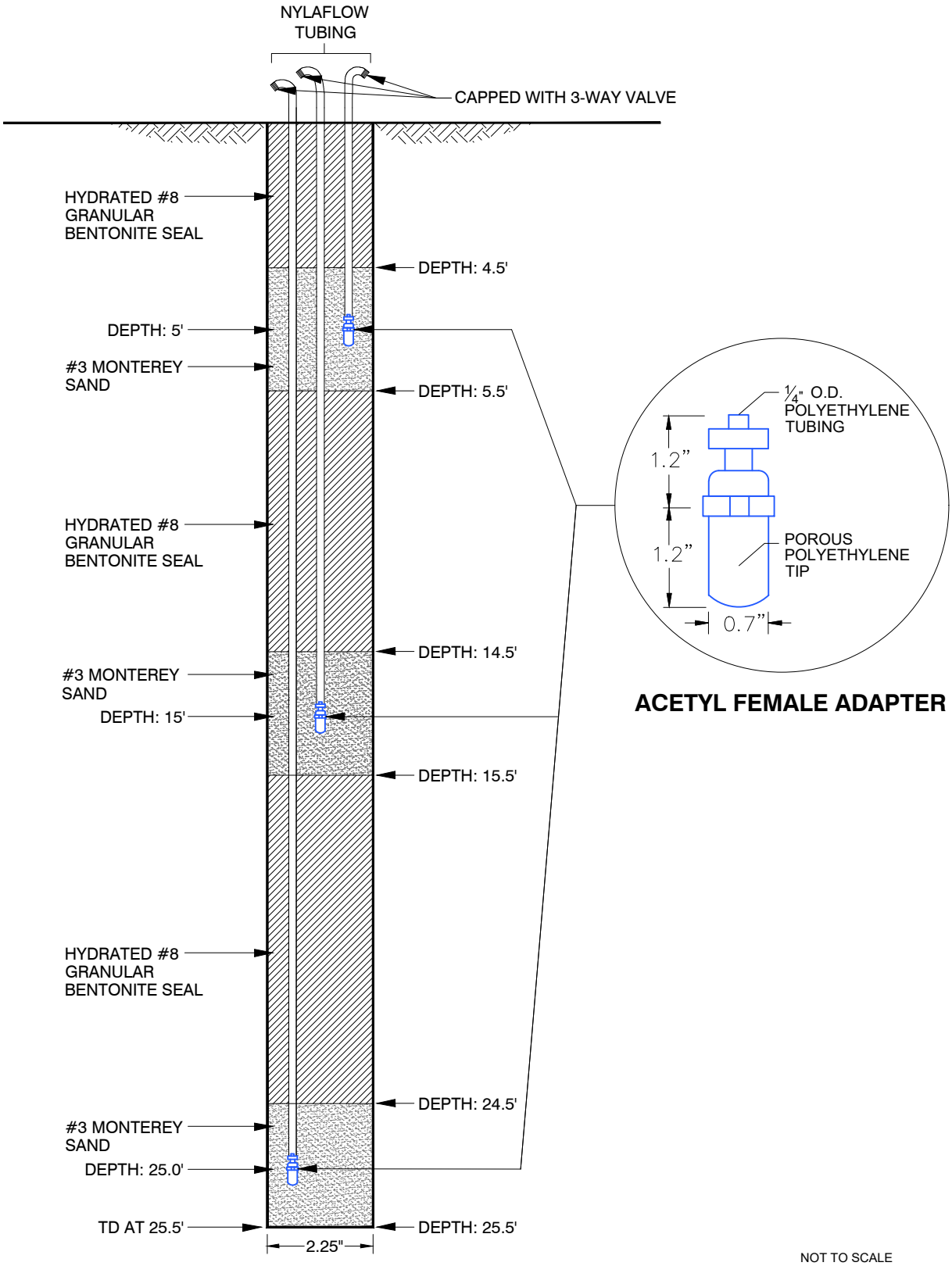
# APPENDIX F

## Soil Vapor Probe Diagram

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APPENDIX F

Ninyo & Moore
Geotechnical & Environmental Sciences Consultants

# SOIL VAPOR PROBE DIAGRAM

COMPTON UNIFIED SCHOOL DISTRICT
601 SOUTH ACACIA AVENUE
COMPTON, CALIFORNIA

210886001 I 4/20

# APPENDIX G

## Waste Manifests

# Manifest

## SOIL SAFE OF CA – TPST
Non-Hazardous Soils

↓ Manifest # ↓

| Date of Shipment: | Responsible for Payment: | Transport Truck #: | Facility #: | Approval Number: | Load # |
|---|---|---|---|---|---|
| / / | | | A07 | A5-0551 | 0011 |

**Generator and/or Consultant**

Generator's Name and Billing Address:
COMPTON UNIFIED SCHOOL DISTRICT
429 SOUTH OLEANDER AVE
COMPTON , CA

Generator's Phone #: 310-639-4321
Person to Contact:
FAX#:
Customer Account Number

Consultant's Name and Billing Address:

Consultant's Phone #:
Person to Contact:
FAX#:
Customer Account Number

Generation Site (Transport from): *(name & address)*
COMPTON HIGH SCHOOL
801 SOUTH ACACIA AVENUE
COMPTON , CA 90220

Site Phone #:
Person to Contact:
FAX#:

Designated Facility (Transport to): *(name & address)*
SOIL SAFE
12328 HIBISCUS AVENUE
ADELANTO, CA 92301

Facility Phone #: (800) 862-8001
Person to Contact: JOE PROVANSAL
FAX#: (760) 246-8004

Transporter Name and Mailing Address:
BELSHIRE
25971 TOWNE CENTRE DRIVE
FOOTHILL RANCH, CA 92610
BESI: 307956

Transporter's Phone #: 949-460-5200
CAR000183913
Person to Contact: LARRY MOOTHART
460647
FAX#: 949-460-5210
Customer Account Number

| Description of Soil | Moisture Content | Contaminated by: | Approx. Qty: | Description of Delivery | Gross Weight | Tare Weight | Net Weight |
|---|---|---|---|---|---|---|---|
| Sand ☐ Organic ☐ Clay ☐ Other ☐ | 0 - 10% ☐ 10 - 20% ☐ 20% - over ☐ | Gas ☐ Diesel ☐ Other ☐ | 4 DM | SOIL | 41280 | 38620 | 2660 |
| Sand ☐ Organic ☐ Clay ☐ Other ☐ | 0 - 10% ☐ 10 - 20% ☐ 20% - over ☐ | Gas ☐ Diesel ☐ Other ☐ | | | | | 1.33 |

List any exception to items listed above: Scale Ticket # 154150

*Generator's and/or consultant's certification: I/We certify that the soil referenced herein is taken entirely from those soils descried in the Soil Data Sheet completed and certified by me/us for the Generation Site shown above and nothing has been added or done to such soil that would alter it in any way.*

Print or Type Name: Generator ☐ Consultant ☐ — Signature and date: — Month 6 Day 17 Year 19

**Transporter**

*Transporter's certification: I/We acknowledge receipt of the soil referenced above and certify that such soil is being delivered in exactly the same condition as when received. I/We further certify that the soil is being directly transported from the Generation Site to the Designated Facility without off-loading, adding to, subtracting from or in any way delaying delivery to such site.*

Print or Type Name: — Signature and date: — Month 6 Day 18 Year 19

**Recycling Facility**

Discrepancies:
60 SOUTH
2098639

*Recycling Facility certifies the receipt of the soil covered by this manifest except as noted above:*

Print or Type Name: J. PROVANSAL / BILL BISHOP / BARRY MEEK

Signature and date: 7-25-19

Please print or type.

TRANSPORTER COPY

NO. 754166

# NON-HAZARDOUS WASTE DATA FORM

BESI # 313687

## GENERATOR

Generator's Name and Mailing Address
COMPTON UNIFIED SCHOOL DISTRICT
429 SOUTH OLEANDER AVE
COMPTON , CA

Generator's Site Address (if different than mailing address)
COMPTON HIGH SCHOOL
601 SOUTH ACACIA AVENUE
COMPTON , CA 90220

Generator's Phone: 310-639-4321

Container type removed from site:
☒ Drums ☐ Vacuum Truck ☐ Roll-off Truck ☐ Dump Truck
☐ Other _____
Quantity 1

Container type transported to receiving facility:
☐ Drums ☒ Vacuum Truck ☐ Roll-off Truck ☐ Dump Truck
☐ Other _____
Quantity 1 Volume 12 G

WASTE DESCRIPTION NON-HAZARDOUS WATER
GENERATING PROCESS WELL PURGING / DECON WATER

| COMPONENTS OF WASTE | PPM | % | COMPONENTS OF WASTE | PPM | % |
|---|---|---|---|---|---|
| 1. WATER | | 98-100% | 3. | | |
| 2. TPH | | <1% | 4. | | |

Waste Profile _____ PROPERTIES: pH 7-10 ☐ SOLID ☒ LIQUID ☐ SLUDGE ☐ SLURRY ☐ OTHER _____

HANDLING INSTRUCTIONS: WEAR ALL APPROPRIATE PERSONAL PROTECTIVE CLOTHING

Generator Printed/Typed Name: Audrey Carroll — Signature — Month 01 Day 28 Year 2020

The Generator certifies that the waste as described is 100% non-hazardous

## TRANSPORTER

Transporter 1 Company Name: BELSHIRE — Phone#: 949-460-5200

Transporter 1 Printed/Typed Name: Carlos Villa — Signature — Month 01 Day 28 Year 20

Transporter Acknowledgment of Receipt of Materials

Transporter 2 Company Name: NIETO & SONS TRUCKING, INC. — Phone#: 714-990-8855

Transporter 2 Printed/Typed Name: Miguel Garcia — Signature — Month 2 Day 4 Year 20

Transporter Acknowledgment of Receipt of Materials

## RECEIVING FACILITY

Designated Facility Name and Site Address
DEMENNO KERDOON
2000 N. ALAMEDA ST.
COMPTON, CA 90222

Phone#: 310-537-7100

Printed/Typed Name: Gilbert Chesalem — Signature — Month 02 Day 04 Year 20

Designated Facility Owner or Operator: Certification of receipt of materials covered by this data form.

601SOUTHA / 2222682

# APPENDIX H

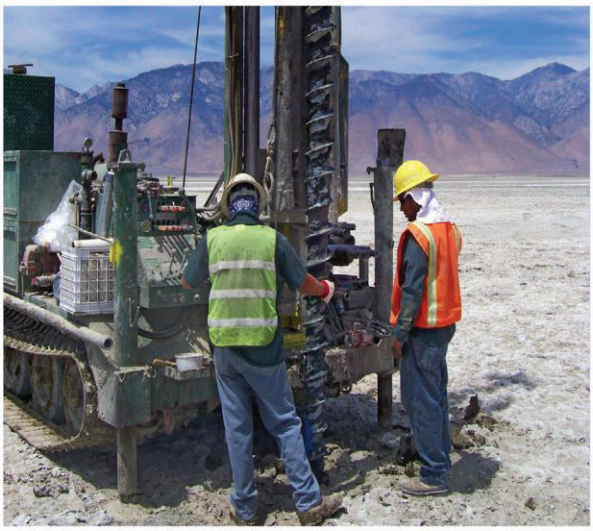
## Data Validation Memorandum

# Data Validation Memorandum
# Preliminary Environmental Assessment
## Compton High School Reconstruction Project
## 601 South Acacia Avenue and 301 to 339 West Alondra Boulevard
## Compton, California 90220

Compton Unified School District
501 South Santa Fe Avenue | Compton, California 90221

April 30, 2020 | Project No. 210886001





Geotechnical | Environmental | Construction Inspection & Testing | Forensic Engineering & Expert Witness

Geophysics | Engineering Geology | Laboratory Testing | Industrial Hygiene | Occupational Safety | Air Quality | GIS

Ninyo & Moore
Geotechnical & Environmental Sciences Consultants

Ninyo & Moore
Geotechnical & Environmental Sciences Consultants

# Data Validation Memorandum
# Preliminary Environmental Assessment
## Compton High School Reconstruction Project
## 601 South Acacia Avenue and 301 to 339 West Alondra Boulevard
## Compton, California 90220

Mr. Nathaniel Holt
Compton Unified School District
501 South Santa Fe Avenue | Compton, California 90221

April 30, 2020 | Project No. 210886001


**Kristina Hill, GIT**
Senior Staff Geologist

**Patrick Cullip, EIT**
Project Engineer

**John Jay Roberts, PG, CEG**
Principal Geologist


KMH/PJC/JJR/sc

# CONTENTS

# TABLES

# 1 INTRODUCTION

This memorandum summarizes the findings of a Level II data validation for the Preliminary Environmental Assessment (PEA) for soil, soil vapor, and groundwater matrix samples collected at Compton High School and adjoining properties to the south in Compton, California. The PEA was performed in order to:

- Evaluate historical information for indications of the past use, storage, disposal, or release of hazardous wastes/substances at the site.
- Establish, through a field sampling and analysis program, the nature of chemicals of potential concern (COPCs) that may be present in soil at the site, their concentrations and general extent.
- Estimate the potential threat to public health and the environment posed by COPCs detected at the site using a residential land-use scenario.

The scope of work for the PEA consisted of advancing 380 borings for soil, soil vapor, and/or groundwater in various locations around the site where there was the potential for COPCs present in the site subsurface based on historical research.

A work plan (WP) for the PEA was prepared by Ninyo & Moore, which included quality assurance and quality control (QA/QC) procedures (Ninyo & Moore, 2019). The results of the PEA were also prepared by Ninyo & Moore, of which this document is a part. The purpose of the QA/QC procedures is to verify that data collected for the project meet the Data Quality Objectives (DQOs).

# 2 SAMPLE SUMMARY

The following sections summarize the sample collection dates, laboratory used, and analyses conducted.

## 2.1 Soil Matrix Samples

Soil matrix samples were collected on April 29 through May 3, May 6 through 9, September 3 through 6, 9 through 13, December 5, 6, and 9, 2019, and March 16, 2020. Samples were submitted to Enthalpy Analytical, Inc. (Enthalpy), a California State Certified laboratory with Environmental Laboratory Accreditation Program (ELAP) number 1338, of Orange, California. Soil matrix samples were analyzed for one or more of the following: Title 22 Metals (including lead), total petroleum hydrocarbons (TPHs), volatile organic compounds (VOCs), and organochlorine pesticides (OCPs) in accordance with United States Environmental Protection Agency (EPA) Methods 6010B/7471A, 8015B/5035 and 8015M, 8260B/5035, and 8081A, respectively.

## 2.2 Soil Vapor Matrix Samples

Soil vapor matrix samples were collected on May 14, September 17 through 19, 2019, and December 10, 2019. Samples were collected and analyzed by Jones Environmental, Inc. (Jones), a California State Certified laboratory with Environmental Laboratory Accreditation Program (ELAP) number 2882, of Santa Fe Springs, California. Soil vapor matrix samples were analyzed for VOCs and gasoline range organics (GRO) in accordance with EPA method 8260B.

## 2.3 Groundwater Matrix Samples

Groundwater matrix samples were collected on September 9 and 11 and December 6, 2019. Samples were submitted to Enthalpy. Groundwater samples were analyzed for one or more of the following: TPHs and VOCs in accordance with EPA Methods 8015B and 8260B, respectively.

# 3 DATA VALIDATION

The QA objectives are to evaluate that sampling, chemical analysis, and reporting activities provide data that are accurate, precise, representative, and legally defensible. QC represents the specific steps and procedures followed during the course of the project to achieve the QA objectives. The QA/QC Plan was implemented as specified in the WP. The primary features included the collection and analysis of QC samples, a field review, and the data validation.

Data validation is a process of evaluating the performance of data collection against the pre-determined method and procedural requirements specified in the WP. It evaluates how closely the WP has been followed during data generation in the field and laboratory. It checks for improper practices; abuse and warning signs shown during the sample collection and analyses. It determines if the available data satisfies the project's DQOs and data use requirements by evaluating the data reports for field sampling procedures, laboratory performance, and error checks.

Ninyo & Moore conducted this Level II data validation for the soil, soil vapor, and groundwater matrix sample analytical results, including review of project QC program, sampling procedures, analytical procedures, data reports, and DQOs. Each review is presented below.

# 4 REVIEW OF PROJECT QC PROGRAM

To evaluate if the chemical data is of the highest confidence and quality, the review of the QC program was divided into two parts: basic QC procedures and QC samples. Findings of significance were not reported affecting the quality of the samples collected or the resulting data results.

## 4.1 Basic QC Procedures

Basic QC evaluation criteria include field decontamination, supplies, holding times, equipment calibration and maintenance, and standards.

### 4.1.1 Field Decontamination

Non-dedicated sampling equipment was decontaminated before and after sample collection. Decontamination consisted of (in the following order): detergent (i.e., Alconox) and water wash solution, potable water rinse, and distilled water rinse.

### 4.1.2 Materials and Supplies

Supplies and materials used either in the field or the laboratory were standard industry material. The supplies and materials were inspected prior to use, in good working condition, and within the expiration date requirements specified by the manufacturer.

### 4.1.3 Holding Times

Holding time requirements were met.

### 4.1.4 Equipment Calibration and Maintenance

Enthalpy and Jones confirmed that analytical equipment calibration and maintenance are properly performed as recommended by the manufacturers and/or the EPA publication SW-846 methods. Documentation of compliance and raw data can be made available upon request and is subject to audit by the ELAP.

### 4.1.5 Standards

Enthalpy and Jones confirmed that analyses were performed according to the prescribed methods as outlined by EPA Standard Methods. Documentation of compliance can be made available upon request and is subject to audit by ELAP.

## 4.2 QC Samples

Appropriate QC samples included equipment blanks, trip blanks, duplicate samples, and laboratory QC samples.

### 4.2.1 Equipment Blanks

The WP specified that equipment blank samples would be collected by pouring distilled water over decontaminated sampling equipment, collecting the water sample, and submitting the

sample for analysis. Equipment blanks were collected at a rate of one per piece of equipment used per day and submitted to Enthalpy for analysis.

### 4.2.2 Trip Blanks

A trip blank sample remains sealed from the time it is sent from the laboratory to sample collection site and back to the laboratory. It measures any effects due to the sample container, transportation effects, and/or sample environment to and from the laboratory. The WP specified that trip blank samples would be supplied by the analytical laboratory and analyzed at a rate of one sample per sample container, when collected soil samples will be analyzed for VOCs.

### 4.2.3 Duplicate Samples

The WP specified that field duplicate samples would be collected at the rate of 10 percent of the sample set. Seventy-three duplicate discrete samples were collected for the 675 primary discrete soil samples collected. Ten duplicate composite samples were analyzed for the 75 primary composite samples analyzed. Seven soil vapor replicate samples were collected for the 49 primary soil vapor samples analyzed. The duplicate samples were analyzed for the same constituents as the primary samples (PEA Tables 3 through 9). Duplicate groundwater samples were not collected for the five primary discrete groundwater samples collected due to slow groundwater recharge rates. The following pair of duplicate and primary samples exceeded the relative percent difference (RPD) precision goal of 100 percent.

**Table H1 – Summary of Duplicate RPD Exceedances**

| Soil Matrix | | | |
|---|---|---|---|
| Duplicate Sample | Primary Sample | RPD | Chemical |
| DUP-5 | AOC1-E-B8-0.5' | 147 | Lead |
| DUP-6 | AOC1-E-B9-0.5' | 150 | Lead |
| DUP-28 | AOC5-B24-0.5' | 134 | Lead |
| DUP-34 | AOC1-E-B7N-0.5' | 130 | Lead |
| DUP-38 | AOC1-W-B2E-0.5' | 109 | Lead |
| DUP-41 | AOC1-W-B22W-0.5' | 101 | Lead |
| DUP-62 | AOC5-B17E-0.5' | 104 | Lead |
| DUP-67 | AOC1-E-B6WW-0.5’ | 134 | Lead |
| DUP-76 | AOC5-B30-0.5’ | 101 | Lead |
| DUP-19 | AOC4-B18-W1-15' | 135 | Arsenic |
| DUP-20 | AOC4-B18-E1-15' | 115 | Barium |
| DUP-16 | AOC4-B6-W1-5' | 119 | 2-Butanone (MEK) |
| DUP-16 | AOC4-B6-W1-5' | 114 | Toluene |
| COMP DUP-6 | CG26-0.5' | 104 | 4,4'-DDD |
| COMP DUP-7 | CG28-0.5' | 168 | 4,4'-DDE |
| COMP DUP-2 | CG3-0.5' | 158 | 4,4'-DDT |

**Notes:**
RPD – Relative Percent Difference
The RPD was not calculated when either the primary or duplicate concentration was not detected

The RPD above 100 percent in these samples is considered due to the heterogeneous nature of the soils, which is typical of real environmental samples.

#### 4.2.4 Laboratory QC Samples

Laboratory QA/QC samples included method blanks, laboratory control samples (LCSs)/laboratory control sample duplicates (LCSDs), and matrix spikes (MSs)/matrix spike duplicates (MSDs). Except as otherwise noted below in the "Review of Data Reports" section, specific acceptance limits for these types of samples were within the respective analytical method and at the discretion of the laboratory QA/QC manager.

# 5 REVIEW OF SAMPLING PROCEDURES

Mr. John Jay Roberts, a Professional Geologist licensed in California, provided supervision of the field sampling activities. Field activities were planned, conducted, and completed in a manner consistent with the WP and were monitored and documented. Specific findings were not reported affecting the quality of the samples collected or the resulting data results.

## 5.1 Field Documentation

Field logs or other documentation were reviewed regarding sampling procedures (e.g., sample containers, collection, preservation, packaging, transportation, receipt, handling and storage, chain of custody [COC], holding time, and decontamination procedures). Samples were collected and delivered to the laboratory within the specified holding times for the appropriate analyte. Collected soil and groundwater samples were delivered within 24 hours in coolers packed with fresh ice to Enthalpy under proper COC protocol. Soil vapor samples were collected in either glass vials, which were immediately analyzed in an ELAP certified mobile laboratory, or in tedlar bags, which were transported to the Jones stationary facility within the appropriate holding time.

## 5.2 Sample Condition

Upon receipt, the laboratory inspected the condition of the sample containers. If conditions or problems were reported which would require immediate resolution, the laboratory would immediately notify Ninyo & Moore. Such conditions may include wrong sample container, container breakage, water leaks, missing or improper COC, exceedance of holding times, improper preservation, missing or illegible sample labeling, or temperature excursions. Enthalpy marked the sample receipt conditions as received in good condition, properly cooled, samples intact, and samples accepted on the COC forms.

## 5.3 Observations of Significance

Occurrences which might adversely affect sample integrity or data quality were not noted in the review of the sampling documentation.

# 6 REVIEW OF ANALYTICAL PROCEDURES

Criteria of analytical method, laboratory certification, instrument calibration, and reporting limits (RLs) were evaluated. All analyses were performed as specified in their respective standard operating procedures (SOPs). Findings were not reported affecting the quality of the samples collected or the resulting data results.

## 6.1 Analytical Methods

Analytical methods used by the laboratories consisted of the following for soil, soil vapor, and water matrix samples.

### 6.1.1 Soil Matrix Samples

Soil matrix samples were submitted to Enthalpy and analyzed for one or more of the following: Title 22 Metals, TPHs, VOCs, and OCPs in accordance with EPA Methods 6010B/7471A, 8015B/5035 and 8015M, 8260B/5035, and 8081A, respectively.

### 6.1.2 Soil Vapor Matrix Samples

Soil vapor matrix samples were submitted to Jones and analyzed for VOCs and GRO in accordance with EPA method 8260B.

### 6.1.3 Water Matrix Samples

Groundwater matrix samples were submitted to Enthalpy and analyzed for one or more of the following: TPHs and VOCs in accordance with EPA Methods 8015B and 8260B, respectively. Equipment blank samples were analyzed for Title 22 Metals, TPHs, VOCs, and OCPs in accordance with EPA Methods 6010B/7470A, 8015B, 8260B, and 8081A, respectively. Trip blank samples were analyzed for VOCs in accordance with EPA Method 8260B.

## 6.2 Laboratory Certification

The soil and groundwater matrix samples were submitted to and analyzed by Enthalpy, which is certified by ELAP of the California Department of Health Services, number 1338. Soil vapor matrix samples were submitted to and analyzed by Jones, ELAP certification number 2882. The

laboratories indicated that their respective QA/QC manuals and SOPs are maintained at their laboratory.

### 6.3 Calibrations

Instrument calibrations were conducted by the laboratory as specified in the applicable method and the laboratory's QA/QC Plan prior to analysis. Analyte concentrations can be determined with either calibration curves or response factors, as defined in the method. The laboratory has maintained records of standard preparation and instrument calibration (procedures, frequency, and results). As discussed in Section 4.1.4, Enthalpy and Jones' documentation and raw data can be made available upon request and are subject to audit by ELAP inspectors through the ELAP certification process. Records unambiguously trace the preparation of standards and their use in calibration and quantization of sample results.

### 6.4 RLs

The RLs must be defensible, not less than the result of the laboratory's MDL study, and not greater than the regulatory screening levels. A designated "ND" means not detected at the respective RLs.

## 7 REVIEW OF DATA REPORTS

Data review was performed to ensure that the data produced were credible, cost effective, and of known and defensible quality (Tables 3 through 9 of the PEA report). The data was reviewed in accordance with the WP, the laboratory SOPs, the principles presented in EPA National Functional Guidelines for Laboratory Data Review – Organics (EPA, 1999), and EPA National Functional Guidelines for Laboratory Data Review – Inorganics (EPA, 2004), and the professional judgment of the validation team.

### 7.1 Completeness of Laboratory Report

The analytical reports were considered complete because they contained the following information: laboratory/client/sample identifications, project name, sample matrix, sample collection/preparation/extraction/analysis dates, analytical methods, analytes, reporting units/limits, and dilution factors, report page numbering system, designated title, and signatures.

### 7.2 Chain of Custody (COC)

COC forms were included with each analytical report. The COC forms were properly completed and signed. Sample conditions were noted on the forms upon receipt.

## 7.3 Sample Containers and Conditions

As discussed in Section 5.2, Enthalpy marked the sample receipt conditions in good condition, properly cooled by measuring temperature, samples intact, and samples accepted on the COC forms or in the laboratory report. The sample containers and conditions are considered acceptable.

## 7.4 Holding Times

Holding time requirements were met.

## 7.5 Preservation

Soil matrix samples were preserved in coolers with ice. Soil samples for TPH as gasoline (TPHg) and VOC analyses were field preserved in accordance with EPA Method 5035. The following analyses and corresponding preservatives were required for water matrix samples:

- TPHg – hydrochloric acid (HCl)
- VOCs – hydrochloric acid (HCl)

Samples were kept on wet ice or refrigerated during storage and transport as specified in the WP.

## 7.6 Field QC Samples (Equipment Rinsate Blanks)

Equipment blanks were collected at a rate of one per piece of equipment used per day and submitted to Enthalpy for analysis. Equipment blanks were analyzed for one or more of the following: Title 22 Metals, TPHs, VOCs, and OCPs in accordance with EPA Methods 6010B/7470A, 8015B, 8260B, and 8081A, respectively. Analytical methods for equipment blanks were determined by the primary sample analyses collected that day. Minor concentrations of various analytes were detected in select equipment blank samples analyzed. A summary of analytes detected in equipment blank samples is shown in the following table.

**Table H2 – Summary of Equipment Blank Analyte Detections**

| Equipment Blank Sample | Analyte | Concentration | Units |
|---|---|---|---|
| EB-043019 | Lead | 0.015 | mg/l |
| EB-050119A | Lead | 0.006 J | mg/l |
| EB-050219A | Antimony | 0.019 J | mg/l |
| EB-050219A | Copper | 0.007 B1,J | mg/l |
| EB-050219A | Methylene chloride | 5.6 | µg/l |
| EB-050219B | Copper | 0.006 B1,J | mg/l |
| EB-050219B | 2-Butanone (MEK) | 5.9 | µg/l |
| EB-050219B | Methylene chloride | 6.3 | µg/l |
| EB-050619A | Antimony | 0.018 | mg/l |
| EB-050619A | Copper | 0.026 | mg/l |
| EB-050619A | 2-Butanone (MEK) | 8.0 J | µg/l |

| Table H2 – Summary of Equipment Blank Analyte Detections | | | |
|---|---|---|---|
| Equipment Blank Sample | Analyte | Concentration | Units |
| EB-050619A | t-Butyl alcohol (TBA) | 7.5 J | µg/l |
| EB-050619B | Copper | 0.017 | mg/l |
| EB-050619B | TPH Diesel | 0.05 J | mg/l |
| EB-050619B | 2-Butanone (MEK) | 7.5 J | µg/l |
| EB-050719A | Copper | 0.010 | mg/l |
| EB-050719A | Molybdenum | 0.0228 | mg/l |
| EB-050719A | Thallium | 0.056 | mg/l |
| EB-050719A | TPH Diesel | 0.06 J | mg/l |
| EB-050719A | 2-Butanone (MEK) | 8.2 J | µg/l |
| EB-050719B | Copper | 0.009 B1,J | mg/l |
| EB-050719B | Molybdenum | 0.0178 | mg/l |
| EB-050719B | Thallium | 0.027 | mg/l |
| EB-050819A | Copper | 0.012 | mg/l |
| EB-050819A | Lead | 0.006 J | mg/l |
| EB-050819B | Barium | 0.003 J | mg/l |
| EB-050819B | Copper | 0.012 | mg/l |
| EB-050919A | Lead | 0.006 J | mg/l |
| EB-050919B | Lead | 0.008 J | mg/l |
| EB-091319A | t-Butyl alcohol (TBA) | 24 | µg/l |
| EB-120619B | DRO (C10 to C28) | 0.06 | mg/l |
| EB-120619B | 2-Butanone (MEK) | 5.5 | µg/l |
| EB-120619C | DRO (C10 to C28) | 0.08 | mg/l |
| EB-120619C | 2-Butanone (MEK) | 4.6 | µg/l |

**Notes:**
B1 – analyte was present in a sample and associated method blank greater than the MDL but less than the RL
J – indicates an estimated detection above the MDL and below the RL
MDL - method detection limit
mg/l – milligrams per liter
RL – laboratory reporting limit
µg/l – micrograms per liter

J-flagged and B1-flagged detections were considered acceptable since they are estimated concentrations below the RLs. Generally, the detection of VOCs are commonly used solvents in the laboratory. These detections are likely considered common laboratory contaminants, rather than present in the samples or as a result of cross-contamination. Therefore, the remaining samples with VOC detections are considered acceptable.

## 7.7 Trip Blank Samples

Trip blank samples were supplied by Enthalpy and analyzed at a rate of one sample per sample container, when collected soil samples were analyzed for VOCs. The trip blank samples were submitted to Enthalpy for analysis. Trip blanks were analyzed for VOCs in accordance with EPA Method 8260B. The commonly used laboratory solvent methylene chloride was detected in one trip blank samples at a concentration of 6.8 milligrams per liter (mg/l), slightly above the RL of 5 mg/l. Other VOCs were not detected in the trip blank samples analyzed. Based on this information, the trip blank analytical results are considered acceptable.

## 7.8 Field QC Samples (Field Duplicates)

Field duplicates for primary samples were submitted blind to the analytical laboratories and analyzed for the same constituents as the primary samples. The RPD of the primary and duplicate samples was compared in Table 2. The formula used to calculate the RPD is as follows:

$$RPD = \frac{(p-d)}{(p+d)/2} \times 100$$

Where:

p is the primary result.

d is the duplicate result.

A RPD between primary and duplicate samples of 100 percent was used as the precision goal. Sixteen pairs of duplicate and primary samples exceeded the RPD precision goal of 100 percent (Section 4.2.3). The RPDs were considered acceptable.

## 7.9 Surrogate Recoveries

Enthalpy noted 20 surrogate recoveries outside the limits established by the laboratory from five samples:

- One surrogate recovery from two samples was above the laboratory acceptance limits.
- Eighteen surrogate recoveries from 15 samples were below the laboratory and method acceptance limits. Re-extraction and/or reanalysis confirms low recovery caused by matrix effect.

Jones reported two surrogate recoveries outside of acceptable limits and provided the following qualifiers:

- Surrogate recoveries from two analytes were outside acceptable limits; all other QC parameters were in control and the data was accepted.
- Four surrogate recoveries were not reported due to high hydrocarbon concentration in the sample preventing adequate recovery.

Surrogate recoveries were outside the laboratory limits in these six soil samples, potentially due to the heterogeneous nature of the soils. However, the data is still acceptable because of the acceptance of other associated laboratory QC measures. Surrogate recoveries were within the limits established by Enthalpy for the other laboratory samples. Based on these results and the designations assigned by the laboratory, the surrogate recoveries are acceptable.

## 7.10 Laboratory QC Samples (Method Blanks)

Enthalpy reported 180 analytes detected above their respective MDLs in 55 method blank samples. Jones did not detect analytes above their respective MDLs in method blank samples analyzed. Based on the generally low values of the detections below the laboratory reporting limits in Enthalpy data and the absence of analyte detections in Jones method blanks, the method blank results were acceptable.

## 7.11 Laboratory Control Samples (LCSs)

LCS/LCSD samples were prepared and analyzed by the laboratories as specified in the WP. Enthalpy noted recoveries of three LCS analytes from two LCS samples to be outside the laboratory's acceptance criteria. Jones reported one LCS recovery in exceedance of its associated acceptability range.

The data associated with the LCS/LCSD was considered acceptable because the target analyte was not detected, method limits were met, or associated spike duplicates and method spikes were within laboratory limits. The percent recoveries of the other spiked analytes were within the laboratory's acceptance criteria. Based on these results and the designations assigned by the laboratory, the LCS results were acceptable.

## 7.12 Laboratory QC Samples (MS/MSD)

The MS/MSD samples were prepared from project samples. Enthalpy noted 54 MS/MSD recoveries (from 13 MS/MSD samples) to be outside the laboratory's acceptance criteria and gave one of the following designations:

- The MS or MSD was not within control limits due to matrix interference. The associated LCS and/or LCSD was within control limits and the sample data was reported without further clarification.
- RPD was not within control limits. The sample data was reported without further clarification.

The analytical batches were validated by the LCS/LCSD samples. The remaining MS/MSD samples from Enthalpy were within their respective laboratory's acceptance criteria. Based on these results and the designations assigned by the laboratory, the MS/MSD results were acceptable.

## 7.13 Laboratory QC Samples (Duplicates)

Pursuant to the WP, laboratory duplicates may be LCS duplicates, MS duplicates, and laboratory sample duplicates.

Enthalpy noted recoveries of three analytes from two LCS/LCSD samples had a RPD exceeding the laboratory acceptance limits. However, the RPDs of associated MS/MSD samples were within established laboratory limits. The RPD between primary and duplicate analyses were otherwise within the laboratory's acceptance criteria. The laboratory duplicate results were acceptable.

## 7.14 Compound Identification and Quantitation

The analytical reports contained data for the target analytes. Qualitatively, the analytes were documented to be correctly identified and reported. However, raw data were not reviewed as part of Level II data validation. Result recalculation or transcription error checking from the raw data was conducted separately by the laboratory. Analytical results were checked, verified and confirmed to be correctly calculated by the laboratory.

## 7.15 Dilution Factors

Enthalpy noted 65 samples that required dilution for quantification due to high concentrations of the target analyte. Jones noted three samples that required dilution for quantification due to high concentrations of the target analyte. The laboratory dilution results were acceptable.

## 7.16 Data Qualifiers

Data validation flags, as defined in the National Functional Guidelines, indicate if results are considered anomalous, quantitative, estimated, or rejected. All qualifiers should be discussed prior to utilizing the chemical data for the screening risk evaluation. Only rejected data are unusable for decision making purposes; however, other qualified data may require further verification. Enthalpy noted eight analytes from eight samples were flagged as "C", indicating possible laboratory contamination. Sixty-nine analytes from 53 samples were flagged with a "B" qualifier, indicating that the analyte was present in the associated method blank. Forty-nine analytes from 31 samples were flagged with a "B1" qualifier, indicating that the analyte was present in a sample and associated method blank greater than the analyte's MDL but less than its RDL. Nine analytes from three samples were flagged with a "D1" qualifier, indicating that a lesser amount of sample was used due to insufficient amount of sample supplied. Two hundred and fifty analytes from 10 samples were flagged with a "D2" qualifier, indicating that the reporting limit was elevated due to sample matrix and the target analyte was not detected above the elevated reporting limit. One analyte from a single sample was flagged with an "E" qualifier, indicating that the concentration was estimated because it exceeded the quantification limits of the method. Two-hundred and eighty-two analytes from 77 samples were flagged with a "J" qualifier, indicating that the reported value was estimated. Three hundred and sixteen analytes

from five samples were flagged with an “S3” qualifier, indicating the internal standard did not meet recovery limits and the analyte concentration was estimated.

## 7.17 Confirmation of Positive Samples

The WP did not require confirmation of positive samples.

## 7.18 Observations of Significance

Occurrences which might adversely affect sample integrity or data quality were not noted in the analytical reports.

## 7.19 Case Narrative

The analytical reports included a case narrative describing all variances, deviation, or deficiencies encountered during laboratory analyses, possible reasons (with verifications), potential impacts, and corrective actions taken, if any. Notes in the Enthalpy case narratives included:

- Additional analyses requested included.
- Change order analyses requested included.
- Revised Report or Supplemental Report.
- Results reported to RDL per client request.
- EPA 6010B lead testing could not be completed for the EB samples due to need for additional sample volume. Only a 1 liter glass bottle and VOA vials were received for the EB samples (Enthalpy report dated September 23, 2019).

Notes in the Jones case narratives included:

- Sampling containers.
- Tracer gas type, methodology, and detections.
- Sampling volume, purge, and shut in test details.
- No-flow condition sampling methodology.
- Soil vapor and laboratory quality control sample analyses details.

This information does not significantly impact the data quality. Other variances, deviations, or deficiencies likely to significantly impact data quality were not noted in the narratives.

# 8 REVIEW OF DATA QUALITY OBJECTIVES (DQOS)

The project DQOs were evaluated to determine whether the quantitative and qualitative needs of the sampling and analysis program had been met. The DQOs were specified in terms of specific data quality indicators (DQIs), i.e., precision, accuracy, representativeness, completeness, comparability, and RLs. The data generated from this sampling and analyses may not be considered invalid if the DQOs or criteria are not fully achieved, but variances will trigger the appropriate QA/QC measures needed to evaluate and correct these activities, if necessary.

## 8.1 Quality DQIs

Qualitative DQIs are comparability and representativeness.

### 8.1.1 Comparability

Comparability expresses the confidence with which one data set can be compared to another. As specified in the WP, the data set is considered comparable because EPA publication SW-846 methods were used in the sampling and analyses. The data were calculated and reported in units consistent with standard procedures so that the results of the analyses can be compared with those of another laboratory, if necessary. The DQO for comparability has been met.

### 8.1.2 Representativeness

Representativeness is the degree to which data collected are an accurate characterization of the media sampled. Careful planning of the field activities based on known conditions and historical site usage was undertaken to promote a representative WP. Therefore, the data is considered representative.

## 8.2 Quantitative DQIs

Quantitative DQIs are precision, accuracy, and completeness. Precision and accuracy objectives, based on statistically generated limits established by the laboratory, were viewed as goals, not criteria. If the matrix bias is suspected, the associated data will be qualified and the direction of the bias indicated in the lab report. The results for field duplicates indicated appropriate sample collection and handling procedures.

### 8.2.1 Precision

Precision measures the reproducibility of repetitive measurements by assessing the RPD between field sample and field sample duplicate analysis, MS/MSD analysis, and field sample and laboratory duplicate analysis. If the RPD exceeds limits as set by the laboratory, data

may be qualified. The calculated RPD between laboratory primary and duplicate analyses was within the laboratory's acceptance criteria, with some exceptions discussed in Section 7.13. Duplicate sample analyses were deemed acceptable.

### 8.2.2 Accuracy

Accuracy is a statistical measurement (the degree of agreement of a measurement with a known or true value) of correctness and includes components of random error (variability due to imprecision) and systematic error. Laboratory accuracy is expressed as the percent recovery by assessing LCS, MS, and MSD, and initial and continuing calibration of instruments. As noted above in Sections 7.11 and 7.12, three LCS/LCSD and 13 MS/MSD samples were noted by Enthalpy as being outside recovery criteria due to various designations. The analytical batches were validated because the target analyte was not detected, method limits were met, or associated spike duplicates and method spikes were within laboratory limits. The other recoveries of LCS/LCSDs and MS/MSDs were reported within the corresponding control limits. Therefore, the accuracy DQO has been met.

### 8.2.3 Completeness

Completeness is the amount of valid data obtained compared to the amount expected under ideal conditions. The DQO for completeness is to obtain valid results for at least 90 percent of the planned data results. Completeness may be affected by such factors as sample bottle breakage and acceptance/non-acceptance of analytical results. The analytical data for the samples are 100 percent complete, and the DQO for completeness has been met.

## 9 CONCLUSIONS

Based on this Level II validation performed on the analytical results of the collected samples, the data collected through implementation of the WP satisfy data quality requirements specified for the evaluation. The analyses followed the approved method and included acceptable QC procedures. Some matrix effects were noted, such as heterogeneous soils, which are typical of real environmental samples. The relevant QA/QC results were satisfactory and acceptable. Outstanding issues were not reported during the course of the data validation review. Overall, the presented data are reliable and useable for project decision making.

## 10 RECOMMENDATIONS

It is recommended that the data be used to characterize the nature and extent of any contamination, support screening risk evaluation, evaluate the response action need, or assist in determination of additional actions.

# 11 REFERENCES

Ninyo & Moore, 2019, Preliminary Environmental Assessment Work Plan, Compton High School Reconstruction Project, 601 South Acacia Avenue and 301 to 339 West Alondra Boulevard, Compton, California, dated February 1.

United States Environmental Protection Agency (EPA), 1999, National Functional Guidelines for Organic Data Review, <http://www.epa.gov/superfund/programs/clp/download/fgorg.pdf>, dated October.

United States Environmental Protection Agency (EPA), 2004, National Functional Guidelines for Inorganic Data Review, < http://epa.gov/superfund/programs/clp/download/inorgfg10-08-04.pdf>, dated October.

# Table H3 - Summary of Data Validation

## Acceptability

| Quality Indicator | Soil, Water, Soil Vapor<br>EPA Methods 6010B/7471A, 8015B/5035, 8015M, 8260B/5035, 8081A<br>Target Analytes: Title 22 Metals, TPHs, VOCs, OCPs |
|---|---|
| Completeness of Laboratory Reports (e.g. laboratory, client, and sample identifications; ELAP certification number, project name, sample matrix, sample collection, preservation, preparation, extraction, analysis dates; analytical methods; analytes; reporting units and limits; dilution factors; report page numbering system; designated title and signatures) | Y |
| Reporting Limit (RL) | Y |
| Chain of Custody | Y |
| Sample Containers and conditions | Y |
| Holding Time | Y |
| Sample Preservation | $HNO_3$, HCl, $H_2SO_4$, NaOH, $ZnAc_2$ |
| Equipment Rinsate Blanks | Y |
| Field Duplicates | Y |
| Field QC Samples - Others | Trip blank |
| Surrogate Recoveries | See discussion |
| Method Blanks | Y |
| LCS Percent Recovery | See discussion |
| MS/MSD Percent Recovery | See discussion |
| MS/MSD Percent RPD | See discussion |
| Laboratory Duplicates | See discussion |
| Laboratory QC Samples | See discussion |
| Compound Identification | Y |
| Compound Quantification | Y |
| Dilution Factors | Y |
| Data Qualifiers | Y |
| Confirmation of Positive Samples | N/A |
| Observations of Significance | N/A |
| Case Narrative | Y |
| Instrument Tuning | N/A |
| Initial Calibration | Lab |
| Calibration Verification | Lab |
| Interference Check Standard | Lab |
| Other | N/A |

**Notes:**

EPA - United States Environmental Protection Agency

ELAP - Environmental Laboratory Accreditation Program

$H_2SO_4$ - sulfuric acid

HCl - hydrochloric acid

$HNO_3$ - nitric acid

Lab - responsibility of the laboratory

LCS - laboratory control samples

MS - matrix spike

MSD - matrix spike duplicate

N/A - not applicable

NaOH - sodium hydroxide

OCPs - organochlorine pesticides

QC - quality control

RPD - relative percent difference

See Discussion - See discussions in the Section 7: Review of Data Reports

TPHs - total petroleum hydrocarbons

VOCs - volatile organic compounds

Y - Acceptable or in Compliance

$ZnAc_2$ - bis(4-hydroxyacridinato) zinc

## Table H4 - Comparison of Laboratory Results of Sample Duplicates

| TITLE 22 METALS - SOIL MATRIX | | | | | | |
|---|---|---|---|---|---|---|
| Sample ID | Concentration (mg/kg) | Duplicate ID | Concentration (mg/kg) | Difference | Relative Percent Difference | Relative Percent Difference Goal |
| | | | Lead | | | |
| AOC1-E-B4-0.5' | 308 | DUP-1 | 112 | 196 | 93 | <100 |
| AOC1-E-B2-0.5' | 219 | DUP-2 | 251 | 32 | 14 | <100 |
| AOC1-E-B3-0.5' | 179 | DUP-3 | 168 | 11 | 6.3 | <100 |
| AOC1-E-B7-0.5' | 93.4 | DUP-4 | 166 | 72.6 | 56 | <100 |
| AOC1-E-B8-0.5' | 681 | DUP-5 | 103 | 578 | **147** | <100 |
| AOC1-E-B9-0.5' | 229 | DUP-6 | 33.0 | 196 | **150** | <100 |
| AOC1-W-B25-0.5' | 41.4 | DUP-7 | 44.1 | 2.7 | 6.3 | <100 |
| AOC1-W-B33-0.5' | 43.1 | DUP-8 | 46.2 | 3.1 | 6.9 | <100 |
| AOC1-W-B41-0.5' | 27.3 | DUP-9 | 26.4 | 0.9 | 3.4 | <100 |
| AOC4-B6-W1-5' | 15.6 | DUP-16 | 15.6 | 0.0 | 0.0 | <100 |
| AOC4-B2-E1-15' | 5.72 | DUP-18 | 6.88 | 1.16 | 18 | <100 |
| AOC4-B18-W1-15' | 10.1 | DUP-19 | 8.52 | 1.58 | 17 | <100 |
| AOC4-B18-E1-15' | 7.33 | DUP-20 | 7.31 | 0.02 | 0.3 | <100 |
| AOC5-B23-0.5' | 126 | DUP-27 | 262 | 136 | 70 | <100 |
| AOC5-B24-0.5' | 14.3 | DUP-28 | 72.4 | 58.1 | **134** | <100 |
| AOC5-B25-0.5' | 160 | DUP-29 | 152 | 8.0 | 5.1 | <100 |
| AOC1-E-B36E-0.5' | 50.4 | DUP-30 | 128 | 77.6 | 87 | <100 |
| AOC1-E-B33E-0.5' | 156 | DUP-31 | 87.0 | 69 | 57 | <100 |
| AOC1-E-B1W-0.5' | 165 | DUP-32 | 166 | 1.0 | 0.6 | <100 |
| AOC1-E-B6E-0.5' | 117 | DUP-33 | 312 | 195 | 91 | <100 |
| AOC1-E-B7N-0.5' | 13.4 | DUP-34 | 63.4 | 50 | **130** | <100 |
| AOC1-E-B20E-0.5' | 40.5 | DUP-35 | 26.9 | 13.6 | 40 | <100 |
| AOC1-E-B4E-0.5' | 109 | DUP-36 | 90.5 | 18.5 | 19 | <100 |
| AOC1-E-B39E-0.5' | 205 | DUP-37 | 102 | 103 | 67 | <100 |
| AOC1-W-B2E-0.5' | 18.2 | DUP-38 | 62.1 | 43.9 | **109** | <100 |
| AOC1-W-B6W-0.5' | 236 | DUP-39 | 125 | 111 | 61 | <100 |
| AOC1-W-B13N-0.5' | 52.6 | DUP-40 | 64.5 | 11.9 | 20 | <100 |
| AOC1-W-B22W-0.5' | 33.4 | DUP-41 | 102 | 68.6 | **101** | <100 |
| AOC1-W-B26S-0.5' | 29.0 | DUP-42 | 64.6 | 35.6 | 76 | <100 |
| AOC1-W-B48N-0.5' | 36.6 | DUP-43 | 32.7 | 3.9 | 11 | <100 |
| AOC5-B23W-0.5' | 70.7 | DUP-44 | 30.4 | 40.3 | 80 | <100 |
| AOC5-B17N-0.5' | 101 | DUP-45 | 118 | 17 | 16 | <100 |
| AOC5-B13S-0.5' | 95.3 | DUP-46 | 66.4 | 28.9 | 36 | <100 |
| AOC5-B12S-0.5' | 126 | DUP-47 | 149 | 23 | 17 | <100 |
| AOC5-B11S-0.5' | 51.4 | DUP-48 | 27.6 | 23.8 | 60 | <100 |
| AOC4-B18-S1W-2.5' | 6.84 | DUP-57 | 5.70 | 1.14 | 18 | <100 |
| AOC4-B18-S1N-7.5' | 4.48 | DUP-58 | 2.69 | 1.79 | 50 | <100 |
| AOC5-B8WW-0.5' | 79.2 | DUP-59 | 82.7 | 3.5 | 4.3 | <100 |
| AOC5-B13SW-0.5' | 87.6 | DUP-60 | 95.6 | 8.0 | 8.7 | <100 |
| AOC5-B14NN-0.5 | 170 | DUP-61 | 188 | 18 | 10 | <100 |
| AOC5-B17E-0.5' | 84.5 | DUP-62 | 26.6 | 57.9 | **104** | <100 |
| AOC5-B25WW-0.5 | 106 | DUP-63 | 56.6 | 49.4 | 61 | <100 |

## Table H4 - Comparison of Laboratory Results of Sample Duplicates

| TITLE 22 METALS - SOIL MATRIX | | | | | | |
|---|---|---|---|---|---|---|
| Sample ID | Concentration (mg/kg) | Duplicate ID | Concentration (mg/kg) | Difference | Relative Percent Difference | Relative Percent Difference Goal |
| AOC5-B21SW-0.5 | 95.9 | DUP-64 | 112 | 16.1 | 15 | <100 |
| AOC1-E-B9NW-0.5 | 31.8 | DUP-65 | 35.0 | 3.2 | 10 | <100 |
| AOC1-E-B12SS-0.5 | 56.5 | DUP-66 | 48.2 | 8.3 | 16 | <100 |
| AOC1-E-B6WW-0.5 | 11.6 | DUP-67 | 58.6 | 47 | **134** | <100 |
| AOC1-E-B4SW-0.5 | 38.6 | DUP-68 | 38.3 | 0.3 | 0.8 | <100 |
| AOC1-W-B23NE-0.5' | 34.4 | DUP-69 | 36.6 | 2.2 | 6.2 | <100 |
| AOC1-W-B27SE-0.5' | 48.5 | DUP-70 | 58.5 | 10 | 19 | <100 |
| AOC1-W-B7SE-0.5 | 9.30 | DUP-71 | 27.2 | 17.9 | 98 | <100 |
| AOC1-E-B31NE-0.5 | 39.8 | DUP-72 | 32.4 | 7.4 | 20 | <100 |
| AOC1-E-B33SE-0.5 | 76.4 | DUP-73 | 71.1 | 5.3 | 7.2 | <100 |
| AOC1-E-B36SE-0.5 | 20.0 | DUP-74 | 26.4 | 6.4 | 28 | <100 |
| AOC1-E-B39EE-0.5 | 74.2 | DUP-75 | 48.7 | 25.5 | 41 | <100 |
| AOC5-B30-0.5 | 85 | DUP-76 | 28 | 57 | **101** | <100 |
| AOC5-B31-0.5 | 130 | DUP-77 | 75 | 55 | 54 | <100 |
| AOC5-B38-0.5 | 600 | DUP-78 | 280 | 320 | 73 | <100 |
| AOC5-B39-0.5 | 220 | DUP-79 | 250 | 30 | 13 | <100 |
| AOC5-B40-0.5 | 120 | DUP-80 | 100 | 20 | 18 | <100 |
| **Antimony** | | | | | | |
| AOC4-B6-W1-5' | 2.81 | DUP-16 | 0.96 | 1.9 | 98 | <100 |
| AOC4-B2-E1-15' | 2.11 | DUP-18 | 1.28 | 0.8 | 49 | <100 |
| AOC4-B18-W1-15' | 2.14 | DUP-19 | ND<3 | -- | -- | <100 |
| AOC4-B18-E1-15' | 1.52 | DUP-20 | 1.88 | 0.4 | 21 | <100 |
| **Arsenic** | | | | | | |
| AOC4-B6-W1-5' | 2.95 | DUP-16 | 1.07 | 1.88 | 94 | <100 |
| AOC4-B2-E1-15' | 5.28 | DUP-18 | 2.35 | 2.93 | 77 | <100 |
| AOC4-B18-W1-15' | 8.56 | DUP-19 | 1.67 | 6.89 | **135** | <100 |
| AOC4-B18-E1-15' | 2.55 | DUP-20 | ND<1 | -- | -- | <100 |
| **Barium** | | | | | | |
| AOC4-B6-W1-5' | 94.6 | DUP-16 | 96.8 | 2.2 | 2.3 | <100 |
| AOC4-B2-E1-15' | 89.9 | DUP-18 | 103 | 13.1 | 14 | <100 |
| AOC4-B18-W1-15' | 208 | DUP-19 | 136 | 72 | 42 | <100 |
| AOC4-B18-E1-15' | 94.5 | DUP-20 | 348 | 253.5 | **115** | <100 |
| **Cadmium** | | | | | | |
| AOC4-B6-W1-5' | 0.45 | DUP-16 | 0.46 | 0.01 | 2.2 | <100 |
| AOC4-B2-E1-15' | 0.90 | DUP-18 | 0.76 | 0.14 | 17 | <100 |
| AOC4-B18-W1-15' | 1.04 | DUP-19 | 0.74 | 0.3 | 34 | <100 |
| AOC4-B18-E1-15' | 0.75 | DUP-20 | 0.99 | 0.24 | 28 | <100 |
| **Chromium** | | | | | | |
| AOC4-B6-W1-5' | 10.4 | DUP-16 | 13.7 | 3.3 | 27 | <100 |
| AOC4-B2-E1-15' | 20.0 | DUP-18 | 29.2 | 9.2 | 37 | <100 |
| AOC4-B18-W1-15' | 33.6 | DUP-19 | 29.9 | 3.7 | 12 | <100 |
| AOC4-B18-E1-15' | 22.2 | DUP-20 | 28.3 | 6.1 | 24 | <100 |

## Table H4 - Comparison of Laboratory Results of Sample Duplicates

| TITLE 22 METALS - SOIL MATRIX | | | | | | |
|---|---|---|---|---|---|---|
| Sample ID | Concentration (mg/kg) | Duplicate ID | Concentration (mg/kg) | Difference | Relative Percent Difference | Relative Percent Difference Goal |
| **Cobalt** | | | | | | |
| AOC4-B6-W1-5' | 6.98 | DUP-16 | 7.74 | 0.76 | 10 | <100 |
| AOC4-B2-E1-15' | 9.22 | DUP-18 | 11.5 | 2.28 | 22 | <100 |
| AOC4-B18-W1-15' | 20.5 | DUP-19 | 17.5 | 3.0 | 16 | <100 |
| AOC4-B18-E1-15' | 11.2 | DUP-20 | 13.2 | 2.0 | 16 | <100 |
| **Copper** | | | | | | |
| AOC4-B6-W1-5' | 13.3 | DUP-16 | 14.5 | 1.2 | 8.6 | <100 |
| AOC4-B2-E1-15' | 27.5 | DUP-18 | 31.1 | 3.6 | 12 | <100 |
| AOC4-B18-W1-15' | 46.2 | DUP-19 | 32.5 | 13.7 | 35 | <100 |
| AOC4-B18-E1-15' | 20.5 | DUP-20 | 22.2 | 1.7 | 8.0 | <100 |
| **Mercury** | | | | | | |
| AOC4-B6-W1-5' | 0.04 | DUP-16 | 0.04 | 0.0 | 0.0 | <100 |
| AOC4-B2-E1-15' | 0.09 | DUP-18 | 0.09 | 0.0 | 0.0 | <100 |
| AOC4-B18-W1-15' | 0.06 | DUP-19 | 0.04 | 0.02 | 40 | <100 |
| AOC4-B18-E1-15' | ND<0.14 | DUP-20 | ND<0.14 | -- | -- | <100 |
| **Molybdenum** | | | | | | |
| AOC4-B6-W1-5' | 0.64 | DUP-16 | ND<1 | -- | -- | <100 |
| AOC4-B2-E1-15' | ND<1 | DUP-18 | ND<1 | -- | -- | <100 |
| AOC4-B18-W1-15' | 1.31 | DUP-19 | 0.57 | 0.74 | 79 | <100 |
| AOC4-B18-E1-15' | ND<1 | DUP-20 | ND<1 | -- | -- | <100 |
| **Nickel** | | | | | | |
| AOC4-B6-W1-5' | 7.51 | DUP-16 | 8.74 | 1.23 | 15 | <100 |
| AOC4-B2-E1-15' | 15.8 | DUP-18 | 20.9 | 5.1 | 28 | <100 |
| AOC4-B18-W1-15' | 28.1 | DUP-19 | 23.6 | 4.5 | 17 | <100 |
| AOC4-B18-E1-15' | 14.3 | DUP-20 | 17.3 | 3.0 | 19 | <100 |
| **Thallium** | | | | | | |
| AOC4-B6-W1-5' | 1.77 | DUP-16 | 1.92 | 0.15 | 8 | <100 |
| AOC4-B2-E1-15' | 1.55 | DUP-18 | 2.57 | 1.02 | 50 | <100 |
| AOC4-B18-W1-15' | 3.04 | DUP-19 | 2.71 | 0.33 | 11 | <100 |
| AOC4-B18-E1-15' | 2.13 | DUP-20 | 3.68 | 1.55 | 53 | <100 |
| **Vanadium** | | | | | | |
| AOC4-B6-W1-5' | 26.0 | DUP-16 | 31.6 | 5.6 | 19 | <100 |
| AOC4-B2-E1-15' | 39.1 | DUP-18 | 42.7 | 3.6 | 9 | <100 |
| AOC4-B18-W1-15' | 71.4 | DUP-19 | 48.3 | 23.1 | 39 | <100 |
| AOC4-B18-E1-15' | 50.1 | DUP-20 | 50.9 | 0.8 | 2 | <100 |
| **Zinc** | | | | | | |
| AOC4-B6-W1-5' | 50.3 | DUP-16 | 50.2 | 0.10 | 0.2 | <100 |
| AOC4-B2-E1-15' | 43.0 | DUP-18 | 62.2 | 19.2 | 37 | <100 |
| AOC4-B18-W1-15' | 79.2 | DUP-19 | 70.2 | 9.0 | 12 | <100 |
| AOC4-B18-E1-15' | 67.3 | DUP-20 | 84.2 | 16.9 | 22 | <100 |

## Table H4 - Comparison of Laboratory Results of Sample Duplicates

| VOLATILE ORGANIC COMPOUNDS - SOIL MATRIX | | | | | | |
|---|---|---|---|---|---|---|
| Sample ID | Concentration (µg/kg) | Duplicate ID | Concentration (µg/kg) | Difference | Relative Percent Difference | Relative Percent Difference Goal |
| **2-Butanone (MEK)** | | | | | | |
| AOC4-B6-W1-5' | 1.3 | DUP-16 | 5.1 | 3.8 | **119** | <100 |
| AOC4-B18-W1-15' | ND<90 | DUP-19 | 2.9 | -- | -- | <100 |
| AOC4-B18-E1-15' | 1.4 | DUP-20 | 1.2 | 0.2 | 15 | <100 |
| **Acetone** | | | | | | |
| AOC4-B2-E1-15' | ND<80 | DUP-18 | 65 | -- | -- | <100 |
| **Benzene** | | | | | | |
| AOC4-B6-W1-5' | 0.89 | DUP-16 | 1.7 | 0.81 | 63 | <100 |
| AOC4-B2-E1-15' | 0.23 | DUP-18 | 0.52 | 0.29 | 77 | <100 |
| AOC4-B18-W1-15' | ND<4.5 | DUP-19 | 0.28 | -- | -- | <100 |
| AOC4-B18-E1-15' | 0.19 | DUP-20 | 0.24 | 0.05 | 23 | <100 |
| **Ethylbenzene** | | | | | | |
| AOC4-B6-W1-5' | 0.27 | DUP-16 | ND<5.5 | -- | -- | <100 |
| **Methylene chloride** | | | | | | |
| AOC4-B6-W1-5' | ND<3.5 | DUP-16 | 1.9 | -- | -- | <100 |
| AOC4-B2-E1-15' | ND<4 | DUP-18 | 3.5 | -- | -- | <100 |
| **t-Butyl alcohol (TBA)** | | | | | | |
| AOC4-B6-W1-5' | ND<7 | DUP-16 | | -- | -- | <100 |
| **Toluene** | | | | | | |
| AOC4-B6-W1-5' | 0.30 | DUP-16 | 1.1 | 0.8 | **114** | <100 |
| AOC4-B2-E1-15' | 0.17 | DUP-18 | 0.36 | 0.19 | 72 | <100 |
| AOC4-B18-W1-15' | ND<4.5 | DUP-19 | 0.56 | -- | -- | <100 |
| AOC4-B18-E1-15' | ND<4 | DUP-20 | 0.33 | -- | -- | <100 |
| **TOTAL PETROLEUM HYDROCARBONS - SOIL MATRIX** | | | | | | |
| Sample ID | Concentration ($mg/m^3$) | Duplicate ID | Concentration (mg/kg) | Difference | Relative Percent Difference | Relative Percent Difference Goal |
| **TPH Diesel** | | | | | | |
| AOC4-B6-W1-5' | 5.80 | DUP-16 | 3.82 | 1.98 | 41 | <100 |
| AOC4-B2-E1-15' | 1.96 | DUP-18 | 4.88 | 2.92 | 85 | <100 |
| AOC4-B18-W1-15' | 2.43 | DUP-19 | 3.99 | 1.56 | 49 | <100 |
| AOC4-B18-E1-15' | 4.91 | DUP-20 | 3.69 | 1.22 | 28 | <100 |
| **TPH Motor Oil** | | | | | | |
| AOC4-B6-W1-5' | 7.89 | DUP-16 | 3.53 | 4.36 | 76 | <100 |
| **ORGANOCHLORINE PESTICIDES - SOIL MATRIX** | | | | | | |
| Sample ID | Concentration (µg/kg) | Duplicate ID | Concentration (µg/kg) | Difference | Relative Percent Difference | Relative Percent Difference Goal |
| **4,4'-DDD** | | | | | | |
| CG26-0.5' | 8.2 | COMP DUP-6 | 2.6 | 5.6 | **104** | <100 |
| CG28-0.5' | ND<5 | COMP DUP-7 | 2.7 | -- | -- | <100 |

## Table H4 - Comparison of Laboratory Results of Sample Duplicates

| ORGANOCHLORINE PESTICIDES - SOIL MATRIX | | | | | | |
|---|---|---|---|---|---|---|
| **Sample ID** | **Concentration (µg/kg)** | **Duplicate ID** | **Concentration (µg/kg)** | **Difference** | **Relative Percent Difference** | **Relative Percent Difference Goal** |
| **4,4'-DDE** | | | | | | |
| CG1-0.5' | 23 | COMP DUP-1 | 30 | 7.00 | 26 | <100 |
| CG3-0.5' | 11 | COMP DUP-2 | ND<5 | -- | -- | <100 |
| CG21-0.5' | ND<25 | COMP DUP-3 | 13 | -- | -- | <100 |
| CG5-0.5' | 4.9 | COMP DUP-5 | 11 | 6.1 | 77 | <100 |
| CG26-0.5' | 71 | COMP DUP-6 | ND<5 | -- | -- | <100 |
| CG28-0.5' | 7.0 | COMP DUP-7 | 80 | 73 | **168** | <100 |
| CG29-0.5' | 15 | COMP DUP-8 | ND<5 | -- | -- | <100 |
| **4,4'-DDT** | | | | | | |
| CG1-0.5' | 21 | COMP DUP-1 | 26 | 5.0 | 21 | <100 |
| CG3-0.5' | 62 | COMP DUP-2 | 7.3 | 54.7 | **158** | <100 |
| CG21-0.5' | 17 | COMP DUP-3 | ND<25 | -- | -- | <100 |
| CG5-0.5' | 3.4 | COMP DUP-5 | 5.8 | 2.4 | 52 | <100 |
| CG26-0.5' | 59 | COMP DUP-6 | 39 | 20.0 | 41 | <100 |
| CG28-0.5' | ND<5 | COMP DUP-7 | 57 | -- | -- | <100 |
| CG29-0.5' | 40 | COMP DUP-8 | 43 | 3.0 | 7.2 | <100 |
| CG-36-0.5' | ND<25 | COMP DUP-10 | 6.4 | -- | -- | <100 |
| **Chlordane (technical)** | | | | | | |
| CG28-0.5' | ND<50 | COMP DUP-7 | 190 | -- | -- | <100 |
| CG29-0.5' | 1200 | COMP DUP-8 | 1200 | 0.0 | 0.0 | <100 |
| **Dieldrin** | | | | | | |
| CG3-0.5' | ND<25 | COMP DUP-2 | 2.7 | -- | -- | <100 |
| **Endrin Ketone** | | | | | | |
| CG29-0.5' | ND<5 | COMP DUP-8 | 4.4 | -- | -- | <100 |
| **Heptachlor epoxide** | | | | | | |
| CG29-0.5' | 7.0 | COMP DUP-8 | ND<5 | -- | -- | <100 |
| CG-36-0.5' | 15 J | COMP DUP-10 | ND<9.9 | -- | -- | <100 |
| **VOLATILE ORGANIC COMPOUNDS - SOIL VAPOR MATRIX** | | | | | | |
| **Sample ID** | **Concentration ($\mu g/m^3$)** | **Duplicate ID** | **Concentration ($\mu g/m^3$)** | **Difference** | **Relative Percent Difference** | **Relative Percent Difference Goal** |
| **Benzene** | | | | | | |
| AOC2-B2E-5' | 1480 | AOC2-B2E-5' REP | 1,190 | 290 | 22 | <100 |
| **n-Butylbenzene** | | | | | | |
| AOC4-SV13-5' | 15 | AOC4-SV13-5' REP | 10 | 5.00 | 40 | <100 |
| **Chloroform** | | | | | | |
| AOC3-B5-12' | 9 | AOC3-B5-12' REP | 8 | 1.0 | 12 | <100 |
| AOC3-B1N-5' | 49 | AOC3-B1N-5' REP | 56 | 7.0 | 13 | <100 |
| **Ethylbenzene** | | | | | | |
| AOC4-SV13-5' | 28 | AOC4-SV13-5' REP | 18 | 10 | 43 | <100 |
| AOC3-B5-12' | 11 | AOC3-B5-12' REP | 9 | 2.0 | 20 | <100 |
| AOC2-B1-5' | 22 | AOC2-B1-5' REP | 18 | 4.0 | 20 | <100 |
| AOC4-SV13A-15' | 95 | AOC4-SV13A-15' REP | 72 | 23 | 28 | <100 |
| AOC3-B1N-5' | ND<8 | AOC3-B1N-5' REP | ND<8 | -- | -- | <100 |
| **Isopropylbenzene** | | | | | | |
| AOC4-SV13A-15' | 29 | AOC4-SV13A-15' REP | 19 | 10 | 42 | <100 |

## Table H4 - Comparison of Laboratory Results of Sample Duplicates

| VOLATILE ORGANIC COMPOUNDS - SOIL VAPOR MATRIX | | | | | | |
|---|---|---|---|---|---|---|
| Sample ID | Concentration ($\mu g/m^3$) | Duplicate ID | Concentration ($\mu g/m^3$) | Difference | Relative Percent Difference | Relative Percent Difference Goal |
| **4-Isopropyltoluene** | | | | | | |
| AOC2-B2E-5' | 181 | AOC2-B2E-5' REP | 168 | 13.0 | 7.4 | <100 |
| **n-Propylbenzene** | | | | | | |
| AOC4-SV13-5' | 22 | AOC4-SV13-5' REP | 13 | 9.0 | 51 | <100 |
| **Tetrachloroethene** | | | | | | |
| AOC4-SV13-5' | 44 | AOC4-SV13-5' REP | 46 | 2.00 | 4.4 | <100 |
| AOC4-SV10N-5' | 18 | AOC4-SV10N-5' REP | 22 | 4.00 | 20 | <100 |
| AOC4-SV11SS-5' | 55 | AOC4-SV11SS-5' REP | 50 | 5.00 | 10 | <100 |
| **Toluene** | | | | | | |
| AOC4-SV13-5' | 21 | AOC4-SV13-5' REP | 28 | 7.0 | 29 | <100 |
| AOC3-B5-12' | 12 | AOC3-B5-12' REP | ND<8 | -- | -- | <100 |
| AOC2-B1-5' | 79 | AOC2-B1-5' REP | 60 | 19 | 27 | <100 |
| AOC4-SV13A-15' | 14 | AOC4-SV13A-15' REP | 10 | 4.0 | 33 | <100 |
| AOC2-B2E-5' | 278 | AOC2-B2E-5' REP | 220 | 58 | 23 | <100 |
| **1,2,4-Trimethylbenzene** | | | | | | |
| AOC4-SV13-5' | 10 | AOC4-SV13-5' REP | 11 | 1.0 | 10 | <100 |
| AOC2-B1-5' | 16 | AOC2-B1-5' REP | 13 | 3.0 | 21 | <100 |
| AOC4-SV13A-15' | 45 | AOC4-SV13A-15' REP | 42 | 3.0 | 6.9 | <100 |
| **m,p-Xylene** | | | | | | |
| AOC4-SV13-5' | 22 | AOC4-SV13-5' REP | 27 | 5.0 | 20 | <100 |
| AOC3-B5-12' | 21 | AOC3-B5-12' REP | ND<16 | -- | -- | <100 |
| AOC2-B1-5' | 74 | AOC2-B1-5' REP | 54 | 20 | 31 | <100 |
| AOC4-SV13A-15' | 38 | AOC4-SV13A-15' REP | 32 | 6.0 | 17 | <100 |
| AOC2-B2E-5' | 537 | AOC2-B2E-5' REP | 432 | 105 | 22 | <100 |
| **o-Xylene** | | | | | | |
| AOC4-SV13-5' | ND<8 | AOC4-SV13-5' REP | 8 | -- | -- | <100 |
| AOC2-B1-5' | 22 | AOC2-B1-5' REP | 16 | 6.0 | 32 | <100 |
| AOC2-B2E-5' | 210 | AOC2-B2E-5' REP | 176 | 34 | 18 | <100 |
| **Gasoline Range Organics (C4-C12)** | | | | | | |
| AOC2-B2E-5' | 334000 | AOC2-B2E-5' REP | 355,000 | 21,000 | 6 | <100 |

**Notes:**

**Bold** indicates RPD value is above 100 percent

Results where the primary and duplicate samples were both not detected for a given analyte were omitted from this table

-- difference and/or relative percent difference could not be calculated when primary or duplicate concentration was not detected

ID – identification

J – result estimated; analyte detected below laboratory reporting limit and above minimum detection limit.

mg/kg – milligrams per kilogram

ND – not detected

µg/kg – micrograms per kilogram

$\mu g/m^3$ – micrograms per cubic meter

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# APPENDIX I

## HHRA Tables and Calculations for Non-Metals

Table I-1
Health Hazards from Incidental Soil Ingestion
Residential Exposure Scenario
601 South Acacia Avenue
Compton, California

| COPC | Maximum Soil Concentration (mg/kg) | Oral Reference Dose (mg/kg-d) | Residential Scenario | |
|---|---|---|---|---|
| | | | Average Daily Intake (mg/kg-d) Child | Hazard Quotient (Unitless) Child |
| ***Pesticides*** | | | | |
| 4,4'-DDD | 0.0096 | 3.0E-05 | 1.23E-07 | 4.09E-03 |
| 4,4'-DDE | 0.2 | 3.0E-04 | 2.56E-06 | 8.52E-03 |
| 4,4'-DDT | 0.11 | 5.0E-04 | 1.41E-06 | 2.81E-03 |
| Chlordane (technical) | 1.2 | 5.0E-04 | 1.53E-05 | 3.07E-02 |
| Dieldrin | 0.0027 | 5.0E-05 | 3.45E-08 | 6.90E-04 |
| Endrin Ketone | 0.0044 | 3.0E-04 | 5.63E-08 | 1.88E-04 |
| Heptachlor epoxide | 0.007 | 1.3E-05 | 8.95E-08 | 6.88E-03 |
| ***TPH*** | | | | |
| TPH (C17-C32 aromatic high) | 127.5 | 4.0E-02 | 1.63E-03 | 4.08E-02 |
| TPH (C19-C32 aliphatic high) | 127.5 | 3.0E+00 | 1.63E-03 | 5.43E-04 |
| TPH (C5-C8 aliphatic low) | 220 | NA | 2.81E-03 | NA |
| TPH (C6-C8 aromatic low) | 220 | 4.0E-03 | 2.81E-03 | 7.03E-01 |
| TPH (C9-C16 aromatic medium | 101 | 4.0E-03 | 1.29E-03 | 3.23E-01 |
| TPH (C9-C18 aliphatic medium | 101 | 1.0E-02 | 1.29E-03 | 1.29E-01 |
| ***VOCs*** | | | | |
| Acetone | 0.37 | 9.0E-01 | 4.73E-06 | 5.26E-06 |
| Benzene | 0.072 | 4.0E-03 | 9.21E-07 | 2.30E-04 |
| Ethylbenzene | 2 | 1.0E-01 | 2.56E-05 | 2.56E-04 |
| Isopropylbenzenes | 2.13 | 1.0E-01 | 2.72E-05 | 2.72E-04 |
| Methylene chloride | 0.0094 | 6.0E-03 | 1.20E-07 | 2.00E-05 |
| N-butylbenzene | 2.5 | 5.0E-02 | 3.20E-05 | 6.39E-04 |
| N-propylbenzene | 2.9 | 1.0E-01 | 3.71E-05 | 3.71E-04 |
| Naphthalene | 6 | 2.0E-02 | 7.67E-05 | 3.84E-03 |
| Sec-butylbenzene | 0.99 | 1.0E-01 | 1.27E-05 | 1.27E-04 |
| tert-Butyl alcohol | 0.018 | 1.0E-01 | 2.30E-07 | 2.30E-06 |
| Toluene | 0.53 | 8.0E-02 | 6.78E-06 | 8.47E-05 |
| Trichlorofluoromethane | 0.00035 | 3.0E-01 | 4.47E-09 | 1.49E-08 |
| Xylenes, Total | 5 | 2.0E-01 | 6.39E-05 | 3.20E-04 |
| **Total Hazard Index** | | | | **1.3E+00** |

Notes:
"--" not applicable or not available
Equations:
Child $INTAKE_{noncancer}$ (mg/kg-day) = $((CS_{residential} * IR\text{-}S_{child} * EF_{child} * ED_{child} * CF) / (BW_{child} * AT_{noncancer}))$
Noncancer Hazard = $(INTAKE_{noncancer} / RfD)$

Table I-2
Health Hazards from Dermal Contact with Soil
Residential Exposure Scenario
601 South Acacia Avenue
Compton, California

| COPC | Maximum Soil Concentration (mg/kg) | Soil-to-Skin Absorption Factor (unitless) | Oral/Dermal Reference Dose (mg/kg-d) | Residential Scenario | |
|---|---|---|---|---|---|
| | | | | Average Daily Intake (mg/kg-d) Child | Hazard Quotient (Unitless) Child |
| ***Pesticides*** | | | | | |
| 4,4'-DDD | 0.0096 | 0.1 | 3.0E-05 | 3.56E-08 | 1.19E-03 |
| 4,4'-DDE | 0.2 | 0.1 | 3.0E-04 | 7.42E-07 | 2.47E-03 |
| 4,4'-DDT | 0.11 | 0.03 | 5.0E-04 | 1.22E-07 | 2.45E-04 |
| Chlordane (technical) | 1.2 | 0.1 | 5.0E-04 | 4.45E-06 | 8.90E-03 |
| Dieldrin | 0.0027 | 0.1 | 5.0E-05 | 1.00E-08 | 2.00E-04 |
| Endrin Ketone | 0.0044 | 0.1 | 3.0E-04 | 1.63E-08 | 5.44E-05 |
| Heptachlor epoxide | 0.007 | 0.1 | 1.3E-05 | 2.60E-08 | 2.00E-03 |
| ***TPH*** | | | | | |
| TPH (C17-C32 aromatic high) | 127.5 | 0.1 | 4.0E-02 | 4.73E-04 | 1.18E-02 |
| TPH (C19-C32 aliphatic high) | 127.5 | 0.1 | 3.0E+00 | 4.73E-04 | 1.58E-04 |
| TPH (C5-C8 aliphatic low) | 220 | 0.1 | NA | 8.16E-04 | NA |
| TPH (C6-C8 aromatic low) | 220 | 0.1 | 4.0E-03 | 8.16E-04 | 2.04E-01 |
| TPH (C9-C16 aromatic medium | 101 | 0.1 | 4.0E-03 | 3.74E-04 | 9.36E-02 |
| TPH (C9-C18 aliphatic medium | 101 | 0.1 | 1.0E-02 | 3.74E-04 | 3.74E-02 |
| ***VOCs*** | | | | | |
| Acetone | 0.37 | 0.1 | 9.0E-01 | 1.37E-06 | 1.52E-06 |
| Benzene | 0.072 | 0.1 | 4.0E-03 | 2.67E-07 | 6.67E-05 |
| Ethylbenzene | 2 | 0.1 | 1.0E-01 | 7.42E-06 | 7.42E-05 |
| Isopropylbenzenes | 2.13 | 0.1 | 1.0E-01 | 7.90E-06 | 7.90E-05 |
| Methylene chloride | 0.0094 | 0.1 | 6.0E-03 | 3.49E-08 | 5.81E-06 |
| N-butylbenzene | 2.5 | 0.1 | 5.0E-02 | 9.27E-06 | 1.85E-04 |
| N-propylbenzene | 2.9 | 0.1 | 1.0E-01 | 1.08E-05 | 1.08E-04 |
| Naphthalene | 6 | 0.1 | 2.0E-02 | 2.22E-05 | 1.11E-03 |
| Sec-butylbenzene | 0.99 | 0.1 | 1.0E-01 | 3.67E-06 | 3.67E-05 |
| tert-Butyl alcohol | 0.018 | 0.1 | 1.0E-01 | 6.67E-08 | 6.67E-07 |
| Toluene | 0.53 | 0.1 | 8.0E-02 | 1.97E-06 | 2.46E-05 |
| Trichlorofluoromethane | 0.00035 | 0.1 | 3.0E-01 | 1.30E-09 | 4.33E-09 |
| Xylenes, Total | 5 | 0.1 | 2.0E-01 | 1.85E-05 | 9.27E-05 |
| **Total Hazard Index** | | | | | **3.6E-01** |

Notes:
"--" not applicable or not available
Equations:
Child $INTAKE_{noncancer}$ (mg/kg-day) = (($CS_{residential}$ * $SA_{child}$ * $AF_{child}$ * ABS * $EF_{child}$ * $ED_{child}$ * CF) / ($BW_{child}$ * $AT_{noncancer}$))
Noncancer Hazard = ($INTAKE_{noncancer}$ / RfD)

Table I-3
Health Hazards from Inhalation of Outdoor Air
Residential Exposure Scenario
601 South Acacia Avenue
Compton, California

| COPC | Maximum Soil Concentration (mg/kg) | PEF or VEF ($m^3$/kg) | Inhalation Reference Concentration[a] (ug/m^3) | Residential Scenario | |
|---|---|---|---|---|---|
| | | | | Exposure Concentration (ug/m^3) Child | Hazard Quotient (Unitless) Child |
| ***Pesticides*** | | | | | |
| 4,4'-DDD | 0.0096 | 1.36E+09 | NA | 6.77E-09 | NA |
| 4,4'-DDE | 0.2 | 1.36E+09 | 1.2E+00 | 1.41E-07 | 1.18E-07 |
| 4,4'-DDT | 0.11 | 1.36E+09 | NA | 7.76E-08 | NA |
| Chlordane (technical) | 1.2 | 1.36E+09 | 7.0E-01 | 8.46E-07 | 1.21E-06 |
| Dieldrin | 0.0027 | 1.36E+09 | 2.0E-01 | 1.90E-09 | 9.52E-09 |
| Endrin Ketone | 0.0044 | 1.36E+09 | NA | 3.10E-09 | NA |
| Heptachlor epoxide | 0.007 | 1.36E+09 | 5.2E-02 | 4.94E-09 | 9.49E-08 |
| ***TPH*** | | | | | |
| TPH (C17-C32 aromatic high) | 127.5 | 1.36E+09 | NA | 8.99E-05 | NA |
| TPH (C19-C32 aliphatic high) | 127.5 | 1.36E+09 | NA | 8.99E-05 | NA |
| TPH (C5-C8 aliphatic low) | 220 | 1.36E+09 | 6.0E+02 | 1.55E-04 | 2.59E-07 |
| TPH (C6-C8 aromatic low) | 220 | 1.36E+09 | 3.0E+01 | 1.55E-04 | 5.17E-06 |
| TPH (C9-C16 aromatic medium | 101 | 1.36E+09 | 3.0E+00 | 7.12E-05 | 2.37E-05 |
| TPH (C9-C18 aliphatic medium | 101 | 1.36E+09 | 1.0E+02 | 7.12E-05 | 7.12E-07 |
| ***VOCs*** | | | | | |
| Acetone | 0.37 | 5.03E+04 | 3.1E+04 | 7.05E-03 | 2.28E-07 |
| Benzene | 0.072 | 1.42E+04 | 3.0E+00 | 4.87E-03 | 1.62E-03 |
| Ethylbenzene | 2 | 1.84E+04 | 1.0E+03 | 1.04E-01 | 1.04E-04 |
| Isopropylbenzenes | 2.13 | 3.30E+03 | 4.0E+02 | 6.18E-01 | 1.55E-03 |
| Methylene chloride | 0.0094 | 1.61E+04 | 4.0E+02 | 5.59E-04 | 1.40E-06 |
| N-butylbenzene | 2.5 | 4.57E+04 | 2.0E+02 | 5.24E-02 | 2.62E-04 |
| N-propylbenzene | 2.9 | 4.57E+04 | 1.0E+03 | 6.08E-02 | 6.08E-05 |
| Naphthalene | 6 | 1.51E+05 | 3.0E+00 | 3.80E-02 | 1.27E-02 |
| Sec-butylbenzene | 0.99 | 3.36E+04 | 4.0E+02 | 2.82E-02 | 7.06E-05 |
| tert-Butyl alcohol | 0.018 | 5.84E+04 | 4.0E+02 | 2.95E-04 | 7.39E-07 |
| Toluene | 0.53 | 1.63E+04 | 3.0E+02 | 3.11E-02 | 1.04E-04 |
| Trichlorofluoromethane | 0.00035 | 5.21E+03 | 1.2E+03 | 6.44E-05 | 5.37E-08 |
| Xylenes, Total | 5 | 1.94E+04 | 1.0E+02 | 2.47E-01 | 2.47E-03 |
| **Total Hazard Index** | | | | | **1.9E-02** |

Notes:
"--" not applicable or not available
Equations:
Particulate: Child Exposure-$_{noncancer}$ (ug/m^3) = ($CS_{residential}$ *(1/PEF) * $EF_{child}$ * $ED_{child}$ * $ET_{child}$ ) / ($AT_{noncancer}$))
VOCs: Child Exposure-$_{noncancer}$ (ug/m^3) = ($CS_{residential}$ * Etchild * $EF_{child}$ * $ED_{child}$ * (1/VF)) / ($AT_{noncancer}$))
Noncancer Hazard = ($INTAKE_{noncancer}$ / RfD)

Table I-4
Cumulative Health Hazards from Multipathway Soil Exposure
Residential Exposure Scenario
601 South Acacia Avenue
Compton, California

| COPC | Maximum Soil Conc. (mg/kg) | Residential Noncancer Hazard | | | |
|---|---|---|---|---|---|
| | | Child Resident | | | |
| | | Ingestion of Soil | Dermal | Inhalation | Total HI |
| ***Pesticides*** | | | | | |
| 4,4'-DDD | 0.0096 | 4.09E-03 | 1.19E-03 | NA | 5.3E-03 |
| 4,4'-DDE | 0.2 | 8.52E-03 | 2.47E-03 | 1.18E-07 | 1.1E-02 |
| 4,4'-DDT | 0.11 | 2.81E-03 | 2.45E-04 | NA | 3.1E-03 |
| Chlordane (technical) | 1.2 | 3.07E-02 | 8.90E-03 | 1.21E-06 | 4.0E-02 |
| Dieldrin | 0.0027 | 6.90E-04 | 2.00E-04 | 9.52E-09 | 8.9E-04 |
| Endrin Ketone | 0.0044 | 1.88E-04 | 5.44E-05 | NA | 2.4E-04 |
| Heptachlor epoxide | 0.007 | 6.88E-03 | 2.00E-03 | 9.49E-08 | 8.9E-03 |
| ***TPH*** | | | | | |
| TPH (C17-C32 aromatic high) | 127.5 | 4.08E-02 | 1.18E-02 | NA | 5.3E-02 |
| TPH (C19-C32 aliphatic high) | 127.5 | 5.43E-04 | 1.58E-04 | NA | 7.0E-04 |
| TPH (C5-C8 aliphatic low) | 220 | NA | NA | 2.59E-07 | 2.6E-07 |
| TPH (C6-C8 aromatic low) | 220 | 7.03E-01 | 2.04E-01 | 5.17E-06 | 9.1E-01 |
| TPH (C9-C16 aromatic medium | 101 | 3.23E-01 | 9.36E-02 | 2.37E-05 | 4.2E-01 |
| TPH (C9-C18 aliphatic medium | 101 | 1.29E-01 | 3.74E-02 | 7.12E-07 | 1.7E-01 |
| ***VOCs*** | | | | | |
| Acetone | 0.37 | 5.26E-06 | 1.52E-06 | 2.28E-07 | 7.0E-06 |
| Benzene | 0.072 | 2.30E-04 | 6.67E-05 | 1.62E-03 | 1.9E-03 |
| Ethylbenzene | 2 | 2.56E-04 | 7.42E-05 | 1.04E-04 | 4.3E-04 |
| Isopropylbenzenes | 2.13 | 2.72E-04 | 7.90E-05 | 1.55E-03 | 1.9E-03 |
| Methylene chloride | 0.0094 | 2.00E-05 | 5.81E-06 | 1.40E-06 | 2.7E-05 |
| N-butylbenzene | 2.5 | 6.39E-04 | 1.85E-04 | 2.62E-04 | 1.1E-03 |
| N-propylbenzene | 2.9 | 3.71E-04 | 1.08E-04 | 6.08E-05 | 5.4E-04 |
| Naphthalene | 6 | 3.84E-03 | 1.11E-03 | 1.27E-02 | 1.8E-02 |
| Sec-butylbenzene | 0.99 | 1.27E-04 | 3.67E-05 | 7.06E-05 | 2.3E-04 |
| tert-Butyl alcohol | 0.018 | 2.30E-06 | 6.67E-07 | 7.39E-07 | 3.7E-06 |
| Toluene | 0.53 | 8.47E-05 | 2.46E-05 | 1.04E-04 | 2.1E-04 |
| Trichlorofluoromethane | 0.00035 | 1.49E-08 | 4.33E-09 | 5.37E-08 | 7.3E-08 |
| Xylenes, Total | 5 | 3.20E-04 | 9.27E-05 | 2.47E-03 | 2.9E-03 |
| **Total Hazard Index** | | | | | **1.6E+00** |

Note:
"--" not applicable or not available

Table I-5
Cancer Risks from Incidental Soil Ingestion
Residential Exposure Scenario
601 South Acacia Avenue
Compton, California

| COPC | Maximum Soil Concentration (mg/kg) | Oral Slope Factor $(mg/kg\text{-}d)^{-1}$ | Residential Scenario | |
|---|---|---|---|---|
| | | | Average Daily Intake (mg/kg-d) Adult & Child | Cancer Risk (Unitless) Adult & Child |
| ***Pesticides*** | | | | |
| 4,4'-DDD | 0.0096 | 2.4E-01 | 1.38E-08 | 3.31E-09 |
| 4,4'-DDE | 0.2 | 3.4E-01 | 2.88E-07 | 9.78E-08 |
| 4,4'-DDT | 0.11 | 3.4E-01 | 1.58E-07 | 5.38E-08 |
| Chlordane (technical) | 1.2 | 3.5E-01 | 1.73E-06 | 6.04E-07 |
| Dieldrin | 0.0027 | 1.6E+01 | 3.88E-09 | 6.21E-08 |
| Endrin Ketone | 0.0044 | NA | 6.33E-09 | NA |
| Heptachlor epoxide | 0.007 | 9.1E+00 | 1.01E-08 | 9.16E-08 |
| ***TPH*** | | | | |
| TPH (C17-C32 aromatic high) | 127.5 | NA | 1.83E-04 | NA |
| TPH (C19-C32 aliphatic high) | 127.5 | NA | 1.83E-04 | NA |
| TPH (C5-C8 aliphatic low) | 220 | NA | 3.16E-04 | NA |
| TPH (C6-C8 aromatic low) | 220 | NA | 3.16E-04 | NA |
| TPH (C9-C16 aromatic medium) | 101 | NA | 1.45E-04 | NA |
| TPH (C9-C18 aliphatic medium) | 101 | NA | 1.45E-04 | NA |
| ***VOCs*** | | | | |
| Acetone | 0.37 | NA | 5.32E-07 | NA |
| Benzene | 0.072 | 1.0E-01 | 1.04E-07 | 1.04E-08 |
| Ethylbenzene | 2 | 1.1E-02 | 2.88E-06 | 3.16E-08 |
| Isopropylbenzenes | 2.13 | NA | 3.06E-06 | NA |
| Methylene chloride | 0.0094 | 2.0E-03 | 1.35E-08 | 2.70E-11 |
| N-butylbenzene | 2.5 | NA | 3.60E-06 | NA |
| N-propylbenzene | 2.9 | NA | 4.17E-06 | NA |
| Naphthalene | 6 | 1.2E-01 | 8.63E-06 | 1.04E-06 |
| Sec-butylbenzene | 0.99 | NA | 1.42E-06 | NA |
| tert-Butyl alcohol | 0.018 | NA | 2.59E-08 | NA |
| Toluene | 0.53 | NA | 7.62E-07 | NA |
| Trichlorofluoromethane | 0.00035 | NA | 5.03E-10 | NA |
| Xylenes, Total | 5 | NA | 7.19E-06 | NA |
| **Total Cancer Risk** | | | | **2.0E-06** |

Notes:
"--" not applicable or not available
Equations:
Adult/Child $INTAKE_{cancer}$ (mg/kg-day) = $(CS_{residential} * EF * ING_{adjusted} * CF) / (AT_{cancer})$
Where $ING_{adjusted} = [(IR\text{-}S_{child} * ED_{child} / BW_{child}) + (IR\text{-}S_{adult} * ED_{adult} / BW_{adult})]$
Cancer Risk = $(INTAKE_{cancer} * CSF)$

Table I-6
Cancer Risks from Dermal Contact with Soil
Residential Exposure Scenario
601 South Acacia Avenue
Compton, California

| COPC | Maximum Soil Concentration (mg/kg) | Soil-to-Skin Absorption Factor (unitless) | Oral/Dermal Slope Factor $(mg/kg\text{-}d)^{-1}$ | Residential Scenario | |
|---|---|---|---|---|---|
| | | | | Average Daily Intake (mg/kg-d) Adult & Child | Cancer Risk (Unitless) Adult & Child |
| ***Pesticides*** | | | | | |
| 4,4'-DDD | 0.0096 | 0.1 | 2.4E-01 | 4.44E-09 | 1.07E-09 |
| 4,4'-DDE | 0.2 | 0.1 | 3.4E-01 | 9.25E-08 | 3.14E-08 |
| 4,4'-DDT | 0.11 | 0.03 | 3.4E-01 | 1.53E-08 | 5.19E-09 |
| Chlordane (technical) | 1.2 | 0.1 | 3.5E-01 | 5.55E-07 | 1.94E-07 |
| Dieldrin | 0.0027 | 0.1 | 1.6E+01 | 1.25E-09 | 2.00E-08 |
| Endrin Ketone | 0.0044 | 0.1 | NA | 2.03E-09 | NA |
| Heptachlor epoxide | 0.007 | 0.1 | 9.1E+00 | 3.24E-09 | 2.95E-08 |
| ***TPH*** | | | | | |
| TPH (C17-C32 aromatic high) | 127.5 | 0.1 | NA | 5.90E-05 | NA |
| TPH (C19-C32 aliphatic high) | 127.5 | 0.1 | NA | 5.90E-05 | NA |
| TPH (C5-C8 aliphatic low) | 220 | 0.1 | NA | 1.02E-04 | NA |
| TPH (C6-C8 aromatic low) | 220 | 0.1 | NA | 1.02E-04 | NA |
| TPH (C9-C16 aromatic medium) | 101 | 0.1 | NA | 4.67E-05 | NA |
| TPH (C9-C18 aliphatic medium) | 101 | 0.1 | NA | 4.67E-05 | NA |
| ***VOCs*** | | | | | |
| Acetone | 0.37 | 0.1 | NA | 1.71E-07 | NA |
| Benzene | 0.072 | 0.1 | 1.0E-01 | 3.33E-08 | 3.33E-09 |
| Ethylbenzene | 2 | 0.1 | 1.1E-02 | 9.25E-07 | 1.02E-08 |
| Isopropylbenzenes | 2.13 | 0.1 | NA | 9.85E-07 | NA |
| Methylene chloride | 0.0094 | 0.1 | 2.0E-03 | 4.35E-09 | 8.69E-12 |
| N-butylbenzene | 2.5 | 0.1 | NA | 1.16E-06 | NA |
| N-propylbenzene | 2.9 | 0.1 | NA | 1.34E-06 | NA |
| Naphthalene | 6 | 0.1 | 1.2E-01 | 2.77E-06 | 3.33E-07 |
| Sec-butylbenzene | 0.99 | 0.1 | NA | 4.58E-07 | NA |
| tert-Butyl alcohol | 0.018 | 0.1 | NA | 8.32E-09 | NA |
| Toluene | 0.53 | 0.1 | NA | 2.45E-07 | NA |
| Trichlorofluoromethane | 0.00035 | 0.1 | NA | 1.62E-10 | NA |
| Xylenes, Total | 5 | 0.1 | NA | 2.31E-06 | NA |
| **Total Cancer Risk** | | | | | **6.3E-07** |

Notes:
"--" not applicable or not available
Equations:
Adult/Child $INTAKE_{cancer}$ (mg/kg-day) = $(CS_{residential} * SAF_{adjusted} * ABS * CF) / (AT_{cancer})$
Where $SAF_{adjusted} = [(SA_{child} * AF_{child} * EF_{child} * ED_{child} / BW_{child}) + (SA_{adult} * AF_{adult} * EF_{adult} * ED_{adult} / BW_{adult})]$
Cancer Risk = $(INTAKE_{cancer} * CSF)$

Table I-7
Cancer Risks from Inhalation of Outdoor Air
Residential Exposure Scenario
601 South Acacia Avenue
Compton, California

| COPC | Maximum Soil Concentration (mg/kg) | PEF or VF (m3/kg) | Inhalation Unit Risk (ug/m^3)$^{-1}$ | Residential Scenario | |
|---|---|---|---|---|---|
| | | | | Exposure Concentration (ug/m^3) Adult & Child | Cancer Risk (Unitless) Adult & Child |
| ***Pesticides*** | | | | | |
| 4,4'-DDD | 0.0096 | 1.36E+09 | 6.9E-05 | 2.51E-09 | 1.73E-13 |
| 4,4'-DDE | 0.2 | 1.36E+09 | 9.7E-05 | 5.24E-08 | 5.08E-12 |
| 4,4'-DDT | 0.11 | 1.36E+09 | 9.7E-05 | 2.88E-08 | 2.79E-12 |
| Chlordane (technical) | 1.2 | 1.36E+09 | 1.0E-04 | 3.14E-07 | 3.14E-11 |
| Dieldrin | 0.0027 | 1.36E+09 | 4.6E-03 | 7.07E-10 | 3.25E-12 |
| Endrin Ketone | 0.0044 | 1.36E+09 | NA | 1.15E-09 | NA |
| Heptachlor epoxide | 0.007 | 1.36E+09 | 2.6E-03 | 1.83E-09 | 4.77E-12 |
| ***TPH*** | | | | | |
| TPH (C17-C32 aromatic high) | 127.5 | 1.36E+09 | NA | 3.34E-05 | NA |
| TPH (C19-C32 aliphatic high) | 127.5 | 1.36E+09 | NA | 3.34E-05 | NA |
| TPH (C5-C8 aliphatic low) | 220 | 1.36E+09 | NA | 5.76E-05 | NA |
| TPH (C6-C8 aromatic low) | 220 | 1.36E+09 | NA | 5.76E-05 | NA |
| TPH (C9-C16 aromatic medium) | 101 | 1.36E+09 | NA | 2.65E-05 | NA |
| TPH (C9-C18 aliphatic medium) | 101 | 1.36E+09 | NA | 2.65E-05 | NA |
| ***VOCs*** | | | | | |
| Acetone | 0.37 | 5.03E+04 | NA | 2.62E-03 | NA |
| Benzene | 0.072 | 1.42E+04 | 2.9E-05 | 1.81E-03 | 5.24E-08 |
| Ethylbenzene | 2 | 1.84E+04 | 2.5E-06 | 3.87E-02 | 9.68E-08 |
| Isopropylbenzenes | 2.13 | 3.30E+03 | NA | 2.30E-01 | NA |
| Methylene chloride | 0.0094 | 1.61E+04 | 1.0E-06 | 2.08E-04 | 2.08E-10 |
| N-butylbenzene | 2.5 | 4.57E+04 | NA | 1.95E-02 | NA |
| N-propylbenzene | 2.9 | 4.57E+04 | NA | 2.26E-02 | NA |
| Naphthalene | 6 | 1.51E+05 | 3.4E-05 | 1.41E-02 | 4.80E-07 |
| Sec-butylbenzene | 0.99 | 3.36E+04 | NA | 1.05E-02 | NA |
| tert-Butyl alcohol | 0.018 | 5.84E+04 | NA | 1.10E-04 | NA |
| Toluene | 0.53 | 1.63E+04 | NA | 1.16E-02 | NA |
| Trichlorofluoromethane | 0.00035 | 5.21E+03 | NA | 2.39E-05 | NA |
| Xylenes, Total | 5 | 1.94E+04 | NA | 9.18E-02 | NA |
| **Total Cancer Risk** | | | | | **6.3E-07** |

Notes:
"--" not applicable or not available
Equations:
Particulate Exposure Concentration (ug/m^3) = $(CS*EF_{child}*ED_{child}*ET_{child})/(PEF*AT_c))+(CS*EF_{adult}*ED_{adult}*ET_{adult})/(PEF*AT_c))$
VOC Exposure Concentration (ug/m^3) = (CS * EF * ED * ET) / (VF * ATc)
Cancer Risk = $(INTAKE_{cancer} * CSF)$

Table I-8
Cumulative Cancer Risks from Multipathway Soil Exposure
Residential Exposure Scenario
601 South Acacia Avenue
Compton, California

| COPC | Max. Resid Soil Conc. (mg/kg) | Residential Cancer Risk | | | |
|---|---|---|---|---|---|
| | | Adult & Child Resident | | | |
| | | Ingestion | Dermal | Inhalation | Total Risk |
| ***Pesticides*** | | | | | |
| 4,4'-DDD | 0.0096 | 3.3E-09 | 1.1E-09 | 1.7E-13 | 4.4E-09 |
| 4,4'-DDE | 0.2 | 9.8E-08 | 3.1E-08 | 5.1E-12 | 1.3E-07 |
| 4,4'-DDT | 0.11 | 5.4E-08 | 5.2E-09 | 2.8E-12 | 5.9E-08 |
| Chlordane (technical) | 1.2 | 6.0E-07 | 1.9E-07 | 3.1E-11 | 8.0E-07 |
| Dieldrin | 0.0027 | 6.2E-08 | 2.0E-08 | 3.3E-12 | 8.2E-08 |
| Endrin Ketone | 0.0044 | NA | NA | NA | -- |
| Heptachlor epoxide | 0.007 | 9.2E-08 | 2.9E-08 | 4.8E-12 | 1.2E-07 |
| ***TPH*** | | | | | |
| TPH (C17-C32 aromatic high) | 127.5 | NA | NA | NA | -- |
| TPH (C19-C32 aliphatic high) | 127.5 | NA | NA | NA | -- |
| TPH (C5-C8 aliphatic low) | 220 | NA | NA | NA | -- |
| TPH (C6-C8 aromatic low) | 220 | NA | NA | NA | -- |
| TPH (C9-C16 aromatic medium) | 101 | NA | NA | NA | -- |
| TPH (C9-C18 aliphatic medium) | 101 | NA | NA | NA | -- |
| ***VOCs*** | | | | | |
| Acetone | 0.37 | NA | NA | NA | -- |
| Benzene | 0.072 | 1.0E-08 | 3.3E-09 | 5.2E-08 | 6.6E-08 |
| Ethylbenzene | 2 | 3.2E-08 | 1.0E-08 | 9.7E-08 | 1.4E-07 |
| Isopropylbenzenes | 2.13 | NA | NA | NA | -- |
| Methylene chloride | 0.0094 | 2.7E-11 | 8.7E-12 | 2.1E-10 | 2.4E-10 |
| N-butylbenzene | 2.5 | NA | NA | NA | -- |
| N-propylbenzene | 2.9 | NA | NA | NA | -- |
| Naphthalene | 6 | 1.0E-06 | 3.3E-07 | 4.8E-07 | 1.8E-06 |
| Sec-butylbenzene | 0.99 | NA | NA | NA | -- |
| tert-Butyl alcohol | 0.018 | NA | NA | NA | -- |
| Toluene | 0.53 | NA | NA | NA | -- |
| Trichlorofluoromethane | 0.00035 | NA | NA | NA | -- |
| Xylenes, Total | 5 | NA | NA | NA | -- |
| **Total Cancer Risk** | | | | | **3.2E-06** |

Note:
"--" not applicable or not available

Table I-9
Health Hazards from Inhalation of Indoor Air
Estimated Using a Default Attenuation Factor of 0.03 and Maximum Concentrations Detected at 5 Feet
601 South Acacia Avenue
Compton, California

| COPC | Indoor Air Conc. (ug/m$^3$) | Inhalation Reference Dose[a] (ug/m$^3$) | Residential Exposure Scenario | | | |
|---|---|---|---|---|---|---|
| | | | Average Exposure Conc_nc (ug/m$^3$) | | Hazard Quotient (Unitless) | |
| | | | Adult Res. | Child Res. | Adult Res. | Child Res. |
| ***VOCs*** | | | | | | |
| 1,1-Dichloroethane | 4.8E-01 | 8.0E+02 | 4.6E-01 | 4.6E-01 | 6.E-04 | 6.E-04 |
| 1,2,4-Trimethylbenzene | 2.9E+00 | 6.0E+01 | 2.8E+00 | 2.8E+00 | 5.E-02 | 5.E-02 |
| 1,3,5-Trimethylbenzene | 1.1E+01 | 6.0E+01 | 1.0E+01 | 1.0E+01 | 2.E-01 | 2.E-01 |
| 4-Isopropyltoluene | 5.4E+00 | 4.0E+02 | 5.2E+00 | 5.2E+00 | 1.E-02 | 1.E-02 |
| Benzene | 4.4E+01 | 3.0E+00 | 4.3E+01 | 4.3E+01 | 1.E+01 | 1.E+01 |
| Chloroform | 1.7E+00 | 9.8E+01 | 1.6E+00 | 1.6E+00 | 2.E-02 | 2.E-02 |
| Ethylbenzene | 8.6E+00 | 1.0E+03 | 8.2E+00 | 8.2E+00 | 8.E-03 | 8.E-03 |
| Isopropylbenzene | 1.4E+00 | 4.0E+02 | 1.3E+00 | 1.3E+00 | 3.E-03 | 3.E-03 |
| n-Butylbenzene | 4.0E+00 | 2.0E+02 | 3.8E+00 | 3.8E+00 | 2.E-02 | 2.E-02 |
| n-Propylbenzene | 6.6E+00 | 1.0E+03 | 6.4E+00 | 6.4E+00 | 6.E-03 | 6.E-03 |
| sec-Butylbenzene | 3.9E+00 | 4.0E+02 | 3.8E+00 | 3.8E+00 | 9.E-03 | 9.E-03 |
| Tetrachloroethylene | 2.6E+00 | 4.0E+01 | 2.5E+00 | 2.5E+00 | 6.E-02 | 6.E-02 |
| Toluene | 8.4E+00 | 3.0E+02 | 8.0E+00 | 8.0E+00 | 3.E-02 | 3.E-02 |
| Xylenes, total | 2.2E+01 | 1.0E+02 | 2.1E+01 | 2.1E+01 | 2.E-01 | 2.E-01 |
| **Total Hazard Index** | | | | | **1.E+01** | **1.E+01** |

Notes:
Hazard quotients estimated assuming a Vapor Intrusion Attenuation Factor of _____.
ug/m$^3$ = Micrograms per cubic meter

Table I-10
Cancer Risks from Inhalation of Indoor Air
Estimated Using a Default Attenuation Factor of 0.03 and Maximum Concentrations
601 South Acacia Avenue
Compton, California

| COPC | Indoor Air Chemical Conc. ($ug/m^3$) | Inhalation Slope Factor $(ug/m^3)^{-1}$ | Residential Exposure Scenario | | |
|---|---|---|---|---|---|
| | | | Lifetime Exposure Conc_c ($ug/m^3$) | | Cancer Risk |
| | | | Adult Resident | Child Resident | Adult & Child |
| ***VOCs*** | | | | | |
| 1,1-Dichloroethane | 4.8E-01 | 1.6E-06 | 1.3E-01 | 3.9E-02 | 2.7E-07 |
| 1,2,4-Trimethylbenzene | 2.9E+00 | NA | 8.1E-01 | 2.4E-01 | NA |
| 1,3,5-Trimethylbenzene | 1.1E+01 | NA | 3.0E+00 | 8.9E-01 | NA |
| 4-Isopropyltoluene | 5.4E+00 | NA | 1.5E+00 | 4.5E-01 | NA |
| Benzene | 4.4E+01 | 2.9E-05 | 1.2E+01 | 3.6E+00 | 4.6E-04 |
| Chloroform | 1.7E+00 | 2.3E-05 | 4.6E-01 | 1.4E-01 | 1.4E-05 |
| Ethylbenzene | 8.6E+00 | 2.5E-06 | 2.3E+00 | 7.0E-01 | 7.6E-06 |
| Isopropylbenzene | 1.4E+00 | NA | 3.8E-01 | 1.1E-01 | NA |
| n-Butylbenzene | 4.0E+00 | NA | 1.1E+00 | 3.3E-01 | NA |
| n-Propylbenzene | 6.6E+00 | NA | 1.8E+00 | 5.4E-01 | NA |
| sec-Butylbenzene | 3.9E+00 | NA | 1.1E+00 | 3.2E-01 | NA |
| Tetrachloroethylene | 2.6E+00 | 6.1E-06 | 7.2E-01 | 2.1E-01 | 5.7E-06 |
| Toluene | 8.4E+00 | NA | 2.3E+00 | 6.9E-01 | NA |
| Xylenes, total | 2.2E+01 | NA | 6.1E+00 | 1.8E+00 | NA |
| **Total Cancer Risk** | | | | | **4.9E-04** |

Notes:
Cancer risks estimated assuming a Vapor Intrusion Attenuation Factor of _____.
$ug/m^3$ = Micrograms per cubic meter

Table I-11
Health Hazards from Inhalation of Indoor Air
Estimated Using a Default Attenuation Factor of 0.001 and Maximum Concentrations Detected at 15 Feet
601 South Acacia Avenue
Compton, California

| COPC | Indoor Air Conc. ($ug/m^3$) | Inhalation Reference Dose[a] ($ug/m^3$) | Residential Exposure Scenario | | | |
|---|---|---|---|---|---|---|
| | | | Average Exposure Conc_nc ($ug/m^3$) | | Hazard Quotient (Unitless) | |
| | | | Adult Res. | Child Res. | Adult Res. | Child Res. |
| ***VOCs*** | | | | | | |
| 1,1-Dichloroethane | 1.0E-02 | 8.0E+02 | 9.6E-03 | 9.6E-03 | 1.E-05 | 1.E-05 |
| 1,1-Dichloropropene | 8.0E-02 | 2.0E+01 | 7.7E-02 | 7.7E-02 | 4.E-03 | 4.E-03 |
| 1,2,4-Trimethylbenzene | 3.9E+01 | 6.0E+01 | 3.7E+01 | 3.7E+01 | 6.E-01 | 6.E-01 |
| 1,3,5-Trimethylbenzene | 2.1E+01 | 6.0E+01 | 2.0E+01 | 2.0E+01 | 3.E-01 | 3.E-01 |
| 2-Chlorotoluene | 2.0E+00 | 8.0E+01 | 1.9E+00 | 1.9E+00 | 2.E-02 | 2.E-02 |
| 4-Isopropyltoluene | 4.1E+00 | 4.0E+02 | 3.9E+00 | 3.9E+00 | 1.E-02 | 1.E-02 |
| Benzene | 8.4E-01 | 3.0E+00 | 8.1E-01 | 8.1E-01 | 3.E-01 | 3.E-01 |
| Chloroform | 1.5E-02 | 9.8E+01 | 1.4E-02 | 1.4E-02 | 1.E-04 | 1.E-04 |
| Ethylbenzene | 8.3E+01 | 1.0E+03 | 8.0E+01 | 8.0E+01 | 8.E-02 | 8.E-02 |
| Isopropylbenzene | 1.5E+01 | 4.0E+02 | 1.5E+01 | 1.5E+01 | 4.E-02 | 4.E-02 |
| n-Butylbenzene | 2.7E+01 | 2.0E+02 | 2.6E+01 | 2.6E+01 | 1.E-01 | 1.E-01 |
| n-Propylbenzene | 5.1E+01 | 1.0E+03 | 4.9E+01 | 4.9E+01 | 5.E-02 | 5.E-02 |
| Naphthalene | 2.0E-01 | 3.0E+00 | 1.9E-01 | 1.9E-01 | 6.E-02 | 6.E-02 |
| sec-Butylbenzene | 2.9E+00 | 4.0E+02 | 2.8E+00 | 2.8E+00 | 7.E-03 | 7.E-03 |
| Tetrachloroethylene | 5.8E-02 | 4.0E+01 | 5.6E-02 | 5.6E-02 | 1.E-03 | 1.E-03 |
| Toluene | 1.0E+00 | 3.0E+02 | 9.7E-01 | 9.7E-01 | 3.E-03 | 3.E-03 |
| Xylenes, total | 5.8E+01 | 1.0E+02 | 5.5E+01 | 5.5E+01 | 6.E-01 | 6.E-01 |
| TBD | 0.0E+00 | NA | 0.0E+00 | 0.0E+00 | NA | NA |
| TBD | 0.0E+00 | NA | 0.0E+00 | 0.0E+00 | NA | NA |
| TBD | 0.0E+00 | NA | 0.0E+00 | 0.0E+00 | NA | NA |
| **Total Hazard Index** | | | | | **2.E+00** | **2.E+00** |

Notes:
Hazard quotients estimated assuming a Vapor Intrusion Attenuation Factor of _____.
$ug/m^3$ = Micrograms per cubic meter

Table I-12
Cancer Risks from Inhalation of Indoor Air
Estimated Using a Default Attenuation Factor of 0.001 and Maximum Concentrations
601 South Acacia Avenue
Compton, California

| COPC | Indoor Air Chemical Conc. ($ug/m^3$) | Inhalation Slope Factor $(ug/m^3)^{-1}$ | Residential Exposure Scenario | | |
|---|---|---|---|---|---|
| | | | Lifetime Exposure Conc_c ($ug/m^3$) | | Cancer Risk |
| | | | Adult Resident | Child Resident | Adult & Child |
| ***VOCs*** | | | | | |
| 1,1-Dichloroethane | 1.0E-02 | 1.6E-06 | 2.7E-03 | 8.2E-04 | 5.7E-09 |
| 1,1-Dichloropropene | 8.0E-02 | 4.0E-06 | 2.2E-02 | 6.6E-03 | 1.1E-07 |
| 1,2,4-Trimethylbenzene | 3.9E+01 | NA | 1.1E+01 | 3.2E+00 | NA |
| 1,3,5-Trimethylbenzene | 2.1E+01 | NA | 5.8E+00 | 1.7E+00 | NA |
| 2-Chlorotoluene | 2.0E+00 | NA | 5.5E-01 | 1.6E-01 | NA |
| 4-Isopropyltoluene | 4.1E+00 | NA | 1.1E+00 | 3.3E-01 | NA |
| Benzene | 8.4E-01 | 2.9E-05 | 2.3E-01 | 6.9E-02 | 8.7E-06 |
| Chloroform | 1.5E-02 | 2.3E-05 | 4.1E-03 | 1.2E-03 | 1.2E-07 |
| Ethylbenzene | 8.3E+01 | 2.5E-06 | 2.3E+01 | 6.8E+00 | 7.4E-05 |
| Isopropylbenzene | 1.5E+01 | NA | 4.2E+00 | 1.2E+00 | NA |
| n-Butylbenzene | 2.7E+01 | NA | 7.3E+00 | 2.2E+00 | NA |
| n-Propylbenzene | 5.1E+01 | NA | 1.4E+01 | 4.2E+00 | NA |
| Naphthalene | 2.0E-01 | 3.4E-05 | 5.6E-02 | 1.7E-02 | 2.5E-06 |
| sec-Butylbenzene | 2.9E+00 | NA | 7.9E-01 | 2.4E-01 | NA |
| Tetrachloroethylene | 5.8E-02 | 6.1E-06 | 1.6E-02 | 4.8E-03 | 1.3E-07 |
| Toluene | 1.0E+00 | NA | 2.8E-01 | 8.3E-02 | NA |
| Xylenes, total | 5.8E+01 | NA | 1.6E+01 | 4.8E+00 | NA |
| TBD | 0.0E+00 | NA | 0.0E+00 | 0.0E+00 | NA |
| TBD | 0.0E+00 | NA | 0.0E+00 | 0.0E+00 | NA |
| TBD | 0.0E+00 | NA | 0.0E+00 | 0.0E+00 | NA |
| **Total Cancer Risk** | | | | | **8.5E-05** |

Notes:
Cancer risks estimated assuming a Vapor Intrusion Attenuation Factor of _____.
$ug/m^3$ = Micrograms per cubic meter

# APPENDIX J

## HHRA Tables and Calculations for Metals

Table J-1
Toxicity Criteria of Chemicals of Potential Concern
Residential Exposure Scenario
601 South Acacia Avenue
Compton, California

| Chemical | Chronic Oral Reference Dose (RfDo) [mg/kg-day] | Reference Concentration (RfCi) [ug/m^3] | Oral Cancer Slope Factor (CSFo) [mg/kg-day]$^{-1}$ | Inhalation Unit Risk (IUR) [ug/m^3]$^{-1}$ |
|---|---|---|---|---|
| ***Metals*** | | | | |
| Antimony | 4.0E-04 | NA | NA | NA |
| Barium | 2.0E-01 | 5.0E-01 | NA | NA |
| Cadmium | 1.0E-03 | 1.0E-02 | NA | 4.2E-03 |
| Chromium | NA | NA | NA | NA |
| Cobalt | 3.0E-04 | 6.0E-03 | NA | 9.0E-03 |
| Copper | 4.0E-02 | NA | NA | NA |
| Molybdenum | 5.0E-03 | NA | NA | NA |
| Nickel | 1.1E-02 | 1.4E-02 | NA | 2.6E-04 |
| Thallium | 1.0E-05 | NA | NA | NA |
| Vanadium | 5.0E-03 | 1.0E-01 | NA | NA |
| Zinc | 3.0E-01 | NA | NA | NA |

**Notes:**
Values taken from DTSC's HHRA Note No. 10, February 2019
NA = Not available or not applicable.

Table J-2
Health Hazards from Incidental Soil Ingestion
Residential Exposure Scenario
601 South Acacia Avenue
Compton, California

| COPC | Maximum Soil Concentration (mg/kg) | Oral Reference Dose (mg/kg-d) | Residential Scenario | |
|---|---|---|---|---|
| | | | Average Daily Intake (mg/kg-d) Child | Hazard Quotient (Unitless) Child |
| ***Metals*** | | | | |
| Antimony | 5.57 | 4.0E-04 | 7.E-05 | 2.E-01 |
| Barium | 348 | 2.0E-01 | 4.E-03 | 2.E-02 |
| Cadmium | 1.37 | 1.0E-03 | 2.E-05 | 2.E-02 |
| Chromium | 33.6 | NA | 4.E-04 | NA |
| Cobalt | 22.3 | 3.0E-04 | 3.E-04 | 1.E+00 |
| Copper | 35.5 | 4.0E-02 | 5.E-04 | 1.E-02 |
| Molybdenum | 2.48 | 5.0E-03 | 3.E-05 | 6.E-03 |
| Nickel | 28.1 | 1.1E-02 | 4.E-04 | 3.E-02 |
| Thallium | 3.68 | 1.0E-05 | 5.E-05 | 5.E+00 |
| Vanadium | 71.4 | 5.0E-03 | 9.E-04 | 2.E-01 |
| Zinc | 144 | 3.0E-01 | 2.E-03 | 6.E-03 |

Notes:
"--" not applicable or not available
Equations:
Child $INTAKE_{noncancer}$ (mg/kg-day) = $((CS_{residential} * IR\text{-}S_{child} * EF_{child} * ED_{child} * CF) / (BW_{child} * AT_{noncancer}))$
Noncancer Hazard = $(INTAKE_{noncancer} / RfD)$

Table J-3
Health Hazards from Dermal Contact with Soil
Residential Exposure Scenario
601 South Acacia Avenue
Compton, California

| COPC | Maximum Soil Concentration (mg/kg) | Soil-to-Skin Absorption Factor (unitless) | Oral/Dermal Reference Dose (mg/kg-d) | Residential Scenario | |
|---|---|---|---|---|---|
| | | | | Average Daily Intake (mg/kg-d) Child | Hazard Quotient (Unitless) Child |
| ***Metals*** | | | | | |
| Antimony | 5.57 | 0.1 | 4.0E-04 | 2.E-05 | 5.E-02 |
| Barium | 348 | 0.1 | 2.0E-01 | 1.E-03 | 6.E-03 |
| Cadmium | 1.37 | 0.03 | 1.0E-03 | 2.E-06 | 2.E-03 |
| Chromium | 33.6 | 0.1 | NA | 1.E-04 | NA |
| Cobalt | 22.3 | 0.1 | 3.0E-04 | 8.E-05 | 3.E-01 |
| Copper | 35.5 | 0.1 | 4.0E-02 | 1.E-04 | 3.E-03 |
| Molybdenum | 2.48 | 0.1 | 5.0E-03 | 9.E-06 | 2.E-03 |
| Nickel | 28.1 | 0.1 | 1.1E-02 | 1.E-04 | 9.E-03 |
| Thallium | 3.68 | 0.1 | 1.0E-05 | 1.E-05 | 1.E+00 |
| Vanadium | 71.4 | 0.1 | 5.0E-03 | 3.E-04 | 5.E-02 |
| Zinc | 144 | 0.1 | 3.0E-01 | 5.E-04 | 2.E-03 |

Notes:
"--" not applicable or not available
Equations:
Child $INTAKE_{noncancer}$ (mg/kg-day) = $((CS_{residential} * SA_{child} * AF_{child} * ABS * EF_{child} * ED_{child} * CF) / (BW_{child} * AT_{noncancer}))$
Noncancer Hazard = $(INTAKE_{noncancer} / RfD)$

Table J-4
Health Hazards from Inhalation of Outdoor Air
Residential Exposure Scenario
601 South Acacia Avenue
Compton, California

| COPC | Maximum Soil Concentration (mg/kg) | PEF or VEF ($m^3$/kg) | Inhalation Reference Concentration[a] (ug/m^3) | Residential Scenario | |
|---|---|---|---|---|---|
| | | | | Exposure Concentration (ug/m^3) Child | Hazard Quotient (Unitless) Child |
| ***Metals*** | | | | | |
| Antimony | 5.57 | 1.36E+09 | NA | 4.E-06 | NA |
| Barium | 348 | 1.36E+09 | 5.0E-01 | 2.E-04 | 5.E-04 |
| Cadmium | 1.37 | 1.36E+09 | 1.0E-02 | 1.E-06 | 1.E-04 |
| Chromium | 33.6 | 1.36E+09 | NA | 2.E-05 | NA |
| Cobalt | 22.3 | 1.36E+09 | 6.0E-03 | 2.E-05 | 3.E-03 |
| Copper | 35.5 | 1.36E+09 | NA | 3.E-05 | NA |
| Molybdenum | 2.48 | 1.36E+09 | NA | 2.E-06 | NA |
| Nickel | 28.1 | 1.36E+09 | 1.4E-02 | 2.E-05 | 1.E-03 |
| Thallium | 3.68 | 1.36E+09 | NA | 3.E-06 | NA |
| Vanadium | 71.4 | 1.36E+09 | 1.0E-01 | 5.E-05 | 5.E-04 |
| Zinc | 144 | 1.36E+09 | NA | 1.E-04 | NA |

Notes:
"--" not applicable or not available
Equations:
Particulate: Child Exposure-$_{noncancer}$ (ug/m^3) = $(CS_{residential} * (1/PEF) * EF_{child} * ED_{child} * ET_{child}) / (AT_{noncancer})$
VOCs: Child Exposure-$_{noncancer}$ (ug/m^3) = $(CS_{residential} * Etchild * EF_{child} * ED_{child} * (1/VF)) / (AT_{noncancer})$
Noncancer Hazard = $(INTAKE_{noncancer} / RfD)$

Table J-5
Cumulative Health Hazards from Multipathway Soil Exposure
Residential Exposure Scenario
601 South Acacia Avenue
Compton, California

| COPC | Maximum Soil Conc. (mg/kg) | Residential Noncancer Hazard | | | |
|---|---|---|---|---|---|
| | | Child Resident | | | |
| | | Ingestion of Soil | Dermal | Inhalation | Total HI |
| ***Metals*** | | | | | |
| Antimony | 5.57 | 2.E-01 | 5.E-02 | NA | 2.E-01 |
| Barium | 348 | 2.E-02 | 6.E-03 | 5.E-04 | 3.E-02 |
| Cadmium | 1.37 | 2.E-02 | 2.E-03 | 1.E-04 | 2.E-02 |
| Chromium | 33.6 | NA | NA | NA | -- |
| Cobalt | 22.3 | 1.E+00 | 3.E-01 | 3.E-03 | 1.E+00 |
| Copper | 35.5 | 1.E-02 | 3.E-03 | NA | 1.E-02 |
| Molybdenum | 2.48 | 6.E-03 | 2.E-03 | NA | 8.E-03 |
| Nickel | 28.1 | 3.E-02 | 9.E-03 | 1.E-03 | 4.E-02 |
| Thallium | 3.68 | 5.E+00 | 1.E+00 | NA | 6.E+00 |
| Vanadium | 71.4 | 2.E-01 | 5.E-02 | 5.E-04 | 2.E-01 |
| Zinc | 144 | 6.E-03 | 2.E-03 | NA | 8.E-03 |

Note:
"--" not applicable or not available

Table J-6
Cancer Risks from Incidental Soil Ingestion
Residential Exposure Scenario
601 South Acacia Avenue
Compton, California

| COPC | Maximum Soil Concentration (mg/kg) | Oral Slope Factor $(mg/kg\text{-}d)^{-1}$ | Residential Scenario | |
|---|---|---|---|---|
| | | | Average Daily Intake (mg/kg-d) Adult & Child | Cancer Risk (Unitless) Adult & Child |
| ***Metals*** | | | | |
| Antimony | 5.57 | NA | 8.E-06 | NA |
| Barium | 348 | NA | 5.E-04 | NA |
| Cadmium | 1.37 | NA | 2.E-06 | NA |
| Chromium | 33.6 | NA | 5.E-05 | NA |
| Cobalt | 22.3 | NA | 3.E-05 | NA |
| Copper | 35.5 | NA | 5.E-05 | NA |
| Molybdenum | 2.48 | NA | 4.E-06 | NA |
| Nickel | 28.1 | NA | 4.E-05 | NA |
| Thallium | 3.68 | NA | 5.E-06 | NA |
| Vanadium | 71.4 | NA | 1.E-04 | NA |
| Zinc | 144 | NA | 2.E-04 | NA |

Notes:
"--" not applicable or not available
Equations:
Adult/Child $INTAKE_{cancer}$ (mg/kg-day) = $(CS_{residential} * EF * ING_{adjusted} * CF) / (AT_{cancer})$
Where $ING_{adjusted} = [(IR\text{-}S_{child} * ED_{child} / BW_{child}) + (IR\text{-}S_{adult} * ED_{adult} / BW_{adult})]$
Cancer Risk = $(INTAKE_{cancer} * CSF)$

Table J-7
Cancer Risks from Dermal Contact with Soil
Residential Exposure Scenario
601 South Acacia Avenue
Compton, California

| COPC | Maximum Soil Concentration (mg/kg) | Soil-to-Skin Absorption Factor (unitless) | Oral/Dermal Slope Factor $(mg/kg\text{-}d)^{-1}$ | Residential Scenario | |
|---|---|---|---|---|---|
| | | | | Average Daily Intake (mg/kg-d) Adult & Child | Cancer Risk (Unitless) Adult & Child |
| ***Metals*** | | | | | |
| Antimony | 5.57 | 0.1 | NA | 3.E-06 | NA |
| Barium | 348 | 0.1 | NA | 2.E-04 | NA |
| Cadmium | 1.37 | 0.03 | NA | 2.E-07 | NA |
| Chromium | 33.6 | 0.1 | NA | 2.E-05 | NA |
| Cobalt | 22.3 | 0.1 | NA | 1.E-05 | NA |
| Copper | 35.5 | 0.1 | NA | 2.E-05 | NA |
| Molybdenum | 2.48 | 0.1 | NA | 1.E-06 | NA |
| Nickel | 28.1 | 0.1 | NA | 1.E-05 | NA |
| Thallium | 3.68 | 0.1 | NA | 2.E-06 | NA |
| Vanadium | 71.4 | 0.1 | NA | 3.E-05 | NA |
| Zinc | 144 | 0.1 | NA | 7.E-05 | NA |

Notes:
"--" not applicable or not available
Equations:
Adult/Child $INTAKE_{cancer}$ (mg/kg-day) = $(CS_{residential} * SAF_{adjusted} * ABS * CF) / (AT_{cancer})$
Where $SAF_{adjusted} = [(SA_{child} * AF_{child} * EF_{child} * ED_{child} / BW_{child}) + (SA_{adult} * AF_{adult} * EF_{adult} * ED_{adult} / BW_{adult})]$
Cancer Risk = $(INTAKE_{cancer} * CSF)$

Table J-8
Cancer Risks from Inhalation of Outdoor Air
Residential Exposure Scenario
601 South Acacia Avenue
Compton, California

| COPC | Maximum Soil Concentration (mg/kg) | PEF or VF (m3/kg) | Inhalation Unit Risk ($(ug/m^3)^{-1}$) | Residential Scenario | |
|---|---|---|---|---|---|
| | | | | Exposure Concentration (ug/m^3) Adult & Child | Cancer Risk (Unitless) Adult & Child |
| ***Metals*** | | | | | |
| Antimony | 5.57 | 1.36E+09 | NA | 1.E-06 | NA |
| Barium | 348 | 1.36E+09 | NA | 9.E-05 | NA |
| Cadmium | 1.37 | 1.36E+09 | 4.2E-03 | 4.E-07 | 2.E-09 |
| Chromium | 33.6 | 1.36E+09 | NA | 9.E-06 | NA |
| Cobalt | 22.3 | 1.36E+09 | 9.0E-03 | 6.E-06 | 5.E-08 |
| Copper | 35.5 | 1.36E+09 | NA | 9.E-06 | NA |
| Molybdenum | 2.48 | 1.36E+09 | NA | 6.E-07 | NA |
| Nickel | 28.1 | 1.36E+09 | 2.6E-04 | 7.E-06 | 2.E-09 |
| Thallium | 3.68 | 1.36E+09 | NA | 1.E-06 | NA |
| Vanadium | 71.4 | 1.36E+09 | NA | 2.E-05 | NA |
| Zinc | 144 | 1.36E+09 | NA | 4.E-05 | NA |

Notes:
"--" not applicable or not available
Equations:
Particulate Exposure Concentration (ug/m^3) = $(CS*EF_{child}*ED_{child}*ET_{child})/(PEF*AT_c))+(CS*EF_{adult}*ED_{adult}*ET_{adult})/(PEF*AT_c))$
VOC Exposure Concentration (ug/m^3) = (CS * EF * ED * ET) / (VF * ATc)
Cancer Risk = $(INTAKE_{cancer} * CSF)$

Table J-9
Cumulative Cancer Risks from Multipathway Soil Exposure
Residential Exposure Scenario
601 South Acacia Avenue
Compton, California

| COPC | Max. Resid Soil Conc. (mg/kg) | Residential Cancer Risk | | | |
|---|---|---|---|---|---|
| | | Adult & Child Resident | | | |
| | | Ingestion | Dermal | Inhalation | Total Risk |
| ***Metals*** | | | | | |
| Antimony | 5.57 | NA | NA | NA | -- |
| Barium | 348 | NA | NA | NA | -- |
| Cadmium | 1.37 | NA | NA | 2.E-09 | 2.E-09 |
| Chromium | 33.6 | NA | NA | NA | -- |
| Cobalt | 22.3 | NA | NA | 5.E-08 | 5.E-08 |
| Copper | 35.5 | NA | NA | NA | -- |
| Molybdenum | 2.48 | NA | NA | NA | -- |
| Nickel | 28.1 | NA | NA | 2.E-09 | 2.E-09 |
| Thallium | 3.68 | NA | NA | NA | -- |
| Vanadium | 71.4 | NA | NA | NA | -- |
| Zinc | 144 | NA | NA | NA | -- |

Note:
"--" not applicable or not available

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