 1.00 | |
| Bromomethane | ND | 25 | 1.00 | |
| 2-Butanone | ND | 50 | 1.00 | |
| n-Butylbenzene | ND | 5.0 | 1.00 | |
| sec-Butylbenzene | ND | 5.0 | 1.00 | |
| tert-Butylbenzene | ND | 5.0 | 1.00 | |
| Carbon Disulfide | ND | 50 | 1.00 | |
| Carbon Tetrachloride | ND | 5.0 | 1.00 | |
| Chlorobenzene | ND | 5.0 | 1.00 | |
| Chloroethane | ND | 5.0 | 1.00 | |
| Chloroform | ND | 5.0 | 1.00 | |
| Chloromethane | ND | 25 | 1.00 | |
| 2-Chlorotoluene | ND | 5.0 | 1.00 | |
| 4-Chlorotoluene | ND | 5.0 | 1.00 | |
| Dibromochloromethane | ND | 5.0 | 1.00 | |
| 1,2-Dibromo-3-Chloropropane | ND | 10 | 1.00 | |
| 1,2-Dibromoethane | ND | 5.0 | 1.00 | |
| Dibromomethane | ND | 5.0 | 1.00 | |
| 1,2-Dichlorobenzene | ND | 5.0 | 1.00 | |
| 1,3-Dichlorobenzene | ND | 5.0 | 1.00 | |
| 1,4-Dichlorobenzene | ND | 5.0 | 1.00 | |
| Dichlorodifluoromethane | ND | 5.0 | 1.00 | |
| 1,1-Dichloroethane | ND | 5.0 | 1.00 | |
| 1,2-Dichloroethane | ND | 5.0 | 1.00 | |
| 1,1-Dichloroethene | ND | 5.0 | 1.00 | |
| c-1,2-Dichloroethene | ND | 5.0 | 1.00 | |
| t-1,2-Dichloroethene | ND | 5.0 | 1.00 | |
| 1,2-Dichloropropane | ND | 5.0 | 1.00 | |
| 1,3-Dichloropropane | ND | 5.0 | 1.00 | |
| 2,2-Dichloropropane | ND | 5.0 | 1.00 | |

RL: Reporting Limit. DF: Dilution Factor. MDL: Method Detection Limit.

Analytical Report

| | | |
|----------------------------------|----------------|------------|
| Geosyntec Consultants | Date Received: | 01/13/15 |
| 3043 Gold Canal Drive, Suite 201 | Work Order: | 15-01-0618 |
| Rancho Cordova, CA 95670-6394 | Preparation: | EPA 5030C |
| | Method: | EPA 8260B |
| | Units: | ug/kg |

Project: Blossom Plaza Utility Trench Sampling / WR1777-04 Page 6 of 6

| <u>Parameter</u> | <u>Result</u> | <u>RL</u> | <u>DF</u> | <u>Qualifiers</u> |
|---------------------------------------|---------------|-----------|-----------|-------------------|
| 1,1-Dichloropropene | ND | 5.0 | 1.00 | |
| c-1,3-Dichloropropene | ND | 5.0 | 1.00 | |
| t-1,3-Dichloropropene | ND | 5.0 | 1.00 | |
| Ethylbenzene | ND | 5.0 | 1.00 | |
| 2-Hexanone | ND | 50 | 1.00 | |
| Isopropylbenzene | ND | 5.0 | 1.00 | |
| p-Isopropyltoluene | ND | 5.0 | 1.00 | |
| Methylene Chloride | ND | 50 | 1.00 | |
| 4-Methyl-2-Pentanone | ND | 50 | 1.00 | |
| Naphthalene | ND | 50 | 1.00 | |
| n-Propylbenzene | ND | 5.0 | 1.00 | |
| Styrene | ND | 5.0 | 1.00 | |
| 1,1,1,2-Tetrachloroethane | ND | 5.0 | 1.00 | |
| 1,1,2,2-Tetrachloroethane | ND | 5.0 | 1.00 | |
| Tetrachloroethene | ND | 5.0 | 1.00 | |
| Toluene | ND | 5.0 | 1.00 | |
| 1,2,3-Trichlorobenzene | ND | 10 | 1.00 | |
| 1,2,4-Trichlorobenzene | ND | 5.0 | 1.00 | |
| 1,1,1-Trichloroethane | ND | 5.0 | 1.00 | |
| 1,1,2-Trichloroethane | ND | 5.0 | 1.00 | |
| 1,1,2-Trichloro-1,2,2-Trifluoroethane | ND | 50 | 1.00 | |
| Trichloroethene | ND | 5.0 | 1.00 | |
| 1,2,3-Trichloropropane | ND | 5.0 | 1.00 | |
| 1,2,4-Trimethylbenzene | ND | 5.0 | 1.00 | |
| Trichlorofluoromethane | ND | 50 | 1.00 | |
| 1,3,5-Trimethylbenzene | ND | 5.0 | 1.00 | |
| Vinyl Acetate | ND | 50 | 1.00 | |
| Vinyl Chloride | ND | 5.0 | 1.00 | |
| p/m-Xylene | ND | 5.0 | 1.00 | |
| o-Xylene | ND | 5.0 | 1.00 | |
| Methyl-t-Butyl Ether (MTBE) | ND | 5.0 | 1.00 | |

| <u>Surrogate</u> | <u>Rec. (%)</u> | <u>Control Limits</u> | <u>Qualifiers</u> |
|------------------------|-----------------|-----------------------|-------------------|
| 1,4-Bromofluorobenzene | 94 | 60-132 | |
| Dibromofluoromethane | 110 | 63-141 | |
| 1,2-Dichloroethane-d4 | 110 | 62-146 | |
| Toluene-d8 | 103 | 80-120 | |

RL: Reporting Limit. DF: Dilution Factor. MDL: Method Detection Limit.



Calscience

Quality Control - Spike/Spike Duplicate

| | | |
|--|----------------|---------------|
| Geosyntec Consultants | Date Received: | 01/13/15 |
| 3043 Gold Canal Drive, Suite 201 | Work Order: | 15-01-0618 |
| Rancho Cordova, CA 95670-6394 | Preparation: | EPA 3550B |
| | Method: | EPA 8015B (M) |
| Project: Blossom Plaza Utility Trench Sampling / WR1777-04 | | Page 1 of 5 |

| Quality Control Sample ID | Type | Matrix | Instrument | Date Prepared | Date Analyzed | MS/MSD Batch Number |
|---------------------------|------------------------|--------|------------|---------------|----------------|---------------------|
| 15-01-0532-1 | Sample | Solid | GC 47 | 01/13/15 | 01/13/15 13:40 | 150113S01 |
| 15-01-0532-1 | Matrix Spike | Solid | GC 47 | 01/13/15 | 01/13/15 12:28 | 150113S01 |
| 15-01-0532-1 | Matrix Spike Duplicate | Solid | GC 47 | 01/13/15 | 01/13/15 12:46 | 150113S01 |

| Parameter | Sample Conc. | Spike Added | MS Conc. | MS %Rec. | MSD Conc. | MSD %Rec. | %Rec. CL | RPD | RPD CL | Qualifiers |
|---------------|--------------|-------------|----------|----------|-----------|-----------|----------|-----|--------|------------|
| TPH as Diesel | ND | 400.0 | 311.8 | 78 | 314.9 | 79 | 64-130 | 1 | 0-15 | |

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RPD: Relative Percent Difference. CL: Control Limits



Calscience

Quality Control - Spike/Spike Duplicate

Geosyntec Consultants
3043 Gold Canal Drive, Suite 201
Rancho Cordova, CA 95670-6394

Date Received: 01/13/15
Work Order: 15-01-0618
Preparation: EPA 3050B
Method: EPA 6010B

Project: Blossom Plaza Utility Trench Sampling / WR1777-04

Page 2 of 5

| Quality Control Sample ID | Type | Matrix | Instrument | Date Prepared | Date Analyzed | MS/MSD Batch Number |
|---------------------------|------------------------|--------|------------|---------------|----------------|---------------------|
| 15-01-0606-2 | Sample | Solid | ICP 7300 | 01/13/15 | 01/13/15 18:01 | 150113S01 |
| 15-01-0606-2 | Matrix Spike | Solid | ICP 7300 | 01/13/15 | 01/13/15 18:02 | 150113S01 |
| 15-01-0606-2 | Matrix Spike Duplicate | Solid | ICP 7300 | 01/13/15 | 01/13/15 18:08 | 150113S01 |

| Parameter | Sample Conc. | Spike Added | MS Conc. | MS %Rec. | MSD Conc. | MSD %Rec. | %Rec. CL | RPD | RPD CL | Qualifiers |
|------------|--------------|-------------|----------|----------|-----------|-----------|----------|-----|--------|------------|
| Antimony | ND | 25.00 | 5.361 | 21 | 5.247 | 21 | 50-115 | 2 | 0-20 | 3 |
| Arsenic | 4.608 | 25.00 | 33.47 | 115 | 32.84 | 113 | 75-125 | 2 | 0-20 | |
| Barium | 158.1 | 25.00 | 200.9 | 4X | 201.4 | 4X | 75-125 | 4X | 0-20 | Q |
| Beryllium | 0.4347 | 25.00 | 28.24 | 111 | 27.72 | 109 | 75-125 | 2 | 0-20 | |
| Cadmium | ND | 25.00 | 25.85 | 103 | 25.99 | 104 | 75-125 | 1 | 0-20 | |
| Chromium | 19.56 | 25.00 | 50.14 | 122 | 49.81 | 121 | 75-125 | 1 | 0-20 | |
| Cobalt | 11.13 | 25.00 | 38.42 | 109 | 38.54 | 110 | 75-125 | 0 | 0-20 | |
| Copper | 16.88 | 25.00 | 47.20 | 121 | 46.47 | 118 | 75-125 | 2 | 0-20 | |
| Lead | 6.831 | 25.00 | 32.74 | 104 | 34.00 | 109 | 75-125 | 4 | 0-20 | |
| Molybdenum | ND | 25.00 | 23.37 | 93 | 22.93 | 92 | 75-125 | 2 | 0-20 | |
| Nickel | 11.86 | 25.00 | 39.35 | 110 | 39.55 | 111 | 75-125 | 0 | 0-20 | |
| Selenium | ND | 25.00 | 24.92 | 100 | 24.42 | 98 | 75-125 | 2 | 0-20 | |
| Silver | ND | 12.50 | 11.11 | 89 | 8.329 | 67 | 75-125 | 29 | 0-20 | 3,4 |
| Thallium | ND | 25.00 | 9.998 | 40 | 9.394 | 38 | 75-125 | 6 | 0-20 | 3 |
| Vanadium | 45.78 | 25.00 | 78.31 | 130 | 77.70 | 128 | 75-125 | 1 | 0-20 | 3 |
| Zinc | 57.78 | 25.00 | 89.00 | 125 | 91.20 | 134 | 75-125 | 2 | 0-20 | 3 |

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RPD: Relative Percent Difference. CL: Control Limits



Calscience

Quality Control - Spike/Spike Duplicate

| | | |
|--|----------------|-----------------|
| Geosyntec Consultants | Date Received: | 01/13/15 |
| 3043 Gold Canal Drive, Suite 201 | Work Order: | 15-01-0618 |
| Rancho Cordova, CA 95670-6394 | Preparation: | EPA 7471A Total |
| | Method: | EPA 7471A |
| Project: Blossom Plaza Utility Trench Sampling / WR1777-04 | | Page 3 of 5 |

| Quality Control Sample ID | Type | Matrix | Instrument | Date Prepared | Date Analyzed | MS/MSD Batch Number |
|---------------------------|------------------------|--------|------------|---------------|----------------|---------------------|
| 15-01-0289-26 | Sample | Solid | Mercury 05 | 01/13/15 | 01/13/15 21:25 | 150113S07 |
| 15-01-0289-26 | Matrix Spike | Solid | Mercury 05 | 01/13/15 | 01/13/15 21:27 | 150113S07 |
| 15-01-0289-26 | Matrix Spike Duplicate | Solid | Mercury 05 | 01/13/15 | 01/13/15 21:29 | 150113S07 |

| <u>Parameter</u> | <u>Sample Conc.</u> | <u>Spike Added</u> | <u>MS Conc.</u> | <u>MS %Rec.</u> | <u>MSD Conc.</u> | <u>MSD %Rec.</u> | <u>%Rec. CL</u> | <u>RPD</u> | <u>RPD CL</u> | <u>Qualifiers</u> |
|------------------|---------------------|--------------------|-----------------|-----------------|------------------|------------------|-----------------|------------|---------------|-------------------|
| Mercury | ND | 0.8350 | 0.8950 | 107 | 0.9036 | 108 | 71-137 | 1 | 0-14 | |

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RPD: Relative Percent Difference. CL: Control Limits



Calscience

Quality Control - Spike/Spike Duplicate

Geosyntec Consultants
3043 Gold Canal Drive, Suite 201
Rancho Cordova, CA 95670-6394

Date Received: 01/13/15
Work Order: 15-01-0618
Preparation: EPA 3545
Method: EPA 8270C

Project: Blossom Plaza Utility Trench Sampling / WR1777-04

Page 4 of 5

| Quality Control Sample ID | Type | Matrix | Instrument | Date Prepared | Date Analyzed | MS/MSD Batch Number |
|---------------------------|------------------------|--------|------------|---------------|----------------|---------------------|
| 15-01-0494-62 | Sample | Solid | GC/MS TT | 01/13/15 | 01/14/15 13:45 | 150113S03 |
| 15-01-0494-62 | Matrix Spike | Solid | GC/MS TT | 01/13/15 | 01/14/15 14:04 | 150113S03 |
| 15-01-0494-62 | Matrix Spike Duplicate | Solid | GC/MS TT | 01/13/15 | 01/14/15 14:22 | 150113S03 |

| Parameter | Sample Conc. | Spike Added | MS Conc. | MS %Rec. | MSD Conc. | MSD %Rec. | %Rec. CL | RPD | RPD CL | Qualifiers |
|----------------------------|--------------|-------------|----------|----------|-----------|-----------|----------|-----|--------|------------|
| Acenaphthene | ND | 10.00 | 9.858 | 99 | 9.588 | 96 | 34-148 | 3 | 0-20 | |
| Acenaphthylene | ND | 10.00 | 9.565 | 96 | 9.348 | 93 | 53-120 | 2 | 0-20 | |
| Butyl Benzyl Phthalate | ND | 10.00 | 9.574 | 96 | 9.332 | 93 | 15-189 | 3 | 0-20 | |
| 4-Chloro-3-Methylphenol | ND | 10.00 | 9.178 | 92 | 8.970 | 90 | 32-120 | 2 | 0-20 | |
| 2-Chlorophenol | ND | 10.00 | 9.311 | 93 | 9.055 | 91 | 53-120 | 3 | 0-20 | |
| 1,4-Dichlorobenzene | ND | 10.00 | 9.336 | 93 | 9.063 | 91 | 43-120 | 3 | 0-26 | |
| Dimethyl Phthalate | ND | 10.00 | 9.553 | 96 | 9.232 | 92 | 44-122 | 3 | 0-20 | |
| 2,4-Dinitrotoluene | ND | 10.00 | 9.521 | 95 | 9.418 | 94 | 28-120 | 1 | 0-20 | |
| Fluorene | ND | 10.00 | 10.17 | 102 | 9.910 | 99 | 12-186 | 3 | 0-20 | |
| N-Nitroso-di-n-propylamine | ND | 10.00 | 8.845 | 88 | 8.539 | 85 | 38-140 | 4 | 0-20 | |
| Naphthalene | ND | 10.00 | 9.510 | 95 | 9.345 | 93 | 20-140 | 2 | 0-20 | |
| 4-Nitrophenol | ND | 10.00 | 8.361 | 84 | 8.426 | 84 | 14-128 | 1 | 0-59 | |
| Pentachlorophenol | ND | 10.00 | 8.266 | 83 | 8.315 | 83 | 10-124 | 1 | 0-20 | |
| Phenol | ND | 10.00 | 8.843 | 88 | 8.585 | 86 | 22-124 | 3 | 0-20 | |
| Pyrene | ND | 10.00 | 9.231 | 92 | 8.831 | 88 | 31-169 | 4 | 0-20 | |
| 1,2,4-Trichlorobenzene | ND | 10.00 | 9.638 | 96 | 9.418 | 94 | 56-120 | 2 | 0-20 | |

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RPD: Relative Percent Difference. CL: Control Limits



Calscience

Quality Control - Spike/Spike Duplicate

Geosyntec Consultants
3043 Gold Canal Drive, Suite 201
Rancho Cordova, CA 95670-6394

Date Received: 01/13/15
Work Order: 15-01-0618
Preparation: EPA 5030C
Method: EPA 8260B

Project: Blossom Plaza Utility Trench Sampling / WR1777-04

Page 5 of 5

| Quality Control Sample ID | Type | Matrix | Instrument | Date Prepared | Date Analyzed | MS/MSD Batch Number |
|---------------------------|-------------------------------|--------------|-----------------|-----------------|-----------------------|---------------------|
| T1-NW | Sample | Solid | GC/MS RR | 01/13/15 | 01/13/15 15:12 | 150113S009 |
| T1-NW | Matrix Spike | Solid | GC/MS RR | 01/13/15 | 01/13/15 16:07 | 150113S009 |
| T1-NW | Matrix Spike Duplicate | Solid | GC/MS RR | 01/13/15 | 01/13/15 16:34 | 150113S009 |

| Parameter | Sample Conc. | Spike Added | MS Conc. | MS %Rec. | MSD Conc. | MSD %Rec. | %Rec. CL | RPD | RPD CL | Qualifiers |
|-----------------------------|--------------|-------------|----------|----------|-----------|-----------|----------|-----|--------|------------|
| Benzene | ND | 50.00 | 47.84 | 96 | 47.04 | 94 | 61-127 | 2 | 0-20 | |
| Carbon Tetrachloride | ND | 50.00 | 43.91 | 88 | 45.85 | 92 | 51-135 | 4 | 0-29 | |
| Chlorobenzene | ND | 50.00 | 43.64 | 87 | 43.08 | 86 | 57-123 | 1 | 0-20 | |
| 1,2-Dibromoethane | ND | 50.00 | 40.05 | 80 | 42.04 | 84 | 64-124 | 5 | 0-20 | |
| 1,2-Dichlorobenzene | ND | 50.00 | 41.12 | 82 | 41.37 | 83 | 35-131 | 1 | 0-25 | |
| 1,2-Dichloroethane | ND | 50.00 | 44.41 | 89 | 44.19 | 88 | 80-120 | 1 | 0-20 | |
| 1,1-Dichloroethene | ND | 50.00 | 40.81 | 82 | 41.84 | 84 | 47-143 | 2 | 0-25 | |
| Ethylbenzene | ND | 50.00 | 44.86 | 90 | 44.95 | 90 | 57-129 | 0 | 0-22 | |
| Toluene | ND | 50.00 | 46.94 | 94 | 46.06 | 92 | 63-123 | 2 | 0-20 | |
| Trichloroethene | ND | 50.00 | 43.49 | 87 | 43.40 | 87 | 44-158 | 0 | 0-20 | |
| Vinyl Chloride | ND | 50.00 | 45.99 | 92 | 47.23 | 94 | 49-139 | 3 | 0-47 | |
| p/m-Xylene | ND | 100.0 | 88.41 | 88 | 88.30 | 88 | 70-130 | 0 | 0-30 | |
| o-Xylene | ND | 50.00 | 45.01 | 90 | 44.75 | 90 | 70-130 | 1 | 0-30 | |
| Methyl-t-Butyl Ether (MTBE) | ND | 50.00 | 40.01 | 80 | 42.64 | 85 | 57-123 | 6 | 0-21 | |

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RPD: Relative Percent Difference. CL: Control Limits

Quality Control - LCS

| | | |
|--|----------------|---------------|
| Geosyntec Consultants | Date Received: | 01/13/15 |
| 3043 Gold Canal Drive, Suite 201 | Work Order: | 15-01-0618 |
| Rancho Cordova, CA 95670-6394 | Preparation: | EPA 3550B |
| | Method: | EPA 8015B (M) |
| Project: Blossom Plaza Utility Trench Sampling / WR1777-04 | | Page 1 of 5 |

| Quality Control Sample ID | Type | Matrix | Instrument | Date Prepared | Date Analyzed | LCS Batch Number |
|---------------------------|------------|--------------------|------------------------|------------------|-----------------------|-------------------|
| 099-15-490-1355 | LCS | Solid | GC 47 | 01/13/15 | 01/13/15 12:09 | 150113B01A |
| <u>Parameter</u> | | <u>Spike Added</u> | <u>Conc. Recovered</u> | <u>LCS %Rec.</u> | <u>%Rec. CL</u> | <u>Qualifiers</u> |
| TPH as Diesel | | 400.0 | 333.3 | 83 | 75-123 | |

Quality Control - LCS

Geosyntec Consultants
3043 Gold Canal Drive, Suite 201
Rancho Cordova, CA 95670-6394

Date Received: 01/13/15
Work Order: 15-01-0618
Preparation: EPA 3050B
Method: EPA 6010B

Project: Blossom Plaza Utility Trench Sampling / WR1777-04

Page 2 of 5

| Quality Control Sample ID | Type | Matrix | Instrument | Date Prepared | Date Analyzed | LCS Batch Number | |
|---------------------------|------------|--------------------|------------------------|------------------|-----------------------|------------------|-------------------|
| 097-01-002-20164 | LCS | Solid | ICP 7300 | 01/13/15 | 01/13/15 18:00 | 150113L01 | |
| <u>Parameter</u> | | <u>Spike Added</u> | <u>Conc. Recovered</u> | <u>LCS %Rec.</u> | <u>%Rec. CL</u> | <u>ME CL</u> | <u>Qualifiers</u> |
| Antimony | | 25.00 | 27.13 | 109 | 80-120 | 73-127 | |
| Arsenic | | 25.00 | 27.13 | 109 | 80-120 | 73-127 | |
| Barium | | 25.00 | 26.54 | 106 | 80-120 | 73-127 | |
| Beryllium | | 25.00 | 25.19 | 101 | 80-120 | 73-127 | |
| Cadmium | | 25.00 | 26.08 | 104 | 80-120 | 73-127 | |
| Chromium | | 25.00 | 27.74 | 111 | 80-120 | 73-127 | |
| Cobalt | | 25.00 | 28.02 | 112 | 80-120 | 73-127 | |
| Copper | | 25.00 | 26.83 | 107 | 80-120 | 73-127 | |
| Lead | | 25.00 | 27.24 | 109 | 80-120 | 73-127 | |
| Molybdenum | | 25.00 | 25.51 | 102 | 80-120 | 73-127 | |
| Nickel | | 25.00 | 27.83 | 111 | 80-120 | 73-127 | |
| Selenium | | 25.00 | 24.55 | 98 | 80-120 | 73-127 | |
| Silver | | 12.50 | 12.53 | 100 | 80-120 | 73-127 | |
| Thallium | | 25.00 | 25.25 | 101 | 80-120 | 73-127 | |
| Vanadium | | 25.00 | 26.19 | 105 | 80-120 | 73-127 | |
| Zinc | | 25.00 | 26.04 | 104 | 80-120 | 73-127 | |

Total number of LCS compounds: 16

Total number of ME compounds: 0

Total number of ME compounds allowed: 1

LCS ME CL validation result: Pass



Return to Contents

Quality Control - LCS

Geosyntec Consultants
3043 Gold Canal Drive, Suite 201
Rancho Cordova, CA 95670-6394

Date Received: 01/13/15
Work Order: 15-01-0618
Preparation: EPA 7471A Total
Method: EPA 7471A

Project: Blossom Plaza Utility Trench Sampling / WR1777-04

Page 3 of 5

| Quality Control Sample ID | Type | Matrix | Instrument | Date Prepared | Date Analyzed | LCS Batch Number |
|---------------------------|------------|--------------------|------------------------|------------------|-----------------------|-------------------|
| 099-16-272-877 | LCS | Solid | Mercury 05 | 01/13/15 | 01/13/15 21:23 | 150113L07 |
| <u>Parameter</u> | | <u>Spike Added</u> | <u>Conc. Recovered</u> | <u>LCS %Rec.</u> | <u>%Rec. CL</u> | <u>Qualifiers</u> |
| Mercury | | 0.8350 | 0.8931 | 107 | 85-121 | |

Quality Control - LCS

Geosyntec Consultants
3043 Gold Canal Drive, Suite 201
Rancho Cordova, CA 95670-6394

Date Received: 01/13/15
Work Order: 15-01-0618
Preparation: EPA 3545
Method: EPA 8270C

Project: Blossom Plaza Utility Trench Sampling / WR1777-04

Page 4 of 5

| Quality Control Sample ID | Type | Matrix | Instrument | Date Prepared | Date Analyzed | LCS Batch Number | |
|----------------------------|------------|--------------------|------------------------|------------------|-----------------------|------------------|-------------------|
| 099-12-549-3164 | LCS | Solid | GC/MS TT | 01/13/15 | 01/14/15 13:08 | 150113L03 | |
| <u>Parameter</u> | | <u>Spike Added</u> | <u>Conc. Recovered</u> | <u>LCS %Rec.</u> | <u>%Rec. CL</u> | <u>ME CL</u> | <u>Qualifiers</u> |
| Acenaphthene | | 10.00 | 6.614 | 66 | 51-123 | 39-135 | |
| Acenaphthylene | | 10.00 | 6.456 | 65 | 52-120 | 41-131 | |
| Butyl Benzyl Phthalate | | 10.00 | 6.604 | 66 | 43-139 | 27-155 | |
| 4-Chloro-3-Methylphenol | | 10.00 | 6.252 | 63 | 55-121 | 44-132 | |
| 2-Chlorophenol | | 10.00 | 5.725 | 57 | 58-124 | 47-135 | ME |
| 1,4-Dichlorobenzene | | 10.00 | 5.640 | 56 | 42-132 | 27-147 | |
| Dimethyl Phthalate | | 10.00 | 6.626 | 66 | 51-123 | 39-135 | |
| 2,4-Dinitrotoluene | | 10.00 | 6.691 | 67 | 51-129 | 38-142 | |
| Fluorene | | 10.00 | 6.909 | 69 | 54-126 | 42-138 | |
| N-Nitroso-di-n-propylamine | | 10.00 | 5.718 | 57 | 40-136 | 24-152 | |
| Naphthalene | | 10.00 | 6.093 | 61 | 32-146 | 13-165 | |
| 4-Nitrophenol | | 10.00 | 5.402 | 54 | 24-126 | 7-143 | |
| Pentachlorophenol | | 10.00 | 4.035 | 40 | 23-131 | 5-149 | |
| Phenol | | 10.00 | 5.637 | 56 | 40-130 | 25-145 | |
| Pyrene | | 10.00 | 6.333 | 63 | 47-143 | 31-159 | |
| 1,2,4-Trichlorobenzene | | 10.00 | 6.105 | 61 | 45-129 | 31-143 | |

Total number of LCS compounds: 16

Total number of ME compounds: 1

Total number of ME compounds allowed: 1

LCS ME CL validation result: Pass

Quality Control - LCS

Geosyntec Consultants
3043 Gold Canal Drive, Suite 201
Rancho Cordova, CA 95670-6394

Date Received: 01/13/15
Work Order: 15-01-0618
Preparation: EPA 5030C
Method: EPA 8260B

Project: Blossom Plaza Utility Trench Sampling / WR1777-04

Page 5 of 5

| Quality Control Sample ID | Type | Matrix | Instrument | Date Prepared | Date Analyzed | LCS Batch Number | |
|-----------------------------|------------|--------------------|------------------------|------------------|-----------------------|-------------------|-------------------|
| 099-12-796-9269 | LCS | Solid | GC/MS RR | 01/13/15 | 01/13/15 11:26 | 150113L004 | |
| <u>Parameter</u> | | <u>Spike Added</u> | <u>Conc. Recovered</u> | <u>LCS %Rec.</u> | <u>%Rec. CL</u> | <u>ME CL</u> | <u>Qualifiers</u> |
| Benzene | | 50.00 | 57.96 | 116 | 78-120 | 71-127 | |
| Carbon Tetrachloride | | 50.00 | 54.56 | 109 | 49-139 | 34-154 | |
| Chlorobenzene | | 50.00 | 54.71 | 109 | 79-120 | 72-127 | |
| 1,2-Dibromoethane | | 50.00 | 51.78 | 104 | 80-120 | 73-127 | |
| 1,2-Dichlorobenzene | | 50.00 | 50.77 | 102 | 75-120 | 68-128 | |
| 1,2-Dichloroethane | | 50.00 | 54.78 | 110 | 80-120 | 73-127 | |
| 1,1-Dichloroethene | | 50.00 | 49.90 | 100 | 74-122 | 66-130 | |
| Ethylbenzene | | 50.00 | 55.55 | 111 | 76-120 | 69-127 | |
| Toluene | | 50.00 | 56.03 | 112 | 77-120 | 70-127 | |
| Trichloroethene | | 50.00 | 52.24 | 104 | 80-120 | 73-127 | |
| Vinyl Chloride | | 50.00 | 53.33 | 107 | 68-122 | 59-131 | |
| p/m-Xylene | | 100.0 | 111.2 | 111 | 75-125 | 67-133 | |
| o-Xylene | | 50.00 | 55.68 | 111 | 75-125 | 67-133 | |
| Methyl-t-Butyl Ether (MTBE) | | 50.00 | 48.18 | 96 | 77-120 | 70-127 | |

Total number of LCS compounds: 14

Total number of ME compounds: 0

Total number of ME compounds allowed: 1

LCS ME CL validation result: Pass

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Sample Analysis Summary Report

Work Order: 15-01-0618

Page 1 of 1

| <u>Method</u> | <u>Extraction</u> | <u>Chemist ID</u> | <u>Instrument</u> | <u>Analytical Location</u> |
|---------------|-------------------|-------------------|-------------------|----------------------------|
| EPA 6010B | EPA 3050B | 771 | ICP 7300 | 1 |
| EPA 7471A | EPA 7471A Total | 915 | Mercury 05 | 1 |
| EPA 8015B (M) | EPA 3550B | 682 | GC 47 | 1 |
| EPA 8260B | EPA 5030C | 796 | GC/MS RR | 2 |
| EPA 8270C | EPA 3545 | 923 | GC/MS TT | 1 |


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Location 1: 7440 Lincoln Way, Garden Grove, CA 92841

Location 2: 7445 Lampson Avenue, Garden Grove, CA 92841

Glossary of Terms and Qualifiers

Work Order: 15-01-0618

Page 1 of 1

| <u>Qualifiers</u> | <u>Definition</u> |
|-------------------|--|
| * | See applicable analysis comment. |
| < | Less than the indicated value. |
| > | Greater than the indicated value. |
| 1 | Surrogate compound recovery was out of control due to a required sample dilution. Therefore, the sample data was reported without further clarification. |
| 2 | Surrogate compound recovery was out of control due to matrix interference. The associated method blank surrogate spike compound was in control and, therefore, the sample data was reported without further clarification. |
| 3 | Recovery of the Matrix Spike (MS) or Matrix Spike Duplicate (MSD) compound was out of control due to suspected matrix interference. The associated LCS recovery was in control. |
| 4 | The MS/MSD RPD was out of control due to suspected matrix interference. |
| 5 | The PDS/PDSD or PES/PESD associated with this batch of samples was out of control due to suspected matrix interference. |
| 6 | Surrogate recovery below the acceptance limit. |
| 7 | Surrogate recovery above the acceptance limit. |
| B | Analyte was present in the associated method blank. |
| BU | Sample analyzed after holding time expired. |
| BV | Sample received after holding time expired. |
| E | Concentration exceeds the calibration range. |
| ET | Sample was extracted past end of recommended max. holding time. |
| HD | The chromatographic pattern was inconsistent with the profile of the reference fuel standard. |
| HDH | The sample chromatographic pattern for TPH matches the chromatographic pattern of the specified standard but heavier hydrocarbons were also present (or detected). |
| HDL | The sample chromatographic pattern for TPH matches the chromatographic pattern of the specified standard but lighter hydrocarbons were also present (or detected). |
| J | Analyte was detected at a concentration below the reporting limit and above the laboratory method detection limit. Reported value is estimated. |
| JA | Analyte positively identified but quantitation is an estimate. |
| ME | LCS Recovery Percentage is within Marginal Exceedance (ME) Control Limit range (+/- 4 SD from the mean). |
| ND | Parameter not detected at the indicated reporting limit. |
| Q | Spike recovery and RPD control limits do not apply resulting from the parameter concentration in the sample exceeding the spike concentration by a factor of four or greater. |
| SG | The sample extract was subjected to Silica Gel treatment prior to analysis. |
| X | % Recovery and/or RPD out-of-range. |
| Z | Analyte presence was not confirmed by second column or GC/MS analysis. |

Any parameter identified in 40CFR Part 136.3 Table II that is designated as "analyze immediately" with a holding time of ≤ 15 minutes (40CFR-136.3 Table II, footnote 4), is considered a "field" test and the reported results will be qualified as being received outside of the stated holding time unless received at the laboratory within 15 minutes of the collection time.

A calculated total result (Example: Total Pesticides) is the summation of each component concentration and/or, if "J" flags are reported, estimated concentration. Component concentrations showing not detected (ND) are summed into the calculated total result as zero concentrations.

Calscience

WORK ORDER #: 15-01- 0 6 1 8

SAMPLE RECEIPT FORM

Cooler 1 of 1

CLIENT: GEOSYNTEC

DATE: 01/13/15

TEMPERATURE: Thermometer ID: SC4 (Criteria: 0.0°C – 6.0°C, not frozen except sediment/tissue)

Temperature 2.7 °C + 0.2°C (CF) = 2.9 °C Blank Sample

- Sample(s) outside temperature criteria (PM/APM contacted by: _____)
- Sample(s) outside temperature criteria but received on ice/chilled on same day of sampling.

Received at ambient temperature, placed on ice for transport by Courier.

Ambient Temperature: Air Filter Checked by: 426

CUSTODY SEALS INTACT:

Cooler _____ No (Not Intact) Not Present N/A Checked by: 426
 Sample _____ No (Not Intact) Not Present Checked by: 426

SAMPLE CONDITION:

| | Yes | No | N/A |
|---|-------------------------------------|--------------------------|-------------------------------------|
| Chain-Of-Custody (COC) document(s) received with samples..... | <input checked="" type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| COC document(s) received complete..... | <input checked="" type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| <input type="checkbox"/> Collection date/time, matrix, and/or # of containers logged in based on sample labels. <input type="checkbox"/> No analysis requested. <input type="checkbox"/> Not relinquished. <input type="checkbox"/> No date/time relinquished. | | | |
| Sampler's name indicated on COC..... | <input checked="" type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| Sample container label(s) consistent with COC..... | <input checked="" type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| Sample container(s) intact and good condition..... | <input checked="" type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| Proper containers and sufficient volume for analyses requested..... | <input checked="" type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| Analyses received within holding time..... | <input checked="" type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| Aqueous samples received within 15-minute holding time | | | |
| <input type="checkbox"/> pH <input type="checkbox"/> Residual Chlorine <input type="checkbox"/> Dissolved Sulfides <input type="checkbox"/> Dissolved Oxygen..... | <input type="checkbox"/> | <input type="checkbox"/> | <input checked="" type="checkbox"/> |
| Proper preservation noted on COC or sample container..... | <input type="checkbox"/> | <input type="checkbox"/> | <input checked="" type="checkbox"/> |
| <input type="checkbox"/> Unpreserved vials received for Volatiles analysis | | | |
| Volatile analysis container(s) free of headspace..... | <input type="checkbox"/> | <input type="checkbox"/> | <input checked="" type="checkbox"/> |
| Tedlar bag(s) free of condensation..... | <input type="checkbox"/> | <input type="checkbox"/> | <input checked="" type="checkbox"/> |

CONTAINER TYPE:

Solid: 4ozCGJ 8ozCGJ 16ozCGJ Sleeve (____) EnCores® TerraCores® _____

Aqueous: VOA VOA_h VOAn₂ 125AGB 125AGB_h 125AGB_p 1AGB 1AGBn₂ 1AGB_s
 500AGB 500AGJ 500AGJ_s 250AGB 250CGB 250CGB_s 1PB 1PBna 500PB
 250PB 250PBn 125PB 125PBz_{na} 100PJ 100PJn₂ _____ _____ _____

Air: Tedlar® Canister **Other:** _____ **Trip Blank Lot#:** _____ **Labeled/Checked by:** 426

Container: C: Clear A: Amber P: Plastic G: Glass J: Jar B: Bottle Z: Ziploc/Resealable Bag E: Envelope **Reviewed by:** 826

Preservative: h: HCL n: HNO₃ na₂: Na₂S₂O₃ na: NaOH p: H₃PO₄ s: H₂SO₄ u: Ultra-pure z_{na}: ZnAc₂+NaOH f: Filtered **Scanned by:** 826

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WORK ORDER NUMBER: 15-01-0737

The difference is service



AIR | SOIL | WATER | MARINE CHEMISTRY

Analytical Report For

Client: Geosyntec Consultants

Client Project Name: Blossom Plaza Utility Trench Sampling / WR1777-04

Attention: Wendy Key
3043 Gold Canal Drive
Suite 201
Rancho Cordova, CA 95670-6394

Approved for release on 01/19/2015 by:
Stephen Nowak
Project Manager

ResultLink ▶

Email your PM ▶



Eurofins Calscience, Inc. (Calscience) certifies that the test results provided in this report meet all NELAC requirements for parameters for which accreditation is required or available. Any exceptions to NELAC requirements are noted in the case narrative. The original report of subcontracted analyses, if any, is attached to this report. The results in this report are limited to the sample(s) tested and any reproduction thereof must be made in its entirety. The client or recipient of this report is specifically prohibited from making material changes to said report and, to the extent that such changes are made, Calscience is not responsible, legally or otherwise. The client or recipient agrees to indemnify Calscience for any defense to any litigation which may arise.

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Client Project Name: Blossom Plaza Utility Trench Sampling / WR1777-04
 Work Order Number: 15-01-0737

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Condition Upon Receipt:

Samples were received under Chain-of-Custody (COC) on 01/14/15. They were assigned to Work Order 15-01-0737.

Unless otherwise noted on the Sample Receiving forms all samples were received in good condition and within the recommended EPA temperature criteria for the methods noted on the COC. The COC and Sample Receiving Documents are integral elements of the analytical report and are presented at the back of the report.

Holding Times:

All samples were analyzed within prescribed holding times (HT) and/or in accordance with the Calscience Sample Acceptance Policy unless otherwise noted in the analytical report and/or comprehensive case narrative, if required.

Any parameter identified in 40CFR Part 136.3 Table II that is designated as "analyze immediately" with a holding time of ≤ 15 minutes (40CFR-136.3 Table II, footnote 4), is considered a "field" test and the reported results will be qualified as being received outside of the stated holding time unless received at the laboratory within 15 minutes of the collection time.

Quality Control:

All quality control parameters (QC) were within established control limits except where noted in the QC summary forms or described further within this report.

Additional Comments:

Air - Sorbent-extracted air methods (EPA TO-4A, EPA TO-10, EPA TO-13A, EPA TO-17): Analytical results are converted from mass/sample basis to mass/volume basis using client-supplied air volumes.

New York NELAP air certification does not certify for all reported methods and analytes, reference the accredited items here: http://www.calscience.com/PDF/New_York.pdf

Solid - Unless otherwise indicated, solid sample data is reported on a wet weight basis, not corrected for % moisture. All QC results are always reported on a wet weight basis.

All samples for EPA 8015B(M) Carbon Chain analysis were Silica Gel Treated.

Subcontractor Information:

Unless otherwise noted below (or on the subcontract form), no samples were subcontracted.

Sample Summary

| | |
|---|--|
| Client: Geosyntec Consultants 3043 Gold Canal Drive, Suite 201 Rancho Cordova, CA 95670-6394 | Work Order: 15-01-0737 Project Name: Blossom Plaza Utility Trench Sampling / WR1777-04 PO Number: Date/Time Received: 01/14/15 14:10 Number of Containers: 5 |
|---|--|

Attn: Wendy Key

| Sample Identification | Lab Number | Collection Date and Time | Number of Containers | Matrix |
|--|--------------|--------------------------|----------------------|--------|
| T2-S-1 | 15-01-0737-1 | 01/14/15 01:00 | 1 | Solid |
| T2-S-2 | 15-01-0737-2 | 01/14/15 01:15 | 1 | Solid |
| T2-N-1 | 15-01-0737-3 | 01/14/15 01:45 | 1 | Solid |
| T2-N-2 | 15-01-0737-4 | 01/14/15 02:00 | 1 | Solid |
| Composite (T2-S-1, T2-S-2, T2-N-1, T2-N-2) | 15-01-0737-5 | 01/14/15 00:00 | 1 | Solid |

Analytical Report

Geosyntec Consultants
3043 Gold Canal Drive, Suite 201
Rancho Cordova, CA 95670-6394

Date Received: 01/14/15
Work Order: 15-01-0737
Preparation: EPA 3550B
Method: EPA 8015B (M)
Units: mg/kg

Project: Blossom Plaza Utility Trench Sampling / WR1777-04

Page 1 of 5

| Client Sample Number | Lab Sample Number | Date/Time Collected | Matrix | Instrument | Date Prepared | Date/Time Analyzed | QC Batch ID |
|----------------------|-------------------|---------------------|--------|------------|---------------|--------------------|-------------|
| T2-S-1 | 15-01-0737-1-A | 01/14/15 01:00 | Solid | GC 48 | 01/15/15 | 01/15/15 16:12 | 150115B02 |

| Parameter | Result | RL | DF | Qualifiers |
|--------------|----------|----------------|------------|------------|
| C6 | ND | 5.1 | 1.00 | |
| C7 | ND | 5.1 | 1.00 | |
| C8 | ND | 5.1 | 1.00 | |
| C9-C10 | ND | 5.1 | 1.00 | |
| C11-C12 | ND | 5.1 | 1.00 | |
| C13-C14 | ND | 5.1 | 1.00 | |
| C15-C16 | ND | 5.1 | 1.00 | |
| C17-C18 | ND | 5.1 | 1.00 | |
| C19-C20 | ND | 5.1 | 1.00 | |
| C21-C22 | ND | 5.1 | 1.00 | |
| C23-C24 | ND | 5.1 | 1.00 | |
| C25-C28 | ND | 5.1 | 1.00 | |
| C29-C32 | ND | 5.1 | 1.00 | |
| C33-C36 | ND | 5.1 | 1.00 | |
| C37-C40 | ND | 5.1 | 1.00 | |
| C41-C44 | ND | 5.1 | 1.00 | |
| C6-C44 Total | ND | 5.0 | 1.00 | |
| Surrogate | Rec. (%) | Control Limits | Qualifiers | |
| n-Octacosane | 84 | 61-145 | | |

Return to Contents

RL: Reporting Limit. DF: Dilution Factor. MDL: Method Detection Limit.

Analytical Report

Geosyntec Consultants
 3043 Gold Canal Drive, Suite 201
 Rancho Cordova, CA 95670-6394

Date Received: 01/14/15
 Work Order: 15-01-0737
 Preparation: EPA 3550B
 Method: EPA 8015B (M)
 Units: mg/kg

Project: Blossom Plaza Utility Trench Sampling / WR1777-04

Page 2 of 5

| Client Sample Number | Lab Sample Number | Date/Time Collected | Matrix | Instrument | Date Prepared | Date/Time Analyzed | QC Batch ID |
|----------------------|-------------------|---------------------|--------|------------|---------------|--------------------|-------------|
| T2-S-2 | 15-01-0737-2-A | 01/14/15 01:15 | Solid | GC 48 | 01/15/15 | 01/15/15 16:29 | 150115B02 |

Comment(s): - The total concentration includes individual carbon range concentrations (estimated), if any, below the RL reported as ND.

| <u>Parameter</u> | <u>Result</u> | <u>RL</u> | <u>DF</u> | <u>Qualifiers</u> |
|------------------|-----------------|-----------------------|-------------------|-------------------|
| C6 | ND | 5.0 | 1.00 | |
| C7 | ND | 5.0 | 1.00 | |
| C8 | ND | 5.0 | 1.00 | |
| C9-C10 | ND | 5.0 | 1.00 | |
| C11-C12 | ND | 5.0 | 1.00 | |
| C13-C14 | ND | 5.0 | 1.00 | |
| C15-C16 | ND | 5.0 | 1.00 | |
| C17-C18 | ND | 5.0 | 1.00 | |
| C19-C20 | 5.6 | 5.0 | 1.00 | |
| C21-C22 | 6.3 | 5.0 | 1.00 | |
| C23-C24 | 10 | 5.0 | 1.00 | |
| C25-C28 | 11 | 5.0 | 1.00 | |
| C29-C32 | 38 | 5.0 | 1.00 | |
| C33-C36 | 25 | 5.0 | 1.00 | |
| C37-C40 | 28 | 5.0 | 1.00 | |
| C41-C44 | 16 | 5.0 | 1.00 | |
| C6-C44 Total | 140 | 5.0 | 1.00 | |
| <u>Surrogate</u> | <u>Rec. (%)</u> | <u>Control Limits</u> | <u>Qualifiers</u> | |
| n-Octacosane | 92 | 61-145 | | |

Analytical Report

Geosyntec Consultants
 3043 Gold Canal Drive, Suite 201
 Rancho Cordova, CA 95670-6394

Date Received: 01/14/15
 Work Order: 15-01-0737
 Preparation: EPA 3550B
 Method: EPA 8015B (M)
 Units: mg/kg

Project: Blossom Plaza Utility Trench Sampling / WR1777-04

Page 3 of 5

| Client Sample Number | Lab Sample Number | Date/Time Collected | Matrix | Instrument | Date Prepared | Date/Time Analyzed | QC Batch ID |
|----------------------|-------------------|---------------------|--------|------------|---------------|--------------------|-------------|
| T2-N-1 | 15-01-0737-3-A | 01/14/15 01:45 | Solid | GC 48 | 01/15/15 | 01/15/15 16:44 | 150115B02 |

Comment(s): - The total concentration includes individual carbon range concentrations (estimated), if any, below the RL reported as ND.

| <u>Parameter</u> | <u>Result</u> | <u>RL</u> | <u>DF</u> | <u>Qualifiers</u> |
|------------------|-----------------|-----------------------|-------------------|-------------------|
| C6 | ND | 5.1 | 1.00 | |
| C7 | ND | 5.1 | 1.00 | |
| C8 | ND | 5.1 | 1.00 | |
| C9-C10 | ND | 5.1 | 1.00 | |
| C11-C12 | ND | 5.1 | 1.00 | |
| C13-C14 | ND | 5.1 | 1.00 | |
| C15-C16 | ND | 5.1 | 1.00 | |
| C17-C18 | ND | 5.1 | 1.00 | |
| C19-C20 | ND | 5.1 | 1.00 | |
| C21-C22 | ND | 5.1 | 1.00 | |
| C23-C24 | ND | 5.1 | 1.00 | |
| C25-C28 | 5.2 | 5.1 | 1.00 | |
| C29-C32 | 31 | 5.1 | 1.00 | |
| C33-C36 | 32 | 5.1 | 1.00 | |
| C37-C40 | 33 | 5.1 | 1.00 | |
| C41-C44 | 30 | 5.1 | 1.00 | |
| C6-C44 Total | 130 | 5.0 | 1.00 | |
| <u>Surrogate</u> | <u>Rec. (%)</u> | <u>Control Limits</u> | <u>Qualifiers</u> | |
| n-Octacosane | 95 | 61-145 | | |

Return to Contents

RL: Reporting Limit. DF: Dilution Factor. MDL: Method Detection Limit.

Analytical Report

Geosyntec Consultants
 3043 Gold Canal Drive, Suite 201
 Rancho Cordova, CA 95670-6394

Date Received: 01/14/15
 Work Order: 15-01-0737
 Preparation: EPA 3550B
 Method: EPA 8015B (M)
 Units: mg/kg

Project: Blossom Plaza Utility Trench Sampling / WR1777-04

Page 4 of 5

| Client Sample Number | Lab Sample Number | Date/Time Collected | Matrix | Instrument | Date Prepared | Date/Time Analyzed | QC Batch ID |
|----------------------|-------------------|---------------------|--------|------------|---------------|--------------------|-------------|
| T2-N-2 | 15-01-0737-4-A | 01/14/15 02:00 | Solid | GC 48 | 01/15/15 | 01/15/15 17:01 | 150115B02 |

Comment(s): - The total concentration includes individual carbon range concentrations (estimated), if any, below the RL reported as ND.

| <u>Parameter</u> | <u>Result</u> | <u>RL</u> | <u>DF</u> | <u>Qualifiers</u> |
|------------------|-----------------|-----------------------|-------------------|-------------------|
| C6 | ND | 4.9 | 1.00 | |
| C7 | ND | 4.9 | 1.00 | |
| C8 | ND | 4.9 | 1.00 | |
| C9-C10 | ND | 4.9 | 1.00 | |
| C11-C12 | ND | 4.9 | 1.00 | |
| C13-C14 | ND | 4.9 | 1.00 | |
| C15-C16 | ND | 4.9 | 1.00 | |
| C17-C18 | ND | 4.9 | 1.00 | |
| C19-C20 | ND | 4.9 | 1.00 | |
| C21-C22 | ND | 4.9 | 1.00 | |
| C23-C24 | ND | 4.9 | 1.00 | |
| C25-C28 | ND | 4.9 | 1.00 | |
| C29-C32 | 31 | 4.9 | 1.00 | |
| C33-C36 | 37 | 4.9 | 1.00 | |
| C37-C40 | 55 | 4.9 | 1.00 | |
| C41-C44 | 45 | 4.9 | 1.00 | |
| C6-C44 Total | 170 | 5.0 | 1.00 | |
| <u>Surrogate</u> | <u>Rec. (%)</u> | <u>Control Limits</u> | <u>Qualifiers</u> | |
| n-Octacosane | 101 | 61-145 | | |

Analytical Report

Geosyntec Consultants
3043 Gold Canal Drive, Suite 201
Rancho Cordova, CA 95670-6394

Date Received: 01/14/15
Work Order: 15-01-0737
Preparation: EPA 3550B
Method: EPA 8015B (M)
Units: mg/kg

Project: Blossom Plaza Utility Trench Sampling / WR1777-04

Page 5 of 5

| Client Sample Number | Lab Sample Number | Date/Time Collected | Matrix | Instrument | Date Prepared | Date/Time Analyzed | QC Batch ID |
|----------------------|------------------------|---------------------|--------------|--------------|-----------------|---------------------------|------------------|
| Method Blank | 099-15-490-1362 | N/A | Solid | GC 48 | 01/15/15 | 01/15/15 15:08 | 150115B02 |

| <u>Parameter</u> | <u>Result</u> | <u>RL</u> | <u>DF</u> | <u>Qualifiers</u> |
|------------------|---------------|-----------|-----------|-------------------|
| C6 | ND | 5.0 | 1.00 | |
| C7 | ND | 5.0 | 1.00 | |
| C8 | ND | 5.0 | 1.00 | |
| C9-C10 | ND | 5.0 | 1.00 | |
| C11-C12 | ND | 5.0 | 1.00 | |
| C13-C14 | ND | 5.0 | 1.00 | |
| C15-C16 | ND | 5.0 | 1.00 | |
| C17-C18 | ND | 5.0 | 1.00 | |
| C19-C20 | ND | 5.0 | 1.00 | |
| C21-C22 | ND | 5.0 | 1.00 | |
| C23-C24 | ND | 5.0 | 1.00 | |
| C25-C28 | ND | 5.0 | 1.00 | |
| C29-C32 | ND | 5.0 | 1.00 | |
| C33-C36 | ND | 5.0 | 1.00 | |
| C37-C40 | ND | 5.0 | 1.00 | |
| C41-C44 | ND | 5.0 | 1.00 | |

| <u>Surrogate</u> | <u>Rec. (%)</u> | <u>Control Limits</u> | <u>Qualifiers</u> |
|------------------|-----------------|-----------------------|-------------------|
| n-Octacosane | 72 | 61-145 | |

Return to Contents

RL: Reporting Limit. DF: Dilution Factor. MDL: Method Detection Limit.

Analytical Report

| | | |
|----------------------------------|----------------|------------|
| Geosyntec Consultants | Date Received: | 01/14/15 |
| 3043 Gold Canal Drive, Suite 201 | Work Order: | 15-01-0737 |
| Rancho Cordova, CA 95670-6394 | Preparation: | EPA 3050B |
| | Method: | EPA 6010B |
| | Units: | mg/kg |

Project: Blossom Plaza Utility Trench Sampling / WR1777-04 Page 1 of 2

| Client Sample Number | Lab Sample Number | Date/Time Collected | Matrix | Instrument | Date Prepared | Date/Time Analyzed | QC Batch ID |
|---|-----------------------|---------------------------|--------------|-----------------|-----------------|---------------------------|-------------------|
| Composite (T2-S-1, T2-S-2, T2-N-1, T2-N-2) | 15-01-0737-5-A | 01/14/15 00:00 | Solid | ICP 7300 | 01/15/15 | 01/17/15 16:07 | 150115L02A |
| <u>Parameter</u> | | <u>Result</u> | <u>RL</u> | | <u>DF</u> | | <u>Qualifiers</u> |
| Antimony | | ND | 0.732 | | 0.976 | | |
| Arsenic | | 2.85 | 0.732 | | 0.976 | | |
| Barium | | 140 | 0.488 | | 0.976 | | |
| Beryllium | | 0.405 | 0.244 | | 0.976 | | |
| Cadmium | | ND | 0.488 | | 0.976 | | |
| Chromium | | 12.6 | 0.244 | | 0.976 | | |
| Cobalt | | 8.71 | 0.244 | | 0.976 | | |
| Copper | | 17.5 | 0.488 | | 0.976 | | |
| Lead | | 10.5 | 0.488 | | 0.976 | | |
| Molybdenum | | ND | 0.244 | | 0.976 | | |
| Nickel | | 15.8 | 0.244 | | 0.976 | | |
| Selenium | | ND | 0.732 | | 0.976 | | |
| Silver | | ND | 0.244 | | 0.976 | | |
| Thallium | | ND | 0.732 | | 0.976 | | |
| Vanadium | | 28.0 | 0.244 | | 0.976 | | |
| Zinc | | 48.8 | 0.976 | | 0.976 | | |

RL: Reporting Limit. DF: Dilution Factor. MDL: Method Detection Limit.

Analytical Report

| | | |
|----------------------------------|----------------|------------|
| Geosyntec Consultants | Date Received: | 01/14/15 |
| 3043 Gold Canal Drive, Suite 201 | Work Order: | 15-01-0737 |
| Rancho Cordova, CA 95670-6394 | Preparation: | EPA 3050B |
| | Method: | EPA 6010B |
| | Units: | mg/kg |

Project: Blossom Plaza Utility Trench Sampling / WR1777-04 Page 2 of 2

| Client Sample Number | Lab Sample Number | Date/Time Collected | Matrix | Instrument | Date Prepared | Date/Time Analyzed | QC Batch ID |
|----------------------|-------------------------|---------------------|--------------|-----------------|-----------------|---------------------------|-------------------|
| Method Blank | 097-01-002-20172 | N/A | Solid | ICP 7300 | 01/15/15 | 01/16/15 16:53 | 150115L02A |
| <u>Parameter</u> | | <u>Result</u> | | <u>RL</u> | <u>DF</u> | | <u>Qualifiers</u> |
| Antimony | | ND | | 0.750 | 1.00 | | |
| Arsenic | | ND | | 0.750 | 1.00 | | |
| Barium | | ND | | 0.500 | 1.00 | | |
| Beryllium | | ND | | 0.250 | 1.00 | | |
| Cadmium | | ND | | 0.500 | 1.00 | | |
| Chromium | | ND | | 0.250 | 1.00 | | |
| Cobalt | | ND | | 0.250 | 1.00 | | |
| Copper | | ND | | 0.500 | 1.00 | | |
| Lead | | ND | | 0.500 | 1.00 | | |
| Molybdenum | | ND | | 0.250 | 1.00 | | |
| Nickel | | ND | | 0.250 | 1.00 | | |
| Selenium | | ND | | 0.750 | 1.00 | | |
| Silver | | ND | | 0.250 | 1.00 | | |
| Thallium | | ND | | 0.750 | 1.00 | | |
| Vanadium | | ND | | 0.250 | 1.00 | | |
| Zinc | | ND | | 1.00 | 1.00 | | |

RL: Reporting Limit. DF: Dilution Factor. MDL: Method Detection Limit.

Analytical Report

| | | |
|--|----------------|-----------------|
| Geosyntec Consultants | Date Received: | 01/14/15 |
| 3043 Gold Canal Drive, Suite 201 | Work Order: | 15-01-0737 |
| Rancho Cordova, CA 95670-6394 | Preparation: | EPA 7471A Total |
| | Method: | EPA 7471A |
| | Units: | mg/kg |
| Project: Blossom Plaza Utility Trench Sampling / WR1777-04 | | Page 1 of 1 |

| Client Sample Number | Lab Sample Number | Date/Time Collected | Matrix | Instrument | Date Prepared | Date/Time Analyzed | QC Batch ID |
|---|-----------------------|---------------------------|--------------|-------------------|-----------------|---------------------------|-------------------|
| Composite (T2-S-1, T2-S-2, T2-N-1, T2-N-2) | 15-01-0737-5-A | 01/14/15 00:00 | Solid | Mercury 05 | 01/15/15 | 01/15/15 15:16 | 150115L01 |
| <u>Parameter</u> | | <u>Result</u> | | <u>RL</u> | | <u>DF</u> | <u>Qualifiers</u> |
| Mercury | | ND | | 0.0820 | | 1.00 | |
| Method Blank | 099-16-272-883 | N/A | Solid | Mercury 05 | 01/15/15 | 01/15/15 14:43 | 150115L01 |
| <u>Parameter</u> | | <u>Result</u> | | <u>RL</u> | | <u>DF</u> | <u>Qualifiers</u> |
| Mercury | | ND | | 0.0833 | | 1.00 | |

Analytical Report

| | | |
|----------------------------------|----------------|------------|
| Geosyntec Consultants | Date Received: | 01/14/15 |
| 3043 Gold Canal Drive, Suite 201 | Work Order: | 15-01-0737 |
| Rancho Cordova, CA 95670-6394 | Preparation: | EPA 3545 |
| | Method: | EPA 8270C |
| | Units: | mg/kg |

Project: Blossom Plaza Utility Trench Sampling / WR1777-04 Page 1 of 6

| Client Sample Number | Lab Sample Number | Date/Time Collected | Matrix | Instrument | Date Prepared | Date/Time Analyzed | QC Batch ID |
|---|-----------------------|-----------------------|--------------|-----------------|-----------------|-----------------------|------------------|
| Composite (T2-S-1, T2-S-2, T2-N-1, T2-N-2) | 15-01-0737-5-A | 01/14/15 00:00 | Solid | GC/MS TT | 01/14/15 | 01/15/15 16:57 | 150114L09 |

| <u>Parameter</u> | <u>Result</u> | <u>RL</u> | <u>DF</u> | <u>Qualifiers</u> |
|------------------------------|---------------|-----------|-----------|-------------------|
| Acenaphthene | ND | 0.50 | 1.00 | |
| Acenaphthylene | ND | 0.50 | 1.00 | |
| Aniline | ND | 0.50 | 1.00 | |
| Anthracene | ND | 0.50 | 1.00 | |
| Azobenzene | ND | 0.50 | 1.00 | |
| Benzidine | ND | 10 | 1.00 | |
| Benzo (a) Anthracene | ND | 0.50 | 1.00 | |
| Benzo (a) Pyrene | ND | 0.50 | 1.00 | |
| Benzo (b) Fluoranthene | ND | 0.50 | 1.00 | |
| Benzo (g,h,i) Perylene | ND | 0.50 | 1.00 | |
| Benzo (k) Fluoranthene | ND | 0.50 | 1.00 | |
| Benzoic Acid | ND | 2.5 | 1.00 | |
| Benzyl Alcohol | ND | 0.50 | 1.00 | |
| Bis(2-Chloroethoxy) Methane | ND | 0.50 | 1.00 | |
| Bis(2-Chloroethyl) Ether | ND | 2.5 | 1.00 | |
| Bis(2-Chloroisopropyl) Ether | ND | 0.50 | 1.00 | |
| Bis(2-Ethylhexyl) Phthalate | ND | 0.50 | 1.00 | |
| 4-Bromophenyl-Phenyl Ether | ND | 0.50 | 1.00 | |
| Butyl Benzyl Phthalate | ND | 0.50 | 1.00 | |
| 4-Chloro-3-Methylphenol | ND | 0.50 | 1.00 | |
| 4-Chloroaniline | ND | 0.50 | 1.00 | |
| 2-Chloronaphthalene | ND | 0.50 | 1.00 | |
| 2-Chlorophenol | ND | 0.50 | 1.00 | |
| 4-Chlorophenyl-Phenyl Ether | ND | 0.50 | 1.00 | |
| Chrysene | ND | 0.50 | 1.00 | |
| Di-n-Butyl Phthalate | ND | 0.50 | 1.00 | |
| Di-n-Octyl Phthalate | ND | 0.50 | 1.00 | |
| Dibenz (a,h) Anthracene | ND | 0.50 | 1.00 | |
| Dibenzofuran | ND | 0.50 | 1.00 | |
| 1,2-Dichlorobenzene | ND | 0.50 | 1.00 | |
| 1,3-Dichlorobenzene | ND | 0.50 | 1.00 | |
| 1,4-Dichlorobenzene | ND | 0.50 | 1.00 | |
| 3,3'-Dichlorobenzidine | ND | 10 | 1.00 | |
| 2,4-Dichlorophenol | ND | 0.50 | 1.00 | |
| Diethyl Phthalate | ND | 0.50 | 1.00 | |

RL: Reporting Limit. DF: Dilution Factor. MDL: Method Detection Limit.

Analytical Report

Geosyntec Consultants
3043 Gold Canal Drive, Suite 201
Rancho Cordova, CA 95670-6394

Date Received: 01/14/15
Work Order: 15-01-0737
Preparation: EPA 3545
Method: EPA 8270C
Units: mg/kg

Project: Blossom Plaza Utility Trench Sampling / WR1777-04

Page 2 of 6

| <u>Parameter</u> | <u>Result</u> | <u>RL</u> | <u>DF</u> | <u>Qualifiers</u> |
|----------------------------|---------------|-----------|-----------|-------------------|
| Dimethyl Phthalate | ND | 0.50 | 1.00 | |
| 2,4-Dimethylphenol | ND | 0.50 | 1.00 | |
| 4,6-Dinitro-2-Methylphenol | ND | 2.5 | 1.00 | |
| 2,4-Dinitrophenol | ND | 2.5 | 1.00 | |
| 2,4-Dinitrotoluene | ND | 0.50 | 1.00 | |
| 2,6-Dinitrotoluene | ND | 0.50 | 1.00 | |
| Fluoranthene | ND | 0.50 | 1.00 | |
| Fluorene | ND | 0.50 | 1.00 | |
| Hexachloro-1,3-Butadiene | ND | 0.50 | 1.00 | |
| Hexachlorobenzene | ND | 0.50 | 1.00 | |
| Hexachlorocyclopentadiene | ND | 2.5 | 1.00 | |
| Hexachloroethane | ND | 0.50 | 1.00 | |
| Indeno (1,2,3-c,d) Pyrene | ND | 0.50 | 1.00 | |
| Isophorone | ND | 0.50 | 1.00 | |
| 2-Methylnaphthalene | ND | 0.50 | 1.00 | |
| 1-Methylnaphthalene | ND | 0.50 | 1.00 | |
| 2-Methylphenol | ND | 0.50 | 1.00 | |
| 3/4-Methylphenol | ND | 0.50 | 1.00 | |
| N-Nitroso-di-n-propylamine | ND | 0.50 | 1.00 | |
| N-Nitrosodimethylamine | ND | 0.50 | 1.00 | |
| N-Nitrosodiphenylamine | ND | 0.50 | 1.00 | |
| Naphthalene | ND | 0.50 | 1.00 | |
| 4-Nitroaniline | ND | 0.50 | 1.00 | |
| 3-Nitroaniline | ND | 0.50 | 1.00 | |
| 2-Nitroaniline | ND | 0.50 | 1.00 | |
| Nitrobenzene | ND | 2.5 | 1.00 | |
| 4-Nitrophenol | ND | 0.50 | 1.00 | |
| 2-Nitrophenol | ND | 0.50 | 1.00 | |
| Pentachlorophenol | ND | 2.5 | 1.00 | |
| Phenanthrene | ND | 0.50 | 1.00 | |
| Phenol | ND | 0.50 | 1.00 | |
| Pyrene | ND | 0.50 | 1.00 | |
| Pyridine | ND | 0.50 | 1.00 | |
| 1,2,4-Trichlorobenzene | ND | 0.50 | 1.00 | |
| 2,4,6-Trichlorophenol | ND | 0.50 | 1.00 | |
| 2,4,5-Trichlorophenol | ND | 0.50 | 1.00 | |

| <u>Surrogate</u> | <u>Rec. (%)</u> | <u>Control Limits</u> | <u>Qualifiers</u> |
|------------------|-----------------|-----------------------|-------------------|
| 2-Fluorobiphenyl | 53 | 27-120 | |

RL: Reporting Limit. DF: Dilution Factor. MDL: Method Detection Limit.

Analytical Report

Geosyntec Consultants
 3043 Gold Canal Drive, Suite 201
 Rancho Cordova, CA 95670-6394

Date Received: 01/14/15
 Work Order: 15-01-0737
 Preparation: EPA 3545
 Method: EPA 8270C
 Units: mg/kg

Project: Blossom Plaza Utility Trench Sampling / WR1777-04

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| <u>Surrogate</u> | <u>Rec. (%)</u> | <u>Control Limits</u> | <u>Qualifiers</u> |
|----------------------|-----------------|-----------------------|-------------------|
| 2-Fluorophenol | 79 | 25-120 | |
| Nitrobenzene-d5 | 66 | 33-123 | |
| p-Terphenyl-d14 | 73 | 27-159 | |
| Phenol-d6 | 79 | 26-122 | |
| 2,4,6-Tribromophenol | 91 | 18-138 | |

Analytical Report

| | | |
|----------------------------------|----------------|------------|
| Geosyntec Consultants | Date Received: | 01/14/15 |
| 3043 Gold Canal Drive, Suite 201 | Work Order: | 15-01-0737 |
| Rancho Cordova, CA 95670-6394 | Preparation: | EPA 3545 |
| | Method: | EPA 8270C |
| | Units: | mg/kg |

Project: Blossom Plaza Utility Trench Sampling / WR1777-04 Page 4 of 6

| Client Sample Number | Lab Sample Number | Date/Time Collected | Matrix | Instrument | Date Prepared | Date/Time Analyzed | QC Batch ID |
|----------------------|------------------------|---------------------|--------------|-----------------|-----------------|-----------------------|------------------|
| Method Blank | 099-12-549-3169 | N/A | Solid | GC/MS SS | 01/14/15 | 01/14/15 22:32 | 150114L09 |

| <u>Parameter</u> | <u>Result</u> | <u>RL</u> | <u>DF</u> | <u>Qualifiers</u> |
|------------------------------|---------------|-----------|-----------|-------------------|
| Acenaphthene | ND | 0.50 | 1.00 | |
| Acenaphthylene | ND | 0.50 | 1.00 | |
| Aniline | ND | 0.50 | 1.00 | |
| Anthracene | ND | 0.50 | 1.00 | |
| Azobenzene | ND | 0.50 | 1.00 | |
| Benzidine | ND | 10 | 1.00 | |
| Benzo (a) Anthracene | ND | 0.50 | 1.00 | |
| Benzo (a) Pyrene | ND | 0.50 | 1.00 | |
| Benzo (b) Fluoranthene | ND | 0.50 | 1.00 | |
| Benzo (g,h,i) Perylene | ND | 0.50 | 1.00 | |
| Benzo (k) Fluoranthene | ND | 0.50 | 1.00 | |
| Benzoic Acid | ND | 2.5 | 1.00 | |
| Benzyl Alcohol | ND | 0.50 | 1.00 | |
| Bis(2-Chloroethoxy) Methane | ND | 0.50 | 1.00 | |
| Bis(2-Chloroethyl) Ether | ND | 2.5 | 1.00 | |
| Bis(2-Chloroisopropyl) Ether | ND | 0.50 | 1.00 | |
| Bis(2-Ethylhexyl) Phthalate | ND | 0.50 | 1.00 | |
| 4-Bromophenyl-Phenyl Ether | ND | 0.50 | 1.00 | |
| Butyl Benzyl Phthalate | ND | 0.50 | 1.00 | |
| 4-Chloro-3-Methylphenol | ND | 0.50 | 1.00 | |
| 4-Chloroaniline | ND | 0.50 | 1.00 | |
| 2-Chloronaphthalene | ND | 0.50 | 1.00 | |
| 2-Chlorophenol | ND | 0.50 | 1.00 | |
| 4-Chlorophenyl-Phenyl Ether | ND | 0.50 | 1.00 | |
| Chrysene | ND | 0.50 | 1.00 | |
| Di-n-Butyl Phthalate | ND | 0.50 | 1.00 | |
| Di-n-Octyl Phthalate | ND | 0.50 | 1.00 | |
| Dibenz (a,h) Anthracene | ND | 0.50 | 1.00 | |
| Dibenzofuran | ND | 0.50 | 1.00 | |
| 1,2-Dichlorobenzene | ND | 0.50 | 1.00 | |
| 1,3-Dichlorobenzene | ND | 0.50 | 1.00 | |
| 1,4-Dichlorobenzene | ND | 0.50 | 1.00 | |
| 3,3'-Dichlorobenzidine | ND | 10 | 1.00 | |
| 2,4-Dichlorophenol | ND | 0.50 | 1.00 | |
| Diethyl Phthalate | ND | 0.50 | 1.00 | |

RL: Reporting Limit. DF: Dilution Factor. MDL: Method Detection Limit.

Analytical Report

Geosyntec Consultants
3043 Gold Canal Drive, Suite 201
Rancho Cordova, CA 95670-6394

Date Received: 01/14/15
Work Order: 15-01-0737
Preparation: EPA 3545
Method: EPA 8270C
Units: mg/kg

Project: Blossom Plaza Utility Trench Sampling / WR1777-04

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| <u>Parameter</u> | <u>Result</u> | <u>RL</u> | <u>DF</u> | <u>Qualifiers</u> |
|----------------------------|-----------------|-----------------------|-------------------|-------------------|
| Dimethyl Phthalate | ND | 0.50 | 1.00 | |
| 2,4-Dimethylphenol | ND | 0.50 | 1.00 | |
| 4,6-Dinitro-2-Methylphenol | ND | 2.5 | 1.00 | |
| 2,4-Dinitrophenol | ND | 2.5 | 1.00 | |
| 2,4-Dinitrotoluene | ND | 0.50 | 1.00 | |
| 2,6-Dinitrotoluene | ND | 0.50 | 1.00 | |
| Fluoranthene | ND | 0.50 | 1.00 | |
| Fluorene | ND | 0.50 | 1.00 | |
| Hexachloro-1,3-Butadiene | ND | 0.50 | 1.00 | |
| Hexachlorobenzene | ND | 0.50 | 1.00 | |
| Hexachlorocyclopentadiene | ND | 2.5 | 1.00 | |
| Hexachloroethane | ND | 0.50 | 1.00 | |
| Indeno (1,2,3-c,d) Pyrene | ND | 0.50 | 1.00 | |
| Isophorone | ND | 0.50 | 1.00 | |
| 2-Methylnaphthalene | ND | 0.50 | 1.00 | |
| 1-Methylnaphthalene | ND | 0.50 | 1.00 | |
| 2-Methylphenol | ND | 0.50 | 1.00 | |
| 3/4-Methylphenol | ND | 0.50 | 1.00 | |
| N-Nitroso-di-n-propylamine | ND | 0.50 | 1.00 | |
| N-Nitrosodimethylamine | ND | 0.50 | 1.00 | |
| N-Nitrosodiphenylamine | ND | 0.50 | 1.00 | |
| Naphthalene | ND | 0.50 | 1.00 | |
| 4-Nitroaniline | ND | 0.50 | 1.00 | |
| 3-Nitroaniline | ND | 0.50 | 1.00 | |
| 2-Nitroaniline | ND | 0.50 | 1.00 | |
| Nitrobenzene | ND | 2.5 | 1.00 | |
| 4-Nitrophenol | ND | 0.50 | 1.00 | |
| 2-Nitrophenol | ND | 0.50 | 1.00 | |
| Pentachlorophenol | ND | 2.5 | 1.00 | |
| Phenanthrene | ND | 0.50 | 1.00 | |
| Phenol | ND | 0.50 | 1.00 | |
| Pyrene | ND | 0.50 | 1.00 | |
| Pyridine | ND | 0.50 | 1.00 | |
| 1,2,4-Trichlorobenzene | ND | 0.50 | 1.00 | |
| 2,4,6-Trichlorophenol | ND | 0.50 | 1.00 | |
| 2,4,5-Trichlorophenol | ND | 0.50 | 1.00 | |
| <u>Surrogate</u> | <u>Rec. (%)</u> | <u>Control Limits</u> | <u>Qualifiers</u> | |
| 2-Fluorobiphenyl | 61 | 27-120 | | |

RL: Reporting Limit. DF: Dilution Factor. MDL: Method Detection Limit.

Analytical Report

| | | |
|----------------------------------|----------------|------------|
| Geosyntec Consultants | Date Received: | 01/14/15 |
| 3043 Gold Canal Drive, Suite 201 | Work Order: | 15-01-0737 |
| Rancho Cordova, CA 95670-6394 | Preparation: | EPA 3545 |
| | Method: | EPA 8270C |
| | Units: | mg/kg |

Project: Blossom Plaza Utility Trench Sampling / WR1777-04 Page 6 of 6

| <u>Surrogate</u> | <u>Rec. (%)</u> | <u>Control Limits</u> | <u>Qualifiers</u> |
|----------------------|-----------------|-----------------------|-------------------|
| 2-Fluorophenol | 75 | 25-120 | |
| Nitrobenzene-d5 | 62 | 33-123 | |
| p-Terphenyl-d14 | 69 | 27-159 | |
| Phenol-d6 | 75 | 26-122 | |
| 2,4,6-Tribromophenol | 75 | 18-138 | |

Analytical Report

Geosyntec Consultants
 3043 Gold Canal Drive, Suite 201
 Rancho Cordova, CA 95670-6394

Date Received: 01/14/15
 Work Order: 15-01-0737
 Preparation: EPA 5030C
 Method: EPA 8260B
 Units: ug/kg

Project: Blossom Plaza Utility Trench Sampling / WR1777-04

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| Client Sample Number | Lab Sample Number | Date/Time Collected | Matrix | Instrument | Date Prepared | Date/Time Analyzed | QC Batch ID |
|----------------------|-------------------|---------------------|--------|------------|---------------|--------------------|-------------|
| T2-S-1 | 15-01-0737-1-A | 01/14/15 01:00 | Solid | GC/MS RR | 01/14/15 | 01/15/15 01:55 | 150114L034 |

| Parameter | Result | RL | DF | Qualifiers |
|-----------------------------|--------|-----|------|------------|
| Acetone | ND | 130 | 1.00 | |
| Benzene | ND | 5.1 | 1.00 | |
| Bromobenzene | ND | 5.1 | 1.00 | |
| Bromochloromethane | ND | 5.1 | 1.00 | |
| Bromodichloromethane | ND | 5.1 | 1.00 | |
| Bromoform | ND | 5.1 | 1.00 | |
| Bromomethane | ND | 26 | 1.00 | |
| 2-Butanone | ND | 51 | 1.00 | |
| n-Butylbenzene | ND | 5.1 | 1.00 | |
| sec-Butylbenzene | ND | 5.1 | 1.00 | |
| tert-Butylbenzene | ND | 5.1 | 1.00 | |
| Carbon Disulfide | ND | 51 | 1.00 | |
| Carbon Tetrachloride | ND | 5.1 | 1.00 | |
| Chlorobenzene | ND | 5.1 | 1.00 | |
| Chloroethane | ND | 5.1 | 1.00 | |
| Chloroform | ND | 5.1 | 1.00 | |
| Chloromethane | ND | 26 | 1.00 | |
| 2-Chlorotoluene | ND | 5.1 | 1.00 | |
| 4-Chlorotoluene | ND | 5.1 | 1.00 | |
| Dibromochloromethane | ND | 5.1 | 1.00 | |
| 1,2-Dibromo-3-Chloropropane | ND | 10 | 1.00 | |
| 1,2-Dibromoethane | ND | 5.1 | 1.00 | |
| Dibromomethane | ND | 5.1 | 1.00 | |
| 1,2-Dichlorobenzene | ND | 5.1 | 1.00 | |
| 1,3-Dichlorobenzene | ND | 5.1 | 1.00 | |
| 1,4-Dichlorobenzene | ND | 5.1 | 1.00 | |
| Dichlorodifluoromethane | ND | 5.1 | 1.00 | |
| 1,1-Dichloroethane | ND | 5.1 | 1.00 | |
| 1,2-Dichloroethane | ND | 5.1 | 1.00 | |
| 1,1-Dichloroethene | ND | 5.1 | 1.00 | |
| c-1,2-Dichloroethene | ND | 5.1 | 1.00 | |
| t-1,2-Dichloroethene | ND | 5.1 | 1.00 | |
| 1,2-Dichloropropane | ND | 5.1 | 1.00 | |
| 1,3-Dichloropropane | ND | 5.1 | 1.00 | |
| 2,2-Dichloropropane | ND | 5.1 | 1.00 | |

RL: Reporting Limit. DF: Dilution Factor. MDL: Method Detection Limit.

Analytical Report

Geosyntec Consultants
 3043 Gold Canal Drive, Suite 201
 Rancho Cordova, CA 95670-6394

Date Received: 01/14/15
 Work Order: 15-01-0737
 Preparation: EPA 5030C
 Method: EPA 8260B
 Units: ug/kg

Project: Blossom Plaza Utility Trench Sampling / WR1777-04

Page 2 of 10

| <u>Parameter</u> | <u>Result</u> | <u>RL</u> | <u>DF</u> | <u>Qualifiers</u> |
|---------------------------------------|---------------|-----------|-----------|-------------------|
| 1,1-Dichloropropene | ND | 5.1 | 1.00 | |
| c-1,3-Dichloropropene | ND | 5.1 | 1.00 | |
| t-1,3-Dichloropropene | ND | 5.1 | 1.00 | |
| Ethylbenzene | ND | 5.1 | 1.00 | |
| 2-Hexanone | ND | 51 | 1.00 | |
| Isopropylbenzene | ND | 5.1 | 1.00 | |
| p-Isopropyltoluene | ND | 5.1 | 1.00 | |
| Methylene Chloride | ND | 51 | 1.00 | |
| 4-Methyl-2-Pentanone | ND | 51 | 1.00 | |
| Naphthalene | ND | 51 | 1.00 | |
| n-Propylbenzene | ND | 5.1 | 1.00 | |
| Styrene | ND | 5.1 | 1.00 | |
| 1,1,1,2-Tetrachloroethane | ND | 5.1 | 1.00 | |
| 1,1,2,2-Tetrachloroethane | ND | 5.1 | 1.00 | |
| Tetrachloroethene | ND | 5.1 | 1.00 | |
| Toluene | ND | 5.1 | 1.00 | |
| 1,2,3-Trichlorobenzene | ND | 10 | 1.00 | |
| 1,2,4-Trichlorobenzene | ND | 5.1 | 1.00 | |
| 1,1,1-Trichloroethane | ND | 5.1 | 1.00 | |
| 1,1,2-Trichloroethane | ND | 5.1 | 1.00 | |
| 1,1,2-Trichloro-1,2,2-Trifluoroethane | ND | 51 | 1.00 | |
| Trichloroethene | ND | 5.1 | 1.00 | |
| 1,2,3-Trichloropropane | ND | 5.1 | 1.00 | |
| 1,2,4-Trimethylbenzene | ND | 5.1 | 1.00 | |
| Trichlorofluoromethane | ND | 51 | 1.00 | |
| 1,3,5-Trimethylbenzene | ND | 5.1 | 1.00 | |
| Vinyl Acetate | ND | 51 | 1.00 | |
| Vinyl Chloride | ND | 5.1 | 1.00 | |
| p/m-Xylene | ND | 5.1 | 1.00 | |
| o-Xylene | ND | 5.1 | 1.00 | |
| Methyl-t-Butyl Ether (MTBE) | ND | 5.1 | 1.00 | |

| <u>Surrogate</u> | <u>Rec. (%)</u> | <u>Control Limits</u> | <u>Qualifiers</u> |
|------------------------|-----------------|-----------------------|-------------------|
| 1,4-Bromofluorobenzene | 90 | 60-132 | |
| Dibromofluoromethane | 106 | 63-141 | |
| 1,2-Dichloroethane-d4 | 104 | 62-146 | |
| Toluene-d8 | 101 | 80-120 | |

RL: Reporting Limit. DF: Dilution Factor. MDL: Method Detection Limit.

Analytical Report

Geosyntec Consultants
 3043 Gold Canal Drive, Suite 201
 Rancho Cordova, CA 95670-6394

Date Received: 01/14/15
 Work Order: 15-01-0737
 Preparation: EPA 5030C
 Method: EPA 8260B
 Units: ug/kg

Project: Blossom Plaza Utility Trench Sampling / WR1777-04

Page 3 of 10

| Client Sample Number | Lab Sample Number | Date/Time Collected | Matrix | Instrument | Date Prepared | Date/Time Analyzed | QC Batch ID |
|----------------------|-------------------|---------------------|--------|------------|---------------|--------------------|-------------|
| T2-S-2 | 15-01-0737-2-A | 01/14/15 01:15 | Solid | GC/MS RR | 01/14/15 | 01/15/15 02:22 | 150114L034 |

| Parameter | Result | RL | DF | Qualifiers |
|-----------------------------|--------|-----|------|------------|
| Acetone | ND | 120 | 1.00 | |
| Benzene | ND | 4.9 | 1.00 | |
| Bromobenzene | ND | 4.9 | 1.00 | |
| Bromochloromethane | ND | 4.9 | 1.00 | |
| Bromodichloromethane | ND | 4.9 | 1.00 | |
| Bromoform | ND | 4.9 | 1.00 | |
| Bromomethane | ND | 25 | 1.00 | |
| 2-Butanone | ND | 49 | 1.00 | |
| n-Butylbenzene | ND | 4.9 | 1.00 | |
| sec-Butylbenzene | ND | 4.9 | 1.00 | |
| tert-Butylbenzene | ND | 4.9 | 1.00 | |
| Carbon Disulfide | ND | 49 | 1.00 | |
| Carbon Tetrachloride | ND | 4.9 | 1.00 | |
| Chlorobenzene | ND | 4.9 | 1.00 | |
| Chloroethane | ND | 4.9 | 1.00 | |
| Chloroform | ND | 4.9 | 1.00 | |
| Chloromethane | ND | 25 | 1.00 | |
| 2-Chlorotoluene | ND | 4.9 | 1.00 | |
| 4-Chlorotoluene | ND | 4.9 | 1.00 | |
| Dibromochloromethane | ND | 4.9 | 1.00 | |
| 1,2-Dibromo-3-Chloropropane | ND | 9.8 | 1.00 | |
| 1,2-Dibromoethane | ND | 4.9 | 1.00 | |
| Dibromomethane | ND | 4.9 | 1.00 | |
| 1,2-Dichlorobenzene | ND | 4.9 | 1.00 | |
| 1,3-Dichlorobenzene | ND | 4.9 | 1.00 | |
| 1,4-Dichlorobenzene | ND | 4.9 | 1.00 | |
| Dichlorodifluoromethane | ND | 4.9 | 1.00 | |
| 1,1-Dichloroethane | ND | 4.9 | 1.00 | |
| 1,2-Dichloroethane | ND | 4.9 | 1.00 | |
| 1,1-Dichloroethene | ND | 4.9 | 1.00 | |
| c-1,2-Dichloroethene | ND | 4.9 | 1.00 | |
| t-1,2-Dichloroethene | ND | 4.9 | 1.00 | |
| 1,2-Dichloropropane | ND | 4.9 | 1.00 | |
| 1,3-Dichloropropane | ND | 4.9 | 1.00 | |
| 2,2-Dichloropropane | ND | 4.9 | 1.00 | |

RL: Reporting Limit. DF: Dilution Factor. MDL: Method Detection Limit.

Analytical Report

Geosyntec Consultants
 3043 Gold Canal Drive, Suite 201
 Rancho Cordova, CA 95670-6394

Date Received: 01/14/15
 Work Order: 15-01-0737
 Preparation: EPA 5030C
 Method: EPA 8260B
 Units: ug/kg

Project: Blossom Plaza Utility Trench Sampling / WR1777-04

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| <u>Parameter</u> | <u>Result</u> | <u>RL</u> | <u>DF</u> | <u>Qualifiers</u> |
|---------------------------------------|---------------|-----------|-----------|-------------------|
| 1,1-Dichloropropene | ND | 4.9 | 1.00 | |
| c-1,3-Dichloropropene | ND | 4.9 | 1.00 | |
| t-1,3-Dichloropropene | ND | 4.9 | 1.00 | |
| Ethylbenzene | ND | 4.9 | 1.00 | |
| 2-Hexanone | ND | 49 | 1.00 | |
| Isopropylbenzene | ND | 4.9 | 1.00 | |
| p-Isopropyltoluene | ND | 4.9 | 1.00 | |
| Methylene Chloride | ND | 49 | 1.00 | |
| 4-Methyl-2-Pentanone | ND | 49 | 1.00 | |
| Naphthalene | ND | 49 | 1.00 | |
| n-Propylbenzene | ND | 4.9 | 1.00 | |
| Styrene | ND | 4.9 | 1.00 | |
| 1,1,1,2-Tetrachloroethane | ND | 4.9 | 1.00 | |
| 1,1,2,2-Tetrachloroethane | ND | 4.9 | 1.00 | |
| Tetrachloroethene | ND | 4.9 | 1.00 | |
| Toluene | ND | 4.9 | 1.00 | |
| 1,2,3-Trichlorobenzene | ND | 9.8 | 1.00 | |
| 1,2,4-Trichlorobenzene | ND | 4.9 | 1.00 | |
| 1,1,1-Trichloroethane | ND | 4.9 | 1.00 | |
| 1,1,2-Trichloroethane | ND | 4.9 | 1.00 | |
| 1,1,2-Trichloro-1,2,2-Trifluoroethane | ND | 49 | 1.00 | |
| Trichloroethene | ND | 4.9 | 1.00 | |
| 1,2,3-Trichloropropane | ND | 4.9 | 1.00 | |
| 1,2,4-Trimethylbenzene | ND | 4.9 | 1.00 | |
| Trichlorofluoromethane | ND | 49 | 1.00 | |
| 1,3,5-Trimethylbenzene | ND | 4.9 | 1.00 | |
| Vinyl Acetate | ND | 49 | 1.00 | |
| Vinyl Chloride | ND | 4.9 | 1.00 | |
| p/m-Xylene | ND | 4.9 | 1.00 | |
| o-Xylene | ND | 4.9 | 1.00 | |
| Methyl-t-Butyl Ether (MTBE) | ND | 4.9 | 1.00 | |

| <u>Surrogate</u> | <u>Rec. (%)</u> | <u>Control Limits</u> | <u>Qualifiers</u> |
|------------------------|-----------------|-----------------------|-------------------|
| 1,4-Bromofluorobenzene | 88 | 60-132 | |
| Dibromofluoromethane | 106 | 63-141 | |
| 1,2-Dichloroethane-d4 | 106 | 62-146 | |
| Toluene-d8 | 100 | 80-120 | |

RL: Reporting Limit. DF: Dilution Factor. MDL: Method Detection Limit.

Analytical Report

Geosyntec Consultants
 3043 Gold Canal Drive, Suite 201
 Rancho Cordova, CA 95670-6394

Date Received: 01/14/15
 Work Order: 15-01-0737
 Preparation: EPA 5030C
 Method: EPA 8260B
 Units: ug/kg

Project: Blossom Plaza Utility Trench Sampling / WR1777-04

Page 5 of 10

| Client Sample Number | Lab Sample Number | Date/Time Collected | Matrix | Instrument | Date Prepared | Date/Time Analyzed | QC Batch ID |
|----------------------|-------------------|---------------------|--------|------------|---------------|--------------------|-------------|
| T2-N-1 | 15-01-0737-3-A | 01/14/15 01:45 | Solid | GC/MS RR | 01/14/15 | 01/15/15 02:49 | 150114L034 |

| Parameter | Result | RL | DF | Qualifiers |
|-----------------------------|--------|-----|------|------------|
| Acetone | ND | 120 | 1.00 | |
| Benzene | ND | 5.0 | 1.00 | |
| Bromobenzene | ND | 5.0 | 1.00 | |
| Bromochloromethane | ND | 5.0 | 1.00 | |
| Bromodichloromethane | ND | 5.0 | 1.00 | |
| Bromoform | ND | 5.0 | 1.00 | |
| Bromomethane | ND | 25 | 1.00 | |
| 2-Butanone | ND | 50 | 1.00 | |
| n-Butylbenzene | ND | 5.0 | 1.00 | |
| sec-Butylbenzene | ND | 5.0 | 1.00 | |
| tert-Butylbenzene | ND | 5.0 | 1.00 | |
| Carbon Disulfide | ND | 50 | 1.00 | |
| Carbon Tetrachloride | ND | 5.0 | 1.00 | |
| Chlorobenzene | ND | 5.0 | 1.00 | |
| Chloroethane | ND | 5.0 | 1.00 | |
| Chloroform | ND | 5.0 | 1.00 | |
| Chloromethane | ND | 25 | 1.00 | |
| 2-Chlorotoluene | ND | 5.0 | 1.00 | |
| 4-Chlorotoluene | ND | 5.0 | 1.00 | |
| Dibromochloromethane | ND | 5.0 | 1.00 | |
| 1,2-Dibromo-3-Chloropropane | ND | 9.9 | 1.00 | |
| 1,2-Dibromoethane | ND | 5.0 | 1.00 | |
| Dibromomethane | ND | 5.0 | 1.00 | |
| 1,2-Dichlorobenzene | ND | 5.0 | 1.00 | |
| 1,3-Dichlorobenzene | ND | 5.0 | 1.00 | |
| 1,4-Dichlorobenzene | ND | 5.0 | 1.00 | |
| Dichlorodifluoromethane | ND | 5.0 | 1.00 | |
| 1,1-Dichloroethane | ND | 5.0 | 1.00 | |
| 1,2-Dichloroethane | ND | 5.0 | 1.00 | |
| 1,1-Dichloroethene | ND | 5.0 | 1.00 | |
| c-1,2-Dichloroethene | ND | 5.0 | 1.00 | |
| t-1,2-Dichloroethene | ND | 5.0 | 1.00 | |
| 1,2-Dichloropropane | ND | 5.0 | 1.00 | |
| 1,3-Dichloropropane | ND | 5.0 | 1.00 | |
| 2,2-Dichloropropane | ND | 5.0 | 1.00 | |

RL: Reporting Limit. DF: Dilution Factor. MDL: Method Detection Limit.

Analytical Report

| | | |
|----------------------------------|----------------|------------|
| Geosyntec Consultants | Date Received: | 01/14/15 |
| 3043 Gold Canal Drive, Suite 201 | Work Order: | 15-01-0737 |
| Rancho Cordova, CA 95670-6394 | Preparation: | EPA 5030C |
| | Method: | EPA 8260B |
| | Units: | ug/kg |

Project: Blossom Plaza Utility Trench Sampling / WR1777-04 Page 6 of 10

| <u>Parameter</u> | <u>Result</u> | <u>RL</u> | <u>DF</u> | <u>Qualifiers</u> |
|---------------------------------------|---------------|-----------|-----------|-------------------|
| 1,1-Dichloropropene | ND | 5.0 | 1.00 | |
| c-1,3-Dichloropropene | ND | 5.0 | 1.00 | |
| t-1,3-Dichloropropene | ND | 5.0 | 1.00 | |
| Ethylbenzene | ND | 5.0 | 1.00 | |
| 2-Hexanone | ND | 50 | 1.00 | |
| Isopropylbenzene | ND | 5.0 | 1.00 | |
| p-Isopropyltoluene | ND | 5.0 | 1.00 | |
| Methylene Chloride | ND | 50 | 1.00 | |
| 4-Methyl-2-Pentanone | ND | 50 | 1.00 | |
| Naphthalene | ND | 50 | 1.00 | |
| n-Propylbenzene | ND | 5.0 | 1.00 | |
| Styrene | ND | 5.0 | 1.00 | |
| 1,1,1,2-Tetrachloroethane | ND | 5.0 | 1.00 | |
| 1,1,2,2-Tetrachloroethane | ND | 5.0 | 1.00 | |
| Tetrachloroethene | ND | 5.0 | 1.00 | |
| Toluene | ND | 5.0 | 1.00 | |
| 1,2,3-Trichlorobenzene | ND | 9.9 | 1.00 | |
| 1,2,4-Trichlorobenzene | ND | 5.0 | 1.00 | |
| 1,1,1-Trichloroethane | ND | 5.0 | 1.00 | |
| 1,1,2-Trichloroethane | ND | 5.0 | 1.00 | |
| 1,1,2-Trichloro-1,2,2-Trifluoroethane | ND | 50 | 1.00 | |
| Trichloroethene | ND | 5.0 | 1.00 | |
| 1,2,3-Trichloropropane | ND | 5.0 | 1.00 | |
| 1,2,4-Trimethylbenzene | ND | 5.0 | 1.00 | |
| Trichlorofluoromethane | ND | 50 | 1.00 | |
| 1,3,5-Trimethylbenzene | ND | 5.0 | 1.00 | |
| Vinyl Acetate | ND | 50 | 1.00 | |
| Vinyl Chloride | ND | 5.0 | 1.00 | |
| p/m-Xylene | ND | 5.0 | 1.00 | |
| o-Xylene | ND | 5.0 | 1.00 | |
| Methyl-t-Butyl Ether (MTBE) | ND | 5.0 | 1.00 | |

| <u>Surrogate</u> | <u>Rec. (%)</u> | <u>Control Limits</u> | <u>Qualifiers</u> |
|------------------------|-----------------|-----------------------|-------------------|
| 1,4-Bromofluorobenzene | 91 | 60-132 | |
| Dibromofluoromethane | 107 | 63-141 | |
| 1,2-Dichloroethane-d4 | 104 | 62-146 | |
| Toluene-d8 | 100 | 80-120 | |

RL: Reporting Limit. DF: Dilution Factor. MDL: Method Detection Limit.

Analytical Report

Geosyntec Consultants
 3043 Gold Canal Drive, Suite 201
 Rancho Cordova, CA 95670-6394

Date Received: 01/14/15
 Work Order: 15-01-0737
 Preparation: EPA 5030C
 Method: EPA 8260B
 Units: ug/kg

Project: Blossom Plaza Utility Trench Sampling / WR1777-04

Page 7 of 10

| Client Sample Number | Lab Sample Number | Date/Time Collected | Matrix | Instrument | Date Prepared | Date/Time Analyzed | QC Batch ID |
|----------------------|-------------------|---------------------|--------|------------|---------------|--------------------|-------------|
| T2-N-2 | 15-01-0737-4-A | 01/14/15 02:00 | Solid | GC/MS RR | 01/14/15 | 01/15/15 03:17 | 150114L034 |

| Parameter | Result | RL | DF | Qualifiers |
|-----------------------------|--------|-----|------|------------|
| Acetone | ND | 130 | 1.00 | |
| Benzene | ND | 5.0 | 1.00 | |
| Bromobenzene | ND | 5.0 | 1.00 | |
| Bromochloromethane | ND | 5.0 | 1.00 | |
| Bromodichloromethane | ND | 5.0 | 1.00 | |
| Bromoform | ND | 5.0 | 1.00 | |
| Bromomethane | ND | 25 | 1.00 | |
| 2-Butanone | ND | 50 | 1.00 | |
| n-Butylbenzene | ND | 5.0 | 1.00 | |
| sec-Butylbenzene | ND | 5.0 | 1.00 | |
| tert-Butylbenzene | ND | 5.0 | 1.00 | |
| Carbon Disulfide | ND | 50 | 1.00 | |
| Carbon Tetrachloride | ND | 5.0 | 1.00 | |
| Chlorobenzene | ND | 5.0 | 1.00 | |
| Chloroethane | ND | 5.0 | 1.00 | |
| Chloroform | ND | 5.0 | 1.00 | |
| Chloromethane | ND | 25 | 1.00 | |
| 2-Chlorotoluene | ND | 5.0 | 1.00 | |
| 4-Chlorotoluene | ND | 5.0 | 1.00 | |
| Dibromochloromethane | ND | 5.0 | 1.00 | |
| 1,2-Dibromo-3-Chloropropane | ND | 10 | 1.00 | |
| 1,2-Dibromoethane | ND | 5.0 | 1.00 | |
| Dibromomethane | ND | 5.0 | 1.00 | |
| 1,2-Dichlorobenzene | ND | 5.0 | 1.00 | |
| 1,3-Dichlorobenzene | ND | 5.0 | 1.00 | |
| 1,4-Dichlorobenzene | ND | 5.0 | 1.00 | |
| Dichlorodifluoromethane | ND | 5.0 | 1.00 | |
| 1,1-Dichloroethane | ND | 5.0 | 1.00 | |
| 1,2-Dichloroethane | ND | 5.0 | 1.00 | |
| 1,1-Dichloroethene | ND | 5.0 | 1.00 | |
| c-1,2-Dichloroethene | ND | 5.0 | 1.00 | |
| t-1,2-Dichloroethene | ND | 5.0 | 1.00 | |
| 1,2-Dichloropropane | ND | 5.0 | 1.00 | |
| 1,3-Dichloropropane | ND | 5.0 | 1.00 | |
| 2,2-Dichloropropane | ND | 5.0 | 1.00 | |

RL: Reporting Limit. DF: Dilution Factor. MDL: Method Detection Limit.

Analytical Report

| | | |
|--|----------------|--------------|
| Geosyntec Consultants | Date Received: | 01/14/15 |
| 3043 Gold Canal Drive, Suite 201 | Work Order: | 15-01-0737 |
| Rancho Cordova, CA 95670-6394 | Preparation: | EPA 5030C |
| | Method: | EPA 8260B |
| | Units: | ug/kg |
| Project: Blossom Plaza Utility Trench Sampling / WR1777-04 | | Page 8 of 10 |

| <u>Parameter</u> | <u>Result</u> | <u>RL</u> | <u>DF</u> | <u>Qualifiers</u> |
|---------------------------------------|---------------|-----------|-----------|-------------------|
| 1,1-Dichloropropene | ND | 5.0 | 1.00 | |
| c-1,3-Dichloropropene | ND | 5.0 | 1.00 | |
| t-1,3-Dichloropropene | ND | 5.0 | 1.00 | |
| Ethylbenzene | ND | 5.0 | 1.00 | |
| 2-Hexanone | ND | 50 | 1.00 | |
| Isopropylbenzene | ND | 5.0 | 1.00 | |
| p-Isopropyltoluene | ND | 5.0 | 1.00 | |
| Methylene Chloride | ND | 50 | 1.00 | |
| 4-Methyl-2-Pentanone | ND | 50 | 1.00 | |
| Naphthalene | ND | 50 | 1.00 | |
| n-Propylbenzene | ND | 5.0 | 1.00 | |
| Styrene | ND | 5.0 | 1.00 | |
| 1,1,1,2-Tetrachloroethane | ND | 5.0 | 1.00 | |
| 1,1,2,2-Tetrachloroethane | ND | 5.0 | 1.00 | |
| Tetrachloroethene | ND | 5.0 | 1.00 | |
| Toluene | ND | 5.0 | 1.00 | |
| 1,2,3-Trichlorobenzene | ND | 10 | 1.00 | |
| 1,2,4-Trichlorobenzene | ND | 5.0 | 1.00 | |
| 1,1,1-Trichloroethane | ND | 5.0 | 1.00 | |
| 1,1,2-Trichloroethane | ND | 5.0 | 1.00 | |
| 1,1,2-Trichloro-1,2,2-Trifluoroethane | ND | 50 | 1.00 | |
| Trichloroethene | ND | 5.0 | 1.00 | |
| 1,2,3-Trichloropropane | ND | 5.0 | 1.00 | |
| 1,2,4-Trimethylbenzene | ND | 5.0 | 1.00 | |
| Trichlorofluoromethane | ND | 50 | 1.00 | |
| 1,3,5-Trimethylbenzene | ND | 5.0 | 1.00 | |
| Vinyl Acetate | ND | 50 | 1.00 | |
| Vinyl Chloride | ND | 5.0 | 1.00 | |
| p/m-Xylene | ND | 5.0 | 1.00 | |
| o-Xylene | ND | 5.0 | 1.00 | |
| Methyl-t-Butyl Ether (MTBE) | ND | 5.0 | 1.00 | |

| <u>Surrogate</u> | <u>Rec. (%)</u> | <u>Control Limits</u> | <u>Qualifiers</u> |
|------------------------|-----------------|-----------------------|-------------------|
| 1,4-Bromofluorobenzene | 89 | 60-132 | |
| Dibromofluoromethane | 110 | 63-141 | |
| 1,2-Dichloroethane-d4 | 107 | 62-146 | |
| Toluene-d8 | 101 | 80-120 | |

RL: Reporting Limit. DF: Dilution Factor. MDL: Method Detection Limit.

Analytical Report

Geosyntec Consultants
 3043 Gold Canal Drive, Suite 201
 Rancho Cordova, CA 95670-6394

Date Received: 01/14/15
 Work Order: 15-01-0737
 Preparation: EPA 5030C
 Method: EPA 8260B
 Units: ug/kg

Project: Blossom Plaza Utility Trench Sampling / WR1777-04

Page 9 of 10

| Client Sample Number | Lab Sample Number | Date/Time Collected | Matrix | Instrument | Date Prepared | Date/Time Analyzed | QC Batch ID |
|----------------------|-------------------|---------------------|--------|------------|---------------|--------------------|-------------|
| Method Blank | 099-12-796-9275 | N/A | Solid | GC/MS RR | 01/14/15 | 01/15/15 01:00 | 150114L034 |

| Parameter | Result | RL | DF | Qualifiers |
|-----------------------------|--------|-----|------|------------|
| Acetone | ND | 120 | 1.00 | |
| Benzene | ND | 5.0 | 1.00 | |
| Bromobenzene | ND | 5.0 | 1.00 | |
| Bromochloromethane | ND | 5.0 | 1.00 | |
| Bromodichloromethane | ND | 5.0 | 1.00 | |
| Bromoform | ND | 5.0 | 1.00 | |
| Bromomethane | ND | 25 | 1.00 | |
| 2-Butanone | ND | 50 | 1.00 | |
| n-Butylbenzene | ND | 5.0 | 1.00 | |
| sec-Butylbenzene | ND | 5.0 | 1.00 | |
| tert-Butylbenzene | ND | 5.0 | 1.00 | |
| Carbon Disulfide | ND | 50 | 1.00 | |
| Carbon Tetrachloride | ND | 5.0 | 1.00 | |
| Chlorobenzene | ND | 5.0 | 1.00 | |
| Chloroethane | ND | 5.0 | 1.00 | |
| Chloroform | ND | 5.0 | 1.00 | |
| Chloromethane | ND | 25 | 1.00 | |
| 2-Chlorotoluene | ND | 5.0 | 1.00 | |
| 4-Chlorotoluene | ND | 5.0 | 1.00 | |
| Dibromochloromethane | ND | 5.0 | 1.00 | |
| 1,2-Dibromo-3-Chloropropane | ND | 10 | 1.00 | |
| 1,2-Dibromoethane | ND | 5.0 | 1.00 | |
| Dibromomethane | ND | 5.0 | 1.00 | |
| 1,2-Dichlorobenzene | ND | 5.0 | 1.00 | |
| 1,3-Dichlorobenzene | ND | 5.0 | 1.00 | |
| 1,4-Dichlorobenzene | ND | 5.0 | 1.00 | |
| Dichlorodifluoromethane | ND | 5.0 | 1.00 | |
| 1,1-Dichloroethane | ND | 5.0 | 1.00 | |
| 1,2-Dichloroethane | ND | 5.0 | 1.00 | |
| 1,1-Dichloroethene | ND | 5.0 | 1.00 | |
| c-1,2-Dichloroethene | ND | 5.0 | 1.00 | |
| t-1,2-Dichloroethene | ND | 5.0 | 1.00 | |
| 1,2-Dichloropropane | ND | 5.0 | 1.00 | |
| 1,3-Dichloropropane | ND | 5.0 | 1.00 | |
| 2,2-Dichloropropane | ND | 5.0 | 1.00 | |

RL: Reporting Limit. DF: Dilution Factor. MDL: Method Detection Limit.

Analytical Report

Geosyntec Consultants
 3043 Gold Canal Drive, Suite 201
 Rancho Cordova, CA 95670-6394

Date Received: 01/14/15
 Work Order: 15-01-0737
 Preparation: EPA 5030C
 Method: EPA 8260B
 Units: ug/kg

Project: Blossom Plaza Utility Trench Sampling / WR1777-04

Page 10 of 10

| <u>Parameter</u> | <u>Result</u> | <u>RL</u> | <u>DF</u> | <u>Qualifiers</u> |
|---------------------------------------|---------------|-----------|-----------|-------------------|
| 1,1-Dichloropropene | ND | 5.0 | 1.00 | |
| c-1,3-Dichloropropene | ND | 5.0 | 1.00 | |
| t-1,3-Dichloropropene | ND | 5.0 | 1.00 | |
| Ethylbenzene | ND | 5.0 | 1.00 | |
| 2-Hexanone | ND | 50 | 1.00 | |
| Isopropylbenzene | ND | 5.0 | 1.00 | |
| p-Isopropyltoluene | ND | 5.0 | 1.00 | |
| Methylene Chloride | ND | 50 | 1.00 | |
| 4-Methyl-2-Pentanone | ND | 50 | 1.00 | |
| Naphthalene | ND | 50 | 1.00 | |
| n-Propylbenzene | ND | 5.0 | 1.00 | |
| Styrene | ND | 5.0 | 1.00 | |
| 1,1,1,2-Tetrachloroethane | ND | 5.0 | 1.00 | |
| 1,1,2,2-Tetrachloroethane | ND | 5.0 | 1.00 | |
| Tetrachloroethene | ND | 5.0 | 1.00 | |
| Toluene | ND | 5.0 | 1.00 | |
| 1,2,3-Trichlorobenzene | ND | 10 | 1.00 | |
| 1,2,4-Trichlorobenzene | ND | 5.0 | 1.00 | |
| 1,1,1-Trichloroethane | ND | 5.0 | 1.00 | |
| 1,1,2-Trichloroethane | ND | 5.0 | 1.00 | |
| 1,1,2-Trichloro-1,2,2-Trifluoroethane | ND | 50 | 1.00 | |
| Trichloroethene | ND | 5.0 | 1.00 | |
| 1,2,3-Trichloropropane | ND | 5.0 | 1.00 | |
| 1,2,4-Trimethylbenzene | ND | 5.0 | 1.00 | |
| Trichlorofluoromethane | ND | 50 | 1.00 | |
| 1,3,5-Trimethylbenzene | ND | 5.0 | 1.00 | |
| Vinyl Acetate | ND | 50 | 1.00 | |
| Vinyl Chloride | ND | 5.0 | 1.00 | |
| p/m-Xylene | ND | 5.0 | 1.00 | |
| o-Xylene | ND | 5.0 | 1.00 | |
| Methyl-t-Butyl Ether (MTBE) | ND | 5.0 | 1.00 | |

| <u>Surrogate</u> | <u>Rec. (%)</u> | <u>Control Limits</u> | <u>Qualifiers</u> |
|------------------------|-----------------|-----------------------|-------------------|
| 1,4-Bromofluorobenzene | 91 | 60-132 | |
| Dibromofluoromethane | 106 | 63-141 | |
| 1,2-Dichloroethane-d4 | 102 | 62-146 | |
| Toluene-d8 | 100 | 80-120 | |

RL: Reporting Limit. DF: Dilution Factor. MDL: Method Detection Limit.



Calscience

Quality Control - Spike/Spike Duplicate

Geosyntec Consultants
3043 Gold Canal Drive, Suite 201
Rancho Cordova, CA 95670-6394

Date Received: 01/14/15
Work Order: 15-01-0737
Preparation: EPA 3550B
Method: EPA 8015B (M)

Project: Blossom Plaza Utility Trench Sampling / WR1777-04

Page 1 of 5

| Quality Control Sample ID | Type | Matrix | Instrument | Date Prepared | Date Analyzed | MS/MSD Batch Number |
|---------------------------|------------------------|--------|------------|---------------|----------------|---------------------|
| T2-S-1 | Sample | Solid | GC 48 | 01/15/15 | 01/15/15 16:12 | 150115S02 |
| T2-S-1 | Matrix Spike | Solid | GC 48 | 01/15/15 | 01/15/15 15:40 | 150115S02 |
| T2-S-1 | Matrix Spike Duplicate | Solid | GC 48 | 01/15/15 | 01/15/15 15:56 | 150115S02 |

| Parameter | Sample Conc. | Spike Added | MS Conc. | MS %Rec. | MSD Conc. | MSD %Rec. | %Rec. CL | RPD | RPD CL | Qualifiers |
|---------------|--------------|-------------|----------|----------|-----------|-----------|----------|-----|--------|------------|
| TPH as Diesel | ND | 400.0 | 430.3 | 108 | 454.2 | 114 | 64-130 | 5 | 0-15 | |

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RPD: Relative Percent Difference. CL: Control Limits



Calscience

Quality Control - Spike/Spike Duplicate

Geosyntec Consultants
3043 Gold Canal Drive, Suite 201
Rancho Cordova, CA 95670-6394

Date Received: 01/14/15
Work Order: 15-01-0737
Preparation: EPA 3050B
Method: EPA 6010B

Project: Blossom Plaza Utility Trench Sampling / WR1777-04

Page 2 of 5

| Quality Control Sample ID | Type | Matrix | Instrument | Date Prepared | Date Analyzed | MS/MSD Batch Number | | | | |
|---------------------------|------------------------|-------------|------------|---------------|----------------|---------------------|----------|-----|--------|------------|
| 15-01-0795-1 | Sample | Solid | ICP 7300 | 01/15/15 | 01/15/15 19:38 | 150115S02 | | | | |
| 15-01-0795-1 | Matrix Spike | Solid | ICP 7300 | 01/15/15 | 01/15/15 19:39 | 150115S02 | | | | |
| 15-01-0795-1 | Matrix Spike Duplicate | Solid | ICP 7300 | 01/15/15 | 01/15/15 19:40 | 150115S02 | | | | |
| Parameter | Sample Conc. | Spike Added | MS Conc. | MS %Rec. | MSD Conc. | MSD %Rec. | %Rec. CL | RPD | RPD CL | Qualifiers |
| Antimony | ND | 25.00 | 6.569 | 26 | 6.395 | 26 | 50-115 | 3 | 0-20 | 3 |
| Arsenic | 7.584 | 25.00 | 33.50 | 104 | 33.29 | 103 | 75-125 | 1 | 0-20 | |
| Barium | 118.5 | 25.00 | 139.1 | 4X | 142.0 | 4X | 75-125 | 4X | 0-20 | Q |
| Beryllium | 0.3598 | 25.00 | 28.13 | 111 | 28.34 | 112 | 75-125 | 1 | 0-20 | |
| Cadmium | ND | 25.00 | 27.48 | 110 | 27.40 | 110 | 75-125 | 0 | 0-20 | |
| Chromium | 16.27 | 25.00 | 45.67 | 118 | 44.64 | 113 | 75-125 | 2 | 0-20 | |
| Cobalt | 11.87 | 25.00 | 41.00 | 117 | 40.58 | 115 | 75-125 | 1 | 0-20 | |
| Copper | 21.35 | 25.00 | 48.36 | 108 | 47.55 | 105 | 75-125 | 2 | 0-20 | |
| Lead | 19.01 | 25.00 | 49.57 | 122 | 51.02 | 128 | 75-125 | 3 | 0-20 | 3 |
| Molybdenum | ND | 25.00 | 26.08 | 104 | 25.85 | 103 | 75-125 | 1 | 0-20 | |
| Nickel | 14.15 | 25.00 | 42.33 | 113 | 41.60 | 110 | 75-125 | 2 | 0-20 | |
| Selenium | ND | 25.00 | 23.91 | 96 | 23.50 | 94 | 75-125 | 2 | 0-20 | |
| Silver | ND | 12.50 | 10.26 | 82 | 11.59 | 93 | 75-125 | 12 | 0-20 | |
| Thallium | ND | 25.00 | 7.466 | 30 | 7.260 | 29 | 75-125 | 3 | 0-20 | 3 |
| Vanadium | 34.37 | 25.00 | 60.47 | 104 | 59.97 | 102 | 75-125 | 1 | 0-20 | |
| Zinc | 62.01 | 25.00 | 87.93 | 104 | 87.64 | 103 | 75-125 | 0 | 0-20 | |

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RPD: Relative Percent Difference. CL: Control Limits



Calscience

Quality Control - Spike/Spike Duplicate

Geosyntec Consultants
3043 Gold Canal Drive, Suite 201
Rancho Cordova, CA 95670-6394

Date Received: 01/14/15
Work Order: 15-01-0737
Preparation: EPA 7471A Total
Method: EPA 7471A

Project: Blossom Plaza Utility Trench Sampling / WR1777-04

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| Quality Control Sample ID | Type | Matrix | Instrument | Date Prepared | Date Analyzed | MS/MSD Batch Number |
|---------------------------|------------------------|--------|------------|---------------|----------------|---------------------|
| 15-01-0757-1 | Sample | Solid | Mercury 05 | 01/15/15 | 01/15/15 14:47 | 150115S01 |
| 15-01-0757-1 | Matrix Spike | Solid | Mercury 05 | 01/15/15 | 01/15/15 14:49 | 150115S01 |
| 15-01-0757-1 | Matrix Spike Duplicate | Solid | Mercury 05 | 01/15/15 | 01/15/15 14:52 | 150115S01 |

| Parameter | Sample Conc. | Spike Added | MS Conc. | MS %Rec. | MSD Conc. | MSD %Rec. | %Rec. CL | RPD | RPD CL | Qualifiers |
|-----------|--------------|-------------|----------|----------|-----------|-----------|----------|-----|--------|------------|
| Mercury | ND | 0.8350 | 0.9837 | 118 | 0.9552 | 114 | 71-137 | 3 | 0-14 | |

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RPD: Relative Percent Difference. CL: Control Limits



Calscience

Quality Control - Spike/Spike Duplicate

Geosyntec Consultants
3043 Gold Canal Drive, Suite 201
Rancho Cordova, CA 95670-6394

Date Received: 01/14/15
Work Order: 15-01-0737
Preparation: EPA 3545
Method: EPA 8270C

Project: Blossom Plaza Utility Trench Sampling / WR1777-04

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| Quality Control Sample ID | Type | Matrix | Instrument | Date Prepared | Date Analyzed | MS/MSD Batch Number | | | | |
|----------------------------|------------------------|-------------|------------|---------------|----------------|---------------------|----------|-----|--------|------------|
| 15-01-0580-6 | Sample | Solid | GC/MS SS | 01/14/15 | 01/14/15 21:35 | 150114S09 | | | | |
| 15-01-0580-6 | Matrix Spike | Solid | GC/MS SS | 01/14/15 | 01/14/15 21:54 | 150114S09 | | | | |
| 15-01-0580-6 | Matrix Spike Duplicate | Solid | GC/MS SS | 01/14/15 | 01/14/15 22:13 | 150114S09 | | | | |
| Parameter | Sample Conc. | Spike Added | MS Conc. | MS %Rec. | MSD Conc. | MSD %Rec. | %Rec. CL | RPD | RPD CL | Qualifiers |
| Acenaphthene | ND | 10.00 | 6.796 | 68 | 7.838 | 78 | 34-148 | 14 | 0-20 | |
| Acenaphthylene | ND | 10.00 | 6.840 | 68 | 7.748 | 77 | 53-120 | 12 | 0-20 | |
| Butyl Benzyl Phthalate | ND | 10.00 | 8.038 | 80 | 8.918 | 89 | 15-189 | 10 | 0-20 | |
| 4-Chloro-3-Methylphenol | ND | 10.00 | 7.251 | 73 | 8.388 | 84 | 32-120 | 15 | 0-20 | |
| 2-Chlorophenol | ND | 10.00 | 7.356 | 74 | 8.637 | 86 | 53-120 | 16 | 0-20 | |
| 1,4-Dichlorobenzene | ND | 10.00 | 6.652 | 67 | 7.519 | 75 | 43-120 | 12 | 0-26 | |
| Dimethyl Phthalate | ND | 10.00 | 6.843 | 68 | 7.829 | 78 | 44-122 | 13 | 0-20 | |
| 2,4-Dinitrotoluene | ND | 10.00 | 7.535 | 75 | 8.884 | 89 | 28-120 | 16 | 0-20 | |
| Fluorene | ND | 10.00 | 7.072 | 71 | 8.072 | 81 | 12-186 | 13 | 0-20 | |
| N-Nitroso-di-n-propylamine | ND | 10.00 | 6.740 | 67 | 7.713 | 77 | 38-140 | 13 | 0-20 | |
| Naphthalene | ND | 10.00 | 6.698 | 67 | 7.582 | 76 | 20-140 | 12 | 0-20 | |
| 4-Nitrophenol | ND | 10.00 | 6.403 | 64 | 7.666 | 77 | 14-128 | 18 | 0-59 | |
| Pentachlorophenol | ND | 10.00 | 6.058 | 61 | 7.383 | 74 | 10-124 | 20 | 0-20 | |
| Phenol | ND | 10.00 | 7.035 | 70 | 8.189 | 82 | 22-124 | 15 | 0-20 | |
| Pyrene | ND | 10.00 | 7.766 | 78 | 8.537 | 85 | 31-169 | 9 | 0-20 | |
| 1,2,4-Trichlorobenzene | ND | 10.00 | 6.970 | 70 | 7.851 | 79 | 56-120 | 12 | 0-20 | |

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RPD: Relative Percent Difference. CL: Control Limits



Calscience

Quality Control - Spike/Spike Duplicate

Geosyntec Consultants
3043 Gold Canal Drive, Suite 201
Rancho Cordova, CA 95670-6394

Date Received: 01/14/15
Work Order: 15-01-0737
Preparation: EPA 5030C
Method: EPA 8260B

Project: Blossom Plaza Utility Trench Sampling / WR1777-04

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| Quality Control Sample ID | Type | Matrix | Instrument | Date Prepared | Date Analyzed | MS/MSD Batch Number | | | | |
|-----------------------------|------------------------|-------------|------------|---------------|----------------|---------------------|----------|-----|--------|------------|
| T2-S-1 | Sample | Solid | GC/MS RR | 01/14/15 | 01/15/15 01:55 | 150114S020 | | | | |
| T2-S-1 | Matrix Spike | Solid | GC/MS RR | 01/14/15 | 01/15/15 03:44 | 150114S020 | | | | |
| T2-S-1 | Matrix Spike Duplicate | Solid | GC/MS RR | 01/14/15 | 01/15/15 04:11 | 150114S020 | | | | |
| Parameter | Sample Conc. | Spike Added | MS Conc. | MS %Rec. | MSD Conc. | MSD %Rec. | %Rec. CL | RPD | RPD CL | Qualifiers |
| Benzene | ND | 50.00 | 45.89 | 92 | 42.82 | 86 | 61-127 | 7 | 0-20 | |
| Carbon Tetrachloride | ND | 50.00 | 44.54 | 89 | 41.72 | 83 | 51-135 | 7 | 0-29 | |
| Chlorobenzene | ND | 50.00 | 40.15 | 80 | 38.91 | 78 | 57-123 | 3 | 0-20 | |
| 1,2-Dibromoethane | ND | 50.00 | 37.68 | 75 | 35.81 | 72 | 64-124 | 5 | 0-20 | |
| 1,2-Dichlorobenzene | ND | 50.00 | 32.84 | 66 | 32.66 | 65 | 35-131 | 1 | 0-25 | |
| 1,2-Dichloroethane | ND | 50.00 | 40.72 | 81 | 38.07 | 76 | 80-120 | 7 | 0-20 | 3 |
| 1,1-Dichloroethene | ND | 50.00 | 39.46 | 79 | 36.86 | 74 | 47-143 | 7 | 0-25 | |
| Ethylbenzene | ND | 50.00 | 41.47 | 83 | 39.99 | 80 | 57-129 | 4 | 0-22 | |
| Toluene | ND | 50.00 | 43.95 | 88 | 41.58 | 83 | 63-123 | 6 | 0-20 | |
| Trichloroethene | ND | 50.00 | 42.34 | 85 | 40.15 | 80 | 44-158 | 5 | 0-20 | |
| Vinyl Chloride | ND | 50.00 | 44.50 | 89 | 40.80 | 82 | 49-139 | 9 | 0-47 | |
| p/m-Xylene | ND | 100.0 | 81.55 | 82 | 78.81 | 79 | 70-130 | 3 | 0-30 | |
| o-Xylene | ND | 50.00 | 40.46 | 81 | 39.34 | 79 | 70-130 | 3 | 0-30 | |
| Methyl-t-Butyl Ether (MTBE) | ND | 50.00 | 34.40 | 69 | 32.39 | 65 | 57-123 | 6 | 0-21 | |

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RPD: Relative Percent Difference. CL: Control Limits

Quality Control - LCS

| | | |
|--|----------------|---------------|
| Geosyntec Consultants | Date Received: | 01/14/15 |
| 3043 Gold Canal Drive, Suite 201 | Work Order: | 15-01-0737 |
| Rancho Cordova, CA 95670-6394 | Preparation: | EPA 3550B |
| | Method: | EPA 8015B (M) |
| Project: Blossom Plaza Utility Trench Sampling / WR1777-04 | | Page 1 of 5 |

| Quality Control Sample ID | Type | Matrix | Instrument | Date Prepared | Date Analyzed | LCS Batch Number |
|---------------------------|------------|--------------------|------------------------|------------------|-----------------------|-------------------|
| 099-15-490-1362 | LCS | Solid | GC 48 | 01/15/15 | 01/15/15 15:23 | 150115B02 |
| <u>Parameter</u> | | <u>Spike Added</u> | <u>Conc. Recovered</u> | <u>LCS %Rec.</u> | <u>%Rec. CL</u> | <u>Qualifiers</u> |
| TPH as Diesel | | 400.0 | 374.3 | 94 | 75-123 | |

Quality Control - LCS

Geosyntec Consultants
3043 Gold Canal Drive, Suite 201
Rancho Cordova, CA 95670-6394

Date Received: 01/14/15
Work Order: 15-01-0737
Preparation: EPA 3050B
Method: EPA 6010B

Project: Blossom Plaza Utility Trench Sampling / WR1777-04

Page 2 of 5

| Quality Control Sample ID | Type | Matrix | Instrument | Date Prepared | Date Analyzed | LCS Batch Number | |
|---------------------------|------------|--------------------|------------------------|------------------|-----------------------|-------------------|-------------------|
| 097-01-002-20172 | LCS | Solid | ICP 7300 | 01/15/15 | 01/15/15 18:21 | 150115L02A | |
| <u>Parameter</u> | | <u>Spike Added</u> | <u>Conc. Recovered</u> | <u>LCS %Rec.</u> | <u>%Rec. CL</u> | <u>ME CL</u> | <u>Qualifiers</u> |
| Antimony | | 25.00 | 23.05 | 92 | 80-120 | 73-127 | |
| Arsenic | | 25.00 | 25.08 | 100 | 80-120 | 73-127 | |
| Barium | | 25.00 | 24.12 | 96 | 80-120 | 73-127 | |
| Beryllium | | 25.00 | 23.06 | 92 | 80-120 | 73-127 | |
| Cadmium | | 25.00 | 25.17 | 101 | 80-120 | 73-127 | |
| Chromium | | 25.00 | 24.37 | 97 | 80-120 | 73-127 | |
| Cobalt | | 25.00 | 24.35 | 97 | 80-120 | 73-127 | |
| Copper | | 25.00 | 24.31 | 97 | 80-120 | 73-127 | |
| Lead | | 25.00 | 25.04 | 100 | 80-120 | 73-127 | |
| Molybdenum | | 25.00 | 23.34 | 93 | 80-120 | 73-127 | |
| Nickel | | 25.00 | 24.12 | 96 | 80-120 | 73-127 | |
| Selenium | | 25.00 | 22.11 | 88 | 80-120 | 73-127 | |
| Silver | | 12.50 | 11.06 | 88 | 80-120 | 73-127 | |
| Thallium | | 25.00 | 24.11 | 96 | 80-120 | 73-127 | |
| Vanadium | | 25.00 | 23.79 | 95 | 80-120 | 73-127 | |
| Zinc | | 25.00 | 23.96 | 96 | 80-120 | 73-127 | |

Total number of LCS compounds: 16

Total number of ME compounds: 0

Total number of ME compounds allowed: 1

LCS ME CL validation result: Pass

Quality Control - LCS

| | | |
|--|----------------|-----------------|
| Geosyntec Consultants | Date Received: | 01/14/15 |
| 3043 Gold Canal Drive, Suite 201 | Work Order: | 15-01-0737 |
| Rancho Cordova, CA 95670-6394 | Preparation: | EPA 7471A Total |
| | Method: | EPA 7471A |
| Project: Blossom Plaza Utility Trench Sampling / WR1777-04 | | Page 3 of 5 |

| Quality Control Sample ID | Type | Matrix | Instrument | Date Prepared | Date Analyzed | LCS Batch Number |
|---------------------------|------------|--------------------|------------------------|------------------|-----------------------|-------------------|
| 099-16-272-883 | LCS | Solid | Mercury 05 | 01/15/15 | 01/15/15 14:45 | 150115L01 |
| <u>Parameter</u> | | <u>Spike Added</u> | <u>Conc. Recovered</u> | <u>LCS %Rec.</u> | <u>%Rec. CL</u> | <u>Qualifiers</u> |
| Mercury | | 0.8350 | 0.9828 | 118 | 85-121 | |

Quality Control - LCS

Geosyntec Consultants
3043 Gold Canal Drive, Suite 201
Rancho Cordova, CA 95670-6394

Date Received: 01/14/15
Work Order: 15-01-0737
Preparation: EPA 3545
Method: EPA 8270C

Project: Blossom Plaza Utility Trench Sampling / WR1777-04

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| Quality Control Sample ID | Type | Matrix | Instrument | Date Prepared | Date Analyzed | LCS Batch Number | |
|----------------------------|------------|--------------------|------------------------|------------------|-----------------------|------------------|-------------------|
| 099-12-549-3169 | LCS | Solid | GC/MS SS | 01/14/15 | 01/14/15 22:52 | 150114L09 | |
| <u>Parameter</u> | | <u>Spike Added</u> | <u>Conc. Recovered</u> | <u>LCS %Rec.</u> | <u>%Rec. CL</u> | <u>ME CL</u> | <u>Qualifiers</u> |
| Acenaphthene | | 10.00 | 6.890 | 69 | 51-123 | 39-135 | |
| Acenaphthylene | | 10.00 | 6.847 | 68 | 52-120 | 41-131 | |
| Butyl Benzyl Phthalate | | 10.00 | 8.204 | 82 | 43-139 | 27-155 | |
| 4-Chloro-3-Methylphenol | | 10.00 | 6.994 | 70 | 55-121 | 44-132 | |
| 2-Chlorophenol | | 10.00 | 7.059 | 71 | 58-124 | 47-135 | |
| 1,4-Dichlorobenzene | | 10.00 | 6.538 | 65 | 42-132 | 27-147 | |
| Dimethyl Phthalate | | 10.00 | 6.698 | 67 | 51-123 | 39-135 | |
| 2,4-Dinitrotoluene | | 10.00 | 7.486 | 75 | 51-129 | 38-142 | |
| Fluorene | | 10.00 | 7.138 | 71 | 54-126 | 42-138 | |
| N-Nitroso-di-n-propylamine | | 10.00 | 6.548 | 65 | 40-136 | 24-152 | |
| Naphthalene | | 10.00 | 6.551 | 66 | 32-146 | 13-165 | |
| 4-Nitrophenol | | 10.00 | 6.236 | 62 | 24-126 | 7-143 | |
| Pentachlorophenol | | 10.00 | 5.763 | 58 | 23-131 | 5-149 | |
| Phenol | | 10.00 | 6.795 | 68 | 40-130 | 25-145 | |
| Pyrene | | 10.00 | 7.834 | 78 | 47-143 | 31-159 | |
| 1,2,4-Trichlorobenzene | | 10.00 | 6.812 | 68 | 45-129 | 31-143 | |

Total number of LCS compounds: 16

Total number of ME compounds: 0

Total number of ME compounds allowed: 1

LCS ME CL validation result: Pass

Quality Control - LCS

Geosyntec Consultants
3043 Gold Canal Drive, Suite 201
Rancho Cordova, CA 95670-6394

Date Received: 01/14/15
Work Order: 15-01-0737
Preparation: EPA 5030C
Method: EPA 8260B

Project: Blossom Plaza Utility Trench Sampling / WR1777-04

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| Quality Control Sample ID | Type | Matrix | Instrument | Date Prepared | Date Analyzed | LCS Batch Number | |
|-----------------------------|------------|--------------------|------------------------|------------------|-----------------------|-------------------|-------------------|
| 099-12-796-9275 | LCS | Solid | GC/MS RR | 01/14/15 | 01/15/15 00:06 | 150114L034 | |
| <u>Parameter</u> | | <u>Spike Added</u> | <u>Conc. Recovered</u> | <u>LCS %Rec.</u> | <u>%Rec. CL</u> | <u>ME CL</u> | <u>Qualifiers</u> |
| Benzene | | 50.00 | 55.98 | 112 | 78-120 | 71-127 | |
| Carbon Tetrachloride | | 50.00 | 54.40 | 109 | 49-139 | 34-154 | |
| Chlorobenzene | | 50.00 | 53.48 | 107 | 79-120 | 72-127 | |
| 1,2-Dibromoethane | | 50.00 | 51.61 | 103 | 80-120 | 73-127 | |
| 1,2-Dichlorobenzene | | 50.00 | 50.38 | 101 | 75-120 | 68-128 | |
| 1,2-Dichloroethane | | 50.00 | 52.17 | 104 | 80-120 | 73-127 | |
| 1,1-Dichloroethene | | 50.00 | 45.27 | 91 | 74-122 | 66-130 | |
| Ethylbenzene | | 50.00 | 53.68 | 107 | 76-120 | 69-127 | |
| Toluene | | 50.00 | 53.87 | 108 | 77-120 | 70-127 | |
| Trichloroethene | | 50.00 | 49.89 | 100 | 80-120 | 73-127 | |
| Vinyl Chloride | | 50.00 | 50.36 | 101 | 68-122 | 59-131 | |
| p/m-Xylene | | 100.0 | 106.4 | 106 | 75-125 | 67-133 | |
| o-Xylene | | 50.00 | 54.15 | 108 | 75-125 | 67-133 | |
| Methyl-t-Butyl Ether (MTBE) | | 50.00 | 47.05 | 94 | 77-120 | 70-127 | |

Total number of LCS compounds: 14

Total number of ME compounds: 0

Total number of ME compounds allowed: 1

LCS ME CL validation result: Pass

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Sample Analysis Summary Report

Work Order: 15-01-0737

Page 1 of 1

| <u>Method</u> | <u>Extraction</u> | <u>Chemist ID</u> | <u>Instrument</u> | <u>Analytical Location</u> |
|---------------|-------------------|-------------------|-------------------|----------------------------|
| EPA 6010B | EPA 3050B | 771 | ICP 7300 | 1 |
| EPA 7471A | EPA 7471A Total | 915 | Mercury 05 | 1 |
| EPA 8015B (M) | EPA 3550B | 682 | GC 48 | 1 |
| EPA 8260B | EPA 5030C | 796 | GC/MS RR | 2 |
| EPA 8270C | EPA 3545 | 923 | GC/MS TT | 1 |


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Location 1: 7440 Lincoln Way, Garden Grove, CA 92841

Location 2: 7445 Lampson Avenue, Garden Grove, CA 92841

| <u>Qualifiers</u> | <u>Definition</u> |
|-------------------|--|
| * | See applicable analysis comment. |
| < | Less than the indicated value. |
| > | Greater than the indicated value. |
| 1 | Surrogate compound recovery was out of control due to a required sample dilution. Therefore, the sample data was reported without further clarification. |
| 2 | Surrogate compound recovery was out of control due to matrix interference. The associated method blank surrogate spike compound was in control and, therefore, the sample data was reported without further clarification. |
| 3 | Recovery of the Matrix Spike (MS) or Matrix Spike Duplicate (MSD) compound was out of control due to suspected matrix interference. The associated LCS recovery was in control. |
| 4 | The MS/MSD RPD was out of control due to suspected matrix interference. |
| 5 | The PDS/PDSO or PES/PESO associated with this batch of samples was out of control due to suspected matrix interference. |
| 6 | Surrogate recovery below the acceptance limit. |
| 7 | Surrogate recovery above the acceptance limit. |
| B | Analyte was present in the associated method blank. |
| BU | Sample analyzed after holding time expired. |
| BV | Sample received after holding time expired. |
| E | Concentration exceeds the calibration range. |
| ET | Sample was extracted past end of recommended max. holding time. |
| HD | The chromatographic pattern was inconsistent with the profile of the reference fuel standard. |
| HDH | The sample chromatographic pattern for TPH matches the chromatographic pattern of the specified standard but heavier hydrocarbons were also present (or detected). |
| HDL | The sample chromatographic pattern for TPH matches the chromatographic pattern of the specified standard but lighter hydrocarbons were also present (or detected). |
| J | Analyte was detected at a concentration below the reporting limit and above the laboratory method detection limit. Reported value is estimated. |
| JA | Analyte positively identified but quantitation is an estimate. |
| ME | LCS Recovery Percentage is within Marginal Exceedance (ME) Control Limit range (+/- 4 SD from the mean). |
| ND | Parameter not detected at the indicated reporting limit. |
| Q | Spike recovery and RPD control limits do not apply resulting from the parameter concentration in the sample exceeding the spike concentration by a factor of four or greater. |
| SG | The sample extract was subjected to Silica Gel treatment prior to analysis. |
| X | % Recovery and/or RPD out-of-range. |
| Z | Analyte presence was not confirmed by second column or GC/MS analysis. |
| | Solid - Unless otherwise indicated, solid sample data is reported on a wet weight basis, not corrected for % moisture. All QC results are reported on a wet weight basis. |

Any parameter identified in 40CFR Part 136.3 Table II that is designated as "analyze immediately" with a holding time of ≤ 15 minutes (40CFR-136.3 Table II, footnote 4), is considered a "field" test and the reported results will be qualified as being received outside of the stated holding time unless received at the laboratory within 15 minutes of the collection time.

A calculated total result (Example: Total Pesticides) is the summation of each component concentration and/or, if "J" flags are reported, estimated concentration. Component concentrations showing not detected (ND) are summed into the calculated total result as zero concentrations.



Calscience

7440 Lincoln Way, Garden Grove, CA 92841-1427 • (714) 895-5494
For courier service / sample drop off information, contact us26_sales@eurofins.com or call us.

LABORATORY CLIENT:

GEOSINTEC CONSULTANTS

ADDRESS: 3013 Gold Canal Drive, Ste 201

CITY: Rancho Cordova, STATE: CA ZIP: 95670

TEL: 916-637-8326 E-MAIL: wkey@geosintec.com

TURNAROUND TIME (Rush surcharges may apply to any TAT not "STANDARD"):

SAME DAY 24 HR 48 HR 72 HR 5 DAYS STANDARD

EDD:

COELT EDF OTHER

SPECIAL INSTRUCTIONS:

For T22 Metals (6010/747X) and SVOCs (8270), composite
T2-S-1, T2-S-2, T2-N-1, T2-N-2
For TPH (8015) and VOCs (8260), analyze samples
discreetly: T2-S-1, T2-S-2, T2-N-1, T2-N-2
Hold samples for composite analysis of PCBs (8082)
and STEL/TEL for lead for T2-S-1, T2-S-2,
T2-N-1, T2-N-2

CHAIN-OF-CUSTODY RECORD

WORK: LAB USE ONLY

15-01-0737

DATE: 1/13/15

PAGE: 1 OF 1

| CLIENT PROJECT NAME / NO.: Blossom Plaza Utility Trench Sampling / WRI777/04 | | P.O. NO.: | | | | | | | | | | | | | | | | | | | | | | | | |
|--|-----------|----------------------------|------|--------------|--------|----------------|-----------|-------------|---------------|---------------|-----------------------|-----|--------------------|-------------|-------------------|------------------------------------|--------------|-------------------|---------------------------------|------------------------|------------------------------------|------------------------------|---------------------------------------|------------------------|--|--|
| PROJECT CONTACT: WENDY KEY | | LAB CONTRACT OR QUOTE NO.: | | | | | | | | | | | | | | | | | | | | | | | | |
| GLOBAL ID: | | LOG CODE: | | | | | | | | | | | | | | | | | | | | | | | | |
| SAMPLER(S): (PRINT) RACHEL RAJGO | | (3) | | | | | | | | | | | | | | | | | | | | | | | | |
| REQUESTED ANALYSES Please check box or fill in blank as needed. | | | | | | | | | | | | | | | | | | | | | | | | | | |
| LAB USE ONLY | SAMPLE ID | SAMPLING | | NO. OF CONT. | Matrix | Field Filtered | Preserved | Unpreserved | TPH (g) □ GRO | TPH (d) □ DRO | TPH □ C6-C36 □ C6-C44 | TPH | BTEX / MTBE □ 8260 | VOCs (8260) | Oxygenates (8260) | Prep (5035) □ En Core □ Terra Core | SVOCs (8270) | Pesticides (8081) | PCBs (8082) [Hold for Analysis] | PAHs □ 8270 □ 8270 SIM | T22 Metals (6010/747X) □ 6020/747X | Cr(VI) □ 7196 □ 7199 □ 218.6 | STEL/TEL for Lead (Hold for Analysis) | Time: 1/13/15 05:30 AM | | |
| | | DATE | TIME | | | | | | | | | | | | | | | | | | | | | | | |
| 1 | T2-S-1 | 1/11/15 | 0100 | 1 | Soil | | | X | | | X | | | X | | | | | X | | | | | | | |
| 2 | T2-S-2 | 1/11/15 | 0115 | 1 | Soil | | | X | | | X | | | X | | | | | X | | | | | | | |
| 3 | T2-N-1 | 1/14/15 | 0145 | 1 | Soil | | | X | | | X | | | X | | | | | X | | | | | | | |
| 4 | T2-N-2 | 1/14/15 | 0200 | 1 | Soil | | | X | | | X | | | X | | | | | X | | | | | | | |
| Relinquished by: (Signature) | | [Signature] | | | | | | | | | | | | | | | | | | | | | | Date: 1/14/15 | | |
| Relinquished by: (Signature) | | [Signature] | | | | | | | | | | | | | | | | | | | | | | Date: 1/14/15 | | |
| Relinquished by: (Signature) | | [Signature] | | | | | | | | | | | | | | | | | | | | | | Date: 1/14/15 | | |



Calscience

WORK ORDER #: 15-01-0737

SAMPLE RECEIPT FORM

Cooler 1 of 1

CLIENT: GEOSINTEL

DATE: 01/14/15

TEMPERATURE: Thermometer ID: SC4 (Criteria: 0.0°C - 6.0°C, not frozen except sediment/tissue)

Temperature 3.3°C + 0.2°C (CF) = 3.5°C [X] Blank [] Sample

- [] Sample(s) outside temperature criteria (PM/APM contacted by: _____)
[] Sample(s) outside temperature criteria but received on ice/chilled on same day of sampling.
[] Received at ambient temperature, placed on ice for transport by Courier.

Ambient Temperature: [] Air [] Filter

Checked by: 678

CUSTODY SEALS INTACT:

- [] Cooler [] _____ [] No (Not Intact) [X] Not Present [] N/A
[] Sample [] _____ [] No (Not Intact) [X] Not Present

Checked by: 678
Checked by: 876

SAMPLE CONDITION:

Table with 4 columns: Item, Yes, No, N/A. Rows include Chain-Of-Custody (COC) document(s) received with samples, COC document(s) received complete, Sampler's name indicated on COC, Sample container label(s) consistent with COC, Sample container(s) intact and good condition, Proper containers and sufficient volume for analyses requested, Analyses received within holding time, Aqueous samples received within 15-minute holding time, Proper preservation noted on COC or sample container, Volatile analysis container(s) free of headspace, Tedlar bag(s) free of condensation.

CONTAINER TYPE:

Solid: [] 4ozCGJ [X] 8ozCGJ [] 16ozCGJ [] Sleeve () [] EnCores® [] TerraCores® [] _____
Aqueous: [] VOA [] VOA h [] VOA na2 [] 125AGB [] 125AGB h [] 125AGB p [] 1AGB [] 1AGB na2 [] 1AGBs
[] 500AGB [] 500AGJ [] 500AGJs [] 250AGB [] 250CGB [] 250CGBs [] 1PB [] 1PB na [] 500PB
[] 250PB [] 250PBn [] 125PB [] 125PBz nna [] 100PJ [] 100PJ na2 [] _____ [] _____
Air: [] Tedlar® [] Canister Other: [] _____ Trip Blank Lot#: _____ Labeled/Checked by: 678
Container: C: Clear A: Amber P: Plastic G: Glass J: Jar B: Bottle Z: Ziploc/Resealable Bag E: Envelope Reviewed by: 678
Preservative: h: HCL n: HNO3 na2: Na2S2O3 na: NaOH p: H3PO4 s: H2SO4 u: Ultra-pure z nna: ZnAc2+NaOH f: Filtered Scanned by: 678





Calscience

WORK ORDER #: 15-01-0737

SAMPLE ANOMALY FORM

SAMPLES - CONTAINERS & LABELS:

Comments:

- Sample(s) NOT RECEIVED but listed on COC
- Sample(s) received but NOT LISTED on COC
- Holding time expired – list sample ID(s) and test
- Insufficient quantities for analysis – list test
- Improper container(s) used – list test
- Improper preservative used – list test
- No preservative noted on COC or label – list test & notify lab
- Sample labels illegible – note test/container type
- Sample label(s) do not match COC – Note in comments
 - Sample ID
 - Date and/or Time Collected
 - Project Information
 - # of Container(s)
 - Analysis
- Sample container(s) compromised – Note in comments
 - Water present in sample container
 - Broken
- Sample container(s) not labeled
- Air sample container(s) compromised – Note in comments
 - Flat
 - Very low in volume
 - Leaking (Not transferred - duplicate bag submitted)
 - Leaking (transferred into Calscience Tedlar® Bag*)
 - Leaking (transferred into Client's Tedlar® Bag*)
- Other: _____

(-2) Collection time per label 0100.

HEADSPACE – Containers with Bubble > 6mm or ¼ inch:

| Sample # | Container ID(s) | # of Vials Received | Sample # | Container ID(s) | # of Vials Received | Sample # | Container ID(s) | # of Cont. received | Analysis |
|----------|-----------------|---------------------|----------|-----------------|---------------------|----------|-----------------|---------------------|----------|
| | | | | | | | | | |
| | | | | | | | | | |
| | | | | | | | | | |
| | | | | | | | | | |
| | | | | | | | | | |

Comments: _____

*Transferred at Client's request.

Initial / Date: *SM 01/14/15*

Stephen Nowak

From: Wendy Key [WKey@Geosyntec.com]
Sent: Thursday, January 15, 2015 8:56 AM
To: Stephen Nowak
Subject: RE: Blossom Plaza Utility Trench Sampling

Hi Stephen,

Per our conversation this morning, can you please add silica gel cleanup to the TPH analyses for the Blossom Plaza Utility Trench samples that were submitted by Rachel Ragoo (Geosyntec) yesterday, January 14 2015?

Thank you!

Wendy

Wendy Key, PG, CEM
Project Geologist

3043 Gold Canal Drive, Suite 201
Rancho Cordova, California 95670
Office: 916.637.8048
Direct: 916.637.8326
Fax: 916.637.8321
Mobile: 916.833.6214
www.Geosyntec.com



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J-26 - Jimmie Joe's Texaco 900 N Hill Street

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EDMUND G. BROWN JR.
GOVERNOR

MATTHEW RODRIGUEZ
SECRETARY FOR
ENVIRONMENTAL PROTECTION

Los Angeles Regional Water Quality Control Board

December 8, 2015

Jimmie Joe
900 North Hill Street
Los Angeles, CA 90012

**UNDERGROUND STORAGE TANK PROGRAM -- DIRECTIVE TO TAKE CORRECTIVE ACTION IN RESPONSE TO UNAUTHORIZED UNDERGROUND STORAGE TANK RELEASE – HEALTH AND SAFETY CODE SECTION 25296.10 AND TITLE 23, CHAPTER 16, CALIFORNIA CODE OF REGULATIONS, SECTIONS 2720-2727.
JIMMIE JOE'S TEXACO (D-1 CASE)
900 NORTH HILL STREET, LOS ANGELES, CA (CASE # 900120343)**

Dear Mr. Joe:

Pursuant to Health and Safety Code Section 25296.10, you are required to take corrective action (i.e., Preliminary Site Assessment, Soil and Water Investigation, Corrective Action Plan Implementation, and Verification Monitoring) to ensure protection of human health, safety and the environment. Corrective action requirements are set forth in California Code of Regulations (CCR), Title 23, Sections 2720 through 2727.

We have received the "Confirmation Boring and Vapor Rebound Testing Report" (Report), dated November 19, 2015, prepared by your consultant, The Reynolds Group (TRG), for the subject site. This letter intends to provide Regional Board staff comments upon reviewing the report.

Site Condition Update

Currently, the site has twelve onsite and offsite groundwater monitoring wells (MW-1 through MW-12), and eight soil vapor extraction wells (SV1 through SV8). Groundwater monitoring has been conducted since April 1997. Historically, maximum concentrations of TPHg of 82,700 µg/L, benzene of 2,960 µg/L, toluene of 25,700 µg/L, ethylbenzene of 5,900 µg/L, Xylenes of 30,000 µg/L and MTBE of 46,105 µg/L were detected in the groundwater beneath the site.

In July 2015, maximum concentrations of TPHg of 10,021 µg/L, benzene of 62.7 µg/L, toluene of 46.7 µg/L, ethylbenzene of 14.2 µg/L, xylenes of 65.1 µg/L and MTBE of 570.8 µg/L were detected in the groundwater. Depth to groundwater was at 35 to 53 feet bgs and groundwater flow direction was toward the southeast.

A dual-phase extraction system (DPE) has been operated at this site since August 2012. As of July 31, 2014, approximately 539,939 gallons of hydrocarbon-impacted groundwater and 3,800 pounds of vapor phase hydrocarbons were removed from the site.

In September 2015, three soil confirmation borings (CB1 through CB3) were drilled to a maximum depth of 50 feet bgs adjacent to the UST farm at the site. Soil samples detected TPHg of 4,920 mg/kg, benzene of 11.325 mg/kg, toluene of 312.073 mg/kg, ethylbenzene of 137.503 mg/kg,

CHARLES STRINGER, CHAIR | SAMUEL UNGER, EXECUTIVE OFFICER

320 West 4th St., Suite 200, Los Angeles, CA 90013 | www.waterboards.ca.gov/losangeles

Jimmie Joe
900 North Hill Street

December 7, 2015

Xylenes of 568.667 mg/kg and MTBE of 23.974 mg/kg were detected in the soil beneath the site. The elevated highest concentration of soil contaminations were detected from 35 feet to 50 feet bgs at the site.

Additionally, soil vapor rebound test was performed in September 2015, and slight to no rebound was observed at the vapor wells.

Remedial Action Plan Approval (Per CCR Title 23, §2726)

In the Report, although little to no rebound occurred during the vapor rebound testing conducted in September 2015, TRG proposed to operate the vapor extraction portion of the DPE system to address the residual concentrations revealed by the confirmation soil samples. Groundwater wells MW4, MW11 and soil vapor well SV4 with deep screen will be connected to the SVE system for the SVE operation.

Regional Board staff has no objection to the proposed action, with the following conditions:

1. If soil vapor samples are collected, they shall be analyzed per Regional Board's Advisory for Active Soil Gas Investigations (July 2015). Available at:
http://www.waterboards.ca.gov/losangeles/water_issues/programs/ust/docs/VI_ActiveSoilGasAdvisory_FINAL.pdf
2. During the remedial actions, remedial progress reports must be submitted as part of the groundwater monitoring report (see below section) to this Regional Board. The following information must be included in each of the remedial progress reports:
 - Scaled map(s) showing the location of all wells and detailed layout of remediation system (i.e., piping and treatment system).
 - Hours of system operation
 - Laboratory test results (in µg/L) including QA/QC data
 - Tabular and graphical summaries of contaminants removed versus time
 - Contamination mass removal rates and cumulative mass removal (vapor phase, free phase, dissolved phase)
 - Influent concentrations and concentrations at each vapor extraction well
 - Accumulated free product volume (if any)
 - Cross section profiles showing the extraction wells. Contaminant plume concentration, and lithologic information
 - Volume of free products and groundwater removed and the disposal facility, if any
 - Data interpretation, conclusions, and recommendations
3. In addition to reporting the volume of contaminated soil vapor extracted, the remedial progress report must include the total mass in pounds of TPHg and benzene removed from the subsurface from all cleanup operations employed to date. Please include all data and calculations used to compute the total mass removed.
4. Following one year period of VES implementation, you are required to evaluate the effectiveness of the VES system for the site. More aggressive remedial alternatives must be evaluated and implemented at the site to effectively mitigate the soil beneath the site if the VES system is deemed less effective. A final remedial action plan (RAP)

must be submitted to the Regional Board to propose more aggressive remedial alternative(s) for the site, if needed.

Continuous Groundwater Monitoring Requirements (Per CCR, title 23, §2727)

1. Groundwater monitoring must be continued and monitoring reports must be submitted as part of the corresponding SCMU, with the next report due by **January 15, 2015**.

| <u>Reporting Period</u> | <u>Sampling Period</u> | <u>Report Due Date</u> |
|-------------------------|------------------------|--------------------------|
| January – June | April – June | July 15 th |
| July – December | October – December | January 15 th |

2. All existing groundwater monitoring wells related to the site must be sampled.
3. Groundwater samples must be analyzed by Cal-LUFT GC/FID or Cal-LUFT GC/MS Method for total petroleum hydrocarbons as gasoline (TPH_G), total petroleum hydrocarbons as diesel (TPH_D) when diesel is identified at the site; and by EPA Method 8260B for benzene, toluene, ethylbenzene and xylenes (BTEX), naphthalene, and fuel oxygenate compounds including methyl tertiary butyl ether (MTBE), di-isopropyl ether (DIPE), ethyl tertiary butyl ether (ETBE), tertiary amyl methyl ether (TAME), and tertiary butyl alcohol (TBA). Ethanol is also required and shall be analyzed by either method above. The analytical detection limits must conform to the Regional Board General Laboratory Testing Requirements (9/06) (http://www.waterboards.ca.gov/losangeles/publications_forms/forms/ust/lab_forms/labreq9-06.pdf). All respective analytical methods must be certified by the California Environmental Laboratory Accreditation Program (ELAP). All analytical data must be reported by a California-certified laboratory. Must be analyzed using EPA Method 8060B for volatile organic compound (VOCs) including fuel oxygenates.

4. Each groundwater monitoring report must include the following:
 - A separate summary table containing current concentrations.
 - A summary table containing all historical data per each well with groundwater depth (or elevation) and well screen intervals.
 - A regional map depicting site vicinity business and street, etc.
 - A site plot plan depicting site location, tank and associated system locations.
 - A site map depicting all well locations and groundwater elevations (contour) with flow gradient and direction.
 - An isoconcentration map for TPH(g), benzene, MTBE, and TBA, respectively.
 - A hydrograph superimposing on concentration over time at the most impacted well for TPH(g), benzene, MTBE, and TBA (or at any other wells as warranted).
 - Conclusion and recommendation.

E-Report Submittal

Effective November 1, 2011, the Los Angeles Regional Water Quality Control Board implemented a Paperless Office system. For all parties who upload electronic documents to State Database GeoTracker, it is no longer necessary to email a copy of these documents to losangeles@waterboards.ca.gov or submit hard copies to our office. The Regional Board will no longer accept documents (submitted by either hard copy or email) already uploaded to GeoTracker.

Jimmie Joe
900 North Hill Street

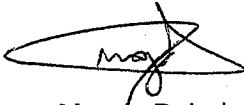
December 7, 2015

General Requirements

1. The contractor who conducts the environmental work as required in this order shall, at all times, comply with all applicable State laws, rules, regulations, and local ordinances specifically, including but not limited to, environmental, procurement and safety laws, rules, regulations, and ordinances. The contractor shall obtain the services of a Professional Geologist or Engineer, Civil (PG/PE-Civil) to comply with the applicable requirements of the Business and Professions Code, sections 7800 et seq. implementing regulations for geological or engineering analysis and interpretation for this case. All documents prepared for others by the contractor that reflect or rely upon geological or engineering interpretations by the contractor shall be signed or stamped by the PG/PE-Civil indicating her/his responsibility for them as required by the Business and Professions Code.
2. All necessary permits must be obtained from the appropriate agencies such as the State Department of Health Services, and the City of Burbank, prior to the start of work.
3. Prior to commencing any fieldwork, Regional Board staff must be given a minimum of **15 days** advance notice in writing, so that one of our staff may be present.

If you have any questions on this matter, please contact Mr. Magdy Baiady at (213) 576-6699 or Mbaiady@waterboards.ca.gov.

Sincerely,



Magdy Baiady
Engineering Geologist
UST Section

cc: Micah Reich, State Water Resources Control Board, Underground Storage Tank
Cleanup Fund
Ed Reynolds, Jr., The Reynolds Group

J-28 - Fueling Station 1135 N. Alameda Street

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**UNDERGROUND STORAGE TANK
LOW RISK CASE REVIEW FORM**

| | | | | |
|--|--|---|--|--------------------------------------|
| Case Reviewer: Errick Llamas <i>EL</i> | Unit Chief: Dr. Yi Lu <i>Yi Lu</i> | Section Chief: Dr. Yue Rong <i>YR</i> | AEO: Paula Rasmussen <i>PR</i> | EO: Samuel Unger <i>SU</i> |
| Date: <i>11/23/15</i> | Date: <i>11/23/15</i> | Date: <i>11/23/15</i> | Date: <i>11-23-15</i> | Date: <i>11-24-15</i> |

| | | | |
|---|--|--|-----------------------------------|
| LUSTIS File No.: 900120525 | | Investigation and Cleanup Priority: D-1 | |
| Site Name/Address: Fueling Station Former 1135 North Alameda Street Los Angeles, CA 90012 | Responsible parties: Tom Majich Arroy Hill Advisors & Builders | Address: 715-B New High Street Los Angeles, CA 90012 | Phone no.: 213/798-4315 |

I. CASE INFORMATION (N/A = Not Applicable)

| Tank No. | Size in Gallons | Contents | Closed in-place/Removed/Active? | Date |
|----------|-----------------|-----------|---------------------------------|------------|
| 1 | 1,000 | Gasoline | Closed In-place | 1963 |
| 2 | 4,000 | Gasoline | Closed In-place | 1963 |
| 3 | 1,000 | Waste-Oil | Removed | April 1988 |
| 4-5 | 2,000 | Gasoline | Removed | April 1988 |
| 6-7 | 5,000 | Gasoline | Removed | April 1988 |
| 8 | 8,000 | Gasoline | Removed | April 1988 |

II. SITE CHARACTERIZATION INFORMATION (GW = Groundwater)

| | | |
|--|--------------------------------------|--|
| GW Basin: Coastal Plain of Los Angeles | Beneficial uses: Mun, Ind, Proc, Agr | Water purveyor in the area: City of Los Angeles |
| Distance to nearest municipal supply well: The nearest supply well (01S13W04P02S) is located approximately 17,036 feet away from the site. | | Water purveyor contact: Attn: Mr. Greg Reed 111 North Hope Street, Rm #1460, Los Angeles, CA 90012-2607 |
| GW highest depth: N/a | GW lowest depth: N/a | Well screen interval: N/a Flow Direction: N/a |
| Soil types: | | Maximum soil depth sampled: |

III. SITE INSPECTION

| | |
|--|---|
| Pre-closure site inspection date: N/a | Is there sensitive receptor next to the site (school, church, hospital, kindergarten etc.)? If yes, brief description: None, as per Google Maps Search |
|--|---|

IV. MAXIMUM DOCUMENTED CONTAMINANT CONCENTRATIONS – (Initial and Latest) / ND = Non-Detect; NRQ = Not Required

| Contaminant | Soil (mg/kg) | | EPA SLs* | | Soil Screening Levels (mg/kg)** Depth to GW: N/A Type of soil: N/A | Water (µg/L) | | MCLs/NL (µg/L) |
|------------------------------------|------------------|-----------------|---------------------|--------------------|--|---------------|--------------|-------------------------------|
| | Initial (4/1988) | Latest (6/2015) | Residential (mg/kg) | Industrial (mg/kg) | | Initial (N/A) | Latest (N/A) | |
| TPH (Gas) | NA | 800 | NE | NE | N/A | NRQ | NRQ | NE |
| TPH (Diesel) | NA | 670 | NE | NE | N/A | NRQ | NRQ | NE |
| TRPH | 85 | NA | NE | NE | N/A | NRQ | NRQ | NE |
| TVPH | 420 | NA | NE | NE | N/A | NRQ | NRQ | NE |
| Benzene | NA | 3.4 | 1.2 | 5.1 | N/A | NRQ | NRQ | 1 |
| Toluene | NA | 60 | 4,900 | 47,000 | N/A | NRQ | NRQ | 150 |
| Ethylbenzene | NA | 36 | 5.8 | 25 | N/A | NRQ | NRQ | 300 |
| Xylenes | NA | 181 | 580 | 2,500 | N/A | NRQ | NRQ | 1,750 |
| Methyl Tertiary Butyl Ether (MTBE) | NA | ND | 47 | 210 | N/A | NRQ | NRQ | 13 (Primary) 5 (Secondary) |
| Di-Isopropyl Ether (DIPE) | NA | ND | 2,200 | 9,400 | NE | NRQ | NRQ | NE |
| Ethyl Tertiary Butyl Ether (ETBE) | NA | ND | NE | NE | NE | NRQ | NRQ | NE |
| Tertiary Amyl Methyl Ether (TAME) | NA | ND | NE | NE | NE | NRQ | NRQ | NE |
| Tertiary Butyl Alcohol (TBA) | NA | ND | NE | NE | NE | NRQ | NRQ | 12 (NL) |
| Ethanol | NA | ND | NE | NE | NE | NRQ | NRQ | NE |
| Naphthalene | NA | 5.2 | 3.8 | 17 | NE | NRQ | NRQ | 170 (NL) |

| | |
|---|---|
| Site Name/Address: Fueling Station Former 1135 North Alameda Street Los Angeles, CA 90012 | Staff Initial: <p style="text-align: center;">EPL</p> |
|---|---|

NE = Not Established. NL = Notification Level. NA = Not Analyzed. N/A = Not Applicable.
 * SLs = USEPA Risk-Based Screening Levels (January 2015). ** See Attached Table 4 –1.

V. FREE PRODUCT

| | |
|---|---|
| Was free product encountered? No | Has free product been totally removed? No |
| When was free product recovery project completed? N/A | |

VI. SOIL REMEDIATION

| | |
|------------------------------|---|
| Method: None | Duration of remediation: N/A |
| Waste manifest document: N/A | Volume of soil disposal/mass removal: N/A |

VII. GROUNDWATER REMEDIATION

| | |
|--------------|------------------------------|
| Method: None | Duration of remediation: N/A |
| | Mass removal: N/A |

VIII. COMMENTS AND JUSTIFICATION FOR RECOMMENDED ACTION

Site History:

The site was a former fueling station located at 1135 North Alameda Street in Los Angeles, California. JK Massage and Acupuncture Herb currently occupy the site with an accompanying parking lot. The area within the vicinity of the site is a mixture of commercial, industrial, and residential properties in Los Angeles, California.

The site was referred to the Regional Board on October 25, 2014, by the City of Los Angeles Fire Department.

Data Summary:

In May 1963, two underground storage tanks (USTs), which consisted of one 1,000-gallon gasoline UST and one 4,000-gallon gasoline UST, were closed in-place at the site. No soil sampling data could be located within the case file.

In April 1988, six USTs (one 8,000-gallon gasoline UST, two 5,000-gallon gasoline USTs, two 2,000-gallon gasoline USTs, and one 1,000-gallon waste-oil UST) were removed from the site. Eleven soil samples were collected from approximately 2.0 feet below the invert of the former USTs. Maximum concentrations of 85.0 mg/kg TRPH and 420 mg/kg TVPH were detected in the soil samples. Other fuel constituents and fuel oxygenates were not analyzed. See Table 1 for data.

In June 2015, thirteen soil borings (B1 through B4, and B6 through B14) were drilled to a maximum depth of 20.0 feet bgs. Maximum concentrations of 800 mg/kg TPHg, 670 mg/kg TPHd, 3.4 mg/kg benzene, 60 mg/kg toluene, 36 mg/kg ethylbenzene, 181 mg/kg xylenes, and 5.2 mg/kg naphthalene were detected in the soil samples. Other fuel constituents and oxygenates were not detected in the soil samples. See Table 1 and 2 for soil data.

Subsurface Lithology:

The subsurface lithology consisted primarily of medium-grained sand from approximately 0 feet to 15.0 feet bgs and silty clay from approximately 15.0 feet to 20.0 feet bgs. No free product or perched groundwater was encountered at the site.

Groundwater Summary:

Groundwater was not encountered during boring investigations. However, according to GeoTracker, a LUST site (Regional Board No. 900120343) approximately 968 feet northwest of the subject site encountered groundwater at approximately 40.0 feet bgs.

Based on the above site assessment results, additional soil and/or groundwater investigation is not warranted.

LOW THREAT UST CLOSURE POLICY CRITERIA EVALUATION:

General Criteria:

The site meets a through h general criteria of the low threat policy as follows:

- The unauthorized release is located within the service area of a public water system – True, City of Los Angeles
- The unauthorized release consists of petroleum only – True
- The unauthorized “primary” release from the UST system has been stopped – True (All USTs were removed).
- Free product has been removed to the extent practicable – True (free product was never observed on-site).
- A conceptual site model has been developed – True

| | |
|---|---|
| Site Name/Address: Fueling Station Former 1135 North Alameda Street Los Angeles, CA 90012 | Staff Initial: <p style="text-align: center;">EPL</p> |
|---|---|

- f) The secondary source has been removed to the extent practicable – True (remediation was not necessary)
- g) Soil has been tested for MTBE – True
- h) No known nuisances exist at the site - True

Groundwater:

The site is a soil only case. Therefore, the groundwater section of the Low Threat Policy is not applicable.

Vapor Intrusion To Indoor Air:

Based on the facts that low concentrations of fuel constituents are detected in the soil beneath the site (benzene and MTBE are non-detect), and that the site does not have any subsurface structures, the actual risk of vapor intrusion to indoor air is minimal.

Direct Contact And Outdoor Air Exposure:

Maximum concentrations of petroleum constituents in the soil are less than those listed in the Table below for the specified depth below ground surface. Therefore the residual constituents in the soil will have no significant risk of adversely affecting human health.

| Chemical | Site Concentrations | Residential | | Commercial/Industrial | |
|--------------|---------------------|----------------------|--|-----------------------|--|
| | | 0 to 5 ft. bgs mg/kg | Volatilization to outdoor air (0 to 5 ft. bgs) mg/kg | 0 to 5 ft. bgs mg/kg | Volatilization to outdoor air (0 to 5 ft. bgs) mg/kg |
| Benzene | ND | 1.9 | 2.8 | 8.2 | 12 |
| Ethylbenzene | ND | 21 | 32 | 89 | 134 |
| Naphthalene | ND | 9.7 | 9.7 | 45 | 45 |
| PAH | NA | 0.063 | NA | 0.68 | NA |

FACTORS SUPPORTING LOW RISK CLOSURE:

Based on the above assessment, staff recommends to grant a low risk closure for the site for the following reasons:

1. The extent of the soil contamination has been defined.
2. Site remediation was not necessary.
3. Free product was never observed on-site.
4. The nearest production well is approximately 17,036 feet away from the site.
5. Case Closure is consistent with the Low Threat UST Closure Policy.

IX. MTBE FATE & TRANSPORT PLUME LENGTH MODELING ANALYSIS

The MTBE Plume Length Model is not necessary because groundwater was not encountered on-site.

X. ELECTRONIC DELIVERABLE FORMAT (EDF) SUBMISSION

Has electronic data reporting requirement been met? Yes

XI. AB 681 REQUIREMENT (Land Owner Notification)

Verify property ownership <http://assessor.lacounty.gov/extranet/DataMaps/Pais.aspx> (date) : November 16, 2015
 Has landowner or impacted site notification requirements been met? Yes
 Owner: 837 North Spring Street Owner LLC
 Responsible party: Arroy Hill Advisors and Builders
 Pre-closure letter sent date:

(August 2012)

| | |
|---|----------------------------------|
| Site Name/Address: Fueling Station Former 1135 North Alameda Street Los Angeles, CA 90012 | Staff Initial: EPL |
|---|----------------------------------|

Table 4-1: Maximum Soil Screening Levels (mg/kg) for TPH, BTEX and MTBE above Drinking Water Aquifers

| T P H | Distance Above Groundwater | Carbon Range | | |
|-------------|----------------------------|--------------|---------|---------|
| | | C4-C12 | C13-C22 | C23-C32 |
| | >150 feet | 1,000 | 10,000 | 50,000 |
| | 20-150 feet | 500 | 1,000 | 10,000 |
| <20 feet | 100 | 100 | 1,000 | |

| B T E X & M T B E | Distance Above Groundwater | Lithology | | | |
|---|--|--|---|--|--|
| | | Gravel | Sand | Silt | Clay |
| | 150 feet | B=0.044 T=2 E=8 X=23 MTBE = 0.039 | B=0.077 T=4 E=17 X=48 MTBE = 0.078 | B=0.165 T=9 E=34 X=93 MTBE = 0.156 | B=0.8 T=43 E=170 X=465 MTBE = 0.78 |
| | 120 feet | B=0.035 T=1.57 E=6.3 X=17.9 MTBE = 0.028 | B=0.058 T=3.1 E=12.7 X=36 MTBE = 0.061 | B=0.123 T=7 E=25.9 X=70.3 MTBE = 0.117 | B=0.603 T=32 E=128 X=351 MTBE = 0.591 |
| | 100 feet | B=0.028 T=1.3 E=5.1 X=14.4 MTBE = 0.020 | B=0.046 T=2.57 E=9.86 X=28 MTBE = 0.05 | B=0.094 T=5.4 E=20.4 X=55.1 MTBE = 0.091 | B=0.471 T=25 E=101 X=276 MTBE = 0.464 |
| | 80 feet | B=0.022 T=1 E=4 X=11 MTBE = 0.013 | B=0.033 T=2 E=7 X=20 MTBE = 0.039 | B=0.066 T=4 E=15 X=40 MTBE = 0.065 | B=0.34 T=18 E=73 X=200 MTBE = 0.338 |
| | 60 feet | B=0.018 T=0.72 E=2.9 X=7.9 MTBE = 0.013 | B=0.026 T=1.4 E=4.9 X=13.9 MTBE = 0.03 | B=0.048 T=2.8 E=10.7 X=28.4 MTBE = 0.048 | B=0.241 T=13 E=52 X=141.5 MTBE = 0.247 |
| | 40 feet | B=0.015 T=0.43 E=1.8 X=4.8 MTBE = 0.013 | B=0.018 T=0.87 E=2.8 X=7.8 MTBE = 0.022 | B=0.029 T=1.6 E=6.3 X=16.9 MTBE = 0.03 | B=0.143 T=7.5 E=30 X=83 MTBE = 0.156 |
| 20 feet | B=0.011 T=0.15 E=0.7 X=1.75 MTBE = 0.013 | B=0.011 T=0.3 E=0.7 X=1.75 MTBE = 0.013 | B=0.011 T=0.45 E=2 X=5.3 MTBE = 0.013 | B=0.044 T=2.3 E=9 X=24.5 MTBE = 0.065 | |

- TPH = Total petroleum hydrocarbons.
- BTEX = benzene, toluene, ethylbenzene, and xylenes, respectively. MTBE = methyl tertiary butyl ether.
- Respective MCLs (ppm): B = 0.001, T = 0.15, E = 0.7, X = 1.75, MTBE = 0.013.
- BTEX screening concentrations determined per the attenuation factor method as described in RWQCB Guidance for VOC Impacted Sites (March 1996), with a natural degradation factor of 11 for BTEX and of 3 for MTBE. Table values can be linearly interpolated between distances above groundwater and are proportional to fraction of each lithological thickness.
- Values in Table 4-1 are for soils above drinking water aquifers. All groundwater is considered as drinking water resources unless exempted by one of the criteria as defined under SWRCB Resolution 88-63 (TDS>3000 mg/L, or deliverability <200 gal/day, or existing contamination that cannot be reasonably treated). Regional Board staff will make a determination of potential water use at a particular site considering water quality objectives and beneficial uses. For non-drinking water aquifers, regardless of depth, TPH for ">150 feet" category in the table should be used;
- Distance above groundwater must be measured from the highest anticipated water level. Lithology is based on the USCS scale.
- In areas of naturally-occurring hydrocarbons, Regional Board staff will make determinations on TPH levels.

(Revised 1/7/05)

Llamas, Errick@Waterboards

From: Van Nuys <ASSR-VanNuys@assessor.lacounty.gov>
Sent: Monday, November 16, 2015 1:55 PM
To: Llamas, Errick@Waterboards
Subject: Ownership - Property Tax Portal - Reference # 81658

AIN: 5408029001

Owner Of Record: 837 North Spring Owner LLC

Mailing Address: 837 N Spring ST., STE 213,
Los Angeles, CA 90012-2596

Van Nuys Help Desk

-----Original Message-----

From: ellamas@waterboards.ca.gov [mailto:ellamas@waterboards.ca.gov]
Sent: Friday, November 13, 2015 10:23 AM
To: L.A. County - Office of The Assessor <sinvestigation@assessor.lacounty.gov>
Subject: Ownership - Property Tax Portal - Reference # 81658

Ownership - Property Tax Portal - Reference # 81658

Thank you for completing our Public Inquiry form. A staff member from the Assessor's department will respond to your request shortly.

The Reference number for your inquiry is 81658.

Name: Llamas, Errick

Business Name: Los Angeles Regional Water Quality Control Board

Address: 320 West 4th Street, Suite 200

Los Angeles, CA 90013

Email: ellamas@waterboards.ca.gov

Phone: 2135766620

Fax: 2135766620

Situs:

, CA

AIN: 5408-029-001

Company Name:

Routing Index:

Comments: Hello, I am with the Los Angeles regional water quality control board and we are currently conducting groundwater contamination summaries and we are preparing this site for closure and because of this we need to verify property ownership and contact information.

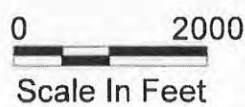
Thank you



Site Latitude: N34.062829
 Site Longitude: W118.236307
 Site Elevation: 290 Feet
 Source: USGS Topographical Quadrangle

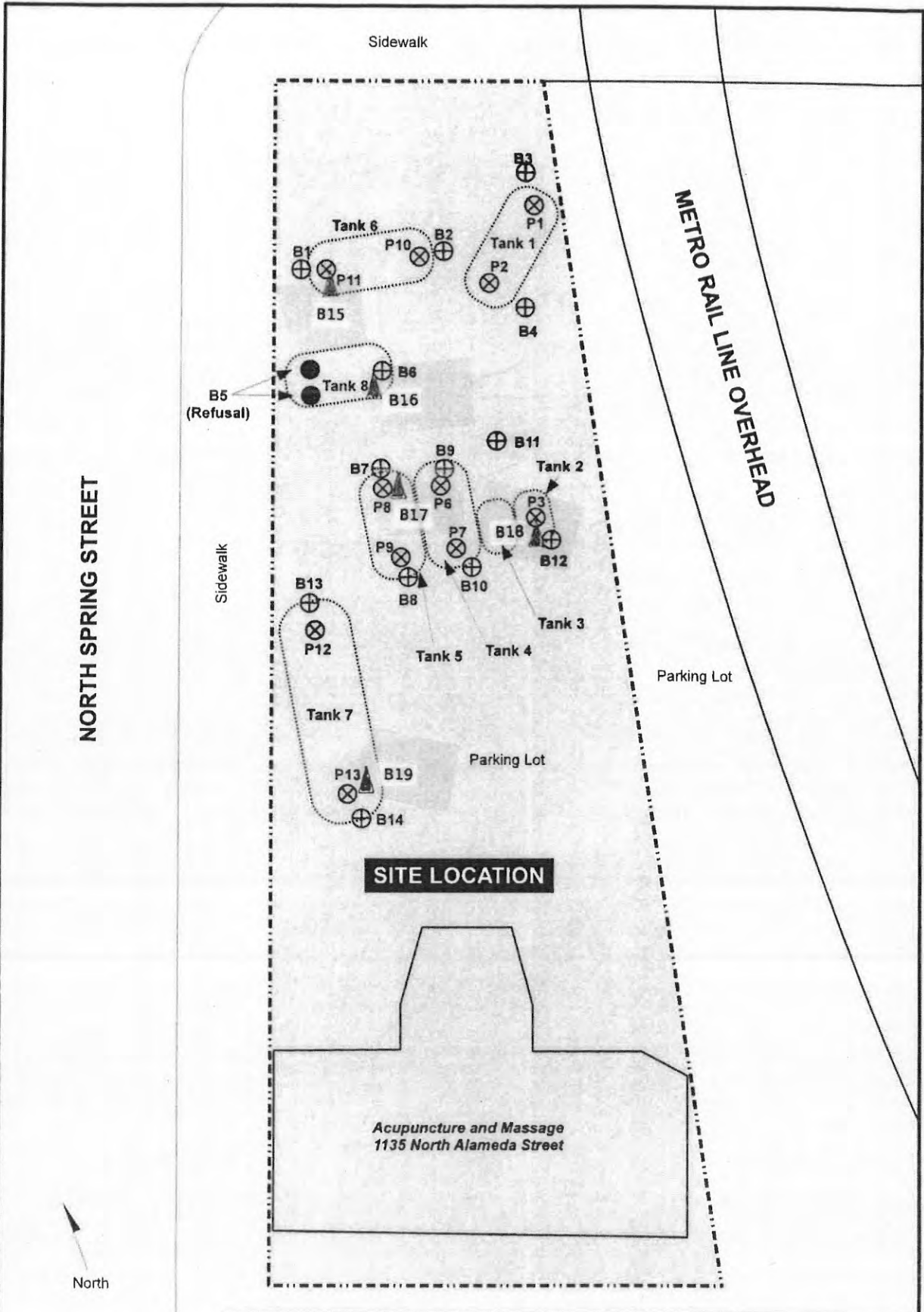


Environmental Services



**Site Location Map
Topographic Map**

| | | | |
|---|---------------------------|---|----------------------------|
| Client: Arroyo Hill | Drafted By: EJH | Project Manger: J. Tim Hersch | Project No: E939 |
| Site Location: 1135 North Alameda Street, Los Angeles, CA 90012 | Date: 6 / 2015 | Figure: 1 | |



| | | | | | |
|--|------------------------|-----------------------|----------------------------------|---------------------|--|
| PROPOSED DEEP BORING SOIL BORING LOCATION SOIL SAMPLE LOCATION (UST REMOVAL) (APPROXIMATE) | Environmental Services | 0 10 Scale In Feet | Site Map | | |
| | Client: Arroyo Hill | Drafted By: EJH | Project Manger: J. Tim Hersch | Project No. E939 | |
| Site Location: 1135 North Alameda Street, Los Angeles, CA 90012 | Date: 6 / 2015 | | Figure: 2 | | |

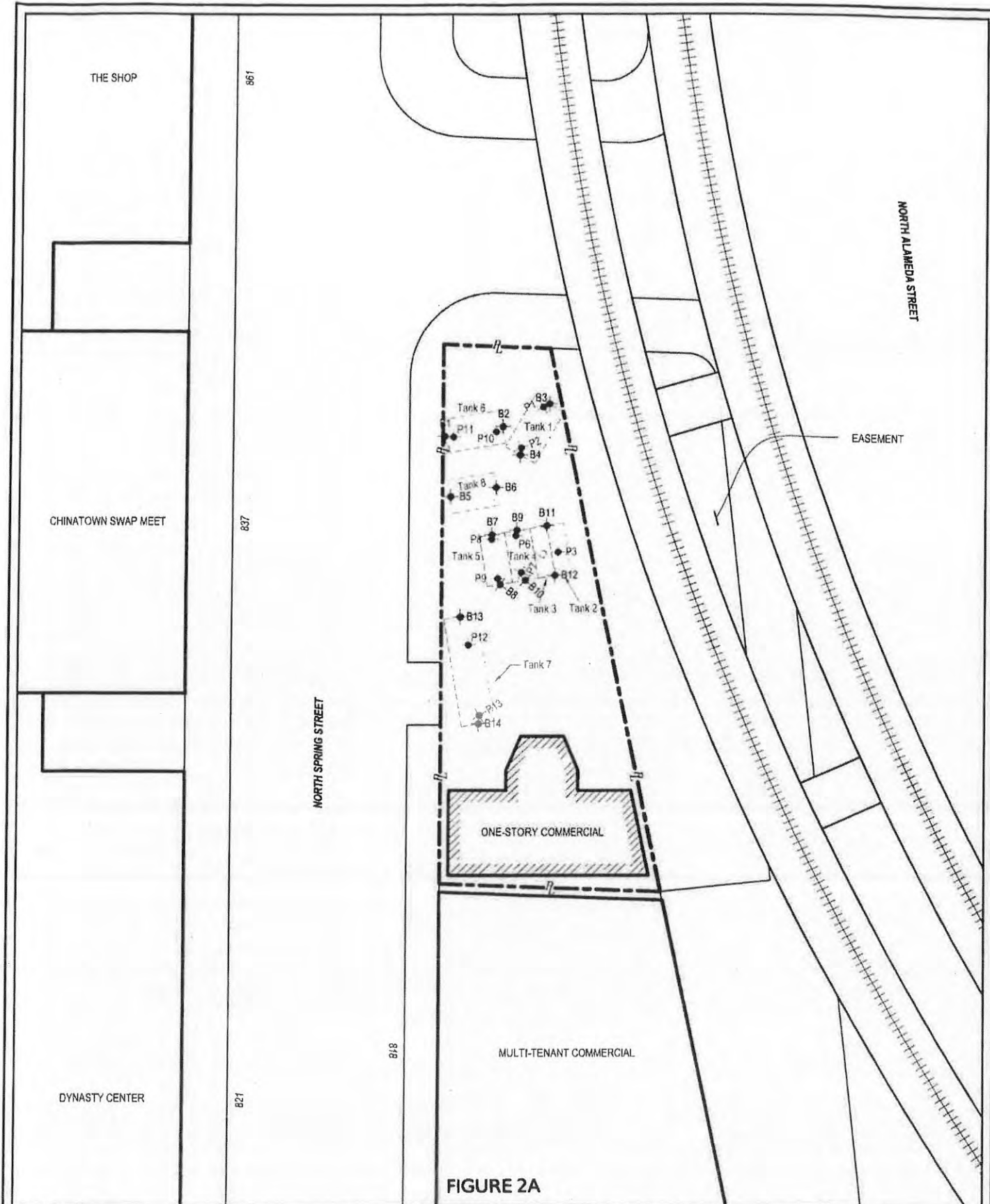



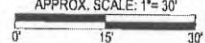
FIGURE 2A

| LEGEND | |
|--------|--|
| | SUBJECT PROPERTY |
| | SITE STRUCTURE |
| | ELEVATED RAILWAY |
| | APPROXIMATE LOCATION OF ABANDONED UST (1988) |
| | APPROXIMATE LOCATION OF FORMER GASOLINE UST (1963) |
| P13 ● | APPROXIMATE LOCATION OF FORMER SOIL SAMPLING LOCATIONS |
| B10 ◆ | PROPOSED BORING LOCATION |

| | |
|-----------------|--|
| FIGURE 2 | PLOT PLAN SHOWING PROPOSED BORING LOCATIONS |
| ADDRESS: | 1135 NORTH ALAMEDA STREET LOS ANGELES, CALIFORNIA 90012 |
| SOURCE: | ANDERSEN ENVIRONMENTAL |
| PROJECT NO.: | 1406-1170 |
| DRAWN BY: | JOHN ESCALONA |
| CHECKED BY: | MICHAEL MAGLIONE |
| DATE: | 07/23/2014 |



APPROX. SCALE: 1"= 30'





| TABLE I LABORATORY RESULTS 1988 - 2015 | | | | | |
|--|--------|------------|--|--|-----------------------------|
| Boring ID | Date | Depth feet | Total Petroleum (TPH) EPA 8015/418.1 ppm | Total Volatiles EPA 8260B ppm | Organic Lead DOHS ppm |
| P1 | 4/1/88 | 13 | ND | - | ND |
| P2 | 4/1/88 | 13 | ND | - | ND |
| P3 | 4/1/88 | 9 | 85 | - | - |
| P6 | 4/1/88 | 10 | ND | - | ND |
| P7 | 4/1/88 | 10 | ND | - | ND |
| P8 | 4/1/88 | 10 | 420 | - | - |
| P9 | 4/1/88 | 10 | ND | - | - |
| P10 | 4/1/88 | 13 | 250 | - | - |
| P11 | 4/1/88 | 13 | 100 | - | - |
| P12 | 4/1/88 | 13 | 300 | - | - |
| P13 | 4/1/88 | 13 | 2 | - | - |
| B1 | 6/1/15 | 10 | All = ND | All = ND | - |
| B1 | 6/1/15 | 15 | All = ND | All = ND | - |
| B1 | 6/1/15 | 20 | Gas = 390 Diesel/Oil = ND | Benzene = 0.83 Toluene = 14 Ethyl Benzene = 19 Xylenes = 79 Naphthalene = 2.7 All Others = 55.73 | - |
| B2 | 6/1/15 | 10 | All = ND | All = ND | - |
| B2 | 6/1/15 | 15 | All = ND | All = ND | - |
| B3 | 6/1/15 | 10 | All = ND | All = ND | - |
| B3 | 6/1/15 | 15 | Gas = 1.3 Diesel/Oil = ND | Benzene = 0.025 Toluene = ND Ethyl Benzene = 0.04 Xylenes = 0.058 All Others = ND | - |
| B4 | 6/1/15 | 10 | All = ND | All = ND | - |
| B4 | 6/1/15 | 15 | All = ND | All = ND | - |
| B6 | 6/1/15 | 10 | Gas = 3.8 Diesel = 670 Oil = ND | Benzene = ND Toluene = ND Ethyl Benzene = 0.027 Xylenes = 0.036 Naphthalene = 0.83 All Others = 0.635 | - |
| B6 | 6/1/15 | 15 | Gas = 220 Diesel = 430 Oil = ND | Benzene = 0.67 Toluene = 3.0 Ethyl Benzene = 2.3 Xylenes = 15.3 Naphthalene = 3.3 All Others = 10.75 | - |
| B7 | 6/1/15 | 10 | Gas = ND Diesel = 200 Oil = ND | All = ND | - |
| B7 | 6/1/15 | 20 | Gas = 390 Diesel/Oil = ND | Benzene = 3.4 Toluene = 29 Ethyl Benzene = 7.4 Xylenes = 45 Naphthalene = 1.0 All Others = 18.44 | - |
| B8 | 6/1/15 | 10 | All = ND | All = ND | - |
| B8 | 6/1/15 | 15 | Gas = 0.24 Diesel/Oil = ND | All = ND | - |
| B9 | 6/1/15 | 10 | All = ND | All = ND | - |

TABLE I
LABORATORY RESULTS
1988 - 2015

| Boring ID | Date | Depth feet | Total Petroleum (TPH) EPA 8015/418.1 ppm | Total Volatiles EPA 8260B ppm | Organic Lead DOHS ppm |
|-----------|--|------------|--|---|-----------------------------|
| B9 | 6/1/15 | 15 | Gas = 3.1 Diesel/Oil = ND | Benzene = ND Toluene = ND Ethyl Benzene = ND Xylenes = 0.095 Naphthalene = 0.12 All Others = 0.445 | - |
| B10 | 6/1/15 | 10 | Gas = 0.29 Diesel/Oil = ND | All = ND | - |
| B10 | 6/1/15 | 15 | Gas = 0.34 Diesel/Oil = ND | All = ND | - |
| B11 | 6/1/15 | 10 | All = ND | All = ND | - |
| B11 | 6/1/15 | 15 | All = ND | All = ND | - |
| B12 | 6/1/15 | 10 | All = ND | All = ND | - |
| B12 | 6/1/15 | 15 | Gas = 0.86 Diesel/Oil = ND | All = ND | - |
| B12 | 6/1/15 | 20 | Gas = 800 Diesel = 400 Oil = ND | Benzene = 3.0 Toluene = 60 Ethyl Benzene = 36 Xylenes = 181 Naphthalene = 5.2 All Others = 130.2 | - |
| B13 | 6/1/15 | 10 | All = ND | All = ND | - |
| B13 | 6/1/15 | 15 | Gas = 0.60 Diesel/Oil = ND | All = ND | - |
| B14 | 6/1/15 | 10 | All = ND | All = ND | - |
| B14 | 6/1/15 | 15 | All = ND | All = ND | - |
| B14 | 6/1/15 | 20 | Gas = 100 Diesel/Oil = ND | Benzene = ND Toluene = 1.6 Ethyl Benzene = 3.4 Xylenes = 11.7 Naphthalene = 2.1 All Others = 18.5 | - |
| Note: | ND = None Detected - = Not Analyzed All results expressed as mg/kg=ppmillion | | | | |

CAL TECH Environmental Laboratories



6814 Rosecrans Avenue, Paramount, CA 90723-3146
 Telephone: (562) 272-2700 Fax: (562) 272-2789

ANALYTICAL RESULTS*

CTEL Project No: CT165-1506007
Client Name: PIC Environmental Services
 2619 Sierra Way
 La Verne, CA 91750
Attention: J. Tim Hersch

Phone: (909) 593-2427
Fax: (909) 593-2105

Project ID: E939
Project Name: Arroyo Hill

Date Sampled: 06/01/15 @ 09:00 am
Date Received: 06/01/15 @ 13:50 pm
Date Analyzed: 06/02/15 – 06/05/15

Matrix: Soil

| Laboratory ID: | 1506-007-2 | 1506-007-3 | 1506-007-4 | Method | Units: | Detection Limit |
|-------------------------------|------------|------------|------------|-----------|--------|-----------------|
| Client Sample ID: | B1-10' | B1-15' | B1-20' | | | |
| Dilution | 1 | 1 | 100 | | | |
| Dichlorodifluoromethane | ND | ND | ND | EPA 8260B | mg/Kg | 0.005 |
| Chloromethane | ND | ND | ND | EPA 8260B | mg/Kg | 0.005 |
| Vinyl Chloride | ND | ND | ND | EPA 8260B | mg/Kg | 0.005 |
| Bromomethane | ND | ND | ND | EPA 8260B | mg/Kg | 0.005 |
| Chloroethane | ND | ND | ND | EPA 8260B | mg/Kg | 0.005 |
| Trichlorofluoromethane | ND | ND | ND | EPA 8260B | mg/Kg | 0.005 |
| Iodomethane | ND | ND | ND | EPA 8260B | mg/Kg | 0.005 |
| Acetone | ND | ND | ND | EPA 8260B | mg/Kg | 0.005 |
| 1,1-Dichloroethene | ND | ND | ND | EPA 8260B | mg/Kg | 0.005 |
| t-Butyl Alcohol (TBA) | ND | ND | ND | EPA 8260B | mg/Kg | 0.02 |
| Methylene Chloride | ND | ND | ND | EPA 8260B | mg/Kg | 0.02 |
| Freon 113 | ND | ND | ND | EPA 8260B | mg/Kg | 0.01 |
| Carbon disulfide | ND | ND | ND | EPA 8260B | mg/Kg | 0.005 |
| Trans,1,2-Dichloroethene | ND | ND | ND | EPA 8260B | mg/Kg | 0.005 |
| Methyl-tert-butyl-ether(MtBE) | ND | ND | ND | EPA 8260B | mg/Kg | 0.002 |
| 1,1-Dichloroethane | ND | ND | ND | EPA 8260B | mg/Kg | 0.005 |
| Vinyl acetate | ND | ND | ND | EPA 8260B | mg/Kg | 0.005 |
| Diisopropyl Ether (DIPE) | ND | ND | ND | EPA 8260B | mg/Kg | 0.002 |
| Methyl Ethyl Ketone | ND | ND | ND | EPA 8260B | mg/Kg | 0.01 |
| Cis,1,2-Dichloroethene | ND | ND | ND | EPA 8260B | mg/Kg | 0.005 |
| Bromochloromethane | ND | ND | ND | EPA 8260B | mg/Kg | 0.005 |
| Chloroform | ND | ND | ND | EPA 8260B | mg/Kg | 0.005 |
| 2,2-Dichloropropane | ND | ND | ND | EPA 8260B | mg/Kg | 0.005 |
| Ethyl-t-butyl ether (ETBE) | ND | ND | ND | EPA 8260B | mg/Kg | 0.002 |
| 1,1,1-Trichloroethane | ND | ND | ND | EPA 8260B | mg/Kg | 0.005 |
| 1,2-Dichloroethane | ND | ND | ND | EPA 8260B | mg/Kg | 0.005 |
| 1,1-Dichloropropene | ND | ND | ND | EPA 8260B | mg/Kg | 0.005 |
| Carbon Tetrachloride | ND | ND | ND | EPA 8260B | mg/Kg | 0.005 |
| Benzene | ND | ND | 0.83 | EPA 8260B | mg/Kg | 0.001 |
| t-Amyl Methyl Ether (TAM) | ND | ND | ND | EPA 8260B | mg/Kg | 0.002 |
| 1,2-Dichloropropane | ND | ND | ND | EPA 8260B | mg/Kg | 0.005 |
| Trichloroethene | ND | ND | ND | EPA 8260B | mg/Kg | 0.005 |
| Dibromomethane | ND | ND | ND | EPA 8260B | mg/Kg | 0.005 |
| Bromodichloromethane | ND | ND | ND | EPA 8260B | mg/Kg | 0.005 |
| 2-Chloroethylvinylether | ND | ND | ND | EPA 8260B | mg/Kg | 0.005 |
| Cis, 1,3-Dichloropropene | ND | ND | ND | EPA 8260B | mg/Kg | 0.005 |
| 4-Methyl-2-pentanone(MI) | ND | ND | ND | EPA 8260B | mg/Kg | 0.01 |
| Trans,1,3-Dichloropropene | ND | ND | ND | EPA 8260B | mg/Kg | 0.005 |
| Toluene | ND | ND | 14 | EPA 8260B | mg/Kg | 0.001 |
| 1,1,2-Trichloroethane | ND | ND | ND | EPA 8260B | mg/Kg | 0.005 |

TOTALLY DEDICATED TO CUSTOMER SATISFACTION