APPENDIX L

HEALTH RISK ASSESSMENT
BROADWAY-PANTANO WQARF SITE, LANDFILL OPERABLE UNIT
TUCSON, ARIZONA,
FEBRUARY 27, 2015

APPENDIX L

HEALTH RISK ASSESSMENT

Broadway-Pantano WQARF Site
Landfill Operable Unit
Tucson, Arizona

Prepared for:

Clear Creek Associates, Inc.
221 N. Court Avenue, Suite 101
Tucson, Arizona 85701

Prepared by:

Copeland & Associates, Inc.
5737 Kanan Rd #182
Agoura Hills, CA 91301

Teri L. Copeland, MS, DABT
Principal Toxicologist

February 27, 2015

TABLE OF CONTENTS

EXECUTIVE SUMMARY……iv
1.0 INTRODUCTION 1
2.0 CONCEPTUAL SITE MODEL 3
2.1 SOURCES OF CHEMICALS AND ENVIRONMENTAL TRANSPORT 3
2.2 RECEPTORS AND EXPOSURE PATHWAYS 3
3.0 DATA EVALUATION 5
3.1 INVESTIGATION/DATA SOURCES 5
3.2 DATA USABILITY EVALUATION 5
3.3 SELECTION OF CHEMICALS OF POTENTIAL CONCERN 6
4.0 TOXICITY ASSESSMENT 7
5.0 EXPOSURE ASSESSMENT AND RISK CHARACTERIZATION 8
5.1 EXPOSURE AREAS, RECEPTORS AND EXPOSURE PATHWAYS 8
5.2 OUTDOOR AIR MODEL 9
5.3 INDOOR AIR MODEL 12
5.4 RISK CHARACTERIZATION 14
5.4.1 Evaluation of Potential Cancer Risks 14
5.4.2 Evaluation of Non-Cancer Health Effects 15
6.0 UNCERTAINTY ANALYSIS 18
6.1 UNCERTAINTY ASSOCIATED WITH SITE CHARACTERIZATION DATA 18
6.2 UNCERTAINTY ASSOCIATED WITH CHEMICALS OF POTENTIAL CONCERN 18
6.3 UNCERTAINTY ASSOCIATED WITH TOXICITY ASSESSMENT 19
6.4 UNCERTAINTY ASSOCIATED WITH EXPOSURE SCENARIOS AND PARAMETERS . 21
6.5 UNCERTAINTY ASSOCIATED WITH EXPOSURE POINT CONCENTRATIONS 22
6.6 UNCERTAINTY ASSOCIATED WITH RISK CHARACTERIZATION 22
6.7 SUMMARY OF UNCERTAINTY ANALYSIS 23
7.0 SUMMARY AND CONCLUSIONS 24

8.0 REFERENCES 27

FIGURES

L1 Soil Gas Sampling Locations, Broadway North Landfill

L2 Soil Gas Sampling Locations for BSL, Broadway Proper, YMCA, Kenyon Terrace, and Gollob Park

L3 Shallow Soil Sampling Locations, Broadway South Landfill

TABLES

L1 Chemicals of Potential Concern Selection for Soil Gas, Broadway North Landfill

L2 Chemicals of Potential Concern Selection for Soil Gas, Broadway South Landfill

L3 Chemicals of Potential Concern Selection for Soil, Broadway South Landfill

L4 Chemicals of Potential Concern Selection for Soil Gas, Gollob Park Area

L5 Chemicals of Potential Concern Selection for Soil Gas, YMCA Area

L6 Chemicals of Potential Concern Selection for Soil Gas, Broadway Proper Area

L7 Chemicals of Potential Concern Selection for Soil Gas, Kenyon Terrace Area

L8 Toxicity Criteria for All Chemicals of Potential Concern

L9 Receptor Exposure Parameters

L10 Soil Gas Concentrations for COPCs – Broadway North Landfill

L11 Soil Gas Concentrations for COPCs – Broadway South Landfill

L12 Soil Gas Concentrations for COPCs – Gollob Park

L13 Soil Gas Concentrations for COPCs – YMCA

L14 Soil Gas Concentrations for COPCs – Broadway Proper

L15 Soil Gas Concentrations for COPCs – Kenyon Terrace

L16 Outdoor Air Modeling Parameters

L17 Indoor Air (Johnson & Ettinger) Air Modeling Parameters

L18 Risk Characterization: Broadway North Landfill, Current/Future Scenario: Outdoor Trespasser

L19 Risk Characterization: Broadway South Landfill, Current/Future Scenario: Outdoor Trespasser

L20 Risk Characterization: Gollob Park, Current/Future Scenario: Outdoor Worker

L21 Risk Characterization: YMCA, Current/Future Scenario: Indoor Worker

L22 Risk Characterization: Broadway Proper, Current/Future Scenario: Indoor Resident

L23 Risk Characterization: Kenyon Terrace, Current/Future Scenario: Indoor Resident

L24 USEPA Attenuation Factor Evaluation for Indoor Air

ATTACHMENTS

L1 Data Usability Evaluation

L2 USEPA Outdoor Air Model Files

L3 USEPA Indoor Air (Johnson & Ettinger) Model Files

EXECUTIVE SUMMARY

Copeland & Associates Inc. (C&A) prepared this human health risk assessment (HRA) as a component of the Remedial Investigation (RI). The purpose of this HRA is to assess the potential human health risks associated with soil gas present at the Broadway North Landfill (BNL), Broadway South Landfill (BSL) and four developed areas within or adjacent to the BSL. In addition, potential health risks associated with chemicals detected in shallow soil at the BSL were evaluated. The HRA employed current ADEQ and USEPA guidance.

Based on the Land Use Study and the conceptual site model (CSM), potential exposure to chemicals of potential concern (COPCs) in soil gas was evaluated for the following HRA exposure areas and receptors: BNL (current/future outdoor trespasser), BSL (current/future outdoor trespasser), Gollob Park (current/future outdoor worker), the YMCA (current/future indoor worker), Broadway Proper (current/future indoor resident), and Kenyon Terrace (current/future indoor resident). Additionally, direct contact with chemicals detected in soil was evaluated for the BSL.

The soil gas and soil data were evaluated and identified as useable for purposes of the HRA. COPCs for soil gas were selected for each of the six exposure areas by comparing the maximum concentration of each detected volatile organic compound (VOC) to the screening USEPA "Target Shallow Soil Gas Concentration" (SSGC) [1] protective of residential indoor air (USEPA, 2002a). Any VOC in soil gas exceeding the SSGC was retained as a soil gas COPC in the HRA. Based on a comparison of soil concentrations reported for BSL with the residential Soil Remediation Level (SRL) (ADEQ, 2007) no COPCs were identified for soil at the BSL.

The COPCs identified for soil gas are as follows:

- Broadway North Landfill – benzene, chloroform, dichlorodifluoromethane,

[1] It is noted that USEPA's current SSGCs are from 2002 and that the toxicity values for several chemicals have been updated since then. However, when the SSGCs are adjusted for these new toxicity values, it does not change the COPCs for this site.

1,2-dichloroethane, ethylbenzene, tetrachloroethylene (PCE), trichloroethylene (TCE), 1,2,4- trimethylbenzene, 1,3,5-trimethylbenzene, and vinyl chloride.

- Broadway South Landfill – benzene, ethylbenzene, PCE, and vinyl chloride.
- Gollob Park – 1,2-dichloropropane, benzene, chloroform, cis-1,2-dichloroethylene, dichlorodifluoromethane, ethylbenzene, methylene chloride, PCE, TCE, and vinyl chloride.
- YMCA – chloroform, PCE, and TCE.
- Broadway Proper (retirement community) – benzene, chloroform, chloromethane, and PCE.
- Kenyon Terrace Home – chloroform and PCE.

The results of the 2013 soil gas sampling were used in the USEPA outdoor air model (USEPA, 2002b) for the exposure assessment and risk characterization for BNL, BSL and the current/future worker at Gollob Park (there are no buildings at the park currently and there are no plans for construction of buildings in the future). The maximum soil gas concentration for each COPC in the exposure area was used to characterize risk for the outdoor scenarios; therefore maximum incremental lifetime cancer risk (ILCR) and the maximum non-cancer hazard index (HI) are reported for each outdoor exposure area. These are shown in the summary table ES-1 below. The results of the 2013 soil gas sampling were used in the USEPA version of the Johnson & Ettinger (J & E) indoor air model (USEPA, 2004). For these indoor scenarios the ILCR and HI were calculated for every soil gas data point using the J&E model; thus a range of risks were calculated and are shown in the summary table below.

Table ES-1. J&E Model Results

Exposure Area	Receptor*	ILCR	HI
BNL (current/future)	Trespasser	9 E-11	0.001
BSL (current/future)	Trespasser	2 E-11	0.0004
Gollob Park (current/future)	Outdoor worker	1 E-08	0.024
YMCA (current/future)	Indoor worker	2 E-08 to 2 E-07	0.00001 to 0.00008
Broadway Proper (current/future)	Indoor Resident	4 E-08 to 5 E-07	0.00001 to 0.0016
Kenyon Terrace (current/future)	Indoor Resident	6 E-09 to 1 E-07	0.0000009 to 0.00003

* Due to the low risks for the indoor air scenario for YMCA, Broadway Proper and Kenyon Terrace, the outdoor air exposure scenario was not quantitatively evaluated.

These ILCRs and HIs are below the ADEQ and USEPA target risk range (1 E-06 to 1 E-04 and an HI of 1, respectively) for all scenarios.

In addition to assessing indoor risk using the J & E model, and as requested by ADEQ, indoor air concentrations were also evaluated using a default USEPA attenuation factor of 0.03 in conjunction with the measured soil gas concentrations for each COPC at each potential exposure area. The attenuation factor (AF) relates the concentration of a chemical in soil gas to a potential upper-bound indoor air concentration. This is a conservative analysis conducted on the COPCs for the indoor scenarios. The resulting indoor air concentration (a product of multiplying the chemical-specific soil concentration by the AF) was compared to the USEPA Region 9 residential or commercial Regional Screening Level (RSL) for ambient air (USEPA, 2013a). The results of this analysis are provided in Table ES-2 below.

Table ES-2. USEPA Attenuation Factor Evaluation for Indoor Air

Exposure Scenario (current/future)	Predicted Indoor Air Concentration per Attenuation Factor* µg/m^3	USEPA RSL** µg/m^3	Exceeds RSL?
YMCA			
Indoor Worker			
Chloroform	0.44	0.53	No
Tetrachloroethylene	1.5	18	No
Trichloroethylene	0.072	0.88	No
Broadway Proper			
Indoor Resident			
Benzene	0.52	0.31	**Yes**
Chloroform	0.78	0.11	**Yes**
Chloromethane	1.1	9.4	No
Tetrachloroethylene	0.93	4.2	No
Kenyon Terrace			
Indoor Resident			
Chloroform	0.15	0.11	**Yes**
Tetrachloroethylene	0.45	4.2	No

*Indoor air concentration is derived by multiplying the maximum concentration of each COPC in soil gas by the AF of 0.03.

**RSL = Current Regional Screening Level Tables (USEPA, 2013a) accessed from the following website: http://www.epa.gov/region9/superfund/prg/. "Industrial" tables were used for worker assessment and "residential tables were used for "resident" assessment. The lower of the cancer vs. non-cancer RSL was used for comparison.

All indoor air concentrations are less than the RSL with the exception of benzene and chloroform at Broadway Proper and chloroform at Kenyon Terrace.

1.0 INTRODUCTION

On behalf of the Arizona Department of Environmental Quality, Copeland & Associates, Inc. (C&A) in conjunction with Clear Creek Associates, Inc. (Clear Creek), prepared this human health risk assessment (HRA) as a component of the Remedial Investigation (RI) for the purpose of quantifying potential human health risks associated with chemicals detected in soil gas samples collected at the Broadway North Landfill (BNL), Broadway South Landfill (BSL) and four developed areas within or adjacent to the BSL which are: Gollob Park, YMCA, Broadway Proper retirement community, and the Kenyon Terrace townhome development. The locations of these areas are shown on Figures L1 and L2. In addition, potential health risks associated with chemicals detected in shallow soil at the BSL were evaluated.

The HRA follows the basic procedures outlined in the ADEQ Deterministic Risk Assessment Guidance (ADEQ/ADHS, 2003), the ADEQ Soil Remediation Levels (SRLs) (ADEQ, 2007) and USEPA's *Risk Assessment Guidance for Superfund: Volume I—Human Health Evaluation Manual (Part A)* (USEPA, 1989). Other guidance documents consulted in formulating the risk assessment include:

- Guidelines for Exposure Assessment. USEPA, 1992a.
- Guidance for Data Usability in Risk Assessment. Part A. USEPA, 1992b.
- Exposure Factors Handbook. USEPA, 2011.
- Supplemental Guidance for Developing Soil Screening Levels for Superfund Sites. USEPA, 2002b.
- Risk Assessment Guidance for Superfund, Volume I: Human Health Evaluation Manual (Part F, Supplemental Guidance for Inhalation Risk Assessment). USEPA 2009.
- Regional Screening Levels, USEPA, 2013a.
- Standard Guide for Risk-Based Corrective Action. ASTM, 2000.

The remainder of this HRA is organized as follows:

Section 2 – Conceptual Site Model: This section describes the relationships between the suspected sources of chemicals (BNL and BSL), the mechanisms by which the chemicals might

be released and transported in the environment, potential human receptors, and the means by which the receptors could come in contact with the chemicals.

Section 3 – Data Evaluation: This section discusses the analytical data that are used in the HRA, procedures used to evaluate the data, and the identification of the chemicals of potential concern (COPCs).

Section 4 – Toxicity Assessment: This section presents the toxicity criteria used to evaluate the COPCs.

Section 5 – Exposure Assessment and Risk Characterization: This section discusses the fate/transport modeling conducted to estimate outdoor and indoor air exposure point concentrations and the risk characterization for each exposure area.

Section 6 – Uncertainty Analysis: A quantitative uncertainty analysis is presented which discusses the relative impact of the key assumptions used in the HRA.

Section 7 – Summary and Conclusions: This section summarizes the conclusions of the report.

Section 8 – References: This section provides complete references for the literature cited throughout the HRA.

2.0 CONCEPTUAL SITE MODEL

The conceptual site model (CSM) is a tool used in risk assessment to describe relationships between chemicals and potentially exposed human receptor populations, thereby delineating the relationships between the suspected sources of chemicals identified at the site, the mechanisms by which the chemicals might be released and transported in the environment, and the means by which the receptors could come in contact with the chemicals. These components are further described below.

2.1 SOURCES OF CHEMICALS AND ENVIRONMENTAL TRANSPORT

The source of chemicals detected in soil gas is landfilled materials (refuse) at the BNL and BSL. The primary mechanism whereby the chemicals migrate from refuse to soil gas is volatilization. The high vapor pressures of volatile organic compounds (VOCs) allow them to move readily from the liquid to vapor phase. VOCs are generally more prevalent in the vapor and aqueous phases, in comparison to the semi-volatile organic compounds (SVOCs) and non-volatile chemicals (metals), which are more prevalent in the sorbed phase. In the vapor phase, VOCs may migrate to indoor and outdoor air via gaseous diffusion and, in the presence of a pressure gradient (i.e., for some indoor scenarios), via advection. In the aqueous phase, volatile chemicals may percolate (leach) from soil into groundwater, migrate in groundwater, or in the absence of controls be transported via surface water runoff. In the sorbed phase, semi- and non-volatile chemicals may remain in place or may migrate via wind erosion (particulate suspension and deposition) and/or surface water erosion (sediment suspension and deposition).

2.2 RECEPTORS AND EXPOSURE PATHWAYS

The identification of potentially exposed populations and exposure pathways is supported by the Land Use Study by Clear Creek (Appendix A of this RI report) and the CSM. Based on direction from ADEQ, the following exposure areas and receptors were evaluated in the HRA:

- Broadway North Landfill – current/future trespasser
- Broadway South Landfill – current/future trespasser
- Gollob Park – current/future outdoor worker
- YMCA – current/future commercial/industrial worker

- Broadway Proper Retirement Community – current/future resident
- Kenyon Terrace Homes – current/future resident.

For a complete exposure pathway to exist, each of the following elements must be present (USEPA, 1989):

- A source and mechanism for chemical release;
- An environmental transport medium (i.e., air, water, soil);
- A point of potential human contact with the medium; and
- A route of exposure (e.g., inhalation, ingestion, dermal contact).

The following exposure pathways/scenarios were evaluated in this HRA:

- Inhalation of VOCs in outdoor air that have migrated from underlying soil gas – The outdoor air scenario is relevant for the current/future scenario for BNL and BSL and the current/future scenario at Gollob Park, as these scenarios have no buildings.

- Direct contact with shallow soil via incidental soil ingestion and dermal contact with soil – This outdoor scenario is relevant to BSL.

- Inhalation of particulates released from shallow soil – This outdoor scenario is relevant to BSL.

- Inhalation of VOCs in indoor air that have migrated from underlying soil gas – This indoor air scenario is relevant for the current/future scenario for YMCA, Broadway Proper and Kenyon Terrace.

(The exposure pathways/scenarios listed in the first three bullets above are also relevant for BNL, but were not assessed for BNL as they are addressed in the Broadway-Pantano Landfill Operable Unit Remedial Investigation Report).

3.0 DATA EVALUATION

This section discusses the sources of analytical data that are used in the HRA and procedures used to evaluate the data and to select COPCs.

3.1 INVESTIGATION/DATA SOURCES

Analytical data collected as part of the site investigations are the sources of the data evaluated in the HRA. The site investigations are discussed in Section 3 of the RI. The HRA dataset is provided as Attachment L1 – Table 1 (in Attachment L1 to this HRA).

3.2 DATA USABILITY EVALUATION

The primary objective of the data usability evaluation is to identify appropriate data for use in the risk assessment. All relevant site characterization data were reviewed in accordance with the *Guidance for Data Usability in Risk Assessment (Part A)* (USEPA, 1992b).

Data usability is the process of assuring or determining that the quality of data generated meets the intended use. USEPA data usability guidance provides an explicit set of data quality criteria that are used to determine the usability of site characterization data in the risk assessment process. These criteria, listed below, were employed in determining the usability of the data for the HRA.

The USEPA data usability evaluation criteria are:

1. Documentation of site characterization reports ("Reports to Risk Assessor"),
2. Documentation that each analytical result can be traced to a specific geographical location ("Documentation"),
3. Documentation that analytical methods are adequate to identify all COPCs ("Data Sources"),
4. Documentation that routine analytical methods were used and detection limits are low enough for the HRA ("Analytical Methods and Detection Limits"),
5. Documentation of the level of review and of the qualifications of the data reviewers ("Data Review"), and
6. Evaluation of precision, accuracy, representativeness, comparability, and completeness ("Data Quality Indicators").

The data usability evaluation, which provides documentation that all data employed in the HRA meet usability goals, is contained in Attachment L1

3.3 SELECTION OF CHEMICALS OF POTENTIAL CONCERN

COPCs for soil gas were selected for each of the six exposure areas by comparing the maximum concentration of each detected volatile organic compound (VOC) to the screening USEPA "Target Shallow Soil Gas Concentration" (SSGC) protective of residential indoor air (USEPA, 2002a).[2] The chemical-specific SSGC is a reasonable worst case concentration in soil gas protective of indoor air. If the SSGC is not exceeded, the indoor air pathway is deemed insignificant (USEPA, 2002a). For each exposure area, any VOC exceeding the SSGC was retained as a COPC in the HRA. Based on a comparison of the shallow soil concentrations reported for BSL with the residential Soil Remediation Level (SRL) (ADEQ, 2007) no COPCs were identified for shallow soil at the BSL; therefore soil pathways were not further evaluated in the HRA. Tables L1 through L7 present the COPC selection documentation.

[2] It is noted that USEPA's current SSGCs are from 2002 and that the toxicity values for several chemicals have been updated since then. However, when the SSGCs are adjusted for these new toxicity values, it does not change the COPCs for this site.

4.0 TOXICITY ASSESSMENT

This section describes the toxicity assessment step of the HRA. The toxicity assessment is based on the relationship between the exposure level ("dose") of a chemical and the potential for an adverse health effect in the exposed population. The USEPA has derived toxicity values (criteria) from quantitative dose-response data to estimate the likelihood of a specific adverse health effect occurring as a function of exposure. The COPCs identified previously include both carcinogenic and noncarcinogenic chemicals. The methods used to establish the chemical-specific toxicity values associated with evaluating potential chronic (long-term) carcinogenic and noncarcinogenic health effects are described in the following sections. Inhalation unit risk factors (URFs), which are expressed in units of $(\mu g/m^3)^{-1}$, are chemical-specific and experimentally derived potency values that are used to calculate the risk of cancer resulting from inhalation exposure to potentially carcinogenic chemicals. The URF are defined as the 95% upper confidence limit (UCL) of the probability of a carcinogenic response per unit daily intake or concentration of a chemical over 70 years. A higher value implies a more potent carcinogenic potential. Non-cancer inhalation reference concentrations (RfCs), which are expressed in units of mg/m^3, are experimentally derived "no-effect" levels that are used to quantify the extent of toxic effects other than cancer due to exposure to chemicals. The RfC are intended to represent the dose or concentration of a chemical that is not expected to cause adverse health effects, assuming daily exposure over a lifetime, even in sensitive individuals, with a substantial margin of safety. With RfCs, a lower value implies a more potent toxicant. These criteria are generally developed by U.S. EPA risk assessment work groups and are listed in the U.S. EPA risk assessment guidance documents and databases.

Table L8 presents the toxicity criteria used in this assessment and are consistent with current USEPA toxicity criteria as well as the Johnson & Ettinger model (USEPA, 2004).

5.0 EXPOSURE ASSESSMENT AND RISK CHARACTERIZATION

The magnitude of exposure for any given receptor is a function of the amount of the constituent in the exposure medium and the frequency, intensity, and duration of contact with that medium. The risk characterization integrates the toxicity assessment and exposure assessment into quantitative expressions of risk for both the cancer and non-cancer toxicity endpoints (e.g., liver effects, kidney effects, etc.).

This section discusses the CSM, receptors and their exposure pathways, fate/transport models, and exposure point concentrations used to calculate potential exposures and associated risks via inhalation for each of the identified COPCs. The risk characterization discusses the equations for calculating incremental lifetime cancer risk (ILCR) and non-cancer hazard index (HI) and presents a summary of the ILCR and HI results for each exposure area.

5.1 EXPOSURE AREAS, RECEPTORS AND EXPOSURE PATHWAYS

The CSM, which is a key component of the exposure assessment, was discussed in Section 2.0 of this HRA. The CSM components relevant to the exposure assessment are the exposure areas, receptors and exposure pathways. These were identified based on direction from ADEQ and are summarized below.

Exposure Area	Receptor	Exposure Pathways
BNL	Current/Future Trespasser*	Inhalation of Outdoor Air
BSL	Current/Future Trespasser*	Inhalation of Outdoor Air
Gollob Park	Current/Future Outdoor Worker	Inhalation of Outdoor Air
YMCA	Current/Future Indoor Worker	Inhalation of Indoor Air
Broadway Proper	Current/Future Resident	Inhalation of Indoor Air
Kenyon Terrace	Current/Future Resident	Inhalation of Indoor Air

*Conservative assumption (USEPA, 2000).

The receptor exposure parameters are summarized in Table L9. Exposure point concentrations for outdoor air are discussed in Section 5.2 and exposure point concentrations for indoor air are discussed in Section 5.3.

5.2 OUTDOOR AIR MODEL

The migration of COPCs in soil gas from the subsurface and dispersion into outdoor air was estimated using an approach that is analogous to that used by USEPA (2002b) to estimate outdoor air concentrations from chemicals in ***soil*** for purposes of calculating soil screening levels (SSLs). Specifically, USEPA calculates a soil-to-air volatilization factor (VF), which relates a soil concentration to an air concentration. The volatilization factor is used to estimate the outdoor air concentration as follows:

Equation 1

$$C_{air-outdoor} = \frac{C_{soil}}{VF}$$

Where:

$C_{air\text{-}outdoor}$	Outdoor air concentration (mg/m^3)
Csoil	Soil concentration (mg/kg)
VF	Soil-to-air volatilization factor (m^3/kg)

The VF is based on a dispersion factor (Q/C_{vol}) and a flux rate (J_t) assuming a unit concentration in soil (1 mg/kg or 10^{-6} g/g) (USEPA, 2002b). This same relationship can be used to estimate the outdoor air concentration from a known soil gas concentration as follows:

Equation 2

$$C_{air-outdoor} = \frac{Flux}{Q/C_{vol}} \times 10^9\ \mu g/kg$$

Where:

$C_{air\text{-}outdoor}$	Outdoor air concentration (µg/m^3)
Flux	Maximum diffusive vapor flux from subsurface soil gas source (g/m^2-sec) calculated as shown below) (USEPA, 2002b)
Q/C_{vol}	Inverse of the ratio of the geometric mean air concentration to the volatilization flux at the center of a square source (g/m^2-sec per kg/m^3) (calculated as shown below) (USEPA, 2002b)

The maximum diffusive vapor flux from a subsurface soil gas source from a known soil gas concentration is calculated as follows (ASTM, 2000):

Equation 3

$$Flux = \frac{C_{sg} \times 10^{-6} \frac{g}{\mu g} \times D^{eff} \times 10^{-4} \frac{m^2}{cm^2}}{L \times 10^{-2} \frac{m}{cm}}$$

Where:

Flux	Maximum diffusive vapor flux from subsurface soil gas source (g/m^2-sec)
C_{sg}	Concentration in soil gas ($\mu g/m^3$)
D^{eff}	Effective diffusion coefficient (cm^2/sec) (calculated as shown below)
L	Soil gas sampling depth (cm)

Soil gas samples were collected at 5, 10, and 22.5 feet below land surface (bls).

Equation 2can be written as follows by substituting Equation 3 for the vapor flux:

Equation 4

$$C_{air-outdoor} = \frac{C_{sg} \times 10^{-6} \frac{g}{\mu g} \times D^{eff} \times 10^{-4} \frac{m^2}{cm^2}}{L \times 10^{-2} \frac{m}{cm} \times Q/C_{vol}} \times 10^{6} \frac{\mu g}{g}$$

Or

Equation 5

$$C_{air-outdoor} = C_{sg} \times 10^{-6} \frac{g}{\mu g} \times \left[\frac{D^{eff} \times 10^{-4} \frac{m^2}{cm^2}}{L \times 10^{-2} \frac{m}{cm} \times Q/C_{vol}} \times 10^{9} \frac{\mu g}{kg} \right]$$

Where all of the parameters in brackets represent the inverse of a “soil gas-to-air” VF.

The effective diffusion coefficient is calculated on a chemical-specific basis as follows (ASTM, 2000, USEPA, 2004):

Equation 6

$$D^{eff} = D_a\left(\frac{\theta_a^{3.33}}{n^2}\right) + \left(\frac{D_w}{H'}\right) \times \left(\frac{\theta_w^{3.33}}{n^2}\right)$$

Where:

D^{eff}	Effective diffusion coefficient (cm^2/sec)
D_a	Diffusivity in air (cm^2/sec)
θ_a	Soil air-filled porosity (cm^3/cm^3)
N	Soil total porosity (cm^3/cm^3)
D_w	Diffusivity in water (cm^2/sec)
θ_w	Water-filled porosity (cm^3/cm^3)
H'	Henry's law constant (dimensionless)

For purposes of this evaluation, the same chemical- and soil-specific assumptions used for estimating indoor air concentrations were used to estimate outdoor air concentrations.

The inverse of the ratio of the geometric mean air concentration to the volatilization flux at the center of a square source is calculated as follows (USEPA, 2002b):

Equation 7

$$Q/C_{vol} = A \times \exp\left[\frac{(lnA_c - B)^2}{C}\right]$$

Where:

Q/C_{vol}	Inverse of the ratio of the geometric mean air concentration to the volatilization flux at the center of a square source (g/m^2-sec per kg/m^3)
A	Constant; value for Phoenix, AZ = 10.2871
B	Constant; value for Phoenix, AZ = 18.7124
C	Constant; value for Phoenix, AZ = 212.2704
A_c	Area extent of contamination (acres)

Potential outdoor air health risks were estimated using the maximum detected soil gas sample in each area evaluated. The areal extent of contamination was assumed to be 0.5 acre.

The soil vapor concentrations used as the source term in the outdoor air model to generate outdoor air concentrations are provided for each exposure area in Tables L10 – L15.

Model input parameters are presented in Table L16.

The outdoor air EPCs and risk calculations are presented in Attachment L2.

5.3 INDOOR AIR MODEL

The screening level USEPA implementation of the "Johnson and Ettinger model", hereafter referred to as the J&E model (USEPA, 2004; Johnson and Ettinger, 1991, a Microsoft® Excel®-based spreadsheet model) was used to estimate the indoor air exposure point concentrations (EPCs) and risk calculations for the soil gas COPCs. The following exposure areas/scenarios were evaluated for indoor air exposure:

- YMCA: Current/future indoor worker
- Broadway Proper: Current/future resident)
- Kenyon Terrace: Current/future resident)

The indoor air EPCs and risk calculations were performed for every individual soil gas location within each exposure area (i.e., the assumption was made that each soil gas sample location is representative of the source term for the migration of soil gas to indoor air).

The USEPA's screening level J&E model incorporates both convective and diffusive mechanisms for estimating the transport of vapors emanating from impacted subsurface media into indoor spaces. The major assumption of the J&E model is that the model is one-dimensional and transport is directed exclusively into the building. That is, vapors only migrate upward from the impacted subsurface media and into the building. Additionally, the model assumes that the vapors have already arrived at their peak concentration at the floor slab of the building, regardless of the depth to the top of contamination.

Other assumptions of the J&E Model are as follows (USEPA, 2004):

- Contaminant vapors enter the structure primarily through cracks and openings in the walls and foundation.

- Convective transport occurs primarily within the vadose zone of influence and vapor velocities decrease rapidly with increasing distance from the structure.
- Diffusion dominates vapor transport between the source of contamination and the building zone of influence.
- All vapors originating from below the building will enter the building unless the floors and walls are perfect barriers.
- All soil properties in any horizontal plane are homogenous.
- The contaminant is homogeneously distributed within the zone of contamination.
- The areal extent of contamination is greater than that of the building floor in contact with the soil.
- Vapor transport occurs in the absence of convective water movement within the soil column (i.e., evaporation or infiltration), and in the absence of mechanical dispersion.
- The model does not account for transformation processes (e.g., biodegradation, hydrolysis, etc.) and assumes an infinite source of contamination.
- The soil layer in contact with the structure floor and walls is isotropic with respect to permeability.
- Both the building ventilation rate and the difference in dynamic pressure between the interior of the structure and the soil surface are constant values.

Input values for the J&E model include the chemical properties, soil vapor concentrations of the analytes, soil properties, and building properties. The chemical properties are the default values coded into the J&E model as downloaded from the USEPA website[3]. The 'DATAENTER' and 'INTERCALC' sheets for the default building contain the input parameters presented in Table L17.

The indoor air concentrations generated by the J&E model are shown in the intermediate calculation (INTERCALCS) worksheets and include the "Infinite source attenuation coefficient" (the ratio of the indoor air EPC to the source term expressed as a soil vapor concentration) and

[3] http://www.epa.gov/oswer/riskassessment/airmodel/johnson_ettinger.htm

"Infinite source bldg. conc., $C_{building}$"[4] (the indoor air EPC). The 'RESULTS' worksheets present the risk calculation results. All J & E files are included in Attachment L3.

5.4 RISK CHARACTERIZATION

Risk characterization represents the final step in the risk assessment process. In this step, the results of the exposure and toxicity assessments are integrated into quantitative or qualitative estimates of potential health risks. Potential cancer risks and non-cancer adverse health effects are discussed below.

5.4.1 Evaluation of Potential Cancer Risks

ILCRs are estimated as the incremental probability of an individual developing cancer over a lifetime as a result of exposure to a given chemical at a given concentration (USEPA, 1989). ILCRs for the inhalation pathway (the only complete exposure pathway for this HRA) are derived as a component of the air models by multiplying the estimated exposure concentration (i.e., EPC calculated in the exposure assessment using the outdoor or indoor air model) by the chemical specific IUR, which characterizes risk per unit concentration in air.

$$ILCR_{COPC} = EPC \times IUR$$

Where:

$ILCR_{COPC}$	COPC-specific incremental lifetime cancer risk (unitless)
EPC	COPC-specific exposure point concentration ($\mu g/m^3$)
IUR	COPC-specific inhalation unit risk factor $(\mu g/m^3)^{-1}$

For each exposure area the ILCRs for each COPC are summed to characterize the total ILCR for each exposure area. The COPC-specific ILCRs and the total ILCRs are presented for the individual exposure areas in Tables L18 – L23. The total ILCRs are summarized below.

[4] This value is shown at the right-hand end of the bottom row of the 'INTERCALC' spreadsheet.

Exposure Area	Receptor*	ILCR
BNL (current/future)	Trespasser	9 E-11
BSL (current/future)	Trespasser	2 E-11
Gollob Park (current/future)	Outdoor worker	1 E-08
YMCA (current/future)	Indoor worker	2 E-08 to 2 E-07
Broadway Proper (current/future)	Indoor Resident	4 E-08 to 5 E-07
Kenyon Terrace (current/future)	Indoor Resident	6 E-09 to 1 E-07

* Due to the low risks for the indoor air scenario for YMCA, Broadway Proper and Kenyon Terrace, the outdoor air exposure scenario was not quantitatively evaluated.

ADEQ identifies a target acceptable ILCR range of 1E-06 (1×10^{-6}, or one-in-one million) to 1 E-04 (1×10^{-4} or one hundred-in-one million) (ADEQ, 2007) which is consistent with the USEPA risk range of 1×10^{-6} to 1×10^{-4} for acceptable risks (USEPA, 1990). It should be noted that cancer risks in the 1×10^{-6} to 1×10^{-4} range or higher do not necessarily mean that adverse health effects will be observed. Current methodology for estimating the carcinogenic potential of chemicals is believed to not underestimate the true risk, but could overestimate the true risk by a considerable degree, and the true risk could be as low as zero (USEPA, 1986).

5.4.2 Evaluation of Non-Cancer Health Effects

For the inhalation pathway, the COPC-specific hazard quotient (HQ) is calculated by dividing the COPC-specific EPC by the COPC-specific RfC:

$$HQ_{COPC} = \frac{EPC}{RfC}$$

Where:

HQ_{COPC}	COPC-specific HQ
EPC	COPC-specific exposure concentration (mg/m^3)
RfC	COPC-specific reference concentration (mg/m^3)

For each exposure area the HQs for each COPC are summed to characterize the total hazard index (HI) for each exposure area. The COPC-specific HIs and the total HIs are presented for the individual exposure areas in Tables L18 – L23. The total HIs are summarized below.

Exposure Area	Receptor*	HI
BNL (current/future)	Trespasser	0.001
BSL (current/future)	Trespasser	0.0004
Gollob Park (current/future)	Outdoor worker	0.024
YMCA (current/future)	Indoor worker	0.00001 to 0.00008
Broadway Proper (current/future)	Indoor Resident	0.00001 to 0.0016
Kenyon Terrace (current/future)	Indoor Resident	0.0000009 to 0.00003

* Due to the low risks for the indoor air scenario for YMCA, Broadway Proper and Kenyon Terrace, the outdoor air exposure scenario was not quantitatively evaluated.

An HI less than or equal to 1 indicates that the predicted exposure should not result in an adverse noncarcinogenic health effect (USEPA, 1989). Consistent with USEPA, the ADEQ non-cancer risk management target is an HI value of less than or equal to 1.0 (ADEQ, 2003). It should be noted that HI or HQ values greater than 1 do not necessarily mean that adverse health effects will be observed, because a substantial margin of safety has been incorporated into RfCs.

In addition to assessing indoor risk using the J & E model, and as requested by ADEQ, indoor air concentrations were also evaluated using a default USEPA attenuation factor of 0.03 in conjunction with the measured soil gas concentrations for each COPC at each potential exposure area. The attenuation factor (AF) relates the concentration of a chemical in soil gas to a potential upper-bound indoor air concentration. This is a conservative analysis conducted on the COPCs for the indoor scenarios. Specifically, a USEPA default AF of 0.03 was applied to the maximum measured concentration of each COPC within each exposure area to determine potential indoor air concentrations. An indoor worker was addressed for YMCA while an indoor resident was addressed for both Broadway Proper and Kenyon Terrace. The resultant indoor air concentration was then compared to the appropriate ambient air Regional Screening Level (RSL) for a commercial or residential scenario (USEPA, 2013a). Specifically, the lower of the "1 x 10^{-6}

based cancer" RSL and the "non-cancer HI=0.1" RSL was used for the comparison as presented below. The results of the AF analysis indicate that all indoor air concentrations are below the RSL with the exception of benzene and chloroform for the Broadway Proper residential scenario and chloroform at Kenyon Terrace.

Exposure Scenario (current/future)	**Predicted Indoor Air Concentration per Attenuation Factor* µg/m^3**	**USEPA RSL** µg/m^3**	**Exceeds RSL?**
YMCA			
Indoor Worker			
Chloroform	0.44	0.53	No
Tetrachloroethylene	1.5	18	No
Trichloroethylene	0.072	0.88	No
Broadway Proper			
Indoor Resident			
Benzene	0.52	0.31	**Yes**
Chloroform	0.78	0.11	**Yes**
Chloromethane	1.1	9.4	No
Tetrachloroethylene	0.93	4.2	No
Kenyon Terrace			
Indoor Resident			
Chloroform	0.15	0.11	**Yes**
Tetrachloroethylene	0.45	4.2	No

*Indoor air concentration is derived by multiplying the maximum concentration of each COPC in soil gas by the AF of 0.03.

**RSL = Current Regional Screening Level Tables (USEPA, 2013a) accessed from the following website: http://www.epa.gov/region9/superfund/prg/. "Industrial" tables were used for worker assessment and "residential tables were used for "resident" assessment. The lower of the cancer vs. non-cancer RSL was used for comparison.

6.0 UNCERTAINTY ANALYSIS

Uncertainty is inherent in many aspects of the risk assessment process. Uncertainty generally arises from a lack of knowledge as well as variability of (1) site conditions and future site use; (2) toxicity and dose-response of the COPCs; and/or (3) the extent to which an individual may be exposed (if at all) to the chemicals. This lack of knowledge means that assumptions must be made based on information presented in the scientific literature or on professional judgment. The assumptions that introduce the greatest amount of uncertainty, and their effects on the findings of this HRA, are discussed in a qualitative manner below. In general, assumptions were selected in a manner that purposely biases the process toward health protection.

6.1 UNCERTAINTY ASSOCIATED WITH SITE CHARACTERIZATION DATA

Samples cannot be collected from every possible location; therefore, there is always some uncertainty associated with the representativeness of site characterization data. The majority of sampling locations were targeted to impacted areas. Additionally, the data usability evaluation documented that data gaps did not exist. Accordingly, the relative uncertainty in the site characterization data in terms of sample location and density is considered to be low.

6.2 UNCERTAINTY ASSOCIATED WITH CHEMICALS OF POTENTIAL CONCERN

Uncertainties in the site characterization data or inappropriate COPC selection criteria may lead to the failure to identify all of the COPCs. The results of the site investigations were evaluated in the data usability evaluation and data gaps for selection of COPCs were not identified. Very conservative ("worst case") USEPA soil gas screening levels (USEPA, 2002a) protective of residential indoor air were used as the basis for selection of soil gas COPCs. Chemicals detected in soil gas below these screening levels were not selected as soil gas COPCs as USEPA considers chemicals that are below these screening concentrations to contribute insignificantly to risk, which warrants their elimination as COPCs. ADEQ SRLs (ADEQ, 2007) were used as the basis for selection of soil COPCs (for BSL). Chemicals detected in soil below the respective SRL were not selected as COPCs. In accordance with ADEQ guidance, a chemical is not a COPC "if the highest detected concentration in soil is less than the applicable SRL (i.e. residential or nonresidential)" (ADEQ/ADHS, 2007). Based on the COPC selection criteria employed, the likelihood of missing potential COPCs in this HRA is low.

6.3 UNCERTAINTY ASSOCIATED WITH TOXICITY ASSESSMENT

Sources of uncertainty associated with toxicity values may include (USEPA, 1989):

- Use of dose-response data from animal studies to predict health effects in humans;
- Use of dose-response data from effects observed at high doses to predict the adverse health effects that may occur following exposure to low levels expected from human contact in the environment;
- The extrapolation of toxicity data from one route of exposure to another route of exposure.
- The interaction of chemicals (multiple substance exposure).

These areas of uncertainty are further discussed below.

Animal-to-Human Extrapolation

For many of the COPCs, animal studies provide the primary information on which predictions of the possible adverse health effects in humans are made. Accordingly, uncertainties exist in regard to the extrapolation of animal data to predict human toxicity.

USEPA, the source of the toxicity criteria used in the HRA, has established toxicity assessment methodologies with the objective of not underestimating potential risks to humans. USEPA considers their methods of animal-to-human dose-response extrapolation to be health protective for the following reasons (USEPA, 1986, 1989):

- Animal dose-response data are taken from the species that responds most similarly to humans, or from the most sensitive species.
- As the basis for non-cancer hazard estimation, USEPA applies what are considered as conservative safety factors to address uncertainties inherent in the interspecies extrapolation of dose-response data.
- USEPA employs health protective assumptions regarding the determination of equivalent human doses (relative to the animal study doses).

High-to-Low Dose Extrapolation

USEPA considers their methods of extrapolating data from workplace or laboratory studies to much lower doses that humans may be exposed to in risk assessment scenarios, to be health protective based on the following:

- For cancer risk characterization, conservative low-dose extrapolation models are used. The inhalation unit risk is based on an upper bound, continuous lifetime exposure risk estimate from the most appropriate model, which is selected based on consideration of mode of action and the dose-response study. As such, the potential to underestimate cancer toxicity criteria is low.
- The basis for the non-cancer reference dose (or reference concentration) is the identification of a dose (or exposure level, in the case of reference concentration) below which no adverse effects are seen. Safety factors are additionally applied to ensure that a reference dose (or reference concentration) does not underestimate the human toxicity of a particular chemical. Accordingly, the potential to underestimate the non-cancer toxicity criteria is low.

Route-to-Route Extrapolation

Route extrapolations were not conducted in the HRA. Additionally, none of the toxicity criteria employed in the HRA (which are listed in Table L8) are based on route extrapolations. Accordingly, there is no concern regarding uncertainties associated with route-to-route extrapolations.

Multiple Substance Exposure

As discussed by USEPA (1989), uncertainties associated with summing ILCRs or HIs for several substances may be of concern, as chemical interactions might occasionally occur. For example, the effects of two chemicals given at the same time may produce a response that may be directly additive of their individual responses, or may be greater or less than that expected by the addition of their individual responses (*i.e.*, synergism or antagonism) (Amdur et al., 1991). An example of an *additive* effect is when the combined effect of two chemicals is equal to the sum of the effect of each chemical given alone. Additive effects are the most common type of chemical interaction

(Amdur et al., 1991). A *synergistic* effect occurs when the combined effect of two chemicals is greater than the sum of the effect of each one given alone. An *antagonistic* effect occurs when the combined effect of two chemicals is less than the sum of the effect of each one given alone.

USEPA (1986, 1989) guidelines indicate that carcinogenic risks should be conservatively assumed to be additive, and that non-cancer hazard indices should also be conservatively assumed to be additive. USEPA methodology for predicting the potential carcinogenic risks is to sum the risks for each carcinogenic COPC. Similarly, USEPA methodology for predicting the non-cancer hazard is to sum hazard indices for each of the noncarcinogenic COPCs. This is considered to be a conservative health-protective approach as many chemicals affect different organs and exert toxic effects by different mechanisms. In regard to the specific COPCs evaluated in the HRA, there are no known synergistic effects associated with combined exposures to low doses of the COPCs (Amdur et al., 1991; USEPA, 2013b). Accordingly, additivity is a conservative assumption for the COPCs.

6.4 UNCERTAINTY ASSOCIATED WITH EXPOSURE SCENARIOS AND PARAMETERS

The exposure scenarios were identified by ADEQ based on the Land Use Study (Appendix C of the RI) which evaluated current and most likely future land use scenarios. These scenarios were considered and recommended by ADEQ in designing the scope of work for the HRA. The receptor exposure parameters in this HRA are based on the assumption of a reasonable maximum exposure (RME) for each receptor evaluated. The RME is defined by USEPA as the highest exposure that could reasonably be expected to occur for a given exposure pathway at a site (USEPA, 1989). To achieve this goal, the RME scenario uses highly conservative exposure assumptions. For example, this HRA assumes that a current and future worker receptor is present at the workplace 8 hours per day, 250 days per year, for 25 years and a future residential receptor is present at home 24 hours per day, 350 days per year, for 30 years. These and other upper bound, default estimates of exposure most likely overestimate the potential health risks associated with the site.

6.5 UNCERTAINTY ASSOCIATED WITH EXPOSURE POINT CONCENTRATIONS

As noted in the data usability evaluation, there was some uncertainty regarding documentation of sample depth for soil gas samples collected in the Broadway Proper area and the Kenyon Terrace area. Based on discussions with field personnel, conservative assumptions were made regarding sample depth. Additionally, risks were calculated based on the maximum concentrations for outdoor exposure scenarios and for each soil gas sample location for indoor exposure scenarios (which include maximum concentration locations). Finally, both the USEPA outdoor air model (USEPA, 2002b) and the USEPA J&E indoor air model (USEPA, 2004) employ highly conservative assumptions. Based on these conservative approaches, the potential for underestimation of EPCs is low.

6.6 UNCERTAINTY ASSOCIATED WITH RISK CHARACTERIZATION

Standard risk characterization methods were applied to estimate incremental lifetime cancer risks and non-cancer hazard indices. For the COPCs evaluated in the HRA, the assumption of chemical additivity is deemed health protective. A RME was evaluated, as recommended by USEPA. The RME, as defined by the USEPA, is the "highest exposure that is reasonably expected to occur" and is intended to best represent a conservative exposure estimate that is within the range of possible exposures" (USEPA, 1989).

While it is recognized that uncertainties are inherent in the health risk assessment process, USEPA is confident that health risk assessment serves as a health-protective analytical framework that can be used to support environmental decisions having the objective of protecting human health (USEPA, 1989; NAS, 1983). USEPA advises that conservatism in the risk estimate be communicated in the risk assessment and suggests the following statement in regard to estimated incremental lifetime cancer risks characterized using the HRA framework (USEPA, 1986):

"These values are upper bound estimates of excess cancer risk potentially arising from lifetime exposure to the chemical in question. A number of assumptions have been made in the derivation

of these values, many of which are likely to overestimate exposure and toxicity. The actual incidence of cancer is likely to be lower than these estimates and may be zero."

6.7 SUMMARY OF UNCERTAINTY ANALYSIS

In summary, many assumptions contribute to the overall uncertainty in the results of the HRA. However, given that the largest sources of uncertainty generally result in overestimates of exposure and risk, it is believed that the noncarcinogenic and carcinogenic risks presented in this HRA represent conservative estimates of the risks, if any, posed by chemicals detected in soil gas.

7.0 SUMMARY AND CONCLUSIONS

The HRA was conducted to assess the potential human health risks associated with soil gas present at the Broadway North Landfill (BNL), Broadway South Landfill (BSL) and four developed areas within or adjacent to the BSL. The HRA employed current ADEQ and USEPA guidance.

Based on the conceptual site model (CSM), potential exposure to soil at the BSL and to soil gas migrating to air at the BNL, BSL, Gollob Park, YMCA, Broadway Proper, and Kenyon Terrace were evaluated. The area-specific land use/receptor scenarios were developed based on site-specific information contained in the Land Use Study (Appendix C) and direction from ADEQ (2013). The data employed were evaluated and considered useable for purposes of this HRA. Chemicals of potential concern (COPCs) were selected based on conservative toxicity-exposure screens which relied on conservative USEPA and ADEQ screening concentrations.

The maximum soil gas concentration for each COPC in the exposure area was used to characterize risk for the outdoor scenarios, therefore one incremental lifetime cancer risk (ILCR) and one non-cancer hazard index (HI) are reported for each outdoor exposure area. These are shown in the summary table below. The results of the 2013 soil gas sampling were used in the USEPA version of the Johnson & Ettinger indoor air model (USEPA, 2004) for the exposure assessment and risk characterization for the current/future indoor air scenario for YMCA, Broadway Proper, and Kenyon Terrace. For these indoor scenarios ILCRs and HIs were calculated for every soil gas data point; thus a range of risks were calculated and are shown in the summary table below.

Exposure Area	Receptor*	ILCR	HI
BNL (current/future)	Trespasser	9 E-11	0.001
BSL (current/future)	Trespasser	2 E-11	0.0004
Gollob Park (current/future)	Outdoor worker	1 E-08	0.024
YMCA (current/future)	Indoor worker	2 E-08 to 2 E-07	0.00001 to 0.00008
Broadway Proper (current/future)	Indoor Resident	4 E-08 to 5 E-07	0.00001 to 0.0016
Kenyon Terrace (current/future)	Indoor Resident	6 E-09 to 1 E-07	0.0000009 to 0.00003

* Due to the low risks for the indoor air scenario for YMCA, Broadway Proper and Kenyon Terrace, the outdoor air exposure scenario was not quantitatively evaluated.

These ILCRs and HIs are within the ADEQ and USEPA target risk range (1 E-06 to 1 E-04).

In addition to assessing indoor risk using the J & E model, and as requested by ADEQ, indoor air concentrations were also evaluated using a default USEPA attenuation factor of 0.03 in conjunction with the measured soil gas concentrations for each COPC at each potential exposure area. This is a conservative analysis conducted on the COPCs for the indoor scenarios. The resulting potential indoor air concentration (a product of multiplying the chemical-specific soil concentration by the AF) was compared to the USEPA Region 9 residential or commercial Regional Screening Level (RSL) for ambient air (USEPA, 2013a). The results of this analysis are provided in the table below.

Exposure Scenario (current/future)	Predicted Indoor Air Concentration per Attenuation Factor* µg/m^3	USEPA RSL µg/m^3	Exceeds RSL?
YMCA			
Indoor Worker			
Chloroform	0.44	0.53	No
Tetrachloroethylene	1.5	18	No
Trichloroethylene	0.072	0.88	No
Broadway Proper			
Indoor Resident			
Benzene	0.52	0.31	**Yes**
Chloroform	0.78	0.11	**Yes**
Chloromethane	1.1	9.4	No
Tetrachloroethylene	0.93	4.2	No
Kenyon Terrace			
Indoor Resident			
Chloroform	0.15	0.11	**Yes**
Tetrachloroethylene	0.45	4.2	No

*Indoor air concentration is derived by multiplying the maximum concentration of each COPC in soil gas by the AF of 0.03.

All indoor air concentrations are less than the RSL with the exception of benzene and chloroform at Broadway Proper and chloroform at Kenyon Terrace.

8.0 REFERENCES

Amdur, M.O. et al., 1991. Casarett and Doull's Toxicology, The Basic Science of Poisons. 4th ed., Pergamon Press, N.Y.

American Society for Testing and Materials (ASTM). 2000. Standard Guide for Risk-Based Corrective Action. E2081-00.

Arizona Department of Environmental Quality/Arizona Department of Health Services (ADEQ/ADHS), 2003. Deterministic Risk Assessment Guidance. Prepared by the ADHS Office of Environmental Health. May 16.

Arizona Department of Environmental Quality (ADEQ), 2007 Arizona Administrative Code (A.A.C.). Title 18 - Environmental Quality, Chapter 7 -Department of Environmental Quality Remedial Action, Article 2. Soil Remediation http://www.azsos.gov/public_services/title_18/18-07.htm

Arizona Department of Environmental Quality (ADEQ), 2013. Personal communication with G. Wagenseller and W. Ellett. July 16.

Johnson, P.C. and Ettinger, R.A., 1991. Heuristic model for predicting the intrusion rate of contaminant vapors into buildings. Environ. Sci. and Technol., 25:1445-1452.

National Academy of Sciences (NAS). 1983. Risk Assessment in the Federal Government: Managing the Process. National Academy Press.

SECOR International Incorporated, 2004. Summary of Surface Soil Sampling Conducted at the Closed Broadway North Landfill, Broadway-Pantano WQARF Site, Technical Memorandum, October 5.

U.S. Environmental Protection Agency (U.S. EPA). 1986. Guidelines for health risk assessment of chemical mixtures. U.S. Environmental Protection Agency, Federal Register 51(185):34104–34025.

U.S. Environmental Protection Agency (U.S. EPA). 1989. Risk Assessment Guidance for Superfund: Volume I—Human Health Evaluation Manual (Part A). Interim Final. Office of Emergency and Remedial Response, Washington, D.C. U.S. EPA/540/1-89/002. December.

U.S. Environmental Protection Agency (U.S. EPA). 1990. National Oil and Hazardous Substances Pollution Contingency Plan. U.S. Environmental Protection Agency, Federal Register 55:8666. http://www.epa.gov/osweroe1/content/lawsregs/ncpover.htm

U.S. Environmental Protection Agency (U.S. EPA). 1992a. Guidelines for Exposure Assessment. Federal Register, 57(104):22888-22938. May 29.

U.S. Environmental Protection Agency (U.S. EPA). 1992b. Guidance for Data Usability in Risk Assessment. Part A. Office of Emergency and Remedial Response, Washington D.C. Publication 9285.7-09A. PB92-963356. April.

USEPA. 2000. Supplemental Guidance to RAGS: Region 4 Bulletins, Human Health Risk Assessment Bulletins. EPA Region 4, originally published November 1995, Website version last updated May. http://www.epa.gov/region4/superfund/programs/riskassess/healtbul.html#hhexp

USEPA, 2002a. OSWER Draft Guidance for Evaluating the Vapor Intrusion to Indoor Air Pathway from Groundwater and Soils (Subsurface Vapor Intrusion Guidance). Office of Solid Waste and Emergency Response (OSWER), November. http://www.epa.gov/correctiveaction/eis/vapor/complete.pdf

USEPA, 2002b. Supplemental Guidance for Developing Soil Screening Levels for Superfund Sites. Office of Solid Waste and Emergency Response, Washington, DC. OSWER 9355.4-24. December.

USEPA. 2004. User's Guide for Evaluating Subsurface Vapor Intrusion into Buildings. Prepared by Environmental Quality Management, Inc. for the U.S. Environmental Protection Agency (Office of Emergency and Remedial Response, Washington, D.C.). Revised February 22.

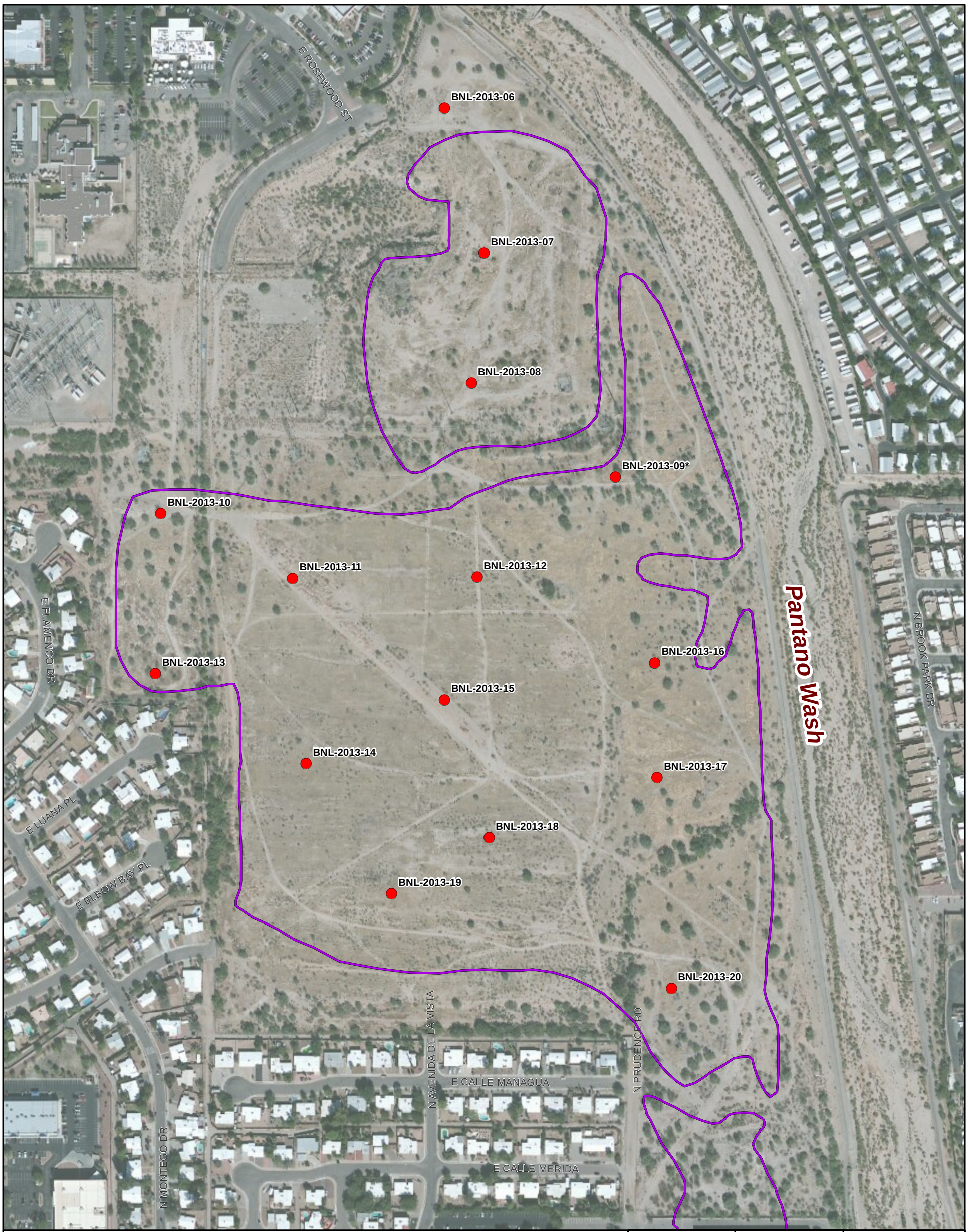
USEPA, 2009. Risk Assessment Guidance for Superfund Volume I: Human Health Evaluation Manual (Part F, Supplemental Guidance for Inhalation Risk Assessment) Final. EPA-540-R-070-002. January.

USEPA, 2013a. Regional Screening Levels (RSLs). Pacific Southwest, Region 9. May. http://www.epa.gov/region9/superfund/prg/

USEPA,2013b. Integrated Risk Information System. U.S. EPA on-line database: http://www.epa.gov/iris/index.html.

USEPA. 2013c. OSWER Final Guidance for Assessing and Mitigating the Vapor Intrusion Pathway from Subsurface Sources to Indoor Air (External Review Draft).

APPENDIX L
FIGURES



Legend

- Temporary Soil Gas Probe
- Landfill Operable Unit Boundary**

0 300 600 Feet

1 inch:300 feet

Job No. 233005

Revision: A

CLEAR CREEK ASSOCIATES

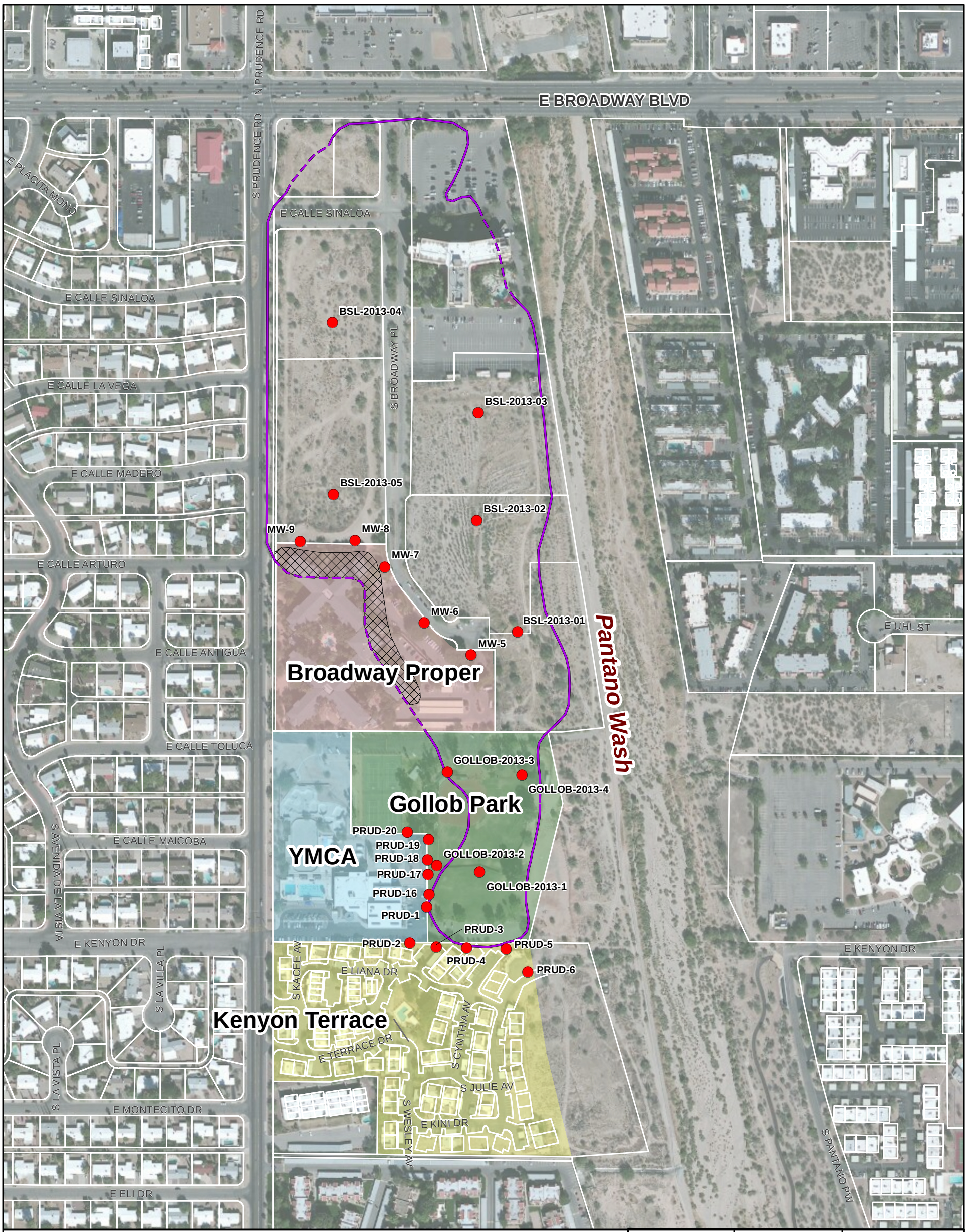
Notes:
**Probe removed prior to sampling event*
***LOU RI Extent for BNL from Stantec, 2012*

Map Projection: NAD 1983 UTM Zone 12N

Service Layer Credits: Source: Esri, DigitalGlobe, GeoEye, i-cubed, USDA, USGS, AEX, Getmapping, Aerogrid, IGN, IGP, and the GIS User Community

Figure L1
Soil Gas Sampling Locations
Broadway North Landfill

Document Path: \\PHX-FILE1\Tucson\Data\Projects\ADEQ\BP LOU RI\GIS Files\FigL1 BNL SoilSamplingLocations 11x17p.mxd



Legend

- Soil Gas Probe
- Extent of Refuse*
- Estimated Extent of Refuse Removed**
- Parcel Boundary

Exposure Areas

- Broadway Proper
- YMCA
- Gollob Park
- Kenyon Terrace

0 300 600 Feet

1 inch:300 feet

Notes:
**Refuse was reported to have been removed at Hilton, Culver's, and Broadway Proper prior to construction of the buildings. The areas of removal were not documented. The "Extent of Refuse" boundary is dashed in areas where removal may have occurred.*

***Estimated extent of refuse removed during construction operations at Broadway Proper (Brinsko, 1989).*

Map Projection: NAD 1983 UTM Zone 12N

Service Layer Credits: Source: Esri, DigitalGlobe, GeoEye, i-cubed, USDA, USGS, AEX, Getmapping, Aerogrid, IGN, IGP, and the GIS User Community

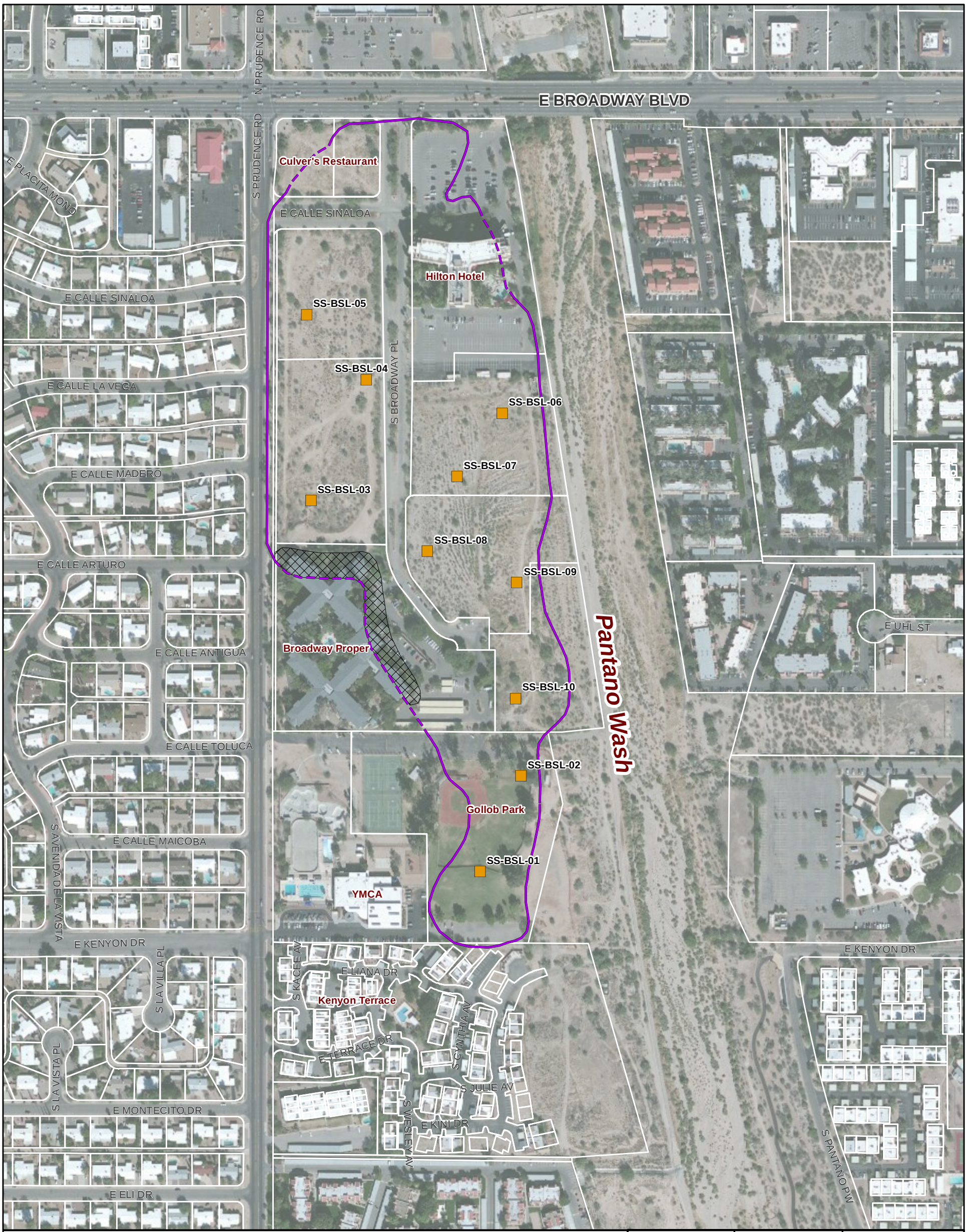
Job No. 233005

Revision: A

CLEAR CREEK ASSOCIATES

Figure L2
Soil Gas Sampling Locations for BSL, Broadway Proper, YMCA, Kenyon Terrace, and Gollob Park

Document Path: \\PHX-FILE1\Tucson\Data\Projects\ADEQ\BP LOU RI\GIS Files\FigL2 BSL SamplingLocationsAndExpAreas 11x17p.mxd



Legend

- Shallow Soil Sample Location*
- Extent of Refuse**
- Estimated Extent of Refuse Removed***
- Parcel Boundary

0 300 600 Feet

1 inch:300 feet

Notes:
**Shallow soil samples collected in March 2013.*

***Refuse was reported to have been removed at Hilton, Culver's, and Broadway Proper prior to construction of the buildings. The areas of removal were not documented. The "Extent of Refuse" boundary is dashed in areas where removal may have occurred.*

****Estimated extent of refuse removed during construction operations at Broadway Proper (Brinsko, 1989).*

Map Projection: NAD 1983 UTM Zone 12N

Service Layer Credits: Source: Esri, DigitalGlobe, GeoEye, i-cubed, USDA, USGS, AEX, Getmapping, Aerogrid, IGN, IGP, and the GIS User Community

Job No. 233005

Revision: A

CLEAR CREEK ASSOCIATES

Figure L3
Shallow Soil Sampling Locations
Broadway South Landfill

Document Path: \\PHX-FILE1\Tucson\Data\Projects\ADEQ\BP LOU RI\GIS Files\FigL3 BSL SoilSamplingLocations 11x17p.mxd

APPENDIX L
TABLES

Table L1 **Chemicals of Potential Concern Selection for Soil Gas**
Broadway North Landfill

Detected Chemicals	Minimum Detected Concentration mg/m^3	Maximum Detected Concentration mg/m^3	Sample ID of Maximum	Screening Level* mg/m^3	COPC?
1,1,1-Trichloroethane	0.005989	0.005989	BNL-2013-12	22	No
1,2,4-Trimethylbenzene	0.002208	0.588735	BNL-2013-17	0.06	Yes
1,2-Dichlorobenzene	0.0156	0.0156	BNL-2013-17	2	No
1,2-Dichloroethane	0.006465	0.006465	BNL-2013-11	0.00094	Yes
1,2-Dichlorotetrafluoroethane	0.022322	1.674122	BNL-2013-08	None	No**
1,3,5-Trimethylbenzene	0.00368	0.269837	BNL-2013-17	0.06	Yes
1,4-Dichlorobenzene	0.00372	0.18	BNL-2013-08	8	No
Benzene	0.001817	0.060567	BNL-2013-19	0.0031	Yes
Chloroform	0.003411	0.443486	BNL-2013-08	0.0011	Yes
Chloromethane	0.00136	0.00136	BNL-2013-13	0.024	No
cis-1,2-Dichloroethylene	0.013447	0.083057	BNL-2013-08	0.35	No
Dichlorodifluoromethane	0.003306	3.256897	BNL-2013-08	2	Yes
Ethylbenzene	0.002124	0.394457	BNL-2013-17	0.022	Yes
Methylene Chloride	0.003465	0.028416	BNL-2013-17	0.052	No
Styrene	0.002209	0.029318	BNL-2013-17	10	No
Tetrachloroethylene (PCE)	0.005888	0.189486	BNL-2013-08	0.0081	Yes
Toluene	0.002218	0.319531	BNL-2013-17	4	No
Trichloroethylene (TCE)	0.003862	0.064359	BNL-2013-08	0.00022	Yes
Trichlorofluoromethane	0.002692	0.033649	BNL-2013-20	7	No
Vinyl Chloride	0.007143	0.028061	BNL-2013-14	0.0028	Yes
Xylenes, Total	0.006502	0.736898	BNL-2013-08	70	No

* OSWER Draft Guidance for Evaluating the Vapor Intrusion to Indoor Air Pathway from Groundwater and Soils (Subsurface Vapor Intrusion Guidance). USEPA, 2002. Table 2c. Screening value converted to mg/m^3 by dividing by 1000 µg/mg.
** No toxicity value. Please see the Uncertainty Section.

Table L2 **Chemicals of Potential Concern Selection for Soil Gas**
Broadway South Landfill

Detected Chemicals	Minimum Detected Concentration mg/m^3	Maximum Detected Concentration mg/m^3	Sample ID of Maximum	Screening Level* mg/m^3	COPC?
1,2,4-Trimethylbenzene	0.002404	0.01619	BSL-2013-03	0.06	No
1,2-Dichlorotetrafluoroethane	0.006696	0.055107	BSL-2013-050	None	No**
Benzene	0.002486	0.029965	BSL-2013-03	0.0031	Yes
Chloromethane	0.012573	0.012573	BSL-2013-010	0.024	No
cis-1,2-Dichloroethylene	0.011865	0.016611	BSL-2013-03	0.35	No
Dichlorodifluoromethane	0.003652	0.064151	BSL-2013-03	2	No
Ethylbenzene	0.001864	0.056351	BSL-2013-050	0.022	Yes
Methylene Chloride	0.002287	0.013168	BSL-2013-03	0.052	No
Styrene	0.001912	0.182706	BSL-2013-050	10	No
Tetrachloroethylene (PCE)	0.008121	0.023686	BSL-2013-04	0.0081	Yes
Toluene	0.005639	0.022931	BSL-2013-03	4	No
Vinyl Chloride	0.003827	0.006633	BSL-2013-03	0.0028	Yes
Xylenes, Total	0.006502	0.009536	BSL-2013-050	70	No

* OSWER Draft Guidance for Evaluating the Vapor Intrusion to Indoor Air Pathway from Groundwater and Soils (Subsurface Vapor Intrusion Guidance). USEPA, 2002. Table 2c. Screening value converted to mg/m^3 by dividing by 1000 µg/mg.
** No toxicity value. Please see the Uncertainty Section.

Table L3 **Chemicals of Potential Concern Selection for Soil**
Broadway South Landfill

Detected Chemicals	Minimum Detected Concentration mg/kg	Maximum Detected Concentration mg/kg	Sample ID of Maximum	ADEQ Residential Soil Remediation Level (SRL)* mg/kg	COPC?
Arsenic	1.1	2	SS-BSL-06	10	No
Barium	33	85	SS-BSL-02	15000	No
Cadmium	0.37	0.37	SS-BSL-01	39	No
Chromium	2.5	11	SS-BSL-02	30	No
Lead	4.6	15	SS-BSL-01	400	No
Mercury	0.11	0.13	SS-BSL-02	23	No
Silver	1	1.1	SS-BSL-01	390	No

* Arizona Department of Environmental Quality (ADEQ), 2007 Arizona Administrative Code (A.A.C.). Title 18 - Environmental Quality, Chapter 7 -Department of Environmental Quality Remedial Action, Article 2. Soil Remediation http://www.azsos.gov/public_services/title_18/18-07.htm. Residential Soil Remediation Levels.
Note: The SRL for hexavalent chromium used for chromium.

Table L4 **Chemicals of Potential Concern Selection for Soil Gas**
Gollob Park Area

Detected Chemicals	Minimum Detected Concentration mg/m^3	Maximum Detected Concentration mg/m^3	Sample ID of Maximum	Screening Level* mg/m^3	COPC?
1,1-Dichloroethane	0.003394	0.003394	GOLLOB-2013-2	5	No
1,1-Dichloroethene	0.024126	0.024126	GOLLOB-2013-2	2	No
1,2,4-Trimethylbenzene	0.026984	0.026984	GOLLOB-2013-2	0.06	No
1,2-Dichloropropane	0.040127	0.040127	GOLLOB-2013-2	0.04	Yes
1,2-Dichlorotetrafluoroethane	0.004674	4.185306	GOLLOB-2013-2	None	No**
1,3,5-Trimethylbenzene	0.017662	0.017662	GOLLOB-2013-2	0.06	No
1,4-Dichlorobenzene	0.0378	0.0378	GOLLOB-2013-2	8	No
Benzene	0.041441	0.239082	GOLLOB-2013-2	0.0031	Yes
Chloroform	0.025342	0.035576	GOLLOB-2013-2	0.0011	Yes
cis-1,2-Dichloroethylene	0.033618	0.751469	GOLLOB-2013-4	0.35	Yes
Dichlorodifluoromethane	0.003898	5.921632	GOLLOB-2013-2	2	Yes
Ethylbenzene	0.013871	0.060686	GOLLOB-2013-4	0.022	Yes
Methylene Chloride	0.019406	0.162869	GOLLOB-2013-2	0.052	Yes
Styrene	0.004674	0.020395	GOLLOB-2013-4	10	No
Tetrachloroethylene (PCE)	0.014211	3.925061	GOLLOB-2013-2	0.0081	Yes
Toluene	0.002143	0.082702	GOLLOB-2013-4	4	No
trans-1,2-Dichloroethene	0.106788	0.106788	GOLLOB-2013-2	0.7	No
Trichloroethylene (TCE)	0.030034	3.593388	GOLLOB-2013-2	0.00022	Yes
Trichlorofluoromethane	1.233796	1.233796	GOLLOB-2013-2	7	No
Vinyl Chloride	0.024235	0.089286	GOLLOB-2013-4	0.0028	Yes
Xylenes, Total	0.117037	0.13871	GOLLOB-2013-4	70	No

* OSWER Draft Guidance for Evaluating the Vapor Intrusion to Indoor Air Pathway from Groundwater and Soils (Subsurface Vapor Intrusion Guidance). USEPA, 2002. Table 2c. Screening value converted to mg/m^3 by dividing by 1000 µg/mg.

Table L5 **Chemicals of Potential Concern Selection for Soil Gas**
YMCA Area

Detected Chemicals	Minimum Detected Concentration mg/m^3	Maximum Detected Concentration mg/m^3	Sample ID of Maximum	Screening Level* mg/m^3	COPC?
1,2,4-Trimethylbenzene	0.002257	0.006869	PRUD-17-100	0.06	No
1,2-Dichlorotetrafluoroethane	0.003906	0.003906	PRUD-19-25	None	No**
Chloroform	0.003119	0.01462	PRUD-16-15	0.0011	Yes
Chloromethane	0.001175	0.001505	PRUD-19-10	0.024	No
Dichlorodifluoromethane	0.002763	0.01283	PRUD-1	2	No
Ethylbenzene	0.002688	0.005635	PRUD-16-25	0.022	No
Methylene Chloride	0.001733	0.002322	PRUD-17-100	0.052	No
Styrene	0.002974	0.009348	PRUD-16-25	10	No
Tetrachloroethylene (PCE)	0.006091	0.050078	PRUD-16-15	0.0081	Yes
Toluene	0.004887	0.013157	PRUD-17-25	4	No
Trichloroethylene (TCE)	0.002413	0.002413	PRUD-19-25	0.00022	Yes
Xylenes, Total	0.005635	0.025141	PRUD-16-25	70	No

* OSWER Draft Guidance for Evaluating the Vapor Intrusion to Indoor Air Pathway from Groundwater and Soils (Subsurface Vapor Intrusion Guidance). USEPA, 2002. Table 2c. Screening value converted to mg/m^3 by dividing by 1000 µg/mg.
** No toxicity value. Please see the Uncertainty Section.

Table L6 **Chemicals of Potential Concern Selection for Soil Gas**
Broadway Proper Area

Detected Chemicals	Minimum Detected Concentration mg/m^3	Maximum Detected Concentration mg/m^3	Sample ID of Maximum	Screening Level* mg/m^3	COPC?
1,2,4-Trimethylbenzene	0.002895	0.004906	MW-7	0.06	No
1,2-Dichlorotetrafluoroethane	0.014649	0.223216	MW-7	None	No**
1,4-Dichlorobenzene	0.00432	0.00504	MW-9	8	No
Benzene	0.001881	0.017214	MW-5	0.0031	Yes
Chloroform	0.002242	0.025829	MW-9	0.0011	Yes
Chloromethane	0.037102	0.037102	MW-7	0.024	Yes
cis-1,2-Dichloroethylene	0.063282	0.063282	MW-7	0.35	No
Dichlorodifluoromethane	0.019739	0.049347	MW-9	2	No
Ethylbenzene	0.002297	0.010403	MW-5	0.022	No
Methylene Chloride	0.004158	0.004158	MW-6	0.052	No
Styrene	0.002379	0.008498	MW-8	10	No
Tetrachloroethylene (PCE)	0.005752	0.03113	MW-5	0.0081	Yes
Toluene	0.001804	0.01015	MW-9	4	No
trans-1,2-Dichloroethene	0.003283	0.003283	MW-7	0.7	No
Xylenes, Total	0.010403	0.013004	MW-7	70	No

* OSWER Draft Guidance for Evaluating the Vapor Intrusion to Indoor Air Pathway from Groundwater and Soils (Subsurface Vapor Intrusion Guidance). USEPA, 2002. Table 2c. Screening value converted to mg/m^3 by dividing by 1000 µg/mg.
Note: Chloromethane is listed as methyl chloride in USEPA, 2002.
** No toxicity value. Please see the Uncertainty Section.

Table L7 **Chemicals of Potential Concern Selection for Soil Gas**
Kenyon Terrace Area

Detected Chemicals	Minimum Detected Concentration mg/m^3	Maximum Detected Concentration mg/m^3	Sample ID of Maximum	Screening Level* mg/m^3	COPC?
1,2,4-Trimethylbenzene	0.002502	0.009322	PRUD-2	0.06	No
1,2-Dichlorotetrafluoroethane	0.003069	0.009068	PRUD-3	None	No**
1,3,5-Trimethylbenzene	0.002502	0.002502	PRUD-2	0.06	No
Chloroform	0.002047	0.004873	PRUD-3	0.0011	Yes
Dichlorodifluoromethane	0.003553	0.018258	PRUD-4	2	No
Ethylbenzene	0.002557	0.004335	PRUD-2	0.022	No
Styrene	0.002804	0.008073	PRUD-4	10	No
Tetrachloroethylene (PCE)	0.008798	0.014888	PRUD-2	0.0081	Yes
Toluene	0.007894	0.011278	PRUD-2	4	No
Trichlorofluoromethane	0.004599	0.004599	PRUD-6	7	No
Xylenes, Total	0.011704	0.025141	PRUD-2	70	No

* OSWER Draft Guidance for Evaluating the Vapor Intrusion to Indoor Air Pathway from Groundwater and Soils (Subsurface Vapor Intrusion Guidance). USEPA, 2002. Table 2c. Screening value converted to mg/m^3 by dividing by 1000 µg/mg.
** No toxicity value. Please see the Uncertainty Section.

Table L8 **Toxicity Criteria for All Chemicals of Potential Concern**

Detected Chemicals	Reference Concentration mg/m^3	Inhalation Unit Risk $(\mu g/m^3)^{-1}$	Source
1,2,4-Trimethylbenzene	5.95E-03	NA	J&E Model
1,2-Dichloroethane	NA	2.60E-05	J&E Model
1,3,5-Trimethylbenzene	5.95E-03	NA	J&E Model
1,2-Dichloropropane	4.00E-03	1.94E-05	J&E Model
Benzene	3.00E-02	7.80E-06	J&E Model
Chloroform	NA	2.30E-05	J&E Model
Chloromethane	9.00E-02	1.00E-06	J&E Model
cis-1,2-Dichloroethylene	3.50E-02	NA	J&E Model
Dichlorodifluoromethane	2.00E-01	NA	J&E Model
Ethylbenzene	1.00E+00	NA	J&E Model
Methylene Chloride	3.01E+00	4.70E-07	J&E Model
Tetrachloroethylene (PCE)	6.00E-01	5.90E-06	J&E Model
Trichloroethylene (TCE)	4.00E-02	1.10E-04	J&E Model
Vinyl Chloride	1.00E-01	8.80E-06	J&E Model

NA Not available.

Table L9 **Receptor Exposure Parameters**

Parameter	Value	Units	Source
Residential Scenario (Child/Adult):			
Exposure time:	24	hours/day	USEPA, 2000
Exposure frequency:	350	days/year	USEPA, 2000
Exposure duration:	30	years	USEPA, 2000
Averaging Time:			
Noncarcinogens:	262800	hours	USEPA, 2009
Carcinogens:	613200	hours	USEPA, 2009
Adolescent Trespasser Scenario (7-16 year old):			
Exposure time:	4	hours/day	USEPA, 2000
Exposure frequency:	52	days/year	USEPA, 2000
Exposure duration:	10	years	USEPA, 2000
Averaging Time:			
Noncarcinogens:	87600	hours	USEPA, 2009
Carcinogens:	613200	hours	USEPA, 2009
Adult Outdoor Worker:			
Exposure time:	8	hours/day	USEPA, 2009
Exposure frequency:	250	days/year	USEPA, 2002b
Exposure duration:	25	years	USEPA, 2002b
Averaging Time:			
Noncarcinogens:	219000	hours	USEPA, 2009
Carcinogens:	613200	hours	USEPA, 2009
Adult Indoor Worker:			
Exposure time:	8	hours/day	USEPA, 2009
Exposure frequency:	250	days/year	USEPA, 2002b
Exposure duration:	25	years	USEPA, 2002b
Averaging Time:			
Noncarcinogens:	219000	hours	USEPA, 2009
Carcinogens:	613200	hours	USEPA, 2009

Table L10 Soil Gas Concentrations for COPCs – Broadway North Landfill

Sample Identification	Depth feet	Benzene mg/m^3	Chloroform mg/m^3	Dichlorodifluoromethane mg/m^3	Ethylbenzene mg/m^3	Tetrachloroethylene mg/m^3	Trichloroethylene mg/m^3	Vinyl Chloride mg/m^3	1,2,4-Trimethylbenzene mg/m^3	1,2-Dichloroethane mg/m^3	1,3,5-Trimethylbenzene mg/m^3
BNL-06	5	0.00018	0.0263	1.23	0.0030	0.0386	0.00032	0.000079	0.0022	0.00024	0.00034
BNL-07	5	0.00018	0.00024	0.642	0.00035	0.0122	0.00032	0.000079	0.0003925	0.00024	0.00034
BNL-08	5	0.0217	0.443	3.26	0.28	0.189	0.064	0.00969	0.280	0.001	0.016
BNL-10	5	0.00073	0.00097	0.013	0.0014	0.0014	0.00126	0.00032	0.00162	0.001	0.0014
BNL-11	5	0.0169	0.00024	0.013	0.0286	0.00034	0.00386	0.000079	0.0231	0.0065	0.00834
BNL-12	5	0.0018	0.063	0.13	0.00035	0.00034	0.00032	0.000079	0.0003925	0.00024	0.0003435
BNL-13	5	0.00018	0.00024	0.0033	0.00035	0.00034	0.00032	0.000079	0.00834	0.00024	0.0003435
BNL-14	5	0.0574	0.00124	0.089	0.0017	0.00173	0.00158	0.0281	0.00204	0.00125	0.001766
BNL-15	5	0.0051	0.00024	0.024	0.0036	0.00034	0.00032	0.000079	0.0540	0.00024	0.038268
BNL-16	5	0.00018	0.00024	0.011	0.0028	0.0108	0.00032	0.000079	0.0003925	0.00024	0.0003435
BNL-17	5	0.0230	0.112	3.16	0.394	0.041	0.0225	0.00714	0.589	0.001	0.269837
BNL-18	5	0.0038	0.0034	0.046	0.0022	0.00034	0.00032	0.000079	0.00290	0.00024	0.0003435
BNL-19	5	0.0606	0.0012	0.49	0.0017	0.0017	0.00158	0.00995	0.00204	0.00125	0.001766
BNL-20	5	0.00018	0.00024	0.036	0.0021	0.0059	0.00032	0.000079	0.00589	0.00024	0.00368

Table L11 Soil Gas Concentrations for COPCs – Broadway South Landfill

Sample Identification	Depth Feet	Benzene mg/m^3	Ethylbenzene mg/m^3	Tetrachloroethylene mg/m^3	Vinyl chloride mg/m^3
BSL-01	5	0.0015	0.0028	0.0027	0.00063
BSL-02	5	0.0025	0.00035	0.00034	0.000079
BSL-03	5	0.03	0.0014	0.0014	0.0066
BSL-04	5	0.0028	0.0019	0.024	0.000079
BSL-05	5	0.0061	0.048	0.0081	0.000079

Table L12 Soil Gas Concentrations for COPCs – Gollob Park

Sample Identification	Depth feet	1,2-Dichloropropane mg/m^3	Benzene mg/m^3	Chloroform mg/m^3	cis 1,2-Dichloroethylene mg/m^3	Dichlorodifluoromethane mg/m^3	Ethylbenzene mg/m^3	Methylene Chloride mg/m^3	Tetrachloroethylene mg/m^3	Trichloroethylene mg/m^3	Vinyl Chloride mg/m^3
Gollob-2013-1	18	0.0025	0.0414	0.00197	0.0336	0.0257	0.0139	0.00121	0.0284	0.03	0.000625
Gollob-2013-2	10	0.04	0.2391	0.0356	0.2729	5.921	0.00069	0.1629	3.925	3.59	0.024
Gollob-2013-3	8.7	0.000323	0.000176	0.0253	0.00019	0.0039	0.00034	0.00015	0.0142	0.000322	0.000079
Gollob-2013-4	22.5	0.00323	0.1148	0.00244	0.751	0.0473	0.0607	0.0194	0.0034	0.0536	0.089

Table L13 Soil Gas Concentrations for COPCs – YMCA

Sample Identification	Depth feet	Chloroform mg/m^3	Tetrachloroethylene mg/m^3	Trichloroethylene mg/m^3
Prud 19-10	10	0.00312	0.00034	0.00032
Prud 1	10	0.00366	0.0413	0.00032
Prud 17 FD	100	0.00414	0.0122	0.00032
Prud 18-25	25	0.00434	0.00034	0.00032
Prud 17-10	10	0.00473	0.0135	0.00032
Prud 17-25	25	0.00478	0.0183	0.00032
Prud 19-25	25	0.00585	0.0102	0.0024
Prud 16-25	25	0.00731	0.0399	0.00032
Prud 16-15	15	0.0146	0.0501	0.00032
Prud 18-10	10	0.00024	0.00034	0.00032
Prud 20-25	25	0.00024	0.0061	0.00032
Prud 20-10	10	0.00024	0.0066	0.00032

Table L14 Soil Gas Concentrations for COPCs – Broadway Proper

Sample Identification	Depth feet	Benzene mg/m^3	Chloroform mg/m^3	Chloromethane mg/m^3	Tetrachloroethylene mg/m^3
MW-5	10	0.0172	0.0012	0.00028	0.0311
MW-6	10	0.00018	0.0022	0.000057	0.00034
MW-7	10	0.0128	0.0054	0.0371	0.00034
MW-8	10	0.0019	0.018	0.000057	0.0058
MW-9	10	0.00233	0.026	0.000057	0.00034

Table L15 **Soil Gas Concentrations for COPCs – Kenyon Terrace**

Sample Identification	Depth feet	Chloroform mg/m^3	Tetrachloroethylene mg/m^3
Prud 2	10	0.00205	0.0149
Prud 3	10	0.0049	0.0088
Prud 4	10	0.00024	0.00034
Prud 5	10	0.00024	0.0129
Prud 6	10	0.00024	0.00034

Table L16 **Outdoor Air Modeling Parameters**

Parameter	Units	Value	Notes
Dispersion factor (Q/C)	g/m^2-sec per kg/m^2	60.64	Calculated per USEPA guidance (2002); Phoenix, Arizona
Emission area	acre	0.5	Assumed
Dispersion factor constants:			
A	unitless	10.2871	USEPA default; Phoenix, Arizona
B	unitless	18.7124	USEPA default; Phoenix, Arizona
C	unitless	212.2704	USEPA default; Phoenix, Arizona
Soil gas sampling depth below grade	cm	Variable	Sample-specific: shallowest sample (5 - 25 feet below ground surface)
Vadose zone soil type	unitless	Sand	Conservative assumption
Vadose zone total porosity	cm^3/cm^3	0.375	Johnson and Ettinger model default for sand
Soil water filled porosity	cm^3/cm^3	0.054	Johnson and Ettinger model default for sand
Soil air-filled porosity	cm^3/cm^3	0.321	Calculated; total porosity minus water filled porosity
Effective diffusion coefficient	cm^2/sec	chemical-specific	Calculated using USEPA 2002b equations
Diffusivity in air	cm^2/sec	chemical-specific	Johnson and Ettinger model value
Diffusivity in water	cm^2/sec	chemical-specific	Johnson and Ettinger model value
Henry's law constant	dimensionless	chemical-specific	Johnson and Ettinger model value

USEPA, 2002b. Supplemental Guidance for Developing Soil Screening Levels for Superfund Sites. Office of Solid Waste and Emergency Response, Washington, DC. OSWER 9355.4-24. December.

Table L17 **Indoor Air (Johnson & Ettinger) Modeling Parameters***

Parameter	Units	Value	Notes
Depth below grade to bottom of enclosed space floor	cm	15	Model default; shollow nest sample (5 - 25 feet)
Soil gas sampling depth below grade	cm	Variable	Sample-specific: shallowest sample (5 - 25 feet below ground surface)
Average soil temperature	Centigrade	19	USEPA 2002, Appendix D for Arizona
Vadose zone soil type	--	Sand	Conservative assumption
Vadose zone soil dry bulk density	g/cm^3	1.66	Model default for sand
Vadose zone total porosity	cm^3/cm^3	0.375	Model default for sand
Soil water filled porosity	cm^3/cm^3	0.054	Model default for sand
Average vapor flow rate into building	L/m	5	Model default
Enclosed space floor length	cm	1000	Model default
Enclosed space floor width	cm	1000	Model default
Enclosed space height	cm	243.8	Model default
Floor wall seam crack width	cm	0.1	Model default
Indoor air exchange rate	ex/hr	0.25	Model default

*USEPA's SCREEN J&E model (2004) was used for the indoor air risk calculations.

Table L18 **Risk Characterization: Broadway North Landfill***
Current/Future Scenario: Outdoor Trespasser

Chemical	Incremental Lifetime Cancer Risk	Hazard Index
Benzene	2.5E-11	0.00074
Ethylbenzene	NA	0.00012
Tetrachloroethene	4.8E-11	0.000094
Vinyl chloride	1.6E-11	0.00012
Chloroform	6.3E-10	NA
Dichlorodifluoromethane	NA	0.0045
Trichloroethene	3.3E-10	0.00053
1,2,4-Trichlorobenzene	NA	0.025
1,2-Dichloroethane	1.0E-11	NA
1,3,5-Trimethylbenzene	NA	0.00067
Totals:	**1E-09**	**0.031**

* Risk and Hazards are based upon the maximum detected soil gas concentration.

NA Not applicable.

Table L19 **Risk Characterization: Broadway South Landfill***
Current/Future Scenario: Outdoor Trespasser

Chemical	Incremental Lifetime Cancer Risk	Hazard Index
Benzene	1.2E-11	0.00037
Ethylbenzene	NA	0.000015
Tetrachloroethene	6.0E-12	0.000012
Vinyl chloride	3.7E-12	0.000029
Total:	**2E-11**	**0.00042**

* Risk and Hazards are based upon the maximum detected soil gas concentration.

NA Not applicable.

Table L20 **Risk Characterization: Gollob Park**
Current Scenario: Outdoor Worker

Chemical	Incremental Lifetime Cancer Risk	Hazard Index
Benzene	1.2E-09	0.014
Ethylbenzene	NA	0.000040
Tetrachloroethene	1.2E-08	0.0094
Vinyl chloride	2.6E-10	0.00084
Chloroform	6.1E-10	NA
Dichlorodifluoromethane	NA	0.039
Trichloroethene	2.2E-07	0.14
Methylene chloride	5.5E-11	0.00011
1,2-Dichloropropane	4.2E-10	0.016
cis-1,2-Dichloroethylene	NA	0.014
Total:	**2E-07**	**0.23**

Table L21 **Risk Characterization: YMCA**
Current/Future Scenario: Indoor Worker

Incremental Lifetime Cancer Risks					
Sample Identification	**Depth (ft)**	**Chloroform**	**Tetrachloroethylene**	**Trichloroethylene**	**Total**
Prud 19-10	10	3.5E-08	7.8E-10	1.5E-08	**5E-08**
Prud 1	10	4.2E-08	9.5E-08	1.5E-08	**2E-07**
Prud 17-10	10	5.4E-08	3.1E-08	1.5E-08	**1E-07**
Prud 19-25	25	3.4E-08	1.1E-08	5.4E-08	**1E-07**
Prud 16-15	15	1.3E-07	8.5E-08	1.1E-08	**2E-07**
Prud 18-10	10	2.7E-09	7.8E-10	1.5E-08	**2E-08**
Prud 20-10	10	2.7E-09	1.5E-08	1.5E-08	**3E-08**

Hazard Indices					
Sample Identification	**Depth (ft)**	**Chloroform**	**Tetrachloroethylene**	**Trichloroethylene**	**Total**
Prud 19-10	10	NA	0.00000062	0.0000093	**0.000010**
Prud 1	10	NA	0.000075	0.0000093	**0.000084**
Prud 17-10	10	NA	0.000025	0.0000093	**0.000034**
Prud 19-25	25	NA	0.0000090	0.000034	**0.000043**
Prud 16-15	15	NA	0.000068	0.0000069	**0.000075**
Prud 18-10	10	NA	0.00000062	0.0000093	**0.000010**
Prud 20-10	10	NA	0.000012	0.0000093	**0.000021**

NA Not applicable.

Table L22 **Risk Characterization: Broadway Proper**
Current/Future Scenario: Indoor Resident

Incremental Lifetime Cancer Risks						
Sample Identification	**Depth (ft)**	**Benzene**	**Chloroform**	**Chloromethane**	**Tetrachloroethylene**	**Total**
MW-5	10	1.0E-07	2.3E-08	2.6E-10	1.2E-07	**2E-07**
MW-6	10	1.1E-09	4.2E-08	5.3E-11	1.3E-09	**4E-08**
MW-7	10	7.5E-08	1.0E-07	3.4E-08	1.3E-09	**2E-07**
MW-8	10	1.1E-08	3.4E-07	5.3E-11	2.2E-08	**4E-07**
MW-9	10	1.4E-08	5.0E-07	5.3E-11	1.3E-09	**5E-07**

Hazard Indices						
Sample Identification	**Depth (ft)**	**Benzene**	**Chloroform**	**Chloromethane**	**Tetrachloroethylene**	**Total**
MW-5	10	0.0010	NA	0.0000067	0.000079	**0.0011**
MW-6	10	0.000010	NA	0.0000014	0.00000087	**0.000012**
MW-7	10	0.00075	NA	0.00089	0.00000087	**0.0016**
MW-8	10	0.00011	NA	0.0000014	0.000015	**0.00013**
MW-9	10	0.00014	NA	0.0000014	0.00000087	**0.00014**

NA Not applicable.

Table L23 **Risk Characterization: Kenyon Terrace**
Current/Future Scenario: Indoor Resident

Incremental Lifetime Cancer Risks				
Sample Identification	**Depth (ft)**	**Chloroform**	**Tetrachloroethylene**	**Total**
Prud 2	10	3.9E-08	2.2E-08	**6E-08**
Prud 3	10	9.3E-08	3.4E-08	**1E-07**
Prud 4	10	4.6E-09	1.3E-09	**6E-09**
Prud 5	10	4.6E-09	5.0E-08	**5E-08**
Prud 6	10	4.6E-09	1.3E-09	**6E-09**

Hazard Indices				
Sample Identification	**Depth (ft)**	**Chloroform**	**Tetrachloroethylene**	**Total**
Prud 2	10	NA	0.000015	**0.000015**
Prud 3	10	NA	0.000022	**0.000022**
Prud 4	10	NA	0.00000087	**0.00000087**
Prud 5	10	NA	0.000033	**0.000033**
Prud 6	10	NA	0.00000087	**0.00000087**

NA Not applicable.

Table L24 **USEPA Attentuation Evalution for Indoor Air**

COPC	YMCA						
	Maximum Measured Soil Gas Concentration	ADEQ Attenuation Factor	Indoor Air Per ADEQ Attentuation Factor	Region 9 RSL for Industrial Air		ADEQ Value Greater than Industrial RSL?	
				Noncancer	Cancer		
	µg/m^3	Unitless	µg/m^3	µg/m^3	µg/m^3	Noncancer	Cancer
Chloroform	14.6	0.03	0.44	43	0.53	No	No
Tetrachloroethylene	50.1	0.03	1.50	18	47	No	No
Trichloroethylene	2.4	0.03	0.072	0.88	3	No	No

COPC	Broadway Proper						
	Maximum Measured Soil Gas Concentration	ADEQ Attenuation Factor	Indoor Air Per ADEQ Attentuation Factor	Region 9 RSL for Residential Air		ADEQ Value Greater than Residential RSL?	
				Noncancer	Cancer		
	µg/m^3	Unitless	µg/m^3	µg/m^3	µg/m^3	Noncancer	Cancer
Benzene	17.2	0.03	0.52	3.1	0.31	No	Yes
Chloroform	26	0.03	0.78	10	0.11	No	Yes
Chloromethane	37.1	0.03	1.1	9.4	NA	No	No
Tetrachloroethylene	31.1	0.03	0.93	4.2	9.4	No	No

COPC	Kenyon Terrace						
	Maximum Measured Soil Gas Concentration	ADEQ Attenuation Factor	Indoor Air Per ADEQ Attentuation Factor	Region 9 RSL for Residential Air		ADEQ Value Greater than Residential RSL?	
				Noncancer	Cancer		
	µg/m^3	Unitless	µg/m^3	µg/m^3	µg/m^3	Noncancer	Cancer
Chloroform	4.9	0.03	0.15	10	0.11	No	Yes
Tetrachloroethylene	14.9	0.03	0.45	4.2	9.4	No	No

NA: COPC is not considered carcinogenic.

APPENDIX L
ATTACHMENTS

L1 Data Usability Evaluation

L2 USEPA Outdoor Air Model Files

L3 USEPA Indoor Air (Johnson & Ettinger) Model Files

ATTACHMENT L1
DATA USABILITY EVALUATION

Attachment L1 Table1 Soil Gas Data: Broadway North Landfill

Sample Identification	Sample Date	Method	Chemical	Result mg/m^3
BNL-2013-12	2/26/2013 13:07	TO15	1,1,1-Trichloroethane	0.005989
BNL-2013-06	2/27/2013 9:20	TO15	1,2,4-Trimethylbenzene	0.002208
BNL-2013-18	2/26/2013 15:10	TO15	1,2,4-Trimethylbenzene	0.002895
BNL-2013-100	3/1/2013 9:45	TO15	1,2,4-Trimethylbenzene	0.004219
BNL-2013-20	2/26/2013 15:45	TO15	1,2,4-Trimethylbenzene	0.005887
BNL-2013-13	3/1/2013 9:54	TO15	1,2,4-Trimethylbenzene	0.00834
BNL-2013-11	2/26/2013 13:53	TO15	1,2,4-Trimethylbenzene	0.023059
BNL-2013-15	2/26/2013 14:33	TO15	1,2,4-Trimethylbenzene	0.053967
BNL-2013-08	3/1/2013 8:30	TO15	1,2,4-Trimethylbenzene	0.279649
BNL-2013-17	3/1/2013 11:13	TO15	1,2,4-Trimethylbenzene	0.588735
BNL-2013-06	2/27/2013 9:20	TO15	1,1,1-Trichloroethane	ND
BNL-2013-06	2/27/2013 9:20	TO15	1,1,2,2-Tetrachloroethane	ND
BNL-2013-06	2/27/2013 9:20	TO15	1,1,2-Trichloro-1,2,2-trifluoroethane	ND
BNL-2013-06	2/27/2013 9:20	TO15	1,1,2-Trichloroethane	ND
BNL-2013-06	2/27/2013 9:20	TO15	1,1-Dichloroethane	ND
BNL-2013-06	2/27/2013 9:20	TO15	1,1-Dichloroethene	ND
BNL-2013-06	2/27/2013 9:20	TO15	1,2,4-Trichlorobenzene	ND
BNL-2013-06	2/27/2013 9:20	TO15	1,2-Dibromoethane (EDB)	ND
BNL-2013-06	2/27/2013 9:20	TO15	1,2-Dichlorobenzene	ND
BNL-2013-06	2/27/2013 9:20	TO15	1,2-Dichloroethane	ND
BNL-2013-06	2/27/2013 9:20	TO15	1,2-Dichloropropane	ND
BNL-2013-06	2/27/2013 9:20	TO15	1,3,5-Trimethylbenzene	ND
BNL-2013-06	2/27/2013 9:20	TO15	1,3-Dichlorobenzene	ND
BNL-2013-06	2/27/2013 9:20	TO15	1,4-Dichlorobenzene	ND
BNL-2013-06	2/27/2013 9:20	TO15	Benzene	ND
BNL-2013-06	2/27/2013 9:20	TO15	Bromomethane	ND
BNL-2013-06	2/27/2013 9:20	TO15	Carbon Tetrachloride	ND
BNL-2013-06	2/27/2013 9:20	TO15	Chlorobenzene	ND
BNL-2013-06	2/27/2013 9:20	TO15	Chloroethane	ND
BNL-2013-06	2/27/2013 9:20	TO15	Chloromethane	ND
BNL-2013-06	2/27/2013 9:20	TO15	cis-1,2-Dichloroethylene	ND
BNL-2013-06	2/27/2013 9:20	TO15	cis-1,3-Dichloropropene	ND
BNL-2013-06	2/27/2013 9:20	TO15	Hexachlorobutadiene	ND
BNL-2013-06	2/27/2013 9:20	TO15	Methylene Chloride	ND
BNL-2013-06	2/27/2013 9:20	TO15	trans-1,2-Dichloroethene	ND
BNL-2013-06	2/27/2013 9:20	TO15	trans-1,3-Dichloropropene	ND
BNL-2013-06	2/27/2013 9:20	TO15	Trichloroethene (TCE)	ND
BNL-2013-06	2/27/2013 9:20	TO15	Trichlorofluoromethane	ND
BNL-2013-06	2/27/2013 9:20	TO15	Vinyl Chloride	ND
BNL-2013-17	3/1/2013 11:13	TO15	1,2-Dichlorobenzene	0.0156
BNL-2013-11	2/26/2013 13:53	TO15	1,2-Dichloroethane	0.006465
BNL-2013-20	2/26/2013 15:45	TO15	1,2-Dichlorotetrafluoroethane	0.022322
BNL-2013-100	3/1/2013 9:45	TO15	1,2-Dichlorotetrafluoroethane	0.038365
BNL-2013-10	3/1/2013 9:15	TO15	1,2-Dichlorotetrafluoroethane	0.048829
BNL-2013-15	2/26/2013 14:33	TO15	1,2-Dichlorotetrafluoroethane	0.104633
BNL-2013-07	3/1/2013 7:53	TO15	1,1,1-Trichloroethane	ND
BNL-2013-07	3/1/2013 7:53	TO15	1,1,2,2-Tetrachloroethane	ND
BNL-2013-07	3/1/2013 7:53	TO15	1,1,2-Trichloro-1,2,2-trifluoroethane	ND
BNL-2013-07	3/1/2013 7:53	TO15	1,1,2-Trichloroethane	ND
BNL-2013-07	3/1/2013 7:53	TO15	1,1-Dichloroethane	ND
BNL-2013-07	3/1/2013 7:53	TO15	1,1-Dichloroethene	ND
BNL-2013-07	3/1/2013 7:53	TO15	1,2,4-Trichlorobenzene	ND
BNL-2013-07	3/1/2013 7:53	TO15	1,2,4-Trimethylbenzene	ND
BNL-2013-07	3/1/2013 7:53	TO15	1,2-Dibromoethane (EDB)	ND
BNL-2013-07	3/1/2013 7:53	TO15	1,2-Dichlorobenzene	ND
BNL-2013-07	3/1/2013 7:53	TO15	1,2-Dichloroethane	ND

Attachment L1 Table1 Soil Gas Data: Broadway North Landfill

Sample Identification	Sample Date	Method	Chemical	Result mg/m^3
BNL-2013-07	3/1/2013 7:53	TO15	1,2-Dichloropropane	ND
BNL-2013-07	3/1/2013 7:53	TO15	1,3,5-Trimethylbenzene	ND
BNL-2013-07	3/1/2013 7:53	TO15	1,3-Dichlorobenzene	ND
BNL-2013-07	3/1/2013 7:53	TO15	1,4-Dichlorobenzene	ND
BNL-2013-07	3/1/2013 7:53	TO15	Benzene	ND
BNL-2013-07	3/1/2013 7:53	TO15	Bromomethane	ND
BNL-2013-07	3/1/2013 7:53	TO15	Carbon Tetrachloride	ND
BNL-2013-07	3/1/2013 7:53	TO15	Chlorobenzene	ND
BNL-2013-07	3/1/2013 7:53	TO15	Chloroethane	ND
BNL-2013-07	3/1/2013 7:53	TO15	Chloroform	ND
BNL-2013-07	3/1/2013 7:53	TO15	Chloromethane	ND
BNL-2013-07	3/1/2013 7:53	TO15	cis-1,2-Dichloroethylene	ND
BNL-2013-07	3/1/2013 7:53	TO15	cis-1,3-Dichloropropene	ND
BNL-2013-07	3/1/2013 7:53	TO15	Ethylbenzene	ND
BNL-2013-07	3/1/2013 7:53	TO15	Hexachlorobutadiene	ND
BNL-2013-07	3/1/2013 7:53	TO15	Methylene Chloride	ND
BNL-2013-07	3/1/2013 7:53	TO15	Styrene	ND
BNL-2013-07	3/1/2013 7:53	TO15	trans-1,2-Dichloroethene	ND
BNL-2013-07	3/1/2013 7:53	TO15	trans-1,3-Dichloropropene	ND
BNL-2013-07	3/1/2013 7:53	TO15	Trichloroethene (TCE)	ND
BNL-2013-07	3/1/2013 7:53	TO15	Vinyl Chloride	ND
BNL-2013-07	3/1/2013 7:53	TO15	Xylenes, Total	ND
BNL-2013-18	2/26/2013 15:10	TO15	1,2-Dichlorotetrafluoroethane	0.125559
BNL-2013-12	2/26/2013 13:07	TO15	1,2-Dichlorotetrafluoroethane	0.174388
BNL-2013-11	2/26/2013 13:53	TO15	1,2-Dichlorotetrafluoroethane	0.216241
BNL-2013-16	3/1/2013 11:54	TO15	1,2-Dichlorotetrafluoroethane	0.258094
BNL-2013-06	2/27/2013 9:20	TO15	1,2-Dichlorotetrafluoroethane	0.334824
BNL-2013-07	3/1/2013 7:53	TO15	1,2-Dichlorotetrafluoroethane	0.3418
BNL-2013-19	2/26/2013 16:47	TO15	1,2-Dichlorotetrafluoroethane	0.432482
BNL-2013-14	3/1/2013 10:32	TO15	1,2-Dichlorotetrafluoroethane	0.767306
BNL-2013-17	3/1/2013 11:13	TO15	1,2-Dichlorotetrafluoroethane	1.116082
BNL-2013-08	3/1/2013 8:30	TO15	1,2-Dichlorotetrafluoroethane	1.674122
BNL-2013-20	2/26/2013 15:45	TO15	1,3,5-Trimethylbenzene	0.00368
BNL-2013-11	2/26/2013 13:53	TO15	1,3,5-Trimethylbenzene	0.00834
BNL-2013-15	2/26/2013 14:33	TO15	1,3,5-Trimethylbenzene	0.038268
BNL-2013-08	3/1/2013 8:30	TO15	1,3,5-Trimethylbenzene	0.161902
BNL-2013-17	3/1/2013 11:13	TO15	1,3,5-Trimethylbenzene	0.269837
BNL-2013-08	3/1/2013 8:30	TO15	1,1,1-Trichloroethane	ND
BNL-2013-08	3/1/2013 8:30	TO15	1,1,2,2-Tetrachloroethane	ND
BNL-2013-08	3/1/2013 8:30	TO15	1,1,2-Trichloro-1,2,2-trifluoroethane	ND
BNL-2013-08	3/1/2013 8:30	TO15	1,1,2-Trichloroethane	ND
BNL-2013-08	3/1/2013 8:30	TO15	1,1-Dichloroethane	ND
BNL-2013-08	3/1/2013 8:30	TO15	1,1-Dichloroethene	ND
BNL-2013-08	3/1/2013 8:30	TO15	1,2,4-Trichlorobenzene	ND
BNL-2013-08	3/1/2013 8:30	TO15	1,2-Dibromoethane (EDB)	ND
BNL-2013-08	3/1/2013 8:30	TO15	1,2-Dichlorobenzene	ND
BNL-2013-08	3/1/2013 8:30	TO15	1,2-Dichloroethane	ND
BNL-2013-08	3/1/2013 8:30	TO15	1,2-Dichloropropane	ND
BNL-2013-08	3/1/2013 8:30	TO15	1,3-Dichlorobenzene	ND
BNL-2013-08	3/1/2013 8:30	TO15	Bromomethane	ND
BNL-2013-08	3/1/2013 8:30	TO15	Carbon Tetrachloride	ND
BNL-2013-08	3/1/2013 8:30	TO15	Chlorobenzene	ND
BNL-2013-08	3/1/2013 8:30	TO15	Chloroethane	ND
BNL-2013-08	3/1/2013 8:30	TO15	Chloromethane	ND
BNL-2013-08	3/1/2013 8:30	TO15	cis-1,3-Dichloropropene	ND
BNL-2013-08	3/1/2013 8:30	TO15	Hexachlorobutadiene	ND

Attachment L1 Table1 Soil Gas Data: Broadway North Landfill

Sample Identification	Sample Date	Method	Chemical	Result mg/m^3
BNL-2013-08	3/1/2013 8:30	TO15	Isopropanol	ND
BNL-2013-08	3/1/2013 8:30	TO15	Styrene	ND
BNL-2013-08	3/1/2013 8:30	TO15	trans-1,2-Dichloroethene	ND
BNL-2013-08	3/1/2013 8:30	TO15	trans-1,3-Dichloropropene	ND
BNL-2013-08	3/1/2013 8:30	TO15	Trichlorofluoromethane	ND
BNL-2013-11	2/26/2013 13:53	TO15	1,4-Dichlorobenzene	0.00372
BNL-2013-20	2/26/2013 15:45	TO15	1,4-Dichlorobenzene	0.084
BNL-2013-17	3/1/2013 11:13	TO15	1,4-Dichlorobenzene	0.156
BNL-2013-08	3/1/2013 8:30	TO15	1,4-Dichlorobenzene	0.18
BNL-2013-12	2/26/2013 13:07	TO15	Benzene	0.001817
BNL-2013-18	2/26/2013 15:10	TO15	Benzene	0.003825
BNL-2013-15	2/26/2013 14:33	TO15	Benzene	0.0051
BNL-2013-10	3/1/2013 9:15	TO15	1,1,1-Trichloroethane	ND
BNL-2013-10	3/1/2013 9:15	TO15	1,1,2,2-Tetrachloroethane	ND
BNL-2013-10	3/1/2013 9:15	TO15	1,1,2-Trichloro-1,2,2-trifluoroethane	ND
BNL-2013-10	3/1/2013 9:15	TO15	1,1,2-Trichloroethane	ND
BNL-2013-10	3/1/2013 9:15	TO15	1,1-Dichloroethane	ND
BNL-2013-10	3/1/2013 9:15	TO15	1,1-Dichloroethene	ND
BNL-2013-10	3/1/2013 9:15	TO15	1,2,4-Trichlorobenzene	ND
BNL-2013-10	3/1/2013 9:15	TO15	1,2,4-Trimethylbenzene	ND
BNL-2013-10	3/1/2013 9:15	TO15	1,2-Dibromoethane (EDB)	ND
BNL-2013-10	3/1/2013 9:15	TO15	1,2-Dichlorobenzene	ND
BNL-2013-10	3/1/2013 9:15	TO15	1,2-Dichloroethane	ND
BNL-2013-10	3/1/2013 9:15	TO15	1,2-Dichloropropane	ND
BNL-2013-10	3/1/2013 9:15	TO15	1,3,5-Trimethylbenzene	ND
BNL-2013-10	3/1/2013 9:15	TO15	1,3-Dichlorobenzene	ND
BNL-2013-10	3/1/2013 9:15	TO15	1,4-Dichlorobenzene	ND
BNL-2013-10	3/1/2013 9:15	TO15	Benzene	ND
BNL-2013-10	3/1/2013 9:15	TO15	Bromomethane	ND
BNL-2013-10	3/1/2013 9:15	TO15	Carbon Tetrachloride	ND
BNL-2013-10	3/1/2013 9:15	TO15	Chlorobenzene	ND
BNL-2013-10	3/1/2013 9:15	TO15	Chloroethane	ND
BNL-2013-10	3/1/2013 9:15	TO15	Chloroform	ND
BNL-2013-10	3/1/2013 9:15	TO15	Chloromethane	ND
BNL-2013-10	3/1/2013 9:15	TO15	cis-1,2-Dichloroethylene	ND
BNL-2013-10	3/1/2013 9:15	TO15	cis-1,3-Dichloropropene	ND
BNL-2013-10	3/1/2013 9:15	TO15	Ethylbenzene	ND
BNL-2013-10	3/1/2013 9:15	TO15	Hexachlorobutadiene	ND
BNL-2013-10	3/1/2013 9:15	TO15	Isopropanol	ND
BNL-2013-10	3/1/2013 9:15	TO15	Methylene Chloride	ND
BNL-2013-10	3/1/2013 9:15	TO15	Styrene	ND
BNL-2013-10	3/1/2013 9:15	TO15	Tetrachloroethene (PCE)	ND
BNL-2013-10	3/1/2013 9:15	TO15	Toluene	ND
BNL-2013-10	3/1/2013 9:15	TO15	trans-1,2-Dichloroethene	ND
BNL-2013-10	3/1/2013 9:15	TO15	trans-1,3-Dichloropropene	ND
BNL-2013-10	3/1/2013 9:15	TO15	Trichloroethene (TCE)	ND
BNL-2013-10	3/1/2013 9:15	TO15	Trichlorofluoromethane	ND
BNL-2013-10	3/1/2013 9:15	TO15	Vinyl Chloride	ND
BNL-2013-10	3/1/2013 9:15	TO15	Xylenes, Total	ND
BNL-2013-100	3/1/2013 9:45	TO15	1,1,1-Trichloroethane	ND
BNL-2013-100	3/1/2013 9:45	TO15	1,1,2,2-Tetrachloroethane	ND
BNL-2013-100	3/1/2013 9:45	TO15	1,1,2-Trichloro-1,2,2-trifluoroethane	ND
BNL-2013-100	3/1/2013 9:45	TO15	1,1,2-Trichloroethane	ND
BNL-2013-100	3/1/2013 9:45	TO15	1,1-Dichloroethane	ND
BNL-2013-100	3/1/2013 9:45	TO15	1,1-Dichloroethene	ND
BNL-2013-100	3/1/2013 9:45	TO15	1,2,4-Trichlorobenzene	ND

Attachment L1 Table1 Soil Gas Data: Broadway North Landfill

Sample Identification	Sample Date	Method	Chemical	Result mg/m^3
BNL-2013-100	3/1/2013 9:45	TO15	1,2-Dibromoethane (EDB)	ND
BNL-2013-100	3/1/2013 9:45	TO15	1,2-Dichlorobenzene	ND
BNL-2013-100	3/1/2013 9:45	TO15	1,2-Dichloroethane	ND
BNL-2013-100	3/1/2013 9:45	TO15	1,2-Dichloropropane	ND
BNL-2013-100	3/1/2013 9:45	TO15	1,3,5-Trimethylbenzene	ND
BNL-2013-100	3/1/2013 9:45	TO15	1,3-Dichlorobenzene	ND
BNL-2013-100	3/1/2013 9:45	TO15	1,4-Dichlorobenzene	ND
BNL-2013-100	3/1/2013 9:45	TO15	Benzene	ND
BNL-2013-100	3/1/2013 9:45	TO15	Bromomethane	ND
BNL-2013-100	3/1/2013 9:45	TO15	Carbon Tetrachloride	ND
BNL-2013-100	3/1/2013 9:45	TO15	Chlorobenzene	ND
BNL-2013-100	3/1/2013 9:45	TO15	Chloroethane	ND
BNL-2013-100	3/1/2013 9:45	TO15	Chloroform	ND
BNL-2013-100	3/1/2013 9:45	TO15	Chloromethane	ND
BNL-2013-100	3/1/2013 9:45	TO15	cis-1,2-Dichloroethylene	ND
BNL-2013-100	3/1/2013 9:45	TO15	cis-1,3-Dichloropropene	ND
BNL-2013-100	3/1/2013 9:45	TO15	Dichlorodifluoromethane	ND
BNL-2013-100	3/1/2013 9:45	TO15	Ethylbenzene	ND
BNL-2013-100	3/1/2013 9:45	TO15	Hexachlorobutadiene	ND
BNL-2013-100	3/1/2013 9:45	TO15	Isopropanol	ND
BNL-2013-100	3/1/2013 9:45	TO15	Methylene Chloride	ND
BNL-2013-100	3/1/2013 9:45	TO15	Tetrachloroethene (PCE)	ND
BNL-2013-100	3/1/2013 9:45	TO15	trans-1,2-Dichloroethene	ND
BNL-2013-100	3/1/2013 9:45	TO15	trans-1,3-Dichloropropene	ND
BNL-2013-100	3/1/2013 9:45	TO15	Trichloroethene (TCE)	ND
BNL-2013-100	3/1/2013 9:45	TO15	Vinyl Chloride	ND
BNL-2013-100	3/1/2013 9:45	TO15	Xylenes, Total	ND
BNL-2013-11	2/26/2013 13:53	TO15	Benzene	0.016895
BNL-2013-08	3/1/2013 8:30	TO15	Benzene	0.021677
BNL-2013-17	3/1/2013 11:13	TO15	Benzene	0.022952
BNL-2013-14	3/1/2013 10:32	TO15	Benzene	0.05738
BNL-2013-19	2/26/2013 16:47	TO15	Benzene	0.060567
BNL-2013-18	2/26/2013 15:10	TO15	Chloroform	0.003411
BNL-2013-06	2/27/2013 9:20	TO15	Chloroform	0.026317
BNL-2013-12	2/26/2013 13:07	TO15	Chloroform	0.063355
BNL-2013-17	3/1/2013 11:13	TO15	Chloroform	0.11209
BNL-2013-08	3/1/2013 8:30	TO15	Chloroform	0.443486
BNL-2013-13	3/1/2013 9:54	TO15	Chloromethane	0.00136
BNL-2013-11	2/26/2013 13:53	TO15	cis-1,2-Dichloroethylene	0.013447
BNL-2013-14	3/1/2013 10:32	TO15	cis-1,2-Dichloroethylene	0.026895
BNL-2013-19	2/26/2013 16:47	TO15	cis-1,2-Dichloroethylene	0.029663
BNL-2013-17	3/1/2013 11:13	TO15	cis-1,2-Dichloroethylene	0.071192
BNL-2013-11	2/26/2013 13:53	TO15	1,1,1-Trichloroethane	ND
BNL-2013-11	2/26/2013 13:53	TO15	1,1,2,2-Tetrachloroethane	ND
BNL-2013-11	2/26/2013 13:53	TO15	1,1,2-Trichloro-1,2,2-trifluoroethane	ND
BNL-2013-11	2/26/2013 13:53	TO15	1,1,2-Trichloroethane	ND
BNL-2013-11	2/26/2013 13:53	TO15	1,1-Dichloroethane	ND
BNL-2013-11	2/26/2013 13:53	TO15	1,1-Dichloroethene	ND
BNL-2013-11	2/26/2013 13:53	TO15	1,2,4-Trichlorobenzene	ND
BNL-2013-11	2/26/2013 13:53	TO15	1,2-Dibromoethane (EDB)	ND
BNL-2013-11	2/26/2013 13:53	TO15	1,2-Dichlorobenzene	ND
BNL-2013-11	2/26/2013 13:53	TO15	1,2-Dichloropropane	ND
BNL-2013-11	2/26/2013 13:53	TO15	1,3-Dichlorobenzene	ND
BNL-2013-11	2/26/2013 13:53	TO15	Bromomethane	ND
BNL-2013-11	2/26/2013 13:53	TO15	Carbon Tetrachloride	ND
BNL-2013-11	2/26/2013 13:53	TO15	Chlorobenzene	ND

Attachment L1 Table1 Soil Gas Data: Broadway North Landfill

Sample Identification	Sample Date	Method	Chemical	Result mg/m^3
BNL-2013-11	2/26/2013 13:53	TO15	Chloroethane	ND
BNL-2013-11	2/26/2013 13:53	TO15	Chloroform	ND
BNL-2013-11	2/26/2013 13:53	TO15	Chloromethane	ND
BNL-2013-11	2/26/2013 13:53	TO15	cis-1,3-Dichloropropene	ND
BNL-2013-11	2/26/2013 13:53	TO15	Hexachlorobutadiene	ND
BNL-2013-11	2/26/2013 13:53	TO15	Tetrachloroethene (PCE)	ND
BNL-2013-11	2/26/2013 13:53	TO15	trans-1,2-Dichloroethene	ND
BNL-2013-11	2/26/2013 13:53	TO15	trans-1,3-Dichloropropene	ND
BNL-2013-11	2/26/2013 13:53	TO15	Trichlorofluoromethane	ND
BNL-2013-11	2/26/2013 13:53	TO15	Vinyl Chloride	ND
BNL-2013-08	3/1/2013 8:30	TO15	cis-1,2-Dichloroethylene	0.083057
BNL-2013-13	3/1/2013 9:54	TO15	Dichlorodifluoromethane	0.003306
BNL-2013-16	3/1/2013 11:54	TO15	Dichlorodifluoromethane	0.010856
BNL-2013-10	3/1/2013 9:15	TO15	Dichlorodifluoromethane	0.01283
BNL-2013-11	2/26/2013 13:53	TO15	Dichlorodifluoromethane	0.013324
BNL-2013-15	2/26/2013 14:33	TO15	Dichlorodifluoromethane	0.023687
BNL-2013-20	2/26/2013 15:45	TO15	Dichlorodifluoromethane	0.03553
BNL-2013-18	2/26/2013 15:10	TO15	Dichlorodifluoromethane	0.046386
BNL-2013-14	3/1/2013 10:32	TO15	Dichlorodifluoromethane	0.088824
BNL-2013-12	2/26/2013 13:07	TO15	1,1,2,2-Tetrachloroethane	ND
BNL-2013-12	2/26/2013 13:07	TO15	1,1,2-Trichloro-1,2,2-trifluoroethane	ND
BNL-2013-12	2/26/2013 13:07	TO15	1,1,2-Trichloroethane	ND
BNL-2013-12	2/26/2013 13:07	TO15	1,1-Dichloroethane	ND
BNL-2013-12	2/26/2013 13:07	TO15	1,1-Dichloroethene	ND
BNL-2013-12	2/26/2013 13:07	TO15	1,2,4-Trichlorobenzene	ND
BNL-2013-12	2/26/2013 13:07	TO15	1,2,4-Trimethylbenzene	ND
BNL-2013-12	2/26/2013 13:07	TO15	1,2-Dibromoethane (EDB)	ND
BNL-2013-12	2/26/2013 13:07	TO15	1,2-Dichlorobenzene	ND
BNL-2013-12	2/26/2013 13:07	TO15	1,2-Dichloroethane	ND
BNL-2013-12	2/26/2013 13:07	TO15	1,2-Dichloropropane	ND
BNL-2013-12	2/26/2013 13:07	TO15	1,3,5-Trimethylbenzene	ND
BNL-2013-12	2/26/2013 13:07	TO15	1,3-Dichlorobenzene	ND
BNL-2013-12	2/26/2013 13:07	TO15	1,4-Dichlorobenzene	ND
BNL-2013-12	2/26/2013 13:07	TO15	Bromomethane	ND
BNL-2013-12	2/26/2013 13:07	TO15	Carbon Tetrachloride	ND
BNL-2013-12	2/26/2013 13:07	TO15	Chlorobenzene	ND
BNL-2013-12	2/26/2013 13:07	TO15	Chloroethane	ND
BNL-2013-12	2/26/2013 13:07	TO15	Chloromethane	ND
BNL-2013-12	2/26/2013 13:07	TO15	cis-1,2-Dichloroethylene	ND
BNL-2013-12	2/26/2013 13:07	TO15	cis-1,3-Dichloropropene	ND
BNL-2013-12	2/26/2013 13:07	TO15	Ethylbenzene	ND
BNL-2013-12	2/26/2013 13:07	TO15	Hexachlorobutadiene	ND
BNL-2013-12	2/26/2013 13:07	TO15	Isopropanol	ND
BNL-2013-12	2/26/2013 13:07	TO15	Methylene Chloride	ND
BNL-2013-12	2/26/2013 13:07	TO15	Tetrachloroethene (PCE)	ND
BNL-2013-12	2/26/2013 13:07	TO15	trans-1,2-Dichloroethene	ND
BNL-2013-12	2/26/2013 13:07	TO15	trans-1,3-Dichloropropene	ND
BNL-2013-12	2/26/2013 13:07	TO15	Trichloroethene (TCE)	ND
BNL-2013-12	2/26/2013 13:07	TO15	Vinyl Chloride	ND
BNL-2013-12	2/26/2013 13:07	TO15	Dichlorodifluoromethane	0.133237
BNL-2013-19	2/26/2013 16:47	TO15	Dichlorodifluoromethane	0.493469
BNL-2013-07	3/1/2013 7:53	TO15	Dichlorodifluoromethane	0.64151
BNL-2013-06	2/27/2013 9:20	TO15	Dichlorodifluoromethane	1.233673
BNL-2013-17	3/1/2013 11:13	TO15	Dichlorodifluoromethane	3.158204
BNL-2013-08	3/1/2013 8:30	TO15	Dichlorodifluoromethane	3.256897
BNL-2013-13	3/1/2013 9:54	TO15	1,1,1-Trichloroethane	ND

Attachment L1 Table1 Soil Gas Data: Broadway North Landfill

Sample Identification	Sample Date	Method	Chemical	Result mg/m^3
BNL-2013-13	3/1/2013 9:54	TO15	1,1,2,2-Tetrachloroethane	ND
BNL-2013-13	3/1/2013 9:54	TO15	1,1,2-Trichloro-1,2,2-trifluoroethane	ND
BNL-2013-13	3/1/2013 9:54	TO15	1,1,2-Trichloroethane	ND
BNL-2013-13	3/1/2013 9:54	TO15	1,1-Dichloroethane	ND
BNL-2013-13	3/1/2013 9:54	TO15	1,1-Dichloroethene	ND
BNL-2013-13	3/1/2013 9:54	TO15	1,2,4-Trichlorobenzene	ND
BNL-2013-13	3/1/2013 9:54	TO15	1,2-Dibromoethane (EDB)	ND
BNL-2013-13	3/1/2013 9:54	TO15	1,2-Dichlorobenzene	ND
BNL-2013-13	3/1/2013 9:54	TO15	1,2-Dichloroethane	ND
BNL-2013-13	3/1/2013 9:54	TO15	1,2-Dichloropropane	ND
BNL-2013-13	3/1/2013 9:54	TO15	1,2-Dichlorotetrafluoroethane	ND
BNL-2013-13	3/1/2013 9:54	TO15	1,3,5-Trimethylbenzene	ND
BNL-2013-13	3/1/2013 9:54	TO15	1,3-Dichlorobenzene	ND
BNL-2013-13	3/1/2013 9:54	TO15	1,4-Dichlorobenzene	ND
BNL-2013-13	3/1/2013 9:54	TO15	Benzene	ND
BNL-2013-13	3/1/2013 9:54	TO15	Bromomethane	ND
BNL-2013-13	3/1/2013 9:54	TO15	Carbon Tetrachloride	ND
BNL-2013-13	3/1/2013 9:54	TO15	Chlorobenzene	ND
BNL-2013-13	3/1/2013 9:54	TO15	Chloroethane	ND
BNL-2013-13	3/1/2013 9:54	TO15	Chloroform	ND
BNL-2013-13	3/1/2013 9:54	TO15	cis-1,2-Dichloroethylene	ND
BNL-2013-13	3/1/2013 9:54	TO15	cis-1,3-Dichloropropene	ND
BNL-2013-13	3/1/2013 9:54	TO15	Ethylbenzene	ND
BNL-2013-13	3/1/2013 9:54	TO15	Hexachlorobutadiene	ND
BNL-2013-13	3/1/2013 9:54	TO15	Styrene	ND
BNL-2013-13	3/1/2013 9:54	TO15	Tetrachloroethene (PCE)	ND
BNL-2013-13	3/1/2013 9:54	TO15	trans-1,2-Dichloroethene	ND
BNL-2013-13	3/1/2013 9:54	TO15	trans-1,3-Dichloropropene	ND
BNL-2013-13	3/1/2013 9:54	TO15	Trichloroethene (TCE)	ND
BNL-2013-13	3/1/2013 9:54	TO15	Trichlorofluoromethane	ND
BNL-2013-13	3/1/2013 9:54	TO15	Vinyl Chloride	ND
BNL-2013-13	3/1/2013 9:54	TO15	Xylenes, Total	ND
BNL-2013-20	2/26/2013 15:45	TO15	Ethylbenzene	0.002124
BNL-2013-18	2/26/2013 15:10	TO15	Ethylbenzene	0.002167
BNL-2013-16	3/1/2013 11:54	TO15	Ethylbenzene	0.002818
BNL-2013-06	2/27/2013 9:20	TO15	Ethylbenzene	0.003034
BNL-2013-15	2/26/2013 14:33	TO15	Ethylbenzene	0.003554
BNL-2013-11	2/26/2013 13:53	TO15	Ethylbenzene	0.028609
BNL-2013-14	3/1/2013 10:32	TO15	1,1,1-Trichloroethane	ND
BNL-2013-14	3/1/2013 10:32	TO15	1,1,2,2-Tetrachloroethane	ND
BNL-2013-14	3/1/2013 10:32	TO15	1,1,2-Trichloro-1,2,2-trifluoroethane	ND
BNL-2013-14	3/1/2013 10:32	TO15	1,1,2-Trichloroethane	ND
BNL-2013-14	3/1/2013 10:32	TO15	1,1-Dichloroethane	ND
BNL-2013-14	3/1/2013 10:32	TO15	1,1-Dichloroethene	ND
BNL-2013-14	3/1/2013 10:32	TO15	1,2,4-Trichlorobenzene	ND
BNL-2013-14	3/1/2013 10:32	TO15	1,2,4-Trimethylbenzene	ND
BNL-2013-14	3/1/2013 10:32	TO15	1,2-Dibromoethane (EDB)	ND
BNL-2013-14	3/1/2013 10:32	TO15	1,2-Dichlorobenzene	ND
BNL-2013-14	3/1/2013 10:32	TO15	1,2-Dichloroethane	ND
BNL-2013-14	3/1/2013 10:32	TO15	1,2-Dichloropropane	ND
BNL-2013-14	3/1/2013 10:32	TO15	1,3,5-Trimethylbenzene	ND
BNL-2013-14	3/1/2013 10:32	TO15	1,3-Dichlorobenzene	ND
BNL-2013-14	3/1/2013 10:32	TO15	1,4-Dichlorobenzene	ND
BNL-2013-14	3/1/2013 10:32	TO15	Bromomethane	ND
BNL-2013-14	3/1/2013 10:32	TO15	Carbon Tetrachloride	ND
BNL-2013-14	3/1/2013 10:32	TO15	Chlorobenzene	ND

Attachment L1 Table1 Soil Gas Data: Broadway North Landfill

Sample Identification	Sample Date	Method	Chemical	Result mg/m^3
BNL-2013-14	3/1/2013 10:32	TO15	Chloroethane	ND
BNL-2013-14	3/1/2013 10:32	TO15	Chloroform	ND
BNL-2013-14	3/1/2013 10:32	TO15	Chloromethane	ND
BNL-2013-14	3/1/2013 10:32	TO15	cis-1,3-Dichloropropene	ND
BNL-2013-14	3/1/2013 10:32	TO15	Ethylbenzene	ND
BNL-2013-14	3/1/2013 10:32	TO15	Hexachlorobutadiene	ND
BNL-2013-14	3/1/2013 10:32	TO15	Isopropanol	ND
BNL-2013-14	3/1/2013 10:32	TO15	Methylene Chloride	ND
BNL-2013-14	3/1/2013 10:32	TO15	Styrene	ND
BNL-2013-14	3/1/2013 10:32	TO15	Tetrachloroethene (PCE)	ND
BNL-2013-14	3/1/2013 10:32	TO15	trans-1,2-Dichloroethene	ND
BNL-2013-14	3/1/2013 10:32	TO15	trans-1,3-Dichloropropene	ND
BNL-2013-14	3/1/2013 10:32	TO15	Trichloroethene (TCE)	ND
BNL-2013-14	3/1/2013 10:32	TO15	Trichlorofluoromethane	ND
BNL-2013-14	3/1/2013 10:32	TO15	Xylenes, Total	ND
BNL-2013-08	3/1/2013 8:30	TO15	Ethylbenzene	0.281755
BNL-2013-17	3/1/2013 11:13	TO15	Ethylbenzene	0.394457
BNL-2013-13	3/1/2013 9:54	TO15	Isopropanol	0.006623
BNL-2013-07	3/1/2013 7:53	TO15	Isopropanol	0.008831
BNL-2013-16	3/1/2013 11:54	TO15	Isopropanol	0.013982
BNL-2013-06	2/27/2013 9:20	TO15	Isopropanol	0.019134
BNL-2013-11	2/26/2013 13:53	TO15	Isopropanol	0.02404
BNL-2013-18	2/26/2013 15:10	TO15	Isopropanol	0.024531
BNL-2013-19	2/26/2013 16:47	TO15	Isopropanol	0.132465
BNL-2013-15	2/26/2013 14:33	TO15	Isopropanol	4.906122
BNL-2013-15	2/26/2013 14:33	TO15	Methylene Chloride	0.003465
BNL-2013-15	2/26/2013 14:33	TO15	1,1,1-Trichloroethane	ND
BNL-2013-15	2/26/2013 14:33	TO15	1,1,2,2-Tetrachloroethane	ND
BNL-2013-15	2/26/2013 14:33	TO15	1,1,2-Trichloro-1,2,2-trifluoroethane	ND
BNL-2013-15	2/26/2013 14:33	TO15	1,1,2-Trichloroethane	ND
BNL-2013-15	2/26/2013 14:33	TO15	1,1-Dichloroethane	ND
BNL-2013-15	2/26/2013 14:33	TO15	1,1-Dichloroethene	ND
BNL-2013-15	2/26/2013 14:33	TO15	1,2,4-Trichlorobenzene	ND
BNL-2013-15	2/26/2013 14:33	TO15	1,2-Dibromoethane (EDB)	ND
BNL-2013-15	2/26/2013 14:33	TO15	1,2-Dichlorobenzene	ND
BNL-2013-15	2/26/2013 14:33	TO15	1,2-Dichloroethane	ND
BNL-2013-15	2/26/2013 14:33	TO15	1,2-Dichloropropane	ND
BNL-2013-15	2/26/2013 14:33	TO15	1,3-Dichlorobenzene	ND
BNL-2013-15	2/26/2013 14:33	TO15	1,4-Dichlorobenzene	ND
BNL-2013-15	2/26/2013 14:33	TO15	Bromomethane	ND
BNL-2013-15	2/26/2013 14:33	TO15	Carbon Tetrachloride	ND
BNL-2013-15	2/26/2013 14:33	TO15	Chlorobenzene	ND
BNL-2013-15	2/26/2013 14:33	TO15	Chloroethane	ND
BNL-2013-15	2/26/2013 14:33	TO15	Chloroform	ND
BNL-2013-15	2/26/2013 14:33	TO15	Chloromethane	ND
BNL-2013-15	2/26/2013 14:33	TO15	cis-1,2-Dichloroethylene	ND
BNL-2013-15	2/26/2013 14:33	TO15	cis-1,3-Dichloropropene	ND
BNL-2013-15	2/26/2013 14:33	TO15	Hexachlorobutadiene	ND
BNL-2013-15	2/26/2013 14:33	TO15	Tetrachloroethene (PCE)	ND
BNL-2013-15	2/26/2013 14:33	TO15	trans-1,2-Dichloroethene	ND
BNL-2013-15	2/26/2013 14:33	TO15	trans-1,3-Dichloropropene	ND
BNL-2013-15	2/26/2013 14:33	TO15	Trichloroethene (TCE)	ND
BNL-2013-15	2/26/2013 14:33	TO15	Trichlorofluoromethane	ND
BNL-2013-15	2/26/2013 14:33	TO15	Vinyl Chloride	ND
BNL-2013-11	2/26/2013 13:53	TO15	Methylene Chloride	0.009703
BNL-2013-13	3/1/2013 9:54	TO15	Methylene Chloride	0.013515

Attachment L1 Table1 Soil Gas Data: Broadway North Landfill

Sample Identification	Sample Date	Method	Chemical	Result mg/m^3
BNL-2013-08	3/1/2013 8:30	TO15	Methylene Chloride	0.028416
BNL-2013-17	3/1/2013 11:13	TO15	Methylene Chloride	0.028416
BNL-2013-20	2/26/2013 15:45	TO15	Styrene	0.002209
BNL-2013-100	3/1/2013 9:45	TO15	Styrene	0.003059
BNL-2013-06	2/27/2013 9:20	TO15	Styrene	0.003229
BNL-2013-15	2/26/2013 14:33	TO15	Styrene	0.003442
BNL-2013-16	3/1/2013 11:54	TO15	1,1,1-Trichloroethane	ND
BNL-2013-16	3/1/2013 11:54	TO15	1,1,2,2-Tetrachloroethane	ND
BNL-2013-16	3/1/2013 11:54	TO15	1,1,2-Trichloro-1,2,2-trifluoroethane	ND
BNL-2013-16	3/1/2013 11:54	TO15	1,1,2-Trichloroethane	ND
BNL-2013-16	3/1/2013 11:54	TO15	1,1-Dichloroethane	ND
BNL-2013-16	3/1/2013 11:54	TO15	1,1-Dichloroethene	ND
BNL-2013-16	3/1/2013 11:54	TO15	1,2,4-Trichlorobenzene	ND
BNL-2013-16	3/1/2013 11:54	TO15	1,2,4-Trimethylbenzene	ND
BNL-2013-16	3/1/2013 11:54	TO15	1,2-Dibromoethane (EDB)	ND
BNL-2013-16	3/1/2013 11:54	TO15	1,2-Dichlorobenzene	ND
BNL-2013-16	3/1/2013 11:54	TO15	1,2-Dichloroethane	ND
BNL-2013-16	3/1/2013 11:54	TO15	1,2-Dichloropropane	ND
BNL-2013-16	3/1/2013 11:54	TO15	1,3,5-Trimethylbenzene	ND
BNL-2013-16	3/1/2013 11:54	TO15	1,3-Dichlorobenzene	ND
BNL-2013-16	3/1/2013 11:54	TO15	1,4-Dichlorobenzene	ND
BNL-2013-16	3/1/2013 11:54	TO15	Benzene	ND
BNL-2013-16	3/1/2013 11:54	TO15	Bromomethane	ND
BNL-2013-16	3/1/2013 11:54	TO15	Carbon Tetrachloride	ND
BNL-2013-16	3/1/2013 11:54	TO15	Chlorobenzene	ND
BNL-2013-16	3/1/2013 11:54	TO15	Chloroethane	ND
BNL-2013-16	3/1/2013 11:54	TO15	Chloroform	ND
BNL-2013-16	3/1/2013 11:54	TO15	Chloromethane	ND
BNL-2013-16	3/1/2013 11:54	TO15	cis-1,2-Dichloroethylene	ND
BNL-2013-16	3/1/2013 11:54	TO15	cis-1,3-Dichloropropene	ND
BNL-2013-16	3/1/2013 11:54	TO15	Hexachlorobutadiene	ND
BNL-2013-16	3/1/2013 11:54	TO15	Methylene Chloride	ND
BNL-2013-16	3/1/2013 11:54	TO15	trans-1,2-Dichloroethene	ND
BNL-2013-16	3/1/2013 11:54	TO15	trans-1,3-Dichloropropene	ND
BNL-2013-16	3/1/2013 11:54	TO15	Trichloroethene (TCE)	ND
BNL-2013-16	3/1/2013 11:54	TO15	Trichlorofluoromethane	ND
BNL-2013-16	3/1/2013 11:54	TO15	Vinyl Chloride	ND
BNL-2013-12	2/26/2013 13:07	TO15	Styrene	0.003654
BNL-2013-18	2/26/2013 15:10	TO15	Styrene	0.004249
BNL-2013-11	2/26/2013 13:53	TO15	Styrene	0.005099
BNL-2013-16	3/1/2013 11:54	TO15	Styrene	0.008498
BNL-2013-17	3/1/2013 11:13	TO15	Styrene	0.029318
BNL-2013-20	2/26/2013 15:45	TO15	Tetrachloroethene (PCE)	0.005888
BNL-2013-16	3/1/2013 11:54	TO15	Tetrachloroethene (PCE)	0.010828
BNL-2013-07	3/1/2013 7:53	TO15	Tetrachloroethene (PCE)	0.012181
BNL-2013-06	2/27/2013 9:20	TO15	Tetrachloroethene (PCE)	0.038574
BNL-2013-17	3/1/2013 11:13	TO15	Tetrachloroethene (PCE)	0.040604
BNL-2013-08	3/1/2013 8:30	TO15	Tetrachloroethene (PCE)	0.189486
BNL-2013-13	3/1/2013 9:54	TO15	Toluene	0.002218
BNL-2013-07	3/1/2013 7:53	TO15	Toluene	0.002256
BNL-2013-20	2/26/2013 15:45	TO15	Toluene	0.003045
BNL-2013-06	2/27/2013 9:20	TO15	Toluene	0.004135
BNL-2013-100	3/1/2013 9:45	TO15	Toluene	0.004135
BNL-2013-12	2/26/2013 13:07	TO15	Toluene	0.006767
BNL-2013-17	3/1/2013 11:13	TO15	1,1,1-Trichloroethane	ND
BNL-2013-17	3/1/2013 11:13	TO15	1,1,2,2-Tetrachloroethane	ND

Attachment L1 Table1 Soil Gas Data: Broadway North Landfill

Sample Identification	Sample Date	Method	Chemical	Result mg/m^3
BNL-2013-17	3/1/2013 11:13	TO15	1,1,2-Trichloro-1,2,2-trifluoroethane	ND
BNL-2013-17	3/1/2013 11:13	TO15	1,1,2-Trichloroethane	ND
BNL-2013-17	3/1/2013 11:13	TO15	1,1-Dichloroethane	ND
BNL-2013-17	3/1/2013 11:13	TO15	1,1-Dichloroethene	ND
BNL-2013-17	3/1/2013 11:13	TO15	1,2,4-Trichlorobenzene	ND
BNL-2013-17	3/1/2013 11:13	TO15	1,2-Dibromoethane (EDB)	ND
BNL-2013-17	3/1/2013 11:13	TO15	1,2-Dichloroethane	ND
BNL-2013-17	3/1/2013 11:13	TO15	1,2-Dichloropropane	ND
BNL-2013-17	3/1/2013 11:13	TO15	1,3-Dichlorobenzene	ND
BNL-2013-17	3/1/2013 11:13	TO15	Bromomethane	ND
BNL-2013-17	3/1/2013 11:13	TO15	Carbon Tetrachloride	ND
BNL-2013-17	3/1/2013 11:13	TO15	Chlorobenzene	ND
BNL-2013-17	3/1/2013 11:13	TO15	Chloroethane	ND
BNL-2013-17	3/1/2013 11:13	TO15	Chloromethane	ND
BNL-2013-17	3/1/2013 11:13	TO15	cis-1,3-Dichloropropene	ND
BNL-2013-17	3/1/2013 11:13	TO15	Hexachlorobutadiene	ND
BNL-2013-17	3/1/2013 11:13	TO15	Isopropanol	ND
BNL-2013-17	3/1/2013 11:13	TO15	trans-1,2-Dichloroethene	ND
BNL-2013-17	3/1/2013 11:13	TO15	trans-1,3-Dichloropropene	ND
BNL-2013-17	3/1/2013 11:13	TO15	Trichlorofluoromethane	ND
BNL-2013-16	3/1/2013 11:54	TO15	Toluene	0.007142
BNL-2013-18	2/26/2013 15:10	TO15	Toluene	0.007518
BNL-2013-19	2/26/2013 16:47	TO15	Toluene	0.011653
BNL-2013-14	3/1/2013 10:32	TO15	Toluene	0.015789
BNL-2013-15	2/26/2013 14:33	TO15	Toluene	0.017668
BNL-2013-11	2/26/2013 13:53	TO15	Toluene	0.034584
BNL-2013-08	3/1/2013 8:30	TO15	Toluene	0.127812
BNL-2013-17	3/1/2013 11:13	TO15	Toluene	0.319531
BNL-2013-11	2/26/2013 13:53	TO15	Trichloroethene (TCE)	0.003862
BNL-2013-17	3/1/2013 11:13	TO15	Trichloroethene (TCE)	0.022526
BNL-2013-18	2/26/2013 15:10	TO15	1,1,1-Trichloroethane	ND
BNL-2013-18	2/26/2013 15:10	TO15	1,1,2,2-Tetrachloroethane	ND
BNL-2013-18	2/26/2013 15:10	TO15	1,1,2-Trichloro-1,2,2-trifluoroethane	ND
BNL-2013-18	2/26/2013 15:10	TO15	1,1,2-Trichloroethane	ND
BNL-2013-18	2/26/2013 15:10	TO15	1,1-Dichloroethane	ND
BNL-2013-18	2/26/2013 15:10	TO15	1,1-Dichloroethene	ND
BNL-2013-18	2/26/2013 15:10	TO15	1,2,4-Trichlorobenzene	ND
BNL-2013-18	2/26/2013 15:10	TO15	1,2-Dibromoethane (EDB)	ND
BNL-2013-18	2/26/2013 15:10	TO15	1,2-Dichlorobenzene	ND
BNL-2013-18	2/26/2013 15:10	TO15	1,2-Dichloroethane	ND
BNL-2013-18	2/26/2013 15:10	TO15	1,2-Dichloropropane	ND
BNL-2013-18	2/26/2013 15:10	TO15	1,3,5-Trimethylbenzene	ND
BNL-2013-18	2/26/2013 15:10	TO15	1,3-Dichlorobenzene	ND
BNL-2013-18	2/26/2013 15:10	TO15	1,4-Dichlorobenzene	ND
BNL-2013-18	2/26/2013 15:10	TO15	Bromomethane	ND
BNL-2013-18	2/26/2013 15:10	TO15	Carbon Tetrachloride	ND
BNL-2013-18	2/26/2013 15:10	TO15	Chlorobenzene	ND
BNL-2013-18	2/26/2013 15:10	TO15	Chloroethane	ND
BNL-2013-18	2/26/2013 15:10	TO15	Chloromethane	ND
BNL-2013-18	2/26/2013 15:10	TO15	cis-1,2-Dichloroethylene	ND
BNL-2013-18	2/26/2013 15:10	TO15	cis-1,3-Dichloropropene	ND
BNL-2013-18	2/26/2013 15:10	TO15	Hexachlorobutadiene	ND
BNL-2013-18	2/26/2013 15:10	TO15	Methylene Chloride	ND
BNL-2013-18	2/26/2013 15:10	TO15	Tetrachloroethene (PCE)	ND
BNL-2013-18	2/26/2013 15:10	TO15	trans-1,2-Dichloroethene	ND
BNL-2013-18	2/26/2013 15:10	TO15	trans-1,3-Dichloropropene	ND

Attachment L1 Table1 Soil Gas Data: Broadway North Landfill

Sample Identification	Sample Date	Method	Chemical	Result mg/m^3
BNL-2013-18	2/26/2013 15:10	TO15	Trichloroethene (TCE)	ND
BNL-2013-18	2/26/2013 15:10	TO15	Trichlorofluoromethane	ND
BNL-2013-18	2/26/2013 15:10	TO15	Vinyl Chloride	ND
BNL-2013-08	3/1/2013 8:30	TO15	Trichloroethene (TCE)	0.064359
BNL-2013-100	3/1/2013 9:45	TO15	Trichlorofluoromethane	0.002692
BNL-2013-07	3/1/2013 7:53	TO15	Trichlorofluoromethane	0.003421
BNL-2013-12	2/26/2013 13:07	TO15	Trichlorofluoromethane	0.025237
BNL-2013-20	2/26/2013 15:45	TO15	Trichlorofluoromethane	0.033649
BNL-2013-17	3/1/2013 11:13	TO15	Vinyl Chloride	0.007143
BNL-2013-08	3/1/2013 8:30	TO15	Vinyl Chloride	0.009694
BNL-2013-19	2/26/2013 16:47	TO15	1,1,1-Trichloroethane	ND
BNL-2013-19	2/26/2013 16:47	TO15	1,1,2,2-Tetrachloroethane	ND
BNL-2013-19	2/26/2013 16:47	TO15	1,1,2-Trichloro-1,2,2-trifluoroethane	ND
BNL-2013-19	2/26/2013 16:47	TO15	1,1,2-Trichloroethane	ND
BNL-2013-19	2/26/2013 16:47	TO15	1,1-Dichloroethane	ND
BNL-2013-19	2/26/2013 16:47	TO15	1,1-Dichloroethene	ND
BNL-2013-19	2/26/2013 16:47	TO15	1,2,4-Trichlorobenzene	ND
BNL-2013-19	2/26/2013 16:47	TO15	1,2,4-Trimethylbenzene	ND
BNL-2013-19	2/26/2013 16:47	TO15	1,2-Dibromoethane (EDB)	ND
BNL-2013-19	2/26/2013 16:47	TO15	1,2-Dichlorobenzene	ND
BNL-2013-19	2/26/2013 16:47	TO15	1,2-Dichloroethane	ND
BNL-2013-19	2/26/2013 16:47	TO15	1,2-Dichloropropane	ND
BNL-2013-19	2/26/2013 16:47	TO15	1,3,5-Trimethylbenzene	ND
BNL-2013-19	2/26/2013 16:47	TO15	1,3-Dichlorobenzene	ND
BNL-2013-19	2/26/2013 16:47	TO15	1,4-Dichlorobenzene	ND
BNL-2013-19	2/26/2013 16:47	TO15	Bromomethane	ND
BNL-2013-19	2/26/2013 16:47	TO15	Carbon Tetrachloride	ND
BNL-2013-19	2/26/2013 16:47	TO15	Chlorobenzene	ND
BNL-2013-19	2/26/2013 16:47	TO15	Chloroethane	ND
BNL-2013-19	2/26/2013 16:47	TO15	Chloroform	ND
BNL-2013-19	2/26/2013 16:47	TO15	Chloromethane	ND
BNL-2013-19	2/26/2013 16:47	TO15	cis-1,3-Dichloropropene	ND
BNL-2013-19	2/26/2013 16:47	TO15	Ethylbenzene	ND
BNL-2013-19	2/26/2013 16:47	TO15	Hexachlorobutadiene	ND
BNL-2013-19	2/26/2013 16:47	TO15	Methylene Chloride	ND
BNL-2013-19	2/26/2013 16:47	TO15	Styrene	ND
BNL-2013-19	2/26/2013 16:47	TO15	Tetrachloroethene (PCE)	ND
BNL-2013-19	2/26/2013 16:47	TO15	trans-1,2-Dichloroethene	ND
BNL-2013-19	2/26/2013 16:47	TO15	trans-1,3-Dichloropropene	ND
BNL-2013-19	2/26/2013 16:47	TO15	Trichloroethene (TCE)	ND
BNL-2013-19	2/26/2013 16:47	TO15	Trichlorofluoromethane	ND
BNL-2013-19	2/26/2013 16:47	TO15	Xylenes, Total	ND
BNL-2013-19	2/26/2013 16:47	TO15	Vinyl Chloride	0.009949
BNL-2013-14	3/1/2013 10:32	TO15	Vinyl Chloride	0.028061
BNL-2013-12	2/26/2013 13:07	TO15	Xylenes, Total	0.006502
BNL-2013-06	2/27/2013 9:20	TO15	Xylenes, Total	0.007802
BNL-2013-18	2/26/2013 15:10	TO15	Xylenes, Total	0.008236
BNL-2013-16	3/1/2013 11:54	TO15	Xylenes, Total	0.008669
BNL-2013-15	2/26/2013 14:33	TO15	Xylenes, Total	0.027309
BNL-2013-11	2/26/2013 13:53	TO15	Xylenes, Total	0.041613
BNL-2013-17	3/1/2013 11:13	TO15	Xylenes, Total	0.398792
BNL-2013-08	3/1/2013 8:30	TO15	Xylenes, Total	0.736898
BNL-2013-20	2/26/2013 15:45	TO15	1,1,1-Trichloroethane	ND
BNL-2013-20	2/26/2013 15:45	TO15	1,1,2,2-Tetrachloroethane	ND
BNL-2013-20	2/26/2013 15:45	TO15	1,1,2-Trichloro-1,2,2-trifluoroethane	ND
BNL-2013-20	2/26/2013 15:45	TO15	1,1,2-Trichloroethane	ND

Attachment L1 Table1 Soil Gas Data: Broadway North Landfill

Sample Identification	Sample Date	Method	Chemical	Result mg/m^3
BNL-2013-20	2/26/2013 15:45	TO15	1,1-Dichloroethane	ND
BNL-2013-20	2/26/2013 15:45	TO15	1,1-Dichloroethene	ND
BNL-2013-20	2/26/2013 15:45	TO15	1,2,4-Trichlorobenzene	ND
BNL-2013-20	2/26/2013 15:45	TO15	1,2-Dibromoethane (EDB)	ND
BNL-2013-20	2/26/2013 15:45	TO15	1,2-Dichlorobenzene	ND
BNL-2013-20	2/26/2013 15:45	TO15	1,2-Dichloroethane	ND
BNL-2013-20	2/26/2013 15:45	TO15	1,2-Dichloropropane	ND
BNL-2013-20	2/26/2013 15:45	TO15	1,3-Dichlorobenzene	ND
BNL-2013-20	2/26/2013 15:45	TO15	Benzene	ND
BNL-2013-20	2/26/2013 15:45	TO15	Bromomethane	ND
BNL-2013-20	2/26/2013 15:45	TO15	Carbon Tetrachloride	ND
BNL-2013-20	2/26/2013 15:45	TO15	Chlorobenzene	ND
BNL-2013-20	2/26/2013 15:45	TO15	Chloroethane	ND
BNL-2013-20	2/26/2013 15:45	TO15	Chloroform	ND
BNL-2013-20	2/26/2013 15:45	TO15	Chloromethane	ND
BNL-2013-20	2/26/2013 15:45	TO15	cis-1,2-Dichloroethylene	ND
BNL-2013-20	2/26/2013 15:45	TO15	cis-1,3-Dichloropropene	ND
BNL-2013-20	2/26/2013 15:45	TO15	Hexachlorobutadiene	ND
BNL-2013-20	2/26/2013 15:45	TO15	Isopropanol	ND
BNL-2013-20	2/26/2013 15:45	TO15	Methylene Chloride	ND
BNL-2013-20	2/26/2013 15:45	TO15	trans-1,2-Dichloroethene	ND
BNL-2013-20	2/26/2013 15:45	TO15	trans-1,3-Dichloropropene	ND
BNL-2013-20	2/26/2013 15:45	TO15	Trichloroethene (TCE)	ND
BNL-2013-20	2/26/2013 15:45	TO15	Vinyl Chloride	ND
BNL-2013-20	2/26/2013 15:45	TO15	Xylenes, Total	ND

Attachment L1 Table2: Soil Gas Data: Broadway South Landfill

Sample Identification	Sample Date	Method	Chemical	Result mg/m^3
BSL-2013-04	2/22/2013 15:12	TO15	1,2,4-Trimethylbenzene	0.002404
BSL-2013-03	2/26/2013 11:06	TO15	1,2,4-Trimethylbenzene	0.01619
BSL-2013-04	2/22/2013 15:12	TO15	1,2-Dichlorotetrafluoroethane	0.006696
BSL-2013-01	3/1/2013 12:47	TO15	1,2-Dichlorotetrafluoroethane	0.027204
BSL-2013-01	3/1/2013 12:47	TO15	1,1,1-Trichloroethane	ND
BSL-2013-01	3/1/2013 12:47	TO15	1,1,2,2-Tetrachloroethane	ND
BSL-2013-01	3/1/2013 12:47	TO15	1,1,2-Trichloro-1,2,2-trifluoroethane	ND
BSL-2013-01	3/1/2013 12:47	TO15	1,1,2-Trichloroethane	ND
BSL-2013-01	3/1/2013 12:47	TO15	1,1-Dichloroethane	ND
BSL-2013-01	3/1/2013 12:47	TO15	1,1-Dichloroethene	ND
BSL-2013-01	3/1/2013 12:47	TO15	1,2,4-Trichlorobenzene	ND
BSL-2013-01	3/1/2013 12:47	TO15	1,2,4-Trimethylbenzene	ND
BSL-2013-01	3/1/2013 12:47	TO15	1,2-Dibromoethane (EDB)	ND
BSL-2013-01	3/1/2013 12:47	TO15	1,2-Dichlorobenzene	ND
BSL-2013-01	3/1/2013 12:47	TO15	1,2-Dichloroethane	ND
BSL-2013-01	3/1/2013 12:47	TO15	1,2-Dichloropropane	ND
BSL-2013-01	3/1/2013 12:47	TO15	1,3,5-Trimethylbenzene	ND
BSL-2013-01	3/1/2013 12:47	TO15	1,3-Dichlorobenzene	ND
BSL-2013-01	3/1/2013 12:47	TO15	1,4-Dichlorobenzene	ND
BSL-2013-01	3/1/2013 12:47	TO15	Benzene	ND
BSL-2013-01	3/1/2013 12:47	TO15	Bromomethane	ND
BSL-2013-01	3/1/2013 12:47	TO15	Carbon Tetrachloride	ND
BSL-2013-01	3/1/2013 12:47	TO15	Chlorobenzene	ND
BSL-2013-01	3/1/2013 12:47	TO15	Chloroethane	ND
BSL-2013-01	3/1/2013 12:47	TO15	Chloroform	ND
BSL-2013-01	3/1/2013 12:47	TO15	Chloromethane	ND
BSL-2013-01	3/1/2013 12:47	TO15	cis-1,2-Dichloroethylene	ND
BSL-2013-01	3/1/2013 12:47	TO15	cis-1,3-Dichloropropene	ND
BSL-2013-01	3/1/2013 12:47	TO15	Ethylbenzene	ND
BSL-2013-01	3/1/2013 12:47	TO15	Hexachlorobutadiene	ND
BSL-2013-01	3/1/2013 12:47	TO15	Isopropanol	ND
BSL-2013-01	3/1/2013 12:47	TO15	Methylene Chloride	ND
BSL-2013-01	3/1/2013 12:47	TO15	Styrene	ND
BSL-2013-01	3/1/2013 12:47	TO15	Tetrachloroethene (PCE)	ND
BSL-2013-01	3/1/2013 12:47	TO15	Toluene	ND
BSL-2013-01	3/1/2013 12:47	TO15	trans-1,2-Dichloroethene	ND
BSL-2013-01	3/1/2013 12:47	TO15	trans-1,3-Dichloropropene	ND
BSL-2013-01	3/1/2013 12:47	TO15	Trichloroethene (TCE)	ND
BSL-2013-01	3/1/2013 12:47	TO15	Trichlorofluoromethane	ND
BSL-2013-01	3/1/2013 12:47	TO15	Vinyl Chloride	ND
BSL-2013-01	3/1/2013 12:47	TO15	Xylenes, Total	ND
BSL-2013-010	3/1/2013 13:00	TO15	1,1,1-Trichloroethane	ND
BSL-2013-010	3/1/2013 13:00	TO15	1,1,2,2-Tetrachloroethane	ND
BSL-2013-010	3/1/2013 13:00	TO15	1,1,2-Trichloro-1,2,2-trifluoroethane	ND
BSL-2013-010	3/1/2013 13:00	TO15	1,1,2-Trichloroethane	ND
BSL-2013-010	3/1/2013 13:00	TO15	1,1-Dichloroethane	ND
BSL-2013-010	3/1/2013 13:00	TO15	1,1-Dichloroethene	ND
BSL-2013-010	3/1/2013 13:00	TO15	1,2,4-Trichlorobenzene	ND
BSL-2013-010	3/1/2013 13:00	TO15	1,2,4-Trimethylbenzene	ND
BSL-2013-010	3/1/2013 13:00	TO15	1,2-Dibromoethane (EDB)	ND
BSL-2013-010	3/1/2013 13:00	TO15	1,2-Dichlorobenzene	ND
BSL-2013-010	3/1/2013 13:00	TO15	1,2-Dichloroethane	ND
BSL-2013-010	3/1/2013 13:00	TO15	1,2-Dichloropropane	ND
BSL-2013-010	3/1/2013 13:00	TO15	1,2-Dichlorotetrafluoroethane	ND
BSL-2013-010	3/1/2013 13:00	TO15	1,3,5-Trimethylbenzene	ND
BSL-2013-010	3/1/2013 13:00	TO15	1,3-Dichlorobenzene	ND
BSL-2013-010	3/1/2013 13:00	TO15	1,4-Dichlorobenzene	ND
BSL-2013-010	3/1/2013 13:00	TO15	Benzene	ND
BSL-2013-010	3/1/2013 13:00	TO15	Bromomethane	ND

Attachment L1 Table2: Soil Gas Data: Broadway South Landfill

Sample Identification	Sample Date	Method	Chemical	Result mg/m^3
BSL-2013-010	3/1/2013 13:00	TO15	Carbon Tetrachloride	ND
BSL-2013-010	3/1/2013 13:00	TO15	Chlorobenzene	ND
BSL-2013-010	3/1/2013 13:00	TO15	Chloroethane	ND
BSL-2013-010	3/1/2013 13:00	TO15	Chloroform	ND
BSL-2013-010	3/1/2013 13:00	TO15	cis-1,2-Dichloroethylene	ND
BSL-2013-010	3/1/2013 13:00	TO15	cis-1,3-Dichloropropene	ND
BSL-2013-010	3/1/2013 13:00	TO15	Ethylbenzene	ND
BSL-2013-010	3/1/2013 13:00	TO15	Hexachlorobutadiene	ND
BSL-2013-010	3/1/2013 13:00	TO15	Isopropanol	ND
BSL-2013-010	3/1/2013 13:00	TO15	Methylene Chloride	ND
BSL-2013-010	3/1/2013 13:00	TO15	Styrene	ND
BSL-2013-010	3/1/2013 13:00	TO15	Tetrachloroethene (PCE)	ND
BSL-2013-010	3/1/2013 13:00	TO15	Toluene	ND
BSL-2013-010	3/1/2013 13:00	TO15	trans-1,2-Dichloroethene	ND
BSL-2013-010	3/1/2013 13:00	TO15	trans-1,3-Dichloropropene	ND
BSL-2013-010	3/1/2013 13:00	TO15	Trichloroethene (TCE)	ND
BSL-2013-010	3/1/2013 13:00	TO15	Trichlorofluoromethane	ND
BSL-2013-010	3/1/2013 13:00	TO15	Vinyl Chloride	ND
BSL-2013-010	3/1/2013 13:00	TO15	Xylenes, Total	ND
BSL-2013-030	2/26/2013 11:16	TO15	1,2-Dichlorotetrafluoroethane	0.032087
BSL-2013-05	2/22/2013 16:05	TO15	1,2-Dichlorotetrafluoroethane	0.046038
BSL-2013-03	2/26/2013 11:06	TO15	1,2-Dichlorotetrafluoroethane	0.049526
BSL-2013-02	2/26/2013 12:07	TO15	1,2-Dichlorotetrafluoroethane	0.054409
BSL-2013-050	2/22/2013 16:05	TO15	1,2-Dichlorotetrafluoroethane	0.055107
BSL-2013-02	2/26/2013 12:07	TO15	Benzene	0.002486
BSL-2013-04	2/22/2013 15:12	TO15	Benzene	0.002837
BSL-2013-02	2/26/2013 12:07	TO15	1,1,1-Trichloroethane	ND
BSL-2013-02	2/26/2013 12:07	TO15	1,1,2,2-Tetrachloroethane	ND
BSL-2013-02	2/26/2013 12:07	TO15	1,1,2-Trichloro-1,2,2-trifluoroethane	ND
BSL-2013-02	2/26/2013 12:07	TO15	1,1,2-Trichloroethane	ND
BSL-2013-02	2/26/2013 12:07	TO15	1,1-Dichloroethane	ND
BSL-2013-02	2/26/2013 12:07	TO15	1,1-Dichloroethene	ND
BSL-2013-02	2/26/2013 12:07	TO15	1,2,4-Trichlorobenzene	ND
BSL-2013-02	2/26/2013 12:07	TO15	1,2,4-Trimethylbenzene	ND
BSL-2013-02	2/26/2013 12:07	TO15	1,2-Dibromoethane (EDB)	ND
BSL-2013-02	2/26/2013 12:07	TO15	1,2-Dichlorobenzene	ND
BSL-2013-02	2/26/2013 12:07	TO15	1,2-Dichloroethane	ND
BSL-2013-02	2/26/2013 12:07	TO15	1,2-Dichloropropane	ND
BSL-2013-02	2/26/2013 12:07	TO15	1,3,5-Trimethylbenzene	ND
BSL-2013-02	2/26/2013 12:07	TO15	1,3-Dichlorobenzene	ND
BSL-2013-02	2/26/2013 12:07	TO15	1,4-Dichlorobenzene	ND
BSL-2013-02	2/26/2013 12:07	TO15	Bromomethane	ND
BSL-2013-02	2/26/2013 12:07	TO15	Carbon Tetrachloride	ND
BSL-2013-02	2/26/2013 12:07	TO15	Chlorobenzene	ND
BSL-2013-02	2/26/2013 12:07	TO15	Chloroethane	ND
BSL-2013-02	2/26/2013 12:07	TO15	Chloroform	ND
BSL-2013-02	2/26/2013 12:07	TO15	Chloromethane	ND
BSL-2013-02	2/26/2013 12:07	TO15	cis-1,2-Dichloroethylene	ND
BSL-2013-02	2/26/2013 12:07	TO15	cis-1,3-Dichloropropene	ND
BSL-2013-02	2/26/2013 12:07	TO15	Ethylbenzene	ND
BSL-2013-02	2/26/2013 12:07	TO15	Hexachlorobutadiene	ND
BSL-2013-02	2/26/2013 12:07	TO15	Isopropanol	ND
BSL-2013-02	2/26/2013 12:07	TO15	Tetrachloroethene (PCE)	ND
BSL-2013-02	2/26/2013 12:07	TO15	trans-1,2-Dichloroethene	ND
BSL-2013-02	2/26/2013 12:07	TO15	trans-1,3-Dichloropropene	ND
BSL-2013-02	2/26/2013 12:07	TO15	Trichloroethene (TCE)	ND
BSL-2013-02	2/26/2013 12:07	TO15	Trichlorofluoromethane	ND
BSL-2013-02	2/26/2013 12:07	TO15	Vinyl Chloride	ND
BSL-2013-05	2/22/2013 16:05	TO15	Benzene	0.006057

Attachment L1 Table2: Soil Gas Data: Broadway South Landfill

Sample Identification	Sample Date	Method	Chemical	Result mg/m^3
BSL-2013-050	2/22/2013 16:05	TO15	Benzene	0.007013
BSL-2013-030	2/26/2013 11:16	TO15	Benzene	0.020402
BSL-2013-03	2/26/2013 11:06	TO15	Benzene	0.029965
BSL-2013-010	3/1/2013 13:00	TO15	Chloromethane	0.012573
BSL-2013-030	2/26/2013 11:16	TO15	cis-1,2-Dichloroethylene	0.011865
BSL-2013-03	2/26/2013 11:06	TO15	cis-1,2-Dichloroethylene	0.016611
BSL-2013-02	2/26/2013 12:07	TO15	Dichlorodifluoromethane	0.003652
BSL-2013-010	3/1/2013 13:00	TO15	Dichlorodifluoromethane	0.022206
BSL-2013-01	3/1/2013 12:47	TO15	Dichlorodifluoromethane	0.02418
BSL-2013-050	2/22/2013 16:05	TO15	Dichlorodifluoromethane	0.035036
BSL-2013-030	2/26/2013 11:16	TO15	Dichlorodifluoromethane	0.039971
BSL-2013-04	2/22/2013 15:12	TO15	Dichlorodifluoromethane	0.049347
BSL-2013-05	2/22/2013 16:05	TO15	Dichlorodifluoromethane	0.049347
BSL-2013-03	2/26/2013 11:06	TO15	Dichlorodifluoromethane	0.064151
BSL-2013-04	2/22/2013 15:12	TO15	Ethylbenzene	0.001864
BSL-2013-030	2/26/2013 11:16	TO15	Ethylbenzene	0.003988
BSL-2013-05	2/22/2013 16:05	TO15	Ethylbenzene	0.047682
BSL-2013-050	2/22/2013 16:05	TO15	Ethylbenzene	0.056351
BSL-2013-03	2/26/2013 11:06	TO15	1,1,1-Trichloroethane	ND
BSL-2013-03	2/26/2013 11:06	TO15	1,1,2,2-Tetrachloroethane	ND
BSL-2013-03	2/26/2013 11:06	TO15	1,1,2-Trichloro-1,2,2-trifluoroethane	ND
BSL-2013-03	2/26/2013 11:06	TO15	1,1,2-Trichloroethane	ND
BSL-2013-03	2/26/2013 11:06	TO15	1,1-Dichloroethane	ND
BSL-2013-03	2/26/2013 11:06	TO15	1,1-Dichloroethene	ND
BSL-2013-03	2/26/2013 11:06	TO15	1,2,4-Trichlorobenzene	ND
BSL-2013-03	2/26/2013 11:06	TO15	1,2-Dibromoethane (EDB)	ND
BSL-2013-03	2/26/2013 11:06	TO15	1,2-Dichlorobenzene	ND
BSL-2013-03	2/26/2013 11:06	TO15	1,2-Dichloroethane	ND
BSL-2013-03	2/26/2013 11:06	TO15	1,2-Dichloropropane	ND
BSL-2013-03	2/26/2013 11:06	TO15	1,3,5-Trimethylbenzene	ND
BSL-2013-03	2/26/2013 11:06	TO15	1,3-Dichlorobenzene	ND
BSL-2013-03	2/26/2013 11:06	TO15	1,4-Dichlorobenzene	ND
BSL-2013-03	2/26/2013 11:06	TO15	Bromomethane	ND
BSL-2013-03	2/26/2013 11:06	TO15	Carbon Tetrachloride	ND
BSL-2013-03	2/26/2013 11:06	TO15	Chlorobenzene	ND
BSL-2013-03	2/26/2013 11:06	TO15	Chloroethane	ND
BSL-2013-03	2/26/2013 11:06	TO15	Chloroform	ND
BSL-2013-03	2/26/2013 11:06	TO15	Chloromethane	ND
BSL-2013-03	2/26/2013 11:06	TO15	cis-1,3-Dichloropropene	ND
BSL-2013-03	2/26/2013 11:06	TO15	Ethylbenzene	ND
BSL-2013-03	2/26/2013 11:06	TO15	Hexachlorobutadiene	ND
BSL-2013-03	2/26/2013 11:06	TO15	Isopropanol	ND
BSL-2013-03	2/26/2013 11:06	TO15	Styrene	ND
BSL-2013-03	2/26/2013 11:06	TO15	Tetrachloroethene (PCE)	ND
BSL-2013-03	2/26/2013 11:06	TO15	trans-1,2-Dichloroethene	ND
BSL-2013-03	2/26/2013 11:06	TO15	trans-1,3-Dichloropropene	ND
BSL-2013-03	2/26/2013 11:06	TO15	Trichloroethene (TCE)	ND
BSL-2013-03	2/26/2013 11:06	TO15	Trichlorofluoromethane	ND
BSL-2013-03	2/26/2013 11:06	TO15	Xylenes, Total	ND
BSL-2013-030	2/26/2013 11:16	TO15	1,1,1-Trichloroethane	ND
BSL-2013-030	2/26/2013 11:16	TO15	1,1,2,2-Tetrachloroethane	ND
BSL-2013-030	2/26/2013 11:16	TO15	1,1,2-Trichloro-1,2,2-trifluoroethane	ND
BSL-2013-030	2/26/2013 11:16	TO15	1,1,2-Trichloroethane	ND
BSL-2013-030	2/26/2013 11:16	TO15	1,1-Dichloroethane	ND
BSL-2013-030	2/26/2013 11:16	TO15	1,1-Dichloroethene	ND
BSL-2013-030	2/26/2013 11:16	TO15	1,2,4-Trichlorobenzene	ND
BSL-2013-030	2/26/2013 11:16	TO15	1,2,4-Trimethylbenzene	ND
BSL-2013-030	2/26/2013 11:16	TO15	1,2-Dibromoethane (EDB)	ND
BSL-2013-030	2/26/2013 11:16	TO15	1,2-Dichlorobenzene	ND

Attachment L1 Table2: Soil Gas Data: Broadway South Landfill

Sample Identification	Sample Date	Method	Chemical	Result mg/m^3
BSL-2013-030	2/26/2013 11:16	TO15	1,2-Dichloroethane	ND
BSL-2013-030	2/26/2013 11:16	TO15	1,2-Dichloropropane	ND
BSL-2013-030	2/26/2013 11:16	TO15	1,3,5-Trimethylbenzene	ND
BSL-2013-030	2/26/2013 11:16	TO15	1,3-Dichlorobenzene	ND
BSL-2013-030	2/26/2013 11:16	TO15	1,4-Dichlorobenzene	ND
BSL-2013-030	2/26/2013 11:16	TO15	Bromomethane	ND
BSL-2013-030	2/26/2013 11:16	TO15	Carbon Tetrachloride	ND
BSL-2013-030	2/26/2013 11:16	TO15	Chlorobenzene	ND
BSL-2013-030	2/26/2013 11:16	TO15	Chloroethane	ND
BSL-2013-030	2/26/2013 11:16	TO15	Chloroform	ND
BSL-2013-030	2/26/2013 11:16	TO15	Chloromethane	ND
BSL-2013-030	2/26/2013 11:16	TO15	cis-1,3-Dichloropropene	ND
BSL-2013-030	2/26/2013 11:16	TO15	Hexachlorobutadiene	ND
BSL-2013-030	2/26/2013 11:16	TO15	Tetrachloroethene (PCE)	ND
BSL-2013-030	2/26/2013 11:16	TO15	trans-1,2-Dichloroethene	ND
BSL-2013-030	2/26/2013 11:16	TO15	trans-1,3-Dichloropropene	ND
BSL-2013-030	2/26/2013 11:16	TO15	Trichloroethene (TCE)	ND
BSL-2013-030	2/26/2013 11:16	TO15	Trichlorofluoromethane	ND
BSL-2013-030	2/26/2013 11:16	TO15	Isopropanol	0.010303
BSL-2013-050	2/22/2013 16:05	TO15	Methylene Chloride	0.002287
BSL-2013-04	2/22/2013 15:12	TO15	Methylene Chloride	0.002842
BSL-2013-05	2/22/2013 16:05	TO15	Methylene Chloride	0.005544
BSL-2013-030	2/26/2013 11:16	TO15	Methylene Chloride	0.006238
BSL-2013-02	2/26/2013 12:07	TO15	Methylene Chloride	0.009703
BSL-2013-03	2/26/2013 11:06	TO15	Methylene Chloride	0.013168
BSL-2013-030	2/26/2013 11:16	TO15	Styrene	0.001912
BSL-2013-04	2/22/2013 15:12	TO15	Styrene	0.003229
BSL-2013-02	2/26/2013 12:07	TO15	Styrene	0.003824
BSL-2013-04	2/22/2013 15:12	TO15	1,1,1-Trichloroethane	ND
BSL-2013-04	2/22/2013 15:12	TO15	1,1,2,2-Tetrachloroethane	ND
BSL-2013-04	2/22/2013 15:12	TO15	1,1,2-Trichloro-1,2,2-trifluoroethane	ND
BSL-2013-04	2/22/2013 15:12	TO15	1,1,2-Trichloroethane	ND
BSL-2013-04	2/22/2013 15:12	TO15	1,1-Dichloroethane	ND
BSL-2013-04	2/22/2013 15:12	TO15	1,1-Dichloroethene	ND
BSL-2013-04	2/22/2013 15:12	TO15	1,2,4-Trichlorobenzene	ND
BSL-2013-04	2/22/2013 15:12	TO15	1,2-Dibromoethane (EDB)	ND
BSL-2013-04	2/22/2013 15:12	TO15	1,2-Dichlorobenzene	ND
BSL-2013-04	2/22/2013 15:12	TO15	1,2-Dichloroethane	ND
BSL-2013-04	2/22/2013 15:12	TO15	1,2-Dichloropropane	ND
BSL-2013-04	2/22/2013 15:12	TO15	1,3,5-Trimethylbenzene	ND
BSL-2013-04	2/22/2013 15:12	TO15	1,3-Dichlorobenzene	ND
BSL-2013-04	2/22/2013 15:12	TO15	1,4-Dichlorobenzene	ND
BSL-2013-04	2/22/2013 15:12	TO15	Bromomethane	ND
BSL-2013-04	2/22/2013 15:12	TO15	Carbon Tetrachloride	ND
BSL-2013-04	2/22/2013 15:12	TO15	Chlorobenzene	ND
BSL-2013-04	2/22/2013 15:12	TO15	Chloroethane	ND
BSL-2013-04	2/22/2013 15:12	TO15	Chloroform	ND
BSL-2013-04	2/22/2013 15:12	TO15	Chloromethane	ND
BSL-2013-04	2/22/2013 15:12	TO15	cis-1,2-Dichloroethylene	ND
BSL-2013-04	2/22/2013 15:12	TO15	cis-1,3-Dichloropropene	ND
BSL-2013-04	2/22/2013 15:12	TO15	Hexachlorobutadiene	ND
BSL-2013-04	2/22/2013 15:12	TO15	Isopropanol	ND
BSL-2013-04	2/22/2013 15:12	TO15	trans-1,2-Dichloroethene	ND
BSL-2013-04	2/22/2013 15:12	TO15	trans-1,3-Dichloropropene	ND
BSL-2013-04	2/22/2013 15:12	TO15	Trichloroethene (TCE)	ND
BSL-2013-04	2/22/2013 15:12	TO15	Trichlorofluoromethane	ND
BSL-2013-04	2/22/2013 15:12	TO15	Vinyl Chloride	ND
BSL-2013-05	2/22/2013 16:05	TO15	Styrene	0.161461
BSL-2013-050	2/22/2013 16:05	TO15	Styrene	0.182706

Attachment L1 Table2: Soil Gas Data: Broadway South Landfill

Sample Identification	Sample Date	Method	Chemical	Result mg/m^3
BSL-2013-05	2/22/2013 16:05	TO15	Tetrachloroethene (PCE)	0.008121
BSL-2013-050	2/22/2013 16:05	TO15	Tetrachloroethene (PCE)	0.008121
BSL-2013-04	2/22/2013 15:12	TO15	Tetrachloroethene (PCE)	0.023686
BSL-2013-02	2/26/2013 12:07	TO15	Toluene	0.005639
BSL-2013-04	2/22/2013 15:12	TO15	Toluene	0.007518
BSL-2013-05	2/22/2013 16:05	TO15	Toluene	0.012029
BSL-2013-050	2/22/2013 16:05	TO15	Toluene	0.014285
BSL-2013-030	2/26/2013 11:16	TO15	Toluene	0.01654
BSL-2013-03	2/26/2013 11:06	TO15	Toluene	0.022931
BSL-2013-030	2/26/2013 11:16	TO15	Vinyl Chloride	0.003827
BSL-2013-03	2/26/2013 11:06	TO15	Vinyl Chloride	0.006633
BSL-2013-02	2/26/2013 12:07	TO15	Xylenes, Total	0.006502
BSL-2013-04	2/22/2013 15:12	TO15	Xylenes, Total	0.007369
BSL-2013-030	2/26/2013 11:16	TO15	Xylenes, Total	0.008236
BSL-2013-05	2/22/2013 16:05	TO15	Xylenes, Total	0.008236
BSL-2013-050	2/22/2013 16:05	TO15	Xylenes, Total	0.009536
BSL-2013-05	2/22/2013 16:05	TO15	1,1,1-Trichloroethane	ND
BSL-2013-05	2/22/2013 16:05	TO15	1,1,2,2-Tetrachloroethane	ND
BSL-2013-05	2/22/2013 16:05	TO15	1,1,2-Trichloro-1,2,2-trifluoroethane	ND
BSL-2013-05	2/22/2013 16:05	TO15	1,1,2-Trichloroethane	ND
BSL-2013-05	2/22/2013 16:05	TO15	1,1-Dichloroethane	ND
BSL-2013-05	2/22/2013 16:05	TO15	1,1-Dichloroethene	ND
BSL-2013-05	2/22/2013 16:05	TO15	1,2,4-Trichlorobenzene	ND
BSL-2013-05	2/22/2013 16:05	TO15	1,2,4-Trimethylbenzene	ND
BSL-2013-05	2/22/2013 16:05	TO15	1,2-Dibromoethane (EDB)	ND
BSL-2013-05	2/22/2013 16:05	TO15	1,2-Dichlorobenzene	ND
BSL-2013-05	2/22/2013 16:05	TO15	1,2-Dichloroethane	ND
BSL-2013-05	2/22/2013 16:05	TO15	1,2-Dichloropropane	ND
BSL-2013-05	2/22/2013 16:05	TO15	1,3,5-Trimethylbenzene	ND
BSL-2013-05	2/22/2013 16:05	TO15	1,3-Dichlorobenzene	ND
BSL-2013-05	2/22/2013 16:05	TO15	1,4-Dichlorobenzene	ND
BSL-2013-05	2/22/2013 16:05	TO15	Bromomethane	ND
BSL-2013-05	2/22/2013 16:05	TO15	Carbon Tetrachloride	ND
BSL-2013-05	2/22/2013 16:05	TO15	Chlorobenzene	ND
BSL-2013-05	2/22/2013 16:05	TO15	Chloroethane	ND
BSL-2013-05	2/22/2013 16:05	TO15	Chloroform	ND
BSL-2013-05	2/22/2013 16:05	TO15	Chloromethane	ND
BSL-2013-05	2/22/2013 16:05	TO15	cis-1,2-Dichloroethylene	ND
BSL-2013-05	2/22/2013 16:05	TO15	cis-1,3-Dichloropropene	ND
BSL-2013-05	2/22/2013 16:05	TO15	Hexachlorobutadiene	ND
BSL-2013-05	2/22/2013 16:05	TO15	Isopropanol	ND
BSL-2013-05	2/22/2013 16:05	TO15	trans-1,2-Dichloroethene	ND
BSL-2013-05	2/22/2013 16:05	TO15	trans-1,3-Dichloropropene	ND
BSL-2013-05	2/22/2013 16:05	TO15	Trichloroethene (TCE)	ND
BSL-2013-05	2/22/2013 16:05	TO15	Trichlorofluoromethane	ND
BSL-2013-05	2/22/2013 16:05	TO15	Vinyl Chloride	ND
BSL-2013-050	2/22/2013 16:05	TO15	1,1,1-Trichloroethane	ND
BSL-2013-050	2/22/2013 16:05	TO15	1,1,2,2-Tetrachloroethane	ND
BSL-2013-050	2/22/2013 16:05	TO15	1,1,2-Trichloro-1,2,2-trifluoroethane	ND
BSL-2013-050	2/22/2013 16:05	TO15	1,1,2-Trichloroethane	ND
BSL-2013-050	2/22/2013 16:05	TO15	1,1-Dichloroethane	ND
BSL-2013-050	2/22/2013 16:05	TO15	1,1-Dichloroethene	ND
BSL-2013-050	2/22/2013 16:05	TO15	1,2,4-Trichlorobenzene	ND
BSL-2013-050	2/22/2013 16:05	TO15	1,2,4-Trimethylbenzene	ND
BSL-2013-050	2/22/2013 16:05	TO15	1,2-Dibromoethane (EDB)	ND
BSL-2013-050	2/22/2013 16:05	TO15	1,2-Dichlorobenzene	ND
BSL-2013-050	2/22/2013 16:05	TO15	1,2-Dichloroethane	ND
BSL-2013-050	2/22/2013 16:05	TO15	1,2-Dichloropropane	ND
BSL-2013-050	2/22/2013 16:05	TO15	1,3,5-Trimethylbenzene	ND

Attachment L1 Table2: Soil Gas Data: Broadway South Landfill

Sample Identification	Sample Date	Method	Chemical	Result mg/m^3
BSL-2013-050	2/22/2013 16:05	TO15	1,3-Dichlorobenzene	ND
BSL-2013-050	2/22/2013 16:05	TO15	1,4-Dichlorobenzene	ND
BSL-2013-050	2/22/2013 16:05	TO15	Bromomethane	ND
BSL-2013-050	2/22/2013 16:05	TO15	Carbon Tetrachloride	ND
BSL-2013-050	2/22/2013 16:05	TO15	Chlorobenzene	ND
BSL-2013-050	2/22/2013 16:05	TO15	Chloroethane	ND
BSL-2013-050	2/22/2013 16:05	TO15	Chloroform	ND
BSL-2013-050	2/22/2013 16:05	TO15	Chloromethane	ND
BSL-2013-050	2/22/2013 16:05	TO15	cis-1,2-Dichloroethylene	ND
BSL-2013-050	2/22/2013 16:05	TO15	cis-1,3-Dichloropropene	ND
BSL-2013-050	2/22/2013 16:05	TO15	Hexachlorobutadiene	ND
BSL-2013-050	2/22/2013 16:05	TO15	Isopropanol	ND
BSL-2013-050	2/22/2013 16:05	TO15	trans-1,2-Dichloroethene	ND
BSL-2013-050	2/22/2013 16:05	TO15	trans-1,3-Dichloropropene	ND
BSL-2013-050	2/22/2013 16:05	TO15	Trichloroethene (TCE)	ND
BSL-2013-050	2/22/2013 16:05	TO15	Trichlorofluoromethane	ND
BSL-2013-050	2/22/2013 16:05	TO15	Vinyl Chloride	ND

Attachment L1 Table 3: Soil Data: Broadway South Landfill

Sample Identification	Sample Date	Method	Chemical	Result mg/kg
SS-BSL-01	3/4/2013 9:00	SW8270C	Hexachlorocyclopentadiene	ND
SS-BSL-01	3/4/2013 9:00	SW6010B	Arsenic	1.1
SS-BSL-07	3/4/2013 14:25	SW6010B	Arsenic	1.4
SS-BSL-10	3/4/2013 14:45	SW6010B	Arsenic	1.4
SS-BSL-04	3/4/2013 13:55	SW6010B	Arsenic	1.5
SS-BSL-08	3/4/2013 14:30	SW6010B	Arsenic	1.7
SS-BSL-06	3/4/2013 14:15	SW6010B	Arsenic	2
SS-BSL-05	3/4/2013 14:05	SW6010B	Barium	33
SS-BSL-01	3/4/2013 9:00	SW6010B	Selenium	ND
SS-BSL-01	3/4/2013 9:00	SW8081A	Aldrin	ND
SS-BSL-01	3/4/2013 9:00	SW8081A	alpha-BHC (alpha-Hexachlorocyclohexane)	ND
SS-BSL-01	3/4/2013 9:00	SW8081A	alpha-Chlordane	ND
SS-BSL-01	3/4/2013 9:00	SW8081A	alpha-Endosulfan	ND
SS-BSL-01	3/4/2013 9:00	SW8081A	beta-BHC (beta-Hexachlorocyclohexane)	ND
SS-BSL-01	3/4/2013 9:00	SW8081A	beta-Endosulfan	ND
SS-BSL-01	3/4/2013 9:00	SW8081A	delta-BHC (delta-Hexachlorocyclohexane)	ND
SS-BSL-01	3/4/2013 9:00	SW8081A	Dieldrin	ND
SS-BSL-01	3/4/2013 9:00	SW8081A	Endosulfan Sulfate	ND
SS-BSL-01	3/4/2013 9:00	SW8081A	Endrin	ND
SS-BSL-01	3/4/2013 9:00	SW8081A	Endrin Aldehyde	ND
SS-BSL-01	3/4/2013 9:00	SW8081A	Endrin Ketone	ND
SS-BSL-01	3/4/2013 9:00	SW8081A	gamma-BHC (Lindane)	ND
SS-BSL-01	3/4/2013 9:00	SW8081A	gamma-Chlordane	ND
SS-BSL-01	3/4/2013 9:00	SW8081A	Heptachlor	ND
SS-BSL-01	3/4/2013 9:00	SW8081A	Heptachlor Epoxide	ND
SS-BSL-01	3/4/2013 9:00	SW8081A	Methoxychlor	ND
SS-BSL-01	3/4/2013 9:00	SW8081A	p,p'-DDD	ND
SS-BSL-01	3/4/2013 9:00	SW8081A	p,p'-DDE	ND
SS-BSL-01	3/4/2013 9:00	SW8081A	p,p'-DDT	ND
SS-BSL-01	3/4/2013 9:00	SW8081A	Toxaphene	ND
SS-BSL-01	3/4/2013 9:00	SW8082	PCB-1016 (Arochlor 1016)	ND
SS-BSL-01	3/4/2013 9:00	SW8082	PCB-1221 (Arochlor 1221)	ND
SS-BSL-01	3/4/2013 9:00	SW8082	PCB-1232 (Arochlor 1232)	ND
SS-BSL-01	3/4/2013 9:00	SW8082	PCB-1242 (Arochlor 1242)	ND
SS-BSL-01	3/4/2013 9:00	SW8082	PCB-1248 (Arochlor 1248)	ND
SS-BSL-01	3/4/2013 9:00	SW8082	PCB-1254 (Arochlor 1254)	ND
SS-BSL-01	3/4/2013 9:00	SW8082	PCB-1260 (Arochlor 1260)	ND
SS-BSL-01	3/4/2013 9:00	SW8270C	1,2,4-Trichlorobenzene	ND
SS-BSL-01	3/4/2013 9:00	SW8270C	1,2-Dichlorobenzene	ND
SS-BSL-01	3/4/2013 9:00	SW8270C	1,3-Dichlorobenzene	ND
SS-BSL-01	3/4/2013 9:00	SW8270C	1,4-Dichlorobenzene	ND
SS-BSL-01	3/4/2013 9:00	SW8270C	2,4,5-Trichlorophenol	ND
SS-BSL-01	3/4/2013 9:00	SW8270C	2,4,6-Trichlorophenol	ND
SS-BSL-01	3/4/2013 9:00	SW8270C	2,4-Dichlorophenol	ND
SS-BSL-01	3/4/2013 9:00	SW8270C	2,4-Dimethylphenol	ND
SS-BSL-01	3/4/2013 9:00	SW8270C	2,4-Dinitrophenol	ND
SS-BSL-01	3/4/2013 9:00	SW8270C	2,4-Dinitrotoluene	ND
SS-BSL-01	3/4/2013 9:00	SW8270C	2,6-Dinitrotoluene	ND
SS-BSL-01	3/4/2013 9:00	SW8270C	2-Chloronaphthalene	ND
SS-BSL-01	3/4/2013 9:00	SW8270C	2-Chlorophenol	ND
SS-BSL-01	3/4/2013 9:00	SW8270C	2-Methylnaphthalene	ND
SS-BSL-01	3/4/2013 9:00	SW8270C	2-Methylphenol (o-Cresol)	ND
SS-BSL-01	3/4/2013 9:00	SW8270C	2-Nitroaniline	ND
SS-BSL-01	3/4/2013 9:00	SW8270C	2-Nitrophenol	ND
SS-BSL-01	3/4/2013 9:00	SW8270C	3,3'-Dichlorobenzidine	ND
SS-BSL-01	3/4/2013 9:00	SW8270C	3-Nitroaniline	ND
SS-BSL-01	3/4/2013 9:00	SW8270C	4,6-Dinitro-2-Methylphenol	ND
SS-BSL-01	3/4/2013 9:00	SW8270C	4-Bromophenyl phenyl ether	ND
SS-BSL-01	3/4/2013 9:00	SW8270C	4-Chloro-3-Methylphenol	ND
SS-BSL-01	3/4/2013 9:00	SW8270C	4-Chloroaniline	ND
SS-BSL-01	3/4/2013 9:00	SW8270C	4-Chlorophenyl Phenyl Ether	ND
SS-BSL-01	3/4/2013 9:00	SW8270C	4-Methylphenol (p-Cresol)	ND
SS-BSL-01	3/4/2013 9:00	SW8270C	4-Nitroaniline	ND
SS-BSL-01	3/4/2013 9:00	SW8270C	4-Nitrophenol	ND

Attachment L1 Table 3: Soil Data: Broadway South Landfill

Sample Identification	Sample Date	Method	Chemical	Result mg/kg
SS-BSL-01	3/4/2013 9:00	SW8270C	Acenaphthene	ND
SS-BSL-01	3/4/2013 9:00	SW8270C	Acenaphthylene	ND
SS-BSL-01	3/4/2013 9:00	SW8270C	Aniline (Phenylamine, Aminobenzene)	ND
SS-BSL-01	3/4/2013 9:00	SW8270C	Anthracene	ND
SS-BSL-01	3/4/2013 9:00	SW8270C	Benzo(a)anthracene	ND
SS-BSL-01	3/4/2013 9:00	SW8270C	Benzo(a)pyrene	ND
SS-BSL-01	3/4/2013 9:00	SW8270C	Benzo(b)fluoranthene	ND
SS-BSL-01	3/4/2013 9:00	SW8270C	Benzo(g,h,i)perylene	ND
SS-BSL-01	3/4/2013 9:00	SW8270C	Benzo(k)fluoranthene	ND
SS-BSL-01	3/4/2013 9:00	SW8270C	Benzoic acid	ND
SS-BSL-01	3/4/2013 9:00	SW8270C	Benzyl alcohol	ND
SS-BSL-01	3/4/2013 9:00	SW8270C	Benzyl butyl phthalate	ND
SS-BSL-01	3/4/2013 9:00	SW8270C	bis(2-Chloroethoxy) Methane	ND
SS-BSL-01	3/4/2013 9:00	SW8270C	bis(2-Chloroethyl) Ether (2-Chloroethyl Ether)	ND
SS-BSL-01	3/4/2013 9:00	SW8270C	bis(2-Ethylhexyl) Phthalate	ND
SS-BSL-01	3/4/2013 9:00	SW8270C	Chrysene	ND
SS-BSL-01	3/4/2013 9:00	SW8270C	Di-n-Butyl Phthalate	ND
SS-BSL-01	3/4/2013 9:00	SW8270C	Di-n-Octylphthalate	ND
SS-BSL-01	3/4/2013 9:00	SW8270C	Dibenz(a,h)anthracene	ND
SS-BSL-01	3/4/2013 9:00	SW8270C	Dibenzofuran	ND
SS-BSL-01	3/4/2013 9:00	SW8270C	Diethyl Phthalate	ND
SS-BSL-01	3/4/2013 9:00	SW8270C	Dimethyl Phthalate	ND
SS-BSL-01	3/4/2013 9:00	SW8270C	Fluoranthene	ND
SS-BSL-01	3/4/2013 9:00	SW8270C	Fluorene	ND
SS-BSL-01	3/4/2013 9:00	SW8270C	Hexachlorobenzene	ND
SS-BSL-01	3/4/2013 9:00	SW8270C	Hexachlorobutadiene	ND
SS-BSL-01	3/4/2013 9:00	SW8270C	Hexachloroethane	ND
SS-BSL-01	3/4/2013 9:00	SW8270C	Indeno(1,2,3-c,d)pyrene	ND
SS-BSL-01	3/4/2013 9:00	SW8270C	Isophorone	ND
SS-BSL-01	3/4/2013 9:00	SW8270C	n-Nitrosodi-n-propylamine	ND
SS-BSL-01	3/4/2013 9:00	SW8270C	n-Nitrosodimethylamine	ND
SS-BSL-01	3/4/2013 9:00	SW8270C	n-Nitrosodiphenylamine	ND
SS-BSL-01	3/4/2013 9:00	SW8270C	Naphthalene	ND
SS-BSL-01	3/4/2013 9:00	SW8270C	Nitrobenzene	ND
SS-BSL-01	3/4/2013 9:00	SW8270C	Pentachlorophenol	ND
SS-BSL-01	3/4/2013 9:00	SW8270C	Phenanthrene	ND
SS-BSL-01	3/4/2013 9:00	SW8270C	Phenol	ND
SS-BSL-01	3/4/2013 9:00	SW8270C	Pyrene	ND
SS-BSL-02	3/4/2013 9:20	SW8270C	Hexachlorocyclopentadiene	ND
SS-BSL-10	3/4/2013 14:45	SW6010B	Barium	37
SS-BSL-09	3/4/2013 14:40	SW6010B	Barium	41
SS-BSL-03	3/4/2013 13:48	SW6010B	Barium	44
SS-BSL-04	3/4/2013 13:55	SW6010B	Barium	50
SS-BSL-06	3/4/2013 14:15	SW6010B	Barium	52
SS-BSL-02	3/4/2013 9:20	SW6010B	Arsenic	ND
SS-BSL-02	3/4/2013 9:20	SW6010B	Cadmium	ND
SS-BSL-02	3/4/2013 9:20	SW6010B	Selenium	ND
SS-BSL-02	3/4/2013 9:20	SW8081A	Aldrin	ND
SS-BSL-02	3/4/2013 9:20	SW8081A	alpha-BHC (alpha-Hexachlorocyclohexane)	ND
SS-BSL-02	3/4/2013 9:20	SW8081A	alpha-Chlordane	ND
SS-BSL-02	3/4/2013 9:20	SW8081A	alpha-Endosulfan	ND
SS-BSL-02	3/4/2013 9:20	SW8081A	beta-BHC (beta-Hexachlorocyclohexane)	ND
SS-BSL-02	3/4/2013 9:20	SW8081A	beta-Endosulfan	ND
SS-BSL-02	3/4/2013 9:20	SW8081A	delta-BHC (delta-Hexachlorocyclohexane)	ND
SS-BSL-02	3/4/2013 9:20	SW8081A	Dieldrin	ND
SS-BSL-02	3/4/2013 9:20	SW8081A	Endosulfan Sulfate	ND
SS-BSL-02	3/4/2013 9:20	SW8081A	Endrin	ND
SS-BSL-02	3/4/2013 9:20	SW8081A	Endrin Aldehyde	ND
SS-BSL-02	3/4/2013 9:20	SW8081A	Endrin Ketone	ND
SS-BSL-02	3/4/2013 9:20	SW8081A	gamma-BHC (Lindane)	ND
SS-BSL-02	3/4/2013 9:20	SW8081A	gamma-Chlordane	ND
SS-BSL-02	3/4/2013 9:20	SW8081A	Heptachlor	ND
SS-BSL-02	3/4/2013 9:20	SW8081A	Heptachlor Epoxide	ND
SS-BSL-02	3/4/2013 9:20	SW8081A	Methoxychlor	ND

Attachment L1 Table 3: Soil Data: Broadway South Landfill

Sample Identification	Sample Date	Method	Chemical	Result mg/kg
SS-BSL-02	3/4/2013 9:20	SW8081A	p,p'-DDD	ND
SS-BSL-02	3/4/2013 9:20	SW8081A	p,p'-DDE	ND
SS-BSL-02	3/4/2013 9:20	SW8081A	p,p'-DDT	ND
SS-BSL-02	3/4/2013 9:20	SW8081A	Toxaphene	ND
SS-BSL-02	3/4/2013 9:20	SW8082	PCB-1016 (Arochlor 1016)	ND
SS-BSL-02	3/4/2013 9:20	SW8082	PCB-1221 (Arochlor 1221)	ND
SS-BSL-02	3/4/2013 9:20	SW8082	PCB-1232 (Arochlor 1232)	ND
SS-BSL-02	3/4/2013 9:20	SW8082	PCB-1242 (Arochlor 1242)	ND
SS-BSL-02	3/4/2013 9:20	SW8082	PCB-1248 (Arochlor 1248)	ND
SS-BSL-02	3/4/2013 9:20	SW8082	PCB-1254 (Arochlor 1254)	ND
SS-BSL-02	3/4/2013 9:20	SW8082	PCB-1260 (Arochlor 1260)	ND
SS-BSL-02	3/4/2013 9:20	SW8270C	1,2,4-Trichlorobenzene	ND
SS-BSL-02	3/4/2013 9:20	SW8270C	1,2-Dichlorobenzene	ND
SS-BSL-02	3/4/2013 9:20	SW8270C	1,3-Dichlorobenzene	ND
SS-BSL-02	3/4/2013 9:20	SW8270C	1,4-Dichlorobenzene	ND
SS-BSL-02	3/4/2013 9:20	SW8270C	2,4,5-Trichlorophenol	ND
SS-BSL-02	3/4/2013 9:20	SW8270C	2,4,6-Trichlorophenol	ND
SS-BSL-02	3/4/2013 9:20	SW8270C	2,4-Dichlorophenol	ND
SS-BSL-02	3/4/2013 9:20	SW8270C	2,4-Dimethylphenol	ND
SS-BSL-02	3/4/2013 9:20	SW8270C	2,4-Dinitrophenol	ND
SS-BSL-02	3/4/2013 9:20	SW8270C	2,4-Dinitrotoluene	ND
SS-BSL-02	3/4/2013 9:20	SW8270C	2,6-Dinitrotoluene	ND
SS-BSL-02	3/4/2013 9:20	SW8270C	2-Chloronaphthalene	ND
SS-BSL-02	3/4/2013 9:20	SW8270C	2-Chlorophenol	ND
SS-BSL-02	3/4/2013 9:20	SW8270C	2-Methylnaphthalene	ND
SS-BSL-02	3/4/2013 9:20	SW8270C	2-Methylphenol (o-Cresol)	ND
SS-BSL-02	3/4/2013 9:20	SW8270C	2-Nitroaniline	ND
SS-BSL-02	3/4/2013 9:20	SW8270C	2-Nitrophenol	ND
SS-BSL-02	3/4/2013 9:20	SW8270C	3,3'-Dichlorobenzidine	ND
SS-BSL-02	3/4/2013 9:20	SW8270C	3-Nitroaniline	ND
SS-BSL-02	3/4/2013 9:20	SW8270C	4,6-Dinitro-2-Methylphenol	ND
SS-BSL-02	3/4/2013 9:20	SW8270C	4-Bromophenyl phenyl ether	ND
SS-BSL-02	3/4/2013 9:20	SW8270C	4-Chloro-3-Methylphenol	ND
SS-BSL-02	3/4/2013 9:20	SW8270C	4-Chloroaniline	ND
SS-BSL-02	3/4/2013 9:20	SW8270C	4-Chlorophenyl Phenyl Ether	ND
SS-BSL-02	3/4/2013 9:20	SW8270C	4-Methylphenol (p-Cresol)	ND
SS-BSL-02	3/4/2013 9:20	SW8270C	4-Nitroaniline	ND
SS-BSL-02	3/4/2013 9:20	SW8270C	4-Nitrophenol	ND
SS-BSL-02	3/4/2013 9:20	SW8270C	Acenaphthene	ND
SS-BSL-02	3/4/2013 9:20	SW8270C	Acenaphthylene	ND
SS-BSL-02	3/4/2013 9:20	SW8270C	Aniline (Phenylamine, Aminobenzene)	ND
SS-BSL-02	3/4/2013 9:20	SW8270C	Anthracene	ND
SS-BSL-02	3/4/2013 9:20	SW8270C	Benzo(a)anthracene	ND
SS-BSL-02	3/4/2013 9:20	SW8270C	Benzo(a)pyrene	ND
SS-BSL-02	3/4/2013 9:20	SW8270C	Benzo(b)fluoranthene	ND
SS-BSL-02	3/4/2013 9:20	SW8270C	Benzo(g,h,i)perylene	ND
SS-BSL-02	3/4/2013 9:20	SW8270C	Benzo(k)fluoranthene	ND
SS-BSL-02	3/4/2013 9:20	SW8270C	Benzoic acid	ND
SS-BSL-02	3/4/2013 9:20	SW8270C	Benzyl alcohol	ND
SS-BSL-02	3/4/2013 9:20	SW8270C	Benzyl butyl phthalate	ND
SS-BSL-02	3/4/2013 9:20	SW8270C	bis(2-Chloroethoxy) Methane	ND
SS-BSL-02	3/4/2013 9:20	SW8270C	bis(2-Chloroethyl) Ether (2-Chloroethyl Ether)	ND
SS-BSL-02	3/4/2013 9:20	SW8270C	bis(2-Ethylhexyl) Phthalate	ND
SS-BSL-02	3/4/2013 9:20	SW8270C	Chrysene	ND
SS-BSL-02	3/4/2013 9:20	SW8270C	Di-n-Butyl Phthalate	ND
SS-BSL-02	3/4/2013 9:20	SW8270C	Di-n-Octylphthalate	ND
SS-BSL-02	3/4/2013 9:20	SW8270C	Dibenz(a,h)anthracene	ND
SS-BSL-02	3/4/2013 9:20	SW8270C	Dibenzofuran	ND
SS-BSL-02	3/4/2013 9:20	SW8270C	Diethyl Phthalate	ND
SS-BSL-02	3/4/2013 9:20	SW8270C	Dimethyl Phthalate	ND
SS-BSL-02	3/4/2013 9:20	SW8270C	Fluoranthene	ND
SS-BSL-02	3/4/2013 9:20	SW8270C	Fluorene	ND
SS-BSL-02	3/4/2013 9:20	SW8270C	Hexachlorobenzene	ND
SS-BSL-02	3/4/2013 9:20	SW8270C	Hexachlorobutadiene	ND

Attachment L1 Table 3: Soil Data: Broadway South Landfill

Sample Identification	Sample Date	Method	Chemical	Result mg/kg
SS-BSL-02	3/4/2013 9:20	SW8270C	Hexachloroethane	ND
SS-BSL-02	3/4/2013 9:20	SW8270C	Indeno(1,2,3-c,d)pyrene	ND
SS-BSL-02	3/4/2013 9:20	SW8270C	Isophorone	ND
SS-BSL-02	3/4/2013 9:20	SW8270C	n-Nitrosodi-n-propylamine	ND
SS-BSL-02	3/4/2013 9:20	SW8270C	n-Nitrosodimethylamine	ND
SS-BSL-02	3/4/2013 9:20	SW8270C	n-Nitrosodiphenylamine	ND
SS-BSL-02	3/4/2013 9:20	SW8270C	Naphthalene	ND
SS-BSL-02	3/4/2013 9:20	SW8270C	Nitrobenzene	ND
SS-BSL-02	3/4/2013 9:20	SW8270C	Pentachlorophenol	ND
SS-BSL-02	3/4/2013 9:20	SW8270C	Phenanthrene	ND
SS-BSL-02	3/4/2013 9:20	SW8270C	Phenol	ND
SS-BSL-02	3/4/2013 9:20	SW8270C	Pyrene	ND
SS-BSL-03	3/4/2013 13:48	SW8270C	Hexachlorocyclopentadiene	ND
SS-BSL-08	3/4/2013 14:30	SW6010B	Barium	74
SS-BSL-01	3/4/2013 9:00	SW6010B	Barium	80
SS-BSL-07	3/4/2013 14:25	SW6010B	Barium	84
SS-BSL-03	3/4/2013 13:48	SW6010B	Arsenic	ND
SS-BSL-03	3/4/2013 13:48	SW6010B	Cadmium	ND
SS-BSL-03	3/4/2013 13:48	SW6010B	Selenium	ND
SS-BSL-03	3/4/2013 13:48	SW6010B	Silver	ND
SS-BSL-03	3/4/2013 13:48	SW7471A	Mercury	ND
SS-BSL-03	3/4/2013 13:48	SW8081A	Aldrin	ND
SS-BSL-03	3/4/2013 13:48	SW8081A	alpha-BHC (alpha-Hexachlorocyclohexane)	ND
SS-BSL-03	3/4/2013 13:48	SW8081A	alpha-Chlordane	ND
SS-BSL-03	3/4/2013 13:48	SW8081A	alpha-Endosulfan	ND
SS-BSL-03	3/4/2013 13:48	SW8081A	beta-BHC (beta-Hexachlorocyclohexane)	ND
SS-BSL-03	3/4/2013 13:48	SW8081A	beta-Endosulfan	ND
SS-BSL-03	3/4/2013 13:48	SW8081A	delta-BHC (delta-Hexachlorocyclohexane)	ND
SS-BSL-03	3/4/2013 13:48	SW8081A	Dieldrin	ND
SS-BSL-03	3/4/2013 13:48	SW8081A	Endosulfan Sulfate	ND
SS-BSL-03	3/4/2013 13:48	SW8081A	Endrin	ND
SS-BSL-03	3/4/2013 13:48	SW8081A	Endrin Aldehyde	ND
SS-BSL-03	3/4/2013 13:48	SW8081A	Endrin Ketone	ND
SS-BSL-03	3/4/2013 13:48	SW8081A	gamma-BHC (Lindane)	ND
SS-BSL-03	3/4/2013 13:48	SW8081A	gamma-Chlordane	ND
SS-BSL-03	3/4/2013 13:48	SW8081A	Heptachlor	ND
SS-BSL-03	3/4/2013 13:48	SW8081A	Heptachlor Epoxide	ND
SS-BSL-03	3/4/2013 13:48	SW8081A	Methoxychlor	ND
SS-BSL-03	3/4/2013 13:48	SW8081A	p,p'-DDD	ND
SS-BSL-03	3/4/2013 13:48	SW8081A	p,p'-DDE	ND
SS-BSL-03	3/4/2013 13:48	SW8081A	p,p'-DDT	ND
SS-BSL-03	3/4/2013 13:48	SW8081A	Toxaphene	ND
SS-BSL-03	3/4/2013 13:48	SW8082	PCB-1016 (Arochlor 1016)	ND
SS-BSL-03	3/4/2013 13:48	SW8082	PCB-1221 (Arochlor 1221)	ND
SS-BSL-03	3/4/2013 13:48	SW8082	PCB-1232 (Arochlor 1232)	ND
SS-BSL-03	3/4/2013 13:48	SW8082	PCB-1242 (Arochlor 1242)	ND
SS-BSL-03	3/4/2013 13:48	SW8082	PCB-1248 (Arochlor 1248)	ND
SS-BSL-03	3/4/2013 13:48	SW8082	PCB-1254 (Arochlor 1254)	ND
SS-BSL-03	3/4/2013 13:48	SW8082	PCB-1260 (Arochlor 1260)	ND
SS-BSL-03	3/4/2013 13:48	SW8270C	1,2,4-Trichlorobenzene	ND
SS-BSL-03	3/4/2013 13:48	SW8270C	1,2-Dichlorobenzene	ND
SS-BSL-03	3/4/2013 13:48	SW8270C	1,3-Dichlorobenzene	ND
SS-BSL-03	3/4/2013 13:48	SW8270C	1,4-Dichlorobenzene	ND
SS-BSL-03	3/4/2013 13:48	SW8270C	2,4,5-Trichlorophenol	ND
SS-BSL-03	3/4/2013 13:48	SW8270C	2,4,6-Trichlorophenol	ND
SS-BSL-03	3/4/2013 13:48	SW8270C	2,4-Dichlorophenol	ND
SS-BSL-03	3/4/2013 13:48	SW8270C	2,4-Dimethylphenol	ND
SS-BSL-03	3/4/2013 13:48	SW8270C	2,4-Dinitrophenol	ND
SS-BSL-03	3/4/2013 13:48	SW8270C	2,4-Dinitrotoluene	ND
SS-BSL-03	3/4/2013 13:48	SW8270C	2,6-Dinitrotoluene	ND
SS-BSL-03	3/4/2013 13:48	SW8270C	2-Chloronaphthalene	ND
SS-BSL-03	3/4/2013 13:48	SW8270C	2-Chlorophenol	ND
SS-BSL-03	3/4/2013 13:48	SW8270C	2-Methylnaphthalene	ND
SS-BSL-03	3/4/2013 13:48	SW8270C	2-Methylphenol (o-Cresol)	ND

Attachment L1 Table 3: Soil Data: Broadway South Landfill

Sample Identification	Sample Date	Method	Chemical	Result mg/kg
SS-BSL-03	3/4/2013 13:48	SW8270C	2-Nitroaniline	ND
SS-BSL-03	3/4/2013 13:48	SW8270C	2-Nitrophenol	ND
SS-BSL-03	3/4/2013 13:48	SW8270C	3,3'-Dichlorobenzidine	ND
SS-BSL-03	3/4/2013 13:48	SW8270C	3-Nitroaniline	ND
SS-BSL-03	3/4/2013 13:48	SW8270C	4,6-Dinitro-2-Methylphenol	ND
SS-BSL-03	3/4/2013 13:48	SW8270C	4-Bromophenyl phenyl ether	ND
SS-BSL-03	3/4/2013 13:48	SW8270C	4-Chloro-3-Methylphenol	ND
SS-BSL-03	3/4/2013 13:48	SW8270C	4-Chloroaniline	ND
SS-BSL-03	3/4/2013 13:48	SW8270C	4-Chlorophenyl Phenyl Ether	ND
SS-BSL-03	3/4/2013 13:48	SW8270C	4-Methylphenol (p-Cresol)	ND
SS-BSL-03	3/4/2013 13:48	SW8270C	4-Nitroaniline	ND
SS-BSL-03	3/4/2013 13:48	SW8270C	4-Nitrophenol	ND
SS-BSL-03	3/4/2013 13:48	SW8270C	Acenaphthene	ND
SS-BSL-03	3/4/2013 13:48	SW8270C	Acenaphthylene	ND
SS-BSL-03	3/4/2013 13:48	SW8270C	Aniline (Phenylamine, Aminobenzene)	ND
SS-BSL-03	3/4/2013 13:48	SW8270C	Anthracene	ND
SS-BSL-03	3/4/2013 13:48	SW8270C	Benzo(a)anthracene	ND
SS-BSL-03	3/4/2013 13:48	SW8270C	Benzo(a)pyrene	ND
SS-BSL-03	3/4/2013 13:48	SW8270C	Benzo(b)fluoranthene	ND
SS-BSL-03	3/4/2013 13:48	SW8270C	Benzo(g,h,i)perylene	ND
SS-BSL-03	3/4/2013 13:48	SW8270C	Benzo(k)fluoranthene	ND
SS-BSL-03	3/4/2013 13:48	SW8270C	Benzoic acid	ND
SS-BSL-03	3/4/2013 13:48	SW8270C	Benzyl alcohol	ND
SS-BSL-03	3/4/2013 13:48	SW8270C	Benzyl butyl phthalate	ND
SS-BSL-03	3/4/2013 13:48	SW8270C	bis(2-Chloroethoxy) Methane	ND
SS-BSL-03	3/4/2013 13:48	SW8270C	bis(2-Chloroethyl) Ether (2-Chloroethyl Ether)	ND
SS-BSL-03	3/4/2013 13:48	SW8270C	bis(2-Ethylhexyl) Phthalate	ND
SS-BSL-03	3/4/2013 13:48	SW8270C	Chrysene	ND
SS-BSL-03	3/4/2013 13:48	SW8270C	Di-n-Butyl Phthalate	ND
SS-BSL-03	3/4/2013 13:48	SW8270C	Di-n-Octylphthalate	ND
SS-BSL-03	3/4/2013 13:48	SW8270C	Dibenz(a,h)anthracene	ND
SS-BSL-03	3/4/2013 13:48	SW8270C	Dibenzofuran	ND
SS-BSL-03	3/4/2013 13:48	SW8270C	Diethyl Phthalate	ND
SS-BSL-03	3/4/2013 13:48	SW8270C	Dimethyl Phthalate	ND
SS-BSL-03	3/4/2013 13:48	SW8270C	Fluoranthene	ND
SS-BSL-03	3/4/2013 13:48	SW8270C	Fluorene	ND
SS-BSL-03	3/4/2013 13:48	SW8270C	Hexachlorobenzene	ND
SS-BSL-03	3/4/2013 13:48	SW8270C	Hexachlorobutadiene	ND
SS-BSL-03	3/4/2013 13:48	SW8270C	Hexachloroethane	ND
SS-BSL-03	3/4/2013 13:48	SW8270C	Indeno(1,2,3-c,d)pyrene	ND
SS-BSL-03	3/4/2013 13:48	SW8270C	Isophorone	ND
SS-BSL-03	3/4/2013 13:48	SW8270C	n-Nitrosodi-n-propylamine	ND
SS-BSL-03	3/4/2013 13:48	SW8270C	n-Nitrosodimethylamine	ND
SS-BSL-03	3/4/2013 13:48	SW8270C	n-Nitrosodiphenylamine	ND
SS-BSL-03	3/4/2013 13:48	SW8270C	Naphthalene	ND
SS-BSL-03	3/4/2013 13:48	SW8270C	Nitrobenzene	ND
SS-BSL-03	3/4/2013 13:48	SW8270C	Pentachlorophenol	ND
SS-BSL-03	3/4/2013 13:48	SW8270C	Phenanthrene	ND
SS-BSL-03	3/4/2013 13:48	SW8270C	Phenol	ND
SS-BSL-03	3/4/2013 13:48	SW8270C	Pyrene	ND
SS-BSL-04	3/4/2013 13:55	SW8270C	Hexachlorocyclopentadiene	ND
SS-BSL-02	3/4/2013 9:20	SW6010B	Barium	85
SS-BSL-01	3/4/2013 9:00	SW6010B	Cadmium	0.37
SS-BSL-06	3/4/2013 14:15	SW6010B	Chromium	2.5
SS-BSL-05	3/4/2013 14:05	SW6010B	Chromium	3.4
SS-BSL-04	3/4/2013 13:55	SW6010B	Cadmium	ND
SS-BSL-04	3/4/2013 13:55	SW6010B	Selenium	ND
SS-BSL-04	3/4/2013 13:55	SW6010B	Silver	ND
SS-BSL-04	3/4/2013 13:55	SW7471A	Mercury	ND
SS-BSL-04	3/4/2013 13:55	SW8081A	Aldrin	ND
SS-BSL-04	3/4/2013 13:55	SW8081A	alpha-BHC (alpha-Hexachlorocyclohexane)	ND
SS-BSL-04	3/4/2013 13:55	SW8081A	alpha-Chlordane	ND
SS-BSL-04	3/4/2013 13:55	SW8081A	alpha-Endosulfan	ND
SS-BSL-04	3/4/2013 13:55	SW8081A	beta-BHC (beta-Hexachlorocyclohexane)	ND

Attachment L1 Table 3: Soil Data: Broadway South Landfill

Sample Identification	Sample Date	Method	Chemical	Result mg/kg
SS-BSL-04	3/4/2013 13:55	SW8081A	beta-Endosulfan	ND
SS-BSL-04	3/4/2013 13:55	SW8081A	delta-BHC (delta-Hexachlorocyclohexane)	ND
SS-BSL-04	3/4/2013 13:55	SW8081A	Dieldrin	ND
SS-BSL-04	3/4/2013 13:55	SW8081A	Endosulfan Sulfate	ND
SS-BSL-04	3/4/2013 13:55	SW8081A	Endrin	ND
SS-BSL-04	3/4/2013 13:55	SW8081A	Endrin Aldehyde	ND
SS-BSL-04	3/4/2013 13:55	SW8081A	Endrin Ketone	ND
SS-BSL-04	3/4/2013 13:55	SW8081A	gamma-BHC (Lindane)	ND
SS-BSL-04	3/4/2013 13:55	SW8081A	gamma-Chlordane	ND
SS-BSL-04	3/4/2013 13:55	SW8081A	Heptachlor	ND
SS-BSL-04	3/4/2013 13:55	SW8081A	Heptachlor Epoxide	ND
SS-BSL-04	3/4/2013 13:55	SW8081A	Methoxychlor	ND
SS-BSL-04	3/4/2013 13:55	SW8081A	p,p'-DDD	ND
SS-BSL-04	3/4/2013 13:55	SW8081A	p,p'-DDE	ND
SS-BSL-04	3/4/2013 13:55	SW8081A	p,p'-DDT	ND
SS-BSL-04	3/4/2013 13:55	SW8081A	Toxaphene	ND
SS-BSL-04	3/4/2013 13:55	SW8082	PCB-1016 (Arochlor 1016)	ND
SS-BSL-04	3/4/2013 13:55	SW8082	PCB-1221 (Arochlor 1221)	ND
SS-BSL-04	3/4/2013 13:55	SW8082	PCB-1232 (Arochlor 1232)	ND
SS-BSL-04	3/4/2013 13:55	SW8082	PCB-1242 (Arochlor 1242)	ND
SS-BSL-04	3/4/2013 13:55	SW8082	PCB-1248 (Arochlor 1248)	ND
SS-BSL-04	3/4/2013 13:55	SW8082	PCB-1254 (Arochlor 1254)	ND
SS-BSL-04	3/4/2013 13:55	SW8082	PCB-1260 (Arochlor 1260)	ND
SS-BSL-04	3/4/2013 13:55	SW8270C	1,2,4-Trichlorobenzene	ND
SS-BSL-04	3/4/2013 13:55	SW8270C	1,2-Dichlorobenzene	ND
SS-BSL-04	3/4/2013 13:55	SW8270C	1,3-Dichlorobenzene	ND
SS-BSL-04	3/4/2013 13:55	SW8270C	1,4-Dichlorobenzene	ND
SS-BSL-04	3/4/2013 13:55	SW8270C	2,4,5-Trichlorophenol	ND
SS-BSL-04	3/4/2013 13:55	SW8270C	2,4,6-Trichlorophenol	ND
SS-BSL-04	3/4/2013 13:55	SW8270C	2,4-Dichlorophenol	ND
SS-BSL-04	3/4/2013 13:55	SW8270C	2,4-Dimethylphenol	ND
SS-BSL-04	3/4/2013 13:55	SW8270C	2,4-Dinitrophenol	ND
SS-BSL-04	3/4/2013 13:55	SW8270C	2,4-Dinitrotoluene	ND
SS-BSL-04	3/4/2013 13:55	SW8270C	2,6-Dinitrotoluene	ND
SS-BSL-04	3/4/2013 13:55	SW8270C	2-Chloronaphthalene	ND
SS-BSL-04	3/4/2013 13:55	SW8270C	2-Chlorophenol	ND
SS-BSL-04	3/4/2013 13:55	SW8270C	2-Methylnaphthalene	ND
SS-BSL-04	3/4/2013 13:55	SW8270C	2-Methylphenol (o-Cresol)	ND
SS-BSL-04	3/4/2013 13:55	SW8270C	2-Nitroaniline	ND
SS-BSL-04	3/4/2013 13:55	SW8270C	2-Nitrophenol	ND
SS-BSL-04	3/4/2013 13:55	SW8270C	3,3'-Dichlorobenzidine	ND
SS-BSL-04	3/4/2013 13:55	SW8270C	3-Nitroaniline	ND
SS-BSL-04	3/4/2013 13:55	SW8270C	4,6-Dinitro-2-Methylphenol	ND
SS-BSL-04	3/4/2013 13:55	SW8270C	4-Bromophenyl phenyl ether	ND
SS-BSL-04	3/4/2013 13:55	SW8270C	4-Chloro-3-Methylphenol	ND
SS-BSL-04	3/4/2013 13:55	SW8270C	4-Chloroaniline	ND
SS-BSL-04	3/4/2013 13:55	SW8270C	4-Chlorophenyl Phenyl Ether	ND
SS-BSL-04	3/4/2013 13:55	SW8270C	4-Methylphenol (p-Cresol)	ND
SS-BSL-04	3/4/2013 13:55	SW8270C	4-Nitroaniline	ND
SS-BSL-04	3/4/2013 13:55	SW8270C	4-Nitrophenol	ND
SS-BSL-04	3/4/2013 13:55	SW8270C	Acenaphthene	ND
SS-BSL-04	3/4/2013 13:55	SW8270C	Acenaphthylene	ND
SS-BSL-04	3/4/2013 13:55	SW8270C	Aniline (Phenylamine, Aminobenzene)	ND
SS-BSL-04	3/4/2013 13:55	SW8270C	Anthracene	ND
SS-BSL-04	3/4/2013 13:55	SW8270C	Benzo(a)anthracene	ND
SS-BSL-04	3/4/2013 13:55	SW8270C	Benzo(a)pyrene	ND
SS-BSL-04	3/4/2013 13:55	SW8270C	Benzo(b)fluoranthene	ND
SS-BSL-04	3/4/2013 13:55	SW8270C	Benzo(g,h,i)perylene	ND
SS-BSL-04	3/4/2013 13:55	SW8270C	Benzo(k)fluoranthene	ND
SS-BSL-04	3/4/2013 13:55	SW8270C	Benzoic acid	ND
SS-BSL-04	3/4/2013 13:55	SW8270C	Benzyl alcohol	ND
SS-BSL-04	3/4/2013 13:55	SW8270C	Benzyl butyl phthalate	ND
SS-BSL-04	3/4/2013 13:55	SW8270C	bis(2-Chloroethoxy) Methane	ND
SS-BSL-04	3/4/2013 13:55	SW8270C	bis(2-Chloroethyl) Ether (2-Chloroethyl Ether)	ND

Attachment L1 Table 3: Soil Data: Broadway South Landfill

Sample Identification	Sample Date	Method	Chemical	Result mg/kg
SS-BSL-04	3/4/2013 13:55	SW8270C	bis(2-Ethylhexyl) Phthalate	ND
SS-BSL-04	3/4/2013 13:55	SW8270C	Chrysene	ND
SS-BSL-04	3/4/2013 13:55	SW8270C	Di-n-Butyl Phthalate	ND
SS-BSL-04	3/4/2013 13:55	SW8270C	Di-n-Octylphthalate	ND
SS-BSL-04	3/4/2013 13:55	SW8270C	Dibenz(a,h)anthracene	ND
SS-BSL-04	3/4/2013 13:55	SW8270C	Dibenzofuran	ND
SS-BSL-04	3/4/2013 13:55	SW8270C	Diethyl Phthalate	ND
SS-BSL-04	3/4/2013 13:55	SW8270C	Dimethyl Phthalate	ND
SS-BSL-04	3/4/2013 13:55	SW8270C	Fluoranthene	ND
SS-BSL-04	3/4/2013 13:55	SW8270C	Fluorene	ND
SS-BSL-04	3/4/2013 13:55	SW8270C	Hexachlorobenzene	ND
SS-BSL-04	3/4/2013 13:55	SW8270C	Hexachlorobutadiene	ND
SS-BSL-04	3/4/2013 13:55	SW8270C	Hexachloroethane	ND
SS-BSL-04	3/4/2013 13:55	SW8270C	Indeno(1,2,3-c,d)pyrene	ND
SS-BSL-04	3/4/2013 13:55	SW8270C	Isophorone	ND
SS-BSL-04	3/4/2013 13:55	SW8270C	n-Nitrosodi-n-propylamine	ND
SS-BSL-04	3/4/2013 13:55	SW8270C	n-Nitrosodimethylamine	ND
SS-BSL-04	3/4/2013 13:55	SW8270C	n-Nitrosodiphenylamine	ND
SS-BSL-04	3/4/2013 13:55	SW8270C	Naphthalene	ND
SS-BSL-04	3/4/2013 13:55	SW8270C	Nitrobenzene	ND
SS-BSL-04	3/4/2013 13:55	SW8270C	Pentachlorophenol	ND
SS-BSL-04	3/4/2013 13:55	SW8270C	Phenanthrene	ND
SS-BSL-04	3/4/2013 13:55	SW8270C	Phenol	ND
SS-BSL-04	3/4/2013 13:55	SW8270C	Pyrene	ND
SS-BSL-05	3/4/2013 14:05	SW8270C	Hexachlorocyclopentadiene	ND
SS-BSL-10	3/4/2013 14:45	SW6010B	Chromium	3.4
SS-BSL-09	3/4/2013 14:40	SW6010B	Chromium	3.5
SS-BSL-08	3/4/2013 14:30	SW6010B	Chromium	3.6
SS-BSL-05	3/4/2013 14:05	SW6010B	Arsenic	ND
SS-BSL-05	3/4/2013 14:05	SW6010B	Cadmium	ND
SS-BSL-05	3/4/2013 14:05	SW6010B	Selenium	ND
SS-BSL-05	3/4/2013 14:05	SW6010B	Silver	ND
SS-BSL-05	3/4/2013 14:05	SW7471A	Mercury	ND
SS-BSL-05	3/4/2013 14:05	SW8081A	Aldrin	ND
SS-BSL-05	3/4/2013 14:05	SW8081A	alpha-BHC (alpha-Hexachlorocyclohexane)	ND
SS-BSL-05	3/4/2013 14:05	SW8081A	alpha-Chlordane	ND
SS-BSL-05	3/4/2013 14:05	SW8081A	alpha-Endosulfan	ND
SS-BSL-05	3/4/2013 14:05	SW8081A	beta-BHC (beta-Hexachlorocyclohexane)	ND
SS-BSL-05	3/4/2013 14:05	SW8081A	beta-Endosulfan	ND
SS-BSL-05	3/4/2013 14:05	SW8081A	delta-BHC (delta-Hexachlorocyclohexane)	ND
SS-BSL-05	3/4/2013 14:05	SW8081A	Dieldrin	ND
SS-BSL-05	3/4/2013 14:05	SW8081A	Endosulfan Sulfate	ND
SS-BSL-05	3/4/2013 14:05	SW8081A	Endrin	ND
SS-BSL-05	3/4/2013 14:05	SW8081A	Endrin Aldehyde	ND
SS-BSL-05	3/4/2013 14:05	SW8081A	Endrin Ketone	ND
SS-BSL-05	3/4/2013 14:05	SW8081A	gamma-BHC (Lindane)	ND
SS-BSL-05	3/4/2013 14:05	SW8081A	gamma-Chlordane	ND
SS-BSL-05	3/4/2013 14:05	SW8081A	Heptachlor	ND
SS-BSL-05	3/4/2013 14:05	SW8081A	Heptachlor Epoxide	ND
SS-BSL-05	3/4/2013 14:05	SW8081A	Methoxychlor	ND
SS-BSL-05	3/4/2013 14:05	SW8081A	p,p'-DDD	ND
SS-BSL-05	3/4/2013 14:05	SW8081A	p,p'-DDE	ND
SS-BSL-05	3/4/2013 14:05	SW8081A	p,p'-DDT	ND
SS-BSL-05	3/4/2013 14:05	SW8081A	Toxaphene	ND
SS-BSL-05	3/4/2013 14:05	SW8082	PCB-1016 (Arochlor 1016)	ND
SS-BSL-05	3/4/2013 14:05	SW8082	PCB-1221 (Arochlor 1221)	ND
SS-BSL-05	3/4/2013 14:05	SW8082	PCB-1232 (Arochlor 1232)	ND
SS-BSL-05	3/4/2013 14:05	SW8082	PCB-1242 (Arochlor 1242)	ND
SS-BSL-05	3/4/2013 14:05	SW8082	PCB-1248 (Arochlor 1248)	ND
SS-BSL-05	3/4/2013 14:05	SW8082	PCB-1254 (Arochlor 1254)	ND
SS-BSL-05	3/4/2013 14:05	SW8082	PCB-1260 (Arochlor 1260)	ND
SS-BSL-05	3/4/2013 14:05	SW8270C	1,2,4-Trichlorobenzene	ND
SS-BSL-05	3/4/2013 14:05	SW8270C	1,2-Dichlorobenzene	ND
SS-BSL-05	3/4/2013 14:05	SW8270C	1,3-Dichlorobenzene	ND

Attachment L1 Table 3: Soil Data: Broadway South Landfill

Sample Identification	Sample Date	Method	Chemical	Result mg/kg
SS-BSL-05	3/4/2013 14:05	SW8270C	1,4-Dichlorobenzene	ND
SS-BSL-05	3/4/2013 14:05	SW8270C	2,4,5-Trichlorophenol	ND
SS-BSL-05	3/4/2013 14:05	SW8270C	2,4,6-Trichlorophenol	ND
SS-BSL-05	3/4/2013 14:05	SW8270C	2,4-Dichlorophenol	ND
SS-BSL-05	3/4/2013 14:05	SW8270C	2,4-Dimethylphenol	ND
SS-BSL-05	3/4/2013 14:05	SW8270C	2,4-Dinitrophenol	ND
SS-BSL-05	3/4/2013 14:05	SW8270C	2,4-Dinitrotoluene	ND
SS-BSL-05	3/4/2013 14:05	SW8270C	2,6-Dinitrotoluene	ND
SS-BSL-05	3/4/2013 14:05	SW8270C	2-Chloronaphthalene	ND
SS-BSL-05	3/4/2013 14:05	SW8270C	2-Chlorophenol	ND
SS-BSL-05	3/4/2013 14:05	SW8270C	2-Methylnaphthalene	ND
SS-BSL-05	3/4/2013 14:05	SW8270C	2-Methylphenol (o-Cresol)	ND
SS-BSL-05	3/4/2013 14:05	SW8270C	2-Nitroaniline	ND
SS-BSL-05	3/4/2013 14:05	SW8270C	2-Nitrophenol	ND
SS-BSL-05	3/4/2013 14:05	SW8270C	3,3'-Dichlorobenzidine	ND
SS-BSL-05	3/4/2013 14:05	SW8270C	3-Nitroaniline	ND
SS-BSL-05	3/4/2013 14:05	SW8270C	4,6-Dinitro-2-Methylphenol	ND
SS-BSL-05	3/4/2013 14:05	SW8270C	4-Bromophenyl phenyl ether	ND
SS-BSL-05	3/4/2013 14:05	SW8270C	4-Chloro-3-Methylphenol	ND
SS-BSL-05	3/4/2013 14:05	SW8270C	4-Chloroaniline	ND
SS-BSL-05	3/4/2013 14:05	SW8270C	4-Chlorophenyl Phenyl Ether	ND
SS-BSL-05	3/4/2013 14:05	SW8270C	4-Methylphenol (p-Cresol)	ND
SS-BSL-05	3/4/2013 14:05	SW8270C	4-Nitroaniline	ND
SS-BSL-05	3/4/2013 14:05	SW8270C	4-Nitrophenol	ND
SS-BSL-05	3/4/2013 14:05	SW8270C	Acenaphthene	ND
SS-BSL-05	3/4/2013 14:05	SW8270C	Acenaphthylene	ND
SS-BSL-05	3/4/2013 14:05	SW8270C	Aniline (Phenylamine, Aminobenzene)	ND
SS-BSL-05	3/4/2013 14:05	SW8270C	Anthracene	ND
SS-BSL-05	3/4/2013 14:05	SW8270C	Benzo(a)anthracene	ND
SS-BSL-05	3/4/2013 14:05	SW8270C	Benzo(a)pyrene	ND
SS-BSL-05	3/4/2013 14:05	SW8270C	Benzo(b)fluoranthene	ND
SS-BSL-05	3/4/2013 14:05	SW8270C	Benzo(g,h,i)perylene	ND
SS-BSL-05	3/4/2013 14:05	SW8270C	Benzo(k)fluoranthene	ND
SS-BSL-05	3/4/2013 14:05	SW8270C	Benzoic acid	ND
SS-BSL-05	3/4/2013 14:05	SW8270C	Benzyl alcohol	ND
SS-BSL-05	3/4/2013 14:05	SW8270C	Benzyl butyl phthalate	ND
SS-BSL-05	3/4/2013 14:05	SW8270C	bis(2-Chloroethoxy) Methane	ND
SS-BSL-05	3/4/2013 14:05	SW8270C	bis(2-Chloroethyl) Ether (2-Chloroethyl Ether)	ND
SS-BSL-05	3/4/2013 14:05	SW8270C	bis(2-Ethylhexyl) Phthalate	ND
SS-BSL-05	3/4/2013 14:05	SW8270C	Chrysene	ND
SS-BSL-05	3/4/2013 14:05	SW8270C	Di-n-Butyl Phthalate	ND
SS-BSL-05	3/4/2013 14:05	SW8270C	Di-n-Octylphthalate	ND
SS-BSL-05	3/4/2013 14:05	SW8270C	Dibenz(a,h)anthracene	ND
SS-BSL-05	3/4/2013 14:05	SW8270C	Dibenzofuran	ND
SS-BSL-05	3/4/2013 14:05	SW8270C	Diethyl Phthalate	ND
SS-BSL-05	3/4/2013 14:05	SW8270C	Dimethyl Phthalate	ND
SS-BSL-05	3/4/2013 14:05	SW8270C	Fluoranthene	ND
SS-BSL-05	3/4/2013 14:05	SW8270C	Fluorene	ND
SS-BSL-05	3/4/2013 14:05	SW8270C	Hexachlorobenzene	ND
SS-BSL-05	3/4/2013 14:05	SW8270C	Hexachlorobutadiene	ND
SS-BSL-05	3/4/2013 14:05	SW8270C	Hexachloroethane	ND
SS-BSL-05	3/4/2013 14:05	SW8270C	Indeno(1,2,3-c,d)pyrene	ND
SS-BSL-05	3/4/2013 14:05	SW8270C	Isophorone	ND
SS-BSL-05	3/4/2013 14:05	SW8270C	n-Nitrosodi-n-propylamine	ND
SS-BSL-05	3/4/2013 14:05	SW8270C	n-Nitrosodimethylamine	ND
SS-BSL-05	3/4/2013 14:05	SW8270C	n-Nitrosodiphenylamine	ND
SS-BSL-05	3/4/2013 14:05	SW8270C	Naphthalene	ND
SS-BSL-05	3/4/2013 14:05	SW8270C	Nitrobenzene	ND
SS-BSL-05	3/4/2013 14:05	SW8270C	Pentachlorophenol	ND
SS-BSL-05	3/4/2013 14:05	SW8270C	Phenanthrene	ND
SS-BSL-05	3/4/2013 14:05	SW8270C	Phenol	ND
SS-BSL-05	3/4/2013 14:05	SW8270C	Pyrene	ND
SS-BSL-06	3/4/2013 14:15	SW8270C	Hexachlorocyclopentadiene	ND
SS-BSL-03	3/4/2013 13:48	SW6010B	Chromium	3.7

Attachment L1 Table 3: Soil Data: Broadway South Landfill

Sample Identification	Sample Date	Method	Chemical	Result mg/kg
SS-BSL-07	3/4/2013 14:25	SW6010B	Chromium	4
SS-BSL-04	3/4/2013 13:55	SW6010B	Chromium	4.6
SS-BSL-01	3/4/2013 9:00	SW6010B	Chromium	11
SS-BSL-06	3/4/2013 14:15	SW6010B	Cadmium	ND
SS-BSL-06	3/4/2013 14:15	SW6010B	Selenium	ND
SS-BSL-06	3/4/2013 14:15	SW6010B	Silver	ND
SS-BSL-06	3/4/2013 14:15	SW7471A	Mercury	ND
SS-BSL-06	3/4/2013 14:15	SW8081A	Aldrin	ND
SS-BSL-06	3/4/2013 14:15	SW8081A	alpha-BHC (alpha-Hexachlorocyclohexane)	ND
SS-BSL-06	3/4/2013 14:15	SW8081A	alpha-Chlordane	ND
SS-BSL-06	3/4/2013 14:15	SW8081A	alpha-Endosulfan	ND
SS-BSL-06	3/4/2013 14:15	SW8081A	beta-BHC (beta-Hexachlorocyclohexane)	ND
SS-BSL-06	3/4/2013 14:15	SW8081A	beta-Endosulfan	ND
SS-BSL-06	3/4/2013 14:15	SW8081A	delta-BHC (delta-Hexachlorocyclohexane)	ND
SS-BSL-06	3/4/2013 14:15	SW8081A	Dieldrin	ND
SS-BSL-06	3/4/2013 14:15	SW8081A	Endosulfan Sulfate	ND
SS-BSL-06	3/4/2013 14:15	SW8081A	Endrin	ND
SS-BSL-06	3/4/2013 14:15	SW8081A	Endrin Aldehyde	ND
SS-BSL-06	3/4/2013 14:15	SW8081A	Endrin Ketone	ND
SS-BSL-06	3/4/2013 14:15	SW8081A	gamma-BHC (Lindane)	ND
SS-BSL-06	3/4/2013 14:15	SW8081A	gamma-Chlordane	ND
SS-BSL-06	3/4/2013 14:15	SW8081A	Heptachlor	ND
SS-BSL-06	3/4/2013 14:15	SW8081A	Heptachlor Epoxide	ND
SS-BSL-06	3/4/2013 14:15	SW8081A	Methoxychlor	ND
SS-BSL-06	3/4/2013 14:15	SW8081A	p,p'-DDD	ND
SS-BSL-06	3/4/2013 14:15	SW8081A	p,p'-DDE	ND
SS-BSL-06	3/4/2013 14:15	SW8081A	p,p'-DDT	ND
SS-BSL-06	3/4/2013 14:15	SW8081A	Toxaphene	ND
SS-BSL-06	3/4/2013 14:15	SW8082	PCB-1016 (Arochlor 1016)	ND
SS-BSL-06	3/4/2013 14:15	SW8082	PCB-1221 (Arochlor 1221)	ND
SS-BSL-06	3/4/2013 14:15	SW8082	PCB-1232 (Arochlor 1232)	ND
SS-BSL-06	3/4/2013 14:15	SW8082	PCB-1242 (Arochlor 1242)	ND
SS-BSL-06	3/4/2013 14:15	SW8082	PCB-1248 (Arochlor 1248)	ND
SS-BSL-06	3/4/2013 14:15	SW8082	PCB-1254 (Arochlor 1254)	ND
SS-BSL-06	3/4/2013 14:15	SW8082	PCB-1260 (Arochlor 1260)	ND
SS-BSL-06	3/4/2013 14:15	SW8270C	1,2,4-Trichlorobenzene	ND
SS-BSL-06	3/4/2013 14:15	SW8270C	1,2-Dichlorobenzene	ND
SS-BSL-06	3/4/2013 14:15	SW8270C	1,3-Dichlorobenzene	ND
SS-BSL-06	3/4/2013 14:15	SW8270C	1,4-Dichlorobenzene	ND
SS-BSL-06	3/4/2013 14:15	SW8270C	2,4,5-Trichlorophenol	ND
SS-BSL-06	3/4/2013 14:15	SW8270C	2,4,6-Trichlorophenol	ND
SS-BSL-06	3/4/2013 14:15	SW8270C	2,4-Dichlorophenol	ND
SS-BSL-06	3/4/2013 14:15	SW8270C	2,4-Dimethylphenol	ND
SS-BSL-06	3/4/2013 14:15	SW8270C	2,4-Dinitrophenol	ND
SS-BSL-06	3/4/2013 14:15	SW8270C	2,4-Dinitrotoluene	ND
SS-BSL-06	3/4/2013 14:15	SW8270C	2,6-Dinitrotoluene	ND
SS-BSL-06	3/4/2013 14:15	SW8270C	2-Chloronaphthalene	ND
SS-BSL-06	3/4/2013 14:15	SW8270C	2-Chlorophenol	ND
SS-BSL-06	3/4/2013 14:15	SW8270C	2-Methylnaphthalene	ND
SS-BSL-06	3/4/2013 14:15	SW8270C	2-Methylphenol (o-Cresol)	ND
SS-BSL-06	3/4/2013 14:15	SW8270C	2-Nitroaniline	ND
SS-BSL-06	3/4/2013 14:15	SW8270C	2-Nitrophenol	ND
SS-BSL-06	3/4/2013 14:15	SW8270C	3,3'-Dichlorobenzidine	ND
SS-BSL-06	3/4/2013 14:15	SW8270C	3-Nitroaniline	ND
SS-BSL-06	3/4/2013 14:15	SW8270C	4,6-Dinitro-2-Methylphenol	ND
SS-BSL-06	3/4/2013 14:15	SW8270C	4-Bromophenyl phenyl ether	ND
SS-BSL-06	3/4/2013 14:15	SW8270C	4-Chloro-3-Methylphenol	ND
SS-BSL-06	3/4/2013 14:15	SW8270C	4-Chloroaniline	ND
SS-BSL-06	3/4/2013 14:15	SW8270C	4-Chlorophenyl Phenyl Ether	ND
SS-BSL-06	3/4/2013 14:15	SW8270C	4-Methylphenol (p-Cresol)	ND
SS-BSL-06	3/4/2013 14:15	SW8270C	4-Nitroaniline	ND
SS-BSL-06	3/4/2013 14:15	SW8270C	4-Nitrophenol	ND
SS-BSL-06	3/4/2013 14:15	SW8270C	Acenaphthene	ND
SS-BSL-06	3/4/2013 14:15	SW8270C	Acenaphthylene	ND

Attachment L1 Table 3: Soil Data: Broadway South Landfill

Sample Identification	Sample Date	Method	Chemical	Result mg/kg
SS-BSL-06	3/4/2013 14:15	SW8270C	Aniline (Phenylamine, Aminobenzene)	ND
SS-BSL-06	3/4/2013 14:15	SW8270C	Anthracene	ND
SS-BSL-06	3/4/2013 14:15	SW8270C	Benzo(a)anthracene	ND
SS-BSL-06	3/4/2013 14:15	SW8270C	Benzo(a)pyrene	ND
SS-BSL-06	3/4/2013 14:15	SW8270C	Benzo(b)fluoranthene	ND
SS-BSL-06	3/4/2013 14:15	SW8270C	Benzo(g,h,i)perylene	ND
SS-BSL-06	3/4/2013 14:15	SW8270C	Benzo(k)fluoranthene	ND
SS-BSL-06	3/4/2013 14:15	SW8270C	Benzoic acid	ND
SS-BSL-06	3/4/2013 14:15	SW8270C	Benzyl alcohol	ND
SS-BSL-06	3/4/2013 14:15	SW8270C	Benzyl butyl phthalate	ND
SS-BSL-06	3/4/2013 14:15	SW8270C	bis(2-Chloroethoxy) Methane	ND
SS-BSL-06	3/4/2013 14:15	SW8270C	bis(2-Chloroethyl) Ether (2-Chloroethyl Ether)	ND
SS-BSL-06	3/4/2013 14:15	SW8270C	bis(2-Ethylhexyl) Phthalate	ND
SS-BSL-06	3/4/2013 14:15	SW8270C	Chrysene	ND
SS-BSL-06	3/4/2013 14:15	SW8270C	Di-n-Butyl Phthalate	ND
SS-BSL-06	3/4/2013 14:15	SW8270C	Di-n-Octylphthalate	ND
SS-BSL-06	3/4/2013 14:15	SW8270C	Dibenz(a,h)anthracene	ND
SS-BSL-06	3/4/2013 14:15	SW8270C	Dibenzofuran	ND
SS-BSL-06	3/4/2013 14:15	SW8270C	Diethyl Phthalate	ND
SS-BSL-06	3/4/2013 14:15	SW8270C	Dimethyl Phthalate	ND
SS-BSL-06	3/4/2013 14:15	SW8270C	Fluoranthene	ND
SS-BSL-06	3/4/2013 14:15	SW8270C	Fluorene	ND
SS-BSL-06	3/4/2013 14:15	SW8270C	Hexachlorobenzene	ND
SS-BSL-06	3/4/2013 14:15	SW8270C	Hexachlorobutadiene	ND
SS-BSL-06	3/4/2013 14:15	SW8270C	Hexachloroethane	ND
SS-BSL-06	3/4/2013 14:15	SW8270C	Indeno(1,2,3-c,d)pyrene	ND
SS-BSL-06	3/4/2013 14:15	SW8270C	Isophorone	ND
SS-BSL-06	3/4/2013 14:15	SW8270C	n-Nitrosodi-n-propylamine	ND
SS-BSL-06	3/4/2013 14:15	SW8270C	n-Nitrosodimethylamine	ND
SS-BSL-06	3/4/2013 14:15	SW8270C	n-Nitrosodiphenylamine	ND
SS-BSL-06	3/4/2013 14:15	SW8270C	Naphthalene	ND
SS-BSL-06	3/4/2013 14:15	SW8270C	Nitrobenzene	ND
SS-BSL-06	3/4/2013 14:15	SW8270C	Pentachlorophenol	ND
SS-BSL-06	3/4/2013 14:15	SW8270C	Phenanthrene	ND
SS-BSL-06	3/4/2013 14:15	SW8270C	Phenol	ND
SS-BSL-06	3/4/2013 14:15	SW8270C	Pyrene	ND
SS-BSL-07	3/4/2013 14:25	SW8270C	Hexachlorocyclopentadiene	ND
SS-BSL-02	3/4/2013 9:20	SW6010B	Chromium	11
SS-BSL-07	3/4/2013 14:25	SW6010B	Lead	4.6
SS-BSL-10	3/4/2013 14:45	SW6010B	Lead	4.6
SS-BSL-09	3/4/2013 14:40	SW6010B	Lead	4.9
SS-BSL-07	3/4/2013 14:25	SW6010B	Cadmium	ND
SS-BSL-07	3/4/2013 14:25	SW6010B	Selenium	ND
SS-BSL-07	3/4/2013 14:25	SW6010B	Silver	ND
SS-BSL-07	3/4/2013 14:25	SW7471A	Mercury	ND
SS-BSL-07	3/4/2013 14:25	SW8081A	Aldrin	ND
SS-BSL-07	3/4/2013 14:25	SW8081A	alpha-BHC (alpha-Hexachlorocyclohexane)	ND
SS-BSL-07	3/4/2013 14:25	SW8081A	alpha-Chlordane	ND
SS-BSL-07	3/4/2013 14:25	SW8081A	alpha-Endosulfan	ND
SS-BSL-07	3/4/2013 14:25	SW8081A	beta-BHC (beta-Hexachlorocyclohexane)	ND
SS-BSL-07	3/4/2013 14:25	SW8081A	beta-Endosulfan	ND
SS-BSL-07	3/4/2013 14:25	SW8081A	delta-BHC (delta-Hexachlorocyclohexane)	ND
SS-BSL-07	3/4/2013 14:25	SW8081A	Dieldrin	ND
SS-BSL-07	3/4/2013 14:25	SW8081A	Endosulfan Sulfate	ND
SS-BSL-07	3/4/2013 14:25	SW8081A	Endrin	ND
SS-BSL-07	3/4/2013 14:25	SW8081A	Endrin Aldehyde	ND
SS-BSL-07	3/4/2013 14:25	SW8081A	Endrin Ketone	ND
SS-BSL-07	3/4/2013 14:25	SW8081A	gamma-BHC (Lindane)	ND
SS-BSL-07	3/4/2013 14:25	SW8081A	gamma-Chlordane	ND
SS-BSL-07	3/4/2013 14:25	SW8081A	Heptachlor	ND
SS-BSL-07	3/4/2013 14:25	SW8081A	Heptachlor Epoxide	ND
SS-BSL-07	3/4/2013 14:25	SW8081A	Methoxychlor	ND
SS-BSL-07	3/4/2013 14:25	SW8081A	p,p'-DDD	ND
SS-BSL-07	3/4/2013 14:25	SW8081A	p,p'-DDE	ND

Attachment L1 Table 3: Soil Data: Broadway South Landfill

Sample Identification	Sample Date	Method	Chemical	Result mg/kg
SS-BSL-07	3/4/2013 14:25	SW8081A	p,p'-DDT	ND
SS-BSL-07	3/4/2013 14:25	SW8081A	Toxaphene	ND
SS-BSL-07	3/4/2013 14:25	SW8082	PCB-1016 (Arochlor 1016)	ND
SS-BSL-07	3/4/2013 14:25	SW8082	PCB-1221 (Arochlor 1221)	ND
SS-BSL-07	3/4/2013 14:25	SW8082	PCB-1232 (Arochlor 1232)	ND
SS-BSL-07	3/4/2013 14:25	SW8082	PCB-1242 (Arochlor 1242)	ND
SS-BSL-07	3/4/2013 14:25	SW8082	PCB-1248 (Arochlor 1248)	ND
SS-BSL-07	3/4/2013 14:25	SW8082	PCB-1254 (Arochlor 1254)	ND
SS-BSL-07	3/4/2013 14:25	SW8082	PCB-1260 (Arochlor 1260)	ND
SS-BSL-07	3/4/2013 14:25	SW8270C	1,2,4-Trichlorobenzene	ND
SS-BSL-07	3/4/2013 14:25	SW8270C	1,2-Dichlorobenzene	ND
SS-BSL-07	3/4/2013 14:25	SW8270C	1,3-Dichlorobenzene	ND
SS-BSL-07	3/4/2013 14:25	SW8270C	1,4-Dichlorobenzene	ND
SS-BSL-07	3/4/2013 14:25	SW8270C	2,4,5-Trichlorophenol	ND
SS-BSL-07	3/4/2013 14:25	SW8270C	2,4,6-Trichlorophenol	ND
SS-BSL-07	3/4/2013 14:25	SW8270C	2,4-Dichlorophenol	ND
SS-BSL-07	3/4/2013 14:25	SW8270C	2,4-Dimethylphenol	ND
SS-BSL-07	3/4/2013 14:25	SW8270C	2,4-Dinitrophenol	ND
SS-BSL-07	3/4/2013 14:25	SW8270C	2,4-Dinitrotoluene	ND
SS-BSL-07	3/4/2013 14:25	SW8270C	2,6-Dinitrotoluene	ND
SS-BSL-07	3/4/2013 14:25	SW8270C	2-Chloronaphthalene	ND
SS-BSL-07	3/4/2013 14:25	SW8270C	2-Chlorophenol	ND
SS-BSL-07	3/4/2013 14:25	SW8270C	2-Methylnaphthalene	ND
SS-BSL-07	3/4/2013 14:25	SW8270C	2-Methylphenol (o-Cresol)	ND
SS-BSL-07	3/4/2013 14:25	SW8270C	2-Nitroaniline	ND
SS-BSL-07	3/4/2013 14:25	SW8270C	2-Nitrophenol	ND
SS-BSL-07	3/4/2013 14:25	SW8270C	3,3'-Dichlorobenzidine	ND
SS-BSL-07	3/4/2013 14:25	SW8270C	3-Nitroaniline	ND
SS-BSL-07	3/4/2013 14:25	SW8270C	4,6-Dinitro-2-Methylphenol	ND
SS-BSL-07	3/4/2013 14:25	SW8270C	4-Bromophenyl phenyl ether	ND
SS-BSL-07	3/4/2013 14:25	SW8270C	4-Chloro-3-Methylphenol	ND
SS-BSL-07	3/4/2013 14:25	SW8270C	4-Chloroaniline	ND
SS-BSL-07	3/4/2013 14:25	SW8270C	4-Chlorophenyl Phenyl Ether	ND
SS-BSL-07	3/4/2013 14:25	SW8270C	4-Methylphenol (p-Cresol)	ND
SS-BSL-07	3/4/2013 14:25	SW8270C	4-Nitroaniline	ND
SS-BSL-07	3/4/2013 14:25	SW8270C	4-Nitrophenol	ND
SS-BSL-07	3/4/2013 14:25	SW8270C	Acenaphthene	ND
SS-BSL-07	3/4/2013 14:25	SW8270C	Acenaphthylene	ND
SS-BSL-07	3/4/2013 14:25	SW8270C	Aniline (Phenylamine, Aminobenzene)	ND
SS-BSL-07	3/4/2013 14:25	SW8270C	Anthracene	ND
SS-BSL-07	3/4/2013 14:25	SW8270C	Benzo(a)anthracene	ND
SS-BSL-07	3/4/2013 14:25	SW8270C	Benzo(a)pyrene	ND
SS-BSL-07	3/4/2013 14:25	SW8270C	Benzo(b)fluoranthene	ND
SS-BSL-07	3/4/2013 14:25	SW8270C	Benzo(g,h,i)perylene	ND
SS-BSL-07	3/4/2013 14:25	SW8270C	Benzo(k)fluoranthene	ND
SS-BSL-07	3/4/2013 14:25	SW8270C	Benzoic acid	ND
SS-BSL-07	3/4/2013 14:25	SW8270C	Benzyl alcohol	ND
SS-BSL-07	3/4/2013 14:25	SW8270C	Benzyl butyl phthalate	ND
SS-BSL-07	3/4/2013 14:25	SW8270C	bis(2-Chloroethoxy) Methane	ND
SS-BSL-07	3/4/2013 14:25	SW8270C	bis(2-Chloroethyl) Ether (2-Chloroethyl Ether)	ND
SS-BSL-07	3/4/2013 14:25	SW8270C	bis(2-Ethylhexyl) Phthalate	ND
SS-BSL-07	3/4/2013 14:25	SW8270C	Chrysene	ND
SS-BSL-07	3/4/2013 14:25	SW8270C	Di-n-Butyl Phthalate	ND
SS-BSL-07	3/4/2013 14:25	SW8270C	Di-n-Octylphthalate	ND
SS-BSL-07	3/4/2013 14:25	SW8270C	Dibenz(a,h)anthracene	ND
SS-BSL-07	3/4/2013 14:25	SW8270C	Dibenzofuran	ND
SS-BSL-07	3/4/2013 14:25	SW8270C	Diethyl Phthalate	ND
SS-BSL-07	3/4/2013 14:25	SW8270C	Dimethyl Phthalate	ND
SS-BSL-07	3/4/2013 14:25	SW8270C	Fluoranthene	ND
SS-BSL-07	3/4/2013 14:25	SW8270C	Fluorene	ND
SS-BSL-07	3/4/2013 14:25	SW8270C	Hexachlorobenzene	ND
SS-BSL-07	3/4/2013 14:25	SW8270C	Hexachlorobutadiene	ND
SS-BSL-07	3/4/2013 14:25	SW8270C	Hexachloroethane	ND
SS-BSL-07	3/4/2013 14:25	SW8270C	Indeno(1,2,3-c,d)pyrene	ND

Attachment L1 Table 3: Soil Data: Broadway South Landfill

Sample Identification	Sample Date	Method	Chemical	Result mg/kg
SS-BSL-07	3/4/2013 14:25	SW8270C	Isophorone	ND
SS-BSL-07	3/4/2013 14:25	SW8270C	n-Nitrosodi-n-propylamine	ND
SS-BSL-07	3/4/2013 14:25	SW8270C	n-Nitrosodimethylamine	ND
SS-BSL-07	3/4/2013 14:25	SW8270C	n-Nitrosodiphenylamine	ND
SS-BSL-07	3/4/2013 14:25	SW8270C	Naphthalene	ND
SS-BSL-07	3/4/2013 14:25	SW8270C	Nitrobenzene	ND
SS-BSL-07	3/4/2013 14:25	SW8270C	Pentachlorophenol	ND
SS-BSL-07	3/4/2013 14:25	SW8270C	Phenanthrene	ND
SS-BSL-07	3/4/2013 14:25	SW8270C	Phenol	ND
SS-BSL-07	3/4/2013 14:25	SW8270C	Pyrene	ND
SS-BSL-08	3/4/2013 14:30	SW8270C	Hexachlorocyclopentadiene	ND
SS-BSL-06	3/4/2013 14:15	SW6010B	Lead	6.2
SS-BSL-08	3/4/2013 14:30	SW6010B	Lead	6.5
SS-BSL-05	3/4/2013 14:05	SW6010B	Lead	6.6
SS-BSL-03	3/4/2013 13:48	SW6010B	Lead	7.5
SS-BSL-08	3/4/2013 14:30	SW6010B	Cadmium	ND
SS-BSL-08	3/4/2013 14:30	SW6010B	Selenium	ND
SS-BSL-08	3/4/2013 14:30	SW6010B	Silver	ND
SS-BSL-08	3/4/2013 14:30	SW7471A	Mercury	ND
SS-BSL-08	3/4/2013 14:30	SW8081A	Aldrin	ND
SS-BSL-08	3/4/2013 14:30	SW8081A	alpha-BHC (alpha-Hexachlorocyclohexane)	ND
SS-BSL-08	3/4/2013 14:30	SW8081A	alpha-Chlordane	ND
SS-BSL-08	3/4/2013 14:30	SW8081A	alpha-Endosulfan	ND
SS-BSL-08	3/4/2013 14:30	SW8081A	beta-BHC (beta-Hexachlorocyclohexane)	ND
SS-BSL-08	3/4/2013 14:30	SW8081A	beta-Endosulfan	ND
SS-BSL-08	3/4/2013 14:30	SW8081A	delta-BHC (delta-Hexachlorocyclohexane)	ND
SS-BSL-08	3/4/2013 14:30	SW8081A	Dieldrin	ND
SS-BSL-08	3/4/2013 14:30	SW8081A	Endosulfan Sulfate	ND
SS-BSL-08	3/4/2013 14:30	SW8081A	Endrin	ND
SS-BSL-08	3/4/2013 14:30	SW8081A	Endrin Aldehyde	ND
SS-BSL-08	3/4/2013 14:30	SW8081A	Endrin Ketone	ND
SS-BSL-08	3/4/2013 14:30	SW8081A	gamma-BHC (Lindane)	ND
SS-BSL-08	3/4/2013 14:30	SW8081A	gamma-Chlordane	ND
SS-BSL-08	3/4/2013 14:30	SW8081A	Heptachlor	ND
SS-BSL-08	3/4/2013 14:30	SW8081A	Heptachlor Epoxide	ND
SS-BSL-08	3/4/2013 14:30	SW8081A	Methoxychlor	ND
SS-BSL-08	3/4/2013 14:30	SW8081A	p,p'-DDD	ND
SS-BSL-08	3/4/2013 14:30	SW8081A	p,p'-DDE	ND
SS-BSL-08	3/4/2013 14:30	SW8081A	p,p'-DDT	ND
SS-BSL-08	3/4/2013 14:30	SW8081A	Toxaphene	ND
SS-BSL-08	3/4/2013 14:30	SW8082	PCB-1016 (Arochlor 1016)	ND
SS-BSL-08	3/4/2013 14:30	SW8082	PCB-1221 (Arochlor 1221)	ND
SS-BSL-08	3/4/2013 14:30	SW8082	PCB-1232 (Arochlor 1232)	ND
SS-BSL-08	3/4/2013 14:30	SW8082	PCB-1242 (Arochlor 1242)	ND
SS-BSL-08	3/4/2013 14:30	SW8082	PCB-1248 (Arochlor 1248)	ND
SS-BSL-08	3/4/2013 14:30	SW8082	PCB-1254 (Arochlor 1254)	ND
SS-BSL-08	3/4/2013 14:30	SW8082	PCB-1260 (Arochlor 1260)	ND
SS-BSL-08	3/4/2013 14:30	SW8270C	1,2,4-Trichlorobenzene	ND
SS-BSL-08	3/4/2013 14:30	SW8270C	1,2-Dichlorobenzene	ND
SS-BSL-08	3/4/2013 14:30	SW8270C	1,3-Dichlorobenzene	ND
SS-BSL-08	3/4/2013 14:30	SW8270C	1,4-Dichlorobenzene	ND
SS-BSL-08	3/4/2013 14:30	SW8270C	2,4,5-Trichlorophenol	ND
SS-BSL-08	3/4/2013 14:30	SW8270C	2,4,6-Trichlorophenol	ND
SS-BSL-08	3/4/2013 14:30	SW8270C	2,4-Dichlorophenol	ND
SS-BSL-08	3/4/2013 14:30	SW8270C	2,4-Dimethylphenol	ND
SS-BSL-08	3/4/2013 14:30	SW8270C	2,4-Dinitrophenol	ND
SS-BSL-08	3/4/2013 14:30	SW8270C	2,4-Dinitrotoluene	ND
SS-BSL-08	3/4/2013 14:30	SW8270C	2,6-Dinitrotoluene	ND
SS-BSL-08	3/4/2013 14:30	SW8270C	2-Chloronaphthalene	ND
SS-BSL-08	3/4/2013 14:30	SW8270C	2-Chlorophenol	ND
SS-BSL-08	3/4/2013 14:30	SW8270C	2-Methylnaphthalene	ND
SS-BSL-08	3/4/2013 14:30	SW8270C	2-Methylphenol (o-Cresol)	ND
SS-BSL-08	3/4/2013 14:30	SW8270C	2-Nitroaniline	ND
SS-BSL-08	3/4/2013 14:30	SW8270C	2-Nitrophenol	ND

Attachment L1 Table 3: Soil Data: Broadway South Landfill

Sample Identification	Sample Date	Method	Chemical	Result mg/kg
SS-BSL-08	3/4/2013 14:30	SW8270C	3,3'-Dichlorobenzidine	ND
SS-BSL-08	3/4/2013 14:30	SW8270C	3-Nitroaniline	ND
SS-BSL-08	3/4/2013 14:30	SW8270C	4,6-Dinitro-2-Methylphenol	ND
SS-BSL-08	3/4/2013 14:30	SW8270C	4-Bromophenyl phenyl ether	ND
SS-BSL-08	3/4/2013 14:30	SW8270C	4-Chloro-3-Methylphenol	ND
SS-BSL-08	3/4/2013 14:30	SW8270C	4-Chloroaniline	ND
SS-BSL-08	3/4/2013 14:30	SW8270C	4-Chlorophenyl Phenyl Ether	ND
SS-BSL-08	3/4/2013 14:30	SW8270C	4-Methylphenol (p-Cresol)	ND
SS-BSL-08	3/4/2013 14:30	SW8270C	4-Nitroaniline	ND
SS-BSL-08	3/4/2013 14:30	SW8270C	4-Nitrophenol	ND
SS-BSL-08	3/4/2013 14:30	SW8270C	Acenaphthene	ND
SS-BSL-08	3/4/2013 14:30	SW8270C	Acenaphthylene	ND
SS-BSL-08	3/4/2013 14:30	SW8270C	Aniline (Phenylamine, Aminobenzene)	ND
SS-BSL-08	3/4/2013 14:30	SW8270C	Anthracene	ND
SS-BSL-08	3/4/2013 14:30	SW8270C	Benzo(a)anthracene	ND
SS-BSL-08	3/4/2013 14:30	SW8270C	Benzo(a)pyrene	ND
SS-BSL-08	3/4/2013 14:30	SW8270C	Benzo(b)fluoranthene	ND
SS-BSL-08	3/4/2013 14:30	SW8270C	Benzo(g,h,i)perylene	ND
SS-BSL-08	3/4/2013 14:30	SW8270C	Benzo(k)fluoranthene	ND
SS-BSL-08	3/4/2013 14:30	SW8270C	Benzoic acid	ND
SS-BSL-08	3/4/2013 14:30	SW8270C	Benzyl alcohol	ND
SS-BSL-08	3/4/2013 14:30	SW8270C	Benzyl butyl phthalate	ND
SS-BSL-08	3/4/2013 14:30	SW8270C	bis(2-Chloroethoxy) Methane	ND
SS-BSL-08	3/4/2013 14:30	SW8270C	bis(2-Chloroethyl) Ether (2-Chloroethyl Ether)	ND
SS-BSL-08	3/4/2013 14:30	SW8270C	bis(2-Ethylhexyl) Phthalate	ND
SS-BSL-08	3/4/2013 14:30	SW8270C	Chrysene	ND
SS-BSL-08	3/4/2013 14:30	SW8270C	Di-n-Butyl Phthalate	ND
SS-BSL-08	3/4/2013 14:30	SW8270C	Di-n-Octylphthalate	ND
SS-BSL-08	3/4/2013 14:30	SW8270C	Dibenz(a,h)anthracene	ND
SS-BSL-08	3/4/2013 14:30	SW8270C	Dibenzofuran	ND
SS-BSL-08	3/4/2013 14:30	SW8270C	Diethyl Phthalate	ND
SS-BSL-08	3/4/2013 14:30	SW8270C	Dimethyl Phthalate	ND
SS-BSL-08	3/4/2013 14:30	SW8270C	Fluoranthene	ND
SS-BSL-08	3/4/2013 14:30	SW8270C	Fluorene	ND
SS-BSL-08	3/4/2013 14:30	SW8270C	Hexachlorobenzene	ND
SS-BSL-08	3/4/2013 14:30	SW8270C	Hexachlorobutadiene	ND
SS-BSL-08	3/4/2013 14:30	SW8270C	Hexachloroethane	ND
SS-BSL-08	3/4/2013 14:30	SW8270C	Indeno(1,2,3-c,d)pyrene	ND
SS-BSL-08	3/4/2013 14:30	SW8270C	Isophorone	ND
SS-BSL-08	3/4/2013 14:30	SW8270C	n-Nitrosodi-n-propylamine	ND
SS-BSL-08	3/4/2013 14:30	SW8270C	n-Nitrosodimethylamine	ND
SS-BSL-08	3/4/2013 14:30	SW8270C	n-Nitrosodiphenylamine	ND
SS-BSL-08	3/4/2013 14:30	SW8270C	Naphthalene	ND
SS-BSL-08	3/4/2013 14:30	SW8270C	Nitrobenzene	ND
SS-BSL-08	3/4/2013 14:30	SW8270C	Pentachlorophenol	ND
SS-BSL-08	3/4/2013 14:30	SW8270C	Phenanthrene	ND
SS-BSL-08	3/4/2013 14:30	SW8270C	Phenol	ND
SS-BSL-08	3/4/2013 14:30	SW8270C	Pyrene	ND
SS-BSL-09	3/4/2013 14:40	SW8270C	Hexachlorocyclopentadiene	ND
SS-BSL-04	3/4/2013 13:55	SW6010B	Lead	8.5
SS-BSL-02	3/4/2013 9:20	SW6010B	Lead	12
SS-BSL-01	3/4/2013 9:00	SW6010B	Lead	15
SS-BSL-09	3/4/2013 14:40	SW6010B	Arsenic	ND
SS-BSL-09	3/4/2013 14:40	SW6010B	Cadmium	ND
SS-BSL-09	3/4/2013 14:40	SW6010B	Selenium	ND
SS-BSL-09	3/4/2013 14:40	SW6010B	Silver	ND
SS-BSL-09	3/4/2013 14:40	SW7471A	Mercury	ND
SS-BSL-09	3/4/2013 14:40	SW8081A	Aldrin	ND
SS-BSL-09	3/4/2013 14:40	SW8081A	alpha-BHC (alpha-Hexachlorocyclohexane)	ND
SS-BSL-09	3/4/2013 14:40	SW8081A	alpha-Chlordane	ND
SS-BSL-09	3/4/2013 14:40	SW8081A	alpha-Endosulfan	ND
SS-BSL-09	3/4/2013 14:40	SW8081A	beta-BHC (beta-Hexachlorocyclohexane)	ND
SS-BSL-09	3/4/2013 14:40	SW8081A	beta-Endosulfan	ND
SS-BSL-09	3/4/2013 14:40	SW8081A	delta-BHC (delta-Hexachlorocyclohexane)	ND

Attachment L1 Table 3: Soil Data: Broadway South Landfill

Sample Identification	Sample Date	Method	Chemical	Result mg/kg
SS-BSL-09	3/4/2013 14:40	SW8081A	Dieldrin	ND
SS-BSL-09	3/4/2013 14:40	SW8081A	Endosulfan Sulfate	ND
SS-BSL-09	3/4/2013 14:40	SW8081A	Endrin	ND
SS-BSL-09	3/4/2013 14:40	SW8081A	Endrin Aldehyde	ND
SS-BSL-09	3/4/2013 14:40	SW8081A	Endrin Ketone	ND
SS-BSL-09	3/4/2013 14:40	SW8081A	gamma-BHC (Lindane)	ND
SS-BSL-09	3/4/2013 14:40	SW8081A	gamma-Chlordane	ND
SS-BSL-09	3/4/2013 14:40	SW8081A	Heptachlor	ND
SS-BSL-09	3/4/2013 14:40	SW8081A	Heptachlor Epoxide	ND
SS-BSL-09	3/4/2013 14:40	SW8081A	Methoxychlor	ND
SS-BSL-09	3/4/2013 14:40	SW8081A	p,p'-DDD	ND
SS-BSL-09	3/4/2013 14:40	SW8081A	p,p'-DDE	ND
SS-BSL-09	3/4/2013 14:40	SW8081A	p,p'-DDT	ND
SS-BSL-09	3/4/2013 14:40	SW8081A	Toxaphene	ND
SS-BSL-09	3/4/2013 14:40	SW8082	PCB-1016 (Arochlor 1016)	ND
SS-BSL-09	3/4/2013 14:40	SW8082	PCB-1221 (Arochlor 1221)	ND
SS-BSL-09	3/4/2013 14:40	SW8082	PCB-1232 (Arochlor 1232)	ND
SS-BSL-09	3/4/2013 14:40	SW8082	PCB-1242 (Arochlor 1242)	ND
SS-BSL-09	3/4/2013 14:40	SW8082	PCB-1248 (Arochlor 1248)	ND
SS-BSL-09	3/4/2013 14:40	SW8082	PCB-1254 (Arochlor 1254)	ND
SS-BSL-09	3/4/2013 14:40	SW8082	PCB-1260 (Arochlor 1260)	ND
SS-BSL-09	3/4/2013 14:40	SW8270C	1,2,4-Trichlorobenzene	ND
SS-BSL-09	3/4/2013 14:40	SW8270C	1,2-Dichlorobenzene	ND
SS-BSL-09	3/4/2013 14:40	SW8270C	1,3-Dichlorobenzene	ND
SS-BSL-09	3/4/2013 14:40	SW8270C	1,4-Dichlorobenzene	ND
SS-BSL-09	3/4/2013 14:40	SW8270C	2,4,5-Trichlorophenol	ND
SS-BSL-09	3/4/2013 14:40	SW8270C	2,4,6-Trichlorophenol	ND
SS-BSL-09	3/4/2013 14:40	SW8270C	2,4-Dichlorophenol	ND
SS-BSL-09	3/4/2013 14:40	SW8270C	2,4-Dimethylphenol	ND
SS-BSL-09	3/4/2013 14:40	SW8270C	2,4-Dinitrophenol	ND
SS-BSL-09	3/4/2013 14:40	SW8270C	2,4-Dinitrotoluene	ND
SS-BSL-09	3/4/2013 14:40	SW8270C	2,6-Dinitrotoluene	ND
SS-BSL-09	3/4/2013 14:40	SW8270C	2-Chloronaphthalene	ND
SS-BSL-09	3/4/2013 14:40	SW8270C	2-Chlorophenol	ND
SS-BSL-09	3/4/2013 14:40	SW8270C	2-Methylnaphthalene	ND
SS-BSL-09	3/4/2013 14:40	SW8270C	2-Methylphenol (o-Cresol)	ND
SS-BSL-09	3/4/2013 14:40	SW8270C	2-Nitroaniline	ND
SS-BSL-09	3/4/2013 14:40	SW8270C	2-Nitrophenol	ND
SS-BSL-09	3/4/2013 14:40	SW8270C	3,3'-Dichlorobenzidine	ND
SS-BSL-09	3/4/2013 14:40	SW8270C	3-Nitroaniline	ND
SS-BSL-09	3/4/2013 14:40	SW8270C	4,6-Dinitro-2-Methylphenol	ND
SS-BSL-09	3/4/2013 14:40	SW8270C	4-Bromophenyl phenyl ether	ND
SS-BSL-09	3/4/2013 14:40	SW8270C	4-Chloro-3-Methylphenol	ND
SS-BSL-09	3/4/2013 14:40	SW8270C	4-Chloroaniline	ND
SS-BSL-09	3/4/2013 14:40	SW8270C	4-Chlorophenyl Phenyl Ether	ND
SS-BSL-09	3/4/2013 14:40	SW8270C	4-Methylphenol (p-Cresol)	ND
SS-BSL-09	3/4/2013 14:40	SW8270C	4-Nitroaniline	ND
SS-BSL-09	3/4/2013 14:40	SW8270C	4-Nitrophenol	ND
SS-BSL-09	3/4/2013 14:40	SW8270C	Acenaphthene	ND
SS-BSL-09	3/4/2013 14:40	SW8270C	Acenaphthylene	ND
SS-BSL-09	3/4/2013 14:40	SW8270C	Aniline (Phenylamine, Aminobenzene)	ND
SS-BSL-09	3/4/2013 14:40	SW8270C	Anthracene	ND
SS-BSL-09	3/4/2013 14:40	SW8270C	Benzo(a)anthracene	ND
SS-BSL-09	3/4/2013 14:40	SW8270C	Benzo(a)pyrene	ND
SS-BSL-09	3/4/2013 14:40	SW8270C	Benzo(b)fluoranthene	ND
SS-BSL-09	3/4/2013 14:40	SW8270C	Benzo(g,h,i)perylene	ND
SS-BSL-09	3/4/2013 14:40	SW8270C	Benzo(k)fluoranthene	ND
SS-BSL-09	3/4/2013 14:40	SW8270C	Benzoic acid	ND
SS-BSL-09	3/4/2013 14:40	SW8270C	Benzyl alcohol	ND
SS-BSL-09	3/4/2013 14:40	SW8270C	Benzyl butyl phthalate	ND
SS-BSL-09	3/4/2013 14:40	SW8270C	bis(2-Chloroethoxy) Methane	ND
SS-BSL-09	3/4/2013 14:40	SW8270C	bis(2-Chloroethyl) Ether (2-Chloroethyl Ether)	ND
SS-BSL-09	3/4/2013 14:40	SW8270C	bis(2-Ethylhexyl) Phthalate	ND
SS-BSL-09	3/4/2013 14:40	SW8270C	Chrysene	ND

Attachment L1 Table 3: Soil Data: Broadway South Landfill

Sample Identification	Sample Date	Method	Chemical	Result mg/kg
SS-BSL-09	3/4/2013 14:40	SW8270C	Di-n-Butyl Phthalate	ND
SS-BSL-09	3/4/2013 14:40	SW8270C	Di-n-Octylphthalate	ND
SS-BSL-09	3/4/2013 14:40	SW8270C	Dibenz(a,h)anthracene	ND
SS-BSL-09	3/4/2013 14:40	SW8270C	Dibenzofuran	ND
SS-BSL-09	3/4/2013 14:40	SW8270C	Diethyl Phthalate	ND
SS-BSL-09	3/4/2013 14:40	SW8270C	Dimethyl Phthalate	ND
SS-BSL-09	3/4/2013 14:40	SW8270C	Fluoranthene	ND
SS-BSL-09	3/4/2013 14:40	SW8270C	Fluorene	ND
SS-BSL-09	3/4/2013 14:40	SW8270C	Hexachlorobenzene	ND
SS-BSL-09	3/4/2013 14:40	SW8270C	Hexachlorobutadiene	ND
SS-BSL-09	3/4/2013 14:40	SW8270C	Hexachloroethane	ND
SS-BSL-09	3/4/2013 14:40	SW8270C	Indeno(1,2,3-c,d)pyrene	ND
SS-BSL-09	3/4/2013 14:40	SW8270C	Isophorone	ND
SS-BSL-09	3/4/2013 14:40	SW8270C	n-Nitrosodi-n-propylamine	ND
SS-BSL-09	3/4/2013 14:40	SW8270C	n-Nitrosodimethylamine	ND
SS-BSL-09	3/4/2013 14:40	SW8270C	n-Nitrosodiphenylamine	ND
SS-BSL-09	3/4/2013 14:40	SW8270C	Naphthalene	ND
SS-BSL-09	3/4/2013 14:40	SW8270C	Nitrobenzene	ND
SS-BSL-09	3/4/2013 14:40	SW8270C	Pentachlorophenol	ND
SS-BSL-09	3/4/2013 14:40	SW8270C	Phenanthrene	ND
SS-BSL-09	3/4/2013 14:40	SW8270C	Phenol	ND
SS-BSL-09	3/4/2013 14:40	SW8270C	Pyrene	ND
SS-BSL-01	3/4/2013 9:00	SW7471A	Mercury	0.11
SS-BSL-02	3/4/2013 9:20	SW7471A	Mercury	0.13
SS-BSL-02	3/4/2013 9:20	SW6010B	Silver	1
SS-BSL-01	3/4/2013 9:00	SW6010B	Silver	1.1
SS-BSL-10	3/4/2013 14:45	SW6010B	Cadmium	ND
SS-BSL-10	3/4/2013 14:45	SW6010B	Selenium	ND
SS-BSL-10	3/4/2013 14:45	SW6010B	Silver	ND
SS-BSL-10	3/4/2013 14:45	SW7471A	Mercury	ND
SS-BSL-10	3/4/2013 14:45	SW8081A	Aldrin	ND
SS-BSL-10	3/4/2013 14:45	SW8081A	alpha-BHC (alpha-Hexachlorocyclohexane)	ND
SS-BSL-10	3/4/2013 14:45	SW8081A	alpha-Chlordane	ND
SS-BSL-10	3/4/2013 14:45	SW8081A	alpha-Endosulfan	ND
SS-BSL-10	3/4/2013 14:45	SW8081A	beta-BHC (beta-Hexachlorocyclohexane)	ND
SS-BSL-10	3/4/2013 14:45	SW8081A	beta-Endosulfan	ND
SS-BSL-10	3/4/2013 14:45	SW8081A	delta-BHC (delta-Hexachlorocyclohexane)	ND
SS-BSL-10	3/4/2013 14:45	SW8081A	Dieldrin	ND
SS-BSL-10	3/4/2013 14:45	SW8081A	Endosulfan Sulfate	ND
SS-BSL-10	3/4/2013 14:45	SW8081A	Endrin	ND
SS-BSL-10	3/4/2013 14:45	SW8081A	Endrin Aldehyde	ND
SS-BSL-10	3/4/2013 14:45	SW8081A	Endrin Ketone	ND
SS-BSL-10	3/4/2013 14:45	SW8081A	gamma-BHC (Lindane)	ND
SS-BSL-10	3/4/2013 14:45	SW8081A	gamma-Chlordane	ND
SS-BSL-10	3/4/2013 14:45	SW8081A	Heptachlor	ND
SS-BSL-10	3/4/2013 14:45	SW8081A	Heptachlor Epoxide	ND
SS-BSL-10	3/4/2013 14:45	SW8081A	Methoxychlor	ND
SS-BSL-10	3/4/2013 14:45	SW8081A	p,p'-DDD	ND
SS-BSL-10	3/4/2013 14:45	SW8081A	p,p'-DDE	ND
SS-BSL-10	3/4/2013 14:45	SW8081A	p,p'-DDT	ND
SS-BSL-10	3/4/2013 14:45	SW8081A	Toxaphene	ND
SS-BSL-10	3/4/2013 14:45	SW8082	PCB-1016 (Arochlor 1016)	ND
SS-BSL-10	3/4/2013 14:45	SW8082	PCB-1221 (Arochlor 1221)	ND
SS-BSL-10	3/4/2013 14:45	SW8082	PCB-1232 (Arochlor 1232)	ND
SS-BSL-10	3/4/2013 14:45	SW8082	PCB-1242 (Arochlor 1242)	ND
SS-BSL-10	3/4/2013 14:45	SW8082	PCB-1248 (Arochlor 1248)	ND
SS-BSL-10	3/4/2013 14:45	SW8082	PCB-1254 (Arochlor 1254)	ND
SS-BSL-10	3/4/2013 14:45	SW8082	PCB-1260 (Arochlor 1260)	ND
SS-BSL-10	3/4/2013 14:45	SW8270C	1,2,4-Trichlorobenzene	ND
SS-BSL-10	3/4/2013 14:45	SW8270C	1,2-Dichlorobenzene	ND
SS-BSL-10	3/4/2013 14:45	SW8270C	1,3-Dichlorobenzene	ND
SS-BSL-10	3/4/2013 14:45	SW8270C	1,4-Dichlorobenzene	ND
SS-BSL-10	3/4/2013 14:45	SW8270C	2,4,5-Trichlorophenol	ND
SS-BSL-10	3/4/2013 14:45	SW8270C	2,4,6-Trichlorophenol	ND

Attachment L1 Table 3: Soil Data: Broadway South Landfill

Sample Identification	Sample Date	Method	Chemical	Result mg/kg
SS-BSL-10	3/4/2013 14:45	SW8270C	2,4-Dichlorophenol	ND
SS-BSL-10	3/4/2013 14:45	SW8270C	2,4-Dimethylphenol	ND
SS-BSL-10	3/4/2013 14:45	SW8270C	2,4-Dinitrophenol	ND
SS-BSL-10	3/4/2013 14:45	SW8270C	2,4-Dinitrotoluene	ND
SS-BSL-10	3/4/2013 14:45	SW8270C	2,6-Dinitrotoluene	ND
SS-BSL-10	3/4/2013 14:45	SW8270C	2-Chloronaphthalene	ND
SS-BSL-10	3/4/2013 14:45	SW8270C	2-Chlorophenol	ND
SS-BSL-10	3/4/2013 14:45	SW8270C	2-Methylnaphthalene	ND
SS-BSL-10	3/4/2013 14:45	SW8270C	2-Methylphenol (o-Cresol)	ND
SS-BSL-10	3/4/2013 14:45	SW8270C	2-Nitroaniline	ND
SS-BSL-10	3/4/2013 14:45	SW8270C	2-Nitrophenol	ND
SS-BSL-10	3/4/2013 14:45	SW8270C	3,3'-Dichlorobenzidine	ND
SS-BSL-10	3/4/2013 14:45	SW8270C	3-Nitroaniline	ND
SS-BSL-10	3/4/2013 14:45	SW8270C	4,6-Dinitro-2-Methylphenol	ND
SS-BSL-10	3/4/2013 14:45	SW8270C	4-Bromophenyl phenyl ether	ND
SS-BSL-10	3/4/2013 14:45	SW8270C	4-Chloro-3-Methylphenol	ND
SS-BSL-10	3/4/2013 14:45	SW8270C	4-Chloroaniline	ND
SS-BSL-10	3/4/2013 14:45	SW8270C	4-Chlorophenyl Phenyl Ether	ND
SS-BSL-10	3/4/2013 14:45	SW8270C	4-Methylphenol (p-Cresol)	ND
SS-BSL-10	3/4/2013 14:45	SW8270C	4-Nitroaniline	ND
SS-BSL-10	3/4/2013 14:45	SW8270C	4-Nitrophenol	ND
SS-BSL-10	3/4/2013 14:45	SW8270C	Acenaphthene	ND
SS-BSL-10	3/4/2013 14:45	SW8270C	Acenaphthylene	ND
SS-BSL-10	3/4/2013 14:45	SW8270C	Aniline (Phenylamine, Aminobenzene)	ND
SS-BSL-10	3/4/2013 14:45	SW8270C	Anthracene	ND
SS-BSL-10	3/4/2013 14:45	SW8270C	Benzo(a)anthracene	ND
SS-BSL-10	3/4/2013 14:45	SW8270C	Benzo(a)pyrene	ND
SS-BSL-10	3/4/2013 14:45	SW8270C	Benzo(b)fluoranthene	ND
SS-BSL-10	3/4/2013 14:45	SW8270C	Benzo(g,h,i)perylene	ND
SS-BSL-10	3/4/2013 14:45	SW8270C	Benzo(k)fluoranthene	ND
SS-BSL-10	3/4/2013 14:45	SW8270C	Benzoic acid	ND
SS-BSL-10	3/4/2013 14:45	SW8270C	Benzyl alcohol	ND
SS-BSL-10	3/4/2013 14:45	SW8270C	Benzyl butyl phthalate	ND
SS-BSL-10	3/4/2013 14:45	SW8270C	bis(2-Chloroethoxy) Methane	ND
SS-BSL-10	3/4/2013 14:45	SW8270C	bis(2-Chloroethyl) Ether (2-Chloroethyl Ether)	ND
SS-BSL-10	3/4/2013 14:45	SW8270C	bis(2-Ethylhexyl) Phthalate	ND
SS-BSL-10	3/4/2013 14:45	SW8270C	Chrysene	ND
SS-BSL-10	3/4/2013 14:45	SW8270C	Di-n-Butyl Phthalate	ND
SS-BSL-10	3/4/2013 14:45	SW8270C	Di-n-Octylphthalate	ND
SS-BSL-10	3/4/2013 14:45	SW8270C	Dibenz(a,h)anthracene	ND
SS-BSL-10	3/4/2013 14:45	SW8270C	Dibenzofuran	ND
SS-BSL-10	3/4/2013 14:45	SW8270C	Diethyl Phthalate	ND
SS-BSL-10	3/4/2013 14:45	SW8270C	Dimethyl Phthalate	ND
SS-BSL-10	3/4/2013 14:45	SW8270C	Fluoranthene	ND
SS-BSL-10	3/4/2013 14:45	SW8270C	Fluorene	ND
SS-BSL-10	3/4/2013 14:45	SW8270C	Hexachlorobenzene	ND
SS-BSL-10	3/4/2013 14:45	SW8270C	Hexachlorobutadiene	ND
SS-BSL-10	3/4/2013 14:45	SW8270C	Hexachlorocyclopentadiene	ND
SS-BSL-10	3/4/2013 14:45	SW8270C	Hexachloroethane	ND
SS-BSL-10	3/4/2013 14:45	SW8270C	Indeno(1,2,3-c,d)pyrene	ND
SS-BSL-10	3/4/2013 14:45	SW8270C	Isophorone	ND
SS-BSL-10	3/4/2013 14:45	SW8270C	n-Nitrosodi-n-propylamine	ND
SS-BSL-10	3/4/2013 14:45	SW8270C	n-Nitrosodimethylamine	ND
SS-BSL-10	3/4/2013 14:45	SW8270C	n-Nitrosodiphenylamine	ND
SS-BSL-10	3/4/2013 14:45	SW8270C	Naphthalene	ND
SS-BSL-10	3/4/2013 14:45	SW8270C	Nitrobenzene	ND
SS-BSL-10	3/4/2013 14:45	SW8270C	Pentachlorophenol	ND
SS-BSL-10	3/4/2013 14:45	SW8270C	Phenanthrene	ND
SS-BSL-10	3/4/2013 14:45	SW8270C	Phenol	ND
SS-BSL-10	3/4/2013 14:45	SW8270C	Pyrene	ND

Attachment L1 Table 4: Soil Gas Data: Gollob Park

Sample Identification	Sample Date	Method	Chemical	Result mg/m^3
GOLLOB-2013-1	2/22/2013 14:14	TO15	1,1,1-Trichloroethane	ND
GOLLOB-2013-2	2/22/2013 13:32	TO15	1,1,1-Trichloroethane	ND
GOLLOB-2013-3	2/22/2013 9:54	TO15	1,1,1-Trichloroethane	ND
GOLLOB-2013-4	2/26/2013 10:15	TO15	1,1,1-Trichloroethane	ND
GOLLOB-2013-1	2/22/2013 14:14	TO15	1,1,2,2-Tetrachloroethane	ND
GOLLOB-2013-2	2/22/2013 13:32	TO15	1,1,2,2-Tetrachloroethane	ND
GOLLOB-2013-3	2/22/2013 9:54	TO15	1,1,2,2-Tetrachloroethane	ND
GOLLOB-2013-4	2/26/2013 10:15	TO15	1,1,2,2-Tetrachloroethane	ND
GOLLOB-2013-1	2/22/2013 14:14	TO15	1,1,2-Trichloro-1,2,2-trifluoroethane	ND
GOLLOB-2013-2	2/22/2013 13:32	TO15	1,1,2-Trichloro-1,2,2-trifluoroethane	ND
GOLLOB-2013-3	2/22/2013 9:54	TO15	1,1,2-Trichloro-1,2,2-trifluoroethane	ND
GOLLOB-2013-4	2/26/2013 10:15	TO15	1,1,2-Trichloro-1,2,2-trifluoroethane	ND
GOLLOB-2013-1	2/22/2013 14:14	TO15	1,1,2-Trichloroethane	ND
GOLLOB-2013-2	2/22/2013 13:32	TO15	1,1,2-Trichloroethane	ND
GOLLOB-2013-3	2/22/2013 9:54	TO15	1,1,2-Trichloroethane	ND
GOLLOB-2013-4	2/26/2013 10:15	TO15	1,1,2-Trichloroethane	ND
GOLLOB-2013-2	2/22/2013 13:32	TO15	1,1-Dichloroethane	0.003394
GOLLOB-2013-1	2/22/2013 14:14	TO15	1,1-Dichloroethane	ND
GOLLOB-2013-3	2/22/2013 9:54	TO15	1,1-Dichloroethane	ND
GOLLOB-2013-4	2/26/2013 10:15	TO15	1,1-Dichloroethane	ND
GOLLOB-2013-2	2/22/2013 13:32	TO15	1,1-Dichloroethene	0.024126
GOLLOB-2013-1	2/22/2013 14:14	TO15	1,1-Dichloroethene	ND
GOLLOB-2013-3	2/22/2013 9:54	TO15	1,1-Dichloroethene	ND
GOLLOB-2013-4	2/26/2013 10:15	TO15	1,1-Dichloroethene	ND
GOLLOB-2013-1	2/22/2013 14:14	TO15	1,2,4-Trichlorobenzene	ND
GOLLOB-2013-2	2/22/2013 13:32	TO15	1,2,4-Trichlorobenzene	ND
GOLLOB-2013-3	2/22/2013 9:54	TO15	1,2,4-Trichlorobenzene	ND
GOLLOB-2013-4	2/26/2013 10:15	TO15	1,2,4-Trichlorobenzene	ND
GOLLOB-2013-2	2/22/2013 13:32	TO15	1,2,4-Trimethylbenzene	0.026984
GOLLOB-2013-1	2/22/2013 14:14	TO15	1,2,4-Trimethylbenzene	ND
GOLLOB-2013-3	2/22/2013 9:54	TO15	1,2,4-Trimethylbenzene	ND
GOLLOB-2013-4	2/26/2013 10:15	TO15	1,2,4-Trimethylbenzene	ND
GOLLOB-2013-1	2/22/2013 14:14	TO15	1,2-Dibromoethane (EDB)	ND
GOLLOB-2013-2	2/22/2013 13:32	TO15	1,2-Dibromoethane (EDB)	ND
GOLLOB-2013-3	2/22/2013 9:54	TO15	1,2-Dibromoethane (EDB)	ND
GOLLOB-2013-4	2/26/2013 10:15	TO15	1,2-Dibromoethane (EDB)	ND
GOLLOB-2013-1	2/22/2013 14:14	TO15	1,2-Dichlorobenzene	ND
GOLLOB-2013-2	2/22/2013 13:32	TO15	1,2-Dichlorobenzene	ND
GOLLOB-2013-3	2/22/2013 9:54	TO15	1,2-Dichlorobenzene	ND
GOLLOB-2013-4	2/26/2013 10:15	TO15	1,2-Dichlorobenzene	ND
GOLLOB-2013-1	2/22/2013 14:14	TO15	1,2-Dichloroethane	ND
GOLLOB-2013-2	2/22/2013 13:32	TO15	1,2-Dichloroethane	ND
GOLLOB-2013-3	2/22/2013 9:54	TO15	1,2-Dichloroethane	ND
GOLLOB-2013-4	2/26/2013 10:15	TO15	1,2-Dichloroethane	ND
GOLLOB-2013-2	2/22/2013 13:32	TO15	1,2-Dichloropropane	0.040127
GOLLOB-2013-1	2/22/2013 14:14	TO15	1,2-Dichloropropane	ND
GOLLOB-2013-3	2/22/2013 9:54	TO15	1,2-Dichloropropane	ND
GOLLOB-2013-4	2/26/2013 10:15	TO15	1,2-Dichloropropane	ND
GOLLOB-2013-3	2/22/2013 9:54	TO15	1,2-Dichlorotetrafluoroethane	0.004674
GOLLOB-2013-1	2/22/2013 14:14	TO15	1,2-Dichlorotetrafluoroethane	0.050921
GOLLOB-2013-4	2/26/2013 10:15	TO15	1,2-Dichlorotetrafluoroethane	0.066267
GOLLOB-2013-2	2/22/2013 13:32	TO15	1,2-Dichlorotetrafluoroethane	4.185306
GOLLOB-2013-2	2/22/2013 13:32	TO15	1,3,5-Trimethylbenzene	0.017662
GOLLOB-2013-1	2/22/2013 14:14	TO15	1,3,5-Trimethylbenzene	ND
GOLLOB-2013-3	2/22/2013 9:54	TO15	1,3,5-Trimethylbenzene	ND
GOLLOB-2013-4	2/26/2013 10:15	TO15	1,3,5-Trimethylbenzene	ND
GOLLOB-2013-1	2/22/2013 14:14	TO15	1,3-Dichlorobenzene	ND
GOLLOB-2013-2	2/22/2013 13:32	TO15	1,3-Dichlorobenzene	ND
GOLLOB-2013-3	2/22/2013 9:54	TO15	1,3-Dichlorobenzene	ND

Attachment L1 Table 4: Soil Gas Data: Gollob Park

Sample Identification	Sample Date	Method	Chemical	Result mg/m^3
GOLLOB-2013-4	2/26/2013 10:15	TO15	1,3-Dichlorobenzene	ND
GOLLOB-2013-2	2/22/2013 13:32	TO15	1,4-Dichlorobenzene	0.0378
GOLLOB-2013-1	2/22/2013 14:14	TO15	1,4-Dichlorobenzene	ND
GOLLOB-2013-3	2/22/2013 9:54	TO15	1,4-Dichlorobenzene	ND
GOLLOB-2013-4	2/26/2013 10:15	TO15	1,4-Dichlorobenzene	ND
GOLLOB-2013-1	2/22/2013 14:14	TO15	Benzene	0.041441
GOLLOB-2013-4	2/26/2013 10:15	TO15	Benzene	0.114759
GOLLOB-2013-2	2/22/2013 13:32	TO15	Benzene	0.239082
GOLLOB-2013-3	2/22/2013 9:54	TO15	Benzene	ND
GOLLOB-2013-1	2/22/2013 14:14	TO15	Bromomethane	ND
GOLLOB-2013-2	2/22/2013 13:32	TO15	Bromomethane	ND
GOLLOB-2013-3	2/22/2013 9:54	TO15	Bromomethane	ND
GOLLOB-2013-4	2/26/2013 10:15	TO15	Bromomethane	ND
GOLLOB-2013-1	2/22/2013 14:14	TO15	Carbon Tetrachloride	ND
GOLLOB-2013-2	2/22/2013 13:32	TO15	Carbon Tetrachloride	ND
GOLLOB-2013-3	2/22/2013 9:54	TO15	Carbon Tetrachloride	ND
GOLLOB-2013-4	2/26/2013 10:15	TO15	Carbon Tetrachloride	ND
GOLLOB-2013-1	2/22/2013 14:14	TO15	Chlorobenzene	ND
GOLLOB-2013-2	2/22/2013 13:32	TO15	Chlorobenzene	ND
GOLLOB-2013-3	2/22/2013 9:54	TO15	Chlorobenzene	ND
GOLLOB-2013-4	2/26/2013 10:15	TO15	Chlorobenzene	ND
GOLLOB-2013-1	2/22/2013 14:14	TO15	Chloroethane	ND
GOLLOB-2013-2	2/22/2013 13:32	TO15	Chloroethane	ND
GOLLOB-2013-3	2/22/2013 9:54	TO15	Chloroethane	ND
GOLLOB-2013-4	2/26/2013 10:15	TO15	Chloroethane	ND
GOLLOB-2013-3	2/22/2013 9:54	TO15	Chloroform	0.025342
GOLLOB-2013-2	2/22/2013 13:32	TO15	Chloroform	0.035576
GOLLOB-2013-1	2/22/2013 14:14	TO15	Chloroform	ND
GOLLOB-2013-4	2/26/2013 10:15	TO15	Chloroform	ND
GOLLOB-2013-1	2/22/2013 14:14	TO15	Chloromethane	ND
GOLLOB-2013-2	2/22/2013 13:32	TO15	Chloromethane	ND
GOLLOB-2013-3	2/22/2013 9:54	TO15	Chloromethane	ND
GOLLOB-2013-4	2/26/2013 10:15	TO15	Chloromethane	ND
GOLLOB-2013-1	2/22/2013 14:14	TO15	cis-1,2-Dichloroethylene	0.033618
GOLLOB-2013-2	2/22/2013 13:32	TO15	cis-1,2-Dichloroethylene	0.272902
GOLLOB-2013-4	2/26/2013 10:15	TO15	cis-1,2-Dichloroethylene	0.751469
GOLLOB-2013-3	2/22/2013 9:54	TO15	cis-1,2-Dichloroethylene	ND
GOLLOB-2013-1	2/22/2013 14:14	TO15	cis-1,3-Dichloropropene	ND
GOLLOB-2013-2	2/22/2013 13:32	TO15	cis-1,3-Dichloropropene	ND
GOLLOB-2013-3	2/22/2013 9:54	TO15	cis-1,3-Dichloropropene	ND
GOLLOB-2013-4	2/26/2013 10:15	TO15	cis-1,3-Dichloropropene	ND
GOLLOB-2013-3	2/22/2013 9:54	TO15	Dichlorodifluoromethane	0.003898
GOLLOB-2013-1	2/22/2013 14:14	TO15	Dichlorodifluoromethane	0.02566
GOLLOB-2013-4	2/26/2013 10:15	TO15	Dichlorodifluoromethane	0.047373
GOLLOB-2013-2	2/22/2013 13:32	TO15	Dichlorodifluoromethane	5.921632
GOLLOB-2013-1	2/22/2013 14:14	TO15	Ethylbenzene	0.013871
GOLLOB-2013-4	2/26/2013 10:15	TO15	Ethylbenzene	0.060686
GOLLOB-2013-2	2/22/2013 13:32	TO15	Ethylbenzene	ND
GOLLOB-2013-3	2/22/2013 9:54	TO15	Ethylbenzene	ND
GOLLOB-2013-1	2/22/2013 14:14	TO15	Hexachlorobutadiene	ND
GOLLOB-2013-2	2/22/2013 13:32	TO15	Hexachlorobutadiene	ND
GOLLOB-2013-3	2/22/2013 9:54	TO15	Hexachlorobutadiene	ND
GOLLOB-2013-4	2/26/2013 10:15	TO15	Hexachlorobutadiene	ND
GOLLOB-2013-2	2/22/2013 13:32	TO15	Isopropanol	0.019134
GOLLOB-2013-1	2/22/2013 14:14	TO15	Isopropanol	ND
GOLLOB-2013-3	2/22/2013 9:54	TO15	Isopropanol	ND
GOLLOB-2013-4	2/26/2013 10:15	TO15	Isopropanol	ND
GOLLOB-2013-4	2/26/2013 10:15	TO15	Methylene Chloride	0.019406
GOLLOB-2013-2	2/22/2013 13:32	TO15	Methylene Chloride	0.162869

Attachment L1 Table 4: Soil Gas Data: Gollob Park

Sample Identification	Sample Date	Method	Chemical	Result mg/m^3
GOLLOB-2013-1	2/22/2013 14:14	TO15	Methylene Chloride	ND
GOLLOB-2013-3	2/22/2013 9:54	TO15	Methylene Chloride	ND
GOLLOB-2013-2	2/22/2013 13:32	TO15	Styrene	0.004674
GOLLOB-2013-4	2/26/2013 10:15	TO15	Styrene	0.020395
GOLLOB-2013-1	2/22/2013 14:14	TO15	Styrene	ND
GOLLOB-2013-3	2/22/2013 9:54	TO15	Styrene	ND
GOLLOB-2013-3	2/22/2013 9:54	TO15	Tetrachloroethene (PCE)	0.014211
GOLLOB-2013-1	2/22/2013 14:14	TO15	Tetrachloroethene (PCE)	0.028423
GOLLOB-2013-2	2/22/2013 13:32	TO15	Tetrachloroethene (PCE)	3.925061
GOLLOB-2013-4	2/26/2013 10:15	TO15	Tetrachloroethene (PCE)	ND
GOLLOB-2013-3	2/22/2013 9:54	TO15	Toluene	0.002143
GOLLOB-2013-1	2/22/2013 14:14	TO15	Toluene	0.012405
GOLLOB-2013-2	2/22/2013 13:32	TO15	Toluene	0.032705
GOLLOB-2013-4	2/26/2013 10:15	TO15	Toluene	0.082702
GOLLOB-2013-2	2/22/2013 13:32	TO15	trans-1,2-Dichloroethene	0.106788
GOLLOB-2013-1	2/22/2013 14:14	TO15	trans-1,2-Dichloroethene	ND
GOLLOB-2013-3	2/22/2013 9:54	TO15	trans-1,2-Dichloroethene	ND
GOLLOB-2013-4	2/26/2013 10:15	TO15	trans-1,2-Dichloroethene	ND
GOLLOB-2013-1	2/22/2013 14:14	TO15	trans-1,3-Dichloropropene	ND
GOLLOB-2013-2	2/22/2013 13:32	TO15	trans-1,3-Dichloropropene	ND
GOLLOB-2013-3	2/22/2013 9:54	TO15	trans-1,3-Dichloropropene	ND
GOLLOB-2013-4	2/26/2013 10:15	TO15	trans-1,3-Dichloropropene	ND
GOLLOB-2013-1	2/22/2013 14:14	TO15	Trichloroethene (TCE)	0.030034
GOLLOB-2013-4	2/26/2013 10:15	TO15	Trichloroethene (TCE)	0.053633
GOLLOB-2013-2	2/22/2013 13:32	TO15	Trichloroethene (TCE)	3.593388
GOLLOB-2013-3	2/22/2013 9:54	TO15	Trichloroethene (TCE)	ND
GOLLOB-2013-2	2/22/2013 13:32	TO15	Trichlorofluoromethane	1.233796
GOLLOB-2013-1	2/22/2013 14:14	TO15	Trichlorofluoromethane	ND
GOLLOB-2013-3	2/22/2013 9:54	TO15	Trichlorofluoromethane	ND
GOLLOB-2013-4	2/26/2013 10:15	TO15	Trichlorofluoromethane	ND
GOLLOB-2013-2	2/22/2013 13:32	TO15	Vinyl Chloride	0.024235
GOLLOB-2013-4	2/26/2013 10:15	TO15	Vinyl Chloride	0.089286
GOLLOB-2013-1	2/22/2013 14:14	TO15	Vinyl Chloride	ND
GOLLOB-2013-3	2/22/2013 9:54	TO15	Vinyl Chloride	ND
GOLLOB-2013-2	2/22/2013 13:32	TO15	Xylenes, Total	0.117037
GOLLOB-2013-4	2/26/2013 10:15	TO15	Xylenes, Total	0.13871
GOLLOB-2013-1	2/22/2013 14:14	TO15	Xylenes, Total	ND
GOLLOB-2013-3	2/22/2013 9:54	TO15	Xylenes, Total	ND

Attachment L-1 Table-4: Soil Gas Data: YMCA

Sample Identification	Sample Date	Method	Chemical	Result mg/m^3
PRUD-16-15	2/19/2013 13:55	TO15	1,2,4-Trimethylbenzene	0.002257
PRUD-19-10	2/19/2013 15:56	TO15	1,2,4-Trimethylbenzene	0.002502
PRUD-20-10	3/4/2013 8:23	TO15	1,2,4-Trimethylbenzene	0.003238
PRUD-18-10	2/19/2013 15:12	TO15	1,2,4-Trimethylbenzene	0.003483
PRUD-20-25	3/4/2013 8:35	TO15	1,2,4-Trimethylbenzene	0.003532
PRUD-17-10	2/19/2013 14:22	TO15	1,2,4-Trimethylbenzene	0.003827
PRUD-19-25	3/4/2013 8:04	TO15	1,2,4-Trimethylbenzene	0.00417
PRUD-17-25	2/19/2013 14:41	TO15	1,2,4-Trimethylbenzene	0.004416
PRUD-1	2/19/2013 13:07	TO15	1,1,1-Trichloroethane	ND
PRUD-1	2/19/2013 13:07	TO15	1,1,2,2-Tetrachloroethane	ND
PRUD-1	2/19/2013 13:07	TO15	1,1,2-Trichloro-1,2,2-trifluoroethane	ND
PRUD-1	2/19/2013 13:07	TO15	1,1,2-Trichloroethane	ND
PRUD-1	2/19/2013 13:07	TO15	1,1-Dichloroethane	ND
PRUD-1	2/19/2013 13:07	TO15	1,1-Dichloroethene	ND
PRUD-1	2/19/2013 13:07	TO15	1,2,4-Trichlorobenzene	ND
PRUD-1	2/19/2013 13:07	TO15	1,2-Dibromoethane (EDB)	ND
PRUD-1	2/19/2013 13:07	TO15	1,2-Dichlorobenzene	ND
PRUD-1	2/19/2013 13:07	TO15	1,2-Dichloroethane	ND
PRUD-1	2/19/2013 13:07	TO15	1,2-Dichloropropane	ND
PRUD-1	2/19/2013 13:07	TO15	1,2-Dichlorotetrafluoroethane	ND
PRUD-1	2/19/2013 13:07	TO15	1,3,5-Trimethylbenzene	ND
PRUD-1	2/19/2013 13:07	TO15	1,3-Dichlorobenzene	ND
PRUD-1	2/19/2013 13:07	TO15	1,4-Dichlorobenzene	ND
PRUD-1	2/19/2013 13:07	TO15	Benzene	ND
PRUD-1	2/19/2013 13:07	TO15	Bromomethane	ND
PRUD-1	2/19/2013 13:07	TO15	Carbon Tetrachloride	ND
PRUD-1	2/19/2013 13:07	TO15	Chlorobenzene	ND
PRUD-1	2/19/2013 13:07	TO15	Chloroethane	ND
PRUD-1	2/19/2013 13:07	TO15	Chloromethane	ND
PRUD-1	2/19/2013 13:07	TO15	cis-1,2-Dichloroethylene	ND
PRUD-1	2/19/2013 13:07	TO15	cis-1,3-Dichloropropene	ND
PRUD-1	2/19/2013 13:07	TO15	Hexachlorobutadiene	ND
PRUD-1	2/19/2013 13:07	TO15	Methylene Chloride	ND
PRUD-1	2/19/2013 13:07	TO15	trans-1,2-Dichloroethene	ND
PRUD-1	2/19/2013 13:07	TO15	trans-1,3-Dichloropropene	ND
PRUD-1	2/19/2013 13:07	TO15	Trichloroethene (TCE)	ND
PRUD-1	2/19/2013 13:07	TO15	Trichlorofluoromethane	ND
PRUD-1	2/19/2013 13:07	TO15	Vinyl Chloride	ND
PRUD-1	2/19/2013 13:07	TO15	Isopropanol	ND
PRUD-16-25	2/19/2013 13:35	TO15	1,2,4-Trimethylbenzene	0.005397
PRUD-1	2/19/2013 13:07	TO15	1,2,4-Trimethylbenzene	0.005887
PRUD-17-100	2/19/2013 14:27	TO15	1,2,4-Trimethylbenzene	0.006869
PRUD-19-25	3/4/2013 8:04	TO15	1,2-Dichlorotetrafluoroethane	0.003906
PRUD-19-10	2/19/2013 15:56	TO15	Chloroform	0.003119
PRUD-1	2/19/2013 13:07	TO15	Chloroform	0.003655
PRUD-17-100	2/19/2013 14:27	TO15	Chloroform	0.004142
PRUD-18-25	2/19/2013 15:34	TO15	Chloroform	0.004337
PRUD-17-10	2/19/2013 14:22	TO15	Chloroform	0.004727
PRUD-17-25	2/19/2013 14:41	TO15	Chloroform	0.004776
PRUD-19-25	3/4/2013 8:04	TO15	Chloroform	0.005848
PRUD-16-25	2/19/2013 13:35	TO15	Chloroform	0.00731
PRUD-16-15	2/19/2013 13:55	TO15	Chloroform	0.01462
PRUD-20-10	3/4/2013 8:23	TO15	Chloromethane	0.001175
PRUD-19-10	2/19/2013 15:56	TO15	Chloromethane	0.001505
PRUD-18-25	2/19/2013 15:34	TO15	Dichlorodifluoromethane	0.002763
PRUD-18-10	2/19/2013 15:12	TO15	Dichlorodifluoromethane	0.002862
PRUD-16-15	2/19/2013 13:55	TO15	1,1,1-Trichloroethane	ND
PRUD-16-15	2/19/2013 13:55	TO15	1,1,2,2-Tetrachloroethane	ND
PRUD-16-15	2/19/2013 13:55	TO15	1,1,2-Trichloro-1,2,2-trifluoroethane	ND

Attachment L-1 Table-5: Soil Gas Data: YMCA

Sample Identification	Sample Date	Method	Chemical	Result mg/m^3
PRUD-16-15	2/19/2013 13:55	TO15	1,2,4-Trimethylbenzene	0.002257
PRUD-19-10	2/19/2013 15:56	TO15	1,2,4-Trimethylbenzene	0.002502
PRUD-20-10	3/4/2013 8:23	TO15	1,2,4-Trimethylbenzene	0.003238
PRUD-18-10	2/19/2013 15:12	TO15	1,2,4-Trimethylbenzene	0.003483
PRUD-20-25	3/4/2013 8:35	TO15	1,2,4-Trimethylbenzene	0.003532
PRUD-17-10	2/19/2013 14:22	TO15	1,2,4-Trimethylbenzene	0.003827
PRUD-19-25	3/4/2013 8:04	TO15	1,2,4-Trimethylbenzene	0.00417
PRUD-17-25	2/19/2013 14:41	TO15	1,2,4-Trimethylbenzene	0.004416
PRUD-1	2/19/2013 13:07	TO15	1,1,1-Trichloroethane	ND
PRUD-1	2/19/2013 13:07	TO15	1,1,2,2-Tetrachloroethane	ND
PRUD-1	2/19/2013 13:07	TO15	1,1,2-Trichloro-1,2,2-trifluoroethane	ND
PRUD-1	2/19/2013 13:07	TO15	1,1,2-Trichloroethane	ND
PRUD-1	2/19/2013 13:07	TO15	1,1-Dichloroethane	ND
PRUD-1	2/19/2013 13:07	TO15	1,1-Dichloroethene	ND
PRUD-1	2/19/2013 13:07	TO15	1,2,4-Trichlorobenzene	ND
PRUD-1	2/19/2013 13:07	TO15	1,2-Dibromoethane (EDB)	ND
PRUD-1	2/19/2013 13:07	TO15	1,2-Dichlorobenzene	ND
PRUD-1	2/19/2013 13:07	TO15	1,2-Dichloroethane	ND
PRUD-1	2/19/2013 13:07	TO15	1,2-Dichloropropane	ND
PRUD-1	2/19/2013 13:07	TO15	1,2-Dichlorotetrafluoroethane	ND
PRUD-1	2/19/2013 13:07	TO15	1,3,5-Trimethylbenzene	ND
PRUD-1	2/19/2013 13:07	TO15	1,3-Dichlorobenzene	ND
PRUD-1	2/19/2013 13:07	TO15	1,4-Dichlorobenzene	ND
PRUD-1	2/19/2013 13:07	TO15	Benzene	ND
PRUD-1	2/19/2013 13:07	TO15	Bromomethane	ND
PRUD-1	2/19/2013 13:07	TO15	Carbon Tetrachloride	ND
PRUD-1	2/19/2013 13:07	TO15	Chlorobenzene	ND
PRUD-1	2/19/2013 13:07	TO15	Chloroethane	ND
PRUD-1	2/19/2013 13:07	TO15	Chloromethane	ND
PRUD-1	2/19/2013 13:07	TO15	cis-1,2-Dichloroethylene	ND
PRUD-1	2/19/2013 13:07	TO15	cis-1,3-Dichloropropene	ND
PRUD-1	2/19/2013 13:07	TO15	Hexachlorobutadiene	ND
PRUD-1	2/19/2013 13:07	TO15	Methylene Chloride	ND
PRUD-1	2/19/2013 13:07	TO15	trans-1,2-Dichloroethene	ND
PRUD-1	2/19/2013 13:07	TO15	trans-1,3-Dichloropropene	ND
PRUD-1	2/19/2013 13:07	TO15	Trichloroethene (TCE)	ND
PRUD-1	2/19/2013 13:07	TO15	Trichlorofluoromethane	ND
PRUD-1	2/19/2013 13:07	TO15	Vinyl Chloride	ND
PRUD-1	2/19/2013 13:07	TO15	Isopropanol	ND
PRUD-16-25	2/19/2013 13:35	TO15	1,2,4-Trimethylbenzene	0.005397
PRUD-1	2/19/2013 13:07	TO15	1,2,4-Trimethylbenzene	0.005887
PRUD-17-100	2/19/2013 14:27	TO15	1,2,4-Trimethylbenzene	0.006869
PRUD-19-25	3/4/2013 8:04	TO15	1,2-Dichlorotetrafluoroethane	0.003906
PRUD-19-10	2/19/2013 15:56	TO15	Chloroform	0.003119
PRUD-1	2/19/2013 13:07	TO15	Chloroform	0.003655
PRUD-17-100	2/19/2013 14:27	TO15	Chloroform	0.004142
PRUD-18-25	2/19/2013 15:34	TO15	Chloroform	0.004337
PRUD-17-10	2/19/2013 14:22	TO15	Chloroform	0.004727
PRUD-17-25	2/19/2013 14:41	TO15	Chloroform	0.004776
PRUD-19-25	3/4/2013 8:04	TO15	Chloroform	0.005848
PRUD-16-25	2/19/2013 13:35	TO15	Chloroform	0.00731
PRUD-16-15	2/19/2013 13:55	TO15	Chloroform	0.01462
PRUD-20-10	3/4/2013 8:23	TO15	Chloromethane	0.001175
PRUD-19-10	2/19/2013 15:56	TO15	Chloromethane	0.001505
PRUD-18-25	2/19/2013 15:34	TO15	Dichlorodifluoromethane	0.002763
PRUD-18-10	2/19/2013 15:12	TO15	Dichlorodifluoromethane	0.002862
PRUD-16-15	2/19/2013 13:55	TO15	1,1,1-Trichloroethane	ND
PRUD-16-15	2/19/2013 13:55	TO15	1,1,2,2-Tetrachloroethane	ND
PRUD-16-15	2/19/2013 13:55	TO15	1,1,2-Trichloro-1,2,2-trifluoroethane	ND

Attachment L-1 Table-5: Soil Gas Data: YMCA

Sample Identification	Sample Date	Method	Chemical	Result mg/m^3
PRUD-16-15	2/19/2013 13:55	TO15	1,1,2-Trichloroethane	ND
PRUD-16-15	2/19/2013 13:55	TO15	1,1-Dichloroethane	ND
PRUD-16-15	2/19/2013 13:55	TO15	1,1-Dichloroethene	ND
PRUD-16-15	2/19/2013 13:55	TO15	1,2,4-Trichlorobenzene	ND
PRUD-16-15	2/19/2013 13:55	TO15	1,2-Dibromoethane (EDB)	ND
PRUD-16-15	2/19/2013 13:55	TO15	1,2-Dichlorobenzene	ND
PRUD-16-15	2/19/2013 13:55	TO15	1,2-Dichloroethane	ND
PRUD-16-15	2/19/2013 13:55	TO15	1,2-Dichloropropane	ND
PRUD-16-15	2/19/2013 13:55	TO15	1,2-Dichlorotetrafluoroethane	ND
PRUD-16-15	2/19/2013 13:55	TO15	1,3,5-Trimethylbenzene	ND
PRUD-16-15	2/19/2013 13:55	TO15	1,3-Dichlorobenzene	ND
PRUD-16-15	2/19/2013 13:55	TO15	1,4-Dichlorobenzene	ND
PRUD-16-15	2/19/2013 13:55	TO15	Benzene	ND
PRUD-16-15	2/19/2013 13:55	TO15	Bromomethane	ND
PRUD-16-15	2/19/2013 13:55	TO15	Carbon Tetrachloride	ND
PRUD-16-15	2/19/2013 13:55	TO15	Chlorobenzene	ND
PRUD-16-15	2/19/2013 13:55	TO15	Chloroethane	ND
PRUD-16-15	2/19/2013 13:55	TO15	Chloromethane	ND
PRUD-16-15	2/19/2013 13:55	TO15	cis-1,2-Dichloroethylene	ND
PRUD-16-15	2/19/2013 13:55	TO15	cis-1,3-Dichloropropene	ND
PRUD-16-15	2/19/2013 13:55	TO15	Dichlorodifluoromethane	ND
PRUD-16-15	2/19/2013 13:55	TO15	Hexachlorobutadiene	ND
PRUD-16-15	2/19/2013 13:55	TO15	Isopropanol	ND
PRUD-16-15	2/19/2013 13:55	TO15	trans-1,2-Dichloroethene	ND
PRUD-16-15	2/19/2013 13:55	TO15	trans-1,3-Dichloropropene	ND
PRUD-16-15	2/19/2013 13:55	TO15	Trichloroethene (TCE)	ND
PRUD-16-15	2/19/2013 13:55	TO15	Trichlorofluoromethane	ND
PRUD-16-15	2/19/2013 13:55	TO15	Vinyl Chloride	ND
PRUD-16-25	2/19/2013 13:35	TO15	1,1,1-Trichloroethane	ND
PRUD-16-25	2/19/2013 13:35	TO15	1,1,2,2-Tetrachloroethane	ND
PRUD-16-25	2/19/2013 13:35	TO15	1,1,2-Trichloro-1,2,2-trifluoroethane	ND
PRUD-16-25	2/19/2013 13:35	TO15	1,1,2-Trichloroethane	ND
PRUD-16-25	2/19/2013 13:35	TO15	1,1-Dichloroethane	ND
PRUD-16-25	2/19/2013 13:35	TO15	1,1-Dichloroethene	ND
PRUD-16-25	2/19/2013 13:35	TO15	1,2,4-Trichlorobenzene	ND
PRUD-16-25	2/19/2013 13:35	TO15	1,2-Dibromoethane (EDB)	ND
PRUD-16-25	2/19/2013 13:35	TO15	1,2-Dichlorobenzene	ND
PRUD-16-25	2/19/2013 13:35	TO15	1,2-Dichloroethane	ND
PRUD-16-25	2/19/2013 13:35	TO15	1,2-Dichloropropane	ND
PRUD-16-25	2/19/2013 13:35	TO15	1,2-Dichlorotetrafluoroethane	ND
PRUD-16-25	2/19/2013 13:35	TO15	1,3,5-Trimethylbenzene	ND
PRUD-16-25	2/19/2013 13:35	TO15	1,3-Dichlorobenzene	ND
PRUD-16-25	2/19/2013 13:35	TO15	1,4-Dichlorobenzene	ND
PRUD-16-25	2/19/2013 13:35	TO15	Benzene	ND
PRUD-16-25	2/19/2013 13:35	TO15	Bromomethane	ND
PRUD-16-25	2/19/2013 13:35	TO15	Carbon Tetrachloride	ND
PRUD-16-25	2/19/2013 13:35	TO15	Chlorobenzene	ND
PRUD-16-25	2/19/2013 13:35	TO15	Chloroethane	ND
PRUD-16-25	2/19/2013 13:35	TO15	Chloromethane	ND
PRUD-16-25	2/19/2013 13:35	TO15	cis-1,2-Dichloroethylene	ND
PRUD-16-25	2/19/2013 13:35	TO15	cis-1,3-Dichloropropene	ND
PRUD-16-25	2/19/2013 13:35	TO15	Hexachlorobutadiene	ND
PRUD-16-25	2/19/2013 13:35	TO15	Isopropanol	ND
PRUD-16-25	2/19/2013 13:35	TO15	trans-1,2-Dichloroethene	ND
PRUD-16-25	2/19/2013 13:35	TO15	trans-1,3-Dichloropropene	ND
PRUD-16-25	2/19/2013 13:35	TO15	Trichloroethene (TCE)	ND
PRUD-16-25	2/19/2013 13:35	TO15	Trichlorofluoromethane	ND
PRUD-16-25	2/19/2013 13:35	TO15	Vinyl Chloride	ND
PRUD-19-10	2/19/2013 15:56	TO15	Dichlorodifluoromethane	0.002961

Attachment L-1 Table-5: Soil Gas Data: YMCA

Sample Identification	Sample Date	Method	Chemical	Result mg/m^3
PRUD-17-100	2/19/2013 14:27	TO15	Dichlorodifluoromethane	0.003356
PRUD-17-25	2/19/2013 14:41	TO15	Dichlorodifluoromethane	0.003356
PRUD-20-25	3/4/2013 8:35	TO15	Dichlorodifluoromethane	0.003356
PRUD-19-25	3/4/2013 8:04	TO15	Dichlorodifluoromethane	0.004491
PRUD-16-25	2/19/2013 13:35	TO15	Dichlorodifluoromethane	0.005428
PRUD-20-10	3/4/2013 8:23	TO15	Dichlorodifluoromethane	0.005428
PRUD-1	2/19/2013 13:07	TO15	Dichlorodifluoromethane	0.01283
PRUD-16-15	2/19/2013 13:55	TO15	Ethylbenzene	0.002688
PRUD-20-10	3/4/2013 8:23	TO15	Ethylbenzene	0.002818
PRUD-19-25	3/4/2013 8:04	TO15	Ethylbenzene	0.003121
PRUD-20-25	3/4/2013 8:35	TO15	Ethylbenzene	0.003208
PRUD-18-10	2/19/2013 15:12	TO15	Ethylbenzene	0.003511
PRUD-17-10	2/19/2013 14:22	TO15	Ethylbenzene	0.003901
PRUD-18-25	2/19/2013 15:34	TO15	Ethylbenzene	0.003988
PRUD-17-100	2/19/2013 14:27	TO15	Ethylbenzene	0.004291
PRUD-1	2/19/2013 13:07	TO15	Ethylbenzene	0.004768
PRUD-17-25	2/19/2013 14:41	TO15	Ethylbenzene	0.004768
PRUD-16-25	2/19/2013 13:35	TO15	Ethylbenzene	0.005635
PRUD-17-10	2/19/2013 14:22	TO15	Isopropanol	0.007604
PRUD-17-100	2/19/2013 14:27	TO15	Isopropanol	0.00834
PRUD-20-25	3/4/2013 8:35	TO15	Isopropanol	0.029437
PRUD-19-25	3/4/2013 8:04	TO15	Isopropanol	0.066233
PRUD-20-10	3/4/2013 8:23	TO15	Isopropanol	0.078498
PRUD-16-15	2/19/2013 13:55	TO15	Methylene Chloride	0.001733
PRUD-16-25	2/19/2013 13:35	TO15	Methylene Chloride	0.001767
PRUD-17-10	2/19/2013 14:22	TO15	1,1,1-Trichloroethane	ND
PRUD-17-10	2/19/2013 14:22	TO15	1,1,2,2-Tetrachloroethane	ND
PRUD-17-10	2/19/2013 14:22	TO15	1,1,2-Trichloro-1,2,2-trifluoroethane	ND
PRUD-17-10	2/19/2013 14:22	TO15	1,1,2-Trichloroethane	ND
PRUD-17-10	2/19/2013 14:22	TO15	1,1-Dichloroethane	ND
PRUD-17-10	2/19/2013 14:22	TO15	1,1-Dichloroethene	ND
PRUD-17-10	2/19/2013 14:22	TO15	1,2,4-Trichlorobenzene	ND
PRUD-17-10	2/19/2013 14:22	TO15	1,2-Dibromoethane (EDB)	ND
PRUD-17-10	2/19/2013 14:22	TO15	1,2-Dichlorobenzene	ND
PRUD-17-10	2/19/2013 14:22	TO15	1,2-Dichloroethane	ND
PRUD-17-10	2/19/2013 14:22	TO15	1,2-Dichloropropane	ND
PRUD-17-10	2/19/2013 14:22	TO15	1,2-Dichlorotetrafluoroethane	ND
PRUD-17-10	2/19/2013 14:22	TO15	1,3,5-Trimethylbenzene	ND
PRUD-17-10	2/19/2013 14:22	TO15	1,3-Dichlorobenzene	ND
PRUD-17-10	2/19/2013 14:22	TO15	1,4-Dichlorobenzene	ND
PRUD-17-10	2/19/2013 14:22	TO15	Benzene	ND
PRUD-17-10	2/19/2013 14:22	TO15	Bromomethane	ND
PRUD-17-10	2/19/2013 14:22	TO15	Carbon Tetrachloride	ND
PRUD-17-10	2/19/2013 14:22	TO15	Chlorobenzene	ND
PRUD-17-10	2/19/2013 14:22	TO15	Chloroethane	ND
PRUD-17-10	2/19/2013 14:22	TO15	Chloromethane	ND
PRUD-17-10	2/19/2013 14:22	TO15	cis-1,2-Dichloroethylene	ND
PRUD-17-10	2/19/2013 14:22	TO15	cis-1,3-Dichloropropene	ND
PRUD-17-10	2/19/2013 14:22	TO15	Dichlorodifluoromethane	ND
PRUD-17-10	2/19/2013 14:22	TO15	Hexachlorobutadiene	ND
PRUD-17-10	2/19/2013 14:22	TO15	Methylene Chloride	ND
PRUD-17-10	2/19/2013 14:22	TO15	trans-1,2-Dichloroethene	ND
PRUD-17-10	2/19/2013 14:22	TO15	trans-1,3-Dichloropropene	ND
PRUD-17-10	2/19/2013 14:22	TO15	Trichloroethene (TCE)	ND
PRUD-17-10	2/19/2013 14:22	TO15	Trichlorofluoromethane	ND
PRUD-17-10	2/19/2013 14:22	TO15	Vinyl Chloride	ND
PRUD-17-100	2/19/2013 14:27	TO15	1,1,1-Trichloroethane	ND
PRUD-17-100	2/19/2013 14:27	TO15	1,1,2,2-Tetrachloroethane	ND
PRUD-17-100	2/19/2013 14:27	TO15	1,1,2-Trichloro-1,2,2-trifluoroethane	ND

Attachment L-1 Table-5: Soil Gas Data: YMCA

Sample Identification	Sample Date	Method	Chemical	Result mg/m^3
PRUD-17-100	2/19/2013 14:27	TO15	1,1,2-Trichloroethane	ND
PRUD-17-100	2/19/2013 14:27	TO15	1,1-Dichloroethane	ND
PRUD-17-100	2/19/2013 14:27	TO15	1,1-Dichloroethene	ND
PRUD-17-100	2/19/2013 14:27	TO15	1,2,4-Trichlorobenzene	ND
PRUD-17-100	2/19/2013 14:27	TO15	1,2-Dibromoethane (EDB)	ND
PRUD-17-100	2/19/2013 14:27	TO15	1,2-Dichlorobenzene	ND
PRUD-17-100	2/19/2013 14:27	TO15	1,2-Dichloroethane	ND
PRUD-17-100	2/19/2013 14:27	TO15	1,2-Dichloropropane	ND
PRUD-17-100	2/19/2013 14:27	TO15	1,2-Dichlorotetrafluoroethane	ND
PRUD-17-100	2/19/2013 14:27	TO15	1,3,5-Trimethylbenzene	ND
PRUD-17-100	2/19/2013 14:27	TO15	1,3-Dichlorobenzene	ND
PRUD-17-100	2/19/2013 14:27	TO15	1,4-Dichlorobenzene	ND
PRUD-17-100	2/19/2013 14:27	TO15	Benzene	ND
PRUD-17-100	2/19/2013 14:27	TO15	Bromomethane	ND
PRUD-17-100	2/19/2013 14:27	TO15	Carbon Tetrachloride	ND
PRUD-17-100	2/19/2013 14:27	TO15	Chlorobenzene	ND
PRUD-17-100	2/19/2013 14:27	TO15	Chloroethane	ND
PRUD-17-100	2/19/2013 14:27	TO15	Chloromethane	ND
PRUD-17-100	2/19/2013 14:27	TO15	cis-1,2-Dichloroethylene	ND
PRUD-17-100	2/19/2013 14:27	TO15	cis-1,3-Dichloropropene	ND
PRUD-17-100	2/19/2013 14:27	TO15	Hexachlorobutadiene	ND
PRUD-17-100	2/19/2013 14:27	TO15	trans-1,2-Dichloroethene	ND
PRUD-17-100	2/19/2013 14:27	TO15	trans-1,3-Dichloropropene	ND
PRUD-17-100	2/19/2013 14:27	TO15	Trichloroethene (TCE)	ND
PRUD-17-100	2/19/2013 14:27	TO15	Trichlorofluoromethane	ND
PRUD-17-100	2/19/2013 14:27	TO15	Vinyl Chloride	ND
PRUD-17-25	2/19/2013 14:41	TO15	1,1,1-Trichloroethane	ND
PRUD-17-25	2/19/2013 14:41	TO15	1,1,2,2-Tetrachloroethane	ND
PRUD-17-25	2/19/2013 14:41	TO15	1,1,2-Trichloro-1,2,2-trifluoroethane	ND
PRUD-17-25	2/19/2013 14:41	TO15	1,1,2-Trichloroethane	ND
PRUD-17-25	2/19/2013 14:41	TO15	1,1-Dichloroethane	ND
PRUD-17-25	2/19/2013 14:41	TO15	1,1-Dichloroethene	ND
PRUD-17-25	2/19/2013 14:41	TO15	1,2,4-Trichlorobenzene	ND
PRUD-17-25	2/19/2013 14:41	TO15	1,2-Dibromoethane (EDB)	ND
PRUD-17-25	2/19/2013 14:41	TO15	1,2-Dichlorobenzene	ND
PRUD-17-25	2/19/2013 14:41	TO15	1,2-Dichloroethane	ND
PRUD-17-25	2/19/2013 14:41	TO15	1,2-Dichloropropane	ND
PRUD-17-25	2/19/2013 14:41	TO15	1,2-Dichlorotetrafluoroethane	ND
PRUD-17-25	2/19/2013 14:41	TO15	1,3,5-Trimethylbenzene	ND
PRUD-17-25	2/19/2013 14:41	TO15	1,3-Dichlorobenzene	ND
PRUD-17-25	2/19/2013 14:41	TO15	1,4-Dichlorobenzene	ND
PRUD-17-25	2/19/2013 14:41	TO15	Benzene	ND
PRUD-17-25	2/19/2013 14:41	TO15	Bromomethane	ND
PRUD-17-25	2/19/2013 14:41	TO15	Carbon Tetrachloride	ND
PRUD-17-25	2/19/2013 14:41	TO15	Chlorobenzene	ND
PRUD-17-25	2/19/2013 14:41	TO15	Chloroethane	ND
PRUD-17-25	2/19/2013 14:41	TO15	Chloromethane	ND
PRUD-17-25	2/19/2013 14:41	TO15	cis-1,2-Dichloroethylene	ND
PRUD-17-25	2/19/2013 14:41	TO15	cis-1,3-Dichloropropene	ND
PRUD-17-25	2/19/2013 14:41	TO15	Hexachlorobutadiene	ND
PRUD-17-25	2/19/2013 14:41	TO15	Isopropanol	ND
PRUD-17-25	2/19/2013 14:41	TO15	Methylene Chloride	ND
PRUD-17-25	2/19/2013 14:41	TO15	trans-1,2-Dichloroethene	ND
PRUD-17-25	2/19/2013 14:41	TO15	trans-1,3-Dichloropropene	ND
PRUD-17-25	2/19/2013 14:41	TO15	Trichloroethene (TCE)	ND
PRUD-17-25	2/19/2013 14:41	TO15	Trichlorofluoromethane	ND
PRUD-17-25	2/19/2013 14:41	TO15	Vinyl Chloride	ND
PRUD-17-100	2/19/2013 14:27	TO15	Methylene Chloride	0.002322
PRUD-16-15	2/19/2013 13:55	TO15	Styrene	0.002974

Attachment L-1 Table-5: Soil Gas Data: YMCA

Sample Identification	Sample Date	Method	Chemical	Result mg/m^3
PRUD-17-10	2/19/2013 14:22	TO15	Styrene	0.006798
PRUD-20-10	3/4/2013 8:23	TO15	Styrene	0.007223
PRUD-17-100	2/19/2013 14:27	TO15	Styrene	0.007648
PRUD-18-10	2/19/2013 15:12	TO15	Styrene	0.007648
PRUD-18-25	2/19/2013 15:34	TO15	Styrene	0.007648
PRUD-19-25	3/4/2013 8:04	TO15	Styrene	0.008073
PRUD-20-25	3/4/2013 8:35	TO15	Styrene	0.008073
PRUD-1	2/19/2013 13:07	TO15	Styrene	0.008498
PRUD-17-25	2/19/2013 14:41	TO15	Styrene	0.008923
PRUD-16-25	2/19/2013 13:35	TO15	Styrene	0.009348
PRUD-18-10	2/19/2013 15:12	TO15	1,1,1-Trichloroethane	ND
PRUD-18-10	2/19/2013 15:12	TO15	1,1,2,2-Tetrachloroethane	ND
PRUD-18-10	2/19/2013 15:12	TO15	1,1,2-Trichloro-1,2,2-trifluoroethane	ND
PRUD-18-10	2/19/2013 15:12	TO15	1,1,2-Trichloroethane	ND
PRUD-18-10	2/19/2013 15:12	TO15	1,1-Dichloroethane	ND
PRUD-18-10	2/19/2013 15:12	TO15	1,1-Dichloroethene	ND
PRUD-18-10	2/19/2013 15:12	TO15	1,2,4-Trichlorobenzene	ND
PRUD-18-10	2/19/2013 15:12	TO15	1,2-Dibromoethane (EDB)	ND
PRUD-18-10	2/19/2013 15:12	TO15	1,2-Dichlorobenzene	ND
PRUD-18-10	2/19/2013 15:12	TO15	1,2-Dichloroethane	ND
PRUD-18-10	2/19/2013 15:12	TO15	1,2-Dichloropropane	ND
PRUD-18-10	2/19/2013 15:12	TO15	1,2-Dichlorotetrafluoroethane	ND
PRUD-18-10	2/19/2013 15:12	TO15	1,3,5-Trimethylbenzene	ND
PRUD-18-10	2/19/2013 15:12	TO15	1,3-Dichlorobenzene	ND
PRUD-18-10	2/19/2013 15:12	TO15	1,4-Dichlorobenzene	ND
PRUD-18-10	2/19/2013 15:12	TO15	Benzene	ND
PRUD-18-10	2/19/2013 15:12	TO15	Bromomethane	ND
PRUD-18-10	2/19/2013 15:12	TO15	Carbon Tetrachloride	ND
PRUD-18-10	2/19/2013 15:12	TO15	Chlorobenzene	ND
PRUD-18-10	2/19/2013 15:12	TO15	Chloroethane	ND
PRUD-18-10	2/19/2013 15:12	TO15	Chloroform	ND
PRUD-18-10	2/19/2013 15:12	TO15	Chloromethane	ND
PRUD-18-10	2/19/2013 15:12	TO15	cis-1,2-Dichloroethylene	ND
PRUD-18-10	2/19/2013 15:12	TO15	cis-1,3-Dichloropropene	ND
PRUD-18-10	2/19/2013 15:12	TO15	Hexachlorobutadiene	ND
PRUD-18-10	2/19/2013 15:12	TO15	Isopropanol	ND
PRUD-18-10	2/19/2013 15:12	TO15	Methylene Chloride	ND
PRUD-18-10	2/19/2013 15:12	TO15	Tetrachloroethene (PCE)	ND
PRUD-18-10	2/19/2013 15:12	TO15	trans-1,2-Dichloroethene	ND
PRUD-18-10	2/19/2013 15:12	TO15	trans-1,3-Dichloropropene	ND
PRUD-18-10	2/19/2013 15:12	TO15	Trichloroethene (TCE)	ND
PRUD-18-10	2/19/2013 15:12	TO15	Trichlorofluoromethane	ND
PRUD-18-10	2/19/2013 15:12	TO15	Vinyl Chloride	ND
PRUD-18-25	2/19/2013 15:34	TO15	1,1,1-Trichloroethane	ND
PRUD-18-25	2/19/2013 15:34	TO15	1,1,2,2-Tetrachloroethane	ND
PRUD-18-25	2/19/2013 15:34	TO15	1,1,2-Trichloro-1,2,2-trifluoroethane	ND
PRUD-18-25	2/19/2013 15:34	TO15	1,1,2-Trichloroethane	ND
PRUD-18-25	2/19/2013 15:34	TO15	1,1-Dichloroethane	ND
PRUD-18-25	2/19/2013 15:34	TO15	1,1-Dichloroethene	ND
PRUD-18-25	2/19/2013 15:34	TO15	1,2,4-Trichlorobenzene	ND
PRUD-18-25	2/19/2013 15:34	TO15	1,2,4-Trimethylbenzene	ND
PRUD-18-25	2/19/2013 15:34	TO15	1,2-Dibromoethane (EDB)	ND
PRUD-18-25	2/19/2013 15:34	TO15	1,2-Dichlorobenzene	ND
PRUD-18-25	2/19/2013 15:34	TO15	1,2-Dichloroethane	ND
PRUD-18-25	2/19/2013 15:34	TO15	1,2-Dichloropropane	ND
PRUD-18-25	2/19/2013 15:34	TO15	1,2-Dichlorotetrafluoroethane	ND
PRUD-18-25	2/19/2013 15:34	TO15	1,3,5-Trimethylbenzene	ND
PRUD-18-25	2/19/2013 15:34	TO15	1,3-Dichlorobenzene	ND
PRUD-18-25	2/19/2013 15:34	TO15	1,4-Dichlorobenzene	ND

Attachment L-1 Table-5: Soil Gas Data: YMCA

Sample Identification	Sample Date	Method	Chemical	Result mg/m^3
PRUD-18-25	2/19/2013 15:34	TO15	Benzene	ND
PRUD-18-25	2/19/2013 15:34	TO15	Bromomethane	ND
PRUD-18-25	2/19/2013 15:34	TO15	Carbon Tetrachloride	ND
PRUD-18-25	2/19/2013 15:34	TO15	Chlorobenzene	ND
PRUD-18-25	2/19/2013 15:34	TO15	Chloroethane	ND
PRUD-18-25	2/19/2013 15:34	TO15	Chloromethane	ND
PRUD-18-25	2/19/2013 15:34	TO15	cis-1,2-Dichloroethylene	ND
PRUD-18-25	2/19/2013 15:34	TO15	cis-1,3-Dichloropropene	ND
PRUD-18-25	2/19/2013 15:34	TO15	Hexachlorobutadiene	ND
PRUD-18-25	2/19/2013 15:34	TO15	Isopropanol	ND
PRUD-18-25	2/19/2013 15:34	TO15	Methylene Chloride	ND
PRUD-18-25	2/19/2013 15:34	TO15	Tetrachloroethene (PCE)	ND
PRUD-18-25	2/19/2013 15:34	TO15	trans-1,2-Dichloroethene	ND
PRUD-18-25	2/19/2013 15:34	TO15	trans-1,3-Dichloropropene	ND
PRUD-18-25	2/19/2013 15:34	TO15	Trichloroethene (TCE)	ND
PRUD-18-25	2/19/2013 15:34	TO15	Trichlorofluoromethane	ND
PRUD-18-25	2/19/2013 15:34	TO15	Vinyl Chloride	ND
PRUD-20-25	3/4/2013 8:35	TO15	Tetrachloroethene (PCE)	0.006091
PRUD-20-10	3/4/2013 8:23	TO15	Tetrachloroethene (PCE)	0.006632
PRUD-19-25	3/4/2013 8:04	TO15	Tetrachloroethene (PCE)	0.010151
PRUD-17-100	2/19/2013 14:27	TO15	Tetrachloroethene (PCE)	0.012181
PRUD-17-10	2/19/2013 14:22	TO15	Tetrachloroethene (PCE)	0.013535
PRUD-17-25	2/19/2013 14:41	TO15	Tetrachloroethene (PCE)	0.018272
PRUD-16-25	2/19/2013 13:35	TO15	Tetrachloroethene (PCE)	0.039927
PRUD-1	2/19/2013 13:07	TO15	Tetrachloroethene (PCE)	0.041281
PRUD-16-15	2/19/2013 13:55	TO15	Tetrachloroethene (PCE)	0.050078
PRUD-19-10	2/19/2013 15:56	TO15	Toluene	0.004887
PRUD-20-10	3/4/2013 8:23	TO15	Toluene	0.006767
PRUD-20-25	3/4/2013 8:35	TO15	Toluene	0.007518
PRUD-19-25	3/4/2013 8:04	TO15	Toluene	0.007894
PRUD-16-15	2/19/2013 13:55	TO15	Toluene	0.00827
PRUD-1	2/19/2013 13:07	TO15	Toluene	0.008646
PRUD-18-10	2/19/2013 15:12	TO15	Toluene	0.009398
PRUD-17-10	2/19/2013 14:22	TO15	Toluene	0.009774
PRUD-19-10	2/19/2013 15:56	TO15	1,1,1-Trichloroethane	ND
PRUD-19-10	2/19/2013 15:56	TO15	1,1,2,2-Tetrachloroethane	ND
PRUD-19-10	2/19/2013 15:56	TO15	1,1,2-Trichloro-1,2,2-trifluoroethane	ND
PRUD-19-10	2/19/2013 15:56	TO15	1,1,2-Trichloroethane	ND
PRUD-19-10	2/19/2013 15:56	TO15	1,1-Dichloroethane	ND
PRUD-19-10	2/19/2013 15:56	TO15	1,1-Dichloroethene	ND
PRUD-19-10	2/19/2013 15:56	TO15	1,2,4-Trichlorobenzene	ND
PRUD-19-10	2/19/2013 15:56	TO15	1,2-Dibromoethane (EDB)	ND
PRUD-19-10	2/19/2013 15:56	TO15	1,2-Dichlorobenzene	ND
PRUD-19-10	2/19/2013 15:56	TO15	1,2-Dichloroethane	ND
PRUD-19-10	2/19/2013 15:56	TO15	1,2-Dichloropropane	ND
PRUD-19-10	2/19/2013 15:56	TO15	1,2-Dichlorotetrafluoroethane	ND
PRUD-19-10	2/19/2013 15:56	TO15	1,3,5-Trimethylbenzene	ND
PRUD-19-10	2/19/2013 15:56	TO15	1,3-Dichlorobenzene	ND
PRUD-19-10	2/19/2013 15:56	TO15	1,4-Dichlorobenzene	ND
PRUD-19-10	2/19/2013 15:56	TO15	Benzene	ND
PRUD-19-10	2/19/2013 15:56	TO15	Bromomethane	ND
PRUD-19-10	2/19/2013 15:56	TO15	Carbon Tetrachloride	ND
PRUD-19-10	2/19/2013 15:56	TO15	Chlorobenzene	ND
PRUD-19-10	2/19/2013 15:56	TO15	Chloroethane	ND
PRUD-19-10	2/19/2013 15:56	TO15	cis-1,2-Dichloroethylene	ND
PRUD-19-10	2/19/2013 15:56	TO15	cis-1,3-Dichloropropene	ND
PRUD-19-10	2/19/2013 15:56	TO15	Ethylbenzene	ND
PRUD-19-10	2/19/2013 15:56	TO15	Hexachlorobutadiene	ND
PRUD-19-10	2/19/2013 15:56	TO15	Isopropanol	ND

Attachment L-1 Table-5: Soil Gas Data: YMCA

Sample Identification	Sample Date	Method	Chemical	Result mg/m^3
PRUD-19-10	2/19/2013 15:56	TO15	Methylene Chloride	ND
PRUD-19-10	2/19/2013 15:56	TO15	Styrene	ND
PRUD-19-10	2/19/2013 15:56	TO15	Tetrachloroethene (PCE)	ND
PRUD-19-10	2/19/2013 15:56	TO15	trans-1,2-Dichloroethene	ND
PRUD-19-10	2/19/2013 15:56	TO15	trans-1,3-Dichloropropene	ND
PRUD-19-10	2/19/2013 15:56	TO15	Trichloroethene (TCE)	ND
PRUD-19-10	2/19/2013 15:56	TO15	Trichlorofluoromethane	ND
PRUD-19-10	2/19/2013 15:56	TO15	Vinyl Chloride	ND
PRUD-19-25	3/4/2013 8:04	TO15	1,1,1-Trichloroethane	ND
PRUD-19-25	3/4/2013 8:04	TO15	1,1,2,2-Tetrachloroethane	ND
PRUD-19-25	3/4/2013 8:04	TO15	1,1,2-Trichloro-1,2,2-trifluoroethane	ND
PRUD-19-25	3/4/2013 8:04	TO15	1,1,2-Trichloroethane	ND
PRUD-19-25	3/4/2013 8:04	TO15	1,1-Dichloroethane	ND
PRUD-19-25	3/4/2013 8:04	TO15	1,1-Dichloroethene	ND
PRUD-19-25	3/4/2013 8:04	TO15	1,2,4-Trichlorobenzene	ND
PRUD-19-25	3/4/2013 8:04	TO15	1,2-Dibromoethane (EDB)	ND
PRUD-19-25	3/4/2013 8:04	TO15	1,2-Dichlorobenzene	ND
PRUD-19-25	3/4/2013 8:04	TO15	1,2-Dichloroethane	ND
PRUD-19-25	3/4/2013 8:04	TO15	1,2-Dichloropropane	ND
PRUD-19-25	3/4/2013 8:04	TO15	1,3,5-Trimethylbenzene	ND
PRUD-19-25	3/4/2013 8:04	TO15	1,3-Dichlorobenzene	ND
PRUD-19-25	3/4/2013 8:04	TO15	1,4-Dichlorobenzene	ND
PRUD-19-25	3/4/2013 8:04	TO15	Benzene	ND
PRUD-19-25	3/4/2013 8:04	TO15	Bromomethane	ND
PRUD-19-25	3/4/2013 8:04	TO15	Carbon Tetrachloride	ND
PRUD-19-25	3/4/2013 8:04	TO15	Chlorobenzene	ND
PRUD-19-25	3/4/2013 8:04	TO15	Chloroethane	ND
PRUD-19-25	3/4/2013 8:04	TO15	Chloromethane	ND
PRUD-19-25	3/4/2013 8:04	TO15	cis-1,2-Dichloroethylene	ND
PRUD-19-25	3/4/2013 8:04	TO15	cis-1,3-Dichloropropene	ND
PRUD-19-25	3/4/2013 8:04	TO15	Hexachlorobutadiene	ND
PRUD-19-25	3/4/2013 8:04	TO15	Methylene Chloride	ND
PRUD-19-25	3/4/2013 8:04	TO15	trans-1,2-Dichloroethene	ND
PRUD-19-25	3/4/2013 8:04	TO15	trans-1,3-Dichloropropene	ND
PRUD-19-25	3/4/2013 8:04	TO15	Trichlorofluoromethane	ND
PRUD-19-25	3/4/2013 8:04	TO15	Vinyl Chloride	ND
PRUD-18-25	2/19/2013 15:34	TO15	Toluene	0.010902
PRUD-16-25	2/19/2013 13:35	TO15	Toluene	0.011653
PRUD-17-100	2/19/2013 14:27	TO15	Toluene	0.011653
PRUD-17-25	2/19/2013 14:41	TO15	Toluene	0.013157
PRUD-19-25	3/4/2013 8:04	TO15	Trichloroethene (TCE)	0.002413
PRUD-19-10	2/19/2013 15:56	TO15	Xylenes, Total	0.005635
PRUD-16-15	2/19/2013 13:55	TO15	Xylenes, Total	0.010403
PRUD-20-25	3/4/2013 8:35	TO15	1,1,1-Trichloroethane	ND
PRUD-20-25	3/4/2013 8:35	TO15	1,1,2,2-Tetrachloroethane	ND
PRUD-20-25	3/4/2013 8:35	TO15	1,1,2-Trichloro-1,2,2-trifluoroethane	ND
PRUD-20-25	3/4/2013 8:35	TO15	1,1,2-Trichloroethane	ND
PRUD-20-25	3/4/2013 8:35	TO15	1,1-Dichloroethane	ND
PRUD-20-25	3/4/2013 8:35	TO15	1,1-Dichloroethene	ND
PRUD-20-25	3/4/2013 8:35	TO15	1,2,4-Trichlorobenzene	ND
PRUD-20-25	3/4/2013 8:35	TO15	1,2-Dibromoethane (EDB)	ND
PRUD-20-25	3/4/2013 8:35	TO15	1,2-Dichlorobenzene	ND
PRUD-20-25	3/4/2013 8:35	TO15	1,2-Dichloroethane	ND
PRUD-20-25	3/4/2013 8:35	TO15	1,2-Dichloropropane	ND
PRUD-20-25	3/4/2013 8:35	TO15	1,2-Dichlorotetrafluoroethane	ND
PRUD-20-25	3/4/2013 8:35	TO15	1,3,5-Trimethylbenzene	ND
PRUD-20-25	3/4/2013 8:35	TO15	1,3-Dichlorobenzene	ND
PRUD-20-25	3/4/2013 8:35	TO15	1,4-Dichlorobenzene	ND
PRUD-20-25	3/4/2013 8:35	TO15	Benzene	ND

Attachment L-1 Table-5: Soil Gas Data: YMCA

Sample Identification	Sample Date	Method	Chemical	Result mg/m^3
PRUD-20-25	3/4/2013 8:35	TO15	Bromomethane	ND
PRUD-20-25	3/4/2013 8:35	TO15	Carbon Tetrachloride	ND
PRUD-20-25	3/4/2013 8:35	TO15	Chlorobenzene	ND
PRUD-20-25	3/4/2013 8:35	TO15	Chloroethane	ND
PRUD-20-25	3/4/2013 8:35	TO15	Chloroform	ND
PRUD-20-25	3/4/2013 8:35	TO15	Chloromethane	ND
PRUD-20-25	3/4/2013 8:35	TO15	cis-1,2-Dichloroethylene	ND
PRUD-20-25	3/4/2013 8:35	TO15	cis-1,3-Dichloropropene	ND
PRUD-20-25	3/4/2013 8:35	TO15	Hexachlorobutadiene	ND
PRUD-20-25	3/4/2013 8:35	TO15	Methylene Chloride	ND
PRUD-20-25	3/4/2013 8:35	TO15	trans-1,2-Dichloroethene	ND
PRUD-20-25	3/4/2013 8:35	TO15	trans-1,3-Dichloropropene	ND
PRUD-20-25	3/4/2013 8:35	TO15	Trichloroethene (TCE)	ND
PRUD-20-25	3/4/2013 8:35	TO15	Trichlorofluoromethane	ND
PRUD-20-25	3/4/2013 8:35	TO15	Vinyl Chloride	ND
PRUD-18-10	2/19/2013 15:12	TO15	Xylenes, Total	0.014738
PRUD-20-10	3/4/2013 8:23	TO15	Xylenes, Total	0.015171
PRUD-17-10	2/19/2013 14:22	TO15	Xylenes, Total	0.015605
PRUD-18-25	2/19/2013 15:34	TO15	Xylenes, Total	0.016905
PRUD-20-25	3/4/2013 8:35	TO15	Xylenes, Total	0.016905
PRUD-19-25	3/4/2013 8:04	TO15	Xylenes, Total	0.017772
PRUD-17-100	2/19/2013 14:27	TO15	Xylenes, Total	0.018206
PRUD-17-25	2/19/2013 14:41	TO15	Xylenes, Total	0.01994
PRUD-1	2/19/2013 13:07	TO15	Xylenes, Total	0.02254
PRUD-16-25	2/19/2013 13:35	TO15	Xylenes, Total	0.025141
PRUD-20-10	3/4/2013 8:23	TO15	1,1,1-Trichloroethane	ND
PRUD-20-10	3/4/2013 8:23	TO15	1,1,2,2-Tetrachloroethane	ND
PRUD-20-10	3/4/2013 8:23	TO15	1,1,2-Trichloro-1,2,2-trifluoroethane	ND
PRUD-20-10	3/4/2013 8:23	TO15	1,1,2-Trichloroethane	ND
PRUD-20-10	3/4/2013 8:23	TO15	1,1-Dichloroethane	ND
PRUD-20-10	3/4/2013 8:23	TO15	1,1-Dichloroethene	ND
PRUD-20-10	3/4/2013 8:23	TO15	1,2,4-Trichlorobenzene	ND
PRUD-20-10	3/4/2013 8:23	TO15	1,2-Dibromoethane (EDB)	ND
PRUD-20-10	3/4/2013 8:23	TO15	1,2-Dichlorobenzene	ND
PRUD-20-10	3/4/2013 8:23	TO15	1,2-Dichloroethane	ND
PRUD-20-10	3/4/2013 8:23	TO15	1,2-Dichloropropane	ND
PRUD-20-10	3/4/2013 8:23	TO15	1,2-Dichlorotetrafluoroethane	ND
PRUD-20-10	3/4/2013 8:23	TO15	1,3,5-Trimethylbenzene	ND
PRUD-20-10	3/4/2013 8:23	TO15	1,3-Dichlorobenzene	ND
PRUD-20-10	3/4/2013 8:23	TO15	1,4-Dichlorobenzene	ND
PRUD-20-10	3/4/2013 8:23	TO15	Benzene	ND
PRUD-20-10	3/4/2013 8:23	TO15	Bromomethane	ND
PRUD-20-10	3/4/2013 8:23	TO15	Carbon Tetrachloride	ND
PRUD-20-10	3/4/2013 8:23	TO15	Chlorobenzene	ND
PRUD-20-10	3/4/2013 8:23	TO15	Chloroethane	ND
PRUD-20-10	3/4/2013 8:23	TO15	Chloroform	ND
PRUD-20-10	3/4/2013 8:23	TO15	cis-1,2-Dichloroethylene	ND
PRUD-20-10	3/4/2013 8:23	TO15	cis-1,3-Dichloropropene	ND
PRUD-20-10	3/4/2013 8:23	TO15	Hexachlorobutadiene	ND
PRUD-20-10	3/4/2013 8:23	TO15	Methylene Chloride	ND
PRUD-20-10	3/4/2013 8:23	TO15	trans-1,2-Dichloroethene	ND
PRUD-20-10	3/4/2013 8:23	TO15	trans-1,3-Dichloropropene	ND
PRUD-20-10	3/4/2013 8:23	TO15	Trichloroethene (TCE)	ND
PRUD-20-10	3/4/2013 8:23	TO15	Trichlorofluoromethane	ND
PRUD-20-10	3/4/2013 8:23	TO15	Vinyl Chloride	ND

Attachment L-1 Table 6: Soil Gas Data: Broadway Proper

Sample Identification	Sample Date	Method	Chemical	Result mg/m^3
MW-8	3/4/2013 11:01	TO15	1,2,4-Trimethylbenzene	0.002895
MW-9	3/11/2013 8:10	TO15	1,2,4-Trimethylbenzene	0.003827
MW-7	3/4/2013 10:29	TO15	1,2,4-Trimethylbenzene	0.004906
MW-9	3/11/2013 8:10	TO15	1,2-Dichlorotetrafluoroethane	0.014649
MW-8	3/4/2013 11:01	TO15	1,2-Dichlorotetrafluoroethane	0.083706
MW-5	2/21/2013 14:21	TO15	1,1,1-Trichloroethane	ND
MW-5	2/21/2013 14:21	TO15	1,1,2,2-Tetrachloroethane	ND
MW-5	2/21/2013 14:21	TO15	1,1,2-Trichloro-1,2,2-trifluoroethane	ND
MW-5	2/21/2013 14:21	TO15	1,1,2-Trichloroethane	ND
MW-5	2/21/2013 14:21	TO15	1,1-Dichloroethane	ND
MW-5	2/21/2013 14:21	TO15	1,1-Dichloroethene	ND
MW-5	2/21/2013 14:21	TO15	1,2,4-Trichlorobenzene	ND
MW-5	2/21/2013 14:21	TO15	1,2,4-Trimethylbenzene	ND
MW-5	2/21/2013 14:21	TO15	1,2-Dibromoethane (EDB)	ND
MW-5	2/21/2013 14:21	TO15	1,2-Dichlorobenzene	ND
MW-5	2/21/2013 14:21	TO15	1,2-Dichloroethane	ND
MW-5	2/21/2013 14:21	TO15	1,2-Dichloropropane	ND
MW-5	2/21/2013 14:21	TO15	1,3,5-Trimethylbenzene	ND
MW-5	2/21/2013 14:21	TO15	1,3-Dichlorobenzene	ND
MW-5	2/21/2013 14:21	TO15	1,4-Dichlorobenzene	ND
MW-5	2/21/2013 14:21	TO15	Bromomethane	ND
MW-5	2/21/2013 14:21	TO15	Carbon Tetrachloride	ND
MW-5	2/21/2013 14:21	TO15	Chlorobenzene	ND
MW-5	2/21/2013 14:21	TO15	Chloroethane	ND
MW-5	2/21/2013 14:21	TO15	Chloroform	ND
MW-5	2/21/2013 14:21	TO15	Chloromethane	ND
MW-5	2/21/2013 14:21	TO15	cis-1,2-Dichloroethylene	ND
MW-5	2/21/2013 14:21	TO15	cis-1,3-Dichloropropene	ND
MW-5	2/21/2013 14:21	TO15	Hexachlorobutadiene	ND
MW-5	2/21/2013 14:21	TO15	Methylene Chloride	ND
MW-5	2/21/2013 14:21	TO15	Styrene	ND
MW-5	2/21/2013 14:21	TO15	Toluene	ND
MW-5	2/21/2013 14:21	TO15	trans-1,2-Dichloroethene	ND
MW-5	2/21/2013 14:21	TO15	trans-1,3-Dichloropropene	ND
MW-5	2/21/2013 14:21	TO15	Trichloroethene (TCE)	ND
MW-5	2/21/2013 14:21	TO15	Trichlorofluoromethane	ND
MW-5	2/21/2013 14:21	TO15	Vinyl Chloride	ND
MW-5	2/21/2013 14:21	TO15	Xylenes, Total	ND
MW-5	2/21/2013 14:21	TO15	Isopropanol	ND
MW-5	2/21/2013 14:21	TO15	1,2-Dichlorotetrafluoroethane	0.111608
MW-7	3/4/2013 10:29	TO15	1,2-Dichlorotetrafluoroethane	0.223216
MW-7	3/4/2013 10:29	TO15	1,4-Dichlorobenzene	0.00432
MW-6	2/21/2013 15:21	TO15	1,1,1-Trichloroethane	ND
MW-6	2/21/2013 15:21	TO15	1,1,2,2-Tetrachloroethane	ND
MW-6	2/21/2013 15:21	TO15	1,1,2-Trichloro-1,2,2-trifluoroethane	ND
MW-6	2/21/2013 15:21	TO15	1,1,2-Trichloroethane	ND
MW-6	2/21/2013 15:21	TO15	1,1-Dichloroethane	ND
MW-6	2/21/2013 15:21	TO15	1,1-Dichloroethene	ND
MW-6	2/21/2013 15:21	TO15	1,2,4-Trichlorobenzene	ND
MW-6	2/21/2013 15:21	TO15	1,2,4-Trimethylbenzene	ND
MW-6	2/21/2013 15:21	TO15	1,2-Dibromoethane (EDB)	ND
MW-6	2/21/2013 15:21	TO15	1,2-Dichlorobenzene	ND
MW-6	2/21/2013 15:21	TO15	1,2-Dichloroethane	ND
MW-6	2/21/2013 15:21	TO15	1,2-Dichloropropane	ND
MW-6	2/21/2013 15:21	TO15	1,2-Dichlorotetrafluoroethane	ND

Attachment L-1 Table 6: Soil Gas Data: Broadway Proper

Sample Identification	Sample Date	Method	Chemical	Result mg/m^3
MW-6	2/21/2013 15:21	TO15	1,3,5-Trimethylbenzene	ND
MW-6	2/21/2013 15:21	TO15	1,3-Dichlorobenzene	ND
MW-6	2/21/2013 15:21	TO15	1,4-Dichlorobenzene	ND
MW-6	2/21/2013 15:21	TO15	Benzene	ND
MW-6	2/21/2013 15:21	TO15	Bromomethane	ND
MW-6	2/21/2013 15:21	TO15	Carbon Tetrachloride	ND
MW-6	2/21/2013 15:21	TO15	Chlorobenzene	ND
MW-6	2/21/2013 15:21	TO15	Chloroethane	ND
MW-6	2/21/2013 15:21	TO15	Chloromethane	ND
MW-6	2/21/2013 15:21	TO15	cis-1,2-Dichloroethylene	ND
MW-6	2/21/2013 15:21	TO15	cis-1,3-Dichloropropene	ND
MW-6	2/21/2013 15:21	TO15	Dichlorodifluoromethane	ND
MW-6	2/21/2013 15:21	TO15	Ethylbenzene	ND
MW-6	2/21/2013 15:21	TO15	Hexachlorobutadiene	ND
MW-6	2/21/2013 15:21	TO15	Styrene	ND
MW-6	2/21/2013 15:21	TO15	Tetrachloroethene (PCE)	ND
MW-6	2/21/2013 15:21	TO15	trans-1,2-Dichloroethene	ND
MW-6	2/21/2013 15:21	TO15	trans-1,3-Dichloropropene	ND
MW-6	2/21/2013 15:21	TO15	Trichloroethene (TCE)	ND
MW-6	2/21/2013 15:21	TO15	Trichlorofluoromethane	ND
MW-6	2/21/2013 15:21	TO15	Vinyl Chloride	ND
MW-6	2/21/2013 15:21	TO15	Xylenes, Total	ND
MW-9	3/11/2013 8:10	TO15	1,4-Dichlorobenzene	0.00504
MW-8	3/4/2013 11:01	TO15	Benzene	0.001881
MW-9	3/11/2013 8:10	TO15	Benzene	0.002327
MW-7	3/4/2013 10:29	TO15	Benzene	0.012751
MW-5	2/21/2013 14:21	TO15	Benzene	0.017214
MW-6	2/21/2013 15:21	TO15	Chloroform	0.002242
MW-7	3/4/2013 10:29	TO15	Chloroform	0.005361
MW-8	3/4/2013 11:01	TO15	Chloroform	0.018032
MW-9	3/11/2013 8:10	TO15	Chloroform	0.025829
MW-7	3/4/2013 10:29	TO15	Chloromethane	0.037102
MW-7	3/4/2013 10:29	TO15	cis-1,2-Dichloroethylene	0.063282
MW-5	2/21/2013 14:21	TO15	Dichlorodifluoromethane	0.019739
MW-8	3/4/2013 11:01	TO15	Dichlorodifluoromethane	0.041451
MW-9	3/11/2013 8:10	TO15	Dichlorodifluoromethane	0.049347
MW-7	3/4/2013 10:29	TO15	1,1,1-Trichloroethane	ND
MW-7	3/4/2013 10:29	TO15	1,1,2,2-Tetrachloroethane	ND
MW-7	3/4/2013 10:29	TO15	1,1,2-Trichloro-1,2,2-trifluoroethane	ND
MW-7	3/4/2013 10:29	TO15	1,1,2-Trichloroethane	ND
MW-7	3/4/2013 10:29	TO15	1,1-Dichloroethane	ND
MW-7	3/4/2013 10:29	TO15	1,1-Dichloroethene	ND
MW-7	3/4/2013 10:29	TO15	1,2,4-Trichlorobenzene	ND
MW-7	3/4/2013 10:29	TO15	1,2-Dibromoethane (EDB)	ND
MW-7	3/4/2013 10:29	TO15	1,2-Dichlorobenzene	ND
MW-7	3/4/2013 10:29	TO15	1,2-Dichloroethane	ND
MW-7	3/4/2013 10:29	TO15	1,2-Dichloropropane	ND
MW-7	3/4/2013 10:29	TO15	1,3,5-Trimethylbenzene	ND
MW-7	3/4/2013 10:29	TO15	1,3-Dichlorobenzene	ND
MW-7	3/4/2013 10:29	TO15	Bromomethane	ND
MW-7	3/4/2013 10:29	TO15	Carbon Tetrachloride	ND
MW-7	3/4/2013 10:29	TO15	Chlorobenzene	ND
MW-7	3/4/2013 10:29	TO15	Chloroethane	ND
MW-7	3/4/2013 10:29	TO15	cis-1,3-Dichloropropene	ND

Attachment L-1 Table 6: Soil Gas Data: Broadway Proper

Sample Identification	Sample Date	Method	Chemical	Result mg/m^3
MW-7	3/4/2013 10:29	TO15	Dichlorodifluoromethane	ND
MW-7	3/4/2013 10:29	TO15	Hexachlorobutadiene	ND
MW-7	3/4/2013 10:29	TO15	Methylene Chloride	ND
MW-7	3/4/2013 10:29	TO15	Tetrachloroethene (PCE)	ND
MW-7	3/4/2013 10:29	TO15	trans-1,3-Dichloropropene	ND
MW-7	3/4/2013 10:29	TO15	Trichloroethene (TCE)	ND
MW-7	3/4/2013 10:29	TO15	Trichlorofluoromethane	ND
MW-7	3/4/2013 10:29	TO15	Vinyl Chloride	ND
MW-8	3/4/2013 11:01	TO15	Ethylbenzene	0.002297
MW-9	3/11/2013 8:10	TO15	Ethylbenzene	0.002948
MW-7	3/4/2013 10:29	TO15	Ethylbenzene	0.004335
MW-5	2/21/2013 14:21	TO15	Ethylbenzene	0.010403
MW-9	3/11/2013 8:10	TO15	Isopropanol	0.006378
MW-6	2/21/2013 15:21	TO15	Isopropanol	0.010058
MW-7	3/4/2013 10:29	TO15	Isopropanol	0.041702
MW-8	3/4/2013 11:01	TO15	Isopropanol	0.05642
MW-6	2/21/2013 15:21	TO15	Methylene Chloride	0.004158
MW-9	3/11/2013 8:10	TO15	Styrene	0.002379
MW-7	3/4/2013 10:29	TO15	Styrene	0.004249
MW-8	3/4/2013 11:01	TO15	1,1,1-Trichloroethane	ND
MW-8	3/4/2013 11:01	TO15	1,1,2,2-Tetrachloroethane	ND
MW-8	3/4/2013 11:01	TO15	1,1,2-Trichloro-1,2,2-trifluoroethane	ND
MW-8	3/4/2013 11:01	TO15	1,1,2-Trichloroethane	ND
MW-8	3/4/2013 11:01	TO15	1,1-Dichloroethane	ND
MW-8	3/4/2013 11:01	TO15	1,1-Dichloroethene	ND
MW-8	3/4/2013 11:01	TO15	1,2,4-Trichlorobenzene	ND
MW-8	3/4/2013 11:01	TO15	1,2-Dibromoethane (EDB)	ND
MW-8	3/4/2013 11:01	TO15	1,2-Dichlorobenzene	ND
MW-8	3/4/2013 11:01	TO15	1,2-Dichloroethane	ND
MW-8	3/4/2013 11:01	TO15	1,2-Dichloropropane	ND
MW-8	3/4/2013 11:01	TO15	1,3,5-Trimethylbenzene	ND
MW-8	3/4/2013 11:01	TO15	1,3-Dichlorobenzene	ND
MW-8	3/4/2013 11:01	TO15	1,4-Dichlorobenzene	ND
MW-8	3/4/2013 11:01	TO15	Bromomethane	ND
MW-8	3/4/2013 11:01	TO15	Carbon Tetrachloride	ND
MW-8	3/4/2013 11:01	TO15	Chlorobenzene	ND
MW-8	3/4/2013 11:01	TO15	Chloroethane	ND
MW-8	3/4/2013 11:01	TO15	Chloromethane	ND
MW-8	3/4/2013 11:01	TO15	cis-1,2-Dichloroethylene	ND
MW-8	3/4/2013 11:01	TO15	cis-1,3-Dichloropropene	ND
MW-8	3/4/2013 11:01	TO15	Hexachlorobutadiene	ND
MW-8	3/4/2013 11:01	TO15	Methylene Chloride	ND
MW-8	3/4/2013 11:01	TO15	trans-1,2-Dichloroethene	ND
MW-8	3/4/2013 11:01	TO15	trans-1,3-Dichloropropene	ND
MW-8	3/4/2013 11:01	TO15	Trichloroethene (TCE)	ND
MW-8	3/4/2013 11:01	TO15	Trichlorofluoromethane	ND
MW-8	3/4/2013 11:01	TO15	Vinyl Chloride	ND
MW-8	3/4/2013 11:01	TO15	Styrene	0.008498
MW-8	3/4/2013 11:01	TO15	Tetrachloroethene (PCE)	0.005752
MW-5	2/21/2013 14:21	TO15	Tetrachloroethene (PCE)	0.03113
MW-6	2/21/2013 15:21	TO15	Toluene	0.001804
MW-7	3/4/2013 10:29	TO15	Toluene	0.006015
MW-8	3/4/2013 11:01	TO15	Toluene	0.006015
MW-9	3/11/2013 8:10	TO15	Toluene	0.01015

Attachment L-1 Table 6: Soil Gas Data: Broadway Proper

Sample Identification	Sample Date	Method	Chemical	Result mg/m^3
MW-7	3/4/2013 10:29	TO15	trans-1,2-Dichloroethene	0.003283
MW-8	3/4/2013 11:01	TO15	Xylenes, Total	0.010403
MW-9	3/11/2013 8:10	TO15	Xylenes, Total	0.010837
MW-7	3/4/2013 10:29	TO15	Xylenes, Total	0.013004
MW-9	3/11/2013 8:10	TO15	1,1,1-Trichloroethane	ND
MW-9	3/11/2013 8:10	TO15	1,1,2,2-Tetrachloroethane	ND
MW-9	3/11/2013 8:10	TO15	1,1,2-Trichloro-1,2,2-trifluoroethane	ND
MW-9	3/11/2013 8:10	TO15	1,1,2-Trichloroethane	ND
MW-9	3/11/2013 8:10	TO15	1,1-Dichloroethane	ND
MW-9	3/11/2013 8:10	TO15	1,1-Dichloroethene	ND
MW-9	3/11/2013 8:10	TO15	1,2,4-Trichlorobenzene	ND
MW-9	3/11/2013 8:10	TO15	1,2-Dibromoethane (EDB)	ND
MW-9	3/11/2013 8:10	TO15	1,2-Dichlorobenzene	ND
MW-9	3/11/2013 8:10	TO15	1,2-Dichloroethane	ND
MW-9	3/11/2013 8:10	TO15	1,2-Dichloropropane	ND
MW-9	3/11/2013 8:10	TO15	1,3,5-Trimethylbenzene	ND
MW-9	3/11/2013 8:10	TO15	1,3-Dichlorobenzene	ND
MW-9	3/11/2013 8:10	TO15	Bromomethane	ND
MW-9	3/11/2013 8:10	TO15	Carbon Tetrachloride	ND
MW-9	3/11/2013 8:10	TO15	Chlorobenzene	ND
MW-9	3/11/2013 8:10	TO15	Chloroethane	ND
MW-9	3/11/2013 8:10	TO15	Chloromethane	ND
MW-9	3/11/2013 8:10	TO15	cis-1,2-Dichloroethylene	ND
MW-9	3/11/2013 8:10	TO15	cis-1,3-Dichloropropene	ND
MW-9	3/11/2013 8:10	TO15	Hexachlorobutadiene	ND
MW-9	3/11/2013 8:10	TO15	Methylene Chloride	ND
MW-9	3/11/2013 8:10	TO15	Tetrachloroethene (PCE)	ND
MW-9	3/11/2013 8:10	TO15	trans-1,2-Dichloroethene	ND
MW-9	3/11/2013 8:10	TO15	trans-1,3-Dichloropropene	ND
MW-9	3/11/2013 8:10	TO15	Trichloroethene (TCE)	ND
MW-9	3/11/2013 8:10	TO15	Trichlorofluoromethane	ND
MW-9	3/11/2013 8:10	TO15	Vinyl Chloride	ND

Attachment L-1 Table 7: Soil Gas Data: Broadway Proper

Sample Identification	Sample Date	Method	Chemical	Result mg/m^3
PRUD-2	2/19/2013 12:30	TO15	1,1,1-Trichloroethane	ND
PRUD-3	2/19/2013 11:51	TO15	1,1,1-Trichloroethane	ND
PRUD-4	2/19/2013 11:20	TO15	1,1,1-Trichloroethane	ND
PRUD-5	2/19/2013 10:41	TO15	1,1,1-Trichloroethane	ND
PRUD-6	2/19/2013 9:45	TO15	1,1,1-Trichloroethane	ND
PRUD-2	2/19/2013 12:30	TO15	1,1,2,2-Tetrachloroethane	ND
PRUD-3	2/19/2013 11:51	TO15	1,1,2,2-Tetrachloroethane	ND
PRUD-4	2/19/2013 11:20	TO15	1,1,2,2-Tetrachloroethane	ND
PRUD-5	2/19/2013 10:41	TO15	1,1,2,2-Tetrachloroethane	ND
PRUD-6	2/19/2013 9:45	TO15	1,1,2,2-Tetrachloroethane	ND
PRUD-2	2/19/2013 12:30	TO15	1,1,2-Trichloro-1,2,2-trifluoroethane	ND
PRUD-3	2/19/2013 11:51	TO15	1,1,2-Trichloro-1,2,2-trifluoroethane	ND
PRUD-4	2/19/2013 11:20	TO15	1,1,2-Trichloro-1,2,2-trifluoroethane	ND
PRUD-5	2/19/2013 10:41	TO15	1,1,2-Trichloro-1,2,2-trifluoroethane	ND
PRUD-6	2/19/2013 9:45	TO15	1,1,2-Trichloro-1,2,2-trifluoroethane	ND
PRUD-2	2/19/2013 12:30	TO15	1,1,2-Trichloroethane	ND
PRUD-3	2/19/2013 11:51	TO15	1,1,2-Trichloroethane	ND
PRUD-4	2/19/2013 11:20	TO15	1,1,2-Trichloroethane	ND
PRUD-5	2/19/2013 10:41	TO15	1,1,2-Trichloroethane	ND
PRUD-6	2/19/2013 9:45	TO15	1,1,2-Trichloroethane	ND
PRUD-2	2/19/2013 12:30	TO15	1,1-Dichloroethane	ND
PRUD-3	2/19/2013 11:51	TO15	1,1-Dichloroethane	ND
PRUD-4	2/19/2013 11:20	TO15	1,1-Dichloroethane	ND
PRUD-5	2/19/2013 10:41	TO15	1,1-Dichloroethane	ND
PRUD-6	2/19/2013 9:45	TO15	1,1-Dichloroethane	ND
PRUD-2	2/19/2013 12:30	TO15	1,1-Dichloroethene	ND
PRUD-3	2/19/2013 11:51	TO15	1,1-Dichloroethene	ND
PRUD-4	2/19/2013 11:20	TO15	1,1-Dichloroethene	ND
PRUD-5	2/19/2013 10:41	TO15	1,1-Dichloroethene	ND
PRUD-6	2/19/2013 9:45	TO15	1,1-Dichloroethene	ND
PRUD-2	2/19/2013 12:30	TO15	1,2,4-Trichlorobenzene	ND
PRUD-3	2/19/2013 11:51	TO15	1,2,4-Trichlorobenzene	ND
PRUD-4	2/19/2013 11:20	TO15	1,2,4-Trichlorobenzene	ND
PRUD-5	2/19/2013 10:41	TO15	1,2,4-Trichlorobenzene	ND
PRUD-6	2/19/2013 9:45	TO15	1,2,4-Trichlorobenzene	ND
PRUD-6	2/19/2013 9:45	TO15	1,2,4-Trimethylbenzene	0.002502
PRUD-3	2/19/2013 11:51	TO15	1,2,4-Trimethylbenzene	0.004759
PRUD-5	2/19/2013 10:41	TO15	1,2,4-Trimethylbenzene	0.004857
PRUD-4	2/19/2013 11:20	TO15	1,2,4-Trimethylbenzene	0.004906
PRUD-2	2/19/2013 12:30	TO15	1,2,4-Trimethylbenzene	0.009322
PRUD-2	2/19/2013 12:30	TO15	1,2-Dibromoethane (EDB)	ND
PRUD-3	2/19/2013 11:51	TO15	1,2-Dibromoethane (EDB)	ND
PRUD-4	2/19/2013 11:20	TO15	1,2-Dibromoethane (EDB)	ND
PRUD-5	2/19/2013 10:41	TO15	1,2-Dibromoethane (EDB)	ND
PRUD-6	2/19/2013 9:45	TO15	1,2-Dibromoethane (EDB)	ND
PRUD-2	2/19/2013 12:30	TO15	1,2-Dichlorobenzene	ND
PRUD-3	2/19/2013 11:51	TO15	1,2-Dichlorobenzene	ND
PRUD-4	2/19/2013 11:20	TO15	1,2-Dichlorobenzene	ND
PRUD-5	2/19/2013 10:41	TO15	1,2-Dichlorobenzene	ND
PRUD-6	2/19/2013 9:45	TO15	1,2-Dichlorobenzene	ND
PRUD-2	2/19/2013 12:30	TO15	1,2-Dichloroethane	ND
PRUD-3	2/19/2013 11:51	TO15	1,2-Dichloroethane	ND
PRUD-4	2/19/2013 11:20	TO15	1,2-Dichloroethane	ND
PRUD-5	2/19/2013 10:41	TO15	1,2-Dichloroethane	ND
PRUD-6	2/19/2013 9:45	TO15	1,2-Dichloroethane	ND
PRUD-2	2/19/2013 12:30	TO15	1,2-Dichloropropane	ND
PRUD-3	2/19/2013 11:51	TO15	1,2-Dichloropropane	ND
PRUD-4	2/19/2013 11:20	TO15	1,2-Dichloropropane	ND
PRUD-5	2/19/2013 10:41	TO15	1,2-Dichloropropane	ND

Attachment L-1 Table 7: Soil Gas Data: Broadway Proper

Sample Identification	Sample Date	Method	Chemical	Result mg/m^3
PRUD-6	2/19/2013 9:45	TO15	1,2-Dichloropropane	ND
PRUD-4	2/19/2013 11:20	TO15	1,2-Dichlorotetrafluoroethane	0.003069
PRUD-5	2/19/2013 10:41	TO15	1,2-Dichlorotetrafluoroethane	0.003348
PRUD-2	2/19/2013 12:30	TO15	1,2-Dichlorotetrafluoroethane	0.005022
PRUD-3	2/19/2013 11:51	TO15	1,2-Dichlorotetrafluoroethane	0.009068
PRUD-6	2/19/2013 9:45	TO15	1,2-Dichlorotetrafluoroethane	ND
PRUD-2	2/19/2013 12:30	TO15	1,3,5-Trimethylbenzene	0.002502
PRUD-3	2/19/2013 11:51	TO15	1,3,5-Trimethylbenzene	ND
PRUD-4	2/19/2013 11:20	TO15	1,3,5-Trimethylbenzene	ND
PRUD-5	2/19/2013 10:41	TO15	1,3,5-Trimethylbenzene	ND
PRUD-6	2/19/2013 9:45	TO15	1,3,5-Trimethylbenzene	ND
PRUD-2	2/19/2013 12:30	TO15	1,3-Dichlorobenzene	ND
PRUD-3	2/19/2013 11:51	TO15	1,3-Dichlorobenzene	ND
PRUD-4	2/19/2013 11:20	TO15	1,3-Dichlorobenzene	ND
PRUD-5	2/19/2013 10:41	TO15	1,3-Dichlorobenzene	ND
PRUD-6	2/19/2013 9:45	TO15	1,3-Dichlorobenzene	ND
PRUD-2	2/19/2013 12:30	TO15	1,4-Dichlorobenzene	ND
PRUD-3	2/19/2013 11:51	TO15	1,4-Dichlorobenzene	ND
PRUD-4	2/19/2013 11:20	TO15	1,4-Dichlorobenzene	ND
PRUD-5	2/19/2013 10:41	TO15	1,4-Dichlorobenzene	ND
PRUD-6	2/19/2013 9:45	TO15	1,4-Dichlorobenzene	ND
PRUD-2	2/19/2013 12:30	TO15	Benzene	ND
PRUD-3	2/19/2013 11:51	TO15	Benzene	ND
PRUD-4	2/19/2013 11:20	TO15	Benzene	ND
PRUD-5	2/19/2013 10:41	TO15	Benzene	ND
PRUD-6	2/19/2013 9:45	TO15	Benzene	ND
PRUD-2	2/19/2013 12:30	TO15	Bromomethane	ND
PRUD-3	2/19/2013 11:51	TO15	Bromomethane	ND
PRUD-4	2/19/2013 11:20	TO15	Bromomethane	ND
PRUD-5	2/19/2013 10:41	TO15	Bromomethane	ND
PRUD-6	2/19/2013 9:45	TO15	Bromomethane	ND
PRUD-2	2/19/2013 12:30	TO15	Carbon Tetrachloride	ND
PRUD-3	2/19/2013 11:51	TO15	Carbon Tetrachloride	ND
PRUD-4	2/19/2013 11:20	TO15	Carbon Tetrachloride	ND
PRUD-5	2/19/2013 10:41	TO15	Carbon Tetrachloride	ND
PRUD-6	2/19/2013 9:45	TO15	Carbon Tetrachloride	ND
PRUD-2	2/19/2013 12:30	TO15	Chlorobenzene	ND
PRUD-3	2/19/2013 11:51	TO15	Chlorobenzene	ND
PRUD-4	2/19/2013 11:20	TO15	Chlorobenzene	ND
PRUD-5	2/19/2013 10:41	TO15	Chlorobenzene	ND
PRUD-6	2/19/2013 9:45	TO15	Chlorobenzene	ND
PRUD-2	2/19/2013 12:30	TO15	Chloroethane	ND
PRUD-3	2/19/2013 11:51	TO15	Chloroethane	ND
PRUD-4	2/19/2013 11:20	TO15	Chloroethane	ND
PRUD-5	2/19/2013 10:41	TO15	Chloroethane	ND
PRUD-6	2/19/2013 9:45	TO15	Chloroethane	ND
PRUD-2	2/19/2013 12:30	TO15	Chloroform	0.002047
PRUD-3	2/19/2013 11:51	TO15	Chloroform	0.004873
PRUD-4	2/19/2013 11:20	TO15	Chloroform	ND
PRUD-5	2/19/2013 10:41	TO15	Chloroform	ND
PRUD-6	2/19/2013 9:45	TO15	Chloroform	ND
PRUD-2	2/19/2013 12:30	TO15	Chloromethane	ND
PRUD-3	2/19/2013 11:51	TO15	Chloromethane	ND
PRUD-4	2/19/2013 11:20	TO15	Chloromethane	ND
PRUD-5	2/19/2013 10:41	TO15	Chloromethane	ND
PRUD-6	2/19/2013 9:45	TO15	Chloromethane	ND
PRUD-2	2/19/2013 12:30	TO15	cis-1,2-Dichloroethylene	ND
PRUD-3	2/19/2013 11:51	TO15	cis-1,2-Dichloroethylene	ND
PRUD-4	2/19/2013 11:20	TO15	cis-1,2-Dichloroethylene	ND

Attachment L-1 Table 7: Soil Gas Data: Broadway Proper

Sample Identification	Sample Date	Method	Chemical	Result mg/m^3
PRUD-5	2/19/2013 10:41	TO15	cis-1,2-Dichloroethylene	ND
PRUD-6	2/19/2013 9:45	TO15	cis-1,2-Dichloroethylene	ND
PRUD-2	2/19/2013 12:30	TO15	cis-1,3-Dichloropropene	ND
PRUD-3	2/19/2013 11:51	TO15	cis-1,3-Dichloropropene	ND
PRUD-4	2/19/2013 11:20	TO15	cis-1,3-Dichloropropene	ND
PRUD-5	2/19/2013 10:41	TO15	cis-1,3-Dichloropropene	ND
PRUD-6	2/19/2013 9:45	TO15	cis-1,3-Dichloropropene	ND
PRUD-6	2/19/2013 9:45	TO15	Dichlorodifluoromethane	0.003553
PRUD-3	2/19/2013 11:51	TO15	Dichlorodifluoromethane	0.007402
PRUD-2	2/19/2013 12:30	TO15	Dichlorodifluoromethane	0.010363
PRUD-5	2/19/2013 10:41	TO15	Dichlorodifluoromethane	0.016778
PRUD-4	2/19/2013 11:20	TO15	Dichlorodifluoromethane	0.018258
PRUD-6	2/19/2013 9:45	TO15	Ethylbenzene	0.002557
PRUD-5	2/19/2013 10:41	TO15	Ethylbenzene	0.003684
PRUD-3	2/19/2013 11:51	TO15	Ethylbenzene	0.003815
PRUD-4	2/19/2013 11:20	TO15	Ethylbenzene	0.004248
PRUD-2	2/19/2013 12:30	TO15	Ethylbenzene	0.004335
PRUD-2	2/19/2013 12:30	TO15	Hexachlorobutadiene	ND
PRUD-3	2/19/2013 11:51	TO15	Hexachlorobutadiene	ND
PRUD-4	2/19/2013 11:20	TO15	Hexachlorobutadiene	ND
PRUD-5	2/19/2013 10:41	TO15	Hexachlorobutadiene	ND
PRUD-6	2/19/2013 9:45	TO15	Hexachlorobutadiene	ND
PRUD-3	2/19/2013 11:51	TO15	Isopropanol	0.009567
PRUD-2	2/19/2013 12:30	TO15	Isopropanol	0.012265
PRUD-5	2/19/2013 10:41	TO15	Isopropanol	0.049061
PRUD-6	2/19/2013 9:45	TO15	Isopropanol	0.125106
PRUD-4	2/19/2013 11:20	TO15	Isopropanol	ND
PRUD-2	2/19/2013 12:30	TO15	Methylene Chloride	ND
PRUD-3	2/19/2013 11:51	TO15	Methylene Chloride	ND
PRUD-4	2/19/2013 11:20	TO15	Methylene Chloride	ND
PRUD-5	2/19/2013 10:41	TO15	Methylene Chloride	ND
PRUD-6	2/19/2013 9:45	TO15	Methylene Chloride	ND
PRUD-6	2/19/2013 9:45	TO15	Styrene	0.002804
PRUD-3	2/19/2013 11:51	TO15	Styrene	0.006798
PRUD-5	2/19/2013 10:41	TO15	Styrene	0.006798
PRUD-2	2/19/2013 12:30	TO15	Styrene	0.007223
PRUD-4	2/19/2013 11:20	TO15	Styrene	0.008073
PRUD-3	2/19/2013 11:51	TO15	Tetrachloroethene (PCE)	0.008798
PRUD-5	2/19/2013 10:41	TO15	Tetrachloroethene (PCE)	0.012858
PRUD-2	2/19/2013 12:30	TO15	Tetrachloroethene (PCE)	0.014888
PRUD-4	2/19/2013 11:20	TO15	Tetrachloroethene (PCE)	ND
PRUD-6	2/19/2013 9:45	TO15	Tetrachloroethene (PCE)	ND
PRUD-6	2/19/2013 9:45	TO15	Toluene	0.007894
PRUD-5	2/19/2013 10:41	TO15	Toluene	0.00827
PRUD-3	2/19/2013 11:51	TO15	Toluene	0.008646
PRUD-4	2/19/2013 11:20	TO15	Toluene	0.008646
PRUD-2	2/19/2013 12:30	TO15	Toluene	0.011278
PRUD-2	2/19/2013 12:30	TO15	trans-1,2-Dichloroethene	ND
PRUD-3	2/19/2013 11:51	TO15	trans-1,2-Dichloroethene	ND
PRUD-4	2/19/2013 11:20	TO15	trans-1,2-Dichloroethene	ND
PRUD-5	2/19/2013 10:41	TO15	trans-1,2-Dichloroethene	ND
PRUD-6	2/19/2013 9:45	TO15	trans-1,2-Dichloroethene	ND
PRUD-2	2/19/2013 12:30	TO15	trans-1,3-Dichloropropene	ND
PRUD-3	2/19/2013 11:51	TO15	trans-1,3-Dichloropropene	ND
PRUD-4	2/19/2013 11:20	TO15	trans-1,3-Dichloropropene	ND
PRUD-5	2/19/2013 10:41	TO15	trans-1,3-Dichloropropene	ND
PRUD-6	2/19/2013 9:45	TO15	trans-1,3-Dichloropropene	ND
PRUD-2	2/19/2013 12:30	TO15	Trichloroethene (TCE)	ND
PRUD-3	2/19/2013 11:51	TO15	Trichloroethene (TCE)	ND

Attachment L-1 Table 7: Soil Gas Data: Broadway Proper

Sample Identification	Sample Date	Method	Chemical	Result mg/m^3
PRUD-4	2/19/2013 11:20	TO15	Trichloroethene (TCE)	ND
PRUD-5	2/19/2013 10:41	TO15	Trichloroethene (TCE)	ND
PRUD-6	2/19/2013 9:45	TO15	Trichloroethene (TCE)	ND
PRUD-6	2/19/2013 9:45	TO15	Trichlorofluoromethane	0.004599
PRUD-2	2/19/2013 12:30	TO15	Trichlorofluoromethane	ND
PRUD-3	2/19/2013 11:51	TO15	Trichlorofluoromethane	ND
PRUD-4	2/19/2013 11:20	TO15	Trichlorofluoromethane	ND
PRUD-5	2/19/2013 10:41	TO15	Trichlorofluoromethane	ND
PRUD-2	2/19/2013 12:30	TO15	Vinyl Chloride	ND
PRUD-3	2/19/2013 11:51	TO15	Vinyl Chloride	ND
PRUD-4	2/19/2013 11:20	TO15	Vinyl Chloride	ND
PRUD-5	2/19/2013 10:41	TO15	Vinyl Chloride	ND
PRUD-6	2/19/2013 9:45	TO15	Vinyl Chloride	ND
PRUD-6	2/19/2013 9:45	TO15	Xylenes, Total	0.011704
PRUD-3	2/19/2013 11:51	TO15	Xylenes, Total	0.018206
PRUD-5	2/19/2013 10:41	TO15	Xylenes, Total	0.018639
PRUD-4	2/19/2013 11:20	TO15	Xylenes, Total	0.01994
PRUD-2	2/19/2013 12:30	TO15	Xylenes, Total	0.025141

ATTACHMENT L2
USEPA OUTDOOR AIR MODEL FILES

Broadway Pantano Outdoor Air Model

Calculation of Q/C: USEPA, 2002

Q/Cvol = A x exp [(lnAc - B)^2/C]

Phoenix, Arizona Area (USEPA, 2002; Appendix D)

A = 10.2871
B = 18.7124
C = 212.2704

Ac = 0.5 acre (assumed)

Q/Cvol = 60.64
L = 152.4 5 feet soil gas sample depth
L2 = 304.8 10 feet soil gas sample depth
L3 = 685.8 22.5 feet soil gas sample depth

Chemical-Specific Values and Soil Properties:

	Diffusivity in air Da	Total Porosity Pt	Air filled Porosity Pa	Diffusivity in water Dw	Water filled porosity Pw	Henry's Law Constant H'	Effective Diffusion Deff
Benzene	0.088	0.375	0.321	9.80E-06	0.054	2.27E-01	1.42E-02
Ethylbenzene	0.075	0.375	0.321	7.80E-06	0.054	3.22E-01	1.21E-02
Tetrachloroethene	0.072	0.375	0.321	8.20E-06	0.054	7.53E-01	1.16E-02
Vinyl Chloride	0.106	0.375	0.321	1.23E-05	0.054	1.10E+00	1.71E-02
Chloroform	0.104	0.375	0.321	1.00E-05	0.054	1.50E-01	1.68E-02
Dichlorodifluoromethane	0.0665	0.375	0.321	9.92E-06	0.054	1.40E+01	1.08E-02
Trichloroethene	0.079	0.375	0.321	9.10E-06	0.054	4.21E-01	1.28E-02
1,2,4-Trichlorobenzene	0.0606	0.375	0.321	7.92E-06	0.054	2.52E-01	9.80E-03
1,2-Dichloroethane	0.104	0.375	0.321	9.90E-06	0.054	4.00E-02	1.68E-02
1,3,5-Trimethylbenzene	0.0602	0.375	0.321	8.67E-06	0.054	2.41E-01	9.73E-03
1,2-Dichloropropane	0.0782	0.375	0.321	8.73E-06	0.054	1.15E-01	1.26E-02
cis-1,2-Dichloroethylene	0.0736	0.375	0.321	1.13E-05	0.054	1.67E-01	1.19E-02
Methylene chloride	0.101	0.375	0.321	1.17E-05	0.054	8.96E-02	1.63E-02

Soil properties assumed based on sand. Defaults taken from USEPA J&E model.
Chemical-specific properties taken from USEPA J&E model.

Broadway North Landfill COPCs and Soil Gas EPCs
(Outdoor Air)

Adolescent Trespasser Scenario (7-16 year old):

Exposure time	4	hours/day
Exposure frequency	52	days/year
Exposure duration	10	years
Averaging time nc	87600	hours
Averaging time c	613200	hours

Chemical	Max soil gas (ug/m3)	Outdoor Air Conc (ug/m3)	Exp Conc Carcinogen (ug/m3)	Exp conc non-cancer (ug/m3)	IUR (ug/m3)-1	RfC (mg/m3)	Inhalation risk	Hazard Index
Benzene	60.57	9.32E-04	3.16E-06	2.21E-05	7.80E-06	0.03	2.47E-11	7.38E-04
Ethylbenzene	394.46	5.18E-03	1.76E-05	1.23E-04	--	1	NA	1.23E-04
Tetrachloroethene	189.49	2.39E-03	8.10E-06	5.67E-05	5.90E-06	0.6	4.78E-11	9.44E-05
Vinyl chloride	28.06	5.20E-04	1.76E-06	1.24E-05	8.80E-06	0.1	1.55E-11	1.24E-04
Chloroform	443.49	8.07E-03	2.74E-05	1.92E-04	2.30E-05	--	6.29E-10	NA
Dichlorodifluoromethane	3257	3.79E-02	1.29E-04	9.00E-04	--	0.2	NA	4.50E-03
Trichloroethene	64.36	8.89E-04	3.02E-06	2.11E-05	1.10E-04	0.04	3.32E-10	5.28E-04
1,2,4-Trichlorobenzene	588.74	6.24E-03	2.12E-05	1.48E-04	--	0.006	NA	2.47E-02
1,2-Dichloroethane	6.47	1.18E-04	3.99E-07	2.79E-06	2.60E-05	--	1.04E-11	NA
1,3,5-Trimethylbenzene	16	1.68E-04	5.72E-07	4.00E-06	--	0.006	NA	6.67E-04
						Total:	**1E-09**	**3.1E-02**

Broadway South Landfill COPCs and Soil Gas EPCs
(Outdoor Air)

Adolescent Trespasser Scenario (7-16 year old):

Exposure time	4	hours/day
Exposure frequency	52	days/year
Exposure duration	10	years
Averaging time nc	87600	hours
Averaging time c	613200	hours

Chemical	Max soil gas (ug/m3)	Outdoor Air Conc (ug/m3)	Exp Conc Carcinogen (ug/m3)	Exp conc non-cancer (ug/m3)	IUR (ug/m3)-1	RfC (mg/m3)	Inhalation risk	Hazard Index
Benzene	30	4.62E-04	1.57E-06	1.10E-05	7.80E-06	0.03	1.22E-11	3.66E-04
Ethylbenzene	48	6.30E-04	2.14E-06	1.50E-05		1	NA	1.50E-05
Tetrachloroethene	24	3.02E-04	1.03E-06	7.18E-06	5.90E-06	0.6	6.05E-12	1.20E-05
Vinyl chloride	6.6	1.22E-04	4.15E-07	2.91E-06	8.80E-06	0.1	3.65E-12	2.91E-05
						Total:	**2E-11**	**4.2E-04**

Gollob Park COPCs and Soil Gas EPCs
(Outdoor Air)

Adult outdoor worker:

Exposure time	8	hours/day
Exposure frequency	250	days/year
Exposure duration	25	years
Averaging time nc	219000	hours
Averaging time c	613200	hours

Chemical	Max soil gas (ug/m3)	Outdoor Air Conc (ug/m3)	Exp Conc Carcinogen (ug/m3)	Exp conc non-cancer (ug/m3)	IUR (ug/m3)-1	RfC (mg/m3)	Inhalation risk	Hazard Index
Benzene	239.1	1.84E-03	1.50E-04	4.20E-04	7.80E-06	0.03	1.17E-09	1.40E-02
Ethylbenzene	60.7	1.77E-04	1.44E-05	4.04E-05	--	1	NA	4.04E-05
Tetrachloroethene	3925	2.47E-02	2.02E-03	5.64E-03	5.90E-06	0.6	1.19E-08	9.41E-03
Vinyl chloride	89	3.67E-04	2.99E-05	8.37E-05	8.80E-06	0.1	2.63E-10	8.37E-04
Chloroform	35.6	3.24E-04	2.64E-05	7.39E-05	2.30E-05	--	6.07E-10	NA
Dichlorodifluoromethane	5921	3.44E-02	2.81E-03	7.86E-03	--	0.2	NA	3.93E-02
Trichloroethene	3590	2.48E-02	2.02E-03	5.66E-03	1.10E-04	0.04	2.22E-07	1.42E-01
Methylene chloride	162.9	1.44E-03	1.17E-04	3.29E-04	4.70E-07	3	5.52E-11	1.10E-04
1,2-Dichloropropane	40	2.74E-04	2.23E-05	6.25E-05	1.90E-05	0.004	4.24E-10	1.56E-02
cis-1,2-Dichloroethylene	751	2.15E-03	1.75E-04	4.91E-04	--	0.035	NA	1.40E-02
						Total:	**2E-07**	**2.3E-01**

ATTACHMENT L3

USEPA INDOOR AIR (JOHNSON AND ETTINGER) MODEL FILES

SG-SCREEN
Version 3.1; 02/04

Reset to Defaults

Soil Gas Concentration Data

ENTER Chemical CAS No. (numbers only, no dashes)	ENTER Soil gas conc., C_g ($\mu g/m^3$)	OR	ENTER Soil gas conc., C_g (ppmv)	Chemical
71432	1.72E+01			Benzene

MORE ↓

ENTER Depth below grade to bottom of enclosed space floor, L_F (15 or 200 cm)	ENTER Soil gas sampling depth below grade, L_s (cm)	ENTER Average soil temperature, T_S (^oC)	ENTER Vadose zone SCS soil type (used to estimate soil vapor permeability)	OR	ENTER User-defined vadose zone soil vapor permeability, k_v (cm^2)
15	304.8	19	S		

MORE ↓

ENTER Vandose zone SCS soil type (Lookup Soil Parameters)	ENTER Vadose zone soil dry bulk density, ρ_b^A (g/cm^3)	ENTER Vadose zone soil total porosity, n^V (unitless)	ENTER Vadose zone soil water-filled porosity, θ_w^V (cm^3/cm^3)	ENTER Average vapor flow rate into bldg. (Leave blank to calculate) Q_{soil} (L/m)
S	1.66	0.375	0.054	5

MORE ↓

ENTER Averaging time for carcinogens, AT_C (yrs)	ENTER Averaging time for noncarcinogens, AT_{NC} (yrs)	ENTER Exposure duration, ED (yrs)	ENTER Exposure frequency, EF (days/yr)
70	30	30	350

END

CHEMICAL PROPERTIES SHEET

Diffusivity in air, D_a (cm^2/s)	Diffusivity in water, D_w (cm^2/s)	Henry's law constant at reference temperature, H (atm-m^3/mol)	Henry's law constant reference temperature, T_R (^oC)	Enthalpy of vaporization at the normal boiling point, $\Delta H_{v,b}$ (cal/mol)	Normal boiling point, T_B (^oK)	Critical temperature, T_C (^oK)	Unit risk factor, URF ($\mu g/m^3)^{-1}$	Reference conc., RfC (mg/m^3)	Molecular weight, MW (g/mol)
8.80E-02	9.80E-06	5.54E-03	25	7,342	353.24	562.16	7.8E-06	3.0E-02	78.11

END

INTERMEDIATE CALCULATIONS SHEET

Source-building separation, L_T (cm)	Vadose zone soil air-filled porosity, θ_a^V (cm^3/cm^3)	Vadose zone effective total fluid saturation, S_{te} (cm^3/cm^3)	Vadose zone soil intrinsic permeability, k_i (cm^2)	Vadose zone soil relative air permeability, k_{rg} (cm^2)	Vadose zone soil effective vapor permeability, k_v (cm^2)	Floor-wall seam perimeter, X_{crack} (cm)	Soil gas conc. ($\mu g/m^3$)	Bldg. ventilation rate, $Q_{building}$ (cm^3/s)
289.8	0.321	0.003	1.01E-07	0.998	1.01E-07	4,000	1.72E+01	1.69E+04

Area of enclosed space below grade, A_B (cm^2)	Crack-to-total area ratio, η (unitless)	Crack depth below grade, Z_{crack} (cm)	Enthalpy of vaporization at ave. soil temperature, $\Delta H_{v,TS}$ (cal/mol)	Henry's law constant at ave. soil temperature, H_{TS} (atm-m^3/mol)	Henry's law constant at ave. soil temperature, H'_{TS} (unitless)	Vapor viscosity at ave. soil temperature, μ_{TS} (g/cm-s)	Vadose zone effective diffusion coefficient, D^{eff}_V (cm^2/s)	Diffusion path length, L_d (cm)
1.00E+06	4.00E-04	15	8,030	4.19E-03	1.75E-01	1.78E-04	1.42E-02	289.8

Convection path length, L_p (cm)	Source vapor conc., C_{source} ($\mu g/m^3$)	Crack radius, r_{crack} (cm)	Average vapor flow rate into bldg., Q_{soil} (cm^3/s)	Crack effective diffusion coefficient, D^{crack} (cm^2/s)	Area of crack, A_{crack} (cm^2)	Exponent of equivalent foundation Peclet number, $exp(Pe^f)$ (unitless)	Infinite source indoor attenuation coefficient, α (unitless)	Infinite source bldg. conc., $C_{building}$ ($\mu g/m^3$)
15	1.72E+01	0.10	8.33E+01	1.42E-02	4.00E+02	3.99E+63	1.82E-03	3.14E-02

Unit risk factor, URF ($\mu g/m^3)^{-1}$	Reference conc., RfC (mg/m^3)
7.8E-06	3.0E-02

END

RESULTS SHEET

INCREMENTAL RISK CALCULATIONS:

Incremental risk from vapor intrusion to indoor air, carcinogen (unitless)	Hazard quotient from vapor intrusion to indoor air, noncarcinogen (unitless)
1.0E-07	1.0E-03

MESSAGE SUMMARY BELOW:

END

SG-SCREEN
Version 3.1; 02/04

Reset to Defaults

Soil Gas Concentration Data

ENTER Chemical CAS No. (numbers only, no dashes)	ENTER Soil gas conc., C_g ($\mu g/m^3$)	OR	ENTER Soil gas conc., C_g (ppmv)	Chemical
71432	1.80E-01			Benzene

MORE ↓

ENTER Depth below grade to bottom of enclosed space floor, L_F (15 or 200 cm)	ENTER Soil gas sampling depth below grade, L_s (cm)	ENTER Average soil temperature, T_S (^oC)	ENTER Vadose zone SCS soil type (used to estimate soil vapor permeability)	OR	ENTER User-defined vadose zone soil vapor permeability, k_v (cm^2)
15	304.8	19	S		

MORE ↓

ENTER Vandose zone SCS soil type (Lookup Soil Parameters)	ENTER Vadose zone soil dry bulk density, ρ_b^A (g/cm^3)	ENTER Vadose zone soil total porosity, n^V (unitless)	ENTER Vadose zone soil water-filled porosity, θ_w^V (cm^3/cm^3)	ENTER Average vapor flow rate into bldg. (Leave blank to calculate) Q_{soil} (L/m)
S	1.66	0.375	0.054	5

MORE ↓

ENTER Averaging time for carcinogens, AT_C (yrs)	ENTER Averaging time for noncarcinogens, AT_{NC} (yrs)	ENTER Exposure duration, ED (yrs)	ENTER Exposure frequency, EF (days/yr)
70	30	30	350

END

CHEMICAL PROPERTIES SHEET

Diffusivity in air, D_a (cm^2/s)	Diffusivity in water, D_w (cm^2/s)	Henry's law constant at reference temperature, H (atm-m^3/mol)	Henry's law constant reference temperature, T_R (^oC)	Enthalpy of vaporization at the normal boiling point, $\Delta H_{v,b}$ (cal/mol)	Normal boiling point, T_B (^oK)	Critical temperature, T_C (^oK)	Unit risk factor, URF ($\mu g/m^3)^{-1}$	Reference conc., RfC (mg/m^3)	Molecular weight, MW (g/mol)
8.80E-02	9.80E-06	5.54E-03	25	7,342	353.24	562.16	7.8E-06	3.0E-02	78.11

END

INTERMEDIATE CALCULATIONS SHEET

Source-building separation, L_T (cm)	Vadose zone soil air-filled porosity, θ_a^V (cm^3/cm^3)	Vadose zone effective total fluid saturation, S_{te} (cm^3/cm^3)	Vadose zone soil intrinsic permeability, k_i (cm^2)	Vadose zone soil relative air permeability, k_{rg} (cm^2)	Vadose zone soil effective vapor permeability, k_v (cm^2)	Floor-wall seam perimeter, X_{crack} (cm)	Soil gas conc. ($\mu g/m^3$)	Bldg. ventilation rate, $Q_{building}$ (cm^3/s)
289.8	0.321	0.003	1.01E-07	0.998	1.01E-07	4,000	1.80E-01	1.69E+04

Area of enclosed space below grade, A_B (cm^2)	Crack-to-total area ratio, η (unitless)	Crack depth below grade, Z_{crack} (cm)	Enthalpy of vaporization at ave. soil temperature, $\Delta H_{v,TS}$ (cal/mol)	Henry's law constant at ave. soil temperature, H_{TS} (atm-m^3/mol)	Henry's law constant at ave. soil temperature, H'_{TS} (unitless)	Vapor viscosity at ave. soil temperature, μ_{TS} (g/cm-s)	Vadose zone effective diffusion coefficient, D^{eff}_V (cm^2/s)	Diffusion path length, L_d (cm)
1.00E+06	4.00E-04	15	8,030	4.19E-03	1.75E-01	1.78E-04	1.42E-02	289.8

Convection path length, L_p (cm)	Source vapor conc., C_{source} ($\mu g/m^3$)	Crack radius, r_{crack} (cm)	Average vapor flow rate into bldg., Q_{soil} (cm^3/s)	Crack effective diffusion coefficient, D^{crack} (cm^2/s)	Area of crack, A_{crack} (cm^2)	Exponent of equivalent foundation Peclet number, $exp(Pe^f)$ (unitless)	Infinite source indoor attenuation coefficient, α (unitless)	Infinite source bldg. conc., $C_{building}$ ($\mu g/m^3$)
15	1.80E-01	0.10	8.33E+01	1.42E-02	4.00E+02	3.99E+63	1.82E-03	3.28E-04

Unit risk factor, URF ($\mu g/m^3)^{-1}$	Reference conc., RfC (mg/m^3)
7.8E-06	3.0E-02

END

RESULTS SHEET

INCREMENTAL RISK CALCULATIONS:

Incremental risk from vapor intrusion to indoor air, carcinogen (unitless)	Hazard quotient from vapor intrusion to indoor air, noncarcinogen (unitless)
1.1E-09	1.0E-05

MESSAGE SUMMARY BELOW:

END

SG-SCREEN
Version 3.1; 02/04

Reset to Defaults

Soil Gas Concentration Data

ENTER Chemical CAS No. (numbers only, no dashes)	ENTER Soil gas conc., C_g ($\mu g/m^3$)	OR	ENTER Soil gas conc., C_g (ppmv)	Chemical
71432	1.28E+01			Benzene

MORE ↓

ENTER Depth below grade to bottom of enclosed space floor, L_F (15 or 200 cm)	ENTER Soil gas sampling depth below grade, L_s (cm)	ENTER Average soil temperature, T_S (^oC)	ENTER Vadose zone SCS soil type (used to estimate soil vapor permeability)	OR	ENTER User-defined vadose zone soil vapor permeability, k_v (cm^2)
15	304.8	19	S		

MORE ↓

ENTER Vandose zone SCS soil type (Lookup Soil Parameters)	ENTER Vadose zone soil dry bulk density, ρ_b^A (g/cm^3)	ENTER Vadose zone soil total porosity, n^V (unitless)	ENTER Vadose zone soil water-filled porosity, θ_w^V (cm^3/cm^3)	ENTER Average vapor flow rate into bldg. (Leave blank to calculate) Q_{soil} (L/m)
S	1.66	0.375	0.054	5

MORE ↓

ENTER Averaging time for carcinogens, AT_C (yrs)	ENTER Averaging time for noncarcinogens, AT_{NC} (yrs)	ENTER Exposure duration, ED (yrs)	ENTER Exposure frequency, EF (days/yr)
70	30	30	350

END

CHEMICAL PROPERTIES SHEET

Diffusivity in air, D_a (cm^2/s)	Diffusivity in water, D_w (cm^2/s)	Henry's law constant at reference temperature, H (atm-m^3/mol)	Henry's law constant reference temperature, T_R (^oC)	Enthalpy of vaporization at the normal boiling point, $\Delta H_{v,b}$ (cal/mol)	Normal boiling point, T_B (^oK)	Critical temperature, T_C (^oK)	Unit risk factor, URF ($\mu g/m^3)^{-1}$	Reference conc., RfC (mg/m^3)	Molecular weight, MW (g/mol)
8.80E-02	9.80E-06	5.54E-03	25	7,342	353.24	562.16	7.8E-06	3.0E-02	78.11

END

INTERMEDIATE CALCULATIONS SHEET

Source-building separation, L_T (cm)	Vadose zone soil air-filled porosity, θ_a^V (cm^3/cm^3)	Vadose zone effective total fluid saturation, S_{te} (cm^3/cm^3)	Vadose zone soil intrinsic permeability, k_i (cm^2)	Vadose zone soil relative air permeability, k_{rg} (cm^2)	Vadose zone soil effective vapor permeability, k_v (cm^2)	Floor-wall seam perimeter, X_{crack} (cm)	Soil gas conc. ($\mu g/m^3$)	Bldg. ventilation rate, $Q_{building}$ (cm^3/s)
289.8	0.321	0.003	1.01E-07	0.998	1.01E-07	4,000	1.28E+01	1.69E+04

Area of enclosed space below grade, A_B (cm^2)	Crack-to-total area ratio, η (unitless)	Crack depth below grade, Z_{crack} (cm)	Enthalpy of vaporization at ave. soil temperature, $\Delta H_{v,TS}$ (cal/mol)	Henry's law constant at ave. soil temperature, H_{TS} (atm-m^3/mol)	Henry's law constant at ave. soil temperature, H'_{TS} (unitless)	Vapor viscosity at ave. soil temperature, μ_{TS} (g/cm-s)	Vadose zone effective diffusion coefficient, D^{eff}_V (cm^2/s)	Diffusion path length, L_d (cm)
1.00E+06	4.00E-04	15	8,030	4.19E-03	1.75E-01	1.78E-04	1.42E-02	289.8

Convection path length, L_p (cm)	Source vapor conc., C_{source} ($\mu g/m^3$)	Crack radius, r_{crack} (cm)	Average vapor flow rate into bldg., Q_{soil} (cm^3/s)	Crack effective diffusion coefficient, D^{crack} (cm^2/s)	Area of crack, A_{crack} (cm^2)	Exponent of equivalent foundation Peclet number, $exp(Pe^f)$ (unitless)	Infinite source indoor attenuation coefficient, α (unitless)	Infinite source bldg. conc., $C_{building}$ ($\mu g/m^3$)
15	1.28E+01	0.10	8.33E+01	1.42E-02	4.00E+02	3.99E+63	1.82E-03	2.33E-02

Unit risk factor, URF ($\mu g/m^3)^{-1}$	Reference conc., RfC (mg/m^3)
7.8E-06	3.0E-02

END

RESULTS SHEET

INCREMENTAL RISK CALCULATIONS:

Incremental risk from vapor intrusion to indoor air, carcinogen (unitless)	Hazard quotient from vapor intrusion to indoor air, noncarcinogen (unitless)
7.5E-08	7.5E-04

MESSAGE SUMMARY BELOW:

END

SG-SCREEN
Version 3.1; 02/04

Reset to Defaults

Soil Gas Concentration Data

ENTER Chemical CAS No. (numbers only, no dashes)	ENTER Soil gas conc., C_g ($\mu g/m^3$)	OR	ENTER Soil gas conc., C_g (ppmv)	Chemical
71432	1.90E+00			Benzene

MORE ↓

ENTER Depth below grade to bottom of enclosed space floor, L_F (15 or 200 cm)	ENTER Soil gas sampling depth below grade, L_s (cm)	ENTER Average soil temperature, T_S (^oC)	ENTER Vadose zone SCS soil type (used to estimate soil vapor permeability)	OR	ENTER User-defined vadose zone soil vapor permeability, k_v (cm^2)
15	304.8	19	S		

MORE ↓

ENTER Vandose zone SCS soil type (Lookup Soil Parameters)	ENTER Vadose zone soil dry bulk density, ρ_b^A (g/cm^3)	ENTER Vadose zone soil total porosity, n^V (unitless)	ENTER Vadose zone soil water-filled porosity, θ_w^V (cm^3/cm^3)	ENTER Average vapor flow rate into bldg. (Leave blank to calculate) Q_{soil} (L/m)
S	1.66	0.375	0.054	5

MORE ↓

ENTER Averaging time for carcinogens, AT_C (yrs)	ENTER Averaging time for noncarcinogens, AT_{NC} (yrs)	ENTER Exposure duration, ED (yrs)	ENTER Exposure frequency, EF (days/yr)
70	30	30	350

END

CHEMICAL PROPERTIES SHEET

Diffusivity in air, D_a (cm^2/s)	Diffusivity in water, D_w (cm^2/s)	Henry's law constant at reference temperature, H (atm-m^3/mol)	Henry's law constant reference temperature, T_R (^oC)	Enthalpy of vaporization at the normal boiling point, $\Delta H_{v,b}$ (cal/mol)	Normal boiling point, T_B (^oK)	Critical temperature, T_C (^oK)	Unit risk factor, URF ($\mu g/m^3)^{-1}$	Reference conc., RfC (mg/m^3)	Molecular weight, MW (g/mol)
8.80E-02	9.80E-06	5.54E-03	25	7,342	353.24	562.16	7.8E-06	3.0E-02	78.11

END

INTERMEDIATE CALCULATIONS SHEET

Source-building separation, L_T (cm)	Vadose zone soil air-filled porosity, θ_a^V (cm^3/cm^3)	Vadose zone effective total fluid saturation, S_{te} (cm^3/cm^3)	Vadose zone soil intrinsic permeability, k_i (cm^2)	Vadose zone soil relative air permeability, k_{rg} (cm^2)	Vadose zone soil effective vapor permeability, k_v (cm^2)	Floor-wall seam perimeter, X_{crack} (cm)	Soil gas conc. ($\mu g/m^3$)	Bldg. ventilation rate, $Q_{building}$ (cm^3/s)
289.8	0.321	0.003	1.01E-07	0.998	1.01E-07	4,000	1.90E+00	1.69E+04

Area of enclosed space below grade, A_B (cm^2)	Crack-to-total area ratio, η (unitless)	Crack depth below grade, Z_{crack} (cm)	Enthalpy of vaporization at ave. soil temperature, $\Delta H_{v,TS}$ (cal/mol)	Henry's law constant at ave. soil temperature, H_{TS} (atm-m^3/mol)	Henry's law constant at ave. soil temperature, H'_{TS} (unitless)	Vapor viscosity at ave. soil temperature, μ_{TS} (g/cm-s)	Vadose zone effective diffusion coefficient, D^{eff}_V (cm^2/s)	Diffusion path length, L_d (cm)
1.00E+06	4.00E-04	15	8,030	4.19E-03	1.75E-01	1.78E-04	1.42E-02	289.8

Convection path length, L_p (cm)	Source vapor conc., C_{source} ($\mu g/m^3$)	Crack radius, r_{crack} (cm)	Average vapor flow rate into bldg., Q_{soil} (cm^3/s)	Crack effective diffusion coefficient, D^{crack} (cm^2/s)	Area of crack, A_{crack} (cm^2)	Exponent of equivalent foundation Peclet number, $exp(Pe^f)$ (unitless)	Infinite source indoor attenuation coefficient, α (unitless)	Infinite source bldg. conc., $C_{building}$ ($\mu g/m^3$)
15	1.90E+00	0.10	8.33E+01	1.42E-02	4.00E+02	3.99E+63	1.82E-03	3.46E-03

Unit risk factor, URF ($\mu g/m^3)^{-1}$	Reference conc., RfC (mg/m^3)
7.8E-06	3.0E-02

END

RESULTS SHEET

INCREMENTAL RISK CALCULATIONS:

Incremental risk from vapor intrusion to indoor air, carcinogen (unitless)	Hazard quotient from vapor intrusion to indoor air, noncarcinogen (unitless)
1.1E-08	1.1E-04

MESSAGE SUMMARY BELOW:

END

SG-SCREEN
Version 3.1; 02/04

Reset to Defaults

Soil Gas Concentration Data

ENTER Chemical CAS No. (numbers only, no dashes)	ENTER Soil gas conc., C_g ($\mu g/m^3$)	OR	ENTER Soil gas conc., C_g (ppmv)	Chemical
71432	2.33E+00			Benzene

MORE ↓

ENTER Depth below grade to bottom of enclosed space floor, L_F (15 or 200 cm)	ENTER Soil gas sampling depth below grade, L_s (cm)	ENTER Average soil temperature, T_S (^oC)	ENTER Vadose zone SCS soil type (used to estimate soil vapor permeability)	OR	ENTER User-defined vadose zone soil vapor permeability, k_v (cm^2)
15	304.8	19	S		

MORE ↓

ENTER Vandose zone SCS soil type (Lookup Soil Parameters)	ENTER Vadose zone soil dry bulk density, ρ_b^A (g/cm^3)	ENTER Vadose zone soil total porosity, n^V (unitless)	ENTER Vadose zone soil water-filled porosity, θ_w^V (cm^3/cm^3)	ENTER Average vapor flow rate into bldg. (Leave blank to calculate) Q_{soil} (L/m)
S	1.66	0.375	0.054	5

MORE ↓

ENTER Averaging time for carcinogens, AT_C (yrs)	ENTER Averaging time for noncarcinogens, AT_{NC} (yrs)	ENTER Exposure duration, ED (yrs)	ENTER Exposure frequency, EF (days/yr)
70	30	30	350

END

CHEMICAL PROPERTIES SHEET

Diffusivity in air, D_a (cm^2/s)	Diffusivity in water, D_w (cm^2/s)	Henry's law constant at reference temperature, H (atm-m^3/mol)	Henry's law constant reference temperature, T_R (^oC)	Enthalpy of vaporization at the normal boiling point, $\Delta H_{v,b}$ (cal/mol)	Normal boiling point, T_B (^oK)	Critical temperature, T_C (^oK)	Unit risk factor, URF ($\mu g/m^3)^{-1}$	Reference conc., RfC (mg/m^3)	Molecular weight, MW (g/mol)
8.80E-02	9.80E-06	5.54E-03	25	7,342	353.24	562.16	7.8E-06	3.0E-02	78.11

END

INTERMEDIATE CALCULATIONS SHEET

Source-building separation, L_T (cm)	Vadose zone soil air-filled porosity, θ_a^V (cm^3/cm^3)	Vadose zone effective total fluid saturation, S_{te} (cm^3/cm^3)	Vadose zone soil intrinsic permeability, k_i (cm^2)	Vadose zone soil relative air permeability, k_{rg} (cm^2)	Vadose zone soil effective vapor permeability, k_v (cm^2)	Floor-wall seam perimeter, X_{crack} (cm)	Soil gas conc. ($\mu g/m^3$)	Bldg. ventilation rate, $Q_{building}$ (cm^3/s)
289.8	0.321	0.003	1.01E-07	0.998	1.01E-07	4,000	2.33E+00	1.69E+04

Area of enclosed space below grade, A_B (cm^2)	Crack-to-total area ratio, η (unitless)	Crack depth below grade, Z_{crack} (cm)	Enthalpy of vaporization at ave. soil temperature, $\Delta H_{v,TS}$ (cal/mol)	Henry's law constant at ave. soil temperature, H_{TS} (atm-m^3/mol)	Henry's law constant at ave. soil temperature, H'_{TS} (unitless)	Vapor viscosity at ave. soil temperature, μ_{TS} (g/cm-s)	Vadose zone effective diffusion coefficient, D^{eff}_V (cm^2/s)	Diffusion path length, L_d (cm)
1.00E+06	4.00E-04	15	8,030	4.19E-03	1.75E-01	1.78E-04	1.42E-02	289.8

Convection path length, L_p (cm)	Source vapor conc., C_{source} ($\mu g/m^3$)	Crack radius, r_{crack} (cm)	Average vapor flow rate into bldg., Q_{soil} (cm^3/s)	Crack effective diffusion coefficient, D^{crack} (cm^2/s)	Area of crack, A_{crack} (cm^2)	Exponent of equivalent foundation Peclet number, $exp(Pe^f)$ (unitless)	Infinite source indoor attenuation coefficient, α (unitless)	Infinite source bldg. conc., $C_{building}$ ($\mu g/m^3$)
15	2.33E+00	0.10	8.33E+01	1.42E-02	4.00E+02	3.99E+63	1.82E-03	4.25E-03

Unit risk factor, URF ($\mu g/m^3)^{-1}$	Reference conc., RfC (mg/m^3)
7.8E-06	3.0E-02

END

RESULTS SHEET

INCREMENTAL RISK CALCULATIONS:

Incremental risk from vapor intrusion to indoor air, carcinogen (unitless)	Hazard quotient from vapor intrusion to indoor air, noncarcinogen (unitless)
1.4E-08	1.4E-04

MESSAGE SUMMARY BELOW:

END

SG-SCREEN
Version 3.1; 02/04

Reset to Defaults

Soil Gas Concentration Data

ENTER Chemical CAS No. (numbers only, no dashes)	ENTER Soil gas conc., C_g ($\mu g/m^3$)	OR	ENTER Soil gas conc., C_g (ppmv)	Chemical
67663	2.20E+00			Chloroform

MORE ↓

ENTER Depth below grade to bottom of enclosed space floor, L_F (15 or 200 cm)	ENTER Soil gas sampling depth below grade, L_s (cm)	ENTER Average soil temperature, T_S (^oC)	ENTER Vadose zone SCS soil type (used to estimate soil vapor permeability)	OR	ENTER User-defined vadose zone soil vapor permeability, k_v (cm^2)
15	304.8	10	S		

MORE ↓

ENTER Vandose zone SCS soil type (Lookup Soil Parameters)	ENTER Vadose zone soil dry bulk density, ρ_b^A (g/cm^3)	ENTER Vadose zone soil total porosity, n^V (unitless)	ENTER Vadose zone soil water-filled porosity, θ_w^V (cm^3/cm^3)	ENTER Average vapor flow rate into bldg. (Leave blank to calculate) Q_{soil} (L/m)
S	1.66	0.375	0.054	5

MORE ↓

ENTER Averaging time for carcinogens, AT_C (yrs)	ENTER Averaging time for noncarcinogens, AT_{NC} (yrs)	ENTER Exposure duration, ED (yrs)	ENTER Exposure frequency, EF (days/yr)
70	30	30	350

END

CHEMICAL PROPERTIES SHEET

Diffusivity in air, D_a (cm^2/s)	Diffusivity in water, D_w (cm^2/s)	Henry's law constant at reference temperature, H (atm-m^3/mol)	Henry's law constant reference temperature, T_R (^oC)	Enthalpy of vaporization at the normal boiling point, $\Delta H_{v,b}$ (cal/mol)	Normal boiling point, T_B (^oK)	Critical temperature, T_C (^oK)	Unit risk factor, URF ($\mu g/m^3)^{-1}$	Reference conc., RfC (mg/m^3)	Molecular weight, MW (g/mol)
1.04E-01	1.00E-05	3.66E-03	25	6,988	334.32	536.40	2.3E-05	0.0E+00	119.38

END

INTERMEDIATE CALCULATIONS SHEET

Source-building separation, L_T (cm)	Vadose zone soil air-filled porosity, θ_a^V (cm^3/cm^3)	Vadose zone effective total fluid saturation, S_{te} (cm^3/cm^3)	Vadose zone soil intrinsic permeability, k_i (cm^2)	Vadose zone soil relative air permeability, k_{rg} (cm^2)	Vadose zone soil effective vapor permeability, k_v (cm^2)	Floor-wall seam perimeter, X_{crack} (cm)	Soil gas conc. ($\mu g/m^3$)	Bldg. ventilation rate, $Q_{building}$ (cm^3/s)
289.8	0.321	0.003	9.92E-08	0.998	9.91E-08	4,000	2.20E+00	1.69E+04

Area of enclosed space below grade, A_B (cm^2)	Crack-to-total area ratio, η (unitless)	Crack depth below grade, Z_{crack} (cm)	Enthalpy of vaporization at ave. soil temperature, $\Delta H_{v,TS}$ (cal/mol)	Henry's law constant at ave. soil temperature, H_{TS} (atm-m^3/mol)	Henry's law constant at ave. soil temperature, H'_{TS} (unitless)	Vapor viscosity at ave. soil temperature, μ_{TS} (g/cm-s)	Vadose zone effective diffusion coefficient, D^{eff}_V (cm^2/s)	Diffusion path length, L_d (cm)
1.00E+06	4.00E-04	15	7,554	1.86E-03	8.02E-02	1.75E-04	1.68E-02	289.8

Convection path length, L_p (cm)	Source vapor conc., C_{source} ($\mu g/m^3$)	Crack radius, r_{crack} (cm)	Average vapor flow rate into bldg., Q_{soil} (cm^3/s)	Crack effective diffusion coefficient, D^{crack} (cm^2/s)	Area of crack, A_{crack} (cm^2)	Exponent of equivalent foundation Peclet number, $exp(Pe^f)$ (unitless)	Infinite source indoor attenuation coefficient, α (unitless)	Infinite source bldg. conc., $C_{building}$ ($\mu g/m^3$)
15	2.20E+00	0.10	8.33E+01	1.68E-02	4.00E+02	6.54E+53	2.02E-03	4.44E-03

Unit risk factor, URF ($\mu g/m^3)^{-1}$	Reference conc., RfC (mg/m^3)
2.3E-05	NA

END

RESULTS SHEET

INCREMENTAL RISK CALCULATIONS:

Incremental risk from vapor intrusion to indoor air, carcinogen (unitless)	Hazard quotient from vapor intrusion to indoor air, noncarcinogen (unitless)
4.2E-08	NA

MESSAGE SUMMARY BELOW:

END

SG-SCREEN
Version 3.1; 02/04

Reset to Defaults

Soil Gas Concentration Data

ENTER Chemical CAS No. (numbers only, no dashes)	ENTER Soil gas conc., C_g ($\mu g/m^3$)	OR	ENTER Soil gas conc., C_g (ppmv)	Chemical
67663	1.20E+00			Chloroform

MORE ↓

ENTER Depth below grade to bottom of enclosed space floor, L_F (15 or 200 cm)	ENTER Soil gas sampling depth below grade, L_s (cm)	ENTER Average soil temperature, T_S (^oC)	ENTER Vadose zone SCS soil type (used to estimate soil vapor permeability)	OR	ENTER User-defined vadose zone soil vapor permeability, k_v (cm^2)
15	304.8	19	S		

MORE ↓

ENTER Vandose zone SCS soil type (Lookup Soil Parameters)	ENTER Vadose zone soil dry bulk density, ρ_b^A (g/cm^3)	ENTER Vadose zone soil total porosity, n^V (unitless)	ENTER Vadose zone soil water-filled porosity, θ_w^V (cm^3/cm^3)	ENTER Average vapor flow rate into bldg. (Leave blank to calculate) Q_{soil} (L/m)
S	1.66	0.375	0.054	5

MORE ↓

ENTER Averaging time for carcinogens, AT_C (yrs)	ENTER Averaging time for noncarcinogens, AT_{NC} (yrs)	ENTER Exposure duration, ED (yrs)	ENTER Exposure frequency, EF (days/yr)
70	30	30	350

END

CHEMICAL PROPERTIES SHEET

Diffusivity in air, D_a (cm^2/s)	Diffusivity in water, D_w (cm^2/s)	Henry's law constant at reference temperature, H (atm-m^3/mol)	Henry's law constant reference temperature, T_R (^oC)	Enthalpy of vaporization at the normal boiling point, $\Delta H_{v,b}$ (cal/mol)	Normal boiling point, T_B (^oK)	Critical temperature, T_C (^oK)	Unit risk factor, URF ($\mu g/m^3)^{-1}$	Reference conc., RfC (mg/m^3)	Molecular weight, MW (g/mol)
1.04E-01	1.00E-05	3.66E-03	25	6,988	334.32	536.40	2.3E-05	0.0E+00	119.38

END

INTERMEDIATE CALCULATIONS SHEET

Source-building separation, L_T (cm)	Vadose zone soil air-filled porosity, θ_a^V (cm^3/cm^3)	Vadose zone effective total fluid saturation, S_{te} (cm^3/cm^3)	Vadose zone soil intrinsic permeability, k_i (cm^2)	Vadose zone soil relative air permeability, k_{rg} (cm^2)	Vadose zone soil effective vapor permeability, k_v (cm^2)	Floor-wall seam perimeter, X_{crack} (cm)	Soil gas conc. ($\mu g/m^3$)	Bldg. ventilation rate, $Q_{building}$ (cm^3/s)
289.8	0.321	0.003	1.01E-07	0.998	1.01E-07	4,000	1.20E+00	1.69E+04

Area of enclosed space below grade, A_B (cm^2)	Crack-to-total area ratio, η (unitless)	Crack depth below grade, Z_{crack} (cm)	Enthalpy of vaporization at ave. soil temperature, $\Delta H_{v,TS}$ (cal/mol)	Henry's law constant at ave. soil temperature, H_{TS} (atm-m^3/mol)	Henry's law constant at ave. soil temperature, H'_{TS} (unitless)	Vapor viscosity at ave. soil temperature, μ_{TS} (g/cm-s)	Vadose zone effective diffusion coefficient, D^{eff}_V (cm^2/s)	Diffusion path length, L_d (cm)
1.00E+06	4.00E-04	15	7,461	2.83E-03	1.18E-01	1.78E-04	1.68E-02	289.8

Convection path length, L_p (cm)	Source vapor conc., C_{source} ($\mu g/m^3$)	Crack radius, r_{crack} (cm)	Average vapor flow rate into bldg., Q_{soil} (cm^3/s)	Crack effective diffusion coefficient, D^{crack} (cm^2/s)	Area of crack, A_{crack} (cm^2)	Exponent of equivalent foundation Peclet number, $exp(Pe^f)$ (unitless)	Infinite source indoor attenuation coefficient, α (unitless)	Infinite source bldg. conc., $C_{building}$ ($\mu g/m^3$)
15	1.20E+00	0.10	8.33E+01	1.68E-02	4.00E+02	6.54E+53	2.02E-03	2.42E-03

Unit risk factor, URF $(\mu g/m^3)^{-1}$	Reference conc., RfC (mg/m^3)
2.3E-05	NA

END

RESULTS SHEET

INCREMENTAL RISK CALCULATIONS:

Incremental risk from vapor intrusion to indoor air, carcinogen (unitless)	Hazard quotient from vapor intrusion to indoor air, noncarcinogen (unitless)
2.3E-08	NA

MESSAGE SUMMARY BELOW:

END

SG-SCREEN
Version 3.1; 02/04

Reset to Defaults

Soil Gas Concentration Data

ENTER Chemical CAS No. (numbers only, no dashes)	ENTER Soil gas conc., C_g ($\mu g/m^3$)	OR	ENTER Soil gas conc., C_g (ppmv)	Chemical
67663	2.20E+00			Chloroform

MORE ↓

ENTER Depth below grade to bottom of enclosed space floor, L_F (15 or 200 cm)	ENTER Soil gas sampling depth below grade, L_s (cm)	ENTER Average soil temperature, T_S (^oC)	ENTER Vadose zone SCS soil type (used to estimate soil vapor permeability)	OR	ENTER User-defined vadose zone soil vapor permeability, k_v (cm^2)
15	304.8	19	S		

MORE ↓

ENTER Vandose zone SCS soil type (Lookup Soil Parameters)	ENTER Vadose zone soil dry bulk density, ρ_b^A (g/cm^3)	ENTER Vadose zone soil total porosity, n^V (unitless)	ENTER Vadose zone soil water-filled porosity, θ_w^V (cm^3/cm^3)	ENTER Average vapor flow rate into bldg. (Leave blank to calculate) Q_{soil} (L/m)
S	1.66	0.375	0.054	5

MORE ↓

ENTER Averaging time for carcinogens, AT_C (yrs)	ENTER Averaging time for noncarcinogens, AT_{NC} (yrs)	ENTER Exposure duration, ED (yrs)	ENTER Exposure frequency, EF (days/yr)
70	30	30	350

END

CHEMICAL PROPERTIES SHEET

Diffusivity in air, D_a (cm^2/s)	Diffusivity in water, D_w (cm^2/s)	Henry's law constant at reference temperature, H (atm-m^3/mol)	Henry's law constant reference temperature, T_R (^oC)	Enthalpy of vaporization at the normal boiling point, $\Delta H_{v,b}$ (cal/mol)	Normal boiling point, T_B (^oK)	Critical temperature, T_C (^oK)	Unit risk factor, URF ($\mu g/m^3)^{-1}$	Reference conc., RfC (mg/m^3)	Molecular weight, MW (g/mol)
1.04E-01	1.00E-05	3.66E-03	25	6,988	334.32	536.40	2.3E-05	0.0E+00	119.38

END

INTERMEDIATE CALCULATIONS SHEET

Source-building separation, L_T (cm)	Vadose zone soil air-filled porosity, θ_a^V (cm^3/cm^3)	Vadose zone effective total fluid saturation, S_{te} (cm^3/cm^3)	Vadose zone soil intrinsic permeability, k_i (cm^2)	Vadose zone soil relative air permeability, k_{rg} (cm^2)	Vadose zone soil effective vapor permeability, k_v (cm^2)	Floor-wall seam perimeter, X_{crack} (cm)	Soil gas conc. ($\mu g/m^3$)	Bldg. ventilation rate, $Q_{building}$ (cm^3/s)
289.8	0.321	0.003	1.01E-07	0.998	1.01E-07	4,000	2.20E+00	1.69E+04

Area of enclosed space below grade, A_B (cm^2)	Crack-to-total area ratio, η (unitless)	Crack depth below grade, Z_{crack} (cm)	Enthalpy of vaporization at ave. soil temperature, $\Delta H_{v,TS}$ (cal/mol)	Henry's law constant at ave. soil temperature, H_{TS} (atm-m^3/mol)	Henry's law constant at ave. soil temperature, H'_{TS} (unitless)	Vapor viscosity at ave. soil temperature, μ_{TS} (g/cm-s)	Vadose zone effective diffusion coefficient, D^{eff}_V (cm^2/s)	Diffusion path length, L_d (cm)
1.00E+06	4.00E-04	15	7,461	2.83E-03	1.18E-01	1.78E-04	1.68E-02	289.8

Convection path length, L_p (cm)	Source vapor conc., C_{source} ($\mu g/m^3$)	Crack radius, r_{crack} (cm)	Average vapor flow rate into bldg., Q_{soil} (cm^3/s)	Crack effective diffusion coefficient, D^{crack} (cm^2/s)	Area of crack, A_{crack} (cm^2)	Exponent of equivalent foundation Peclet number, $exp(Pe^f)$ (unitless)	Infinite source indoor attenuation coefficient, α (unitless)	Infinite source bldg. conc., $C_{building}$ ($\mu g/m^3$)
15	2.20E+00	0.10	8.33E+01	1.68E-02	4.00E+02	6.54E+53	2.02E-03	4.44E-03

Unit risk factor, URF ($\mu g/m^3)^{-1}$	Reference conc., RfC (mg/m^3)
2.3E-05	NA

END

RESULTS SHEET

INCREMENTAL RISK CALCULATIONS:

Incremental risk from vapor intrusion to indoor air, carcinogen (unitless)	Hazard quotient from vapor intrusion to indoor air, noncarcinogen (unitless)
4.2E-08	NA

MESSAGE SUMMARY BELOW:

END

SG-SCREEN
Version 3.1; 02/04

Reset to Defaults

Soil Gas Concentration Data

ENTER Chemical CAS No. (numbers only, no dashes)	ENTER Soil gas conc., C_g ($\mu g/m^3$)	OR	ENTER Soil gas conc., C_g (ppmv)	Chemical
67663	5.40E+00			Chloroform

MORE ↓

ENTER Depth below grade to bottom of enclosed space floor, L_F (15 or 200 cm)	ENTER Soil gas sampling depth below grade, L_s (cm)	ENTER Average soil temperature, T_S (^oC)	ENTER Vadose zone SCS soil type (used to estimate soil vapor permeability)	OR	ENTER User-defined vadose zone soil vapor permeability, k_v (cm^2)
15	304.8	19	S		

MORE ↓

ENTER Vandose zone SCS soil type (Lookup Soil Parameters)	ENTER Vadose zone soil dry bulk density, ρ_b^A (g/cm^3)	ENTER Vadose zone soil total porosity, n^V (unitless)	ENTER Vadose zone soil water-filled porosity, θ_w^V (cm^3/cm^3)	ENTER Average vapor flow rate into bldg. (Leave blank to calculate) Q_{soil} (L/m)
S	1.66	0.375	0.054	5

MORE ↓

ENTER Averaging time for carcinogens, AT_C (yrs)	ENTER Averaging time for noncarcinogens, AT_{NC} (yrs)	ENTER Exposure duration, ED (yrs)	ENTER Exposure frequency, EF (days/yr)
70	30	30	350

END

CHEMICAL PROPERTIES SHEET

Diffusivity in air, D_a (cm^2/s)	Diffusivity in water, D_w (cm^2/s)	Henry's law constant at reference temperature, H (atm-m^3/mol)	Henry's law constant reference temperature, T_R (^oC)	Enthalpy of vaporization at the normal boiling point, $\Delta H_{v,b}$ (cal/mol)	Normal boiling point, T_B (^oK)	Critical temperature, T_C (^oK)	Unit risk factor, URF ($\mu g/m^3)^{-1}$	Reference conc., RfC (mg/m^3)	Molecular weight, MW (g/mol)
1.04E-01	1.00E-05	3.66E-03	25	6,988	334.32	536.40	2.3E-05	0.0E+00	119.38

END

INTERMEDIATE CALCULATIONS SHEET

Source-building separation, L_T (cm)	Vadose zone soil air-filled porosity, θ_a^V (cm^3/cm^3)	Vadose zone effective total fluid saturation, S_{te} (cm^3/cm^3)	Vadose zone soil intrinsic permeability, k_i (cm^2)	Vadose zone soil relative air permeability, k_{rg} (cm^2)	Vadose zone soil effective vapor permeability, k_v (cm^2)	Floor-wall seam perimeter, X_{crack} (cm)	Soil gas conc. ($\mu g/m^3$)	Bldg. ventilation rate, $Q_{building}$ (cm^3/s)
289.8	0.321	0.003	1.01E-07	0.998	1.01E-07	4,000	5.40E+00	1.69E+04

Area of enclosed space below grade, A_B (cm^2)	Crack-to-total area ratio, η (unitless)	Crack depth below grade, Z_{crack} (cm)	Enthalpy of vaporization at ave. soil temperature, $\Delta H_{v,TS}$ (cal/mol)	Henry's law constant at ave. soil temperature, H_{TS} (atm-m^3/mol)	Henry's law constant at ave. soil temperature, H'_{TS} (unitless)	Vapor viscosity at ave. soil temperature, μ_{TS} (g/cm-s)	Vadose zone effective diffusion coefficient, D^{eff}_V (cm^2/s)	Diffusion path length, L_d (cm)
1.00E+06	4.00E-04	15	7,461	2.83E-03	1.18E-01	1.78E-04	1.68E-02	289.8

Convection path length, L_p (cm)	Source vapor conc., C_{source} ($\mu g/m^3$)	Crack radius, r_{crack} (cm)	Average vapor flow rate into bldg., Q_{soil} (cm^3/s)	Crack effective diffusion coefficient, D^{crack} (cm^2/s)	Area of crack, A_{crack} (cm^2)	Exponent of equivalent foundation Peclet number, $exp(Pe^f)$ (unitless)	Infinite source indoor attenuation coefficient, α (unitless)	Infinite source bldg. conc., $C_{building}$ ($\mu g/m^3$)
15	5.40E+00	0.10	8.33E+01	1.68E-02	4.00E+02	6.54E+53	2.02E-03	1.09E-02

Unit risk factor, URF ($\mu g/m^3)^{-1}$	Reference conc., RfC (mg/m^3)
2.3E-05	NA

END

RESULTS SHEET

INCREMENTAL RISK CALCULATIONS:

Incremental risk from vapor intrusion to indoor air, carcinogen (unitless)	Hazard quotient from vapor intrusion to indoor air, noncarcinogen (unitless)
1.0E-07	NA

MESSAGE SUMMARY BELOW:

END

SG-SCREEN
Version 3.1; 02/04

Reset to Defaults

Soil Gas Concentration Data

ENTER Chemical CAS No. (numbers only, no dashes)	ENTER Soil gas conc., C_g ($\mu g/m^3$)	OR	ENTER Soil gas conc., C_g (ppmv)	Chemical
67663	1.80E+01			Chloroform

MORE ↓

ENTER Depth below grade to bottom of enclosed space floor, L_F (15 or 200 cm)	ENTER Soil gas sampling depth below grade, L_s (cm)	ENTER Average soil temperature, T_S (^oC)	ENTER Vadose zone SCS soil type (used to estimate soil vapor permeability)	OR	ENTER User-defined vadose zone soil vapor permeability, k_v (cm^2)
15	304.8	19	S		

MORE ↓

ENTER Vandose zone SCS soil type (Lookup Soil Parameters)	ENTER Vadose zone soil dry bulk density, ρ_b^A (g/cm^3)	ENTER Vadose zone soil total porosity, n^V (unitless)	ENTER Vadose zone soil water-filled porosity, θ_w^V (cm^3/cm^3)	ENTER Average vapor flow rate into bldg. (Leave blank to calculate) Q_{soil} (L/m)
S	1.66	0.375	0.054	5

MORE ↓

ENTER Averaging time for carcinogens, AT_C (yrs)	ENTER Averaging time for noncarcinogens, AT_{NC} (yrs)	ENTER Exposure duration, ED (yrs)	ENTER Exposure frequency, EF (days/yr)
70	30	30	350

END

CHEMICAL PROPERTIES SHEET

Diffusivity in air, D_a (cm^2/s)	Diffusivity in water, D_w (cm^2/s)	Henry's law constant at reference temperature, H (atm-m^3/mol)	Henry's law constant reference temperature, T_R (^oC)	Enthalpy of vaporization at the normal boiling point, $\Delta H_{v,b}$ (cal/mol)	Normal boiling point, T_B (^oK)	Critical temperature, T_C (^oK)	Unit risk factor, URF ($\mu g/m^3)^{-1}$	Reference conc., RfC (mg/m^3)	Molecular weight, MW (g/mol)
1.04E-01	1.00E-05	3.66E-03	25	6,988	334.32	536.40	2.3E-05	0.0E+00	119.38

END

INTERMEDIATE CALCULATIONS SHEET

Source-building separation, L_T (cm)	Vadose zone soil air-filled porosity, θ_a^V (cm^3/cm^3)	Vadose zone effective total fluid saturation, S_{te} (cm^3/cm^3)	Vadose zone soil intrinsic permeability, k_i (cm^2)	Vadose zone soil relative air permeability, k_{rg} (cm^2)	Vadose zone soil effective vapor permeability, k_v (cm^2)	Floor-wall seam perimeter, X_{crack} (cm)	Soil gas conc. ($\mu g/m^3$)	Bldg. ventilation rate, $Q_{building}$ (cm^3/s)
289.8	0.321	0.003	1.01E-07	0.998	1.01E-07	4,000	1.80E+01	1.69E+04

Area of enclosed space below grade, A_B (cm^2)	Crack-to-total area ratio, η (unitless)	Crack depth below grade, Z_{crack} (cm)	Enthalpy of vaporization at ave. soil temperature, $\Delta H_{v,TS}$ (cal/mol)	Henry's law constant at ave. soil temperature, H_{TS} (atm-m^3/mol)	Henry's law constant at ave. soil temperature, H'_{TS} (unitless)	Vapor viscosity at ave. soil temperature, μ_{TS} (g/cm-s)	Vadose zone effective diffusion coefficient, D^{eff}_V (cm^2/s)	Diffusion path length, L_d (cm)
1.00E+06	4.00E-04	15	7,461	2.83E-03	1.18E-01	1.78E-04	1.68E-02	289.8

Convection path length, L_p (cm)	Source vapor conc., C_{source} ($\mu g/m^3$)	Crack radius, r_{crack} (cm)	Average vapor flow rate into bldg., Q_{soil} (cm^3/s)	Crack effective diffusion coefficient, D^{crack} (cm^2/s)	Area of crack, A_{crack} (cm^2)	Exponent of equivalent foundation Peclet number, $exp(Pe^f)$ (unitless)	Infinite source indoor attenuation coefficient, α (unitless)	Infinite source bldg. conc., $C_{building}$ ($\mu g/m^3$)
15	1.80E+01	0.10	8.33E+01	1.68E-02	4.00E+02	6.54E+53	2.02E-03	3.63E-02

Unit risk factor, URF ($\mu g/m^3)^{-1}$	Reference conc., RfC (mg/m^3)
2.3E-05	NA

END

RESULTS SHEET

INCREMENTAL RISK CALCULATIONS:

Incremental risk from vapor intrusion to indoor air, carcinogen (unitless)	Hazard quotient from vapor intrusion to indoor air, noncarcinogen (unitless)
3.4E-07	NA

MESSAGE SUMMARY BELOW:

END

SG-SCREEN
Version 3.1; 02/04

Reset to Defaults

Soil Gas Concentration Data

ENTER Chemical CAS No. (numbers only, no dashes)	ENTER Soil gas conc., C_g ($\mu g/m^3$)	OR	ENTER Soil gas conc., C_g (ppmv)	Chemical
67663	2.60E+01			Chloroform

MORE ↓

ENTER Depth below grade to bottom of enclosed space floor, L_F (15 or 200 cm)	ENTER Soil gas sampling depth below grade, L_s (cm)	ENTER Average soil temperature, T_S (^oC)	ENTER Vadose zone SCS soil type (used to estimate soil vapor permeability)	OR	ENTER User-defined vadose zone soil vapor permeability, k_v (cm^2)
15	304.8	19	S		

MORE ↓

ENTER Vandose zone SCS soil type (Lookup Soil Parameters)	ENTER Vadose zone soil dry bulk density, ρ_b^A (g/cm^3)	ENTER Vadose zone soil total porosity, n^V (unitless)	ENTER Vadose zone soil water-filled porosity, θ_w^V (cm^3/cm^3)	ENTER Average vapor flow rate into bldg. (Leave blank to calculate) Q_{soil} (L/m)
S	1.66	0.375	0.054	5

MORE ↓

ENTER Averaging time for carcinogens, AT_C (yrs)	ENTER Averaging time for noncarcinogens, AT_{NC} (yrs)	ENTER Exposure duration, ED (yrs)	ENTER Exposure frequency, EF (days/yr)
70	30	30	350

END

CHEMICAL PROPERTIES SHEET

Diffusivity in air, D_a (cm^2/s)	Diffusivity in water, D_w (cm^2/s)	Henry's law constant at reference temperature, H (atm-m^3/mol)	Henry's law constant reference temperature, T_R (^oC)	Enthalpy of vaporization at the normal boiling point, $\Delta H_{v,b}$ (cal/mol)	Normal boiling point, T_B (^oK)	Critical temperature, T_C (^oK)	Unit risk factor, URF ($\mu g/m^3)^{-1}$	Reference conc., RfC (mg/m^3)	Molecular weight, MW (g/mol)
1.04E-01	1.00E-05	3.66E-03	25	6,988	334.32	536.40	2.3E-05	0.0E+00	119.38

END

INTERMEDIATE CALCULATIONS SHEET

Source-building separation, L_T (cm)	Vadose zone soil air-filled porosity, θ_a^V (cm^3/cm^3)	Vadose zone effective total fluid saturation, S_{te} (cm^3/cm^3)	Vadose zone soil intrinsic permeability, k_i (cm^2)	Vadose zone soil relative air permeability, k_{rg} (cm^2)	Vadose zone soil effective vapor permeability, k_v (cm^2)	Floor-wall seam perimeter, X_{crack} (cm)	Soil gas conc. ($\mu g/m^3$)	Bldg. ventilation rate, $Q_{building}$ (cm^3/s)
289.8	0.321	0.003	1.01E-07	0.998	1.01E-07	4,000	2.60E+01	1.69E+04

Area of enclosed space below grade, A_B (cm^2)	Crack-to-total area ratio, η (unitless)	Crack depth below grade, Z_{crack} (cm)	Enthalpy of vaporization at ave. soil temperature, $\Delta H_{v,TS}$ (cal/mol)	Henry's law constant at ave. soil temperature, H_{TS} (atm-m^3/mol)	Henry's law constant at ave. soil temperature, H'_{TS} (unitless)	Vapor viscosity at ave. soil temperature, μ_{TS} (g/cm-s)	Vadose zone effective diffusion coefficient, D^{eff}_V (cm^2/s)	Diffusion path length, L_d (cm)
1.00E+06	4.00E-04	15	7,461	2.83E-03	1.18E-01	1.78E-04	1.68E-02	289.8

Convection path length, L_p (cm)	Source vapor conc., C_{source} ($\mu g/m^3$)	Crack radius, r_{crack} (cm)	Average vapor flow rate into bldg., Q_{soil} (cm^3/s)	Crack effective diffusion coefficient, D^{crack} (cm^2/s)	Area of crack, A_{crack} (cm^2)	Exponent of equivalent foundation Peclet number, $exp(Pe^f)$ (unitless)	Infinite source indoor attenuation coefficient, α (unitless)	Infinite source bldg. conc., $C_{building}$ ($\mu g/m^3$)
15	2.60E+01	0.10	8.33E+01	1.68E-02	4.00E+02	6.54E+53	2.02E-03	5.25E-02

Unit risk factor, URF ($\mu g/m^3)^{-1}$	Reference conc., RfC (mg/m^3)
2.3E-05	NA

END

RESULTS SHEET

INCREMENTAL RISK CALCULATIONS:

Incremental risk from vapor intrusion to indoor air, carcinogen (unitless)	Hazard quotient from vapor intrusion to indoor air, noncarcinogen (unitless)
5.0E-07	NA

MESSAGE SUMMARY BELOW:

END

SG-SCREEN
Version 3.1; 02/04

Reset to Defaults

Soil Gas Concentration Data

ENTER Chemical CAS No. (numbers only, no dashes)	ENTER Soil gas conc., C_g ($\mu g/m^3$)	OR	ENTER Soil gas conc., C_g (ppmv)	Chemical
74873	2.80E-01			Methyl chloride (chloromethane)

MORE ↓

ENTER Depth below grade to bottom of enclosed space floor, L_F (15 or 200 cm)	ENTER Soil gas sampling depth below grade, L_s (cm)	ENTER Average soil temperature, T_S (^oC)	ENTER Vadose zone SCS soil type (used to estimate soil vapor permeability)	OR	ENTER User-defined vadose zone soil vapor permeability, k_v (cm^2)
15	304.8	19	S		

MORE ↓

ENTER Vandose zone SCS soil type (Lookup Soil Parameters)	ENTER Vadose zone soil dry bulk density, ρ_b^A (g/cm^3)	ENTER Vadose zone soil total porosity, n^V (unitless)	ENTER Vadose zone soil water-filled porosity, θ_w^V (cm^3/cm^3)	ENTER Average vapor flow rate into bldg. (Leave blank to calculate) Q_{soil} (L/m)
S	1.66	0.375	0.054	5

MORE ↓

ENTER Averaging time for carcinogens, AT_C (yrs)	ENTER Averaging time for noncarcinogens, AT_{NC} (yrs)	ENTER Exposure duration, ED (yrs)	ENTER Exposure frequency, EF (days/yr)
70	30	30	350

END

CHEMICAL PROPERTIES SHEET

Diffusivity in air, D_a (cm^2/s)	Diffusivity in water, D_w (cm^2/s)	Henry's law constant at reference temperature, H (atm-m^3/mol)	Henry's law constant reference temperature, T_R (^oC)	Enthalpy of vaporization at the normal boiling point, $\Delta H_{v,b}$ (cal/mol)	Normal boiling point, T_B (^oK)	Critical temperature, T_C (^oK)	Unit risk factor, URF ($\mu g/m^3)^{-1}$	Reference conc., RfC (mg/m^3)	Molecular weight, MW (g/mol)
1.26E-01	6.50E-06	8.80E-03	25	5,115	249.00	416.25	1.0E-06	9.0E-02	50.49

END

INTERMEDIATE CALCULATIONS SHEET

Source-building separation, L_T (cm)	Vadose zone soil air-filled porosity, θ_a^V (cm^3/cm^3)	Vadose zone effective total fluid saturation, S_{te} (cm^3/cm^3)	Vadose zone soil intrinsic permeability, k_i (cm^2)	Vadose zone soil relative air permeability, k_{rg} (cm^2)	Vadose zone soil effective vapor permeability, k_v (cm^2)	Floor-wall seam perimeter, X_{crack} (cm)	Soil gas conc. ($\mu g/m^3$)	Bldg. ventilation rate, $Q_{building}$ (cm^3/s)
289.8	0.321	0.003	1.01E-07	0.998	1.01E-07	4,000	2.80E-01	1.69E+04

Area of enclosed space below grade, A_B (cm^2)	Crack-to-total area ratio, η (unitless)	Crack depth below grade, Z_{crack} (cm)	Enthalpy of vaporization at ave. soil temperature, $\Delta H_{v,TS}$ (cal/mol)	Henry's law constant at ave. soil temperature, H_{TS} (atm-m^3/mol)	Henry's law constant at ave. soil temperature, H'_{TS} (unitless)	Vapor viscosity at ave. soil temperature, μ_{TS} (g/cm-s)	Vadose zone effective diffusion coefficient, D^{eff}_V (cm^2/s)	Diffusion path length, L_d (cm)
1.00E+06	4.00E-04	15	4,640	7.49E-03	3.12E-01	1.78E-04	2.04E-02	289.8

Convection path length, L_p (cm)	Source vapor conc., C_{source} ($\mu g/m^3$)	Crack radius, r_{crack} (cm)	Average vapor flow rate into bldg., Q_{soil} (cm^3/s)	Crack effective diffusion coefficient, D^{crack} (cm^2/s)	Area of crack, A_{crack} (cm^2)	Exponent of equivalent foundation Peclet number, $exp(Pe^f)$ (unitless)	Infinite source indoor attenuation coefficient, α (unitless)	Infinite source bldg. conc., $C_{building}$ ($\mu g/m^3$)
15	2.80E-01	0.10	8.33E+01	2.04E-02	4.00E+02	2.63E+44	2.25E-03	6.30E-04

Unit risk factor, URF ($\mu g/m^3)^{-1}$	Reference conc., RfC (mg/m^3)
1.0E-06	9.0E-02

END

RESULTS SHEET

INCREMENTAL RISK CALCULATIONS:

Incremental risk from vapor intrusion to indoor air, carcinogen (unitless)	Hazard quotient from vapor intrusion to indoor air, noncarcinogen (unitless)
2.6E-10	6.7E-06

MESSAGE SUMMARY BELOW:

END

SG-SCREEN
Version 3.1; 02/04

Reset to Defaults

Soil Gas Concentration Data

ENTER Chemical CAS No. (numbers only, no dashes)	ENTER Soil gas conc., C_g ($\mu g/m^3$)	OR	ENTER Soil gas conc., C_g (ppmv)	Chemical
74873	5.70E-02			Methyl chloride (chloromethane)

MORE ↓

ENTER Depth below grade to bottom of enclosed space floor, L_F (15 or 200 cm)	ENTER Soil gas sampling depth below grade, L_s (cm)	ENTER Average soil temperature, T_S (^oC)	ENTER Vadose zone SCS soil type (used to estimate soil vapor permeability)	OR	ENTER User-defined vadose zone soil vapor permeability, k_v (cm^2)
15	304.8	19	S		

MORE ↓

ENTER Vandose zone SCS soil type (Lookup Soil Parameters)	ENTER Vadose zone soil dry bulk density, ρ_b^A (g/cm^3)	ENTER Vadose zone soil total porosity, n^V (unitless)	ENTER Vadose zone soil water-filled porosity, θ_w^V (cm^3/cm^3)	ENTER Average vapor flow rate into bldg. (Leave blank to calculate) Q_{soil} (L/m)
S	1.66	0.375	0.054	5

MORE ↓

ENTER Averaging time for carcinogens, AT_C (yrs)	ENTER Averaging time for noncarcinogens, AT_{NC} (yrs)	ENTER Exposure duration, ED (yrs)	ENTER Exposure frequency, EF (days/yr)
70	30	30	350

END

CHEMICAL PROPERTIES SHEET

Diffusivity in air, D_a (cm^2/s)	Diffusivity in water, D_w (cm^2/s)	Henry's law constant at reference temperature, H (atm-m^3/mol)	Henry's law constant reference temperature, T_R (^oC)	Enthalpy of vaporization at the normal boiling point, $\Delta H_{v,b}$ (cal/mol)	Normal boiling point, T_B (^oK)	Critical temperature, T_C (^oK)	Unit risk factor, URF ($\mu g/m^3)^{-1}$	Reference conc., RfC (mg/m^3)	Molecular weight, MW (g/mol)
1.26E-01	6.50E-06	8.80E-03	25	5,115	249.00	416.25	1.0E-06	9.0E-02	50.49

END

INTERMEDIATE CALCULATIONS SHEET

Source-building separation, L_T (cm)	Vadose zone soil air-filled porosity, θ_a^V (cm^3/cm^3)	Vadose zone effective total fluid saturation, S_{te} (cm^3/cm^3)	Vadose zone soil intrinsic permeability, k_i (cm^2)	Vadose zone soil relative air permeability, k_{rg} (cm^2)	Vadose zone soil effective vapor permeability, k_v (cm^2)	Floor-wall seam perimeter, X_{crack} (cm)	Soil gas conc. ($\mu g/m^3$)	Bldg. ventilation rate, $Q_{building}$ (cm^3/s)
289.8	0.321	0.003	1.01E-07	0.998	1.01E-07	4,000	5.70E-02	1.69E+04

Area of enclosed space below grade, A_B (cm^2)	Crack-to-total area ratio, η (unitless)	Crack depth below grade, Z_{crack} (cm)	Enthalpy of vaporization at ave. soil temperature, $\Delta H_{v,TS}$ (cal/mol)	Henry's law constant at ave. soil temperature, H_{TS} (atm-m^3/mol)	Henry's law constant at ave. soil temperature, H'_{TS} (unitless)	Vapor viscosity at ave. soil temperature, μ_{TS} (g/cm-s)	Vadose zone effective diffusion coefficient, D^{eff}_V (cm^2/s)	Diffusion path length, L_d (cm)
1.00E+06	4.00E-04	15	4,640	7.49E-03	3.12E-01	1.78E-04	2.04E-02	289.8

Convection path length, L_p (cm)	Source vapor conc., C_{source} ($\mu g/m^3$)	Crack radius, r_{crack} (cm)	Average vapor flow rate into bldg., Q_{soil} (cm^3/s)	Crack effective diffusion coefficient, D^{crack} (cm^2/s)	Area of crack, A_{crack} (cm^2)	Exponent of equivalent foundation Peclet number, $exp(Pe^f)$ (unitless)	Infinite source indoor attenuation coefficient, α (unitless)	Infinite source bldg. conc., $C_{building}$ ($\mu g/m^3$)
15	5.70E-02	0.10	8.33E+01	2.04E-02	4.00E+02	2.63E+44	2.25E-03	1.28E-04

Unit risk factor, URF ($\mu g/m^3)^{-1}$	Reference conc., RfC (mg/m^3)
1.0E-06	9.0E-02

END

RESULTS SHEET

INCREMENTAL RISK CALCULATIONS:

Incremental risk from vapor intrusion to indoor air, carcinogen (unitless)	Hazard quotient from vapor intrusion to indoor air, noncarcinogen (unitless)
5.3E-11	1.4E-06

MESSAGE SUMMARY BELOW:

END

SG-SCREEN
Version 3.1; 02/04

Reset to Defaults

Soil Gas Concentration Data

ENTER Chemical CAS No. (numbers only, no dashes)	ENTER Soil gas conc., C_g ($\mu g/m^3$)	OR	ENTER Soil gas conc., C_g (ppmv)	Chemical
74873	3.71E+01			Methyl chloride (chloromethane)

MORE ↓

ENTER Depth below grade to bottom of enclosed space floor, L_F (15 or 200 cm)	ENTER Soil gas sampling depth below grade, L_s (cm)	ENTER Average soil temperature, T_S (^oC)	ENTER Vadose zone SCS soil type (used to estimate soil vapor permeability)	OR	ENTER User-defined vadose zone soil vapor permeability, k_v (cm^2)
15	304.8	19	S		

MORE ↓

ENTER Vandose zone SCS soil type (Lookup Soil Parameters)	ENTER Vadose zone soil dry bulk density, ρ_b^A (g/cm^3)	ENTER Vadose zone soil total porosity, n^V (unitless)	ENTER Vadose zone soil water-filled porosity, θ_w^V (cm^3/cm^3)	ENTER Average vapor flow rate into bldg. (Leave blank to calculate) Q_{soil} (L/m)
S	1.66	0.375	0.054	5

MORE ↓

ENTER Averaging time for carcinogens, AT_C (yrs)	ENTER Averaging time for noncarcinogens, AT_{NC} (yrs)	ENTER Exposure duration, ED (yrs)	ENTER Exposure frequency, EF (days/yr)
70	30	30	350

END

CHEMICAL PROPERTIES SHEET

Diffusivity in air, D_a (cm^2/s)	Diffusivity in water, D_w (cm^2/s)	Henry's law constant at reference temperature, H (atm-m^3/mol)	Henry's law constant reference temperature, T_R (^oC)	Enthalpy of vaporization at the normal boiling point, $\Delta H_{v,b}$ (cal/mol)	Normal boiling point, T_B (^oK)	Critical temperature, T_C (^oK)	Unit risk factor, URF ($\mu g/m^3)^{-1}$	Reference conc., RfC (mg/m^3)	Molecular weight, MW (g/mol)
1.26E-01	6.50E-06	8.80E-03	25	5,115	249.00	416.25	1.0E-06	9.0E-02	50.49

END

INTERMEDIATE CALCULATIONS SHEET

Source-building separation, L_T (cm)	Vadose zone soil air-filled porosity, θ_a^V (cm^3/cm^3)	Vadose zone effective total fluid saturation, S_{te} (cm^3/cm^3)	Vadose zone soil intrinsic permeability, k_i (cm^2)	Vadose zone soil relative air permeability, k_{rg} (cm^2)	Vadose zone soil effective vapor permeability, k_v (cm^2)	Floor-wall seam perimeter, X_{crack} (cm)	Soil gas conc. ($\mu g/m^3$)	Bldg. ventilation rate, $Q_{building}$ (cm^3/s)
289.8	0.321	0.003	1.01E-07	0.998	1.01E-07	4,000	3.71E+01	1.69E+04

Area of enclosed space below grade, A_B (cm^2)	Crack-to-total area ratio, η (unitless)	Crack depth below grade, Z_{crack} (cm)	Enthalpy of vaporization at ave. soil temperature, $\Delta H_{v,TS}$ (cal/mol)	Henry's law constant at ave. soil temperature, H_{TS} (atm-m^3/mol)	Henry's law constant at ave. soil temperature, H'_{TS} (unitless)	Vapor viscosity at ave. soil temperature, μ_{TS} (g/cm-s)	Vadose zone effective diffusion coefficient, D^{eff}_V (cm^2/s)	Diffusion path length, L_d (cm)
1.00E+06	4.00E-04	15	4,640	7.49E-03	3.12E-01	1.78E-04	2.04E-02	289.8

Convection path length, L_p (cm)	Source vapor conc., C_{source} ($\mu g/m^3$)	Crack radius, r_{crack} (cm)	Average vapor flow rate into bldg., Q_{soil} (cm^3/s)	Crack effective diffusion coefficient, D^{crack} (cm^2/s)	Area of crack, A_{crack} (cm^2)	Exponent of equivalent foundation Peclet number, $exp(Pe^f)$ (unitless)	Infinite source indoor attenuation coefficient, α (unitless)	Infinite source bldg. conc., $C_{building}$ ($\mu g/m^3$)
15	3.71E+01	0.10	8.33E+01	2.04E-02	4.00E+02	2.63E+44	2.25E-03	8.35E-02

Unit risk factor, URF ($\mu g/m^3)^{-1}$	Reference conc., RfC (mg/m^3)
1.0E-06	9.0E-02

END

RESULTS SHEET

INCREMENTAL RISK CALCULATIONS:

Incremental risk from vapor intrusion to indoor air, carcinogen (unitless)	Hazard quotient from vapor intrusion to indoor air, noncarcinogen (unitless)
3.4E-08	8.9E-04

MESSAGE SUMMARY BELOW:

END

SG-SCREEN
Version 3.1; 02/04

Reset to Defaults

Soil Gas Concentration Data

ENTER Chemical CAS No. (numbers only, no dashes)	ENTER Soil gas conc., C_g ($\mu g/m^3$)	OR	ENTER Soil gas conc., C_g (ppmv)	Chemical
74873	5.70E-02			Methyl chloride (chloromethane)

MORE ↓

ENTER Depth below grade to bottom of enclosed space floor, L_F (15 or 200 cm)	ENTER Soil gas sampling depth below grade, L_s (cm)	ENTER Average soil temperature, T_S (^oC)	ENTER Vadose zone SCS soil type (used to estimate soil vapor permeability)	OR	ENTER User-defined vadose zone soil vapor permeability, k_v (cm^2)
15	304.8	19	S		

MORE ↓

ENTER Vandose zone SCS soil type (Lookup Soil Parameters)	ENTER Vadose zone soil dry bulk density, ρ_b^A (g/cm^3)	ENTER Vadose zone soil total porosity, n^V (unitless)	ENTER Vadose zone soil water-filled porosity, θ_w^V (cm^3/cm^3)	ENTER Average vapor flow rate into bldg. (Leave blank to calculate) Q_{soil} (L/m)
S	1.66	0.375	0.054	5

MORE ↓

ENTER Averaging time for carcinogens, AT_C (yrs)	ENTER Averaging time for noncarcinogens, AT_{NC} (yrs)	ENTER Exposure duration, ED (yrs)	ENTER Exposure frequency, EF (days/yr)
70	30	30	350

END

CHEMICAL PROPERTIES SHEET

Diffusivity in air, D_a (cm^2/s)	Diffusivity in water, D_w (cm^2/s)	Henry's law constant at reference temperature, H (atm-m^3/mol)	Henry's law constant reference temperature, T_R (^oC)	Enthalpy of vaporization at the normal boiling point, $\Delta H_{v,b}$ (cal/mol)	Normal boiling point, T_B (^oK)	Critical temperature, T_C (^oK)	Unit risk factor, URF ($\mu g/m^3)^{-1}$	Reference conc., RfC (mg/m^3)	Molecular weight, MW (g/mol)
1.26E-01	6.50E-06	8.80E-03	25	5,115	249.00	416.25	1.0E-06	9.0E-02	50.49

END

INTERMEDIATE CALCULATIONS SHEET

Source-building separation, L_T (cm)	Vadose zone soil air-filled porosity, θ_a^V (cm^3/cm^3)	Vadose zone effective total fluid saturation, S_{te} (cm^3/cm^3)	Vadose zone soil intrinsic permeability, k_i (cm^2)	Vadose zone soil relative air permeability, k_{rg} (cm^2)	Vadose zone soil effective vapor permeability, k_v (cm^2)	Floor-wall seam perimeter, X_{crack} (cm)	Soil gas conc. ($\mu g/m^3$)	Bldg. ventilation rate, $Q_{building}$ (cm^3/s)
289.8	0.321	0.003	1.01E-07	0.998	1.01E-07	4,000	5.70E-02	1.69E+04

Area of enclosed space below grade, A_B (cm^2)	Crack-to-total area ratio, η (unitless)	Crack depth below grade, Z_{crack} (cm)	Enthalpy of vaporization at ave. soil temperature, $\Delta H_{v,TS}$ (cal/mol)	Henry's law constant at ave. soil temperature, H_{TS} (atm-m^3/mol)	Henry's law constant at ave. soil temperature, H'_{TS} (unitless)	Vapor viscosity at ave. soil temperature, μ_{TS} (g/cm-s)	Vadose zone effective diffusion coefficient, D^{eff}_V (cm^2/s)	Diffusion path length, L_d (cm)
1.00E+06	4.00E-04	15	4,640	7.49E-03	3.12E-01	1.78E-04	2.04E-02	289.8

Convection path length, L_p (cm)	Source vapor conc., C_{source} ($\mu g/m^3$)	Crack radius, r_{crack} (cm)	Average vapor flow rate into bldg., Q_{soil} (cm^3/s)	Crack effective diffusion coefficient, D^{crack} (cm^2/s)	Area of crack, A_{crack} (cm^2)	Exponent of equivalent foundation Peclet number, $exp(Pe^f)$ (unitless)	Infinite source indoor attenuation coefficient, α (unitless)	Infinite source bldg. conc., $C_{building}$ ($\mu g/m^3$)
15	5.70E-02	0.10	8.33E+01	2.04E-02	4.00E+02	2.63E+44	2.25E-03	1.28E-04

Unit risk factor, URF ($\mu g/m^3)^{-1}$	Reference conc., RfC (mg/m^3)
1.0E-06	9.0E-02

END

RESULTS SHEET

INCREMENTAL RISK CALCULATIONS:

Incremental risk from vapor intrusion to indoor air, carcinogen (unitless)	Hazard quotient from vapor intrusion to indoor air, noncarcinogen (unitless)
5.3E-11	1.4E-06

MESSAGE SUMMARY BELOW:

END

SG-SCREEN
Version 3.1; 02/04

Reset to Defaults

Soil Gas Concentration Data

ENTER Chemical CAS No. (numbers only, no dashes)	ENTER Soil gas conc., C_g ($\mu g/m^3$)	OR	ENTER Soil gas conc., C_g (ppmv)	Chemical
127184	3.11E+01			Tetrachloroethylene

MORE ↓

ENTER Depth below grade to bottom of enclosed space floor, L_F (15 or 200 cm)	ENTER Soil gas sampling depth below grade, L_s (cm)	ENTER Average soil temperature, T_S (^oC)	ENTER Vadose zone SCS soil type (used to estimate soil vapor permeability)	OR	ENTER User-defined vadose zone soil vapor permeability, k_v (cm^2)
15	304.8	19	S		

MORE ↓

ENTER Vandose zone SCS soil type (Lookup Soil Parameters)	ENTER Vadose zone soil dry bulk density, ρ_b^A (g/cm^3)	ENTER Vadose zone soil total porosity, n^V (unitless)	ENTER Vadose zone soil water-filled porosity, θ_w^V (cm^3/cm^3)	ENTER Average vapor flow rate into bldg. (Leave blank to calculate) Q_{soil} (L/m)
S	1.66	0.375	0.054	5

MORE ↓

ENTER Averaging time for carcinogens, AT_C (yrs)	ENTER Averaging time for noncarcinogens, AT_{NC} (yrs)	ENTER Exposure duration, ED (yrs)	ENTER Exposure frequency, EF (days/yr)
70	30	30	350

END

CHEMICAL PROPERTIES SHEET

Diffusivity in air, D_a (cm^2/s)	Diffusivity in water, D_w (cm^2/s)	Henry's law constant at reference temperature, H (atm-m^3/mol)	Henry's law constant reference temperature, T_R (^oC)	Enthalpy of vaporization at the normal boiling point, $\Delta H_{v,b}$ (cal/mol)	Normal boiling point, T_B (^oK)	Critical temperature, T_C (^oK)	Unit risk factor, URF ($\mu g/m^3)^{-1}$	Reference conc., RfC (mg/m^3)	Molecular weight, MW (g/mol)
7.20E-02	8.20E-06	1.84E-02	25	8,288	394.40	620.20	5.9E-06	6.0E-01	165.83

END

INTERMEDIATE CALCULATIONS SHEET

Source-building separation, L_T (cm)	Vadose zone soil air-filled porosity, θ_a^V (cm^3/cm^3)	Vadose zone effective total fluid saturation, S_{te} (cm^3/cm^3)	Vadose zone soil intrinsic permeability, k_i (cm^2)	Vadose zone soil relative air permeability, k_{rg} (cm^2)	Vadose zone soil effective vapor permeability, k_v (cm^2)	Floor-wall seam perimeter, X_{crack} (cm)	Soil gas conc. ($\mu g/m^3$)	Bldg. ventilation rate, $Q_{building}$ (cm^3/s)
289.8	0.321	0.003	1.01E-07	0.998	1.01E-07	4,000	3.11E+01	1.69E+04

Area of enclosed space below grade, A_B (cm^2)	Crack-to-total area ratio, η (unitless)	Crack depth below grade, Z_{crack} (cm)	Enthalpy of vaporization at ave. soil temperature, $\Delta H_{v,TS}$ (cal/mol)	Henry's law constant at ave. soil temperature, H_{TS} (atm-m^3/mol)	Henry's law constant at ave. soil temperature, H'_{TS} (unitless)	Vapor viscosity at ave. soil temperature, μ_{TS} (g/cm-s)	Vadose zone effective diffusion coefficient, D^{eff}_V (cm^2/s)	Diffusion path length, L_d (cm)
1.00E+06	4.00E-04	15	9,462	1.32E-02	5.52E-01	1.78E-04	1.16E-02	289.8

Convection path length, L_p (cm)	Source vapor conc., C_{source} ($\mu g/m^3$)	Crack radius, r_{crack} (cm)	Average vapor flow rate into bldg., Q_{soil} (cm^3/s)	Crack effective diffusion coefficient, D^{crack} (cm^2/s)	Area of crack, A_{crack} (cm^2)	Exponent of equivalent foundation Peclet number, $exp(Pe^f)$ (unitless)	Infinite source indoor attenuation coefficient, α (unitless)	Infinite source bldg. conc., $C_{building}$ ($\mu g/m^3$)
15	3.11E+01	0.10	8.33E+01	1.16E-02	4.00E+02	5.42E+77	1.60E-03	4.97E-02

Unit risk factor, URF ($\mu g/m^3)^{-1}$	Reference conc., RfC (mg/m^3)
5.9E-06	6.0E-01

END

RESULTS SHEET

INCREMENTAL RISK CALCULATIONS:

Incremental risk from vapor intrusion to indoor air, carcinogen (unitless)	Hazard quotient from vapor intrusion to indoor air, noncarcinogen (unitless)
1.2E-07	7.9E-05

MESSAGE SUMMARY BELOW:

END

SG-SCREEN
Version 3.1; 02/04

Reset to Defaults

Soil Gas Concentration Data

ENTER Chemical CAS No. (numbers only, no dashes)	ENTER Soil gas conc., C_g ($\mu g/m^3$)	OR	ENTER Soil gas conc., C_g (ppmv)	Chemical
127184	3.40E-01			Tetrachloroethylene

MORE ↓

ENTER Depth below grade to bottom of enclosed space floor, L_F (15 or 200 cm)	ENTER Soil gas sampling depth below grade, L_s (cm)	ENTER Average soil temperature, T_S (^oC)	ENTER Vadose zone SCS soil type (used to estimate soil vapor permeability)	OR	ENTER User-defined vadose zone soil vapor permeability, k_v (cm^2)
15	304.8	19	S		

MORE ↓

ENTER Vandose zone SCS soil type (Lookup Soil Parameters)	ENTER Vadose zone soil dry bulk density, ρ_b^A (g/cm^3)	ENTER Vadose zone soil total porosity, n^V (unitless)	ENTER Vadose zone soil water-filled porosity, θ_w^V (cm^3/cm^3)	ENTER Average vapor flow rate into bldg. (Leave blank to calculate) Q_{soil} (L/m)
S	1.66	0.375	0.054	5

MORE ↓

ENTER Averaging time for carcinogens, AT_C (yrs)	ENTER Averaging time for noncarcinogens, AT_{NC} (yrs)	ENTER Exposure duration, ED (yrs)	ENTER Exposure frequency, EF (days/yr)
70	30	30	350

END

CHEMICAL PROPERTIES SHEET

Diffusivity in air, D_a (cm^2/s)	Diffusivity in water, D_w (cm^2/s)	Henry's law constant at reference temperature, H (atm-m^3/mol)	Henry's law constant reference temperature, T_R (^oC)	Enthalpy of vaporization at the normal boiling point, $\Delta H_{v,b}$ (cal/mol)	Normal boiling point, T_B (^oK)	Critical temperature, T_C (^oK)	Unit risk factor, URF ($\mu g/m^3)^{-1}$	Reference conc., RfC (mg/m^3)	Molecular weight, MW (g/mol)
7.20E-02	8.20E-06	1.84E-02	25	8,288	394.40	620.20	5.9E-06	6.0E-01	165.83

END

INTERMEDIATE CALCULATIONS SHEET

Source-building separation, L_T (cm)	Vadose zone soil air-filled porosity, θ_a^V (cm^3/cm^3)	Vadose zone effective total fluid saturation, S_{te} (cm^3/cm^3)	Vadose zone soil intrinsic permeability, k_i (cm^2)	Vadose zone soil relative air permeability, k_{rg} (cm^2)	Vadose zone soil effective vapor permeability, k_v (cm^2)	Floor-wall seam perimeter, X_{crack} (cm)	Soil gas conc. ($\mu g/m^3$)	Bldg. ventilation rate, $Q_{building}$ (cm^3/s)
289.8	0.321	0.003	1.01E-07	0.998	1.01E-07	4,000	3.40E-01	1.69E+04

Area of enclosed space below grade, A_B (cm^2)	Crack-to-total area ratio, η (unitless)	Crack depth below grade, Z_{crack} (cm)	Enthalpy of vaporization at ave. soil temperature, $\Delta H_{v,TS}$ (cal/mol)	Henry's law constant at ave. soil temperature, H_{TS} (atm-m^3/mol)	Henry's law constant at ave. soil temperature, H'_{TS} (unitless)	Vapor viscosity at ave. soil temperature, μ_{TS} (g/cm-s)	Vadose zone effective diffusion coefficient, D^{eff}_V (cm^2/s)	Diffusion path length, L_d (cm)
1.00E+06	4.00E-04	15	9,462	1.32E-02	5.52E-01	1.78E-04	1.16E-02	289.8

Convection path length, L_p (cm)	Source vapor conc., C_{source} ($\mu g/m^3$)	Crack radius, r_{crack} (cm)	Average vapor flow rate into bldg., Q_{soil} (cm^3/s)	Crack effective diffusion coefficient, D^{crack} (cm^2/s)	Area of crack, A_{crack} (cm^2)	Exponent of equivalent foundation Peclet number, $exp(Pe^f)$ (unitless)	Infinite source indoor attenuation coefficient, α (unitless)	Infinite source bldg. conc., $C_{building}$ ($\mu g/m^3$)
15	3.40E-01	0.10	8.33E+01	1.16E-02	4.00E+02	5.42E+77	1.60E-03	5.44E-04

Unit risk factor, URF ($\mu g/m^3)^{-1}$	Reference conc., RfC (mg/m^3)
5.9E-06	6.0E-01

END

RESULTS SHEET

INCREMENTAL RISK CALCULATIONS:

Incremental risk from vapor intrusion to indoor air, carcinogen (unitless)	Hazard quotient from vapor intrusion to indoor air, noncarcinogen (unitless)
1.3E-09	8.7E-07

MESSAGE SUMMARY BELOW:

END

SG-SCREEN
Version 3.1; 02/04

Reset to Defaults

Soil Gas Concentration Data

ENTER Chemical CAS No. (numbers only, no dashes)	ENTER Soil gas conc., C_g ($\mu g/m^3$)	OR	ENTER Soil gas conc., C_g (ppmv)	Chemical
127184	5.80E+00			Tetrachloroethylene

MORE ↓

ENTER Depth below grade to bottom of enclosed space floor, L_F (15 or 200 cm)	ENTER Soil gas sampling depth below grade, L_s (cm)	ENTER Average soil temperature, T_S (^oC)	ENTER Vadose zone SCS soil type (used to estimate soil vapor permeability)	OR	ENTER User-defined vadose zone soil vapor permeability, k_v (cm^2)
15	304.8	19	S		

MORE ↓

ENTER Vandose zone SCS soil type (Lookup Soil Parameters)	ENTER Vadose zone soil dry bulk density, ρ_b^A (g/cm^3)	ENTER Vadose zone soil total porosity, n^V (unitless)	ENTER Vadose zone soil water-filled porosity, θ_w^V (cm^3/cm^3)	ENTER Average vapor flow rate into bldg. (Leave blank to calculate) Q_{soil} (L/m)
S	1.66	0.375	0.054	5

MORE ↓

ENTER Averaging time for carcinogens, AT_C (yrs)	ENTER Averaging time for noncarcinogens, AT_{NC} (yrs)	ENTER Exposure duration, ED (yrs)	ENTER Exposure frequency, EF (days/yr)
70	30	30	350

END

CHEMICAL PROPERTIES SHEET

Diffusivity in air, D_a (cm^2/s)	Diffusivity in water, D_w (cm^2/s)	Henry's law constant at reference temperature, H (atm-m^3/mol)	Henry's law constant reference temperature, T_R (^oC)	Enthalpy of vaporization at the normal boiling point, $\Delta H_{v,b}$ (cal/mol)	Normal boiling point, T_B (^oK)	Critical temperature, T_C (^oK)	Unit risk factor, URF ($\mu g/m^3)^{-1}$	Reference conc., RfC (mg/m^3)	Molecular weight, MW (g/mol)
7.20E-02	8.20E-06	1.84E-02	25	8,288	394.40	620.20	5.9E-06	6.0E-01	165.83

END

INTERMEDIATE CALCULATIONS SHEET

Source-building separation, L_T (cm)	Vadose zone soil air-filled porosity, θ_a^V (cm^3/cm^3)	Vadose zone effective total fluid saturation, S_{te} (cm^3/cm^3)	Vadose zone soil intrinsic permeability, k_i (cm^2)	Vadose zone soil relative air permeability, k_{rg} (cm^2)	Vadose zone soil effective vapor permeability, k_v (cm^2)	Floor-wall seam perimeter, X_{crack} (cm)	Soil gas conc. ($\mu g/m^3$)	Bldg. ventilation rate, $Q_{building}$ (cm^3/s)
289.8	0.321	0.003	1.01E-07	0.998	1.01E-07	4,000	5.80E+00	1.69E+04

Area of enclosed space below grade, A_B (cm^2)	Crack-to-total area ratio, η (unitless)	Crack depth below grade, Z_{crack} (cm)	Enthalpy of vaporization at ave. soil temperature, $\Delta H_{v,TS}$ (cal/mol)	Henry's law constant at ave. soil temperature, H_{TS} (atm-m^3/mol)	Henry's law constant at ave. soil temperature, H'_{TS} (unitless)	Vapor viscosity at ave. soil temperature, μ_{TS} (g/cm-s)	Vadose zone effective diffusion coefficient, D^{eff}_V (cm^2/s)	Diffusion path length, L_d (cm)
1.00E+06	4.00E-04	15	9,462	1.32E-02	5.52E-01	1.78E-04	1.16E-02	289.8

Convection path length, L_p (cm)	Source vapor conc., C_{source} ($\mu g/m^3$)	Crack radius, r_{crack} (cm)	Average vapor flow rate into bldg., Q_{soil} (cm^3/s)	Crack effective diffusion coefficient, D^{crack} (cm^2/s)	Area of crack, A_{crack} (cm^2)	Exponent of equivalent foundation Peclet number, $exp(Pe^f)$ (unitless)	Infinite source indoor attenuation coefficient, α (unitless)	Infinite source bldg. conc., $C_{building}$ ($\mu g/m^3$)
15	5.80E+00	0.10	8.33E+01	1.16E-02	4.00E+02	5.42E+77	1.60E-03	9.28E-03

Unit risk factor, URF ($\mu g/m^3)^{-1}$	Reference conc., RfC (mg/m^3)
5.9E-06	6.0E-01

END

RESULTS SHEET

INCREMENTAL RISK CALCULATIONS:

Incremental risk from vapor intrusion to indoor air, carcinogen (unitless)	Hazard quotient from vapor intrusion to indoor air, noncarcinogen (unitless)
2.2E-08	1.5E-05

MESSAGE SUMMARY BELOW:

END

SG-SCREEN
Version 3.1; 02/04

Reset to Defaults

Soil Gas Concentration Data

ENTER Chemical CAS No. (numbers only, no dashes)	ENTER Soil gas conc., C_g ($\mu g/m^3$)	OR	ENTER Soil gas conc., C_g (ppmv)	Chemical
156592	3.36E+01			cis-1,2-Dichloroethylene

MORE ↓

ENTER Depth below grade to bottom of enclosed space floor, L_F (15 or 200 cm)	ENTER Soil gas sampling depth below grade, L_s (cm)	ENTER Average soil temperature, T_S (^oC)	ENTER Vadose zone SCS soil type (used to estimate soil vapor permeability)	OR	ENTER User-defined vadose zone soil vapor permeability, k_v (cm^2)
15	548.64	19	S		

MORE ↓

ENTER Vandose zone SCS soil type (Lookup Soil Parameters)	ENTER Vadose zone soil dry bulk density, ρ_b^A (g/cm^3)	ENTER Vadose zone soil total porosity, n^V (unitless)	ENTER Vadose zone soil water-filled porosity, θ_w^V (cm^3/cm^3)	ENTER Average vapor flow rate into bldg. (Leave blank to calculate) Q_{soil} (L/m)
S	1.66	0.375	0.054	5

MORE ↓

ENTER Averaging time for carcinogens, AT_C (yrs)	ENTER Averaging time for noncarcinogens, AT_{NC} (yrs)	ENTER Exposure duration, ED (yrs)	ENTER Exposure frequency, EF (days/yr)
70	25	25	250

END

CHEMICAL PROPERTIES SHEET

Diffusivity in air, D_a (cm^2/s)	Diffusivity in water, D_w (cm^2/s)	Henry's law constant at reference temperature, H (atm-m^3/mol)	Henry's law constant reference temperature, T_R (^oC)	Enthalpy of vaporization at the normal boiling point, $\Delta H_{v,b}$ (cal/mol)	Normal boiling point, T_B (^oK)	Critical temperature, T_C (^oK)	Unit risk factor, URF ($\mu g/m^3)^{-1}$	Reference conc., RfC (mg/m^3)	Molecular weight, MW (g/mol)
7.36E-02	1.13E-05	4.07E-03	25	7,192	333.65	544.00	0.0E+00	3.5E-02	96.94

END

INTERMEDIATE CALCULATIONS SHEET

Source-building separation, L_T (cm)	Vadose zone soil air-filled porosity, θ_a^V (cm^3/cm^3)	Vadose zone effective total fluid saturation, S_{te} (cm^3/cm^3)	Vadose zone soil intrinsic permeability, k_i (cm^2)	Vadose zone soil relative air permeability, k_{rg} (cm^2)	Vadose zone soil effective vapor permeability, k_v (cm^2)	Floor-wall seam perimeter, X_{crack} (cm)	Soil gas conc. ($\mu g/m^3$)	Bldg. ventilation rate, $Q_{building}$ (cm^3/s)
533.64	0.321	0.003	1.01E-07	0.998	1.01E-07	4,000	3.36E+01	1.69E+04

Area of enclosed space below grade, A_B (cm^2)	Crack-to-total area ratio, η (unitless)	Crack depth below grade, Z_{crack} (cm)	Enthalpy of vaporization at ave. soil temperature, $\Delta H_{v,TS}$ (cal/mol)	Henry's law constant at ave. soil temperature, H_{TS} (atm-m^3/mol)	Henry's law constant at ave. soil temperature, H'_{TS} (unitless)	Vapor viscosity at ave. soil temperature, μ_{TS} (g/cm-s)	Vadose zone effective diffusion coefficient, D^{eff}_V (cm^2/s)	Diffusion path length, L_d (cm)
1.00E+06	4.00E-04	15	7,643	3.12E-03	1.30E-01	1.78E-04	1.19E-02	533.64

Convection path length, L_p (cm)	Source vapor conc., C_{source} ($\mu g/m^3$)	Crack radius, r_{crack} (cm)	Average vapor flow rate into bldg., Q_{soil} (cm^3/s)	Crack effective diffusion coefficient, D^{crack} (cm^2/s)	Area of crack, A_{crack} (cm^2)	Exponent of equivalent foundation Peclet number, $exp(Pe^f)$ (unitless)	Infinite source indoor attenuation coefficient, α (unitless)	Infinite source bldg. conc., $C_{building}$ ($\mu g/m^3$)
15	3.36E+01	0.10	8.33E+01	1.19E-02	4.00E+02	1.11E+76	1.04E-03	3.49E-02

Unit risk factor, URF $(\mu g/m^3)^{-1}$	Reference conc., RfC (mg/m^3)
NA	3.5E-02

END

RESULTS SHEET

INCREMENTAL RISK CALCULATIONS:

Incremental risk from vapor intrusion to indoor air, carcinogen (unitless)	Hazard quotient from vapor intrusion to indoor air, noncarcinogen (unitless)
NA	6.8E-04

MESSAGE SUMMARY BELOW:

MESSAGE: Risk/HQ or risk-based soil concentration is based on a route-to-route extrapolation.

END

SG-SCREEN
Version 3.1; 02/04

Reset to Defaults

Soil Gas Concentration Data

ENTER Chemical CAS No. (numbers only, no dashes)	ENTER Soil gas conc., C_g ($\mu g/m^3$)	OR	ENTER Soil gas conc., C_g (ppmv)	Chemical
156592	2.73E+02			cis-1,2-Dichloroethylene

MORE ↓

ENTER Depth below grade to bottom of enclosed space floor, L_F (15 or 200 cm)	ENTER Soil gas sampling depth below grade, L_s (cm)	ENTER Average soil temperature, T_S (^oC)	ENTER Vadose zone SCS soil type (used to estimate soil vapor permeability)	OR	ENTER User-defined vadose zone soil vapor permeability, k_v (cm^2)
15	335.28	19	S		

MORE ↓

ENTER Vandose zone SCS soil type (Lookup Soil Parameters)	ENTER Vadose zone soil dry bulk density, ρ_b^A (g/cm^3)	ENTER Vadose zone soil total porosity, n^V (unitless)	ENTER Vadose zone soil water-filled porosity, θ_w^V (cm^3/cm^3)	ENTER Average vapor flow rate into bldg. (Leave blank to calculate) Q_{soil} (L/m)
S	1.66	0.375	0.054	5

MORE ↓

ENTER Averaging time for carcinogens, AT_C (yrs)	ENTER Averaging time for noncarcinogens, AT_{NC} (yrs)	ENTER Exposure duration, ED (yrs)	ENTER Exposure frequency, EF (days/yr)
70	25	25	250

END

CHEMICAL PROPERTIES SHEET

Diffusivity in air, D_a (cm^2/s)	Diffusivity in water, D_w (cm^2/s)	Henry's law constant at reference temperature, H (atm-m^3/mol)	Henry's law constant reference temperature, T_R (^oC)	Enthalpy of vaporization at the normal boiling point, $\Delta H_{v,b}$ (cal/mol)	Normal boiling point, T_B (^oK)	Critical temperature, T_C (^oK)	Unit risk factor, URF ($\mu g/m^3)^{-1}$	Reference conc., RfC (mg/m^3)	Molecular weight, MW (g/mol)
7.36E-02	1.13E-05	4.07E-03	25	7,192	333.65	544.00	0.0E+00	3.5E-02	96.94

END

INTERMEDIATE CALCULATIONS SHEET

Source-building separation, L_T (cm)	Vadose zone soil air-filled porosity, θ_a^V (cm^3/cm^3)	Vadose zone effective total fluid saturation, S_{te} (cm^3/cm^3)	Vadose zone soil intrinsic permeability, k_i (cm^2)	Vadose zone soil relative air permeability, k_{rg} (cm^2)	Vadose zone soil effective vapor permeability, k_v (cm^2)	Floor-wall seam perimeter, X_{crack} (cm)	Soil gas conc. ($\mu g/m^3$)	Bldg. ventilation rate, $Q_{building}$ (cm^3/s)
320.28	0.321	0.003	1.01E-07	0.998	1.01E-07	4,000	2.73E+02	1.69E+04

Area of enclosed space below grade, A_B (cm^2)	Crack-to-total area ratio, η (unitless)	Crack depth below grade, Z_{crack} (cm)	Enthalpy of vaporization at ave. soil temperature, $\Delta H_{v,TS}$ (cal/mol)	Henry's law constant at ave. soil temperature, H_{TS} (atm-m^3/mol)	Henry's law constant at ave. soil temperature, H'_{TS} (unitless)	Vapor viscosity at ave. soil temperature, μ_{TS} (g/cm-s)	Vadose zone effective diffusion coefficient, D^{eff}_V (cm^2/s)	Diffusion path length, L_d (cm)
1.00E+06	4.00E-04	15	7,643	3.12E-03	1.30E-01	1.78E-04	1.19E-02	320.28

Convection path length, L_p (cm)	Source vapor conc., C_{source} ($\mu g/m^3$)	Crack radius, r_{crack} (cm)	Average vapor flow rate into bldg., Q_{soil} (cm^3/s)	Crack effective diffusion coefficient, D^{crack} (cm^2/s)	Area of crack, A_{crack} (cm^2)	Exponent of equivalent foundation Peclet number, $exp(Pe^f)$ (unitless)	Infinite source indoor attenuation coefficient, α (unitless)	Infinite source bldg. conc., $C_{building}$ ($\mu g/m^3$)
15	2.73E+02	0.10	8.33E+01	1.19E-02	4.00E+02	1.11E+76	1.52E-03	4.14E-01

Unit risk factor, URF $(\mu g/m^3)^{-1}$	Reference conc., RfC (mg/m^3)
NA	3.5E-02

END

RESULTS SHEET

INCREMENTAL RISK CALCULATIONS:

Incremental risk from vapor intrusion to indoor air, carcinogen (unitless)	Hazard quotient from vapor intrusion to indoor air, noncarcinogen (unitless)
NA	8.1E-03

MESSAGE SUMMARY BELOW:

MESSAGE: Risk/HQ or risk-based soil concentration is based on a route-to-route extrapolation.

END

SG-SCREEN
Version 3.1; 02/04

Reset to Defaults

Soil Gas Concentration Data

ENTER Chemical CAS No. (numbers only, no dashes)	ENTER Soil gas conc., C_g ($\mu g/m^3$)	OR	ENTER Soil gas conc., C_g (ppmv)	Chemical
156592	1.90E-01			cis-1,2-Dichloroethylene

MORE ↓

ENTER Depth below grade to bottom of enclosed space floor, L_F (15 or 200 cm)	ENTER Soil gas sampling depth below grade, L_s (cm)	ENTER Average soil temperature, T_S (^oC)	ENTER Vadose zone SCS soil type (used to estimate soil vapor permeability)	OR	ENTER User-defined vadose zone soil vapor permeability, k_v (cm^2)
15	274.32	19	S		

MORE ↓

ENTER Vandose zone SCS soil type (Lookup Soil Parameters)	ENTER Vadose zone soil dry bulk density, ρ_b^A (g/cm^3)	ENTER Vadose zone soil total porosity, n^V (unitless)	ENTER Vadose zone soil water-filled porosity, θ_w^V (cm^3/cm^3)	ENTER Average vapor flow rate into bldg. (Leave blank to calculate) Q_{soil} (L/m)
S	1.66	0.375	0.054	5

MORE ↓

ENTER Averaging time for carcinogens, AT_C (yrs)	ENTER Averaging time for noncarcinogens, AT_{NC} (yrs)	ENTER Exposure duration, ED (yrs)	ENTER Exposure frequency, EF (days/yr)
70	25	25	250

END

CHEMICAL PROPERTIES SHEET

Diffusivity in air, D_a (cm^2/s)	Diffusivity in water, D_w (cm^2/s)	Henry's law constant at reference temperature, H (atm-m^3/mol)	Henry's law constant reference temperature, T_R (^oC)	Enthalpy of vaporization at the normal boiling point, $\Delta H_{v,b}$ (cal/mol)	Normal boiling point, T_B (^oK)	Critical temperature, T_C (^oK)	Unit risk factor, URF ($\mu g/m^3)^{-1}$	Reference conc., RfC (mg/m^3)	Molecular weight, MW (g/mol)
7.36E-02	1.13E-05	4.07E-03	25	7,192	333.65	544.00	0.0E+00	3.5E-02	96.94

END

INTERMEDIATE CALCULATIONS SHEET

Source-building separation, L_T (cm)	Vadose zone soil air-filled porosity, θ_a^V (cm^3/cm^3)	Vadose zone effective total fluid saturation, S_{te} (cm^3/cm^3)	Vadose zone soil intrinsic permeability, k_i (cm^2)	Vadose zone soil relative air permeability, k_{rg} (cm^2)	Vadose zone soil effective vapor permeability, k_v (cm^2)	Floor-wall seam perimeter, X_{crack} (cm)	Soil gas conc. ($\mu g/m^3$)	Bldg. ventilation rate, $Q_{building}$ (cm^3/s)
259.32	0.321	0.003	1.01E-07	0.998	1.01E-07	4,000	1.90E-01	1.69E+04

Area of enclosed space below grade, A_B (cm^2)	Crack-to-total area ratio, η (unitless)	Crack depth below grade, Z_{crack} (cm)	Enthalpy of vaporization at ave. soil temperature, $\Delta H_{v,TS}$ (cal/mol)	Henry's law constant at ave. soil temperature, H_{TS} (atm-m^3/mol)	Henry's law constant at ave. soil temperature, H'_{TS} (unitless)	Vapor viscosity at ave. soil temperature, μ_{TS} (g/cm-s)	Vadose zone effective diffusion coefficient, D^{eff}_V (cm^2/s)	Diffusion path length, L_d (cm)
1.00E+06	4.00E-04	15	7,643	3.12E-03	1.30E-01	1.78E-04	1.19E-02	259.32

Convection path length, L_p (cm)	Source vapor conc., C_{source} ($\mu g/m^3$)	Crack radius, r_{crack} (cm)	Average vapor flow rate into bldg., Q_{soil} (cm^3/s)	Crack effective diffusion coefficient, D^{crack} (cm^2/s)	Area of crack, A_{crack} (cm^2)	Exponent of equivalent foundation Peclet number, $exp(Pe^f)$ (unitless)	Infinite source indoor attenuation coefficient, α (unitless)	Infinite source bldg. conc., $C_{building}$ ($\mu g/m^3$)
15	1.90E-01	0.10	8.33E+01	1.19E-02	4.00E+02	1.11E+76	1.75E-03	3.32E-04

Unit risk factor, URF $(\mu g/m^3)^{-1}$	Reference conc., RfC (mg/m^3)
NA	3.5E-02

END

RESULTS SHEET

INCREMENTAL RISK CALCULATIONS:

Incremental risk from vapor intrusion to indoor air, carcinogen (unitless)	Hazard quotient from vapor intrusion to indoor air, noncarcinogen (unitless)
NA	6.5E-06

MESSAGE SUMMARY BELOW:

MESSAGE: Risk/HQ or risk-based soil concentration is based on a route-to-route extrapolation.

END

SG-SCREEN
Version 3.1; 02/04

Reset to Defaults

Soil Gas Concentration Data

ENTER Chemical CAS No. (numbers only, no dashes)	ENTER Soil gas conc., C_g ($\mu g/m^3$)	OR	ENTER Soil gas conc., C_g (ppmv)	Chemical
156592	7.51E+02			cis-1,2-Dichloroethylene

MORE ↓

ENTER Depth below grade to bottom of enclosed space floor, L_F (15 or 200 cm)	ENTER Soil gas sampling depth below grade, L_s (cm)	ENTER Average soil temperature, T_S (^oC)	ENTER Vadose zone SCS soil type (used to estimate soil vapor permeability)	OR	ENTER User-defined vadose zone soil vapor permeability, k_v (cm^2)
15	685.8	19	S		

MORE ↓

ENTER Vandose zone SCS soil type (Lookup Soil Parameters)	ENTER Vadose zone soil dry bulk density, ρ_b^A (g/cm^3)	ENTER Vadose zone soil total porosity, n^V (unitless)	ENTER Vadose zone soil water-filled porosity, θ_w^V (cm^3/cm^3)	ENTER Average vapor flow rate into bldg. (Leave blank to calculate) Q_{soil} (L/m)
S	1.66	0.375	0.054	5

MORE ↓

ENTER Averaging time for carcinogens, AT_C (yrs)	ENTER Averaging time for noncarcinogens, AT_{NC} (yrs)	ENTER Exposure duration, ED (yrs)	ENTER Exposure frequency, EF (days/yr)
70	25	25	250

END

CHEMICAL PROPERTIES SHEET

Diffusivity in air, D_a (cm^2/s)	Diffusivity in water, D_w (cm^2/s)	Henry's law constant at reference temperature, H (atm-m^3/mol)	Henry's law constant reference temperature, T_R (^oC)	Enthalpy of vaporization at the normal boiling point, $\Delta H_{v,b}$ (cal/mol)	Normal boiling point, T_B (^oK)	Critical temperature, T_C (^oK)	Unit risk factor, URF ($\mu g/m^3)^{-1}$	Reference conc., RfC (mg/m^3)	Molecular weight, MW (g/mol)
7.36E-02	1.13E-05	4.07E-03	25	7,192	333.65	544.00	0.0E+00	3.5E-02	96.94

END

INTERMEDIATE CALCULATIONS SHEET

Source-building separation, L_T (cm)	Vadose zone soil air-filled porosity, θ_a^V (cm^3/cm^3)	Vadose zone effective total fluid saturation, S_{te} (cm^3/cm^3)	Vadose zone soil intrinsic permeability, k_i (cm^2)	Vadose zone soil relative air permeability, k_{rg} (cm^2)	Vadose zone soil effective vapor permeability, k_v (cm^2)	Floor-wall seam perimeter, X_{crack} (cm)	Soil gas conc. ($\mu g/m^3$)	Bldg. ventilation rate, $Q_{building}$ (cm^3/s)
670.8	0.321	0.003	1.01E-07	0.998	1.01E-07	4,000	7.51E+02	1.69E+04

Area of enclosed space below grade, A_B (cm^2)	Crack-to-total area ratio, η (unitless)	Crack depth below grade, Z_{crack} (cm)	Enthalpy of vaporization at ave. soil temperature, $\Delta H_{v,TS}$ (cal/mol)	Henry's law constant at ave. soil temperature, H_{TS} (atm-m^3/mol)	Henry's law constant at ave. soil temperature, H'_{TS} (unitless)	Vapor viscosity at ave. soil temperature, μ_{TS} (g/cm-s)	Vadose zone effective diffusion coefficient, D^{eff}_V (cm^2/s)	Diffusion path length, L_d (cm)
1.00E+06	4.00E-04	15	7,643	3.12E-03	1.30E-01	1.78E-04	1.19E-02	670.8

Convection path length, L_p (cm)	Source vapor conc., C_{source} ($\mu g/m^3$)	Crack radius, r_{crack} (cm)	Average vapor flow rate into bldg., Q_{soil} (cm^3/s)	Crack effective diffusion coefficient, D^{crack} (cm^2/s)	Area of crack, A_{crack} (cm^2)	Exponent of equivalent foundation Peclet number, $exp(Pe^f)$ (unitless)	Infinite source indoor attenuation coefficient, α (unitless)	Infinite source bldg. conc., $C_{building}$ ($\mu g/m^3$)
15	7.51E+02	0.10	8.33E+01	1.19E-02	4.00E+02	1.11E+76	8.63E-04	6.48E-01

Unit risk factor, URF ($\mu g/m^3)^{-1}$	Reference conc., RfC (mg/m^3)
NA	3.5E-02

END

RESULTS SHEET

INCREMENTAL RISK CALCULATIONS:

Incremental risk from vapor intrusion to indoor air, carcinogen (unitless)	Hazard quotient from vapor intrusion to indoor air, noncarcinogen (unitless)
NA	1.3E-02

MESSAGE SUMMARY BELOW:

MESSAGE: Risk/HQ or risk-based soil concentration is based on a route-to-route extrapolation.

END

SG-SCREEN
Version 3.1; 02/04

Reset to Defaults

Soil Gas Concentration Data

ENTER Chemical CAS No. (numbers only, no dashes)	ENTER Soil gas conc., C_g ($\mu g/m^3$)	OR	ENTER Soil gas conc., C_g (ppmv)	Chemical
78875	2.50E+00			1,2-Dichloropropane

MORE ↓

ENTER Depth below grade to bottom of enclosed space floor, L_F (15 or 200 cm)	ENTER Soil gas sampling depth below grade, L_s (cm)	ENTER Average soil temperature, T_S (^oC)	ENTER Vadose zone SCS soil type (used to estimate soil vapor permeability)	OR	ENTER User-defined vadose zone soil vapor permeability, k_v (cm^2)
15	548.64	19	S		

MORE ↓

ENTER Vandose zone SCS soil type (Lookup Soil Parameters)	ENTER Vadose zone soil dry bulk density, ρ_b^A (g/cm^3)	ENTER Vadose zone soil total porosity, n^V (unitless)	ENTER Vadose zone soil water-filled porosity, θ_w^V (cm^3/cm^3)	ENTER Average vapor flow rate into bldg. (Leave blank to calculate) Q_{soil} (L/m)
S	1.66	0.375	0.054	5

MORE ↓

ENTER Averaging time for carcinogens, AT_C (yrs)	ENTER Averaging time for noncarcinogens, AT_{NC} (yrs)	ENTER Exposure duration, ED (yrs)	ENTER Exposure frequency, EF (days/yr)
70	25	25	250

END

CHEMICAL PROPERTIES SHEET

Diffusivity in air, D_a (cm^2/s)	Diffusivity in water, D_w (cm^2/s)	Henry's law constant at reference temperature, H (atm-m^3/mol)	Henry's law constant reference temperature, T_R (^oC)	Enthalpy of vaporization at the normal boiling point, $\Delta H_{v,b}$ (cal/mol)	Normal boiling point, T_B (^oK)	Critical temperature, T_C (^oK)	Unit risk factor, URF ($\mu g/m^3)^{-1}$	Reference conc., RfC (mg/m^3)	Molecular weight, MW (g/mol)
7.82E-02	8.73E-06	2.79E-03	25	7,590	369.52	572.00	1.9E-05	4.0E-03	112.99

END

INTERMEDIATE CALCULATIONS SHEET

Source-building separation, L_T (cm)	Vadose zone soil air-filled porosity, θ_a^V (cm^3/cm^3)	Vadose zone effective total fluid saturation, S_{te} (cm^3/cm^3)	Vadose zone soil intrinsic permeability, k_i (cm^2)	Vadose zone soil relative air permeability, k_{rg} (cm^2)	Vadose zone soil effective vapor permeability, k_v (cm^2)	Floor-wall seam perimeter, X_{crack} (cm)	Soil gas conc. ($\mu g/m^3$)	Bldg. ventilation rate, $Q_{building}$ (cm^3/s)
533.64	0.321	0.003	1.01E-07	0.998	1.01E-07	4,000	2.50E+00	1.69E+04

Area of enclosed space below grade, A_B (cm^2)	Crack-to-total area ratio, η (unitless)	Crack depth below grade, Z_{crack} (cm)	Enthalpy of vaporization at ave. soil temperature, $\Delta H_{v,TS}$ (cal/mol)	Henry's law constant at ave. soil temperature, H_{TS} (atm-m^3/mol)	Henry's law constant at ave. soil temperature, H'_{TS} (unitless)	Vapor viscosity at ave. soil temperature, μ_{TS} (g/cm-s)	Vadose zone effective diffusion coefficient, D^{eff}_V (cm^2/s)	Diffusion path length, L_d (cm)
1.00E+06	4.00E-04	15	8,533	2.08E-03	8.67E-02	1.78E-04	1.26E-02	533.64

Convection path length, L_p (cm)	Source vapor conc., C_{source} ($\mu g/m^3$)	Crack radius, r_{crack} (cm)	Average vapor flow rate into bldg., Q_{soil} (cm^3/s)	Crack effective diffusion coefficient, D^{crack} (cm^2/s)	Area of crack, A_{crack} (cm^2)	Exponent of equivalent foundation Peclet number, $exp(Pe^f)$ (unitless)	Infinite source indoor attenuation coefficient, α (unitless)	Infinite source bldg. conc., $C_{building}$ ($\mu g/m^3$)
15	2.50E+00	0.10	8.33E+01	1.26E-02	4.00E+02	3.72E+71	1.09E-03	2.72E-03

Unit risk factor, URF $(\mu g/m^3)^{-1}$	Reference conc., RfC (mg/m^3)
1.9E-05	4.0E-03

END

RESULTS SHEET

INCREMENTAL RISK CALCULATIONS:

Incremental risk from vapor intrusion to indoor air, carcinogen (unitless)	Hazard quotient from vapor intrusion to indoor air, noncarcinogen (unitless)
1.3E-08	4.7E-04

MESSAGE SUMMARY BELOW:

MESSAGE: Risk/HQ or risk-based soil concentration is based on a route-to-route extrapolation.

END

SG-SCREEN
Version 3.1; 02/04

Reset to Defaults

Soil Gas Concentration Data

ENTER Chemical CAS No. (numbers only, no dashes)	ENTER Soil gas conc., C_g ($\mu g/m^3$)	OR	ENTER Soil gas conc., C_g (ppmv)	Chemical
78875	3.23E-01			1,2-Dichloropropane

MORE ↓

ENTER Depth below grade to bottom of enclosed space floor, L_F (15 or 200 cm)	ENTER Soil gas sampling depth below grade, L_s (cm)	ENTER Average soil temperature, T_S (^oC)	ENTER Vadose zone SCS soil type (used to estimate soil vapor permeability)	OR	ENTER User-defined vadose zone soil vapor permeability, k_v (cm^2)
15	274.32	19	S		

MORE ↓

ENTER Vandose zone SCS soil type (Lookup Soil Parameters)	ENTER Vadose zone soil dry bulk density, ρ_b^A (g/cm^3)	ENTER Vadose zone soil total porosity, n^V (unitless)	ENTER Vadose zone soil water-filled porosity, θ_w^V (cm^3/cm^3)	ENTER Average vapor flow rate into bldg. (Leave blank to calculate) Q_{soil} (L/m)
S	1.66	0.375	0.054	5

MORE ↓

ENTER Averaging time for carcinogens, AT_C (yrs)	ENTER Averaging time for noncarcinogens, AT_{NC} (yrs)	ENTER Exposure duration, ED (yrs)	ENTER Exposure frequency, EF (days/yr)
70	25	25	250

END

CHEMICAL PROPERTIES SHEET

Diffusivity in air, D_a (cm^2/s)	Diffusivity in water, D_w (cm^2/s)	Henry's law constant at reference temperature, H (atm-m^3/mol)	Henry's law constant reference temperature, T_R (^oC)	Enthalpy of vaporization at the normal boiling point, $\Delta H_{v,b}$ (cal/mol)	Normal boiling point, T_B (^oK)	Critical temperature, T_C (^oK)	Unit risk factor, URF ($\mu g/m^3)^{-1}$	Reference conc., RfC (mg/m^3)	Molecular weight, MW (g/mol)
7.82E-02	8.73E-06	2.79E-03	25	7,590	369.52	572.00	1.9E-05	4.0E-03	112.99

END

INTERMEDIATE CALCULATIONS SHEET

Source-building separation, L_T (cm)	Vadose zone soil air-filled porosity, θ_a^V (cm^3/cm^3)	Vadose zone effective total fluid saturation, S_{te} (cm^3/cm^3)	Vadose zone soil intrinsic permeability, k_i (cm^2)	Vadose zone soil relative air permeability, k_{rg} (cm^2)	Vadose zone soil effective vapor permeability, k_v (cm^2)	Floor-wall seam perimeter, X_{crack} (cm)	Soil gas conc. ($\mu g/m^3$)	Bldg. ventilation rate, $Q_{building}$ (cm^3/s)
259.32	0.321	0.003	1.01E-07	0.998	1.01E-07	4,000	3.23E-01	1.69E+04

Area of enclosed space below grade, A_B (cm^2)	Crack-to-total area ratio, η (unitless)	Crack depth below grade, Z_{crack} (cm)	Enthalpy of vaporization at ave. soil temperature, $\Delta H_{v,TS}$ (cal/mol)	Henry's law constant at ave. soil temperature, H_{TS} (atm-m^3/mol)	Henry's law constant at ave. soil temperature, H'_{TS} (unitless)	Vapor viscosity at ave. soil temperature, μ_{TS} (g/cm-s)	Vadose zone effective diffusion coefficient, D^{eff}_V (cm^2/s)	Diffusion path length, L_d (cm)
1.00E+06	4.00E-04	15	8,533	2.08E-03	8.67E-02	1.78E-04	1.26E-02	259.32

Convection path length, L_p (cm)	Source vapor conc., C_{source} ($\mu g/m^3$)	Crack radius, r_{crack} (cm)	Average vapor flow rate into bldg., Q_{soil} (cm^3/s)	Crack effective diffusion coefficient, D^{crack} (cm^2/s)	Area of crack, A_{crack} (cm^2)	Exponent of equivalent foundation Peclet number, $exp(Pe^f)$ (unitless)	Infinite source indoor attenuation coefficient, α (unitless)	Infinite source bldg. conc., $C_{building}$ ($\mu g/m^3$)
15	3.23E-01	0.10	8.33E+01	1.26E-02	4.00E+02	3.72E+71	1.82E-03	5.86E-04

Unit risk factor, URF ($\mu g/m^3)^{-1}$	Reference conc., RfC (mg/m^3)
1.9E-05	4.0E-03

END

RESULTS SHEET

INCREMENTAL RISK CALCULATIONS:

Incremental risk from vapor intrusion to indoor air, carcinogen (unitless)	Hazard quotient from vapor intrusion to indoor air, noncarcinogen (unitless)
2.8E-09	1.0E-04

MESSAGE SUMMARY BELOW:

MESSAGE: Risk/HQ or risk-based soil concentration is based on a route-to-route extrapolation.

END

SG-SCREEN
Version 3.1; 02/04

Reset to Defaults

Soil Gas Concentration Data

ENTER Chemical CAS No. (numbers only, no dashes)	ENTER Soil gas conc., C_g ($\mu g/m^3$)	OR	ENTER Soil gas conc., C_g (ppmv)	Chemical
156592	2.73E+02			cis-1,2-Dichloroethylene

MORE ↓

ENTER Depth below grade to bottom of enclosed space floor, L_F (15 or 200 cm)	ENTER Soil gas sampling depth below grade, L_s (cm)	ENTER Average soil temperature, T_S (^oC)	ENTER Vadose zone SCS soil type (used to estimate soil vapor permeability)	OR	ENTER User-defined vadose zone soil vapor permeability, k_v (cm^2)
15	335.28	19	S		

MORE ↓

ENTER Vandose zone SCS soil type (Lookup Soil Parameters)	ENTER Vadose zone soil dry bulk density, ρ_b^A (g/cm^3)	ENTER Vadose zone soil total porosity, n^V (unitless)	ENTER Vadose zone soil water-filled porosity, θ_w^V (cm^3/cm^3)	ENTER Average vapor flow rate into bldg. (Leave blank to calculate) Q_{soil} (L/m)
S	1.66	0.375	0.054	5

MORE ↓

ENTER Averaging time for carcinogens, AT_C (yrs)	ENTER Averaging time for noncarcinogens, AT_{NC} (yrs)	ENTER Exposure duration, ED (yrs)	ENTER Exposure frequency, EF (days/yr)
70	25	25	250

END

CHEMICAL PROPERTIES SHEET

Diffusivity in air, D_a (cm^2/s)	Diffusivity in water, D_w (cm^2/s)	Henry's law constant at reference temperature, H (atm-m^3/mol)	Henry's law constant reference temperature, T_R (^oC)	Enthalpy of vaporization at the normal boiling point, $\Delta H_{v,b}$ (cal/mol)	Normal boiling point, T_B (^oK)	Critical temperature, T_C (^oK)	Unit risk factor, URF ($\mu g/m^3)^{-1}$	Reference conc., RfC (mg/m^3)	Molecular weight, MW (g/mol)
7.36E-02	1.13E-05	4.07E-03	25	7,192	333.65	544.00	0.0E+00	3.5E-02	96.94

END

INTERMEDIATE CALCULATIONS SHEET

Source-building separation, L_T (cm)	Vadose zone soil air-filled porosity, θ_a^V (cm^3/cm^3)	Vadose zone effective total fluid saturation, S_{te} (cm^3/cm^3)	Vadose zone soil intrinsic permeability, k_i (cm^2)	Vadose zone soil relative air permeability, k_{rg} (cm^2)	Vadose zone soil effective vapor permeability, k_v (cm^2)	Floor-wall seam perimeter, X_{crack} (cm)	Soil gas conc. ($\mu g/m^3$)	Bldg. ventilation rate, $Q_{building}$ (cm^3/s)
320.28	0.321	0.003	1.01E-07	0.998	1.01E-07	4,000	2.73E+02	1.69E+04

Area of enclosed space below grade, A_B (cm^2)	Crack-to-total area ratio, η (unitless)	Crack depth below grade, Z_{crack} (cm)	Enthalpy of vaporization at ave. soil temperature, $\Delta H_{v,TS}$ (cal/mol)	Henry's law constant at ave. soil temperature, H_{TS} (atm-m^3/mol)	Henry's law constant at ave. soil temperature, H'_{TS} (unitless)	Vapor viscosity at ave. soil temperature, μ_{TS} (g/cm-s)	Vadose zone effective diffusion coefficient, D^{eff}_V (cm^2/s)	Diffusion path length, L_d (cm)
1.00E+06	4.00E-04	15	7,643	3.12E-03	1.30E-01	1.78E-04	1.19E-02	320.28

Convection path length, L_p (cm)	Source vapor conc., C_{source} ($\mu g/m^3$)	Crack radius, r_{crack} (cm)	Average vapor flow rate into bldg., Q_{soil} (cm^3/s)	Crack effective diffusion coefficient, D^{crack} (cm^2/s)	Area of crack, A_{crack} (cm^2)	Exponent of equivalent foundation Peclet number, $exp(Pe^f)$ (unitless)	Infinite source indoor attenuation coefficient, α (unitless)	Infinite source bldg. conc., $C_{building}$ ($\mu g/m^3$)
15	2.73E+02	0.10	8.33E+01	1.19E-02	4.00E+02	1.11E+76	1.52E-03	4.14E-01

Unit risk factor, URF $(\mu g/m^3)^{-1}$	Reference conc., RfC (mg/m^3)
NA	3.5E-02

END

RESULTS SHEET

INCREMENTAL RISK CALCULATIONS:

Incremental risk from vapor intrusion to indoor air, carcinogen (unitless)	Hazard quotient from vapor intrusion to indoor air, noncarcinogen (unitless)
NA	8.1E-03

MESSAGE SUMMARY BELOW:

MESSAGE: Risk/HQ or risk-based soil concentration is based on a route-to-route extrapolation.

END

SG-SCREEN
Version 3.1; 02/04

Reset to Defaults

Soil Gas Concentration Data

ENTER Chemical CAS No. (numbers only, no dashes)	ENTER Soil gas conc., C_g ($\mu g/m^3$)	OR	ENTER Soil gas conc., C_g (ppmv)	Chemical
78875	3.23E+00			1,2-Dichloropropane

MORE ↓

ENTER Depth below grade to bottom of enclosed space floor, L_F (15 or 200 cm)	ENTER Soil gas sampling depth below grade, L_s (cm)	ENTER Average soil temperature, T_S (^oC)	ENTER Vadose zone SCS soil type (used to estimate soil vapor permeability)	OR	ENTER User-defined vadose zone soil vapor permeability, k_v (cm^2)
15	685.8	19	S		

MORE ↓

ENTER Vandose zone SCS soil type (Lookup Soil Parameters)	ENTER Vadose zone soil dry bulk density, ρ_b^A (g/cm^3)	ENTER Vadose zone soil total porosity, n^V (unitless)	ENTER Vadose zone soil water-filled porosity, θ_w^V (cm^3/cm^3)	ENTER Average vapor flow rate into bldg. (Leave blank to calculate) Q_{soil} (L/m)
S	1.66	0.375	0.054	5

MORE ↓

ENTER Averaging time for carcinogens, AT_C (yrs)	ENTER Averaging time for noncarcinogens, AT_{NC} (yrs)	ENTER Exposure duration, ED (yrs)	ENTER Exposure frequency, EF (days/yr)
70	25	25	250

END

CHEMICAL PROPERTIES SHEET

Diffusivity in air, D_a (cm^2/s)	Diffusivity in water, D_w (cm^2/s)	Henry's law constant at reference temperature, H (atm-m^3/mol)	Henry's law constant reference temperature, T_R (^oC)	Enthalpy of vaporization at the normal boiling point, $\Delta H_{v,b}$ (cal/mol)	Normal boiling point, T_B (^oK)	Critical temperature, T_C (^oK)	Unit risk factor, URF ($\mu g/m^3)^{-1}$	Reference conc., RfC (mg/m^3)	Molecular weight, MW (g/mol)
7.82E-02	8.73E-06	2.79E-03	25	7,590	369.52	572.00	1.9E-05	4.0E-03	112.99

END

INTERMEDIATE CALCULATIONS SHEET

Source-building separation, L_T (cm)	Vadose zone soil air-filled porosity, θ_a^V (cm^3/cm^3)	Vadose zone effective total fluid saturation, S_{te} (cm^3/cm^3)	Vadose zone soil intrinsic permeability, k_i (cm^2)	Vadose zone soil relative air permeability, k_{rg} (cm^2)	Vadose zone soil effective vapor permeability, k_v (cm^2)	Floor-wall seam perimeter, X_{crack} (cm)	Soil gas conc. ($\mu g/m^3$)	Bldg. ventilation rate, $Q_{building}$ (cm^3/s)
670.8	0.321	0.003	1.01E-07	0.998	1.01E-07	4,000	3.23E+00	1.69E+04

Area of enclosed space below grade, A_B (cm^2)	Crack-to-total area ratio, η (unitless)	Crack depth below grade, Z_{crack} (cm)	Enthalpy of vaporization at ave. soil temperature, $\Delta H_{v,TS}$ (cal/mol)	Henry's law constant at ave. soil temperature, H_{TS} (atm-m^3/mol)	Henry's law constant at ave. soil temperature, H'_{TS} (unitless)	Vapor viscosity at ave. soil temperature, μ_{TS} (g/cm-s)	Vadose zone effective diffusion coefficient, D^{eff}_V (cm^2/s)	Diffusion path length, L_d (cm)
1.00E+06	4.00E-04	15	8,533	2.08E-03	8.67E-02	1.78E-04	1.26E-02	670.8

Convection path length, L_p (cm)	Source vapor conc., C_{source} ($\mu g/m^3$)	Crack radius, r_{crack} (cm)	Average vapor flow rate into bldg., Q_{soil} (cm^3/s)	Crack effective diffusion coefficient, D^{crack} (cm^2/s)	Area of crack, A_{crack} (cm^2)	Exponent of equivalent foundation Peclet number, $exp(Pe^f)$ (unitless)	Infinite source indoor attenuation coefficient, α (unitless)	Infinite source bldg. conc., $C_{building}$ ($\mu g/m^3$)
15	3.23E+00	0.10	8.33E+01	1.26E-02	4.00E+02	3.72E+71	9.07E-04	2.93E-03

Unit risk factor, URF ($\mu g/m^3)^{-1}$	Reference conc., RfC (mg/m^3)
1.9E-05	4.0E-03

END

RESULTS SHEET

INCREMENTAL RISK CALCULATIONS:

Incremental risk from vapor intrusion to indoor air, carcinogen (unitless)	Hazard quotient from vapor intrusion to indoor air, noncarcinogen (unitless)
1.4E-08	5.0E-04

MESSAGE SUMMARY BELOW:

MESSAGE: Risk/HQ or risk-based soil concentration is based on a route-to-route extrapolation.

END

SG-SCREEN
Version 3.1; 02/04

Reset to Defaults

Soil Gas Concentration Data

ENTER Chemical CAS No. (numbers only, no dashes)	ENTER Soil gas conc., C_g ($\mu g/m^3$)	OR	ENTER Soil gas conc., C_g (ppmv)	Chemical
71432	4.14E+01			Benzene

MORE ↓

ENTER Depth below grade to bottom of enclosed space floor, L_F (15 or 200 cm)	ENTER Soil gas sampling depth below grade, L_s (cm)	ENTER Average soil temperature, T_S (^oC)	ENTER Vadose zone SCS soil type (used to estimate soil vapor permeability)	OR	ENTER User-defined vadose zone soil vapor permeability, k_v (cm^2)
15	548.64	19	S		

MORE ↓

ENTER Vandose zone SCS soil type (Lookup Soil Parameters)	ENTER Vadose zone soil dry bulk density, ρ_b^A (g/cm^3)	ENTER Vadose zone soil total porosity, n^V (unitless)	ENTER Vadose zone soil water-filled porosity, θ_w^V (cm^3/cm^3)	ENTER Average vapor flow rate into bldg. (Leave blank to calculate) Q_{soil} (L/m)
S	1.66	0.375	0.054	5

MORE ↓

ENTER Averaging time for carcinogens, AT_C (yrs)	ENTER Averaging time for noncarcinogens, AT_{NC} (yrs)	ENTER Exposure duration, ED (yrs)	ENTER Exposure frequency, EF (days/yr)
70	25	25	250

END

CHEMICAL PROPERTIES SHEET

Diffusivity in air, D_a (cm^2/s)	Diffusivity in water, D_w (cm^2/s)	Henry's law constant at reference temperature, H (atm-m^3/mol)	Henry's law constant reference temperature, T_R (^oC)	Enthalpy of vaporization at the normal boiling point, $\Delta H_{v,b}$ (cal/mol)	Normal boiling point, T_B (^oK)	Critical temperature, T_C (^oK)	Unit risk factor, URF ($\mu g/m^3)^{-1}$	Reference conc., RfC (mg/m^3)	Molecular weight, MW (g/mol)
8.80E-02	9.80E-06	5.54E-03	25	7,342	353.24	562.16	7.8E-06	3.0E-02	78.11

END

INTERMEDIATE CALCULATIONS SHEET

Source-building separation, L_T (cm)	Vadose zone soil air-filled porosity, θ_a^V (cm^3/cm^3)	Vadose zone effective total fluid saturation, S_{te} (cm^3/cm^3)	Vadose zone soil intrinsic permeability, k_i (cm^2)	Vadose zone soil relative air permeability, k_{rg} (cm^2)	Vadose zone soil effective vapor permeability, k_v (cm^2)	Floor-wall seam perimeter, X_{crack} (cm)	Soil gas conc. ($\mu g/m^3$)	Bldg. ventilation rate, $Q_{building}$ (cm^3/s)
533.64	0.321	0.003	1.01E-07	0.998	1.01E-07	4,000	4.14E+01	1.69E+04

Area of enclosed space below grade, A_B (cm^2)	Crack-to-total area ratio, η (unitless)	Crack depth below grade, Z_{crack} (cm)	Enthalpy of vaporization at ave. soil temperature, $\Delta H_{v,TS}$ (cal/mol)	Henry's law constant at ave. soil temperature, H_{TS} (atm-m^3/mol)	Henry's law constant at ave. soil temperature, H'_{TS} (unitless)	Vapor viscosity at ave. soil temperature, μ_{TS} (g/cm-s)	Vadose zone effective diffusion coefficient, D^{eff}_V (cm^2/s)	Diffusion path length, L_d (cm)
1.00E+06	4.00E-04	15	8,030	4.19E-03	1.75E-01	1.78E-04	1.42E-02	533.64

Convection path length, L_p (cm)	Source vapor conc., C_{source} ($\mu g/m^3$)	Crack radius, r_{crack} (cm)	Average vapor flow rate into bldg., Q_{soil} (cm^3/s)	Crack effective diffusion coefficient, D^{crack} (cm^2/s)	Area of crack, A_{crack} (cm^2)	Exponent of equivalent foundation Peclet number, $exp(Pe^f)$ (unitless)	Infinite source indoor attenuation coefficient, α (unitless)	Infinite source bldg. conc., $C_{building}$ ($\mu g/m^3$)
15	4.14E+01	0.10	8.33E+01	1.42E-02	4.00E+02	3.99E+63	1.19E-03	4.93E-02

Unit risk factor, URF ($\mu g/m^3)^{-1}$	Reference conc., RfC (mg/m^3)
7.8E-06	3.0E-02

END

RESULTS SHEET

INCREMENTAL RISK CALCULATIONS:

Incremental risk from vapor intrusion to indoor air, carcinogen (unitless)	Hazard quotient from vapor intrusion to indoor air, noncarcinogen (unitless)
9.4E-08	1.1E-03

MESSAGE SUMMARY BELOW:

END

SG-SCREEN
Version 3.1; 02/04

Reset to Defaults

Soil Gas Concentration Data

ENTER Chemical CAS No. (numbers only, no dashes)	ENTER Soil gas conc., C_g ($\mu g/m^3$)	OR	ENTER Soil gas conc., C_g (ppmv)	Chemical
71432	2.39E+02			Benzene

MORE ↓

ENTER Depth below grade to bottom of enclosed space floor, L_F (15 or 200 cm)	ENTER Soil gas sampling depth below grade, L_s (cm)	ENTER Average soil temperature, T_S (^oC)	ENTER Vadose zone SCS soil type (used to estimate soil vapor permeability)	OR	ENTER User-defined vadose zone soil vapor permeability, k_v (cm^2)
15	335.28	19	S		

MORE ↓

ENTER Vandose zone SCS soil type (Lookup Soil Parameters)	ENTER Vadose zone soil dry bulk density, ρ_b^A (g/cm^3)	ENTER Vadose zone soil total porosity, n^V (unitless)	ENTER Vadose zone soil water-filled porosity, θ_w^V (cm^3/cm^3)	ENTER Average vapor flow rate into bldg. (Leave blank to calculate) Q_{soil} (L/m)
S	1.66	0.375	0.054	5

MORE ↓

ENTER Averaging time for carcinogens, AT_C (yrs)	ENTER Averaging time for noncarcinogens, AT_{NC} (yrs)	ENTER Exposure duration, ED (yrs)	ENTER Exposure frequency, EF (days/yr)
70	25	25	250

END

CHEMICAL PROPERTIES SHEET

Diffusivity in air, D_a (cm^2/s)	Diffusivity in water, D_w (cm^2/s)	Henry's law constant at reference temperature, H (atm-m^3/mol)	Henry's law constant reference temperature, T_R (^oC)	Enthalpy of vaporization at the normal boiling point, $\Delta H_{v,b}$ (cal/mol)	Normal boiling point, T_B (^oK)	Critical temperature, T_C (^oK)	Unit risk factor, URF ($\mu g/m^3)^{-1}$	Reference conc., RfC (mg/m^3)	Molecular weight, MW (g/mol)
8.80E-02	9.80E-06	5.54E-03	25	7,342	353.24	562.16	7.8E-06	3.0E-02	78.11

END

INTERMEDIATE CALCULATIONS SHEET

Source-building separation, L_T (cm)	Vadose zone soil air-filled porosity, θ_a^V (cm^3/cm^3)	Vadose zone effective total fluid saturation, S_{te} (cm^3/cm^3)	Vadose zone soil intrinsic permeability, k_i (cm^2)	Vadose zone soil relative air permeability, k_{rg} (cm^2)	Vadose zone soil effective vapor permeability, k_v (cm^2)	Floor-wall seam perimeter, X_{crack} (cm)	Soil gas conc. ($\mu g/m^3$)	Bldg. ventilation rate, $Q_{building}$ (cm^3/s)
320.28	0.321	0.003	1.01E-07	0.998	1.01E-07	4,000	2.39E+02	1.69E+04

Area of enclosed space below grade, A_B (cm^2)	Crack-to-total area ratio, η (unitless)	Crack depth below grade, Z_{crack} (cm)	Enthalpy of vaporization at ave. soil temperature, $\Delta H_{v,TS}$ (cal/mol)	Henry's law constant at ave. soil temperature, H_{TS} (atm-m^3/mol)	Henry's law constant at ave. soil temperature, H'_{TS} (unitless)	Vapor viscosity at ave. soil temperature, μ_{TS} (g/cm-s)	Vadose zone effective diffusion coefficient, D^{eff}_V (cm^2/s)	Diffusion path length, L_d (cm)
1.00E+06	4.00E-04	15	8,030	4.19E-03	1.75E-01	1.78E-04	1.42E-02	320.28

Convection path length, L_p (cm)	Source vapor conc., C_{source} ($\mu g/m^3$)	Crack radius, r_{crack} (cm)	Average vapor flow rate into bldg., Q_{soil} (cm^3/s)	Crack effective diffusion coefficient, D^{crack} (cm^2/s)	Area of crack, A_{crack} (cm^2)	Exponent of equivalent foundation Peclet number, $exp(Pe^f)$ (unitless)	Infinite source indoor attenuation coefficient, α (unitless)	Infinite source bldg. conc., $C_{building}$ ($\mu g/m^3$)
15	2.39E+02	0.10	8.33E+01	1.42E-02	4.00E+02	3.99E+63	1.71E-03	4.09E-01

Unit risk factor, URF ($\mu g/m^3)^{-1}$	Reference conc., RfC (mg/m^3)
7.8E-06	3.0E-02

END

RESULTS SHEET

INCREMENTAL RISK CALCULATIONS:

Incremental risk from vapor intrusion to indoor air, carcinogen (unitless)	Hazard quotient from vapor intrusion to indoor air, noncarcinogen (unitless)
7.8E-07	9.3E-03

MESSAGE SUMMARY BELOW:

END

SG-SCREEN
Version 3.1; 02/04

Reset to Defaults

Soil Gas Concentration Data

ENTER Chemical CAS No. (numbers only, no dashes)	ENTER Soil gas conc., C_g ($\mu g/m^3$)	OR	ENTER Soil gas conc., C_g (ppmv)	Chemical
71432	1.76E-01			Benzene

MORE ↓

ENTER Depth below grade to bottom of enclosed space floor, L_F (15 or 200 cm)	ENTER Soil gas sampling depth below grade, L_s (cm)	ENTER Average soil temperature, T_S (^oC)	ENTER Vadose zone SCS soil type (used to estimate soil vapor permeability)	OR	ENTER User-defined vadose zone soil vapor permeability, k_v (cm^2)
15	274.32	19	S		

MORE ↓

ENTER Vandose zone SCS soil type (Lookup Soil Parameters)	ENTER Vadose zone soil dry bulk density, ρ_b^A (g/cm^3)	ENTER Vadose zone soil total porosity, n^V (unitless)	ENTER Vadose zone soil water-filled porosity, θ_w^V (cm^3/cm^3)	ENTER Average vapor flow rate into bldg. (Leave blank to calculate) Q_{soil} (L/m)
S	1.66	0.375	0.054	5

MORE ↓

ENTER Averaging time for carcinogens, AT_C (yrs)	ENTER Averaging time for noncarcinogens, AT_{NC} (yrs)	ENTER Exposure duration, ED (yrs)	ENTER Exposure frequency, EF (days/yr)
70	25	25	250

END

CHEMICAL PROPERTIES SHEET

Diffusivity in air, D_a (cm^2/s)	Diffusivity in water, D_w (cm^2/s)	Henry's law constant at reference temperature, H (atm-m^3/mol)	Henry's law constant reference temperature, T_R (^oC)	Enthalpy of vaporization at the normal boiling point, $\Delta H_{v,b}$ (cal/mol)	Normal boiling point, T_B (^oK)	Critical temperature, T_C (^oK)	Unit risk factor, URF ($\mu g/m^3)^{-1}$	Reference conc., RfC (mg/m^3)	Molecular weight, MW (g/mol)
8.80E-02	9.80E-06	5.54E-03	25	7,342	353.24	562.16	7.8E-06	3.0E-02	78.11

END

INTERMEDIATE CALCULATIONS SHEET

Source-building separation, L_T (cm)	Vadose zone soil air-filled porosity, θ_a^V (cm^3/cm^3)	Vadose zone effective total fluid saturation, S_{te} (cm^3/cm^3)	Vadose zone soil intrinsic permeability, k_i (cm^2)	Vadose zone soil relative air permeability, k_{rg} (cm^2)	Vadose zone soil effective vapor permeability, k_v (cm^2)	Floor-wall seam perimeter, X_{crack} (cm)	Soil gas conc. ($\mu g/m^3$)	Bldg. ventilation rate, $Q_{building}$ (cm^3/s)
259.32	0.321	0.003	1.01E-07	0.998	1.01E-07	4,000	1.76E-01	1.69E+04

Area of enclosed space below grade, A_B (cm^2)	Crack-to-total area ratio, η (unitless)	Crack depth below grade, Z_{crack} (cm)	Enthalpy of vaporization at ave. soil temperature, $\Delta H_{v,TS}$ (cal/mol)	Henry's law constant at ave. soil temperature, H_{TS} (atm-m^3/mol)	Henry's law constant at ave. soil temperature, H'_{TS} (unitless)	Vapor viscosity at ave. soil temperature, μ_{TS} (g/cm-s)	Vadose zone effective diffusion coefficient, D^{eff}_V (cm^2/s)	Diffusion path length, L_d (cm)
1.00E+06	4.00E-04	15	8,030	4.19E-03	1.75E-01	1.78E-04	1.42E-02	259.32

Convection path length, L_p (cm)	Source vapor conc., C_{source} ($\mu g/m^3$)	Crack radius, r_{crack} (cm)	Average vapor flow rate into bldg., Q_{soil} (cm^3/s)	Crack effective diffusion coefficient, D^{crack} (cm^2/s)	Area of crack, A_{crack} (cm^2)	Exponent of equivalent foundation Peclet number, $exp(Pe^f)$ (unitless)	Infinite source indoor attenuation coefficient, α (unitless)	Infinite source bldg. conc., $C_{building}$ ($\mu g/m^3$)
15	1.76E-01	0.10	8.33E+01	1.42E-02	4.00E+02	3.99E+63	1.95E-03	3.44E-04

Unit risk factor, URF ($\mu g/m^3)^{-1}$	Reference conc., RfC (mg/m^3)
7.8E-06	3.0E-02

END

RESULTS SHEET

INCREMENTAL RISK CALCULATIONS:

Incremental risk from vapor intrusion to indoor air, carcinogen (unitless)	Hazard quotient from vapor intrusion to indoor air, noncarcinogen (unitless)
6.6E-10	7.8E-06

MESSAGE SUMMARY BELOW:

END

SG-SCREEN
Version 3.1; 02/04

Reset to Defaults

Soil Gas Concentration Data

ENTER Chemical CAS No. (numbers only, no dashes)	ENTER Soil gas conc., C_g ($\mu g/m^3$)	OR	ENTER Soil gas conc., C_g (ppmv)	Chemical
71432	1.15E+02			Benzene

MORE ↓

ENTER Depth below grade to bottom of enclosed space floor, L_F (15 or 200 cm)	ENTER Soil gas sampling depth below grade, L_s (cm)	ENTER Average soil temperature, T_S (^oC)	ENTER Vadose zone SCS soil type (used to estimate soil vapor permeability)	OR	ENTER User-defined vadose zone soil vapor permeability, k_v (cm^2)
15	685.8	19	S		

MORE ↓

ENTER Vandose zone SCS soil type (Lookup Soil Parameters)	ENTER Vadose zone soil dry bulk density, ρ_b^A (g/cm^3)	ENTER Vadose zone soil total porosity, n^V (unitless)	ENTER Vadose zone soil water-filled porosity, θ_w^V (cm^3/cm^3)	ENTER Average vapor flow rate into bldg. (Leave blank to calculate) Q_{soil} (L/m)
S	1.66	0.375	0.054	5

MORE ↓

ENTER Averaging time for carcinogens, AT_C (yrs)	ENTER Averaging time for noncarcinogens, AT_{NC} (yrs)	ENTER Exposure duration, ED (yrs)	ENTER Exposure frequency, EF (days/yr)
70	25	25	250

END

CHEMICAL PROPERTIES SHEET

Diffusivity in air, D_a (cm^2/s)	Diffusivity in water, D_w (cm^2/s)	Henry's law constant at reference temperature, H (atm-m^3/mol)	Henry's law constant reference temperature, T_R (^oC)	Enthalpy of vaporization at the normal boiling point, $\Delta H_{v,b}$ (cal/mol)	Normal boiling point, T_B (^oK)	Critical temperature, T_C (^oK)	Unit risk factor, URF ($\mu g/m^3)^{-1}$	Reference conc., RfC (mg/m^3)	Molecular weight, MW (g/mol)
8.80E-02	9.80E-06	5.54E-03	25	7,342	353.24	562.16	7.8E-06	3.0E-02	78.11

END

INTERMEDIATE CALCULATIONS SHEET

Source-building separation, L_T (cm)	Vadose zone soil air-filled porosity, θ_a^V (cm^3/cm^3)	Vadose zone effective total fluid saturation, S_{te} (cm^3/cm^3)	Vadose zone soil intrinsic permeability, k_i (cm^2)	Vadose zone soil relative air permeability, k_{rg} (cm^2)	Vadose zone soil effective vapor permeability, k_v (cm^2)	Floor-wall seam perimeter, X_{crack} (cm)	Soil gas conc. ($\mu g/m^3$)	Bldg. ventilation rate, $Q_{building}$ (cm^3/s)
670.8	0.321	0.003	1.01E-07	0.998	1.01E-07	4,000	1.15E+02	1.69E+04

Area of enclosed space below grade, A_B (cm^2)	Crack-to-total area ratio, η (unitless)	Crack depth below grade, Z_{crack} (cm)	Enthalpy of vaporization at ave. soil temperature, $\Delta H_{v,TS}$ (cal/mol)	Henry's law constant at ave. soil temperature, H_{TS} (atm-m^3/mol)	Henry's law constant at ave. soil temperature, H'_{TS} (unitless)	Vapor viscosity at ave. soil temperature, μ_{TS} (g/cm-s)	Vadose zone effective diffusion coefficient, D^{eff}_V (cm^2/s)	Diffusion path length, L_d (cm)
1.00E+06	4.00E-04	15	8,030	4.19E-03	1.75E-01	1.78E-04	1.42E-02	670.8

Convection path length, L_p (cm)	Source vapor conc., C_{source} ($\mu g/m^3$)	Crack radius, r_{crack} (cm)	Average vapor flow rate into bldg., Q_{soil} (cm^3/s)	Crack effective diffusion coefficient, D^{crack} (cm^2/s)	Area of crack, A_{crack} (cm^2)	Exponent of equivalent foundation Peclet number, $exp(Pe^f)$ (unitless)	Infinite source indoor attenuation coefficient, α (unitless)	Infinite source bldg. conc., $C_{building}$ ($\mu g/m^3$)
15	1.15E+02	0.10	8.33E+01	1.42E-02	4.00E+02	3.99E+63	9.98E-04	1.15E-01

Unit risk factor, URF ($\mu g/m^3)^{-1}$	Reference conc., RfC (mg/m^3)
7.8E-06	3.0E-02

END

RESULTS SHEET

INCREMENTAL RISK CALCULATIONS:

Incremental risk from vapor intrusion to indoor air, carcinogen (unitless)	Hazard quotient from vapor intrusion to indoor air, noncarcinogen (unitless)
2.2E-07	2.6E-03

MESSAGE SUMMARY BELOW:

END

SG-SCREEN
Version 3.1; 02/04

Reset to Defaults

Soil Gas Concentration Data

ENTER Chemical CAS No. (numbers only, no dashes)	ENTER Soil gas conc., C_g ($\mu g/m^3$)	OR	ENTER Soil gas conc., C_g (ppmv)	Chemical
67663	1.97E+00			Chloroform

MORE ↓

ENTER Depth below grade to bottom of enclosed space floor, L_F (15 or 200 cm)	ENTER Soil gas sampling depth below grade, L_s (cm)	ENTER Average soil temperature, T_S (^oC)	ENTER Vadose zone SCS soil type (used to estimate soil vapor permeability)	OR	ENTER User-defined vadose zone soil vapor permeability, k_v (cm^2)
15	548.64	19	S		

MORE ↓

ENTER Vandose zone SCS soil type (Lookup Soil Parameters)	ENTER Vadose zone soil dry bulk density, ρ_b^A (g/cm^3)	ENTER Vadose zone soil total porosity, n^V (unitless)	ENTER Vadose zone soil water-filled porosity, θ_w^V (cm^3/cm^3)	ENTER Average vapor flow rate into bldg. (Leave blank to calculate) Q_{soil} (L/m)
S	1.66	0.375	0.054	5

MORE ↓

ENTER Averaging time for carcinogens, AT_C (yrs)	ENTER Averaging time for noncarcinogens, AT_{NC} (yrs)	ENTER Exposure duration, ED (yrs)	ENTER Exposure frequency, EF (days/yr)
70	25	25	250

END

CHEMICAL PROPERTIES SHEET

Diffusivity in air, D_a (cm^2/s)	Diffusivity in water, D_w (cm^2/s)	Henry's law constant at reference temperature, H (atm-m^3/mol)	Henry's law constant reference temperature, T_R (^oC)	Enthalpy of vaporization at the normal boiling point, $\Delta H_{v,b}$ (cal/mol)	Normal boiling point, T_B (^oK)	Critical temperature, T_C (^oK)	Unit risk factor, URF ($\mu g/m^3)^{-1}$	Reference conc., RfC (mg/m^3)	Molecular weight, MW (g/mol)
1.04E-01	1.00E-05	3.66E-03	25	6,988	334.32	536.40	2.3E-05	0.0E+00	119.38

END

INTERMEDIATE CALCULATIONS SHEET

Source-building separation, L_T (cm)	Vadose zone soil air-filled porosity, θ_a^V (cm^3/cm^3)	Vadose zone effective total fluid saturation, S_{te} (cm^3/cm^3)	Vadose zone soil intrinsic permeability, k_i (cm^2)	Vadose zone soil relative air permeability, k_{rg} (cm^2)	Vadose zone soil effective vapor permeability, k_v (cm^2)	Floor-wall seam perimeter, X_{crack} (cm)	Soil gas conc. ($\mu g/m^3$)	Bldg. ventilation rate, $Q_{building}$ (cm^3/s)
533.64	0.321	0.003	1.01E-07	0.998	1.01E-07	4,000	1.97E+00	1.69E+04

Area of enclosed space below grade, A_B (cm^2)	Crack-to-total area ratio, η (unitless)	Crack depth below grade, Z_{crack} (cm)	Enthalpy of vaporization at ave. soil temperature, $\Delta H_{v,TS}$ (cal/mol)	Henry's law constant at ave. soil temperature, H_{TS} (atm-m^3/mol)	Henry's law constant at ave. soil temperature, H'_{TS} (unitless)	Vapor viscosity at ave. soil temperature, μ_{TS} (g/cm-s)	Vadose zone effective diffusion coefficient, D^{eff}_V (cm^2/s)	Diffusion path length, L_d (cm)
1.00E+06	4.00E-04	15	7,461	2.83E-03	1.18E-01	1.78E-04	1.68E-02	533.64

Convection path length, L_p (cm)	Source vapor conc., C_{source} ($\mu g/m^3$)	Crack radius, r_{crack} (cm)	Average vapor flow rate into bldg., Q_{soil} (cm^3/s)	Crack effective diffusion coefficient, D^{crack} (cm^2/s)	Area of crack, A_{crack} (cm^2)	Exponent of equivalent foundation Peclet number, $exp(Pe^f)$ (unitless)	Infinite source indoor attenuation coefficient, α (unitless)	Infinite source bldg. conc., $C_{building}$ ($\mu g/m^3$)
15	1.97E+00	0.10	8.33E+01	1.68E-02	4.00E+02	6.54E+53	1.35E-03	2.66E-03

Unit risk factor, URF ($\mu g/m^3)^{-1}$	Reference conc., RfC (mg/m^3)
2.3E-05	NA

END

RESULTS SHEET

INCREMENTAL RISK CALCULATIONS:

Incremental risk from vapor intrusion to indoor air, carcinogen (unitless)	Hazard quotient from vapor intrusion to indoor air, noncarcinogen (unitless)
1.5E-08	NA

MESSAGE SUMMARY BELOW:

END

SG-SCREEN
Version 3.1; 02/04

Reset to Defaults

Soil Gas Concentration Data

ENTER Chemical CAS No. (numbers only, no dashes)	ENTER Soil gas conc., C_g ($\mu g/m^3$)	OR	ENTER Soil gas conc., C_g (ppmv)	Chemical
67663	3.56E+01			Chloroform

MORE ↓

ENTER Depth below grade to bottom of enclosed space floor, L_F (15 or 200 cm)	ENTER Soil gas sampling depth below grade, L_s (cm)	ENTER Average soil temperature, T_S (^oC)	ENTER Vadose zone SCS soil type (used to estimate soil vapor permeability)	OR	ENTER User-defined vadose zone soil vapor permeability, k_v (cm^2)
15	335.28	19	S		

MORE ↓

ENTER Vandose zone SCS soil type (Lookup Soil Parameters)	ENTER Vadose zone soil dry bulk density, ρ_b^A (g/cm^3)	ENTER Vadose zone soil total porosity, n^V (unitless)	ENTER Vadose zone soil water-filled porosity, θ_w^V (cm^3/cm^3)	ENTER Average vapor flow rate into bldg. (Leave blank to calculate) Q_{soil} (L/m)
S	1.66	0.375	0.054	5

MORE ↓

ENTER Averaging time for carcinogens, AT_C (yrs)	ENTER Averaging time for noncarcinogens, AT_{NC} (yrs)	ENTER Exposure duration, ED (yrs)	ENTER Exposure frequency, EF (days/yr)
70	25	25	250

END

CHEMICAL PROPERTIES SHEET

Diffusivity in air, D_a (cm^2/s)	Diffusivity in water, D_w (cm^2/s)	Henry's law constant at reference temperature, H (atm-m^3/mol)	Henry's law constant reference temperature, T_R (^oC)	Enthalpy of vaporization at the normal boiling point, $\Delta H_{v,b}$ (cal/mol)	Normal boiling point, T_B (^oK)	Critical temperature, T_C (^oK)	Unit risk factor, URF ($\mu g/m^3)^{-1}$	Reference conc., RfC (mg/m^3)	Molecular weight, MW (g/mol)
1.04E-01	1.00E-05	3.66E-03	25	6,988	334.32	536.40	2.3E-05	0.0E+00	119.38

END

INTERMEDIATE CALCULATIONS SHEET

Source-building separation, L_T (cm)	Vadose zone soil air-filled porosity, θ_a^V (cm^3/cm^3)	Vadose zone effective total fluid saturation, S_{te} (cm^3/cm^3)	Vadose zone soil intrinsic permeability, k_i (cm^2)	Vadose zone soil relative air permeability, k_{rg} (cm^2)	Vadose zone soil effective vapor permeability, k_v (cm^2)	Floor-wall seam perimeter, X_{crack} (cm)	Soil gas conc. ($\mu g/m^3$)	Bldg. ventilation rate, $Q_{building}$ (cm^3/s)
320.28	0.321	0.003	1.01E-07	0.998	1.01E-07	4,000	3.56E+01	1.69E+04

Area of enclosed space below grade, A_B (cm^2)	Crack-to-total area ratio, η (unitless)	Crack depth below grade, Z_{crack} (cm)	Enthalpy of vaporization at ave. soil temperature, $\Delta H_{v,TS}$ (cal/mol)	Henry's law constant at ave. soil temperature, H_{TS} (atm-m^3/mol)	Henry's law constant at ave. soil temperature, H'_{TS} (unitless)	Vapor viscosity at ave. soil temperature, μ_{TS} (g/cm-s)	Vadose zone effective diffusion coefficient, D^{eff}_V (cm^2/s)	Diffusion path length, L_d (cm)
1.00E+06	4.00E-04	15	7,461	2.83E-03	1.18E-01	1.78E-04	1.68E-02	320.28

Convection path length, L_p (cm)	Source vapor conc., C_{source} ($\mu g/m^3$)	Crack radius, r_{crack} (cm)	Average vapor flow rate into bldg., Q_{soil} (cm^3/s)	Crack effective diffusion coefficient, D^{crack} (cm^2/s)	Area of crack, A_{crack} (cm^2)	Exponent of equivalent foundation Peclet number, $exp(Pe^f)$ (unitless)	Infinite source indoor attenuation coefficient, α (unitless)	Infinite source bldg. conc., $C_{building}$ ($\mu g/m^3$)
15	3.56E+01	0.10	8.33E+01	1.68E-02	4.00E+02	6.54E+53	1.90E-03	6.77E-02

Unit risk factor, URF ($\mu g/m^3)^{-1}$	Reference conc., RfC (mg/m^3)
2.3E-05	NA

END

RESULTS SHEET

INCREMENTAL RISK CALCULATIONS:

Incremental risk from vapor intrusion to indoor air, carcinogen (unitless)	Hazard quotient from vapor intrusion to indoor air, noncarcinogen (unitless)
3.8E-07	NA

MESSAGE SUMMARY BELOW:

END

SG-SCREEN
Version 3.1; 02/04

Reset to Defaults

Soil Gas Concentration Data

ENTER Chemical CAS No. (numbers only, no dashes)	ENTER Soil gas conc., C_g ($\mu g/m^3$)	OR	ENTER Soil gas conc., C_g (ppmv)	Chemical
67663	2.53E+01			Chloroform

MORE ↓

ENTER Depth below grade to bottom of enclosed space floor, L_F (15 or 200 cm)	ENTER Soil gas sampling depth below grade, L_s (cm)	ENTER Average soil temperature, T_S (^oC)	ENTER Vadose zone SCS soil type (used to estimate soil vapor permeability)	OR	ENTER User-defined vadose zone soil vapor permeability, k_v (cm^2)
15	274.32	19	S		

MORE ↓

ENTER Vandose zone SCS soil type (Lookup Soil Parameters)	ENTER Vadose zone soil dry bulk density, ρ_b^A (g/cm^3)	ENTER Vadose zone soil total porosity, n^V (unitless)	ENTER Vadose zone soil water-filled porosity, θ_w^V (cm^3/cm^3)	ENTER Average vapor flow rate into bldg. (Leave blank to calculate) Q_{soil} (L/m)
S	1.66	0.375	0.054	5

MORE ↓

ENTER Averaging time for carcinogens, AT_C (yrs)	ENTER Averaging time for noncarcinogens, AT_{NC} (yrs)	ENTER Exposure duration, ED (yrs)	ENTER Exposure frequency, EF (days/yr)
70	25	25	250

END

CHEMICAL PROPERTIES SHEET

Diffusivity in air, D_a (cm^2/s)	Diffusivity in water, D_w (cm^2/s)	Henry's law constant at reference temperature, H (atm-m^3/mol)	Henry's law constant reference temperature, T_R (^oC)	Enthalpy of vaporization at the normal boiling point, $\Delta H_{v,b}$ (cal/mol)	Normal boiling point, T_B (^oK)	Critical temperature, T_C (^oK)	Unit risk factor, URF ($\mu g/m^3)^{-1}$	Reference conc., RfC (mg/m^3)	Molecular weight, MW (g/mol)
1.04E-01	1.00E-05	3.66E-03	25	6,988	334.32	536.40	2.3E-05	0.0E+00	119.38

END

INTERMEDIATE CALCULATIONS SHEET

Source-building separation, L_T (cm)	Vadose zone soil air-filled porosity, θ_a^V (cm^3/cm^3)	Vadose zone effective total fluid saturation, S_{te} (cm^3/cm^3)	Vadose zone soil intrinsic permeability, k_i (cm^2)	Vadose zone soil relative air permeability, k_{rg} (cm^2)	Vadose zone soil effective vapor permeability, k_v (cm^2)	Floor-wall seam perimeter, X_{crack} (cm)	Soil gas conc. ($\mu g/m^3$)	Bldg. ventilation rate, $Q_{building}$ (cm^3/s)
259.32	0.321	0.003	1.01E-07	0.998	1.01E-07	4,000	2.53E+01	1.69E+04

Area of enclosed space below grade, A_B (cm^2)	Crack-to-total area ratio, η (unitless)	Crack depth below grade, Z_{crack} (cm)	Enthalpy of vaporization at ave. soil temperature, $\Delta H_{v,TS}$ (cal/mol)	Henry's law constant at ave. soil temperature, H_{TS} (atm-m^3/mol)	Henry's law constant at ave. soil temperature, H'_{TS} (unitless)	Vapor viscosity at ave. soil temperature, μ_{TS} (g/cm-s)	Vadose zone effective diffusion coefficient, D^{eff}_V (cm^2/s)	Diffusion path length, L_d (cm)
1.00E+06	4.00E-04	15	7,461	2.83E-03	1.18E-01	1.78E-04	1.68E-02	259.32

Convection path length, L_p (cm)	Source vapor conc., C_{source} ($\mu g/m^3$)	Crack radius, r_{crack} (cm)	Average vapor flow rate into bldg., Q_{soil} (cm^3/s)	Crack effective diffusion coefficient, D^{crack} (cm^2/s)	Area of crack, A_{crack} (cm^2)	Exponent of equivalent foundation Peclet number, $exp(Pe^f)$ (unitless)	Infinite source indoor attenuation coefficient, α (unitless)	Infinite source bldg. conc., $C_{building}$ ($\mu g/m^3$)
15	2.53E+01	0.10	8.33E+01	1.68E-02	4.00E+02	6.54E+53	2.15E-03	5.44E-02

Unit risk factor, URF ($\mu g/m^3)^{-1}$	Reference conc., RfC (mg/m^3)
2.3E-05	NA

END

RESULTS SHEET

INCREMENTAL RISK CALCULATIONS:

Incremental risk from vapor intrusion to indoor air, carcinogen (unitless)	Hazard quotient from vapor intrusion to indoor air, noncarcinogen (unitless)
3.1E-07	NA

MESSAGE SUMMARY BELOW:

END

SG-SCREEN
Version 3.1; 02/04

Reset to Defaults

Soil Gas Concentration Data

ENTER Chemical CAS No. (numbers only, no dashes)	ENTER Soil gas conc., C_g ($\mu g/m^3$)	OR	ENTER Soil gas conc., C_g (ppmv)	Chemical
67663	2.44E+00			Chloroform

MORE ↓

ENTER Depth below grade to bottom of enclosed space floor, L_F (15 or 200 cm)	ENTER Soil gas sampling depth below grade, L_s (cm)	ENTER Average soil temperature, T_S (^oC)	ENTER Vadose zone SCS soil type (used to estimate soil vapor permeability)	OR	ENTER User-defined vadose zone soil vapor permeability, k_v (cm^2)
15	685.8	19	S		

MORE ↓

ENTER Vandose zone SCS soil type (Lookup Soil Parameters)	ENTER Vadose zone soil dry bulk density, ρ_b^A (g/cm^3)	ENTER Vadose zone soil total porosity, n^V (unitless)	ENTER Vadose zone soil water-filled porosity, θ_w^V (cm^3/cm^3)	ENTER Average vapor flow rate into bldg. (Leave blank to calculate) Q_{soil} (L/m)
S	1.66	0.375	0.054	5

MORE ↓

ENTER Averaging time for carcinogens, AT_C (yrs)	ENTER Averaging time for noncarcinogens, AT_{NC} (yrs)	ENTER Exposure duration, ED (yrs)	ENTER Exposure frequency, EF (days/yr)
70	25	25	250

END

CHEMICAL PROPERTIES SHEET

Diffusivity in air, D_a (cm^2/s)	Diffusivity in water, D_w (cm^2/s)	Henry's law constant at reference temperature, H (atm-m^3/mol)	Henry's law constant reference temperature, T_R (^oC)	Enthalpy of vaporization at the normal boiling point, $\Delta H_{v,b}$ (cal/mol)	Normal boiling point, T_B (^oK)	Critical temperature, T_C (^oK)	Unit risk factor, URF ($\mu g/m^3)^{-1}$	Reference conc., RfC (mg/m^3)	Molecular weight, MW (g/mol)
1.04E-01	1.00E-05	3.66E-03	25	6,988	334.32	536.40	2.3E-05	0.0E+00	119.38

END

INTERMEDIATE CALCULATIONS SHEET

Source-building separation, L_T (cm)	Vadose zone soil air-filled porosity, θ_a^V (cm^3/cm^3)	Vadose zone effective total fluid saturation, S_{te} (cm^3/cm^3)	Vadose zone soil intrinsic permeability, k_i (cm^2)	Vadose zone soil relative air permeability, k_{rg} (cm^2)	Vadose zone soil effective vapor permeability, k_v (cm^2)	Floor-wall seam perimeter, X_{crack} (cm)	Soil gas conc. ($\mu g/m^3$)	Bldg. ventilation rate, $Q_{building}$ (cm^3/s)
670.8	0.321	0.003	1.01E-07	0.998	1.01E-07	4,000	2.44E+00	1.69E+04

Area of enclosed space below grade, A_B (cm^2)	Crack-to-total area ratio, η (unitless)	Crack depth below grade, Z_{crack} (cm)	Enthalpy of vaporization at ave. soil temperature, $\Delta H_{v,TS}$ (cal/mol)	Henry's law constant at ave. soil temperature, H_{TS} (atm-m^3/mol)	Henry's law constant at ave. soil temperature, H'_{TS} (unitless)	Vapor viscosity at ave. soil temperature, μ_{TS} (g/cm-s)	Vadose zone effective diffusion coefficient, D^{eff}_V (cm^2/s)	Diffusion path length, L_d (cm)
1.00E+06	4.00E-04	15	7,461	2.83E-03	1.18E-01	1.78E-04	1.68E-02	670.8

Convection path length, L_p (cm)	Source vapor conc., C_{source} ($\mu g/m^3$)	Crack radius, r_{crack} (cm)	Average vapor flow rate into bldg., Q_{soil} (cm^3/s)	Crack effective diffusion coefficient, D^{crack} (cm^2/s)	Area of crack, A_{crack} (cm^2)	Exponent of equivalent foundation Peclet number, $exp(Pe^f)$ (unitless)	Infinite source indoor attenuation coefficient, α (unitless)	Infinite source bldg. conc., $C_{building}$ ($\mu g/m^3$)
15	2.44E+00	0.10	8.33E+01	1.68E-02	4.00E+02	6.54E+53	1.14E-03	2.77E-03

Unit risk factor, URF ($\mu g/m^3)^{-1}$	Reference conc., RfC (mg/m^3)
2.3E-05	NA

END

RESULTS SHEET

INCREMENTAL RISK CALCULATIONS:

Incremental risk from vapor intrusion to indoor air, carcinogen (unitless)	Hazard quotient from vapor intrusion to indoor air, noncarcinogen (unitless)
1.6E-08	NA

MESSAGE SUMMARY BELOW:

END

SG-SCREEN
Version 3.1; 02/04

Reset to Defaults

Soil Gas Concentration Data

ENTER Chemical CAS No. (numbers only, no dashes)	ENTER Soil gas conc., C_g ($\mu g/m^3$)	OR	ENTER Soil gas conc., C_g (ppmv)	Chemical
156592	7.51E+02			cis-1,2-Dichloroethylene

MORE ↓

ENTER Depth below grade to bottom of enclosed space floor, L_F (15 or 200 cm)	ENTER Soil gas sampling depth below grade, L_s (cm)	ENTER Average soil temperature, T_S (^oC)	ENTER Vadose zone SCS soil type (used to estimate soil vapor permeability)	OR	ENTER User-defined vadose zone soil vapor permeability, k_v (cm^2)
15	685.8	19	S		

MORE ↓

ENTER Vandose zone SCS soil type (Lookup Soil Parameters)	ENTER Vadose zone soil dry bulk density, ρ_b^A (g/cm^3)	ENTER Vadose zone soil total porosity, n^V (unitless)	ENTER Vadose zone soil water-filled porosity, θ_w^V (cm^3/cm^3)	ENTER Average vapor flow rate into bldg. (Leave blank to calculate) Q_{soil} (L/m)
S	1.66	0.375	0.054	5

MORE ↓

ENTER Averaging time for carcinogens, AT_C (yrs)	ENTER Averaging time for noncarcinogens, AT_{NC} (yrs)	ENTER Exposure duration, ED (yrs)	ENTER Exposure frequency, EF (days/yr)
70	25	25	250

END

CHEMICAL PROPERTIES SHEET

Diffusivity in air, D_a (cm^2/s)	Diffusivity in water, D_w (cm^2/s)	Henry's law constant at reference temperature, H (atm-m^3/mol)	Henry's law constant reference temperature, T_R (^oC)	Enthalpy of vaporization at the normal boiling point, $\Delta H_{v,b}$ (cal/mol)	Normal boiling point, T_B (^oK)	Critical temperature, T_C (^oK)	Unit risk factor, URF ($\mu g/m^3)^{-1}$	Reference conc., RfC (mg/m^3)	Molecular weight, MW (g/mol)
7.36E-02	1.13E-05	4.07E-03	25	7,192	333.65	544.00	0.0E+00	3.5E-02	96.94

END

INTERMEDIATE CALCULATIONS SHEET

Source-building separation, L_T (cm)	Vadose zone soil air-filled porosity, θ_a^V (cm^3/cm^3)	Vadose zone effective total fluid saturation, S_{te} (cm^3/cm^3)	Vadose zone soil intrinsic permeability, k_i (cm^2)	Vadose zone soil relative air permeability, k_{rg} (cm^2)	Vadose zone soil effective vapor permeability, k_v (cm^2)	Floor-wall seam perimeter, X_{crack} (cm)	Soil gas conc. ($\mu g/m^3$)	Bldg. ventilation rate, $Q_{building}$ (cm^3/s)
670.8	0.321	0.003	1.01E-07	0.998	1.01E-07	4,000	7.51E+02	1.69E+04

Area of enclosed space below grade, A_B (cm^2)	Crack-to-total area ratio, η (unitless)	Crack depth below grade, Z_{crack} (cm)	Enthalpy of vaporization at ave. soil temperature, $\Delta H_{v,TS}$ (cal/mol)	Henry's law constant at ave. soil temperature, H_{TS} (atm-m^3/mol)	Henry's law constant at ave. soil temperature, H'_{TS} (unitless)	Vapor viscosity at ave. soil temperature, μ_{TS} (g/cm-s)	Vadose zone effective diffusion coefficient, D^{eff}_V (cm^2/s)	Diffusion path length, L_d (cm)
1.00E+06	4.00E-04	15	7,643	3.12E-03	1.30E-01	1.78E-04	1.19E-02	670.8

Convection path length, L_p (cm)	Source vapor conc., C_{source} ($\mu g/m^3$)	Crack radius, r_{crack} (cm)	Average vapor flow rate into bldg., Q_{soil} (cm^3/s)	Crack effective diffusion coefficient, D^{crack} (cm^2/s)	Area of crack, A_{crack} (cm^2)	Exponent of equivalent foundation Peclet number, $exp(Pe^f)$ (unitless)	Infinite source indoor attenuation coefficient, α (unitless)	Infinite source bldg. conc., $C_{building}$ ($\mu g/m^3$)
15	7.51E+02	0.10	8.33E+01	1.19E-02	4.00E+02	1.11E+76	8.63E-04	6.48E-01

Unit risk factor, URF ($\mu g/m^3)^{-1}$	Reference conc., RfC (mg/m^3)
NA	3.5E-02

END

RESULTS SHEET

INCREMENTAL RISK CALCULATIONS:

Incremental risk from vapor intrusion to indoor air, carcinogen (unitless)	Hazard quotient from vapor intrusion to indoor air, noncarcinogen (unitless)
NA	1.3E-02

MESSAGE SUMMARY BELOW:

MESSAGE: Risk/HQ or risk-based soil concentration is based on a route-to-route extrapolation.

END

SG-SCREEN
Version 3.1; 02/04

Reset to Defaults

Soil Gas Concentration Data

ENTER Chemical CAS No. (numbers only, no dashes)	ENTER Soil gas conc., C_g ($\mu g/m^3$)	OR	ENTER Soil gas conc., C_g (ppmv)	Chemical
75718	5.92E+03			Dichlorodifluoromethane

MORE ↓

ENTER Depth below grade to bottom of enclosed space floor, L_F (15 or 200 cm)	ENTER Soil gas sampling depth below grade, L_s (cm)	ENTER Average soil temperature, T_S (^oC)	ENTER Vadose zone SCS soil type (used to estimate soil vapor permeability)	OR	ENTER User-defined vadose zone soil vapor permeability, k_v (cm^2)
15	335.28	19	S		

MORE ↓

ENTER Vandose zone SCS soil type (Lookup Soil Parameters)	ENTER Vadose zone soil dry bulk density, ρ_b^A (g/cm^3)	ENTER Vadose zone soil total porosity, n^V (unitless)	ENTER Vadose zone soil water-filled porosity, θ_w^V (cm^3/cm^3)	ENTER Average vapor flow rate into bldg. (Leave blank to calculate) Q_{soil} (L/m)
S	1.66	0.375	0.054	5

MORE ↓

ENTER Averaging time for carcinogens, AT_C (yrs)	ENTER Averaging time for noncarcinogens, AT_{NC} (yrs)	ENTER Exposure duration, ED (yrs)	ENTER Exposure frequency, EF (days/yr)
70	25	25	250

END

CHEMICAL PROPERTIES SHEET

Diffusivity in air, D_a (cm^2/s)	Diffusivity in water, D_w (cm^2/s)	Henry's law constant at reference temperature, H (atm-m^3/mol)	Henry's law constant reference temperature, T_R (^oC)	Enthalpy of vaporization at the normal boiling point, $\Delta H_{v,b}$ (cal/mol)	Normal boiling point, T_B (^oK)	Critical temperature, T_C (^oK)	Unit risk factor, URF ($\mu g/m^3)^{-1}$	Reference conc., RfC (mg/m^3)	Molecular weight, MW (g/mol)
6.65E-02	9.92E-06	3.42E-01	25	9,421	243.20	384.95	0.0E+00	2.0E-01	120.92

END

INTERMEDIATE CALCULATIONS SHEET

Source-building separation, L_T (cm)	Vadose zone soil air-filled porosity, θ_a^V (cm^3/cm^3)	Vadose zone effective total fluid saturation, S_{te} (cm^3/cm^3)	Vadose zone soil intrinsic permeability, k_i (cm^2)	Vadose zone soil relative air permeability, k_{rg} (cm^2)	Vadose zone soil effective vapor permeability, k_v (cm^2)	Floor-wall seam perimeter, X_{crack} (cm)	Soil gas conc. ($\mu g/m^3$)	Bldg. ventilation rate, $Q_{building}$ (cm^3/s)
320.28	0.321	0.003	1.01E-07	0.998	1.01E-07	4,000	5.92E+03	1.69E+04

Area of enclosed space below grade, A_B (cm^2)	Crack-to-total area ratio, η (unitless)	Crack depth below grade, Z_{crack} (cm)	Enthalpy of vaporization at ave. soil temperature, $\Delta H_{v,TS}$ (cal/mol)	Henry's law constant at ave. soil temperature, H_{TS} (atm-m^3/mol)	Henry's law constant at ave. soil temperature, H'_{TS} (unitless)	Vapor viscosity at ave. soil temperature, μ_{TS} (g/cm-s)	Vadose zone effective diffusion coefficient, D^{eff}_V (cm^2/s)	Diffusion path length, L_d (cm)
1.00E+06	4.00E-04	15	8,118	2.58E-01	1.08E+01	1.78E-04	1.08E-02	320.28

Convection path length, L_p (cm)	Source vapor conc., C_{source} ($\mu g/m^3$)	Crack radius, r_{crack} (cm)	Average vapor flow rate into bldg., Q_{soil} (cm^3/s)	Crack effective diffusion coefficient, D^{crack} (cm^2/s)	Area of crack, A_{crack} (cm^2)	Exponent of equivalent foundation Peclet number, $exp(Pe^f)$ (unitless)	Infinite source indoor attenuation coefficient, α (unitless)	Infinite source bldg. conc., $C_{building}$ ($\mu g/m^3$)
15	5.92E+03	0.10	8.33E+01	1.08E-02	4.00E+02	1.46E+84	1.41E-03	8.36E+00

Unit risk factor, URF ($\mu g/m^3)^{-1}$	Reference conc., RfC (mg/m^3)
NA	2.0E-01

END

RESULTS SHEET

INCREMENTAL RISK CALCULATIONS:

Incremental risk from vapor intrusion to indoor air, carcinogen (unitless)	Hazard quotient from vapor intrusion to indoor air, noncarcinogen (unitless)
NA	2.9E-02

MESSAGE SUMMARY BELOW:

END

SG-SCREEN
Version 3.1; 02/04

Reset to Defaults

Soil Gas Concentration Data

ENTER Chemical CAS No. (numbers only, no dashes)	ENTER Soil gas conc., C_g ($\mu g/m^3$)	OR	ENTER Soil gas conc., C_g (ppmv)	Chemical
75718	3.90E+00			Dichlorodifluoromethane

MORE ↓

ENTER Depth below grade to bottom of enclosed space floor, L_F (15 or 200 cm)	ENTER Soil gas sampling depth below grade, L_s (cm)	ENTER Average soil temperature, T_S (^oC)	ENTER Vadose zone SCS soil type (used to estimate soil vapor permeability)	OR	ENTER User-defined vadose zone soil vapor permeability, k_v (cm^2)
15	274.32	19	S		

MORE ↓

ENTER Vandose zone SCS soil type (Lookup Soil Parameters)	ENTER Vadose zone soil dry bulk density, ρ_b^A (g/cm^3)	ENTER Vadose zone soil total porosity, n^V (unitless)	ENTER Vadose zone soil water-filled porosity, θ_w^V (cm^3/cm^3)	ENTER Average vapor flow rate into bldg. (Leave blank to calculate) Q_{soil} (L/m)
S	1.66	0.375	0.054	5

MORE ↓

ENTER Averaging time for carcinogens, AT_C (yrs)	ENTER Averaging time for noncarcinogens, AT_{NC} (yrs)	ENTER Exposure duration, ED (yrs)	ENTER Exposure frequency, EF (days/yr)
70	25	25	250

END

CHEMICAL PROPERTIES SHEET

Diffusivity in air, D_a (cm^2/s)	Diffusivity in water, D_w (cm^2/s)	Henry's law constant at reference temperature, H (atm-m^3/mol)	Henry's law constant reference temperature, T_R (^oC)	Enthalpy of vaporization at the normal boiling point, $\Delta H_{v,b}$ (cal/mol)	Normal boiling point, T_B (^oK)	Critical temperature, T_C (^oK)	Unit risk factor, URF ($\mu g/m^3)^{-1}$	Reference conc., RfC (mg/m^3)	Molecular weight, MW (g/mol)
6.65E-02	9.92E-06	3.42E-01	25	9,421	243.20	384.95	0.0E+00	2.0E-01	120.92

END

INTERMEDIATE CALCULATIONS SHEET

Source-building separation, L_T (cm)	Vadose zone soil air-filled porosity, θ_a^V (cm^3/cm^3)	Vadose zone effective total fluid saturation, S_{te} (cm^3/cm^3)	Vadose zone soil intrinsic permeability, k_i (cm^2)	Vadose zone soil relative air permeability, k_{rg} (cm^2)	Vadose zone soil effective vapor permeability, k_v (cm^2)	Floor-wall seam perimeter, X_{crack} (cm)	Soil gas conc. ($\mu g/m^3$)	Bldg. ventilation rate, $Q_{building}$ (cm^3/s)
259.32	0.321	0.003	1.01E-07	0.998	1.01E-07	4,000	3.90E+00	1.69E+04

Area of enclosed space below grade, A_B (cm^2)	Crack-to-total area ratio, η (unitless)	Crack depth below grade, Z_{crack} (cm)	Enthalpy of vaporization at ave. soil temperature, $\Delta H_{v,TS}$ (cal/mol)	Henry's law constant at ave. soil temperature, H_{TS} (atm-m^3/mol)	Henry's law constant at ave. soil temperature, H'_{TS} (unitless)	Vapor viscosity at ave. soil temperature, μ_{TS} (g/cm-s)	Vadose zone effective diffusion coefficient, D^{eff}_V (cm^2/s)	Diffusion path length, L_d (cm)
1.00E+06	4.00E-04	15	8,118	2.58E-01	1.08E+01	1.78E-04	1.08E-02	259.32

Convection path length, L_p (cm)	Source vapor conc., C_{source} ($\mu g/m^3$)	Crack radius, r_{crack} (cm)	Average vapor flow rate into bldg., Q_{soil} (cm^3/s)	Crack effective diffusion coefficient, D^{crack} (cm^2/s)	Area of crack, A_{crack} (cm^2)	Exponent of equivalent foundation Peclet number, $exp(Pe^f)$ (unitless)	Infinite source indoor attenuation coefficient, α (unitless)	Infinite source bldg. conc., $C_{building}$ ($\mu g/m^3$)
15	3.90E+00	0.10	8.33E+01	1.08E-02	4.00E+02	1.46E+84	1.63E-03	6.37E-03

Unit risk factor, URF ($\mu g/m^3)^{-1}$	Reference conc., RfC (mg/m^3)
NA	2.0E-01

END

RESULTS SHEET

INCREMENTAL RISK CALCULATIONS:

Incremental risk from vapor intrusion to indoor air, carcinogen (unitless)	Hazard quotient from vapor intrusion to indoor air, noncarcinogen (unitless)
NA	2.2E-05

MESSAGE SUMMARY BELOW:

END

SG-SCREEN
Version 3.1; 02/04

Reset to Defaults

Soil Gas Concentration Data

ENTER Chemical CAS No. (numbers only, no dashes)	ENTER Soil gas conc., C_g ($\mu g/m^3$)	OR	ENTER Soil gas conc., C_g (ppmv)	Chemical
75718	4.73E+01			Dichlorodifluoromethane

MORE ↓

ENTER Depth below grade to bottom of enclosed space floor, L_F (15 or 200 cm)	ENTER Soil gas sampling depth below grade, L_s (cm)	ENTER Average soil temperature, T_S (^oC)	ENTER Vadose zone SCS soil type (used to estimate soil vapor permeability)	OR	ENTER User-defined vadose zone soil vapor permeability, k_v (cm^2)
15	685.8	19	S		

MORE ↓

ENTER Vandose zone SCS soil type (Lookup Soil Parameters)	ENTER Vadose zone soil dry bulk density, ρ_b^A (g/cm^3)	ENTER Vadose zone soil total porosity, n^V (unitless)	ENTER Vadose zone soil water-filled porosity, θ_w^V (cm^3/cm^3)	ENTER Average vapor flow rate into bldg. (Leave blank to calculate) Q_{soil} (L/m)
S	1.66	0.375	0.054	5

MORE ↓

ENTER Averaging time for carcinogens, AT_C (yrs)	ENTER Averaging time for noncarcinogens, AT_{NC} (yrs)	ENTER Exposure duration, ED (yrs)	ENTER Exposure frequency, EF (days/yr)
70	25	25	250

END

CHEMICAL PROPERTIES SHEET

Diffusivity in air, D_a (cm^2/s)	Diffusivity in water, D_w (cm^2/s)	Henry's law constant at reference temperature, H (atm-m^3/mol)	Henry's law constant reference temperature, T_R (^oC)	Enthalpy of vaporization at the normal boiling point, $\Delta H_{v,b}$ (cal/mol)	Normal boiling point, T_B (^oK)	Critical temperature, T_C (^oK)	Unit risk factor, URF ($\mu g/m^3)^{-1}$	Reference conc., RfC (mg/m^3)	Molecular weight, MW (g/mol)
6.65E-02	9.92E-06	3.42E-01	25	9,421	243.20	384.95	0.0E+00	2.0E-01	120.92

END

INTERMEDIATE CALCULATIONS SHEET

Source-building separation, L_T (cm)	Vadose zone soil air-filled porosity, θ_a^V (cm^3/cm^3)	Vadose zone effective total fluid saturation, S_{te} (cm^3/cm^3)	Vadose zone soil intrinsic permeability, k_i (cm^2)	Vadose zone soil relative air permeability, k_{rg} (cm^2)	Vadose zone soil effective vapor permeability, k_v (cm^2)	Floor-wall seam perimeter, X_{crack} (cm)	Soil gas conc. ($\mu g/m^3$)	Bldg. ventilation rate, $Q_{building}$ (cm^3/s)
670.8	0.321	0.003	1.01E-07	0.998	1.01E-07	4,000	4.73E+01	1.69E+04

Area of enclosed space below grade, A_B (cm^2)	Crack-to-total area ratio, η (unitless)	Crack depth below grade, Z_{crack} (cm)	Enthalpy of vaporization at ave. soil temperature, $\Delta H_{v,TS}$ (cal/mol)	Henry's law constant at ave. soil temperature, H_{TS} (atm-m^3/mol)	Henry's law constant at ave. soil temperature, H'_{TS} (unitless)	Vapor viscosity at ave. soil temperature, μ_{TS} (g/cm-s)	Vadose zone effective diffusion coefficient, D^{eff}_V (cm^2/s)	Diffusion path length, L_d (cm)
1.00E+06	4.00E-04	15	8,118	2.58E-01	1.08E+01	1.78E-04	1.08E-02	670.8

Convection path length, L_p (cm)	Source vapor conc., C_{source} ($\mu g/m^3$)	Crack radius, r_{crack} (cm)	Average vapor flow rate into bldg., Q_{soil} (cm^3/s)	Crack effective diffusion coefficient, D^{crack} (cm^2/s)	Area of crack, A_{crack} (cm^2)	Exponent of equivalent foundation Peclet number, $exp(Pe^f)$ (unitless)	Infinite source indoor attenuation coefficient, α (unitless)	Infinite source bldg. conc., $C_{building}$ ($\mu g/m^3$)
15	4.73E+01	0.10	8.33E+01	1.08E-02	4.00E+02	1.46E+84	7.93E-04	3.75E-02

Unit risk factor, URF $(\mu g/m^3)^{-1}$	Reference conc., RfC (mg/m^3)
NA	2.0E-01

END

RESULTS SHEET

INCREMENTAL RISK CALCULATIONS:

Incremental risk from vapor intrusion to indoor air, carcinogen (unitless)	Hazard quotient from vapor intrusion to indoor air, noncarcinogen (unitless)
NA	1.3E-04

MESSAGE SUMMARY BELOW:

END

SG-SCREEN
Version 3.1; 02/04

Reset to Defaults

Soil Gas Concentration Data

ENTER Chemical CAS No. (numbers only, no dashes)	ENTER Soil gas conc., C_g ($\mu g/m^3$)	OR	ENTER Soil gas conc., C_g (ppmv)	Chemical
100414	1.39E+01			Ethylbenzene

MORE ↓

ENTER Depth below grade to bottom of enclosed space floor, L_F (15 or 200 cm)	ENTER Soil gas sampling depth below grade, L_s (cm)	ENTER Average soil temperature, T_S (^oC)	ENTER Vadose zone SCS soil type (used to estimate soil vapor permeability)	OR	ENTER User-defined vadose zone soil vapor permeability, k_v (cm^2)
15	548.64	19	S		

MORE ↓

ENTER Vandose zone SCS soil type (Lookup Soil Parameters)	ENTER Vadose zone soil dry bulk density, ρ_b^A (g/cm^3)	ENTER Vadose zone soil total porosity, n^V (unitless)	ENTER Vadose zone soil water-filled porosity, θ_w^V (cm^3/cm^3)	ENTER Average vapor flow rate into bldg. (Leave blank to calculate) Q_{soil} (L/m)
S	1.66	0.375	0.054	5

MORE ↓

ENTER Averaging time for carcinogens, AT_C (yrs)	ENTER Averaging time for noncarcinogens, AT_{NC} (yrs)	ENTER Exposure duration, ED (yrs)	ENTER Exposure frequency, EF (days/yr)
70	25	25	250

END

CHEMICAL PROPERTIES SHEET

Diffusivity in air, D_a (cm^2/s)	Diffusivity in water, D_w (cm^2/s)	Henry's law constant at reference temperature, H (atm-m^3/mol)	Henry's law constant reference temperature, T_R (^oC)	Enthalpy of vaporization at the normal boiling point, $\Delta H_{v,b}$ (cal/mol)	Normal boiling point, T_B (^oK)	Critical temperature, T_C (^oK)	Unit risk factor, URF ($\mu g/m^3)^{-1}$	Reference conc., RfC (mg/m^3)	Molecular weight, MW (g/mol)
7.50E-02	7.80E-06	7.86E-03	25	8,501	409.34	617.20	0.0E+00	1.0E+00	106.17

END

INTERMEDIATE CALCULATIONS SHEET

Source-building separation, L_T (cm)	Vadose zone soil air-filled porosity, θ_a^V (cm^3/cm^3)	Vadose zone effective total fluid saturation, S_{te} (cm^3/cm^3)	Vadose zone soil intrinsic permeability, k_i (cm^2)	Vadose zone soil relative air permeability, k_{rg} (cm^2)	Vadose zone soil effective vapor permeability, k_v (cm^2)	Floor-wall seam perimeter, X_{crack} (cm)	Soil gas conc. ($\mu g/m^3$)	Bldg. ventilation rate, $Q_{building}$ (cm^3/s)
533.64	0.321	0.003	1.01E-07	0.998	1.01E-07	4,000	1.39E+01	1.69E+04

Area of enclosed space below grade, A_B (cm^2)	Crack-to-total area ratio, η (unitless)	Crack depth below grade, Z_{crack} (cm)	Enthalpy of vaporization at ave. soil temperature, $\Delta H_{v,TS}$ (cal/mol)	Henry's law constant at ave. soil temperature, H_{TS} (atm-m^3/mol)	Henry's law constant at ave. soil temperature, H'_{TS} (unitless)	Vapor viscosity at ave. soil temperature, μ_{TS} (g/cm-s)	Vadose zone effective diffusion coefficient, D^{eff}_V (cm^2/s)	Diffusion path length, L_d (cm)
1.00E+06	4.00E-04	15	10,052	5.55E-03	2.31E-01	1.78E-04	1.21E-02	533.64

Convection path length, L_p (cm)	Source vapor conc., C_{source} ($\mu g/m^3$)	Crack radius, r_{crack} (cm)	Average vapor flow rate into bldg., Q_{soil} (cm^3/s)	Crack effective diffusion coefficient, D^{crack} (cm^2/s)	Area of crack, A_{crack} (cm^2)	Exponent of equivalent foundation Peclet number, $exp(Pe^f)$ (unitless)	Infinite source indoor attenuation coefficient, α (unitless)	Infinite source bldg. conc., $C_{building}$ ($\mu g/m^3$)
15	1.39E+01	0.10	8.33E+01	1.21E-02	4.00E+02	4.21E+74	1.05E-03	1.46E-02

Unit risk factor, URF ($(\mu g/m^3)^{-1}$)	Reference conc., RfC (mg/m^3)
NA	1.0E+00

END

RESULTS SHEET

INCREMENTAL RISK CALCULATIONS:

Incremental risk from vapor intrusion to indoor air, carcinogen (unitless)	Hazard quotient from vapor intrusion to indoor air, noncarcinogen (unitless)
NA	1.0E-05

MESSAGE SUMMARY BELOW:

END

SG-SCREEN
Version 3.1; 02/04

Reset to Defaults

Soil Gas Concentration Data

ENTER Chemical CAS No. (numbers only, no dashes)	ENTER Soil gas conc., C_g ($\mu g/m^3$)	OR	ENTER Soil gas conc., C_g (ppmv)	Chemical
100414	6.90E-01			Ethylbenzene

MORE ↓

ENTER Depth below grade to bottom of enclosed space floor, L_F (15 or 200 cm)	ENTER Soil gas sampling depth below grade, L_s (cm)	ENTER Average soil temperature, T_S (^oC)	ENTER Vadose zone SCS soil type (used to estimate soil vapor permeability)	OR	ENTER User-defined vadose zone soil vapor permeability, k_v (cm^2)
15	335.28	19	S		

MORE ↓

ENTER Vandose zone SCS soil type (Lookup Soil Parameters)	ENTER Vadose zone soil dry bulk density, ρ_b^A (g/cm^3)	ENTER Vadose zone soil total porosity, n^V (unitless)	ENTER Vadose zone soil water-filled porosity, θ_w^V (cm^3/cm^3)	ENTER Average vapor flow rate into bldg. (Leave blank to calculate) Q_{soil} (L/m)
S	1.66	0.375	0.054	5

MORE ↓

ENTER Averaging time for carcinogens, AT_C (yrs)	ENTER Averaging time for noncarcinogens, AT_{NC} (yrs)	ENTER Exposure duration, ED (yrs)	ENTER Exposure frequency, EF (days/yr)
70	25	25	250

END

CHEMICAL PROPERTIES SHEET

Diffusivity in air, D_a (cm^2/s)	Diffusivity in water, D_w (cm^2/s)	Henry's law constant at reference temperature, H (atm-m^3/mol)	Henry's law constant reference temperature, T_R (^oC)	Enthalpy of vaporization at the normal boiling point, $\Delta H_{v,b}$ (cal/mol)	Normal boiling point, T_B (^oK)	Critical temperature, T_C (^oK)	Unit risk factor, URF ($\mu g/m^3)^{-1}$	Reference conc., RfC (mg/m^3)	Molecular weight, MW (g/mol)
7.50E-02	7.80E-06	7.86E-03	25	8,501	409.34	617.20	0.0E+00	1.0E+00	106.17

END

INTERMEDIATE CALCULATIONS SHEET

Source-building separation, L_T (cm)	Vadose zone soil air-filled porosity, θ_a^V (cm^3/cm^3)	Vadose zone effective total fluid saturation, S_{te} (cm^3/cm^3)	Vadose zone soil intrinsic permeability, k_i (cm^2)	Vadose zone soil relative air permeability, k_{rg} (cm^2)	Vadose zone soil effective vapor permeability, k_v (cm^2)	Floor-wall seam perimeter, X_{crack} (cm)	Soil gas conc. ($\mu g/m^3$)	Bldg. ventilation rate, $Q_{building}$ (cm^3/s)
320.28	0.321	0.003	1.01E-07	0.998	1.01E-07	4,000	6.90E-01	1.69E+04

Area of enclosed space below grade, A_B (cm^2)	Crack-to-total area ratio, η (unitless)	Crack depth below grade, Z_{crack} (cm)	Enthalpy of vaporization at ave. soil temperature, $\Delta H_{v,TS}$ (cal/mol)	Henry's law constant at ave. soil temperature, H_{TS} (atm-m^3/mol)	Henry's law constant at ave. soil temperature, H'_{TS} (unitless)	Vapor viscosity at ave. soil temperature, μ_{TS} (g/cm-s)	Vadose zone effective diffusion coefficient, D^{eff}_V (cm^2/s)	Diffusion path length, L_d (cm)
1.00E+06	4.00E-04	15	10,052	5.55E-03	2.31E-01	1.78E-04	1.21E-02	320.28

Convection path length, L_p (cm)	Source vapor conc., C_{source} ($\mu g/m^3$)	Crack radius, r_{crack} (cm)	Average vapor flow rate into bldg., Q_{soil} (cm^3/s)	Crack effective diffusion coefficient, D^{crack} (cm^2/s)	Area of crack, A_{crack} (cm^2)	Exponent of equivalent foundation Peclet number, $exp(Pe^f)$ (unitless)	Infinite source indoor attenuation coefficient, α (unitless)	Infinite source bldg. conc., $C_{building}$ ($\mu g/m^3$)
15	6.90E-01	0.10	8.33E+01	1.21E-02	4.00E+02	4.21E+74	1.54E-03	1.06E-03

Unit risk factor, URF ($\mu g/m^3)^{-1}$	Reference conc., RfC (mg/m^3)
NA	1.0E+00

END

RESULTS SHEET

INCREMENTAL RISK CALCULATIONS:

Incremental risk from vapor intrusion to indoor air, carcinogen (unitless)	Hazard quotient from vapor intrusion to indoor air, noncarcinogen (unitless)
NA	7.3E-07

MESSAGE SUMMARY BELOW:

END

SG-SCREEN
Version 3.1; 02/04

Reset to Defaults

Soil Gas Concentration Data

ENTER Chemical CAS No. (numbers only, no dashes)	ENTER Soil gas conc., C_g ($\mu g/m^3$)	OR	ENTER Soil gas conc., C_g (ppmv)	Chemical
100414	3.40E-01			Ethylbenzene

MORE ↓

ENTER Depth below grade to bottom of enclosed space floor, L_F (15 or 200 cm)	ENTER Soil gas sampling depth below grade, L_s (cm)	ENTER Average soil temperature, T_S (^oC)	ENTER Vadose zone SCS soil type (used to estimate soil vapor permeability)	OR	ENTER User-defined vadose zone soil vapor permeability, k_v (cm^2)
15	274.32	19	S		

MORE ↓

ENTER Vandose zone SCS soil type (Lookup Soil Parameters)	ENTER Vadose zone soil dry bulk density, ρ_b^A (g/cm^3)	ENTER Vadose zone soil total porosity, n^V (unitless)	ENTER Vadose zone soil water-filled porosity, θ_w^V (cm^3/cm^3)	ENTER Average vapor flow rate into bldg. (Leave blank to calculate) Q_{soil} (L/m)
S	1.66	0.375	0.054	5

MORE ↓

ENTER Averaging time for carcinogens, AT_C (yrs)	ENTER Averaging time for noncarcinogens, AT_{NC} (yrs)	ENTER Exposure duration, ED (yrs)	ENTER Exposure frequency, EF (days/yr)
70	25	25	250

END

CHEMICAL PROPERTIES SHEET

Diffusivity in air, D_a (cm^2/s)	Diffusivity in water, D_w (cm^2/s)	Henry's law constant at reference temperature, H (atm-m^3/mol)	Henry's law constant reference temperature, T_R (^oC)	Enthalpy of vaporization at the normal boiling point, $\Delta H_{v,b}$ (cal/mol)	Normal boiling point, T_B (^oK)	Critical temperature, T_C (^oK)	Unit risk factor, URF ($\mu g/m^3)^{-1}$	Reference conc., RfC (mg/m^3)	Molecular weight, MW (g/mol)
7.50E-02	7.80E-06	7.86E-03	25	8,501	409.34	617.20	0.0E+00	1.0E+00	106.17

END

INTERMEDIATE CALCULATIONS SHEET

Source-building separation, L_T (cm)	Vadose zone soil air-filled porosity, θ_a^V (cm^3/cm^3)	Vadose zone effective total fluid saturation, S_{te} (cm^3/cm^3)	Vadose zone soil intrinsic permeability, k_i (cm^2)	Vadose zone soil relative air permeability, k_{rg} (cm^2)	Vadose zone soil effective vapor permeability, k_v (cm^2)	Floor-wall seam perimeter, X_{crack} (cm)	Soil gas conc. ($\mu g/m^3$)	Bldg. ventilation rate, $Q_{building}$ (cm^3/s)
259.32	0.321	0.003	1.01E-07	0.998	1.01E-07	4,000	3.40E-01	1.69E+04

Area of enclosed space below grade, A_B (cm^2)	Crack-to-total area ratio, η (unitless)	Crack depth below grade, Z_{crack} (cm)	Enthalpy of vaporization at ave. soil temperature, $\Delta H_{v,TS}$ (cal/mol)	Henry's law constant at ave. soil temperature, H_{TS} (atm-m^3/mol)	Henry's law constant at ave. soil temperature, H'_{TS} (unitless)	Vapor viscosity at ave. soil temperature, μ_{TS} (g/cm-s)	Vadose zone effective diffusion coefficient, D^{eff}_V (cm^2/s)	Diffusion path length, L_d (cm)
1.00E+06	4.00E-04	15	10,052	5.55E-03	2.31E-01	1.78E-04	1.21E-02	259.32

Convection path length, L_p (cm)	Source vapor conc., C_{source} ($\mu g/m^3$)	Crack radius, r_{crack} (cm)	Average vapor flow rate into bldg., Q_{soil} (cm^3/s)	Crack effective diffusion coefficient, D^{crack} (cm^2/s)	Area of crack, A_{crack} (cm^2)	Exponent of equivalent foundation Peclet number, $exp(Pe^f)$ (unitless)	Infinite source indoor attenuation coefficient, α (unitless)	Infinite source bldg. conc., $C_{building}$ ($\mu g/m^3$)
15	3.40E-01	0.10	8.33E+01	1.21E-02	4.00E+02	4.21E+74	1.77E-03	6.01E-04

Unit risk factor, URF ($\mu g/m^3)^{-1}$	Reference conc., RfC (mg/m^3)
NA	1.0E+00

END

RESULTS SHEET

INCREMENTAL RISK CALCULATIONS:

Incremental risk from vapor intrusion to indoor air, carcinogen (unitless)	Hazard quotient from vapor intrusion to indoor air, noncarcinogen (unitless)
NA	4.1E-07

MESSAGE SUMMARY BELOW:

END

SG-SCREEN
Version 3.1; 02/04

Reset to Defaults

Soil Gas Concentration Data

ENTER Chemical CAS No. (numbers only, no dashes)	ENTER Soil gas conc., C_g ($\mu g/m^3$)	OR	ENTER Soil gas conc., C_g (ppmv)	Chemical
100414	6.07E+01			Ethylbenzene

MORE ↓

ENTER Depth below grade to bottom of enclosed space floor, L_F (15 or 200 cm)	ENTER Soil gas sampling depth below grade, L_s (cm)	ENTER Average soil temperature, T_S (^oC)	ENTER Vadose zone SCS soil type (used to estimate soil vapor permeability)	OR	ENTER User-defined vadose zone soil vapor permeability, k_v (cm^2)
15	685.8	19	S		

MORE ↓

ENTER Vandose zone SCS soil type (Lookup Soil Parameters)	ENTER Vadose zone soil dry bulk density, ρ_b^A (g/cm^3)	ENTER Vadose zone soil total porosity, n^V (unitless)	ENTER Vadose zone soil water-filled porosity, θ_w^V (cm^3/cm^3)	ENTER Average vapor flow rate into bldg. (Leave blank to calculate) Q_{soil} (L/m)
S	1.66	0.375	0.054	5

MORE ↓

ENTER Averaging time for carcinogens, AT_C (yrs)	ENTER Averaging time for noncarcinogens, AT_{NC} (yrs)	ENTER Exposure duration, ED (yrs)	ENTER Exposure frequency, EF (days/yr)
70	25	25	250

END

CHEMICAL PROPERTIES SHEET

Diffusivity in air, D_a (cm^2/s)	Diffusivity in water, D_w (cm^2/s)	Henry's law constant at reference temperature, H (atm-m^3/mol)	Henry's law constant reference temperature, T_R (^oC)	Enthalpy of vaporization at the normal boiling point, $\Delta H_{v,b}$ (cal/mol)	Normal boiling point, T_B (^oK)	Critical temperature, T_C (^oK)	Unit risk factor, URF ($\mu g/m^3)^{-1}$	Reference conc., RfC (mg/m^3)	Molecular weight, MW (g/mol)
7.50E-02	7.80E-06	7.86E-03	25	8,501	409.34	617.20	0.0E+00	1.0E+00	106.17

END

INTERMEDIATE CALCULATIONS SHEET

Source-building separation, L_T (cm)	Vadose zone soil air-filled porosity, θ_a^V (cm^3/cm^3)	Vadose zone effective total fluid saturation, S_{te} (cm^3/cm^3)	Vadose zone soil intrinsic permeability, k_i (cm^2)	Vadose zone soil relative air permeability, k_{rg} (cm^2)	Vadose zone soil effective vapor permeability, k_v (cm^2)	Floor-wall seam perimeter, X_{crack} (cm)	Soil gas conc. ($\mu g/m^3$)	Bldg. ventilation rate, $Q_{building}$ (cm^3/s)
670.8	0.321	0.003	1.01E-07	0.998	1.01E-07	4,000	6.07E+01	1.69E+04

Area of enclosed space below grade, A_B (cm^2)	Crack-to-total area ratio, η (unitless)	Crack depth below grade, Z_{crack} (cm)	Enthalpy of vaporization at ave. soil temperature, $\Delta H_{v,TS}$ (cal/mol)	Henry's law constant at ave. soil temperature, H_{TS} (atm-m^3/mol)	Henry's law constant at ave. soil temperature, H'_{TS} (unitless)	Vapor viscosity at ave. soil temperature, μ_{TS} (g/cm-s)	Vadose zone effective diffusion coefficient, D^{eff}_V (cm^2/s)	Diffusion path length, L_d (cm)
1.00E+06	4.00E-04	15	10,052	5.55E-03	2.31E-01	1.78E-04	1.21E-02	670.8

Convection path length, L_p (cm)	Source vapor conc., C_{source} ($\mu g/m^3$)	Crack radius, r_{crack} (cm)	Average vapor flow rate into bldg., Q_{soil} (cm^3/s)	Crack effective diffusion coefficient, D^{crack} (cm^2/s)	Area of crack, A_{crack} (cm^2)	Exponent of equivalent foundation Peclet number, $exp(Pe^f)$ (unitless)	Infinite source indoor attenuation coefficient, α (unitless)	Infinite source bldg. conc., $C_{building}$ ($\mu g/m^3$)
15	6.07E+01	0.10	8.33E+01	1.21E-02	4.00E+02	4.21E+74	8.77E-04	5.32E-02

Unit risk factor, URF ($\mu g/m^3)^{-1}$	Reference conc., RfC (mg/m^3)
NA	1.0E+00

END

RESULTS SHEET

INCREMENTAL RISK CALCULATIONS:

Incremental risk from vapor intrusion to indoor air, carcinogen (unitless)	Hazard quotient from vapor intrusion to indoor air, noncarcinogen (unitless)
NA	3.6E-05

MESSAGE SUMMARY BELOW:

END

SG-SCREEN
Version 3.1; 02/04

Reset to Defaults

Soil Gas Concentration Data

ENTER Chemical CAS No. (numbers only, no dashes)	ENTER Soil gas conc., C_g ($\mu g/m^3$)	OR	ENTER Soil gas conc., C_g (ppmv)	Chemical
75092	1.21E+00			Methylene chloride

MORE ↓

ENTER Depth below grade to bottom of enclosed space floor, L_F (15 or 200 cm)	ENTER Soil gas sampling depth below grade, L_s (cm)	ENTER Average soil temperature, T_S (^oC)	ENTER Vadose zone SCS soil type (used to estimate soil vapor permeability)	OR	ENTER User-defined vadose zone soil vapor permeability, k_v (cm^2)
15	548.64	19	S		

MORE ↓

ENTER Vandose zone SCS soil type (Lookup Soil Parameters)	ENTER Vadose zone soil dry bulk density, ρ_b^A (g/cm^3)	ENTER Vadose zone soil total porosity, n^V (unitless)	ENTER Vadose zone soil water-filled porosity, θ_w^V (cm^3/cm^3)	ENTER Average vapor flow rate into bldg. (Leave blank to calculate) Q_{soil} (L/m)
S	1.66	0.375	0.054	5

MORE ↓

ENTER Averaging time for carcinogens, AT_C (yrs)	ENTER Averaging time for noncarcinogens, AT_{NC} (yrs)	ENTER Exposure duration, ED (yrs)	ENTER Exposure frequency, EF (days/yr)
70	25	25	250

END

CHEMICAL PROPERTIES SHEET

Diffusivity in air, D_a (cm^2/s)	Diffusivity in water, D_w (cm^2/s)	Henry's law constant at reference temperature, H (atm-m^3/mol)	Henry's law constant reference temperature, T_R (^oC)	Enthalpy of vaporization at the normal boiling point, $\Delta H_{v,b}$ (cal/mol)	Normal boiling point, T_B (^oK)	Critical temperature, T_C (^oK)	Unit risk factor, URF ($\mu g/m^3)^{-1}$	Reference conc., RfC (mg/m^3)	Molecular weight, MW (g/mol)
1.01E-01	1.17E-05	2.18E-03	25	6,706	313.00	510.00	4.7E-07	3.0E+00	84.93

END

INTERMEDIATE CALCULATIONS SHEET

Source-building separation, L_T (cm)	Vadose zone soil air-filled porosity, θ_a^V (cm^3/cm^3)	Vadose zone effective total fluid saturation, S_{te} (cm^3/cm^3)	Vadose zone soil intrinsic permeability, k_i (cm^2)	Vadose zone soil relative air permeability, k_{rg} (cm^2)	Vadose zone soil effective vapor permeability, k_v (cm^2)	Floor-wall seam perimeter, X_{crack} (cm)	Soil gas conc. ($\mu g/m^3$)	Bldg. ventilation rate, $Q_{building}$ (cm^3/s)
533.64	0.321	0.003	1.01E-07	0.998	1.01E-07	4,000	1.21E+00	1.69E+04

Area of enclosed space below grade, A_B (cm^2)	Crack-to-total area ratio, η (unitless)	Crack depth below grade, Z_{crack} (cm)	Enthalpy of vaporization at ave. soil temperature, $\Delta H_{v,TS}$ (cal/mol)	Henry's law constant at ave. soil temperature, H_{TS} (atm-m^3/mol)	Henry's law constant at ave. soil temperature, H'_{TS} (unitless)	Vapor viscosity at ave. soil temperature, μ_{TS} (g/cm-s)	Vadose zone effective diffusion coefficient, D^{eff}_V (cm^2/s)	Diffusion path length, L_d (cm)
1.00E+06	4.00E-04	15	6,938	1.72E-03	7.16E-02	1.78E-04	1.63E-02	533.64

Convection path length, L_p (cm)	Source vapor conc., C_{source} ($\mu g/m^3$)	Crack radius, r_{crack} (cm)	Average vapor flow rate into bldg., Q_{soil} (cm^3/s)	Crack effective diffusion coefficient, D^{crack} (cm^2/s)	Area of crack, A_{crack} (cm^2)	Exponent of equivalent foundation Peclet number, $exp(Pe^f)$ (unitless)	Infinite source indoor attenuation coefficient, α (unitless)	Infinite source bldg. conc., $C_{building}$ ($\mu g/m^3$)
15	1.21E+00	0.10	8.33E+01	1.63E-02	4.00E+02	2.60E+55	1.32E-03	1.60E-03

Unit risk factor, URF ($\mu g/m^3)^{-1}$	Reference conc., RfC (mg/m^3)
4.7E-07	3.0E+00

END

RESULTS SHEET

INCREMENTAL RISK CALCULATIONS:

Incremental risk from vapor intrusion to indoor air, carcinogen (unitless)	Hazard quotient from vapor intrusion to indoor air, noncarcinogen (unitless)
1.8E-10	3.6E-07

MESSAGE SUMMARY BELOW:

END

SG-SCREEN
Version 3.1; 02/04

Reset to Defaults

Soil Gas Concentration Data

ENTER Chemical CAS No. (numbers only, no dashes)	ENTER Soil gas conc., C_g ($\mu g/m^3$)	OR	ENTER Soil gas conc., C_g (ppmv)	Chemical
75092	1.63E+02			Methylene chloride

MORE ↓

ENTER Depth below grade to bottom of enclosed space floor, L_F (15 or 200 cm)	ENTER Soil gas sampling depth below grade, L_s (cm)	ENTER Average soil temperature, T_S (^oC)	ENTER Vadose zone SCS soil type (used to estimate soil vapor permeability)	OR	ENTER User-defined vadose zone soil vapor permeability, k_v (cm^2)
15	335.28	19	S		

MORE ↓

ENTER Vandose zone SCS soil type (Lookup Soil Parameters)	ENTER Vadose zone soil dry bulk density, ρ_b^A (g/cm^3)	ENTER Vadose zone soil total porosity, n^V (unitless)	ENTER Vadose zone soil water-filled porosity, θ_w^V (cm^3/cm^3)	ENTER Average vapor flow rate into bldg. (Leave blank to calculate) Q_{soil} (L/m)
S	1.66	0.375	0.054	5

MORE ↓

ENTER Averaging time for carcinogens, AT_C (yrs)	ENTER Averaging time for noncarcinogens, AT_{NC} (yrs)	ENTER Exposure duration, ED (yrs)	ENTER Exposure frequency, EF (days/yr)
70	25	25	250

END

CHEMICAL PROPERTIES SHEET

Diffusivity in air, D_a (cm^2/s)	Diffusivity in water, D_w (cm^2/s)	Henry's law constant at reference temperature, H (atm-m^3/mol)	Henry's law constant reference temperature, T_R (^oC)	Enthalpy of vaporization at the normal boiling point, $\Delta H_{v,b}$ (cal/mol)	Normal boiling point, T_B (^oK)	Critical temperature, T_C (^oK)	Unit risk factor, URF ($\mu g/m^3)^{-1}$	Reference conc., RfC (mg/m^3)	Molecular weight, MW (g/mol)
1.01E-01	1.17E-05	2.18E-03	25	6,706	313.00	510.00	4.7E-07	3.0E+00	84.93

END

INTERMEDIATE CALCULATIONS SHEET

Source-building separation, L_T (cm)	Vadose zone soil air-filled porosity, θ_a^V (cm^3/cm^3)	Vadose zone effective total fluid saturation, S_{te} (cm^3/cm^3)	Vadose zone soil intrinsic permeability, k_i (cm^2)	Vadose zone soil relative air permeability, k_{rg} (cm^2)	Vadose zone soil effective vapor permeability, k_v (cm^2)	Floor-wall seam perimeter, X_{crack} (cm)	Soil gas conc. ($\mu g/m^3$)	Bldg. ventilation rate, $Q_{building}$ (cm^3/s)
320.28	0.321	0.003	1.01E-07	0.998	1.01E-07	4,000	1.63E+02	1.69E+04

Area of enclosed space below grade, A_B (cm^2)	Crack-to-total area ratio, η (unitless)	Crack depth below grade, Z_{crack} (cm)	Enthalpy of vaporization at ave. soil temperature, $\Delta H_{v,TS}$ (cal/mol)	Henry's law constant at ave. soil temperature, H_{TS} (atm-m^3/mol)	Henry's law constant at ave. soil temperature, H'_{TS} (unitless)	Vapor viscosity at ave. soil temperature, μ_{TS} (g/cm-s)	Vadose zone effective diffusion coefficient, D^{eff}_V (cm^2/s)	Diffusion path length, L_d (cm)
1.00E+06	4.00E-04	15	6,938	1.72E-03	7.16E-02	1.78E-04	1.63E-02	320.28

Convection path length, L_p (cm)	Source vapor conc., C_{source} ($\mu g/m^3$)	Crack radius, r_{crack} (cm)	Average vapor flow rate into bldg., Q_{soil} (cm^3/s)	Crack effective diffusion coefficient, D^{crack} (cm^2/s)	Area of crack, A_{crack} (cm^2)	Exponent of equivalent foundation Peclet number, $exp(Pe^f)$ (unitless)	Infinite source indoor attenuation coefficient, α (unitless)	Infinite source bldg. conc., $C_{building}$ ($\mu g/m^3$)
15	1.63E+02	0.10	8.33E+01	1.63E-02	4.00E+02	2.60E+55	1.87E-03	3.04E-01

Unit risk factor, URF $(\mu g/m^3)^{-1}$	Reference conc., RfC (mg/m^3)
4.7E-07	3.0E+00

END

RESULTS SHEET

INCREMENTAL RISK CALCULATIONS:

Incremental risk from vapor intrusion to indoor air, carcinogen (unitless)	Hazard quotient from vapor intrusion to indoor air, noncarcinogen (unitless)
3.5E-08	6.9E-05

MESSAGE SUMMARY BELOW:

END

SG-SCREEN
Version 3.1; 02/04

Reset to Defaults

Soil Gas Concentration Data

ENTER Chemical CAS No. (numbers only, no dashes)	ENTER Soil gas conc., C_g ($\mu g/m^3$)	OR	ENTER Soil gas conc., C_g (ppmv)	Chemical
75092	1.50E-01			Methylene chloride

MORE ↓

ENTER Depth below grade to bottom of enclosed space floor, L_F (15 or 200 cm)	ENTER Soil gas sampling depth below grade, L_s (cm)	ENTER Average soil temperature, T_S (^oC)	ENTER Vadose zone SCS soil type (used to estimate soil vapor permeability)	OR	ENTER User-defined vadose zone soil vapor permeability, k_v (cm^2)
15	274.32	19	S		

MORE ↓

ENTER Vandose zone SCS soil type (Lookup Soil Parameters)	ENTER Vadose zone soil dry bulk density, ρ_b^A (g/cm^3)	ENTER Vadose zone soil total porosity, n^V (unitless)	ENTER Vadose zone soil water-filled porosity, θ_w^V (cm^3/cm^3)	ENTER Average vapor flow rate into bldg. (Leave blank to calculate) Q_{soil} (L/m)
S	1.66	0.375	0.054	5

MORE ↓

ENTER Averaging time for carcinogens, AT_C (yrs)	ENTER Averaging time for noncarcinogens, AT_{NC} (yrs)	ENTER Exposure duration, ED (yrs)	ENTER Exposure frequency, EF (days/yr)
70	25	25	250

END

CHEMICAL PROPERTIES SHEET

Diffusivity in air, D_a (cm^2/s)	Diffusivity in water, D_w (cm^2/s)	Henry's law constant at reference temperature, H (atm-m^3/mol)	Henry's law constant reference temperature, T_R (^oC)	Enthalpy of vaporization at the normal boiling point, $\Delta H_{v,b}$ (cal/mol)	Normal boiling point, T_B (^oK)	Critical temperature, T_C (^oK)	Unit risk factor, URF ($\mu g/m^3)^{-1}$	Reference conc., RfC (mg/m^3)	Molecular weight, MW (g/mol)
1.01E-01	1.17E-05	2.18E-03	25	6,706	313.00	510.00	4.7E-07	3.0E+00	84.93

END

INTERMEDIATE CALCULATIONS SHEET

Source-building separation, L_T (cm)	Vadose zone soil air-filled porosity, θ_a^V (cm^3/cm^3)	Vadose zone effective total fluid saturation, S_{te} (cm^3/cm^3)	Vadose zone soil intrinsic permeability, k_i (cm^2)	Vadose zone soil relative air permeability, k_{rg} (cm^2)	Vadose zone soil effective vapor permeability, k_v (cm^2)	Floor-wall seam perimeter, X_{crack} (cm)	Soil gas conc. ($\mu g/m^3$)	Bldg. ventilation rate, $Q_{building}$ (cm^3/s)
259.32	0.321	0.003	1.01E-07	0.998	1.01E-07	4,000	1.50E-01	1.69E+04

Area of enclosed space below grade, A_B (cm^2)	Crack-to-total area ratio, η (unitless)	Crack depth below grade, Z_{crack} (cm)	Enthalpy of vaporization at ave. soil temperature, $\Delta H_{v,TS}$ (cal/mol)	Henry's law constant at ave. soil temperature, H_{TS} (atm-m^3/mol)	Henry's law constant at ave. soil temperature, H'_{TS} (unitless)	Vapor viscosity at ave. soil temperature, μ_{TS} (g/cm-s)	Vadose zone effective diffusion coefficient, D^{eff}_V (cm^2/s)	Diffusion path length, L_d (cm)
1.00E+06	4.00E-04	15	6,938	1.72E-03	7.16E-02	1.78E-04	1.63E-02	259.32

Convection path length, L_p (cm)	Source vapor conc., C_{source} ($\mu g/m^3$)	Crack radius, r_{crack} (cm)	Average vapor flow rate into bldg., Q_{soil} (cm^3/s)	Crack effective diffusion coefficient, D^{crack} (cm^2/s)	Area of crack, A_{crack} (cm^2)	Exponent of equivalent foundation Peclet number, $exp(Pe^f)$ (unitless)	Infinite source indoor attenuation coefficient, α (unitless)	Infinite source bldg. conc., $C_{building}$ ($\mu g/m^3$)
15	1.50E-01	0.10	8.33E+01	1.63E-02	4.00E+02	2.60E+55	2.12E-03	3.18E-04

Unit risk factor, URF ($\mu g/m^3)^{-1}$	Reference conc., RfC (mg/m^3)
4.7E-07	3.0E+00

END

RESULTS SHEET

INCREMENTAL RISK CALCULATIONS:

Incremental risk from vapor intrusion to indoor air, carcinogen (unitless)	Hazard quotient from vapor intrusion to indoor air, noncarcinogen (unitless)
3.7E-11	7.2E-08

MESSAGE SUMMARY BELOW:

END

SG-SCREEN
Version 3.1; 02/04

Reset to Defaults

Soil Gas Concentration Data

ENTER Chemical CAS No. (numbers only, no dashes)	ENTER Soil gas conc., C_g ($\mu g/m^3$)	OR	ENTER Soil gas conc., C_g (ppmv)	Chemical
75092	1.94E+01			Methylene chloride

MORE ↓

ENTER Depth below grade to bottom of enclosed space floor, L_F (15 or 200 cm)	ENTER Soil gas sampling depth below grade, L_s (cm)	ENTER Average soil temperature, T_S (^oC)	ENTER Vadose zone SCS soil type (used to estimate soil vapor permeability)	OR	ENTER User-defined vadose zone soil vapor permeability, k_v (cm^2)
15	685.8	19	S		

MORE ↓

ENTER Vandose zone SCS soil type (Lookup Soil Parameters)	ENTER Vadose zone soil dry bulk density, ρ_b^A (g/cm^3)	ENTER Vadose zone soil total porosity, n^V (unitless)	ENTER Vadose zone soil water-filled porosity, θ_w^V (cm^3/cm^3)	ENTER Average vapor flow rate into bldg. (Leave blank to calculate) Q_{soil} (L/m)
S	1.66	0.375	0.054	5

MORE ↓

ENTER Averaging time for carcinogens, AT_C (yrs)	ENTER Averaging time for noncarcinogens, AT_{NC} (yrs)	ENTER Exposure duration, ED (yrs)	ENTER Exposure frequency, EF (days/yr)
70	25	25	250

END

CHEMICAL PROPERTIES SHEET

Diffusivity in air, D_a (cm^2/s)	Diffusivity in water, D_w (cm^2/s)	Henry's law constant at reference temperature, H (atm-m^3/mol)	Henry's law constant reference temperature, T_R (^oC)	Enthalpy of vaporization at the normal boiling point, $\Delta H_{v,b}$ (cal/mol)	Normal boiling point, T_B (^oK)	Critical temperature, T_C (^oK)	Unit risk factor, URF ($\mu g/m^3)^{-1}$	Reference conc., RfC (mg/m^3)	Molecular weight, MW (g/mol)
1.01E-01	1.17E-05	2.18E-03	25	6,706	313.00	510.00	4.7E-07	3.0E+00	84.93

END

INTERMEDIATE CALCULATIONS SHEET

Source-building separation, L_T (cm)	Vadose zone soil air-filled porosity, θ_a^V (cm^3/cm^3)	Vadose zone effective total fluid saturation, S_{te} (cm^3/cm^3)	Vadose zone soil intrinsic permeability, k_i (cm^2)	Vadose zone soil relative air permeability, k_{rg} (cm^2)	Vadose zone soil effective vapor permeability, k_v (cm^2)	Floor-wall seam perimeter, X_{crack} (cm)	Soil gas conc. ($\mu g/m^3$)	Bldg. ventilation rate, $Q_{building}$ (cm^3/s)
670.8	0.321	0.003	1.01E-07	0.998	1.01E-07	4,000	1.94E+01	1.69E+04

Area of enclosed space below grade, A_B (cm^2)	Crack-to-total area ratio, η (unitless)	Crack depth below grade, Z_{crack} (cm)	Enthalpy of vaporization at ave. soil temperature, $\Delta H_{v,TS}$ (cal/mol)	Henry's law constant at ave. soil temperature, H_{TS} (atm-m^3/mol)	Henry's law constant at ave. soil temperature, H'_{TS} (unitless)	Vapor viscosity at ave. soil temperature, μ_{TS} (g/cm-s)	Vadose zone effective diffusion coefficient, D^{eff}_V (cm^2/s)	Diffusion path length, L_d (cm)
1.00E+06	4.00E-04	15	6,938	1.72E-03	7.16E-02	1.78E-04	1.63E-02	670.8

Convection path length, L_p (cm)	Source vapor conc., C_{source} ($\mu g/m^3$)	Crack radius, r_{crack} (cm)	Average vapor flow rate into bldg., Q_{soil} (cm^3/s)	Crack effective diffusion coefficient, D^{crack} (cm^2/s)	Area of crack, A_{crack} (cm^2)	Exponent of equivalent foundation Peclet number, $exp(Pe^f)$ (unitless)	Infinite source indoor attenuation coefficient, α (unitless)	Infinite source bldg. conc., $C_{building}$ ($\mu g/m^3$)
15	1.94E+01	0.10	8.33E+01	1.63E-02	4.00E+02	2.60E+55	1.11E-03	2.16E-02

Unit risk factor, URF ($\mu g/m^3)^{-1}$	Reference conc., RfC (mg/m^3)
4.7E-07	3.0E+00

END

RESULTS SHEET

INCREMENTAL RISK CALCULATIONS:

Incremental risk from vapor intrusion to indoor air, carcinogen (unitless)	Hazard quotient from vapor intrusion to indoor air, noncarcinogen (unitless)
2.5E-09	4.9E-06

MESSAGE SUMMARY BELOW:

END

SG-SCREEN
Version 3.1; 02/04

Reset to Defaults

Soil Gas Concentration Data

ENTER Chemical CAS No. (numbers only, no dashes)	ENTER Soil gas conc., C_g ($\mu g/m^3$)	OR	ENTER Soil gas conc., C_g (ppmv)	Chemical
127184	2.84E+01			Tetrachloroethylene

MORE ↓

ENTER Depth below grade to bottom of enclosed space floor, L_F (15 or 200 cm)	ENTER Soil gas sampling depth below grade, L_s (cm)	ENTER Average soil temperature, T_S (^oC)	ENTER Vadose zone SCS soil type (used to estimate soil vapor permeability)	OR	ENTER User-defined vadose zone soil vapor permeability, k_v (cm^2)
15	548.64	19	S		

MORE ↓

ENTER Vandose zone SCS soil type (Lookup Soil Parameters)	ENTER Vadose zone soil dry bulk density, ρ_b^A (g/cm^3)	ENTER Vadose zone soil total porosity, n^V (unitless)	ENTER Vadose zone soil water-filled porosity, θ_w^V (cm^3/cm^3)	ENTER Average vapor flow rate into bldg. (Leave blank to calculate) Q_{soil} (L/m)
S	1.66	0.375	0.054	5

MORE ↓

ENTER Averaging time for carcinogens, AT_C (yrs)	ENTER Averaging time for noncarcinogens, AT_{NC} (yrs)	ENTER Exposure duration, ED (yrs)	ENTER Exposure frequency, EF (days/yr)
70	25	25	250

END

CHEMICAL PROPERTIES SHEET

Diffusivity in air, D_a (cm^2/s)	Diffusivity in water, D_w (cm^2/s)	Henry's law constant at reference temperature, H (atm-m^3/mol)	Henry's law constant reference temperature, T_R (^oC)	Enthalpy of vaporization at the normal boiling point, $\Delta H_{v,b}$ (cal/mol)	Normal boiling point, T_B (^oK)	Critical temperature, T_C (^oK)	Unit risk factor, URF ($\mu g/m^3)^{-1}$	Reference conc., RfC (mg/m^3)	Molecular weight, MW (g/mol)
7.20E-02	8.20E-06	1.84E-02	25	8,288	394.40	620.20	5.9E-06	6.0E-01	165.83

END

INTERMEDIATE CALCULATIONS SHEET

Source-building separation, L_T (cm)	Vadose zone soil air-filled porosity, θ_a^V (cm^3/cm^3)	Vadose zone effective total fluid saturation, S_{te} (cm^3/cm^3)	Vadose zone soil intrinsic permeability, k_i (cm^2)	Vadose zone soil relative air permeability, k_{rg} (cm^2)	Vadose zone soil effective vapor permeability, k_v (cm^2)	Floor-wall seam perimeter, X_{crack} (cm)	Soil gas conc. ($\mu g/m^3$)	Bldg. ventilation rate, $Q_{building}$ (cm^3/s)
533.64	0.321	0.003	1.01E-07	0.998	1.01E-07	4,000	2.84E+01	1.69E+04

Area of enclosed space below grade, A_B (cm^2)	Crack-to-total area ratio, η (unitless)	Crack depth below grade, Z_{crack} (cm)	Enthalpy of vaporization at ave. soil temperature, $\Delta H_{v,TS}$ (cal/mol)	Henry's law constant at ave. soil temperature, H_{TS} (atm-m^3/mol)	Henry's law constant at ave. soil temperature, H'_{TS} (unitless)	Vapor viscosity at ave. soil temperature, μ_{TS} (g/cm-s)	Vadose zone effective diffusion coefficient, D^{eff}_V (cm^2/s)	Diffusion path length, L_d (cm)
1.00E+06	4.00E-04	15	9,462	1.32E-02	5.52E-01	1.78E-04	1.16E-02	533.64

Convection path length, L_p (cm)	Source vapor conc., C_{source} ($\mu g/m^3$)	Crack radius, r_{crack} (cm)	Average vapor flow rate into bldg., Q_{soil} (cm^3/s)	Crack effective diffusion coefficient, D^{crack} (cm^2/s)	Area of crack, A_{crack} (cm^2)	Exponent of equivalent foundation Peclet number, $exp(Pe^f)$ (unitless)	Infinite source indoor attenuation coefficient, α (unitless)	Infinite source bldg. conc., $C_{building}$ ($\mu g/m^3$)
15	2.84E+01	0.10	8.33E+01	1.16E-02	4.00E+02	5.42E+77	1.02E-03	2.90E-02

Unit risk factor, URF ($\mu g/m^3)^{-1}$	Reference conc., RfC (mg/m^3)
5.9E-06	6.0E-01

END

RESULTS SHEET

INCREMENTAL RISK CALCULATIONS:

Incremental risk from vapor intrusion to indoor air, carcinogen (unitless)	Hazard quotient from vapor intrusion to indoor air, noncarcinogen (unitless)
4.2E-08	3.3E-05

MESSAGE SUMMARY BELOW:

END

SG-SCREEN
Version 3.1; 02/04

Reset to Defaults

Soil Gas Concentration Data

ENTER Chemical CAS No. (numbers only, no dashes)	ENTER Soil gas conc., C_g ($\mu g/m^3$)	OR	ENTER Soil gas conc., C_g (ppmv)	Chemical
127184	3.93E+03			Tetrachloroethylene

MORE ↓

ENTER Depth below grade to bottom of enclosed space floor, L_F (15 or 200 cm)	ENTER Soil gas sampling depth below grade, L_s (cm)	ENTER Average soil temperature, T_S (^oC)	ENTER Vadose zone SCS soil type (used to estimate soil vapor permeability)	OR	ENTER User-defined vadose zone soil vapor permeability, k_v (cm^2)
15	335.28	19	S		

MORE ↓

ENTER Vandose zone SCS soil type (Lookup Soil Parameters)	ENTER Vadose zone soil dry bulk density, ρ_b^A (g/cm^3)	ENTER Vadose zone soil total porosity, n^V (unitless)	ENTER Vadose zone soil water-filled porosity, θ_w^V (cm^3/cm^3)	ENTER Average vapor flow rate into bldg. (Leave blank to calculate) Q_{soil} (L/m)
S	1.66	0.375	0.054	5

MORE ↓

ENTER Averaging time for carcinogens, AT_C (yrs)	ENTER Averaging time for noncarcinogens, AT_{NC} (yrs)	ENTER Exposure duration, ED (yrs)	ENTER Exposure frequency, EF (days/yr)
70	25	25	250

END

CHEMICAL PROPERTIES SHEET

Diffusivity in air, D_a (cm^2/s)	Diffusivity in water, D_w (cm^2/s)	Henry's law constant at reference temperature, H (atm-m^3/mol)	Henry's law constant reference temperature, T_R (^oC)	Enthalpy of vaporization at the normal boiling point, $\Delta H_{v,b}$ (cal/mol)	Normal boiling point, T_B (^oK)	Critical temperature, T_C (^oK)	Unit risk factor, URF ($\mu g/m^3)^{-1}$	Reference conc., RfC (mg/m^3)	Molecular weight, MW (g/mol)
7.20E-02	8.20E-06	1.84E-02	25	8,288	394.40	620.20	5.9E-06	6.0E-01	165.83

END

INTERMEDIATE CALCULATIONS SHEET

Source-building separation, L_T (cm)	Vadose zone soil air-filled porosity, θ_a^V (cm^3/cm^3)	Vadose zone effective total fluid saturation, S_{te} (cm^3/cm^3)	Vadose zone soil intrinsic permeability, k_i (cm^2)	Vadose zone soil relative air permeability, k_{rg} (cm^2)	Vadose zone soil effective vapor permeability, k_v (cm^2)	Floor-wall seam perimeter, X_{crack} (cm)	Soil gas conc. ($\mu g/m^3$)	Bldg. ventilation rate, $Q_{building}$ (cm^3/s)
320.28	0.321	0.003	1.01E-07	0.998	1.01E-07	4,000	3.93E+03	1.69E+04

Area of enclosed space below grade, A_B (cm^2)	Crack-to-total area ratio, η (unitless)	Crack depth below grade, Z_{crack} (cm)	Enthalpy of vaporization at ave. soil temperature, $\Delta H_{v,TS}$ (cal/mol)	Henry's law constant at ave. soil temperature, H_{TS} (atm-m^3/mol)	Henry's law constant at ave. soil temperature, H'_{TS} (unitless)	Vapor viscosity at ave. soil temperature, μ_{TS} (g/cm-s)	Vadose zone effective diffusion coefficient, D^{eff}_V (cm^2/s)	Diffusion path length, L_d (cm)
1.00E+06	4.00E-04	15	9,462	1.32E-02	5.52E-01	1.78E-04	1.16E-02	320.28

Convection path length, L_p (cm)	Source vapor conc., C_{source} ($\mu g/m^3$)	Crack radius, r_{crack} (cm)	Average vapor flow rate into bldg., Q_{soil} (cm^3/s)	Crack effective diffusion coefficient, D^{crack} (cm^2/s)	Area of crack, A_{crack} (cm^2)	Exponent of equivalent foundation Peclet number, $exp(Pe^f)$ (unitless)	Infinite source indoor attenuation coefficient, α (unitless)	Infinite source bldg. conc., $C_{building}$ ($\mu g/m^3$)
15	3.93E+03	0.10	8.33E+01	1.16E-02	4.00E+02	5.42E+77	1.49E-03	5.86E+00

Unit risk factor, URF ($\mu g/m^3)^{-1}$	Reference conc., RfC (mg/m^3)
5.9E-06	6.0E-01

END

RESULTS SHEET

INCREMENTAL RISK CALCULATIONS:

Incremental risk from vapor intrusion to indoor air, carcinogen (unitless)	Hazard quotient from vapor intrusion to indoor air, noncarcinogen (unitless)
8.5E-06	6.7E-03

MESSAGE SUMMARY BELOW:

END

SG-SCREEN
Version 3.1; 02/04

Reset to Defaults

Soil Gas Concentration Data

ENTER Chemical CAS No. (numbers only, no dashes)	ENTER Soil gas conc., C_g ($\mu g/m^3$)	OR	ENTER Soil gas conc., C_g (ppmv)	Chemical
127184	1.42E+01			Tetrachloroethylene

MORE ↓

ENTER Depth below grade to bottom of enclosed space floor, L_F (15 or 200 cm)	ENTER Soil gas sampling depth below grade, L_s (cm)	ENTER Average soil temperature, T_S (^oC)	ENTER Vadose zone SCS soil type (used to estimate soil vapor permeability)	OR	ENTER User-defined vadose zone soil vapor permeability, k_v (cm^2)
15	274.32	19	S		

MORE ↓

ENTER Vandose zone SCS soil type (Lookup Soil Parameters)	ENTER Vadose zone soil dry bulk density, ρ_b^A (g/cm^3)	ENTER Vadose zone soil total porosity, n^V (unitless)	ENTER Vadose zone soil water-filled porosity, θ_w^V (cm^3/cm^3)	ENTER Average vapor flow rate into bldg. (Leave blank to calculate) Q_{soil} (L/m)
S	1.66	0.375	0.054	5

MORE ↓

ENTER Averaging time for carcinogens, AT_C (yrs)	ENTER Averaging time for noncarcinogens, AT_{NC} (yrs)	ENTER Exposure duration, ED (yrs)	ENTER Exposure frequency, EF (days/yr)
70	25	25	250

END

CHEMICAL PROPERTIES SHEET

Diffusivity in air, D_a (cm^2/s)	Diffusivity in water, D_w (cm^2/s)	Henry's law constant at reference temperature, H (atm-m^3/mol)	Henry's law constant reference temperature, T_R (^oC)	Enthalpy of vaporization at the normal boiling point, $\Delta H_{v,b}$ (cal/mol)	Normal boiling point, T_B (^oK)	Critical temperature, T_C (^oK)	Unit risk factor, URF ($\mu g/m^3)^{-1}$	Reference conc., RfC (mg/m^3)	Molecular weight, MW (g/mol)
7.20E-02	8.20E-06	1.84E-02	25	8,288	394.40	620.20	5.9E-06	6.0E-01	165.83

END

INTERMEDIATE CALCULATIONS SHEET

Source-building separation, L_T (cm)	Vadose zone soil air-filled porosity, θ_a^V (cm^3/cm^3)	Vadose zone effective total fluid saturation, S_{te} (cm^3/cm^3)	Vadose zone soil intrinsic permeability, k_i (cm^2)	Vadose zone soil relative air permeability, k_{rg} (cm^2)	Vadose zone soil effective vapor permeability, k_v (cm^2)	Floor-wall seam perimeter, X_{crack} (cm)	Soil gas conc. ($\mu g/m^3$)	Bldg. ventilation rate, $Q_{building}$ (cm^3/s)
259.32	0.321	0.003	1.01E-07	0.998	1.01E-07	4,000	1.42E+01	1.69E+04

Area of enclosed space below grade, A_B (cm^2)	Crack-to-total area ratio, η (unitless)	Crack depth below grade, Z_{crack} (cm)	Enthalpy of vaporization at ave. soil temperature, $\Delta H_{v,TS}$ (cal/mol)	Henry's law constant at ave. soil temperature, H_{TS} (atm-m^3/mol)	Henry's law constant at ave. soil temperature, H'_{TS} (unitless)	Vapor viscosity at ave. soil temperature, μ_{TS} (g/cm-s)	Vadose zone effective diffusion coefficient, D^{eff}_V (cm^2/s)	Diffusion path length, L_d (cm)
1.00E+06	4.00E-04	15	9,462	1.32E-02	5.52E-01	1.78E-04	1.16E-02	259.32

Convection path length, L_p (cm)	Source vapor conc., C_{source} ($\mu g/m^3$)	Crack radius, r_{crack} (cm)	Average vapor flow rate into bldg., Q_{soil} (cm^3/s)	Crack effective diffusion coefficient, D^{crack} (cm^2/s)	Area of crack, A_{crack} (cm^2)	Exponent of equivalent foundation Peclet number, $exp(Pe^f)$ (unitless)	Infinite source indoor attenuation coefficient, α (unitless)	Infinite source bldg. conc., $C_{building}$ ($\mu g/m^3$)
15	1.42E+01	0.10	8.33E+01	1.16E-02	4.00E+02	5.42E+77	1.72E-03	2.44E-02

Unit risk factor, URF $(\mu g/m^3)^{-1}$	Reference conc., RfC (mg/m^3)
5.9E-06	6.0E-01

END

RESULTS SHEET

INCREMENTAL RISK CALCULATIONS:

Incremental risk from vapor intrusion to indoor air, carcinogen (unitless)	Hazard quotient from vapor intrusion to indoor air, noncarcinogen (unitless)
3.5E-08	2.8E-05

MESSAGE SUMMARY BELOW:

END

SG-SCREEN
Version 3.1; 02/04

Reset to Defaults

Soil Gas Concentration Data

ENTER Chemical CAS No. (numbers only, no dashes)	ENTER Soil gas conc., C_g ($\mu g/m^3$)	OR	ENTER Soil gas conc., C_g (ppmv)	Chemical
127184	3.40E+00			Tetrachloroethylene

MORE ↓

ENTER Depth below grade to bottom of enclosed space floor, L_F (15 or 200 cm)	ENTER Soil gas sampling depth below grade, L_s (cm)	ENTER Average soil temperature, T_S (^oC)	ENTER Vadose zone SCS soil type (used to estimate soil vapor permeability)	OR	ENTER User-defined vadose zone soil vapor permeability, k_v (cm^2)
15	685.8	19	S		

MORE ↓

ENTER Vandose zone SCS soil type (Lookup Soil Parameters)	ENTER Vadose zone soil dry bulk density, ρ_b^A (g/cm^3)	ENTER Vadose zone soil total porosity, n^V (unitless)	ENTER Vadose zone soil water-filled porosity, θ_w^V (cm^3/cm^3)	ENTER Average vapor flow rate into bldg. (Leave blank to calculate) Q_{soil} (L/m)
S	1.66	0.375	0.054	5

MORE ↓

ENTER Averaging time for carcinogens, AT_C (yrs)	ENTER Averaging time for noncarcinogens, AT_{NC} (yrs)	ENTER Exposure duration, ED (yrs)	ENTER Exposure frequency, EF (days/yr)
70	25	25	250

END

CHEMICAL PROPERTIES SHEET

Diffusivity in air, D_a (cm^2/s)	Diffusivity in water, D_w (cm^2/s)	Henry's law constant at reference temperature, H (atm-m^3/mol)	Henry's law constant reference temperature, T_R (^oC)	Enthalpy of vaporization at the normal boiling point, $\Delta H_{v,b}$ (cal/mol)	Normal boiling point, T_B (^oK)	Critical temperature, T_C (^oK)	Unit risk factor, URF ($\mu g/m^3)^{-1}$	Reference conc., RfC (mg/m^3)	Molecular weight, MW (g/mol)
7.20E-02	8.20E-06	1.84E-02	25	8,288	394.40	620.20	5.9E-06	6.0E-01	165.83

END

INTERMEDIATE CALCULATIONS SHEET

Source-building separation, L_T (cm)	Vadose zone soil air-filled porosity, θ_a^V (cm^3/cm^3)	Vadose zone effective total fluid saturation, S_{te} (cm^3/cm^3)	Vadose zone soil intrinsic permeability, k_i (cm^2)	Vadose zone soil relative air permeability, k_{rg} (cm^2)	Vadose zone soil effective vapor permeability, k_v (cm^2)	Floor-wall seam perimeter, X_{crack} (cm)	Soil gas conc. ($\mu g/m^3$)	Bldg. ventilation rate, $Q_{building}$ (cm^3/s)
670.8	0.321	0.003	1.01E-07	0.998	1.01E-07	4,000	3.40E+00	1.69E+04

Area of enclosed space below grade, A_B (cm^2)	Crack-to-total area ratio, η (unitless)	Crack depth below grade, Z_{crack} (cm)	Enthalpy of vaporization at ave. soil temperature, $\Delta H_{v,TS}$ (cal/mol)	Henry's law constant at ave. soil temperature, H_{TS} (atm-m^3/mol)	Henry's law constant at ave. soil temperature, H'_{TS} (unitless)	Vapor viscosity at ave. soil temperature, μ_{TS} (g/cm-s)	Vadose zone effective diffusion coefficient, D^{eff}_V (cm^2/s)	Diffusion path length, L_d (cm)
1.00E+06	4.00E-04	15	9,462	1.32E-02	5.52E-01	1.78E-04	1.16E-02	670.8

Convection path length, L_p (cm)	Source vapor conc., C_{source} ($\mu g/m^3$)	Crack radius, r_{crack} (cm)	Average vapor flow rate into bldg., Q_{soil} (cm^3/s)	Crack effective diffusion coefficient, D^{crack} (cm^2/s)	Area of crack, A_{crack} (cm^2)	Exponent of equivalent foundation Peclet number, $exp(Pe^f)$ (unitless)	Infinite source indoor attenuation coefficient, α (unitless)	Infinite source bldg. conc., $C_{building}$ ($\mu g/m^3$)
15	3.40E+00	0.10	8.33E+01	1.16E-02	4.00E+02	5.42E+77	8.48E-04	2.88E-03

Unit risk factor, URF ($\mu g/m^3)^{-1}$	Reference conc., RfC (mg/m^3)
5.9E-06	6.0E-01

END

RESULTS SHEET

INCREMENTAL RISK CALCULATIONS:

Incremental risk from vapor intrusion to indoor air, carcinogen (unitless)	Hazard quotient from vapor intrusion to indoor air, noncarcinogen (unitless)
4.2E-09	3.3E-06

MESSAGE SUMMARY BELOW:

END

SG-SCREEN
Version 3.1; 02/04

Reset to Defaults

Soil Gas Concentration Data

ENTER Chemical CAS No. (numbers only, no dashes)	ENTER Soil gas conc., C_g ($\mu g/m^3$)	OR	ENTER Soil gas conc., C_g (ppmv)	Chemical
79016	3.00E+01			Trichloroethylene

MORE ↓

ENTER Depth below grade to bottom of enclosed space floor, L_F (15 or 200 cm)	ENTER Soil gas sampling depth below grade, L_s (cm)	ENTER Average soil temperature, T_S (^oC)	ENTER Vadose zone SCS soil type (used to estimate soil vapor permeability)	OR	ENTER User-defined vadose zone soil vapor permeability, k_v (cm^2)
15	548.64	19	S		

MORE ↓

ENTER Vandose zone SCS soil type (Lookup Soil Parameters)	ENTER Vadose zone soil dry bulk density, ρ_b^A (g/cm^3)	ENTER Vadose zone soil total porosity, n^V (unitless)	ENTER Vadose zone soil water-filled porosity, θ_w^V (cm^3/cm^3)	ENTER Average vapor flow rate into bldg. (Leave blank to calculate) Q_{soil} (L/m)
S	1.66	0.375	0.054	5

MORE ↓

ENTER Averaging time for carcinogens, AT_C (yrs)	ENTER Averaging time for noncarcinogens, AT_{NC} (yrs)	ENTER Exposure duration, ED (yrs)	ENTER Exposure frequency, EF (days/yr)
70	25	25	250

END

CHEMICAL PROPERTIES SHEET

Diffusivity in air, D_a (cm^2/s)	Diffusivity in water, D_w (cm^2/s)	Henry's law constant at reference temperature, H (atm-m^3/mol)	Henry's law constant reference temperature, T_R (^oC)	Enthalpy of vaporization at the normal boiling point, $\Delta H_{v,b}$ (cal/mol)	Normal boiling point, T_B (^oK)	Critical temperature, T_C (^oK)	Unit risk factor, URF ($\mu g/m^3)^{-1}$	Reference conc., RfC (mg/m^3)	Molecular weight, MW (g/mol)
7.90E-02	9.10E-06	1.03E-02	25	7,505	360.36	544.20	1.1E-04	4.0E-02	131.39

END

INTERMEDIATE CALCULATIONS SHEET

Source-building separation, L_T (cm)	Vadose zone soil air-filled porosity, θ_a^V (cm^3/cm^3)	Vadose zone effective total fluid saturation, S_{te} (cm^3/cm^3)	Vadose zone soil intrinsic permeability, k_i (cm^2)	Vadose zone soil relative air permeability, k_{rg} (cm^2)	Vadose zone soil effective vapor permeability, k_v (cm^2)	Floor-wall seam perimeter, X_{crack} (cm)	Soil gas conc. ($\mu g/m^3$)	Bldg. ventilation rate, $Q_{building}$ (cm^3/s)
533.64	0.321	0.003	1.01E-07	0.998	1.01E-07	4,000	3.00E+01	1.69E+04

Area of enclosed space below grade, A_B (cm^2)	Crack-to-total area ratio, η (unitless)	Crack depth below grade, Z_{crack} (cm)	Enthalpy of vaporization at ave. soil temperature, $\Delta H_{v,TS}$ (cal/mol)	Henry's law constant at ave. soil temperature, H_{TS} (atm-m^3/mol)	Henry's law constant at ave. soil temperature, H'_{TS} (unitless)	Vapor viscosity at ave. soil temperature, μ_{TS} (g/cm-s)	Vadose zone effective diffusion coefficient, D^{eff}_V (cm^2/s)	Diffusion path length, L_d (cm)
1.00E+06	4.00E-04	15	8,445	7.67E-03	3.20E-01	1.78E-04	1.28E-02	533.64

Convection path length, L_p (cm)	Source vapor conc., C_{source} ($\mu g/m^3$)	Crack radius, r_{crack} (cm)	Average vapor flow rate into bldg., Q_{soil} (cm^3/s)	Crack effective diffusion coefficient, D^{crack} (cm^2/s)	Area of crack, A_{crack} (cm^2)	Exponent of equivalent foundation Peclet number, $exp(Pe^f)$ (unitless)	Infinite source indoor attenuation coefficient, α (unitless)	Infinite source bldg. conc., $C_{building}$ ($\mu g/m^3$)
15	3.00E+01	0.10	8.33E+01	1.28E-02	4.00E+02	7.02E+70	1.10E-03	3.29E-02

Unit risk factor, URF ($\mu g/m^3)^{-1}$	Reference conc., RfC (mg/m^3)
1.1E-04	4.0E-02

END

RESULTS SHEET

INCREMENTAL RISK CALCULATIONS:

Incremental risk from vapor intrusion to indoor air, carcinogen (unitless)	Hazard quotient from vapor intrusion to indoor air, noncarcinogen (unitless)
8.9E-07	5.6E-04

MESSAGE SUMMARY BELOW:

MESSAGE: Risk/HQ or risk-based soil concentration is based on a route-to-route extrapolation.

END

SG-SCREEN
Version 3.1; 02/04

Reset to Defaults

Soil Gas Concentration Data

ENTER Chemical CAS No. (numbers only, no dashes)	ENTER Soil gas conc., C_g ($\mu g/m^3$)	OR	ENTER Soil gas conc., C_g (ppmv)	Chemical
79016	3.59E+03			Trichloroethylene

MORE ↓

ENTER Depth below grade to bottom of enclosed space floor, L_F (15 or 200 cm)	ENTER Soil gas sampling depth below grade, L_s (cm)	ENTER Average soil temperature, T_S (^oC)	ENTER Vadose zone SCS soil type (used to estimate soil vapor permeability)	OR	ENTER User-defined vadose zone soil vapor permeability, k_v (cm^2)
15	335.28	19	S		

MORE ↓

ENTER Vandose zone SCS soil type (Lookup Soil Parameters)	ENTER Vadose zone soil dry bulk density, ρ_b^A (g/cm^3)	ENTER Vadose zone soil total porosity, n^V (unitless)	ENTER Vadose zone soil water-filled porosity, θ_w^V (cm^3/cm^3)	ENTER Average vapor flow rate into bldg. (Leave blank to calculate) Q_{soil} (L/m)
S	1.66	0.375	0.054	5

MORE ↓

ENTER Averaging time for carcinogens, AT_C (yrs)	ENTER Averaging time for noncarcinogens, AT_{NC} (yrs)	ENTER Exposure duration, ED (yrs)	ENTER Exposure frequency, EF (days/yr)
70	25	25	250

END

CHEMICAL PROPERTIES SHEET

Diffusivity in air, D_a (cm^2/s)	Diffusivity in water, D_w (cm^2/s)	Henry's law constant at reference temperature, H (atm-m^3/mol)	Henry's law constant reference temperature, T_R (^oC)	Enthalpy of vaporization at the normal boiling point, $\Delta H_{v,b}$ (cal/mol)	Normal boiling point, T_B (^oK)	Critical temperature, T_C (^oK)	Unit risk factor, URF ($\mu g/m^3)^{-1}$	Reference conc., RfC (mg/m^3)	Molecular weight, MW (g/mol)
7.90E-02	9.10E-06	1.03E-02	25	7,505	360.36	544.20	1.1E-04	4.0E-02	131.39

END

INTERMEDIATE CALCULATIONS SHEET

Source-building separation, L_T (cm)	Vadose zone soil air-filled porosity, θ_a^V (cm^3/cm^3)	Vadose zone effective total fluid saturation, S_{te} (cm^3/cm^3)	Vadose zone soil intrinsic permeability, k_i (cm^2)	Vadose zone soil relative air permeability, k_{rg} (cm^2)	Vadose zone soil effective vapor permeability, k_v (cm^2)	Floor-wall seam perimeter, X_{crack} (cm)	Soil gas conc. ($\mu g/m^3$)	Bldg. ventilation rate, $Q_{building}$ (cm^3/s)
320.28	0.321	0.003	1.01E-07	0.998	1.01E-07	4,000	3.59E+03	1.69E+04

Area of enclosed space below grade, A_B (cm^2)	Crack-to-total area ratio, η (unitless)	Crack depth below grade, Z_{crack} (cm)	Enthalpy of vaporization at ave. soil temperature, $\Delta H_{v,TS}$ (cal/mol)	Henry's law constant at ave. soil temperature, H_{TS} (atm-m^3/mol)	Henry's law constant at ave. soil temperature, H'_{TS} (unitless)	Vapor viscosity at ave. soil temperature, μ_{TS} (g/cm-s)	Vadose zone effective diffusion coefficient, D^{eff}_V (cm^2/s)	Diffusion path length, L_d (cm)
1.00E+06	4.00E-04	15	8,445	7.67E-03	3.20E-01	1.78E-04	1.28E-02	320.28

Convection path length, L_p (cm)	Source vapor conc., C_{source} ($\mu g/m^3$)	Crack radius, r_{crack} (cm)	Average vapor flow rate into bldg., Q_{soil} (cm^3/s)	Crack effective diffusion coefficient, D^{crack} (cm^2/s)	Area of crack, A_{crack} (cm^2)	Exponent of equivalent foundation Peclet number, $exp(Pe^f)$ (unitless)	Infinite source indoor attenuation coefficient, α (unitless)	Infinite source bldg. conc., $C_{building}$ ($\mu g/m^3$)
15	3.59E+03	0.10	8.33E+01	1.28E-02	4.00E+02	7.02E+70	1.59E-03	5.71E+00

Unit risk factor, URF ($\mu g/m^3)^{-1}$	Reference conc., RfC (mg/m^3)
1.1E-04	4.0E-02

END

RESULTS SHEET

INCREMENTAL RISK CALCULATIONS:

Incremental risk from vapor intrusion to indoor air, carcinogen (unitless)	Hazard quotient from vapor intrusion to indoor air, noncarcinogen (unitless)
1.5E-04	9.8E-02

MESSAGE SUMMARY BELOW:

MESSAGE: Risk/HQ or risk-based soil concentration is based on a route-to-route extrapolation.

END

SG-SCREEN
Version 3.1; 02/04

Reset to Defaults

Soil Gas Concentration Data

ENTER Chemical CAS No. (numbers only, no dashes)	ENTER Soil gas conc., C_g ($\mu g/m^3$)	OR	ENTER Soil gas conc., C_g (ppmv)	Chemical
79016	3.22E-01			Trichloroethylene

MORE ↓

ENTER Depth below grade to bottom of enclosed space floor, L_F (15 or 200 cm)	ENTER Soil gas sampling depth below grade, L_s (cm)	ENTER Average soil temperature, T_S (^oC)	ENTER Vadose zone SCS soil type (used to estimate soil vapor permeability)	OR	ENTER User-defined vadose zone soil vapor permeability, k_v (cm^2)
15	274.32	19	S		

MORE ↓

ENTER Vandose zone SCS soil type (Lookup Soil Parameters)	ENTER Vadose zone soil dry bulk density, ρ_b^A (g/cm^3)	ENTER Vadose zone soil total porosity, n^V (unitless)	ENTER Vadose zone soil water-filled porosity, θ_w^V (cm^3/cm^3)	ENTER Average vapor flow rate into bldg. (Leave blank to calculate) Q_{soil} (L/m)
S	1.66	0.375	0.054	5

MORE ↓

ENTER Averaging time for carcinogens, AT_C (yrs)	ENTER Averaging time for noncarcinogens, AT_{NC} (yrs)	ENTER Exposure duration, ED (yrs)	ENTER Exposure frequency, EF (days/yr)
70	25	25	250

END

CHEMICAL PROPERTIES SHEET

Diffusivity in air, D_a (cm^2/s)	Diffusivity in water, D_w (cm^2/s)	Henry's law constant at reference temperature, H (atm-m^3/mol)	Henry's law constant reference temperature, T_R (^oC)	Enthalpy of vaporization at the normal boiling point, $\Delta H_{v,b}$ (cal/mol)	Normal boiling point, T_B (^oK)	Critical temperature, T_C (^oK)	Unit risk factor, URF ($\mu g/m^3)^{-1}$	Reference conc., RfC (mg/m^3)	Molecular weight, MW (g/mol)
7.90E-02	9.10E-06	1.03E-02	25	7,505	360.36	544.20	1.1E-04	4.0E-02	131.39

END

INTERMEDIATE CALCULATIONS SHEET

Source-building separation, L_T (cm)	Vadose zone soil air-filled porosity, θ_a^V (cm^3/cm^3)	Vadose zone effective total fluid saturation, S_{te} (cm^3/cm^3)	Vadose zone soil intrinsic permeability, k_i (cm^2)	Vadose zone soil relative air permeability, k_{rg} (cm^2)	Vadose zone soil effective vapor permeability, k_v (cm^2)	Floor-wall seam perimeter, X_{crack} (cm)	Soil gas conc. ($\mu g/m^3$)	Bldg. ventilation rate, $Q_{building}$ (cm^3/s)
259.32	0.321	0.003	1.01E-07	0.998	1.01E-07	4,000	3.22E-01	1.69E+04

Area of enclosed space below grade, A_B (cm^2)	Crack-to-total area ratio, η (unitless)	Crack depth below grade, Z_{crack} (cm)	Enthalpy of vaporization at ave. soil temperature, $\Delta H_{v,TS}$ (cal/mol)	Henry's law constant at ave. soil temperature, H_{TS} (atm-m^3/mol)	Henry's law constant at ave. soil temperature, H'_{TS} (unitless)	Vapor viscosity at ave. soil temperature, μ_{TS} (g/cm-s)	Vadose zone effective diffusion coefficient, D^{eff}_V (cm^2/s)	Diffusion path length, L_d (cm)
1.00E+06	4.00E-04	15	8,445	7.67E-03	3.20E-01	1.78E-04	1.28E-02	259.32

Convection path length, L_p (cm)	Source vapor conc., C_{source} ($\mu g/m^3$)	Crack radius, r_{crack} (cm)	Average vapor flow rate into bldg., Q_{soil} (cm^3/s)	Crack effective diffusion coefficient, D^{crack} (cm^2/s)	Area of crack, A_{crack} (cm^2)	Exponent of equivalent foundation Peclet number, $exp(Pe^f)$ (unitless)	Infinite source indoor attenuation coefficient, α (unitless)	Infinite source bldg. conc., $C_{building}$ ($\mu g/m^3$)
15	3.22E-01	0.10	8.33E+01	1.28E-02	4.00E+02	7.02E+70	1.83E-03	5.88E-04

Unit risk factor, URF ($\mu g/m^3)^{-1}$	Reference conc., RfC (mg/m^3)
1.1E-04	4.0E-02

END

RESULTS SHEET

INCREMENTAL RISK CALCULATIONS:

Incremental risk from vapor intrusion to indoor air, carcinogen (unitless)	Hazard quotient from vapor intrusion to indoor air, noncarcinogen (unitless)
1.6E-08	1.0E-05

MESSAGE SUMMARY BELOW:

MESSAGE: Risk/HQ or risk-based soil concentration is based on a route-to-route extrapolation.

END

SG-SCREEN
Version 3.1; 02/04

Reset to Defaults

Soil Gas Concentration Data

ENTER Chemical CAS No. (numbers only, no dashes)	ENTER Soil gas conc., C_g ($\mu g/m^3$)	OR	ENTER Soil gas conc., C_g (ppmv)	Chemical
79016	5.36E+01			Trichloroethylene

MORE ↓

ENTER Depth below grade to bottom of enclosed space floor, L_F (15 or 200 cm)	ENTER Soil gas sampling depth below grade, L_s (cm)	ENTER Average soil temperature, T_S (^oC)	ENTER Vadose zone SCS soil type (used to estimate soil vapor permeability)	OR	ENTER User-defined vadose zone soil vapor permeability, k_v (cm^2)
15	685.8	19	S		

MORE ↓

ENTER Vandose zone SCS soil type (Lookup Soil Parameters)	ENTER Vadose zone soil dry bulk density, ρ_b^A (g/cm^3)	ENTER Vadose zone soil total porosity, n^V (unitless)	ENTER Vadose zone soil water-filled porosity, θ_w^V (cm^3/cm^3)	ENTER Average vapor flow rate into bldg. (Leave blank to calculate) Q_{soil} (L/m)
S	1.66	0.375	0.054	5

MORE ↓

ENTER Averaging time for carcinogens, AT_C (yrs)	ENTER Averaging time for noncarcinogens, AT_{NC} (yrs)	ENTER Exposure duration, ED (yrs)	ENTER Exposure frequency, EF (days/yr)
70	25	25	250

END

CHEMICAL PROPERTIES SHEET

Diffusivity in air, D_a (cm^2/s)	Diffusivity in water, D_w (cm^2/s)	Henry's law constant at reference temperature, H (atm-m^3/mol)	Henry's law constant reference temperature, T_R (^oC)	Enthalpy of vaporization at the normal boiling point, $\Delta H_{v,b}$ (cal/mol)	Normal boiling point, T_B (^oK)	Critical temperature, T_C (^oK)	Unit risk factor, URF ($\mu g/m^3)^{-1}$	Reference conc., RfC (mg/m^3)	Molecular weight, MW (g/mol)
7.90E-02	9.10E-06	1.03E-02	25	7,505	360.36	544.20	1.1E-04	4.0E-02	131.39

END

INTERMEDIATE CALCULATIONS SHEET

Source-building separation, L_T (cm)	Vadose zone soil air-filled porosity, θ_a^V (cm^3/cm^3)	Vadose zone effective total fluid saturation, S_{te} (cm^3/cm^3)	Vadose zone soil intrinsic permeability, k_i (cm^2)	Vadose zone soil relative air permeability, k_{rg} (cm^2)	Vadose zone soil effective vapor permeability, k_v (cm^2)	Floor-wall seam perimeter, X_{crack} (cm)	Soil gas conc. ($\mu g/m^3$)	Bldg. ventilation rate, $Q_{building}$ (cm^3/s)
670.8	0.321	0.003	1.01E-07	0.998	1.01E-07	4,000	5.36E+01	1.69E+04

Area of enclosed space below grade, A_B (cm^2)	Crack-to-total area ratio, η (unitless)	Crack depth below grade, Z_{crack} (cm)	Enthalpy of vaporization at ave. soil temperature, $\Delta H_{v,TS}$ (cal/mol)	Henry's law constant at ave. soil temperature, H_{TS} (atm-m^3/mol)	Henry's law constant at ave. soil temperature, H'_{TS} (unitless)	Vapor viscosity at ave. soil temperature, μ_{TS} (g/cm-s)	Vadose zone effective diffusion coefficient, D^{eff}_V (cm^2/s)	Diffusion path length, L_d (cm)
1.00E+06	4.00E-04	15	8,445	7.67E-03	3.20E-01	1.78E-04	1.28E-02	670.8

Convection path length, L_p (cm)	Source vapor conc., C_{source} ($\mu g/m^3$)	Crack radius, r_{crack} (cm)	Average vapor flow rate into bldg., Q_{soil} (cm^3/s)	Crack effective diffusion coefficient, D^{crack} (cm^2/s)	Area of crack, A_{crack} (cm^2)	Exponent of equivalent foundation Peclet number, $exp(Pe^f)$ (unitless)	Infinite source indoor attenuation coefficient, α (unitless)	Infinite source bldg. conc., $C_{building}$ ($\mu g/m^3$)
15	5.36E+01	0.10	8.33E+01	1.28E-02	4.00E+02	7.02E+70	9.15E-04	4.90E-02

Unit risk factor, URF ($\mu g/m^3)^{-1}$	Reference conc., RfC (mg/m^3)
1.1E-04	4.0E-02

END

RESULTS SHEET

INCREMENTAL RISK CALCULATIONS:

Incremental risk from vapor intrusion to indoor air, carcinogen (unitless)	Hazard quotient from vapor intrusion to indoor air, noncarcinogen (unitless)
1.3E-06	8.4E-04

MESSAGE SUMMARY BELOW:

MESSAGE: Risk/HQ or risk-based soil concentration is based on a route-to-route extrapolation.

END

SG-SCREEN
Version 3.1; 02/04

Reset to Defaults

Soil Gas Concentration Data

ENTER Chemical CAS No. (numbers only, no dashes)	ENTER Soil gas conc., C_g ($\mu g/m^3$)	OR	ENTER Soil gas conc., C_g (ppmv)	Chemical
75014	6.25E-01			Vinyl chloride (chloroethene)

MORE ↓

ENTER Depth below grade to bottom of enclosed space floor, L_F (15 or 200 cm)	ENTER Soil gas sampling depth below grade, L_s (cm)	ENTER Average soil temperature, T_S (^oC)	ENTER Vadose zone SCS soil type (used to estimate soil vapor permeability)	OR	ENTER User-defined vadose zone soil vapor permeability, k_v (cm^2)
15	548.64	19	S		

MORE ↓

ENTER Vandose zone SCS soil type (Lookup Soil Parameters)	ENTER Vadose zone soil dry bulk density, ρ_b^A (g/cm^3)	ENTER Vadose zone soil total porosity, n^V (unitless)	ENTER Vadose zone soil water-filled porosity, θ_w^V (cm^3/cm^3)	ENTER Average vapor flow rate into bldg. (Leave blank to calculate) Q_{soil} (L/m)
S	1.66	0.375	0.054	5

MORE ↓

ENTER Averaging time for carcinogens, AT_C (yrs)	ENTER Averaging time for noncarcinogens, AT_{NC} (yrs)	ENTER Exposure duration, ED (yrs)	ENTER Exposure frequency, EF (days/yr)
70	25	25	250

END

CHEMICAL PROPERTIES SHEET

Diffusivity in air, D_a (cm^2/s)	Diffusivity in water, D_w (cm^2/s)	Henry's law constant at reference temperature, H (atm-m^3/mol)	Henry's law constant reference temperature, T_R (^oC)	Enthalpy of vaporization at the normal boiling point, $\Delta H_{v,b}$ (cal/mol)	Normal boiling point, T_B (^oK)	Critical temperature, T_C (^oK)	Unit risk factor, URF ($\mu g/m^3)^{-1}$	Reference conc., RfC (mg/m^3)	Molecular weight, MW (g/mol)
1.06E-01	1.23E-05	2.69E-02	25	5,250	259.25	432.00	8.8E-06	1.0E-01	62.50

END

INTERMEDIATE CALCULATIONS SHEET

Source-building separation, L_T (cm)	Vadose zone soil air-filled porosity, θ_a^V (cm^3/cm^3)	Vadose zone effective total fluid saturation, S_{te} (cm^3/cm^3)	Vadose zone soil intrinsic permeability, k_i (cm^2)	Vadose zone soil relative air permeability, k_{rg} (cm^2)	Vadose zone soil effective vapor permeability, k_v (cm^2)	Floor-wall seam perimeter, X_{crack} (cm)	Soil gas conc. ($\mu g/m^3$)	Bldg. ventilation rate, $Q_{building}$ (cm^3/s)
533.64	0.321	0.003	1.01E-07	0.998	1.01E-07	4,000	6.25E-01	1.69E+04

Area of enclosed space below grade, A_B (cm^2)	Crack-to-total area ratio, η (unitless)	Crack depth below grade, Z_{crack} (cm)	Enthalpy of vaporization at ave. soil temperature, $\Delta H_{v,TS}$ (cal/mol)	Henry's law constant at ave. soil temperature, H_{TS} (atm-m^3/mol)	Henry's law constant at ave. soil temperature, H'_{TS} (unitless)	Vapor viscosity at ave. soil temperature, μ_{TS} (g/cm-s)	Vadose zone effective diffusion coefficient, D^{eff}_V (cm^2/s)	Diffusion path length, L_d (cm)
1.00E+06	4.00E-04	15	4,898	2.27E-02	9.48E-01	1.78E-04	1.71E-02	533.64

Convection path length, L_p (cm)	Source vapor conc., C_{source} ($\mu g/m^3$)	Crack radius, r_{crack} (cm)	Average vapor flow rate into bldg., Q_{soil} (cm^3/s)	Crack effective diffusion coefficient, D^{crack} (cm^2/s)	Area of crack, A_{crack} (cm^2)	Exponent of equivalent foundation Peclet number, $exp(Pe^f)$ (unitless)	Infinite source indoor attenuation coefficient, α (unitless)	Infinite source bldg. conc., $C_{building}$ ($\mu g/m^3$)
15	6.25E-01	0.10	8.33E+01	1.71E-02	4.00E+02	6.32E+52	1.37E-03	8.55E-04

Unit risk factor, URF $(\mu g/m^3)^{-1}$	Reference conc., RfC (mg/m^3)
8.8E-06	1.0E-01

END

RESULTS SHEET

INCREMENTAL RISK CALCULATIONS:

Incremental risk from vapor intrusion to indoor air, carcinogen (unitless)	Hazard quotient from vapor intrusion to indoor air, noncarcinogen (unitless)
1.8E-09	5.9E-06

MESSAGE SUMMARY BELOW:

END

SG-SCREEN
Version 3.1; 02/04

Reset to Defaults

Soil Gas Concentration Data

ENTER Chemical CAS No. (numbers only, no dashes)	ENTER Soil gas conc., C_g ($\mu g/m^3$)	OR	ENTER Soil gas conc., C_g (ppmv)	Chemical
75014	6.25E-01			Vinyl chloride (chloroethene)

MORE ↓

ENTER Depth below grade to bottom of enclosed space floor, L_F (15 or 200 cm)	ENTER Soil gas sampling depth below grade, L_s (cm)	ENTER Average soil temperature, T_S (^oC)	ENTER Vadose zone SCS soil type (used to estimate soil vapor permeability)	OR	ENTER User-defined vadose zone soil vapor permeability, k_v (cm^2)
15	548.64	19	S		

MORE ↓

ENTER Vandose zone SCS soil type (Lookup Soil Parameters)	ENTER Vadose zone soil dry bulk density, ρ_b^A (g/cm^3)	ENTER Vadose zone soil total porosity, n^V (unitless)	ENTER Vadose zone soil water-filled porosity, θ_w^V (cm^3/cm^3)	ENTER Average vapor flow rate into bldg. (Leave blank to calculate) Q_{soil} (L/m)
S	1.66	0.375	0.054	5

MORE ↓

ENTER Averaging time for carcinogens, AT_C (yrs)	ENTER Averaging time for noncarcinogens, AT_{NC} (yrs)	ENTER Exposure duration, ED (yrs)	ENTER Exposure frequency, EF (days/yr)
70	25	25	250

END

CHEMICAL PROPERTIES SHEET

Diffusivity in air, D_a (cm^2/s)	Diffusivity in water, D_w (cm^2/s)	Henry's law constant at reference temperature, H (atm-m^3/mol)	Henry's law constant reference temperature, T_R (^oC)	Enthalpy of vaporization at the normal boiling point, $\Delta H_{v,b}$ (cal/mol)	Normal boiling point, T_B (^oK)	Critical temperature, T_C (^oK)	Unit risk factor, URF ($\mu g/m^3)^{-1}$	Reference conc., RfC (mg/m^3)	Molecular weight, MW (g/mol)
1.06E-01	1.23E-05	2.69E-02	25	5,250	259.25	432.00	8.8E-06	1.0E-01	62.50

END

INTERMEDIATE CALCULATIONS SHEET

Source-building separation, L_T (cm)	Vadose zone soil air-filled porosity, θ_a^V (cm^3/cm^3)	Vadose zone effective total fluid saturation, S_{te} (cm^3/cm^3)	Vadose zone soil intrinsic permeability, k_i (cm^2)	Vadose zone soil relative air permeability, k_{rg} (cm^2)	Vadose zone soil effective vapor permeability, k_v (cm^2)	Floor-wall seam perimeter, X_{crack} (cm)	Soil gas conc. ($\mu g/m^3$)	Bldg. ventilation rate, $Q_{building}$ (cm^3/s)
533.64	0.321	0.003	1.01E-07	0.998	1.01E-07	4,000	6.25E-01	1.69E+04

Area of enclosed space below grade, A_B (cm^2)	Crack-to-total area ratio, η (unitless)	Crack depth below grade, Z_{crack} (cm)	Enthalpy of vaporization at ave. soil temperature, $\Delta H_{v,TS}$ (cal/mol)	Henry's law constant at ave. soil temperature, H_{TS} (atm-m^3/mol)	Henry's law constant at ave. soil temperature, H'_{TS} (unitless)	Vapor viscosity at ave. soil temperature, μ_{TS} (g/cm-s)	Vadose zone effective diffusion coefficient, D^{eff}_V (cm^2/s)	Diffusion path length, L_d (cm)
1.00E+06	4.00E-04	15	4,898	2.27E-02	9.48E-01	1.78E-04	1.71E-02	533.64

Convection path length, L_p (cm)	Source vapor conc., C_{source} ($\mu g/m^3$)	Crack radius, r_{crack} (cm)	Average vapor flow rate into bldg., Q_{soil} (cm^3/s)	Crack effective diffusion coefficient, D^{crack} (cm^2/s)	Area of crack, A_{crack} (cm^2)	Exponent of equivalent foundation Peclet number, $exp(Pe^f)$ (unitless)	Infinite source indoor attenuation coefficient, α (unitless)	Infinite source bldg. conc., $C_{building}$ ($\mu g/m^3$)
15	6.25E-01	0.10	8.33E+01	1.71E-02	4.00E+02	6.32E+52	1.37E-03	8.55E-04

Unit risk factor, URF $(\mu g/m^3)^{-1}$	Reference conc., RfC (mg/m^3)
8.8E-06	1.0E-01

END

RESULTS SHEET

INCREMENTAL RISK CALCULATIONS:

Incremental risk from vapor intrusion to indoor air, carcinogen (unitless)	Hazard quotient from vapor intrusion to indoor air, noncarcinogen (unitless)
1.8E-09	5.9E-06

MESSAGE SUMMARY BELOW:

END

SG-SCREEN
Version 3.1; 02/04

Reset to Defaults

Soil Gas Concentration Data

ENTER Chemical CAS No. (numbers only, no dashes)	ENTER Soil gas conc., C_g ($\mu g/m^3$)	OR	ENTER Soil gas conc., C_g (ppmv)	Chemical
75014	2.40E+01			Vinyl chloride (chloroethene)

MORE ↓

ENTER Depth below grade to bottom of enclosed space floor, L_F (15 or 200 cm)	ENTER Soil gas sampling depth below grade, L_s (cm)	ENTER Average soil temperature, T_S (^oC)	ENTER Vadose zone SCS soil type (used to estimate soil vapor permeability)	OR	ENTER User-defined vadose zone soil vapor permeability, k_v (cm^2)
15	335.28	19	S		

MORE ↓

ENTER Vandose zone SCS soil type (Lookup Soil Parameters)	ENTER Vadose zone soil dry bulk density, ρ_b^A (g/cm^3)	ENTER Vadose zone soil total porosity, n^V (unitless)	ENTER Vadose zone soil water-filled porosity, θ_w^V (cm^3/cm^3)	ENTER Average vapor flow rate into bldg. (Leave blank to calculate) Q_{soil} (L/m)
S	1.66	0.375	0.054	5

MORE ↓

ENTER Averaging time for carcinogens, AT_C (yrs)	ENTER Averaging time for noncarcinogens, AT_{NC} (yrs)	ENTER Exposure duration, ED (yrs)	ENTER Exposure frequency, EF (days/yr)
70	25	25	250

END

CHEMICAL PROPERTIES SHEET

Diffusivity in air, D_a (cm^2/s)	Diffusivity in water, D_w (cm^2/s)	Henry's law constant at reference temperature, H (atm-m^3/mol)	Henry's law constant reference temperature, T_R (^oC)	Enthalpy of vaporization at the normal boiling point, $\Delta H_{v,b}$ (cal/mol)	Normal boiling point, T_B (^oK)	Critical temperature, T_C (^oK)	Unit risk factor, URF ($\mu g/m^3)^{-1}$	Reference conc., RfC (mg/m^3)	Molecular weight, MW (g/mol)
1.06E-01	1.23E-05	2.69E-02	25	5,250	259.25	432.00	8.8E-06	1.0E-01	62.50

END

INTERMEDIATE CALCULATIONS SHEET

Source-building separation, L_T (cm)	Vadose zone soil air-filled porosity, θ_a^V (cm^3/cm^3)	Vadose zone effective total fluid saturation, S_{te} (cm^3/cm^3)	Vadose zone soil intrinsic permeability, k_i (cm^2)	Vadose zone soil relative air permeability, k_{rg} (cm^2)	Vadose zone soil effective vapor permeability, k_v (cm^2)	Floor-wall seam perimeter, X_{crack} (cm)	Soil gas conc. ($\mu g/m^3$)	Bldg. ventilation rate, $Q_{building}$ (cm^3/s)
320.28	0.321	0.003	1.01E-07	0.998	1.01E-07	4,000	2.40E+01	1.69E+04

Area of enclosed space below grade, A_B (cm^2)	Crack-to-total area ratio, η (unitless)	Crack depth below grade, Z_{crack} (cm)	Enthalpy of vaporization at ave. soil temperature, $\Delta H_{v,TS}$ (cal/mol)	Henry's law constant at ave. soil temperature, H_{TS} (atm-m^3/mol)	Henry's law constant at ave. soil temperature, H'_{TS} (unitless)	Vapor viscosity at ave. soil temperature, μ_{TS} (g/cm-s)	Vadose zone effective diffusion coefficient, D^{eff}_V (cm^2/s)	Diffusion path length, L_d (cm)
1.00E+06	4.00E-04	15	4,898	2.27E-02	9.48E-01	1.78E-04	1.71E-02	320.28

Convection path length, L_p (cm)	Source vapor conc., C_{source} ($\mu g/m^3$)	Crack radius, r_{crack} (cm)	Average vapor flow rate into bldg., Q_{soil} (cm^3/s)	Crack effective diffusion coefficient, D^{crack} (cm^2/s)	Area of crack, A_{crack} (cm^2)	Exponent of equivalent foundation Peclet number, $exp(Pe^f)$ (unitless)	Infinite source indoor attenuation coefficient, α (unitless)	Infinite source bldg. conc., $C_{building}$ ($\mu g/m^3$)
15	2.40E+01	0.10	8.33E+01	1.71E-02	4.00E+02	6.32E+52	1.92E-03	4.62E-02

Unit risk factor, URF ($\mu g/m^3)^{-1}$	Reference conc., RfC (mg/m^3)
8.8E-06	1.0E-01

END

RESULTS SHEET

INCREMENTAL RISK CALCULATIONS:

Incremental risk from vapor intrusion to indoor air, carcinogen (unitless)	Hazard quotient from vapor intrusion to indoor air, noncarcinogen (unitless)
9.9E-08	3.2E-04

MESSAGE SUMMARY BELOW:

END

SG-SCREEN
Version 3.1; 02/04

Reset to Defaults

Soil Gas Concentration Data

ENTER Chemical CAS No. (numbers only, no dashes)	ENTER Soil gas conc., C_g ($\mu g/m^3$)	OR	ENTER Soil gas conc., C_g (ppmv)	Chemical
75014	7.90E-02			Vinyl chloride (chloroethene)

MORE ↓

ENTER Depth below grade to bottom of enclosed space floor, L_F (15 or 200 cm)	ENTER Soil gas sampling depth below grade, L_s (cm)	ENTER Average soil temperature, T_S (^oC)	ENTER Vadose zone SCS soil type (used to estimate soil vapor permeability)	OR	ENTER User-defined vadose zone soil vapor permeability, k_v (cm^2)
15	274.32	19	S		

MORE ↓

ENTER Vandose zone SCS soil type (Lookup Soil Parameters)	ENTER Vadose zone soil dry bulk density, ρ_b^A (g/cm^3)	ENTER Vadose zone soil total porosity, n^V (unitless)	ENTER Vadose zone soil water-filled porosity, θ_w^V (cm^3/cm^3)	ENTER Average vapor flow rate into bldg. (Leave blank to calculate) Q_{soil} (L/m)
S	1.66	0.375	0.054	5

MORE ↓

ENTER Averaging time for carcinogens, AT_C (yrs)	ENTER Averaging time for noncarcinogens, AT_{NC} (yrs)	ENTER Exposure duration, ED (yrs)	ENTER Exposure frequency, EF (days/yr)
70	25	25	250

END

CHEMICAL PROPERTIES SHEET

Diffusivity in air, D_a (cm^2/s)	Diffusivity in water, D_w (cm^2/s)	Henry's law constant at reference temperature, H (atm-m^3/mol)	Henry's law constant reference temperature, T_R (^oC)	Enthalpy of vaporization at the normal boiling point, $\Delta H_{v,b}$ (cal/mol)	Normal boiling point, T_B (^oK)	Critical temperature, T_C (^oK)	Unit risk factor, URF ($\mu g/m^3)^{-1}$	Reference conc., RfC (mg/m^3)	Molecular weight, MW (g/mol)
1.06E-01	1.23E-05	2.69E-02	25	5,250	259.25	432.00	8.8E-06	1.0E-01	62.50

END

INTERMEDIATE CALCULATIONS SHEET

Source-building separation, L_T (cm)	Vadose zone soil air-filled porosity, θ_a^V (cm^3/cm^3)	Vadose zone effective total fluid saturation, S_{te} (cm^3/cm^3)	Vadose zone soil intrinsic permeability, k_i (cm^2)	Vadose zone soil relative air permeability, k_{rg} (cm^2)	Vadose zone soil effective vapor permeability, k_v (cm^2)	Floor-wall seam perimeter, X_{crack} (cm)	Soil gas conc. ($\mu g/m^3$)	Bldg. ventilation rate, $Q_{building}$ (cm^3/s)
259.32	0.321	0.003	1.01E-07	0.998	1.01E-07	4,000	7.90E-02	1.69E+04

Area of enclosed space below grade, A_B (cm^2)	Crack-to-total area ratio, η (unitless)	Crack depth below grade, Z_{crack} (cm)	Enthalpy of vaporization at ave. soil temperature, $\Delta H_{v,TS}$ (cal/mol)	Henry's law constant at ave. soil temperature, H_{TS} (atm-m^3/mol)	Henry's law constant at ave. soil temperature, H'_{TS} (unitless)	Vapor viscosity at ave. soil temperature, μ_{TS} (g/cm-s)	Vadose zone effective diffusion coefficient, D^{eff}_V (cm^2/s)	Diffusion path length, L_d (cm)
1.00E+06	4.00E-04	15	4,898	2.27E-02	9.48E-01	1.78E-04	1.71E-02	259.32

Convection path length, L_p (cm)	Source vapor conc., C_{source} ($\mu g/m^3$)	Crack radius, r_{crack} (cm)	Average vapor flow rate into bldg., Q_{soil} (cm^3/s)	Crack effective diffusion coefficient, D^{crack} (cm^2/s)	Area of crack, A_{crack} (cm^2)	Exponent of equivalent foundation Peclet number, $exp(Pe^f)$ (unitless)	Infinite source indoor attenuation coefficient, α (unitless)	Infinite source bldg. conc., $C_{building}$ ($\mu g/m^3$)
15	7.90E-02	0.10	8.33E+01	1.71E-02	4.00E+02	6.32E+52	2.18E-03	1.72E-04

Unit risk factor, URF ($\mu g/m^3)^{-1}$	Reference conc., RfC (mg/m^3)
8.8E-06	1.0E-01

END

RESULTS SHEET

INCREMENTAL RISK CALCULATIONS:

Incremental risk from vapor intrusion to indoor air, carcinogen (unitless)	Hazard quotient from vapor intrusion to indoor air, noncarcinogen (unitless)
3.7E-10	1.2E-06

MESSAGE SUMMARY BELOW:

END

SG-SCREEN
Version 3.1; 02/04

Reset to Defaults

Soil Gas Concentration Data

ENTER Chemical CAS No. (numbers only, no dashes)	ENTER Soil gas conc., C_g ($\mu g/m^3$)	OR	ENTER Soil gas conc., C_g (ppmv)	Chemical
75014	8.90E+01			Vinyl chloride (chloroethene)

MORE ↓

ENTER Depth below grade to bottom of enclosed space floor, L_F (15 or 200 cm)	ENTER Soil gas sampling depth below grade, L_s (cm)	ENTER Average soil temperature, T_S (^oC)	ENTER Vadose zone SCS soil type (used to estimate soil vapor permeability)	OR	ENTER User-defined vadose zone soil vapor permeability, k_v (cm^2)
15	685.8	19	S		

MORE ↓

ENTER Vandose zone SCS soil type (Lookup Soil Parameters)	ENTER Vadose zone soil dry bulk density, ρ_b^A (g/cm^3)	ENTER Vadose zone soil total porosity, n^V (unitless)	ENTER Vadose zone soil water-filled porosity, θ_w^V (cm^3/cm^3)	ENTER Average vapor flow rate into bldg. (Leave blank to calculate) Q_{soil} (L/m)
S	1.66	0.375	0.054	5

MORE ↓

ENTER Averaging time for carcinogens, AT_C (yrs)	ENTER Averaging time for noncarcinogens, AT_{NC} (yrs)	ENTER Exposure duration, ED (yrs)	ENTER Exposure frequency, EF (days/yr)
70	25	25	250

END

CHEMICAL PROPERTIES SHEET

Diffusivity in air, D_a (cm^2/s)	Diffusivity in water, D_w (cm^2/s)	Henry's law constant at reference temperature, H (atm-m^3/mol)	Henry's law constant reference temperature, T_R (^oC)	Enthalpy of vaporization at the normal boiling point, $\Delta H_{v,b}$ (cal/mol)	Normal boiling point, T_B (^oK)	Critical temperature, T_C (^oK)	Unit risk factor, URF ($\mu g/m^3)^{-1}$	Reference conc., RfC (mg/m^3)	Molecular weight, MW (g/mol)
1.06E-01	1.23E-05	2.69E-02	25	5,250	259.25	432.00	8.8E-06	1.0E-01	62.50

END

INTERMEDIATE CALCULATIONS SHEET

Source-building separation, L_T (cm)	Vadose zone soil air-filled porosity, θ_a^V (cm^3/cm^3)	Vadose zone effective total fluid saturation, S_{te} (cm^3/cm^3)	Vadose zone soil intrinsic permeability, k_i (cm^2)	Vadose zone soil relative air permeability, k_{rg} (cm^2)	Vadose zone soil effective vapor permeability, k_v (cm^2)	Floor-wall seam perimeter, X_{crack} (cm)	Soil gas conc. ($\mu g/m^3$)	Bldg. ventilation rate, $Q_{building}$ (cm^3/s)
670.8	0.321	0.003	1.01E-07	0.998	1.01E-07	4,000	8.90E+01	1.69E+04

Area of enclosed space below grade, A_B (cm^2)	Crack-to-total area ratio, η (unitless)	Crack depth below grade, Z_{crack} (cm)	Enthalpy of vaporization at ave. soil temperature, $\Delta H_{v,TS}$ (cal/mol)	Henry's law constant at ave. soil temperature, H_{TS} (atm-m^3/mol)	Henry's law constant at ave. soil temperature, H'_{TS} (unitless)	Vapor viscosity at ave. soil temperature, μ_{TS} (g/cm-s)	Vadose zone effective diffusion coefficient, D^{eff}_V (cm^2/s)	Diffusion path length, L_d (cm)
1.00E+06	4.00E-04	15	4,898	2.27E-02	9.48E-01	1.78E-04	1.71E-02	670.8

Convection path length, L_p (cm)	Source vapor conc., C_{source} ($\mu g/m^3$)	Crack radius, r_{crack} (cm)	Average vapor flow rate into bldg., Q_{soil} (cm^3/s)	Crack effective diffusion coefficient, D^{crack} (cm^2/s)	Area of crack, A_{crack} (cm^2)	Exponent of equivalent foundation Peclet number, $exp(Pe^f)$ (unitless)	Infinite source indoor attenuation coefficient, α (unitless)	Infinite source bldg. conc., $C_{building}$ ($\mu g/m^3$)
15	8.90E+01	0.10	8.33E+01	1.71E-02	4.00E+02	6.32E+52	1.15E-03	1.03E-01

Unit risk factor, URF ($\mu g/m^3)^{-1}$	Reference conc., RfC (mg/m^3)
8.8E-06	1.0E-01

END

RESULTS SHEET

INCREMENTAL RISK CALCULATIONS:

Incremental risk from vapor intrusion to indoor air, carcinogen (unitless)	Hazard quotient from vapor intrusion to indoor air, noncarcinogen (unitless)
2.2E-07	7.0E-04

MESSAGE SUMMARY BELOW:

END

SG-SCREEN
Version 3.1; 02/04

Reset to Defaults

Soil Gas Concentration Data

ENTER Chemical CAS No. (numbers only, no dashes)	ENTER Soil gas conc., C_g ($\mu g/m^3$)	OR	ENTER Soil gas conc., C_g (ppmv)	Chemical
67663	2.05E+00			Chloroform

MORE ↓

ENTER Depth below grade to bottom of enclosed space floor, L_F (15 or 200 cm)	ENTER Soil gas sampling depth below grade, L_s (cm)	ENTER Average soil temperature, T_S (^oC)	ENTER Vadose zone SCS soil type (used to estimate soil vapor permeability)	OR	ENTER User-defined vadose zone soil vapor permeability, k_v (cm^2)
15	304.8	19	S		

MORE ↓

ENTER Vandose zone SCS soil type (Lookup Soil Parameters)	ENTER Vadose zone soil dry bulk density, ρ_b^A (g/cm^3)	ENTER Vadose zone soil total porosity, n^V (unitless)	ENTER Vadose zone soil water-filled porosity, θ_w^V (cm^3/cm^3)	ENTER Average vapor flow rate into bldg. (Leave blank to calculate) Q_{soil} (L/m)
S	1.66	0.375	0.054	5

MORE ↓

ENTER Averaging time for carcinogens, AT_C (yrs)	ENTER Averaging time for noncarcinogens, AT_{NC} (yrs)	ENTER Exposure duration, ED (yrs)	ENTER Exposure frequency, EF (days/yr)
70	30	30	350

END

CHEMICAL PROPERTIES SHEET

Diffusivity in air, D_a (cm^2/s)	Diffusivity in water, D_w (cm^2/s)	Henry's law constant at reference temperature, H (atm-m^3/mol)	Henry's law constant reference temperature, T_R (^oC)	Enthalpy of vaporization at the normal boiling point, $\Delta H_{v,b}$ (cal/mol)	Normal boiling point, T_B (^oK)	Critical temperature, T_C (^oK)	Unit risk factor, URF ($\mu g/m^3)^{-1}$	Reference conc., RfC (mg/m^3)	Molecular weight, MW (g/mol)
1.04E-01	1.00E-05	3.66E-03	25	6,988	334.32	536.40	2.3E-05	0.0E+00	119.38

END

INTERMEDIATE CALCULATIONS SHEET

Source-building separation, L_T (cm)	Vadose zone soil air-filled porosity, θ_a^V (cm^3/cm^3)	Vadose zone effective total fluid saturation, S_{te} (cm^3/cm^3)	Vadose zone soil intrinsic permeability, k_i (cm^2)	Vadose zone soil relative air permeability, k_{rg} (cm^2)	Vadose zone soil effective vapor permeability, k_v (cm^2)	Floor-wall seam perimeter, X_{crack} (cm)	Soil gas conc. ($\mu g/m^3$)	Bldg. ventilation rate, $Q_{building}$ (cm^3/s)
289.8	0.321	0.003	1.01E-07	0.998	1.01E-07	4,000	2.05E+00	1.69E+04

Area of enclosed space below grade, A_B (cm^2)	Crack-to-total area ratio, η (unitless)	Crack depth below grade, Z_{crack} (cm)	Enthalpy of vaporization at ave. soil temperature, $\Delta H_{v,TS}$ (cal/mol)	Henry's law constant at ave. soil temperature, H_{TS} (atm-m^3/mol)	Henry's law constant at ave. soil temperature, H'_{TS} (unitless)	Vapor viscosity at ave. soil temperature, μ_{TS} (g/cm-s)	Vadose zone effective diffusion coefficient, D^{eff}_V (cm^2/s)	Diffusion path length, L_d (cm)
1.00E+06	4.00E-04	15	7,461	2.83E-03	1.18E-01	1.78E-04	1.68E-02	289.8

Convection path length, L_p (cm)	Source vapor conc., C_{source} ($\mu g/m^3$)	Crack radius, r_{crack} (cm)	Average vapor flow rate into bldg., Q_{soil} (cm^3/s)	Crack effective diffusion coefficient, D^{crack} (cm^2/s)	Area of crack, A_{crack} (cm^2)	Exponent of equivalent foundation Peclet number, $exp(Pe^f)$ (unitless)	Infinite source indoor attenuation coefficient, α (unitless)	Infinite source bldg. conc., $C_{building}$ ($\mu g/m^3$)
15	2.05E+00	0.10	8.33E+01	1.68E-02	4.00E+02	6.54E+53	2.02E-03	4.14E-03

Unit risk factor, URF ($\mu g/m^3)^{-1}$	Reference conc., RfC (mg/m^3)
2.3E-05	NA

END

RESULTS SHEET

INCREMENTAL RISK CALCULATIONS:

Incremental risk from vapor intrusion to indoor air, carcinogen (unitless)	Hazard quotient from vapor intrusion to indoor air, noncarcinogen (unitless)
3.9E-08	NA

MESSAGE SUMMARY BELOW:

END

SG-SCREEN
Version 3.1; 02/04

Reset to Defaults

Soil Gas Concentration Data

ENTER Chemical CAS No. (numbers only, no dashes)	ENTER Soil gas conc., C_g ($\mu g/m^3$)	OR	ENTER Soil gas conc., C_g (ppmv)	Chemical
67663	4.90E+00			Chloroform

MORE ↓

ENTER Depth below grade to bottom of enclosed space floor, L_F (15 or 200 cm)	ENTER Soil gas sampling depth below grade, L_s (cm)	ENTER Average soil temperature, T_S (^oC)	ENTER Vadose zone SCS soil type (used to estimate soil vapor permeability)	OR	ENTER User-defined vadose zone soil vapor permeability, k_v (cm^2)
15	304.8	19	S		

MORE ↓

ENTER Vandose zone SCS soil type (Lookup Soil Parameters)	ENTER Vadose zone soil dry bulk density, ρ_b^A (g/cm^3)	ENTER Vadose zone soil total porosity, n^V (unitless)	ENTER Vadose zone soil water-filled porosity, θ_w^V (cm^3/cm^3)	ENTER Average vapor flow rate into bldg. (Leave blank to calculate) Q_{soil} (L/m)
S	1.66	0.375	0.054	5

MORE ↓

ENTER Averaging time for carcinogens, AT_C (yrs)	ENTER Averaging time for noncarcinogens, AT_{NC} (yrs)	ENTER Exposure duration, ED (yrs)	ENTER Exposure frequency, EF (days/yr)
70	30	30	350

END

CHEMICAL PROPERTIES SHEET

Diffusivity in air, D_a (cm^2/s)	Diffusivity in water, D_w (cm^2/s)	Henry's law constant at reference temperature, H (atm-m^3/mol)	Henry's law constant reference temperature, T_R (^oC)	Enthalpy of vaporization at the normal boiling point, $\Delta H_{v,b}$ (cal/mol)	Normal boiling point, T_B (^oK)	Critical temperature, T_C (^oK)	Unit risk factor, URF ($\mu g/m^3)^{-1}$	Reference conc., RfC (mg/m^3)	Molecular weight, MW (g/mol)
1.04E-01	1.00E-05	3.66E-03	25	6,988	334.32	536.40	2.3E-05	0.0E+00	119.38

END

INTERMEDIATE CALCULATIONS SHEET

Source-building separation, L_T (cm)	Vadose zone soil air-filled porosity, θ_a^V (cm^3/cm^3)	Vadose zone effective total fluid saturation, S_{te} (cm^3/cm^3)	Vadose zone soil intrinsic permeability, k_i (cm^2)	Vadose zone soil relative air permeability, k_{rg} (cm^2)	Vadose zone soil effective vapor permeability, k_v (cm^2)	Floor-wall seam perimeter, X_{crack} (cm)	Soil gas conc. ($\mu g/m^3$)	Bldg. ventilation rate, $Q_{building}$ (cm^3/s)
289.8	0.321	0.003	1.01E-07	0.998	1.01E-07	4,000	4.90E+00	1.69E+04

Area of enclosed space below grade, A_B (cm^2)	Crack-to-total area ratio, η (unitless)	Crack depth below grade, Z_{crack} (cm)	Enthalpy of vaporization at ave. soil temperature, $\Delta H_{v,TS}$ (cal/mol)	Henry's law constant at ave. soil temperature, H_{TS} (atm-m^3/mol)	Henry's law constant at ave. soil temperature, H'_{TS} (unitless)	Vapor viscosity at ave. soil temperature, μ_{TS} (g/cm-s)	Vadose zone effective diffusion coefficient, D^{eff}_V (cm^2/s)	Diffusion path length, L_d (cm)
1.00E+06	4.00E-04	15	7,461	2.83E-03	1.18E-01	1.78E-04	1.68E-02	289.8

Convection path length, L_p (cm)	Source vapor conc., C_{source} ($\mu g/m^3$)	Crack radius, r_{crack} (cm)	Average vapor flow rate into bldg., Q_{soil} (cm^3/s)	Crack effective diffusion coefficient, D^{crack} (cm^2/s)	Area of crack, A_{crack} (cm^2)	Exponent of equivalent foundation Peclet number, $exp(Pe^f)$ (unitless)	Infinite source indoor attenuation coefficient, α (unitless)	Infinite source bldg. conc., $C_{building}$ ($\mu g/m^3$)
15	4.90E+00	0.10	8.33E+01	1.68E-02	4.00E+02	6.54E+53	2.02E-03	9.89E-03

Unit risk factor, URF ($\mu g/m^3)^{-1}$	Reference conc., RfC (mg/m^3)
2.3E-05	NA

END

RESULTS SHEET

INCREMENTAL RISK CALCULATIONS:

Incremental risk from vapor intrusion to indoor air, carcinogen (unitless)	Hazard quotient from vapor intrusion to indoor air, noncarcinogen (unitless)
9.3E-08	NA

MESSAGE SUMMARY BELOW:

END

SG-SCREEN
Version 3.1; 02/04

Reset to Defaults

Soil Gas Concentration Data

ENTER Chemical CAS No. (numbers only, no dashes)	ENTER Soil gas conc., C_g ($\mu g/m^3$)	OR	ENTER Soil gas conc., C_g (ppmv)	Chemical
67663	2.40E-01			Chloroform

MORE ↓

ENTER Depth below grade to bottom of enclosed space floor, L_F (15 or 200 cm)	ENTER Soil gas sampling depth below grade, L_s (cm)	ENTER Average soil temperature, T_S (^oC)	ENTER Vadose zone SCS soil type (used to estimate soil vapor permeability)	OR	ENTER User-defined vadose zone soil vapor permeability, k_v (cm^2)
15	304.8	19	S		

MORE ↓

ENTER Vandose zone SCS soil type (Lookup Soil Parameters)	ENTER Vadose zone soil dry bulk density, ρ_b^A (g/cm^3)	ENTER Vadose zone soil total porosity, n^V (unitless)	ENTER Vadose zone soil water-filled porosity, θ_w^V (cm^3/cm^3)	ENTER Average vapor flow rate into bldg. (Leave blank to calculate) Q_{soil} (L/m)
S	1.66	0.375	0.054	5

MORE ↓

ENTER Averaging time for carcinogens, AT_C (yrs)	ENTER Averaging time for noncarcinogens, AT_{NC} (yrs)	ENTER Exposure duration, ED (yrs)	ENTER Exposure frequency, EF (days/yr)
70	30	30	350

END

CHEMICAL PROPERTIES SHEET

Diffusivity in air, D_a (cm^2/s)	Diffusivity in water, D_w (cm^2/s)	Henry's law constant at reference temperature, H (atm-m^3/mol)	Henry's law constant reference temperature, T_R (^oC)	Enthalpy of vaporization at the normal boiling point, $\Delta H_{v,b}$ (cal/mol)	Normal boiling point, T_B (^oK)	Critical temperature, T_C (^oK)	Unit risk factor, URF ($\mu g/m^3)^{-1}$	Reference conc., RfC (mg/m^3)	Molecular weight, MW (g/mol)
1.04E-01	1.00E-05	3.66E-03	25	6,988	334.32	536.40	2.3E-05	0.0E+00	119.38

END

INTERMEDIATE CALCULATIONS SHEET

Source-building separation, L_T (cm)	Vadose zone soil air-filled porosity, θ_a^V (cm^3/cm^3)	Vadose zone effective total fluid saturation, S_{te} (cm^3/cm^3)	Vadose zone soil intrinsic permeability, k_i (cm^2)	Vadose zone soil relative air permeability, k_{rg} (cm^2)	Vadose zone soil effective vapor permeability, k_v (cm^2)	Floor-wall seam perimeter, X_{crack} (cm)	Soil gas conc. ($\mu g/m^3$)	Bldg. ventilation rate, $Q_{building}$ (cm^3/s)
289.8	0.321	0.003	1.01E-07	0.998	1.01E-07	4,000	2.40E-01	1.69E+04

Area of enclosed space below grade, A_B (cm^2)	Crack-to-total area ratio, η (unitless)	Crack depth below grade, Z_{crack} (cm)	Enthalpy of vaporization at ave. soil temperature, $\Delta H_{v,TS}$ (cal/mol)	Henry's law constant at ave. soil temperature, H_{TS} (atm-m^3/mol)	Henry's law constant at ave. soil temperature, H'_{TS} (unitless)	Vapor viscosity at ave. soil temperature, μ_{TS} (g/cm-s)	Vadose zone effective diffusion coefficient, D^{eff}_V (cm^2/s)	Diffusion path length, L_d (cm)
1.00E+06	4.00E-04	15	7,461	2.83E-03	1.18E-01	1.78E-04	1.68E-02	289.8

Convection path length, L_p (cm)	Source vapor conc., C_{source} ($\mu g/m^3$)	Crack radius, r_{crack} (cm)	Average vapor flow rate into bldg., Q_{soil} (cm^3/s)	Crack effective diffusion coefficient, D^{crack} (cm^2/s)	Area of crack, A_{crack} (cm^2)	Exponent of equivalent foundation Peclet number, $exp(Pe^f)$ (unitless)	Infinite source indoor attenuation coefficient, α (unitless)	Infinite source bldg. conc., $C_{building}$ ($\mu g/m^3$)
15	2.40E-01	0.10	8.33E+01	1.68E-02	4.00E+02	6.54E+53	2.02E-03	4.84E-04

Unit risk factor, URF ($\mu g/m^3)^{-1}$	Reference conc., RfC (mg/m^3)
2.3E-05	NA

END

RESULTS SHEET

INCREMENTAL RISK CALCULATIONS:

Incremental risk from vapor intrusion to indoor air, carcinogen (unitless)	Hazard quotient from vapor intrusion to indoor air, noncarcinogen (unitless)
4.6E-09	NA

MESSAGE SUMMARY BELOW:

END

SG-SCREEN
Version 3.1; 02/04

Reset to Defaults

Soil Gas Concentration Data

ENTER Chemical CAS No. (numbers only, no dashes)	ENTER Soil gas conc., C_g ($\mu g/m^3$)	OR	ENTER Soil gas conc., C_g (ppmv)	Chemical
67663	2.40E-01			Chloroform

MORE ↓

ENTER Depth below grade to bottom of enclosed space floor, L_F (15 or 200 cm)	ENTER Soil gas sampling depth below grade, L_s (cm)	ENTER Average soil temperature, T_S (^oC)	ENTER Vadose zone SCS soil type (used to estimate soil vapor permeability)	OR	ENTER User-defined vadose zone soil vapor permeability, k_v (cm^2)
15	304.8	10	S		

MORE ↓

ENTER Vandose zone SCS soil type (Lookup Soil Parameters)	ENTER Vadose zone soil dry bulk density, ρ_b^A (g/cm^3)	ENTER Vadose zone soil total porosity, n^V (unitless)	ENTER Vadose zone soil water-filled porosity, θ_w^V (cm^3/cm^3)	ENTER Average vapor flow rate into bldg. (Leave blank to calculate) Q_{soil} (L/m)
S	1.66	0.375	0.054	5

MORE ↓

ENTER Averaging time for carcinogens, AT_C (yrs)	ENTER Averaging time for noncarcinogens, AT_{NC} (yrs)	ENTER Exposure duration, ED (yrs)	ENTER Exposure frequency, EF (days/yr)
70	30	30	350

END

CHEMICAL PROPERTIES SHEET

Diffusivity in air, D_a (cm^2/s)	Diffusivity in water, D_w (cm^2/s)	Henry's law constant at reference temperature, H (atm-m^3/mol)	Henry's law constant reference temperature, T_R (^oC)	Enthalpy of vaporization at the normal boiling point, $\Delta H_{v,b}$ (cal/mol)	Normal boiling point, T_B (^oK)	Critical temperature, T_C (^oK)	Unit risk factor, URF ($\mu g/m^3)^{-1}$	Reference conc., RfC (mg/m^3)	Molecular weight, MW (g/mol)
1.04E-01	1.00E-05	3.66E-03	25	6,988	334.32	536.40	2.3E-05	0.0E+00	119.38

END

INTERMEDIATE CALCULATIONS SHEET

Source-building separation, L_T (cm)	Vadose zone soil air-filled porosity, θ_a^V (cm^3/cm^3)	Vadose zone effective total fluid saturation, S_{te} (cm^3/cm^3)	Vadose zone soil intrinsic permeability, k_i (cm^2)	Vadose zone soil relative air permeability, k_{rg} (cm^2)	Vadose zone soil effective vapor permeability, k_v (cm^2)	Floor-wall seam perimeter, X_{crack} (cm)	Soil gas conc. ($\mu g/m^3$)	Bldg. ventilation rate, $Q_{building}$ (cm^3/s)
289.8	0.321	0.003	9.92E-08	0.998	9.91E-08	4,000	2.40E-01	1.69E+04

Area of enclosed space below grade, A_B (cm^2)	Crack-to-total area ratio, η (unitless)	Crack depth below grade, Z_{crack} (cm)	Enthalpy of vaporization at ave. soil temperature, $\Delta H_{v,TS}$ (cal/mol)	Henry's law constant at ave. soil temperature, H_{TS} (atm-m^3/mol)	Henry's law constant at ave. soil temperature, H'_{TS} (unitless)	Vapor viscosity at ave. soil temperature, μ_{TS} (g/cm-s)	Vadose zone effective diffusion coefficient, D^{eff}_V (cm^2/s)	Diffusion path length, L_d (cm)
1.00E+06	4.00E-04	15	7,554	1.86E-03	8.02E-02	1.75E-04	1.68E-02	289.8

Convection path length, L_p (cm)	Source vapor conc., C_{source} ($\mu g/m^3$)	Crack radius, r_{crack} (cm)	Average vapor flow rate into bldg., Q_{soil} (cm^3/s)	Crack effective diffusion coefficient, D^{crack} (cm^2/s)	Area of crack, A_{crack} (cm^2)	Exponent of equivalent foundation Peclet number, $exp(Pe^f)$ (unitless)	Infinite source indoor attenuation coefficient, α (unitless)	Infinite source bldg. conc., $C_{building}$ ($\mu g/m^3$)
15	2.40E-01	0.10	8.33E+01	1.68E-02	4.00E+02	6.54E+53	2.02E-03	4.84E-04

Unit risk factor, URF ($\mu g/m^3)^{-1}$	Reference conc., RfC (mg/m^3)
2.3E-05	NA

END

RESULTS SHEET

INCREMENTAL RISK CALCULATIONS:

Incremental risk from vapor intrusion to indoor air, carcinogen (unitless)	Hazard quotient from vapor intrusion to indoor air, noncarcinogen (unitless)
4.6E-09	NA

MESSAGE SUMMARY BELOW:

END

SG-SCREEN
Version 3.1; 02/04

Reset to Defaults

Soil Gas Concentration Data

ENTER Chemical CAS No. (numbers only, no dashes)	ENTER Soil gas conc., C_g ($\mu g/m^3$)	OR	ENTER Soil gas conc., C_g (ppmv)	Chemical
127184	5.80E+00			Tetrachloroethylene

MORE ↓

ENTER Depth below grade to bottom of enclosed space floor, L_F (15 or 200 cm)	ENTER Soil gas sampling depth below grade, L_s (cm)	ENTER Average soil temperature, T_S (^oC)	ENTER Vadose zone SCS soil type (used to estimate soil vapor permeability)	OR	ENTER User-defined vadose zone soil vapor permeability, k_v (cm^2)
15	304.8	19	S		

MORE ↓

ENTER Vandose zone SCS soil type (Lookup Soil Parameters)	ENTER Vadose zone soil dry bulk density, ρ_b^A (g/cm^3)	ENTER Vadose zone soil total porosity, n^V (unitless)	ENTER Vadose zone soil water-filled porosity, θ_w^V (cm^3/cm^3)	ENTER Average vapor flow rate into bldg. (Leave blank to calculate) Q_{soil} (L/m)
S	1.66	0.375	0.054	5

MORE ↓

ENTER Averaging time for carcinogens, AT_C (yrs)	ENTER Averaging time for noncarcinogens, AT_{NC} (yrs)	ENTER Exposure duration, ED (yrs)	ENTER Exposure frequency, EF (days/yr)
70	30	30	350

END

CHEMICAL PROPERTIES SHEET

Diffusivity in air, D_a (cm^2/s)	Diffusivity in water, D_w (cm^2/s)	Henry's law constant at reference temperature, H (atm-m^3/mol)	Henry's law constant reference temperature, T_R (^oC)	Enthalpy of vaporization at the normal boiling point, $\Delta H_{v,b}$ (cal/mol)	Normal boiling point, T_B (^oK)	Critical temperature, T_C (^oK)	Unit risk factor, URF ($\mu g/m^3)^{-1}$	Reference conc., RfC (mg/m^3)	Molecular weight, MW (g/mol)
7.20E-02	8.20E-06	1.84E-02	25	8,288	394.40	620.20	5.9E-06	6.0E-01	165.83

END

INTERMEDIATE CALCULATIONS SHEET

Source-building separation, L_T (cm)	Vadose zone soil air-filled porosity, θ_a^V (cm^3/cm^3)	Vadose zone effective total fluid saturation, S_{te} (cm^3/cm^3)	Vadose zone soil intrinsic permeability, k_i (cm^2)	Vadose zone soil relative air permeability, k_{rg} (cm^2)	Vadose zone soil effective vapor permeability, k_v (cm^2)	Floor-wall seam perimeter, X_{crack} (cm)	Soil gas conc. ($\mu g/m^3$)	Bldg. ventilation rate, $Q_{building}$ (cm^3/s)
289.8	0.321	0.003	1.01E-07	0.998	1.01E-07	4,000	5.80E+00	1.69E+04

Area of enclosed space below grade, A_B (cm^2)	Crack-to-total area ratio, η (unitless)	Crack depth below grade, Z_{crack} (cm)	Enthalpy of vaporization at ave. soil temperature, $\Delta H_{v,TS}$ (cal/mol)	Henry's law constant at ave. soil temperature, H_{TS} (atm-m^3/mol)	Henry's law constant at ave. soil temperature, H'_{TS} (unitless)	Vapor viscosity at ave. soil temperature, μ_{TS} (g/cm-s)	Vadose zone effective diffusion coefficient, D^{eff}_V (cm^2/s)	Diffusion path length, L_d (cm)
1.00E+06	4.00E-04	15	9,462	1.32E-02	5.52E-01	1.78E-04	1.16E-02	289.8

Convection path length, L_p (cm)	Source vapor conc., C_{source} ($\mu g/m^3$)	Crack radius, r_{crack} (cm)	Average vapor flow rate into bldg., Q_{soil} (cm^3/s)	Crack effective diffusion coefficient, D^{crack} (cm^2/s)	Area of crack, A_{crack} (cm^2)	Exponent of equivalent foundation Peclet number, $exp(Pe^f)$ (unitless)	Infinite source indoor attenuation coefficient, α (unitless)	Infinite source bldg. conc., $C_{building}$ ($\mu g/m^3$)
15	5.80E+00	0.10	8.33E+01	1.16E-02	4.00E+02	5.42E+77	1.60E-03	9.28E-03

Unit risk factor, URF ($\mu g/m^3)^{-1}$	Reference conc., RfC (mg/m^3)
5.9E-06	6.0E-01

END

RESULTS SHEET

INCREMENTAL RISK CALCULATIONS:

Incremental risk from vapor intrusion to indoor air, carcinogen (unitless)	Hazard quotient from vapor intrusion to indoor air, noncarcinogen (unitless)
2.2E-08	1.5E-05

MESSAGE SUMMARY BELOW:

END

SG-SCREEN
Version 3.1; 02/04

Reset to Defaults

Soil Gas Concentration Data

ENTER Chemical CAS No. (numbers only, no dashes)	ENTER Soil gas conc., C_g ($\mu g/m^3$)	OR	ENTER Soil gas conc., C_g (ppmv)	Chemical
127184	8.80E+00			Tetrachloroethylene

MORE ↓

ENTER Depth below grade to bottom of enclosed space floor, L_F (15 or 200 cm)	ENTER Soil gas sampling depth below grade, L_s (cm)	ENTER Average soil temperature, T_S (^oC)	ENTER Vadose zone SCS soil type (used to estimate soil vapor permeability)	OR	ENTER User-defined vadose zone soil vapor permeability, k_v (cm^2)
15	304.8	19	S		

MORE ↓

ENTER Vandose zone SCS soil type (Lookup Soil Parameters)	ENTER Vadose zone soil dry bulk density, ρ_b^A (g/cm^3)	ENTER Vadose zone soil total porosity, n^V (unitless)	ENTER Vadose zone soil water-filled porosity, θ_w^V (cm^3/cm^3)	ENTER Average vapor flow rate into bldg. (Leave blank to calculate) Q_{soil} (L/m)
S	1.66	0.375	0.054	5

MORE ↓

ENTER Averaging time for carcinogens, AT_C (yrs)	ENTER Averaging time for noncarcinogens, AT_{NC} (yrs)	ENTER Exposure duration, ED (yrs)	ENTER Exposure frequency, EF (days/yr)
70	30	30	350

END

CHEMICAL PROPERTIES SHEET

Diffusivity in air, D_a (cm^2/s)	Diffusivity in water, D_w (cm^2/s)	Henry's law constant at reference temperature, H (atm-m^3/mol)	Henry's law constant reference temperature, T_R (^oC)	Enthalpy of vaporization at the normal boiling point, $\Delta H_{v,b}$ (cal/mol)	Normal boiling point, T_B (^oK)	Critical temperature, T_C (^oK)	Unit risk factor, URF ($\mu g/m^3)^{-1}$	Reference conc., RfC (mg/m^3)	Molecular weight, MW (g/mol)
7.20E-02	8.20E-06	1.84E-02	25	8,288	394.40	620.20	5.9E-06	6.0E-01	165.83

END

INTERMEDIATE CALCULATIONS SHEET

Source-building separation, L_T (cm)	Vadose zone soil air-filled porosity, θ_a^V (cm^3/cm^3)	Vadose zone effective total fluid saturation, S_{te} (cm^3/cm^3)	Vadose zone soil intrinsic permeability, k_i (cm^2)	Vadose zone soil relative air permeability, k_{rg} (cm^2)	Vadose zone soil effective vapor permeability, k_v (cm^2)	Floor-wall seam perimeter, X_{crack} (cm)	Soil gas conc. ($\mu g/m^3$)	Bldg. ventilation rate, $Q_{building}$ (cm^3/s)
289.8	0.321	0.003	1.01E-07	0.998	1.01E-07	4,000	8.80E+00	1.69E+04

Area of enclosed space below grade, A_B (cm^2)	Crack-to-total area ratio, η (unitless)	Crack depth below grade, Z_{crack} (cm)	Enthalpy of vaporization at ave. soil temperature, $\Delta H_{v,TS}$ (cal/mol)	Henry's law constant at ave. soil temperature, H_{TS} (atm-m^3/mol)	Henry's law constant at ave. soil temperature, H'_{TS} (unitless)	Vapor viscosity at ave. soil temperature, μ_{TS} (g/cm-s)	Vadose zone effective diffusion coefficient, D^{eff}_V (cm^2/s)	Diffusion path length, L_d (cm)
1.00E+06	4.00E-04	15	9,462	1.32E-02	5.52E-01	1.78E-04	1.16E-02	289.8

Convection path length, L_p (cm)	Source vapor conc., C_{source} ($\mu g/m^3$)	Crack radius, r_{crack} (cm)	Average vapor flow rate into bldg., Q_{soil} (cm^3/s)	Crack effective diffusion coefficient, D^{crack} (cm^2/s)	Area of crack, A_{crack} (cm^2)	Exponent of equivalent foundation Peclet number, $exp(Pe^f)$ (unitless)	Infinite source indoor attenuation coefficient, α (unitless)	Infinite source bldg. conc., $C_{building}$ ($\mu g/m^3$)
15	8.80E+00	0.10	8.33E+01	1.16E-02	4.00E+02	5.42E+77	1.60E-03	1.41E-02

Unit risk factor, URF ($\mu g/m^3)^{-1}$	Reference conc., RfC (mg/m^3)
5.9E-06	6.0E-01

END

RESULTS SHEET

INCREMENTAL RISK CALCULATIONS:

Incremental risk from vapor intrusion to indoor air, carcinogen (unitless)	Hazard quotient from vapor intrusion to indoor air, noncarcinogen (unitless)
3.4E-08	2.2E-05

MESSAGE SUMMARY BELOW:

END

SG-SCREEN
Version 3.1; 02/04

Reset to Defaults

Soil Gas Concentration Data

ENTER Chemical CAS No. (numbers only, no dashes)	ENTER Soil gas conc., C_g ($\mu g/m^3$)	OR	ENTER Soil gas conc., C_g (ppmv)	Chemical
127184	3.40E-01			Tetrachloroethylene

MORE ↓

ENTER Depth below grade to bottom of enclosed space floor, L_F (15 or 200 cm)	ENTER Soil gas sampling depth below grade, L_s (cm)	ENTER Average soil temperature, T_S (^oC)	ENTER Vadose zone SCS soil type (used to estimate soil vapor permeability)	OR	ENTER User-defined vadose zone soil vapor permeability, k_v (cm^2)
15	304.8	19	S		

MORE ↓

ENTER Vandose zone SCS soil type (Lookup Soil Parameters)	ENTER Vadose zone soil dry bulk density, ρ_b^A (g/cm^3)	ENTER Vadose zone soil total porosity, n^V (unitless)	ENTER Vadose zone soil water-filled porosity, θ_w^V (cm^3/cm^3)	ENTER Average vapor flow rate into bldg. (Leave blank to calculate) Q_{soil} (L/m)
S	1.66	0.375	0.054	5

MORE ↓

ENTER Averaging time for carcinogens, AT_C (yrs)	ENTER Averaging time for noncarcinogens, AT_{NC} (yrs)	ENTER Exposure duration, ED (yrs)	ENTER Exposure frequency, EF (days/yr)
70	30	30	350

END

CHEMICAL PROPERTIES SHEET

Diffusivity in air, D_a (cm^2/s)	Diffusivity in water, D_w (cm^2/s)	Henry's law constant at reference temperature, H (atm-m^3/mol)	Henry's law constant reference temperature, T_R (^oC)	Enthalpy of vaporization at the normal boiling point, $\Delta H_{v,b}$ (cal/mol)	Normal boiling point, T_B (^oK)	Critical temperature, T_C (^oK)	Unit risk factor, URF ($\mu g/m^3)^{-1}$	Reference conc., RfC (mg/m^3)	Molecular weight, MW (g/mol)
7.20E-02	8.20E-06	1.84E-02	25	8,288	394.40	620.20	5.9E-06	6.0E-01	165.83

END

INTERMEDIATE CALCULATIONS SHEET

Source-building separation, L_T (cm)	Vadose zone soil air-filled porosity, θ_a^V (cm^3/cm^3)	Vadose zone effective total fluid saturation, S_{te} (cm^3/cm^3)	Vadose zone soil intrinsic permeability, k_i (cm^2)	Vadose zone soil relative air permeability, k_{rg} (cm^2)	Vadose zone soil effective vapor permeability, k_v (cm^2)	Floor-wall seam perimeter, X_{crack} (cm)	Soil gas conc. ($\mu g/m^3$)	Bldg. ventilation rate, $Q_{building}$ (cm^3/s)
289.8	0.321	0.003	1.01E-07	0.998	1.01E-07	4,000	3.40E-01	1.69E+04

Area of enclosed space below grade, A_B (cm^2)	Crack-to-total area ratio, η (unitless)	Crack depth below grade, Z_{crack} (cm)	Enthalpy of vaporization at ave. soil temperature, $\Delta H_{v,TS}$ (cal/mol)	Henry's law constant at ave. soil temperature, H_{TS} (atm-m^3/mol)	Henry's law constant at ave. soil temperature, H'_{TS} (unitless)	Vapor viscosity at ave. soil temperature, μ_{TS} (g/cm-s)	Vadose zone effective diffusion coefficient, D^{eff}_V (cm^2/s)	Diffusion path length, L_d (cm)
1.00E+06	4.00E-04	15	9,462	1.32E-02	5.52E-01	1.78E-04	1.16E-02	289.8

Convection path length, L_p (cm)	Source vapor conc., C_{source} ($\mu g/m^3$)	Crack radius, r_{crack} (cm)	Average vapor flow rate into bldg., Q_{soil} (cm^3/s)	Crack effective diffusion coefficient, D^{crack} (cm^2/s)	Area of crack, A_{crack} (cm^2)	Exponent of equivalent foundation Peclet number, $exp(Pe^f)$ (unitless)	Infinite source indoor attenuation coefficient, α (unitless)	Infinite source bldg. conc., $C_{building}$ ($\mu g/m^3$)
15	3.40E-01	0.10	8.33E+01	1.16E-02	4.00E+02	5.42E+77	1.60E-03	5.44E-04

Unit risk factor, URF ($\mu g/m^3)^{-1}$	Reference conc., RfC (mg/m^3)
5.9E-06	6.0E-01

END

RESULTS SHEET

INCREMENTAL RISK CALCULATIONS:

Incremental risk from vapor intrusion to indoor air, carcinogen (unitless)	Hazard quotient from vapor intrusion to indoor air, noncarcinogen (unitless)
1.3E-09	8.7E-07

MESSAGE SUMMARY BELOW:

END

SG-SCREEN
Version 3.1; 02/04

Reset to Defaults

Soil Gas Concentration Data

ENTER Chemical CAS No. (numbers only, no dashes)	ENTER Soil gas conc., C_g ($\mu g/m^3$)	OR	ENTER Soil gas conc., C_g (ppmv)	Chemical
127184	1.29E+01			Tetrachloroethylene

MORE ↓

ENTER Depth below grade to bottom of enclosed space floor, L_F (15 or 200 cm)	ENTER Soil gas sampling depth below grade, L_s (cm)	ENTER Average soil temperature, T_S (^oC)	ENTER Vadose zone SCS soil type (used to estimate soil vapor permeability)	OR	ENTER User-defined vadose zone soil vapor permeability, k_v (cm^2)
15	304.8	19	S		

MORE ↓

ENTER Vandose zone SCS soil type (Lookup Soil Parameters)	ENTER Vadose zone soil dry bulk density, ρ_b^A (g/cm^3)	ENTER Vadose zone soil total porosity, n^V (unitless)	ENTER Vadose zone soil water-filled porosity, θ_w^V (cm^3/cm^3)	ENTER Average vapor flow rate into bldg. (Leave blank to calculate) Q_{soil} (L/m)
S	1.66	0.375	0.054	5

MORE ↓

ENTER Averaging time for carcinogens, AT_C (yrs)	ENTER Averaging time for noncarcinogens, AT_{NC} (yrs)	ENTER Exposure duration, ED (yrs)	ENTER Exposure frequency, EF (days/yr)
70	30	30	350

END

CHEMICAL PROPERTIES SHEET

Diffusivity in air, D_a (cm^2/s)	Diffusivity in water, D_w (cm^2/s)	Henry's law constant at reference temperature, H (atm-m^3/mol)	Henry's law constant reference temperature, T_R (^oC)	Enthalpy of vaporization at the normal boiling point, $\Delta H_{v,b}$ (cal/mol)	Normal boiling point, T_B (^oK)	Critical temperature, T_C (^oK)	Unit risk factor, URF ($\mu g/m^3)^{-1}$	Reference conc., RfC (mg/m^3)	Molecular weight, MW (g/mol)
7.20E-02	8.20E-06	1.84E-02	25	8,288	394.40	620.20	5.9E-06	6.0E-01	165.83

END

INTERMEDIATE CALCULATIONS SHEET

Source-building separation, L_T (cm)	Vadose zone soil air-filled porosity, θ_a^V (cm^3/cm^3)	Vadose zone effective total fluid saturation, S_{te} (cm^3/cm^3)	Vadose zone soil intrinsic permeability, k_i (cm^2)	Vadose zone soil relative air permeability, k_{rg} (cm^2)	Vadose zone soil effective vapor permeability, k_v (cm^2)	Floor-wall seam perimeter, X_{crack} (cm)	Soil gas conc. ($\mu g/m^3$)	Bldg. ventilation rate, $Q_{building}$ (cm^3/s)
289.8	0.321	0.003	1.01E-07	0.998	1.01E-07	4,000	1.29E+01	1.69E+04

Area of enclosed space below grade, A_B (cm^2)	Crack-to-total area ratio, η (unitless)	Crack depth below grade, Z_{crack} (cm)	Enthalpy of vaporization at ave. soil temperature, $\Delta H_{v,TS}$ (cal/mol)	Henry's law constant at ave. soil temperature, H_{TS} (atm-m^3/mol)	Henry's law constant at ave. soil temperature, H'_{TS} (unitless)	Vapor viscosity at ave. soil temperature, μ_{TS} (g/cm-s)	Vadose zone effective diffusion coefficient, D^{eff}_V (cm^2/s)	Diffusion path length, L_d (cm)
1.00E+06	4.00E-04	15	9,462	1.32E-02	5.52E-01	1.78E-04	1.16E-02	289.8

Convection path length, L_p (cm)	Source vapor conc., C_{source} ($\mu g/m^3$)	Crack radius, r_{crack} (cm)	Average vapor flow rate into bldg., Q_{soil} (cm^3/s)	Crack effective diffusion coefficient, D^{crack} (cm^2/s)	Area of crack, A_{crack} (cm^2)	Exponent of equivalent foundation Peclet number, $exp(Pe^f)$ (unitless)	Infinite source indoor attenuation coefficient, α (unitless)	Infinite source bldg. conc., $C_{building}$ ($\mu g/m^3$)
15	1.29E+01	0.10	8.33E+01	1.16E-02	4.00E+02	5.42E+77	1.60E-03	2.06E-02

Unit risk factor, URF ($\mu g/m^3)^{-1}$	Reference conc., RfC (mg/m^3)
5.9E-06	6.0E-01

END

RESULTS SHEET

INCREMENTAL RISK CALCULATIONS:

Incremental risk from vapor intrusion to indoor air, carcinogen (unitless)	Hazard quotient from vapor intrusion to indoor air, noncarcinogen (unitless)
5.0E-08	3.3E-05

MESSAGE SUMMARY BELOW:

END

SG-SCREEN
Version 3.1; 02/04

Reset to Defaults

Soil Gas Concentration Data

ENTER Chemical CAS No. (numbers only, no dashes)	ENTER Soil gas conc., C_g ($\mu g/m^3$)	OR	ENTER Soil gas conc., C_g (ppmv)	Chemical
67663	3.66E+00			Chloroform

MORE ↓

ENTER Depth below grade to bottom of enclosed space floor, L_F (15 or 200 cm)	ENTER Soil gas sampling depth below grade, L_s (cm)	ENTER Average soil temperature, T_S (^oC)	ENTER Vadose zone SCS soil type (used to estimate soil vapor permeability)	OR	ENTER User-defined vadose zone soil vapor permeability, k_v (cm^2)
15	304.8	19	S		

MORE ↓

ENTER Vandose zone SCS soil type (Lookup Soil Parameters)	ENTER Vadose zone soil dry bulk density, ρ_b^A (g/cm^3)	ENTER Vadose zone soil total porosity, n^V (unitless)	ENTER Vadose zone soil water-filled porosity, θ_w^V (cm^3/cm^3)	ENTER Average vapor flow rate into bldg. (Leave blank to calculate) Q_{soil} (L/m)
S	1.66	0.375	0.054	5

MORE ↓

ENTER Averaging time for carcinogens, AT_C (yrs)	ENTER Averaging time for noncarcinogens, AT_{NC} (yrs)	ENTER Exposure duration, ED (yrs)	ENTER Exposure frequency, EF (days/yr)
70	25	25	250

END

CHEMICAL PROPERTIES SHEET

Diffusivity in air, D_a (cm^2/s)	Diffusivity in water, D_w (cm^2/s)	Henry's law constant at reference temperature, H (atm-m^3/mol)	Henry's law constant reference temperature, T_R (^oC)	Enthalpy of vaporization at the normal boiling point, $\Delta H_{v,b}$ (cal/mol)	Normal boiling point, T_B (^oK)	Critical temperature, T_C (^oK)	Unit risk factor, URF ($\mu g/m^3)^{-1}$	Reference conc., RfC (mg/m^3)	Molecular weight, MW (g/mol)
1.04E-01	1.00E-05	3.66E-03	25	6,988	334.32	536.40	2.3E-05	0.0E+00	119.38

END

INTERMEDIATE CALCULATIONS SHEET

Source-building separation, L_T (cm)	Vadose zone soil air-filled porosity, θ_a^V (cm^3/cm^3)	Vadose zone effective total fluid saturation, S_{te} (cm^3/cm^3)	Vadose zone soil intrinsic permeability, k_i (cm^2)	Vadose zone soil relative air permeability, k_{rg} (cm^2)	Vadose zone soil effective vapor permeability, k_v (cm^2)	Floor-wall seam perimeter, X_{crack} (cm)	Soil gas conc. ($\mu g/m^3$)	Bldg. ventilation rate, $Q_{building}$ (cm^3/s)
289.8	0.321	0.003	1.01E-07	0.998	1.01E-07	4,000	3.66E+00	1.69E+04

Area of enclosed space below grade, A_B (cm^2)	Crack-to-total area ratio, η (unitless)	Crack depth below grade, Z_{crack} (cm)	Enthalpy of vaporization at ave. soil temperature, $\Delta H_{v,TS}$ (cal/mol)	Henry's law constant at ave. soil temperature, H_{TS} (atm-m^3/mol)	Henry's law constant at ave. soil temperature, H'_{TS} (unitless)	Vapor viscosity at ave. soil temperature, μ_{TS} (g/cm-s)	Vadose zone effective diffusion coefficient, D^{eff}_V (cm^2/s)	Diffusion path length, L_d (cm)
1.00E+06	4.00E-04	15	7,461	2.83E-03	1.18E-01	1.78E-04	1.68E-02	289.8

Convection path length, L_p (cm)	Source vapor conc., C_{source} ($\mu g/m^3$)	Crack radius, r_{crack} (cm)	Average vapor flow rate into bldg., Q_{soil} (cm^3/s)	Crack effective diffusion coefficient, D^{crack} (cm^2/s)	Area of crack, A_{crack} (cm^2)	Exponent of equivalent foundation Peclet number, $exp(Pe^f)$ (unitless)	Infinite source indoor attenuation coefficient, α (unitless)	Infinite source bldg. conc., $C_{building}$ ($\mu g/m^3$)
15	3.66E+00	0.10	8.33E+01	1.68E-02	4.00E+02	6.54E+53	2.02E-03	7.39E-03

Unit risk factor, URF ($\mu g/m^3)^{-1}$	Reference conc., RfC (mg/m^3)
2.3E-05	NA

END

RESULTS SHEET

INCREMENTAL RISK CALCULATIONS:

Incremental risk from vapor intrusion to indoor air, carcinogen (unitless)	Hazard quotient from vapor intrusion to indoor air, noncarcinogen (unitless)
4.2E-08	NA

MESSAGE SUMMARY BELOW:

END

SG-SCREEN
Version 3.1; 02/04

Reset to Defaults

Soil Gas Concentration Data

ENTER Chemical CAS No. (numbers only, no dashes)	ENTER Soil gas conc., C_g ($\mu g/m^3$)	OR	ENTER Soil gas conc., C_g (ppmv)	Chemical
67663	1.46E+01			Chloroform

MORE ↓

ENTER Depth below grade to bottom of enclosed space floor, L_F (15 or 200 cm)	ENTER Soil gas sampling depth below grade, L_s (cm)	ENTER Average soil temperature, T_S (^oC)	ENTER Vadose zone SCS soil type (used to estimate soil vapor permeability)	OR	ENTER User-defined vadose zone soil vapor permeability, k_v (cm^2)
15	457.2	19	S		

MORE ↓

ENTER Vandose zone SCS soil type (Lookup Soil Parameters)	ENTER Vadose zone soil dry bulk density, ρ_b^A (g/cm^3)	ENTER Vadose zone soil total porosity, n^V (unitless)	ENTER Vadose zone soil water-filled porosity, θ_w^V (cm^3/cm^3)	ENTER Average vapor flow rate into bldg. (Leave blank to calculate) Q_{soil} (L/m)
S	1.66	0.375	0.054	5

MORE ↓

ENTER Averaging time for carcinogens, AT_C (yrs)	ENTER Averaging time for noncarcinogens, AT_{NC} (yrs)	ENTER Exposure duration, ED (yrs)	ENTER Exposure frequency, EF (days/yr)
70	25	25	250

END

CHEMICAL PROPERTIES SHEET

Diffusivity in air, D_a (cm^2/s)	Diffusivity in water, D_w (cm^2/s)	Henry's law constant at reference temperature, H (atm-m^3/mol)	Henry's law constant reference temperature, T_R (^oC)	Enthalpy of vaporization at the normal boiling point, $\Delta H_{v,b}$ (cal/mol)	Normal boiling point, T_B (^oK)	Critical temperature, T_C (^oK)	Unit risk factor, URF ($\mu g/m^3)^{-1}$	Reference conc., RfC (mg/m^3)	Molecular weight, MW (g/mol)
1.04E-01	1.00E-05	3.66E-03	25	6,988	334.32	536.40	2.3E-05	0.0E+00	119.38

END

INTERMEDIATE CALCULATIONS SHEET

Source-building separation, L_T (cm)	Vadose zone soil air-filled porosity, θ_a^V (cm^3/cm^3)	Vadose zone effective total fluid saturation, S_{te} (cm^3/cm^3)	Vadose zone soil intrinsic permeability, k_i (cm^2)	Vadose zone soil relative air permeability, k_{rg} (cm^2)	Vadose zone soil effective vapor permeability, k_v (cm^2)	Floor-wall seam perimeter, X_{crack} (cm)	Soil gas conc. ($\mu g/m^3$)	Bldg. ventilation rate, $Q_{building}$ (cm^3/s)
442.2	0.321	0.003	1.01E-07	0.998	1.01E-07	4,000	1.46E+01	1.69E+04

Area of enclosed space below grade, A_B (cm^2)	Crack-to-total area ratio, η (unitless)	Crack depth below grade, Z_{crack} (cm)	Enthalpy of vaporization at ave. soil temperature, $\Delta H_{v,TS}$ (cal/mol)	Henry's law constant at ave. soil temperature, H_{TS} (atm-m^3/mol)	Henry's law constant at ave. soil temperature, H'_{TS} (unitless)	Vapor viscosity at ave. soil temperature, μ_{TS} (g/cm-s)	Vadose zone effective diffusion coefficient, D^{eff}_V (cm^2/s)	Diffusion path length, L_d (cm)
1.00E+06	4.00E-04	15	7,461	2.83E-03	1.18E-01	1.78E-04	1.68E-02	442.2

Convection path length, L_p (cm)	Source vapor conc., C_{source} ($\mu g/m^3$)	Crack radius, r_{crack} (cm)	Average vapor flow rate into bldg., Q_{soil} (cm^3/s)	Crack effective diffusion coefficient, D^{crack} (cm^2/s)	Area of crack, A_{crack} (cm^2)	Exponent of equivalent foundation Peclet number, $exp(Pe^f)$ (unitless)	Infinite source indoor attenuation coefficient, α (unitless)	Infinite source bldg. conc., $C_{building}$ ($\mu g/m^3$)
15	1.46E+01	0.10	8.33E+01	1.68E-02	4.00E+02	6.54E+53	1.54E-03	2.25E-02

Unit risk factor, URF ($\mu g/m^3)^{-1}$	Reference conc., RfC (mg/m^3)
2.3E-05	NA

END

RESULTS SHEET

INCREMENTAL RISK CALCULATIONS:

Incremental risk from vapor intrusion to indoor air, carcinogen (unitless)	Hazard quotient from vapor intrusion to indoor air, noncarcinogen (unitless)
1.3E-07	NA

MESSAGE SUMMARY BELOW:

END

SG-SCREEN
Version 3.1; 02/04

Reset to Defaults

Soil Gas Concentration Data

ENTER Chemical CAS No. (numbers only, no dashes)	ENTER Soil gas conc., C_g ($\mu g/m^3$)	OR	ENTER Soil gas conc., C_g (ppmv)	Chemical
67663	4.73E+00			Chloroform

MORE ↓

ENTER Depth below grade to bottom of enclosed space floor, L_F (15 or 200 cm)	ENTER Soil gas sampling depth below grade, L_s (cm)	ENTER Average soil temperature, T_S (^oC)	ENTER Vadose zone SCS soil type (used to estimate soil vapor permeability)	OR	ENTER User-defined vadose zone soil vapor permeability, k_v (cm^2)
15	304.8	19	S		

MORE ↓

ENTER Vandose zone SCS soil type (Lookup Soil Parameters)	ENTER Vadose zone soil dry bulk density, ρ_b^A (g/cm^3)	ENTER Vadose zone soil total porosity, n^V (unitless)	ENTER Vadose zone soil water-filled porosity, θ_w^V (cm^3/cm^3)	ENTER Average vapor flow rate into bldg. (Leave blank to calculate) Q_{soil} (L/m)
S	1.66	0.375	0.054	5

MORE ↓

ENTER Averaging time for carcinogens, AT_C (yrs)	ENTER Averaging time for noncarcinogens, AT_{NC} (yrs)	ENTER Exposure duration, ED (yrs)	ENTER Exposure frequency, EF (days/yr)
70	25	25	250

END

CHEMICAL PROPERTIES SHEET

Diffusivity in air, D_a (cm^2/s)	Diffusivity in water, D_w (cm^2/s)	Henry's law constant at reference temperature, H (atm-m^3/mol)	Henry's law constant reference temperature, T_R (^oC)	Enthalpy of vaporization at the normal boiling point, $\Delta H_{v,b}$ (cal/mol)	Normal boiling point, T_B (^oK)	Critical temperature, T_C (^oK)	Unit risk factor, URF ($\mu g/m^3)^{-1}$	Reference conc., RfC (mg/m^3)	Molecular weight, MW (g/mol)
1.04E-01	1.00E-05	3.66E-03	25	6,988	334.32	536.40	2.3E-05	0.0E+00	119.38

END

INTERMEDIATE CALCULATIONS SHEET

Source-building separation, L_T (cm)	Vadose zone soil air-filled porosity, θ_a^V (cm^3/cm^3)	Vadose zone effective total fluid saturation, S_{te} (cm^3/cm^3)	Vadose zone soil intrinsic permeability, k_i (cm^2)	Vadose zone soil relative air permeability, k_{rg} (cm^2)	Vadose zone soil effective vapor permeability, k_v (cm^2)	Floor-wall seam perimeter, X_{crack} (cm)	Soil gas conc. ($\mu g/m^3$)	Bldg. ventilation rate, $Q_{building}$ (cm^3/s)
289.8	0.321	0.003	1.01E-07	0.998	1.01E-07	4,000	4.73E+00	1.69E+04

Area of enclosed space below grade, A_B (cm^2)	Crack-to-total area ratio, η (unitless)	Crack depth below grade, Z_{crack} (cm)	Enthalpy of vaporization at ave. soil temperature, $\Delta H_{v,TS}$ (cal/mol)	Henry's law constant at ave. soil temperature, H_{TS} (atm-m^3/mol)	Henry's law constant at ave. soil temperature, H'_{TS} (unitless)	Vapor viscosity at ave. soil temperature, μ_{TS} (g/cm-s)	Vadose zone effective diffusion coefficient, D^{eff}_V (cm^2/s)	Diffusion path length, L_d (cm)
1.00E+06	4.00E-04	15	7,461	2.83E-03	1.18E-01	1.78E-04	1.68E-02	289.8

Convection path length, L_p (cm)	Source vapor conc., C_{source} ($\mu g/m^3$)	Crack radius, r_{crack} (cm)	Average vapor flow rate into bldg., Q_{soil} (cm^3/s)	Crack effective diffusion coefficient, D^{crack} (cm^2/s)	Area of crack, A_{crack} (cm^2)	Exponent of equivalent foundation Peclet number, $exp(Pe^f)$ (unitless)	Infinite source indoor attenuation coefficient, α (unitless)	Infinite source bldg. conc., $C_{building}$ ($\mu g/m^3$)
15	4.73E+00	0.10	8.33E+01	1.68E-02	4.00E+02	6.54E+53	2.02E-03	9.55E-03

Unit risk factor, URF ($\mu g/m^3)^{-1}$	Reference conc., RfC (mg/m^3)
2.3E-05	NA

END

RESULTS SHEET

INCREMENTAL RISK CALCULATIONS:

Incremental risk from vapor intrusion to indoor air, carcinogen (unitless)	Hazard quotient from vapor intrusion to indoor air, noncarcinogen (unitless)
5.4E-08	NA

MESSAGE SUMMARY BELOW:

END

SG-SCREEN
Version 3.1; 02/04

Reset to Defaults

Soil Gas Concentration Data

ENTER Chemical CAS No. (numbers only, no dashes)	ENTER Soil gas conc., C_g ($\mu g/m^3$)	OR	ENTER Soil gas conc., C_g (ppmv)	Chemical
67663	2.40E-01			Chloroform

MORE ↓

ENTER Depth below grade to bottom of enclosed space floor, L_F (15 or 200 cm)	ENTER Soil gas sampling depth below grade, L_s (cm)	ENTER Average soil temperature, T_S (^oC)	ENTER Vadose zone SCS soil type (used to estimate soil vapor permeability)	OR	ENTER User-defined vadose zone soil vapor permeability, k_v (cm^2)
15	304.8	19	S		

MORE ↓

ENTER Vandose zone SCS soil type (Lookup Soil Parameters)	ENTER Vadose zone soil dry bulk density, ρ_b^A (g/cm^3)	ENTER Vadose zone soil total porosity, n^V (unitless)	ENTER Vadose zone soil water-filled porosity, θ_w^V (cm^3/cm^3)	ENTER Average vapor flow rate into bldg. (Leave blank to calculate) Q_{soil} (L/m)
S	1.66	0.375	0.054	5

MORE ↓

ENTER Averaging time for carcinogens, AT_C (yrs)	ENTER Averaging time for noncarcinogens, AT_{NC} (yrs)	ENTER Exposure duration, ED (yrs)	ENTER Exposure frequency, EF (days/yr)
70	25	25	250

END

CHEMICAL PROPERTIES SHEET

Diffusivity in air, D_a (cm^2/s)	Diffusivity in water, D_w (cm^2/s)	Henry's law constant at reference temperature, H (atm-m^3/mol)	Henry's law constant reference temperature, T_R (^oC)	Enthalpy of vaporization at the normal boiling point, $\Delta H_{v,b}$ (cal/mol)	Normal boiling point, T_B (^oK)	Critical temperature, T_C (^oK)	Unit risk factor, URF ($\mu g/m^3)^{-1}$	Reference conc., RfC (mg/m^3)	Molecular weight, MW (g/mol)
1.04E-01	1.00E-05	3.66E-03	25	6,988	334.32	536.40	2.3E-05	0.0E+00	119.38

END

INTERMEDIATE CALCULATIONS SHEET

Source-building separation, L_T (cm)	Vadose zone soil air-filled porosity, θ_a^V (cm^3/cm^3)	Vadose zone effective total fluid saturation, S_{te} (cm^3/cm^3)	Vadose zone soil intrinsic permeability, k_i (cm^2)	Vadose zone soil relative air permeability, k_{rg} (cm^2)	Vadose zone soil effective vapor permeability, k_v (cm^2)	Floor-wall seam perimeter, X_{crack} (cm)	Soil gas conc. ($\mu g/m^3$)	Bldg. ventilation rate, $Q_{building}$ (cm^3/s)
289.8	0.321	0.003	1.01E-07	0.998	1.01E-07	4,000	2.40E-01	1.69E+04

Area of enclosed space below grade, A_B (cm^2)	Crack-to-total area ratio, η (unitless)	Crack depth below grade, Z_{crack} (cm)	Enthalpy of vaporization at ave. soil temperature, $\Delta H_{v,TS}$ (cal/mol)	Henry's law constant at ave. soil temperature, H_{TS} (atm-m^3/mol)	Henry's law constant at ave. soil temperature, H'_{TS} (unitless)	Vapor viscosity at ave. soil temperature, μ_{TS} (g/cm-s)	Vadose zone effective diffusion coefficient, D^{eff}_V (cm^2/s)	Diffusion path length, L_d (cm)
1.00E+06	4.00E-04	15	7,461	2.83E-03	1.18E-01	1.78E-04	1.68E-02	289.8

Convection path length, L_p (cm)	Source vapor conc., C_{source} ($\mu g/m^3$)	Crack radius, r_{crack} (cm)	Average vapor flow rate into bldg., Q_{soil} (cm^3/s)	Crack effective diffusion coefficient, D^{crack} (cm^2/s)	Area of crack, A_{crack} (cm^2)	Exponent of equivalent foundation Peclet number, $exp(Pe^f)$ (unitless)	Infinite source indoor attenuation coefficient, α (unitless)	Infinite source bldg. conc., $C_{building}$ ($\mu g/m^3$)
15	2.40E-01	0.10	8.33E+01	1.68E-02	4.00E+02	6.54E+53	2.02E-03	4.84E-04

Unit risk factor, URF ($\mu g/m^3)^{-1}$	Reference conc., RfC (mg/m^3)
2.3E-05	NA

END

RESULTS SHEET

INCREMENTAL RISK CALCULATIONS:

Incremental risk from vapor intrusion to indoor air, carcinogen (unitless)	Hazard quotient from vapor intrusion to indoor air, noncarcinogen (unitless)
2.7E-09	NA

MESSAGE SUMMARY BELOW:

END

SG-SCREEN
Version 3.1; 02/04

Reset to Defaults

Soil Gas Concentration Data

ENTER Chemical CAS No. (numbers only, no dashes)	ENTER Soil gas conc., C_g ($\mu g/m^3$)	OR	ENTER Soil gas conc., C_g (ppmv)	Chemical
67663	3.12E+00			Chloroform

MORE ↓

ENTER Depth below grade to bottom of enclosed space floor, L_F (15 or 200 cm)	ENTER Soil gas sampling depth below grade, L_s (cm)	ENTER Average soil temperature, T_S (^oC)	ENTER Vadose zone SCS soil type (used to estimate soil vapor permeability)	OR	ENTER User-defined vadose zone soil vapor permeability, k_v (cm^2)
15	304.8	19	S		

MORE ↓

ENTER Vandose zone SCS soil type (Lookup Soil Parameters)	ENTER Vadose zone soil dry bulk density, ρ_b^A (g/cm^3)	ENTER Vadose zone soil total porosity, n^V (unitless)	ENTER Vadose zone soil water-filled porosity, θ_w^V (cm^3/cm^3)	ENTER Average vapor flow rate into bldg. (Leave blank to calculate) Q_{soil} (L/m)
S	1.66	0.375	0.054	5

MORE ↓

ENTER Averaging time for carcinogens, AT_C (yrs)	ENTER Averaging time for noncarcinogens, AT_{NC} (yrs)	ENTER Exposure duration, ED (yrs)	ENTER Exposure frequency, EF (days/yr)
70	25	25	250

END

CHEMICAL PROPERTIES SHEET

Diffusivity in air, D_a (cm^2/s)	Diffusivity in water, D_w (cm^2/s)	Henry's law constant at reference temperature, H (atm-m^3/mol)	Henry's law constant reference temperature, T_R (^oC)	Enthalpy of vaporization at the normal boiling point, $\Delta H_{v,b}$ (cal/mol)	Normal boiling point, T_B (^oK)	Critical temperature, T_C (^oK)	Unit risk factor, URF ($\mu g/m^3)^{-1}$	Reference conc., RfC (mg/m^3)	Molecular weight, MW (g/mol)
1.04E-01	1.00E-05	3.66E-03	25	6,988	334.32	536.40	2.3E-05	0.0E+00	119.38

END

INTERMEDIATE CALCULATIONS SHEET

Source-building separation, L_T (cm)	Vadose zone soil air-filled porosity, θ_a^V (cm^3/cm^3)	Vadose zone effective total fluid saturation, S_{te} (cm^3/cm^3)	Vadose zone soil intrinsic permeability, k_i (cm^2)	Vadose zone soil relative air permeability, k_{rg} (cm^2)	Vadose zone soil effective vapor permeability, k_v (cm^2)	Floor-wall seam perimeter, X_{crack} (cm)	Soil gas conc. ($\mu g/m^3$)	Bldg. ventilation rate, $Q_{building}$ (cm^3/s)
289.8	0.321	0.003	1.01E-07	0.998	1.01E-07	4,000	3.12E+00	1.69E+04

Area of enclosed space below grade, A_B (cm^2)	Crack-to-total area ratio, η (unitless)	Crack depth below grade, Z_{crack} (cm)	Enthalpy of vaporization at ave. soil temperature, $\Delta H_{v,TS}$ (cal/mol)	Henry's law constant at ave. soil temperature, H_{TS} (atm-m^3/mol)	Henry's law constant at ave. soil temperature, H'_{TS} (unitless)	Vapor viscosity at ave. soil temperature, μ_{TS} (g/cm-s)	Vadose zone effective diffusion coefficient, D^{eff}_V (cm^2/s)	Diffusion path length, L_d (cm)
1.00E+06	4.00E-04	15	7,461	2.83E-03	1.18E-01	1.78E-04	1.68E-02	289.8

Convection path length, L_p (cm)	Source vapor conc., C_{source} ($\mu g/m^3$)	Crack radius, r_{crack} (cm)	Average vapor flow rate into bldg., Q_{soil} (cm^3/s)	Crack effective diffusion coefficient, D^{crack} (cm^2/s)	Area of crack, A_{crack} (cm^2)	Exponent of equivalent foundation Peclet number, $exp(Pe^f)$ (unitless)	Infinite source indoor attenuation coefficient, α (unitless)	Infinite source bldg. conc., $C_{building}$ ($\mu g/m^3$)
15	3.12E+00	0.10	8.33E+01	1.68E-02	4.00E+02	6.54E+53	2.02E-03	6.30E-03

Unit risk factor, URF ($\mu g/m^3)^{-1}$	Reference conc., RfC (mg/m^3)
2.3E-05	NA

END

RESULTS SHEET

INCREMENTAL RISK CALCULATIONS:

Incremental risk from vapor intrusion to indoor air, carcinogen (unitless)	Hazard quotient from vapor intrusion to indoor air, noncarcinogen (unitless)
3.5E-08	NA

MESSAGE SUMMARY BELOW:

END

SG-SCREEN
Version 3.1; 02/04

Reset to Defaults

Soil Gas Concentration Data

ENTER Chemical CAS No. (numbers only, no dashes)	ENTER Soil gas conc., C_g ($\mu g/m^3$)	OR	ENTER Soil gas conc., C_g (ppmv)	Chemical
67663	5.85E+00			Chloroform

MORE ↓

ENTER Depth below grade to bottom of enclosed space floor, L_F (15 or 200 cm)	ENTER Soil gas sampling depth below grade, L_s (cm)	ENTER Average soil temperature, T_S (^oC)	ENTER Vadose zone SCS soil type (used to estimate soil vapor permeability)	OR	ENTER User-defined vadose zone soil vapor permeability, k_v (cm^2)
15	762	19	S		

MORE ↓

ENTER Vandose zone SCS soil type (Lookup Soil Parameters)	ENTER Vadose zone soil dry bulk density, ρ_b^A (g/cm^3)	ENTER Vadose zone soil total porosity, n^V (unitless)	ENTER Vadose zone soil water-filled porosity, θ_w^V (cm^3/cm^3)	ENTER Average vapor flow rate into bldg. (Leave blank to calculate) Q_{soil} (L/m)
S	1.66	0.375	0.054	5

MORE ↓

ENTER Averaging time for carcinogens, AT_C (yrs)	ENTER Averaging time for noncarcinogens, AT_{NC} (yrs)	ENTER Exposure duration, ED (yrs)	ENTER Exposure frequency, EF (days/yr)
70	25	25	250

END

CHEMICAL PROPERTIES SHEET

Diffusivity in air, D_a (cm^2/s)	Diffusivity in water, D_w (cm^2/s)	Henry's law constant at reference temperature, H (atm-m^3/mol)	Henry's law constant reference temperature, T_R (^oC)	Enthalpy of vaporization at the normal boiling point, $\Delta H_{v,b}$ (cal/mol)	Normal boiling point, T_B (^oK)	Critical temperature, T_C (^oK)	Unit risk factor, URF ($\mu g/m^3)^{-1}$	Reference conc., RfC (mg/m^3)	Molecular weight, MW (g/mol)
1.04E-01	1.00E-05	3.66E-03	25	6,988	334.32	536.40	2.3E-05	0.0E+00	119.38

END

INTERMEDIATE CALCULATIONS SHEET

Source-building separation, L_T (cm)	Vadose zone soil air-filled porosity, θ_a^V (cm^3/cm^3)	Vadose zone effective total fluid saturation, S_{te} (cm^3/cm^3)	Vadose zone soil intrinsic permeability, k_i (cm^2)	Vadose zone soil relative air permeability, k_{rg} (cm^2)	Vadose zone soil effective vapor permeability, k_v (cm^2)	Floor-wall seam perimeter, X_{crack} (cm)	Soil gas conc. ($\mu g/m^3$)	Bldg. ventilation rate, $Q_{building}$ (cm^3/s)
747	0.321	0.003	1.01E-07	0.998	1.01E-07	4,000	5.85E+00	1.69E+04

Area of enclosed space below grade, A_B (cm^2)	Crack-to-total area ratio, η (unitless)	Crack depth below grade, Z_{crack} (cm)	Enthalpy of vaporization at ave. soil temperature, $\Delta H_{v,TS}$ (cal/mol)	Henry's law constant at ave. soil temperature, H_{TS} (atm-m^3/mol)	Henry's law constant at ave. soil temperature, H'_{TS} (unitless)	Vapor viscosity at ave. soil temperature, μ_{TS} (g/cm-s)	Vadose zone effective diffusion coefficient, D^{eff}_V (cm^2/s)	Diffusion path length, L_d (cm)
1.00E+06	4.00E-04	15	7,461	2.83E-03	1.18E-01	1.78E-04	1.68E-02	747

Convection path length, L_p (cm)	Source vapor conc., C_{source} ($\mu g/m^3$)	Crack radius, r_{crack} (cm)	Average vapor flow rate into bldg., Q_{soil} (cm^3/s)	Crack effective diffusion coefficient, D^{crack} (cm^2/s)	Area of crack, A_{crack} (cm^2)	Exponent of equivalent foundation Peclet number, $exp(Pe^f)$ (unitless)	Infinite source indoor attenuation coefficient, α (unitless)	Infinite source bldg. conc., $C_{building}$ ($\mu g/m^3$)
15	5.85E+00	0.10	8.33E+01	1.68E-02	4.00E+02	6.54E+53	1.05E-03	6.12E-03

Unit risk factor, URF ($\mu g/m^3)^{-1}$	Reference conc., RfC (mg/m^3)
2.3E-05	NA

END

RESULTS SHEET

INCREMENTAL RISK CALCULATIONS:

Incremental risk from vapor intrusion to indoor air, carcinogen (unitless)	Hazard quotient from vapor intrusion to indoor air, noncarcinogen (unitless)
3.4E-08	NA

MESSAGE SUMMARY BELOW:

END

SG-SCREEN
Version 3.1; 02/04

Reset to Defaults

Soil Gas Concentration Data

ENTER Chemical CAS No. (numbers only, no dashes)	ENTER Soil gas conc., C_g ($\mu g/m^3$)	OR	ENTER Soil gas conc., C_g (ppmv)	Chemical
67663	2.40E-01			Chloroform

MORE ↓

ENTER Depth below grade to bottom of enclosed space floor, L_F (15 or 200 cm)	ENTER Soil gas sampling depth below grade, L_s (cm)	ENTER Average soil temperature, T_S (^oC)	ENTER Vadose zone SCS soil type (used to estimate soil vapor permeability)	OR	ENTER User-defined vadose zone soil vapor permeability, k_v (cm^2)
15	304.8	19	S		

MORE ↓

ENTER Vandose zone SCS soil type (Lookup Soil Parameters)	ENTER Vadose zone soil dry bulk density, ρ_b^A (g/cm^3)	ENTER Vadose zone soil total porosity, n^V (unitless)	ENTER Vadose zone soil water-filled porosity, θ_w^V (cm^3/cm^3)	ENTER Average vapor flow rate into bldg. (Leave blank to calculate) Q_{soil} (L/m)
S	1.66	0.375	0.054	5

MORE ↓

ENTER Averaging time for carcinogens, AT_C (yrs)	ENTER Averaging time for noncarcinogens, AT_{NC} (yrs)	ENTER Exposure duration, ED (yrs)	ENTER Exposure frequency, EF (days/yr)
70	25	25	250

END

CHEMICAL PROPERTIES SHEET

Diffusivity in air, D_a (cm^2/s)	Diffusivity in water, D_w (cm^2/s)	Henry's law constant at reference temperature, H (atm-m^3/mol)	Henry's law constant reference temperature, T_R (^oC)	Enthalpy of vaporization at the normal boiling point, $\Delta H_{v,b}$ (cal/mol)	Normal boiling point, T_B (^oK)	Critical temperature, T_C (^oK)	Unit risk factor, URF ($\mu g/m^3)^{-1}$	Reference conc., RfC (mg/m^3)	Molecular weight, MW (g/mol)
1.04E-01	1.00E-05	3.66E-03	25	6,988	334.32	536.40	2.3E-05	0.0E+00	119.38

END

INTERMEDIATE CALCULATIONS SHEET

Source-building separation, L_T (cm)	Vadose zone soil air-filled porosity, θ_a^V (cm^3/cm^3)	Vadose zone effective total fluid saturation, S_{te} (cm^3/cm^3)	Vadose zone soil intrinsic permeability, k_i (cm^2)	Vadose zone soil relative air permeability, k_{rg} (cm^2)	Vadose zone soil effective vapor permeability, k_v (cm^2)	Floor-wall seam perimeter, X_{crack} (cm)	Soil gas conc. ($\mu g/m^3$)	Bldg. ventilation rate, $Q_{building}$ (cm^3/s)
289.8	0.321	0.003	1.01E-07	0.998	1.01E-07	4,000	2.40E-01	1.69E+04

Area of enclosed space below grade, A_B (cm^2)	Crack-to-total area ratio, η (unitless)	Crack depth below grade, Z_{crack} (cm)	Enthalpy of vaporization at ave. soil temperature, $\Delta H_{v,TS}$ (cal/mol)	Henry's law constant at ave. soil temperature, H_{TS} (atm-m^3/mol)	Henry's law constant at ave. soil temperature, H'_{TS} (unitless)	Vapor viscosity at ave. soil temperature, μ_{TS} (g/cm-s)	Vadose zone effective diffusion coefficient, D^{eff}_V (cm^2/s)	Diffusion path length, L_d (cm)
1.00E+06	4.00E-04	15	7,461	2.83E-03	1.18E-01	1.78E-04	1.68E-02	289.8

Convection path length, L_p (cm)	Source vapor conc., C_{source} ($\mu g/m^3$)	Crack radius, r_{crack} (cm)	Average vapor flow rate into bldg., Q_{soil} (cm^3/s)	Crack effective diffusion coefficient, D^{crack} (cm^2/s)	Area of crack, A_{crack} (cm^2)	Exponent of equivalent foundation Peclet number, $exp(Pe^f)$ (unitless)	Infinite source indoor attenuation coefficient, α (unitless)	Infinite source bldg. conc., $C_{building}$ ($\mu g/m^3$)
15	2.40E-01	0.10	8.33E+01	1.68E-02	4.00E+02	6.54E+53	2.02E-03	4.84E-04

Unit risk factor, URF ($\mu g/m^3)^{-1}$	Reference conc., RfC (mg/m^3)
2.3E-05	NA

END

RESULTS SHEET

INCREMENTAL RISK CALCULATIONS:

Incremental risk from vapor intrusion to indoor air, carcinogen (unitless)	Hazard quotient from vapor intrusion to indoor air, noncarcinogen (unitless)
2.7E-09	NA

MESSAGE SUMMARY BELOW:

END

SG-SCREEN
Version 3.1; 02/04

Reset to Defaults

Soil Gas Concentration Data

ENTER Chemical CAS No. (numbers only, no dashes)	ENTER Soil gas conc., C_g ($\mu g/m^3$)	OR	ENTER Soil gas conc., C_g (ppmv)	Chemical
127184	4.13E+01			Tetrachloroethylene

MORE ↓

ENTER Depth below grade to bottom of enclosed space floor, L_F (15 or 200 cm)	ENTER Soil gas sampling depth below grade, L_s (cm)	ENTER Average soil temperature, T_S (^oC)	ENTER Vadose zone SCS soil type (used to estimate soil vapor permeability)	OR	ENTER User-defined vadose zone soil vapor permeability, k_v (cm^2)
15	304.8	19	S		

MORE ↓

ENTER Vandose zone SCS soil type (Lookup Soil Parameters)	ENTER Vadose zone soil dry bulk density, ρ_b^A (g/cm^3)	ENTER Vadose zone soil total porosity, n^V (unitless)	ENTER Vadose zone soil water-filled porosity, θ_w^V (cm^3/cm^3)	ENTER Average vapor flow rate into bldg. (Leave blank to calculate) Q_{soil} (L/m)
S	1.66	0.375	0.054	5

MORE ↓

ENTER Averaging time for carcinogens, AT_C (yrs)	ENTER Averaging time for noncarcinogens, AT_{NC} (yrs)	ENTER Exposure duration, ED (yrs)	ENTER Exposure frequency, EF (days/yr)
70	25	25	250

END

CHEMICAL PROPERTIES SHEET

Diffusivity in air, D_a (cm^2/s)	Diffusivity in water, D_w (cm^2/s)	Henry's law constant at reference temperature, H (atm-m^3/mol)	Henry's law constant reference temperature, T_R (^oC)	Enthalpy of vaporization at the normal boiling point, $\Delta H_{v,b}$ (cal/mol)	Normal boiling point, T_B (^oK)	Critical temperature, T_C (^oK)	Unit risk factor, URF ($\mu g/m^3)^{-1}$	Reference conc., RfC (mg/m^3)	Molecular weight, MW (g/mol)
7.20E-02	8.20E-06	1.84E-02	25	8,288	394.40	620.20	5.9E-06	6.0E-01	165.83

END

INTERMEDIATE CALCULATIONS SHEET

Source-building separation, L_T (cm)	Vadose zone soil air-filled porosity, θ_a^V (cm^3/cm^3)	Vadose zone effective total fluid saturation, S_{te} (cm^3/cm^3)	Vadose zone soil intrinsic permeability, k_i (cm^2)	Vadose zone soil relative air permeability, k_{rg} (cm^2)	Vadose zone soil effective vapor permeability, k_v (cm^2)	Floor-wall seam perimeter, X_{crack} (cm)	Soil gas conc. ($\mu g/m^3$)	Bldg. ventilation rate, $Q_{building}$ (cm^3/s)
289.8	0.321	0.003	1.01E-07	0.998	1.01E-07	4,000	4.13E+01	1.69E+04

Area of enclosed space below grade, A_B (cm^2)	Crack-to-total area ratio, η (unitless)	Crack depth below grade, Z_{crack} (cm)	Enthalpy of vaporization at ave. soil temperature, $\Delta H_{v,TS}$ (cal/mol)	Henry's law constant at ave. soil temperature, H_{TS} (atm-m^3/mol)	Henry's law constant at ave. soil temperature, H'_{TS} (unitless)	Vapor viscosity at ave. soil temperature, μ_{TS} (g/cm-s)	Vadose zone effective diffusion coefficient, D^{eff}_V (cm^2/s)	Diffusion path length, L_d (cm)
1.00E+06	4.00E-04	15	9,462	1.32E-02	5.52E-01	1.78E-04	1.16E-02	289.8

Convection path length, L_p (cm)	Source vapor conc., C_{source} ($\mu g/m^3$)	Crack radius, r_{crack} (cm)	Average vapor flow rate into bldg., Q_{soil} (cm^3/s)	Crack effective diffusion coefficient, D^{crack} (cm^2/s)	Area of crack, A_{crack} (cm^2)	Exponent of equivalent foundation Peclet number, $exp(Pe^f)$ (unitless)	Infinite source indoor attenuation coefficient, α (unitless)	Infinite source bldg. conc., $C_{building}$ ($\mu g/m^3$)
15	4.13E+01	0.10	8.33E+01	1.16E-02	4.00E+02	5.42E+77	1.60E-03	6.61E-02

Unit risk factor, URF ($\mu g/m^3)^{-1}$	Reference conc., RfC (mg/m^3)
5.9E-06	6.0E-01

END

RESULTS SHEET

INCREMENTAL RISK CALCULATIONS:

Incremental risk from vapor intrusion to indoor air, carcinogen (unitless)	Hazard quotient from vapor intrusion to indoor air, noncarcinogen (unitless)
9.5E-08	7.5E-05

MESSAGE SUMMARY BELOW:

END

SG-SCREEN
Version 3.1; 02/04

Reset to Defaults

Soil Gas Concentration Data

ENTER Chemical CAS No. (numbers only, no dashes)	ENTER Soil gas conc., C_g ($\mu g/m^3$)	OR	ENTER Soil gas conc., C_g (ppmv)	Chemical
127184	5.01E+01			Tetrachloroethylene

MORE ↓

ENTER Depth below grade to bottom of enclosed space floor, L_F (15 or 200 cm)	ENTER Soil gas sampling depth below grade, L_s (cm)	ENTER Average soil temperature, T_S (^oC)	ENTER Vadose zone SCS soil type (used to estimate soil vapor permeability)	OR	ENTER User-defined vadose zone soil vapor permeability, k_v (cm^2)
15	457.2	19	S		

MORE ↓

ENTER Vandose zone SCS soil type (Lookup Soil Parameters)	ENTER Vadose zone soil dry bulk density, ρ_b^A (g/cm^3)	ENTER Vadose zone soil total porosity, n^V (unitless)	ENTER Vadose zone soil water-filled porosity, θ_w^V (cm^3/cm^3)	ENTER Average vapor flow rate into bldg. (Leave blank to calculate) Q_{soil} (L/m)
S	1.66	0.375	0.054	5

MORE ↓

ENTER Averaging time for carcinogens, AT_C (yrs)	ENTER Averaging time for noncarcinogens, AT_{NC} (yrs)	ENTER Exposure duration, ED (yrs)	ENTER Exposure frequency, EF (days/yr)
70	25	25	250

END

CHEMICAL PROPERTIES SHEET

Diffusivity in air, D_a (cm^2/s)	Diffusivity in water, D_w (cm^2/s)	Henry's law constant at reference temperature, H (atm-m^3/mol)	Henry's law constant reference temperature, T_R (^oC)	Enthalpy of vaporization at the normal boiling point, $\Delta H_{v,b}$ (cal/mol)	Normal boiling point, T_B (^oK)	Critical temperature, T_C (^oK)	Unit risk factor, URF ($\mu g/m^3)^{-1}$	Reference conc., RfC (mg/m^3)	Molecular weight, MW (g/mol)
7.20E-02	8.20E-06	1.84E-02	25	8,288	394.40	620.20	5.9E-06	6.0E-01	165.83

END

INTERMEDIATE CALCULATIONS SHEET

Source-building separation, L_T (cm)	Vadose zone soil air-filled porosity, θ_a^V (cm^3/cm^3)	Vadose zone effective total fluid saturation, S_{te} (cm^3/cm^3)	Vadose zone soil intrinsic permeability, k_i (cm^2)	Vadose zone soil relative air permeability, k_{rg} (cm^2)	Vadose zone soil effective vapor permeability, k_v (cm^2)	Floor-wall seam perimeter, X_{crack} (cm)	Soil gas conc. ($\mu g/m^3$)	Bldg. ventilation rate, $Q_{building}$ (cm^3/s)
442.2	0.321	0.003	1.01E-07	0.998	1.01E-07	4,000	5.01E+01	1.69E+04

Area of enclosed space below grade, A_B (cm^2)	Crack-to-total area ratio, η (unitless)	Crack depth below grade, Z_{crack} (cm)	Enthalpy of vaporization at ave. soil temperature, $\Delta H_{v,TS}$ (cal/mol)	Henry's law constant at ave. soil temperature, H_{TS} (atm-m^3/mol)	Henry's law constant at ave. soil temperature, H'_{TS} (unitless)	Vapor viscosity at ave. soil temperature, μ_{TS} (g/cm-s)	Vadose zone effective diffusion coefficient, D^{eff}_V (cm^2/s)	Diffusion path length, L_d (cm)
1.00E+06	4.00E-04	15	9,462	1.32E-02	5.52E-01	1.78E-04	1.16E-02	442.2

Convection path length, L_p (cm)	Source vapor conc., C_{source} ($\mu g/m^3$)	Crack radius, r_{crack} (cm)	Average vapor flow rate into bldg., Q_{soil} (cm^3/s)	Crack effective diffusion coefficient, D^{crack} (cm^2/s)	Area of crack, A_{crack} (cm^2)	Exponent of equivalent foundation Peclet number, $exp(Pe^f)$ (unitless)	Infinite source indoor attenuation coefficient, α (unitless)	Infinite source bldg. conc., $C_{building}$ ($\mu g/m^3$)
15	5.01E+01	0.10	8.33E+01	1.16E-02	4.00E+02	5.42E+77	1.18E-03	5.91E-02

Unit risk factor, URF $(\mu g/m^3)^{-1}$	Reference conc., RfC (mg/m^3)
5.9E-06	6.0E-01

END

RESULTS SHEET

INCREMENTAL RISK CALCULATIONS:

Incremental risk from vapor intrusion to indoor air, carcinogen (unitless)	Hazard quotient from vapor intrusion to indoor air, noncarcinogen (unitless)
8.5E-08	6.8E-05

MESSAGE SUMMARY BELOW:

END

SG-SCREEN
Version 3.1; 02/04

Reset to Defaults

Soil Gas Concentration Data

ENTER Chemical CAS No. (numbers only, no dashes)	ENTER Soil gas conc., C_g ($\mu g/m^3$)	OR	ENTER Soil gas conc., C_g (ppmv)	Chemical
127184	1.35E+01			Tetrachloroethylene

MORE ↓

ENTER Depth below grade to bottom of enclosed space floor, L_F (15 or 200 cm)	ENTER Soil gas sampling depth below grade, L_s (cm)	ENTER Average soil temperature, T_S (^oC)	ENTER Vadose zone SCS soil type (used to estimate soil vapor permeability)	OR	ENTER User-defined vadose zone soil vapor permeability, k_v (cm^2)
15	304.8	19	S		

MORE ↓

ENTER Vandose zone SCS soil type (Lookup Soil Parameters)	ENTER Vadose zone soil dry bulk density, ρ_b^A (g/cm^3)	ENTER Vadose zone soil total porosity, n^V (unitless)	ENTER Vadose zone soil water-filled porosity, θ_w^V (cm^3/cm^3)	ENTER Average vapor flow rate into bldg. (Leave blank to calculate) Q_{soil} (L/m)
S	1.66	0.375	0.054	5

MORE ↓

ENTER Averaging time for carcinogens, AT_C (yrs)	ENTER Averaging time for noncarcinogens, AT_{NC} (yrs)	ENTER Exposure duration, ED (yrs)	ENTER Exposure frequency, EF (days/yr)
70	25	25	250

END

CHEMICAL PROPERTIES SHEET

Diffusivity in air, D_a (cm^2/s)	Diffusivity in water, D_w (cm^2/s)	Henry's law constant at reference temperature, H (atm-m^3/mol)	Henry's law constant reference temperature, T_R (^oC)	Enthalpy of vaporization at the normal boiling point, $\Delta H_{v,b}$ (cal/mol)	Normal boiling point, T_B (^oK)	Critical temperature, T_C (^oK)	Unit risk factor, URF ($\mu g/m^3)^{-1}$	Reference conc., RfC (mg/m^3)	Molecular weight, MW (g/mol)
7.20E-02	8.20E-06	1.84E-02	25	8,288	394.40	620.20	5.9E-06	6.0E-01	165.83

END

INTERMEDIATE CALCULATIONS SHEET

Source-building separation, L_T (cm)	Vadose zone soil air-filled porosity, θ_a^V (cm^3/cm^3)	Vadose zone effective total fluid saturation, S_{te} (cm^3/cm^3)	Vadose zone soil intrinsic permeability, k_i (cm^2)	Vadose zone soil relative air permeability, k_{rg} (cm^2)	Vadose zone soil effective vapor permeability, k_v (cm^2)	Floor-wall seam perimeter, X_{crack} (cm)	Soil gas conc. ($\mu g/m^3$)	Bldg. ventilation rate, $Q_{building}$ (cm^3/s)
289.8	0.321	0.003	1.01E-07	0.998	1.01E-07	4,000	1.35E+01	1.69E+04

Area of enclosed space below grade, A_B (cm^2)	Crack-to-total area ratio, η (unitless)	Crack depth below grade, Z_{crack} (cm)	Enthalpy of vaporization at ave. soil temperature, $\Delta H_{v,TS}$ (cal/mol)	Henry's law constant at ave. soil temperature, H_{TS} (atm-m^3/mol)	Henry's law constant at ave. soil temperature, H'_{TS} (unitless)	Vapor viscosity at ave. soil temperature, μ_{TS} (g/cm-s)	Vadose zone effective diffusion coefficient, D^{eff}_V (cm^2/s)	Diffusion path length, L_d (cm)
1.00E+06	4.00E-04	15	9,462	1.32E-02	5.52E-01	1.78E-04	1.16E-02	289.8

Convection path length, L_p (cm)	Source vapor conc., C_{source} ($\mu g/m^3$)	Crack radius, r_{crack} (cm)	Average vapor flow rate into bldg., Q_{soil} (cm^3/s)	Crack effective diffusion coefficient, D^{crack} (cm^2/s)	Area of crack, A_{crack} (cm^2)	Exponent of equivalent foundation Peclet number, $exp(Pe^f)$ (unitless)	Infinite source indoor attenuation coefficient, α (unitless)	Infinite source bldg. conc., $C_{building}$ ($\mu g/m^3$)
15	1.35E+01	0.10	8.33E+01	1.16E-02	4.00E+02	5.42E+77	1.60E-03	2.16E-02

Unit risk factor, URF ($\mu g/m^3)^{-1}$	Reference conc., RfC (mg/m^3)
5.9E-06	6.0E-01

END

RESULTS SHEET

INCREMENTAL RISK CALCULATIONS:

Incremental risk from vapor intrusion to indoor air, carcinogen (unitless)	Hazard quotient from vapor intrusion to indoor air, noncarcinogen (unitless)
3.1E-08	2.5E-05

MESSAGE SUMMARY BELOW:

END

SG-SCREEN
Version 3.1; 02/04

Reset to Defaults

Soil Gas Concentration Data

ENTER Chemical CAS No. (numbers only, no dashes)	ENTER Soil gas conc., C_g ($\mu g/m^3$)	OR	ENTER Soil gas conc., C_g (ppmv)	Chemical
127184	3.40E-01			Tetrachloroethylene

MORE ↓

ENTER Depth below grade to bottom of enclosed space floor, L_F (15 or 200 cm)	ENTER Soil gas sampling depth below grade, L_s (cm)	ENTER Average soil temperature, T_S (^oC)	ENTER Vadose zone SCS soil type (used to estimate soil vapor permeability)	OR	ENTER User-defined vadose zone soil vapor permeability, k_v (cm^2)
15	304.8	19	S		

MORE ↓

ENTER Vandose zone SCS soil type (Lookup Soil Parameters)	ENTER Vadose zone soil dry bulk density, ρ_b^A (g/cm^3)	ENTER Vadose zone soil total porosity, n^V (unitless)	ENTER Vadose zone soil water-filled porosity, θ_w^V (cm^3/cm^3)	ENTER Average vapor flow rate into bldg. (Leave blank to calculate) Q_{soil} (L/m)
S	1.66	0.375	0.054	5

MORE ↓

ENTER Averaging time for carcinogens, AT_C (yrs)	ENTER Averaging time for noncarcinogens, AT_{NC} (yrs)	ENTER Exposure duration, ED (yrs)	ENTER Exposure frequency, EF (days/yr)
70	25	25	250

END

CHEMICAL PROPERTIES SHEET

Diffusivity in air, D_a (cm^2/s)	Diffusivity in water, D_w (cm^2/s)	Henry's law constant at reference temperature, H (atm-m^3/mol)	Henry's law constant reference temperature, T_R (^oC)	Enthalpy of vaporization at the normal boiling point, $\Delta H_{v,b}$ (cal/mol)	Normal boiling point, T_B (^oK)	Critical temperature, T_C (^oK)	Unit risk factor, URF ($\mu g/m^3)^{-1}$	Reference conc., RfC (mg/m^3)	Molecular weight, MW (g/mol)
7.20E-02	8.20E-06	1.84E-02	25	8,288	394.40	620.20	5.9E-06	6.0E-01	165.83

END

INTERMEDIATE CALCULATIONS SHEET

Source-building separation, L_T (cm)	Vadose zone soil air-filled porosity, θ_a^V (cm^3/cm^3)	Vadose zone effective total fluid saturation, S_{te} (cm^3/cm^3)	Vadose zone soil intrinsic permeability, k_i (cm^2)	Vadose zone soil relative air permeability, k_{rg} (cm^2)	Vadose zone soil effective vapor permeability, k_v (cm^2)	Floor-wall seam perimeter, X_{crack} (cm)	Soil gas conc. ($\mu g/m^3$)	Bldg. ventilation rate, $Q_{building}$ (cm^3/s)
289.8	0.321	0.003	1.01E-07	0.998	1.01E-07	4,000	3.40E-01	1.69E+04

Area of enclosed space below grade, A_B (cm^2)	Crack-to-total area ratio, η (unitless)	Crack depth below grade, Z_{crack} (cm)	Enthalpy of vaporization at ave. soil temperature, $\Delta H_{v,TS}$ (cal/mol)	Henry's law constant at ave. soil temperature, H_{TS} (atm-m^3/mol)	Henry's law constant at ave. soil temperature, H'_{TS} (unitless)	Vapor viscosity at ave. soil temperature, μ_{TS} (g/cm-s)	Vadose zone effective diffusion coefficient, D^{eff}_V (cm^2/s)	Diffusion path length, L_d (cm)
1.00E+06	4.00E-04	15	9,462	1.32E-02	5.52E-01	1.78E-04	1.16E-02	289.8

Convection path length, L_p (cm)	Source vapor conc., C_{source} ($\mu g/m^3$)	Crack radius, r_{crack} (cm)	Average vapor flow rate into bldg., Q_{soil} (cm^3/s)	Crack effective diffusion coefficient, D^{crack} (cm^2/s)	Area of crack, A_{crack} (cm^2)	Exponent of equivalent foundation Peclet number, $exp(Pe^f)$ (unitless)	Infinite source indoor attenuation coefficient, α (unitless)	Infinite source bldg. conc., $C_{building}$ ($\mu g/m^3$)
15	3.40E-01	0.10	8.33E+01	1.16E-02	4.00E+02	5.42E+77	1.60E-03	5.44E-04

Unit risk factor, URF ($\mu g/m^3)^{-1}$	Reference conc., RfC (mg/m^3)
5.9E-06	6.0E-01

END

RESULTS SHEET

INCREMENTAL RISK CALCULATIONS:

Incremental risk from vapor intrusion to indoor air, carcinogen (unitless)	Hazard quotient from vapor intrusion to indoor air, noncarcinogen (unitless)
7.8E-10	6.2E-07

MESSAGE SUMMARY BELOW:

END

SG-SCREEN
Version 3.1; 02/04

Reset to Defaults

Soil Gas Concentration Data

ENTER Chemical CAS No. (numbers only, no dashes)	ENTER Soil gas conc., C_g ($\mu g/m^3$)	OR	ENTER Soil gas conc., C_g (ppmv)	Chemical
127184	3.40E-01			Tetrachloroethylene

MORE ↓

ENTER Depth below grade to bottom of enclosed space floor, L_F (15 or 200 cm)	ENTER Soil gas sampling depth below grade, L_s (cm)	ENTER Average soil temperature, T_S (^oC)	ENTER Vadose zone SCS soil type (used to estimate soil vapor permeability)	OR	ENTER User-defined vadose zone soil vapor permeability, k_v (cm^2)
15	304.8	19	S		

MORE ↓

ENTER Vandose zone SCS soil type (Lookup Soil Parameters)	ENTER Vadose zone soil dry bulk density, ρ_b^A (g/cm^3)	ENTER Vadose zone soil total porosity, n^V (unitless)	ENTER Vadose zone soil water-filled porosity, θ_w^V (cm^3/cm^3)	ENTER Average vapor flow rate into bldg. (Leave blank to calculate) Q_{soil} (L/m)
S	1.66	0.375	0.054	5

MORE ↓

ENTER Averaging time for carcinogens, AT_C (yrs)	ENTER Averaging time for noncarcinogens, AT_{NC} (yrs)	ENTER Exposure duration, ED (yrs)	ENTER Exposure frequency, EF (days/yr)
70	25	25	250

END

CHEMICAL PROPERTIES SHEET

Diffusivity in air, D_a (cm^2/s)	Diffusivity in water, D_w (cm^2/s)	Henry's law constant at reference temperature, H (atm-m^3/mol)	Henry's law constant reference temperature, T_R (^oC)	Enthalpy of vaporization at the normal boiling point, $\Delta H_{v,b}$ (cal/mol)	Normal boiling point, T_B (^oK)	Critical temperature, T_C (^oK)	Unit risk factor, URF ($\mu g/m^3)^{-1}$	Reference conc., RfC (mg/m^3)	Molecular weight, MW (g/mol)
7.20E-02	8.20E-06	1.84E-02	25	8,288	394.40	620.20	5.9E-06	6.0E-01	165.83

END

INTERMEDIATE CALCULATIONS SHEET

Source-building separation, L_T (cm)	Vadose zone soil air-filled porosity, θ_a^V (cm^3/cm^3)	Vadose zone effective total fluid saturation, S_{te} (cm^3/cm^3)	Vadose zone soil intrinsic permeability, k_i (cm^2)	Vadose zone soil relative air permeability, k_{rg} (cm^2)	Vadose zone soil effective vapor permeability, k_v (cm^2)	Floor-wall seam perimeter, X_{crack} (cm)	Soil gas conc. ($\mu g/m^3$)	Bldg. ventilation rate, $Q_{building}$ (cm^3/s)
289.8	0.321	0.003	1.01E-07	0.998	1.01E-07	4,000	3.40E-01	1.69E+04

Area of enclosed space below grade, A_B (cm^2)	Crack-to-total area ratio, η (unitless)	Crack depth below grade, Z_{crack} (cm)	Enthalpy of vaporization at ave. soil temperature, $\Delta H_{v,TS}$ (cal/mol)	Henry's law constant at ave. soil temperature, H_{TS} (atm-m^3/mol)	Henry's law constant at ave. soil temperature, H'_{TS} (unitless)	Vapor viscosity at ave. soil temperature, μ_{TS} (g/cm-s)	Vadose zone effective diffusion coefficient, D^{eff}_V (cm^2/s)	Diffusion path length, L_d (cm)
1.00E+06	4.00E-04	15	9,462	1.32E-02	5.52E-01	1.78E-04	1.16E-02	289.8

Convection path length, L_p (cm)	Source vapor conc., C_{source} ($\mu g/m^3$)	Crack radius, r_{crack} (cm)	Average vapor flow rate into bldg., Q_{soil} (cm^3/s)	Crack effective diffusion coefficient, D^{crack} (cm^2/s)	Area of crack, A_{crack} (cm^2)	Exponent of equivalent foundation Peclet number, $exp(Pe^f)$ (unitless)	Infinite source indoor attenuation coefficient, α (unitless)	Infinite source bldg. conc., $C_{building}$ ($\mu g/m^3$)
15	3.40E-01	0.10	8.33E+01	1.16E-02	4.00E+02	5.42E+77	1.60E-03	5.44E-04

Unit risk factor, URF ($\mu g/m^3)^{-1}$	Reference conc., RfC (mg/m^3)
5.9E-06	6.0E-01

END

RESULTS SHEET

INCREMENTAL RISK CALCULATIONS:

Incremental risk from vapor intrusion to indoor air, carcinogen (unitless)	Hazard quotient from vapor intrusion to indoor air, noncarcinogen (unitless)
7.8E-10	6.2E-07

MESSAGE SUMMARY BELOW:

END

SG-SCREEN
Version 3.1; 02/04

Reset to Defaults

Soil Gas Concentration Data

ENTER Chemical CAS No. (numbers only, no dashes)	ENTER Soil gas conc., C_g ($\mu g/m^3$)	OR	ENTER Soil gas conc., C_g (ppmv)	Chemical
127184	1.02E+01			Tetrachloroethylene

MORE ↓

ENTER Depth below grade to bottom of enclosed space floor, L_F (15 or 200 cm)	ENTER Soil gas sampling depth below grade, L_s (cm)	ENTER Average soil temperature, T_S (^oC)	ENTER Vadose zone SCS soil type (used to estimate soil vapor permeability)	OR	ENTER User-defined vadose zone soil vapor permeability, k_v (cm^2)
15	762	19	S		

MORE ↓

ENTER Vandose zone SCS soil type (Lookup Soil Parameters)	ENTER Vadose zone soil dry bulk density, ρ_b^A (g/cm^3)	ENTER Vadose zone soil total porosity, n^V (unitless)	ENTER Vadose zone soil water-filled porosity, θ_w^V (cm^3/cm^3)	ENTER Average vapor flow rate into bldg. (Leave blank to calculate) Q_{soil} (L/m)
S	1.66	0.375	0.054	5

MORE ↓

ENTER Averaging time for carcinogens, AT_C (yrs)	ENTER Averaging time for noncarcinogens, AT_{NC} (yrs)	ENTER Exposure duration, ED (yrs)	ENTER Exposure frequency, EF (days/yr)
70	25	25	250

END

CHEMICAL PROPERTIES SHEET

Diffusivity in air, D_a (cm^2/s)	Diffusivity in water, D_w (cm^2/s)	Henry's law constant at reference temperature, H (atm-m^3/mol)	Henry's law constant reference temperature, T_R (^oC)	Enthalpy of vaporization at the normal boiling point, $\Delta H_{v,b}$ (cal/mol)	Normal boiling point, T_B (^oK)	Critical temperature, T_C (^oK)	Unit risk factor, URF ($\mu g/m^3)^{-1}$	Reference conc., RfC (mg/m^3)	Molecular weight, MW (g/mol)
7.20E-02	8.20E-06	1.84E-02	25	8,288	394.40	620.20	5.9E-06	6.0E-01	165.83

END

INTERMEDIATE CALCULATIONS SHEET

Source-building separation, L_T (cm)	Vadose zone soil air-filled porosity, θ_a^V (cm^3/cm^3)	Vadose zone effective total fluid saturation, S_{te} (cm^3/cm^3)	Vadose zone soil intrinsic permeability, k_i (cm^2)	Vadose zone soil relative air permeability, k_{rg} (cm^2)	Vadose zone soil effective vapor permeability, k_v (cm^2)	Floor-wall seam perimeter, X_{crack} (cm)	Soil gas conc. ($\mu g/m^3$)	Bldg. ventilation rate, $Q_{building}$ (cm^3/s)
747	0.321	0.003	1.01E-07	0.998	1.01E-07	4,000	1.02E+01	1.69E+04

Area of enclosed space below grade, A_B (cm^2)	Crack-to-total area ratio, η (unitless)	Crack depth below grade, Z_{crack} (cm)	Enthalpy of vaporization at ave. soil temperature, $\Delta H_{v,TS}$ (cal/mol)	Henry's law constant at ave. soil temperature, H_{TS} (atm-m^3/mol)	Henry's law constant at ave. soil temperature, H'_{TS} (unitless)	Vapor viscosity at ave. soil temperature, μ_{TS} (g/cm-s)	Vadose zone effective diffusion coefficient, D^{eff}_V (cm^2/s)	Diffusion path length, L_d (cm)
1.00E+06	4.00E-04	15	9,462	1.32E-02	5.52E-01	1.78E-04	1.16E-02	747

Convection path length, L_p (cm)	Source vapor conc., C_{source} ($\mu g/m^3$)	Crack radius, r_{crack} (cm)	Average vapor flow rate into bldg., Q_{soil} (cm^3/s)	Crack effective diffusion coefficient, D^{crack} (cm^2/s)	Area of crack, A_{crack} (cm^2)	Exponent of equivalent foundation Peclet number, $exp(Pe^f)$ (unitless)	Infinite source indoor attenuation coefficient, α (unitless)	Infinite source bldg. conc., $C_{building}$ ($\mu g/m^3$)
15	1.02E+01	0.10	8.33E+01	1.16E-02	4.00E+02	5.42E+77	7.75E-04	7.90E-03

Unit risk factor, URF $(\mu g/m^3)^{-1}$	Reference conc., RfC (mg/m^3)
5.9E-06	6.0E-01

END

RESULTS SHEET

INCREMENTAL RISK CALCULATIONS:

Incremental risk from vapor intrusion to indoor air, carcinogen (unitless)	Hazard quotient from vapor intrusion to indoor air, noncarcinogen (unitless)
1.1E-08	9.0E-06

MESSAGE SUMMARY BELOW:

END

SG-SCREEN
Version 3.1; 02/04

Reset to Defaults

Soil Gas Concentration Data

ENTER Chemical CAS No. (numbers only, no dashes)	ENTER Soil gas conc., C_g ($\mu g/m^3$)	OR	ENTER Soil gas conc., C_g (ppmv)	Chemical
127184	6.60E+00			Tetrachloroethylene

MORE ↓

ENTER Depth below grade to bottom of enclosed space floor, L_F (15 or 200 cm)	ENTER Soil gas sampling depth below grade, L_s (cm)	ENTER Average soil temperature, T_S (^oC)	ENTER Vadose zone SCS soil type (used to estimate soil vapor permeability)	OR	ENTER User-defined vadose zone soil vapor permeability, k_v (cm^2)
15	304.8	19	S		

MORE ↓

ENTER Vandose zone SCS soil type (Lookup Soil Parameters)	ENTER Vadose zone soil dry bulk density, ρ_b^A (g/cm^3)	ENTER Vadose zone soil total porosity, n^V (unitless)	ENTER Vadose zone soil water-filled porosity, θ_w^V (cm^3/cm^3)	ENTER Average vapor flow rate into bldg. (Leave blank to calculate) Q_{soil} (L/m)
S	1.66	0.375	0.054	5

MORE ↓

ENTER Averaging time for carcinogens, AT_C (yrs)	ENTER Averaging time for noncarcinogens, AT_{NC} (yrs)	ENTER Exposure duration, ED (yrs)	ENTER Exposure frequency, EF (days/yr)
70	25	25	250

END

CHEMICAL PROPERTIES SHEET

Diffusivity in air, D_a (cm^2/s)	Diffusivity in water, D_w (cm^2/s)	Henry's law constant at reference temperature, H (atm-m^3/mol)	Henry's law constant reference temperature, T_R (^oC)	Enthalpy of vaporization at the normal boiling point, $\Delta H_{v,b}$ (cal/mol)	Normal boiling point, T_B (^oK)	Critical temperature, T_C (^oK)	Unit risk factor, URF ($\mu g/m^3)^{-1}$	Reference conc., RfC (mg/m^3)	Molecular weight, MW (g/mol)
7.20E-02	8.20E-06	1.84E-02	25	8,288	394.40	620.20	5.9E-06	6.0E-01	165.83

END

INTERMEDIATE CALCULATIONS SHEET

Source-building separation, L_T (cm)	Vadose zone soil air-filled porosity, θ_a^V (cm^3/cm^3)	Vadose zone effective total fluid saturation, S_{te} (cm^3/cm^3)	Vadose zone soil intrinsic permeability, k_i (cm^2)	Vadose zone soil relative air permeability, k_{rg} (cm^2)	Vadose zone soil effective vapor permeability, k_v (cm^2)	Floor-wall seam perimeter, X_{crack} (cm)	Soil gas conc. ($\mu g/m^3$)	Bldg. ventilation rate, $Q_{building}$ (cm^3/s)
289.8	0.321	0.003	1.01E-07	0.998	1.01E-07	4,000	6.60E+00	1.69E+04

Area of enclosed space below grade, A_B (cm^2)	Crack-to-total area ratio, η (unitless)	Crack depth below grade, Z_{crack} (cm)	Enthalpy of vaporization at ave. soil temperature, $\Delta H_{v,TS}$ (cal/mol)	Henry's law constant at ave. soil temperature, H_{TS} (atm-m^3/mol)	Henry's law constant at ave. soil temperature, H'_{TS} (unitless)	Vapor viscosity at ave. soil temperature, μ_{TS} (g/cm-s)	Vadose zone effective diffusion coefficient, D^{eff}_V (cm^2/s)	Diffusion path length, L_d (cm)
1.00E+06	4.00E-04	15	9,462	1.32E-02	5.52E-01	1.78E-04	1.16E-02	289.8

Convection path length, L_p (cm)	Source vapor conc., C_{source} ($\mu g/m^3$)	Crack radius, r_{crack} (cm)	Average vapor flow rate into bldg., Q_{soil} (cm^3/s)	Crack effective diffusion coefficient, D^{crack} (cm^2/s)	Area of crack, A_{crack} (cm^2)	Exponent of equivalent foundation Peclet number, $exp(Pe^f)$ (unitless)	Infinite source indoor attenuation coefficient, α (unitless)	Infinite source bldg. conc., $C_{building}$ ($\mu g/m^3$)
15	6.60E+00	0.10	8.33E+01	1.16E-02	4.00E+02	5.42E+77	1.60E-03	1.06E-02

Unit risk factor, URF ($\mu g/m^3)^{-1}$	Reference conc., RfC (mg/m^3)
5.9E-06	6.0E-01

END

RESULTS SHEET

INCREMENTAL RISK CALCULATIONS:

Incremental risk from vapor intrusion to indoor air, carcinogen (unitless)	Hazard quotient from vapor intrusion to indoor air, noncarcinogen (unitless)
1.5E-08	1.2E-05

MESSAGE SUMMARY BELOW:

END

SG-SCREEN
Version 3.1; 02/04

Reset to Defaults

Soil Gas Concentration Data

ENTER Chemical CAS No. (numbers only, no dashes)	ENTER Soil gas conc., C_g ($\mu g/m^3$)	OR	ENTER Soil gas conc., C_g (ppmv)	Chemical
79016	3.20E-01			Trichloroethylene

MORE ↓

ENTER Depth below grade to bottom of enclosed space floor, L_F (15 or 200 cm)	ENTER Soil gas sampling depth below grade, L_s (cm)	ENTER Average soil temperature, T_S (^oC)	ENTER Vadose zone SCS soil type (used to estimate soil vapor permeability)	OR	ENTER User-defined vadose zone soil vapor permeability, k_v (cm^2)
15	304.8	19	S		

MORE ↓

ENTER Vandose zone SCS soil type (Lookup Soil Parameters)	ENTER Vadose zone soil dry bulk density, ρ_b^A (g/cm^3)	ENTER Vadose zone soil total porosity, n^V (unitless)	ENTER Vadose zone soil water-filled porosity, θ_w^V (cm^3/cm^3)	ENTER Average vapor flow rate into bldg. (Leave blank to calculate) Q_{soil} (L/m)
S	1.66	0.375	0.054	5

MORE ↓

ENTER Averaging time for carcinogens, AT_C (yrs)	ENTER Averaging time for noncarcinogens, AT_{NC} (yrs)	ENTER Exposure duration, ED (yrs)	ENTER Exposure frequency, EF (days/yr)
70	25	25	250

END

CHEMICAL PROPERTIES SHEET

Diffusivity in air, D_a (cm^2/s)	Diffusivity in water, D_w (cm^2/s)	Henry's law constant at reference temperature, H (atm-m^3/mol)	Henry's law constant reference temperature, T_R (^oC)	Enthalpy of vaporization at the normal boiling point, $\Delta H_{v,b}$ (cal/mol)	Normal boiling point, T_B (^oK)	Critical temperature, T_C (^oK)	Unit risk factor, URF ($\mu g/m^3)^{-1}$	Reference conc., RfC (mg/m^3)	Molecular weight, MW (g/mol)
7.90E-02	9.10E-06	1.03E-02	25	7,505	360.36	544.20	1.1E-04	4.0E-02	131.39

END

INTERMEDIATE CALCULATIONS SHEET

Source-building separation, L_T (cm)	Vadose zone soil air-filled porosity, θ_a^V (cm^3/cm^3)	Vadose zone effective total fluid saturation, S_{te} (cm^3/cm^3)	Vadose zone soil intrinsic permeability, k_i (cm^2)	Vadose zone soil relative air permeability, k_{rg} (cm^2)	Vadose zone soil effective vapor permeability, k_v (cm^2)	Floor-wall seam perimeter, X_{crack} (cm)	Soil gas conc. ($\mu g/m^3$)	Bldg. ventilation rate, $Q_{building}$ (cm^3/s)
289.8	0.321	0.003	1.01E-07	0.998	1.01E-07	4,000	3.20E-01	1.69E+04

Area of enclosed space below grade, A_B (cm^2)	Crack-to-total area ratio, η (unitless)	Crack depth below grade, Z_{crack} (cm)	Enthalpy of vaporization at ave. soil temperature, $\Delta H_{v,TS}$ (cal/mol)	Henry's law constant at ave. soil temperature, H_{TS} (atm-m^3/mol)	Henry's law constant at ave. soil temperature, H'_{TS} (unitless)	Vapor viscosity at ave. soil temperature, μ_{TS} (g/cm-s)	Vadose zone effective diffusion coefficient, D^{eff}_V (cm^2/s)	Diffusion path length, L_d (cm)
1.00E+06	4.00E-04	15	8,445	7.67E-03	3.20E-01	1.78E-04	1.28E-02	289.8

Convection path length, L_p (cm)	Source vapor conc., C_{source} ($\mu g/m^3$)	Crack radius, r_{crack} (cm)	Average vapor flow rate into bldg., Q_{soil} (cm^3/s)	Crack effective diffusion coefficient, D^{crack} (cm^2/s)	Area of crack, A_{crack} (cm^2)	Exponent of equivalent foundation Peclet number, $exp(Pe^f)$ (unitless)	Infinite source indoor attenuation coefficient, α (unitless)	Infinite source bldg. conc., $C_{building}$ ($\mu g/m^3$)
15	3.20E-01	0.10	8.33E+01	1.28E-02	4.00E+02	7.02E+70	1.70E-03	5.44E-04

Unit risk factor, URF ($\mu g/m^3)^{-1}$	Reference conc., RfC (mg/m^3)
1.1E-04	4.0E-02

END

RESULTS SHEET

INCREMENTAL RISK CALCULATIONS:

Incremental risk from vapor intrusion to indoor air, carcinogen (unitless)	Hazard quotient from vapor intrusion to indoor air, noncarcinogen (unitless)
1.5E-08	9.3E-06

MESSAGE SUMMARY BELOW:

MESSAGE: Risk/HQ or risk-based soil concentration is based on a route-to-route extrapolation.

END

SG-SCREEN
Version 3.1; 02/04

Reset to Defaults

Soil Gas Concentration Data

ENTER Chemical CAS No. (numbers only, no dashes)	ENTER Soil gas conc., C_g ($\mu g/m^3$)	OR	ENTER Soil gas conc., C_g (ppmv)	Chemical
79016	3.20E-01			Trichloroethylene

MORE ↓

ENTER Depth below grade to bottom of enclosed space floor, L_F (15 or 200 cm)	ENTER Soil gas sampling depth below grade, L_s (cm)	ENTER Average soil temperature, T_S (^oC)	ENTER Vadose zone SCS soil type (used to estimate soil vapor permeability)	OR	ENTER User-defined vadose zone soil vapor permeability, k_v (cm^2)
15	457.2	19	S		

MORE ↓

ENTER Vandose zone SCS soil type (Lookup Soil Parameters)	ENTER Vadose zone soil dry bulk density, ρ_b^A (g/cm^3)	ENTER Vadose zone soil total porosity, n^V (unitless)	ENTER Vadose zone soil water-filled porosity, θ_w^V (cm^3/cm^3)	ENTER Average vapor flow rate into bldg. (Leave blank to calculate) Q_{soil} (L/m)
S	1.66	0.375	0.054	5

MORE ↓

ENTER Averaging time for carcinogens, AT_C (yrs)	ENTER Averaging time for noncarcinogens, AT_{NC} (yrs)	ENTER Exposure duration, ED (yrs)	ENTER Exposure frequency, EF (days/yr)
70	25	25	250

END

CHEMICAL PROPERTIES SHEET

Diffusivity in air, D_a (cm^2/s)	Diffusivity in water, D_w (cm^2/s)	Henry's law constant at reference temperature, H (atm-m^3/mol)	Henry's law constant reference temperature, T_R (^oC)	Enthalpy of vaporization at the normal boiling point, $\Delta H_{v,b}$ (cal/mol)	Normal boiling point, T_B (^oK)	Critical temperature, T_C (^oK)	Unit risk factor, URF ($\mu g/m^3)^{-1}$	Reference conc., RfC (mg/m^3)	Molecular weight, MW (g/mol)
7.90E-02	9.10E-06	1.03E-02	25	7,505	360.36	544.20	1.1E-04	4.0E-02	131.39

END

INTERMEDIATE CALCULATIONS SHEET

Source-building separation, L_T (cm)	Vadose zone soil air-filled porosity, θ_a^V (cm^3/cm^3)	Vadose zone effective total fluid saturation, S_{te} (cm^3/cm^3)	Vadose zone soil intrinsic permeability, k_i (cm^2)	Vadose zone soil relative air permeability, k_{rg} (cm^2)	Vadose zone soil effective vapor permeability, k_v (cm^2)	Floor-wall seam perimeter, X_{crack} (cm)	Soil gas conc. ($\mu g/m^3$)	Bldg. ventilation rate, $Q_{building}$ (cm^3/s)
442.2	0.321	0.003	1.01E-07	0.998	1.01E-07	4,000	3.20E-01	1.69E+04

Area of enclosed space below grade, A_B (cm^2)	Crack-to-total area ratio, η (unitless)	Crack depth below grade, Z_{crack} (cm)	Enthalpy of vaporization at ave. soil temperature, $\Delta H_{v,TS}$ (cal/mol)	Henry's law constant at ave. soil temperature, H_{TS} (atm-m^3/mol)	Henry's law constant at ave. soil temperature, H'_{TS} (unitless)	Vapor viscosity at ave. soil temperature, μ_{TS} (g/cm-s)	Vadose zone effective diffusion coefficient, D^{eff}_V (cm^2/s)	Diffusion path length, L_d (cm)
1.00E+06	4.00E-04	15	8,445	7.67E-03	3.20E-01	1.78E-04	1.28E-02	442.2

Convection path length, L_p (cm)	Source vapor conc., C_{source} ($\mu g/m^3$)	Crack radius, r_{crack} (cm)	Average vapor flow rate into bldg., Q_{soil} (cm^3/s)	Crack effective diffusion coefficient, D^{crack} (cm^2/s)	Area of crack, A_{crack} (cm^2)	Exponent of equivalent foundation Peclet number, $exp(Pe^f)$ (unitless)	Infinite source indoor attenuation coefficient, α (unitless)	Infinite source bldg. conc., $C_{building}$ ($\mu g/m^3$)
15	3.20E-01	0.10	8.33E+01	1.28E-02	4.00E+02	7.02E+70	1.27E-03	4.05E-04

Unit risk factor, URF ($\mu g/m^3)^{-1}$	Reference conc., RfC (mg/m^3)
1.1E-04	4.0E-02

END

RESULTS SHEET

INCREMENTAL RISK CALCULATIONS:

Incremental risk from vapor intrusion to indoor air, carcinogen (unitless)	Hazard quotient from vapor intrusion to indoor air, noncarcinogen (unitless)
1.1E-08	6.9E-06

MESSAGE SUMMARY BELOW:

MESSAGE: Risk/HQ or risk-based soil concentration is based on a route-to-route extrapolation.

END

SG-SCREEN
Version 3.1; 02/04

Reset to Defaults

Soil Gas Concentration Data

ENTER Chemical CAS No. (numbers only, no dashes)	ENTER Soil gas conc., C_g ($\mu g/m^3$)	OR	ENTER Soil gas conc., C_g (ppmv)	Chemical
79016	3.20E-01			Trichloroethylene

MORE ↓

ENTER Depth below grade to bottom of enclosed space floor, L_F (15 or 200 cm)	ENTER Soil gas sampling depth below grade, L_s (cm)	ENTER Average soil temperature, T_S (^oC)	ENTER Vadose zone SCS soil type (used to estimate soil vapor permeability)	OR	ENTER User-defined vadose zone soil vapor permeability, k_v (cm^2)
15	304.8	19	S		

MORE ↓

ENTER Vandose zone SCS soil type (Lookup Soil Parameters)	ENTER Vadose zone soil dry bulk density, ρ_b^A (g/cm^3)	ENTER Vadose zone soil total porosity, n^V (unitless)	ENTER Vadose zone soil water-filled porosity, θ_w^V (cm^3/cm^3)	ENTER Average vapor flow rate into bldg. (Leave blank to calculate) Q_{soil} (L/m)
S	1.66	0.375	0.054	5

MORE ↓

ENTER Averaging time for carcinogens, AT_C (yrs)	ENTER Averaging time for noncarcinogens, AT_{NC} (yrs)	ENTER Exposure duration, ED (yrs)	ENTER Exposure frequency, EF (days/yr)
70	25	25	250

END

CHEMICAL PROPERTIES SHEET

Diffusivity in air, D_a (cm^2/s)	Diffusivity in water, D_w (cm^2/s)	Henry's law constant at reference temperature, H (atm-m^3/mol)	Henry's law constant reference temperature, T_R (^oC)	Enthalpy of vaporization at the normal boiling point, $\Delta H_{v,b}$ (cal/mol)	Normal boiling point, T_B (^oK)	Critical temperature, T_C (^oK)	Unit risk factor, URF ($\mu g/m^3)^{-1}$	Reference conc., RfC (mg/m^3)	Molecular weight, MW (g/mol)
7.90E-02	9.10E-06	1.03E-02	25	7,505	360.36	544.20	1.1E-04	4.0E-02	131.39

END

INTERMEDIATE CALCULATIONS SHEET

Source-building separation, L_T (cm)	Vadose zone soil air-filled porosity, θ_a^V (cm^3/cm^3)	Vadose zone effective total fluid saturation, S_{te} (cm^3/cm^3)	Vadose zone soil intrinsic permeability, k_i (cm^2)	Vadose zone soil relative air permeability, k_{rg} (cm^2)	Vadose zone soil effective vapor permeability, k_v (cm^2)	Floor-wall seam perimeter, X_{crack} (cm)	Soil gas conc. ($\mu g/m^3$)	Bldg. ventilation rate, $Q_{building}$ (cm^3/s)
289.8	0.321	0.003	1.01E-07	0.998	1.01E-07	4,000	3.20E-01	1.69E+04

Area of enclosed space below grade, A_B (cm^2)	Crack-to-total area ratio, η (unitless)	Crack depth below grade, Z_{crack} (cm)	Enthalpy of vaporization at ave. soil temperature, $\Delta H_{v,TS}$ (cal/mol)	Henry's law constant at ave. soil temperature, H_{TS} (atm-m^3/mol)	Henry's law constant at ave. soil temperature, H'_{TS} (unitless)	Vapor viscosity at ave. soil temperature, μ_{TS} (g/cm-s)	Vadose zone effective diffusion coefficient, D^{eff}_V (cm^2/s)	Diffusion path length, L_d (cm)
1.00E+06	4.00E-04	15	8,445	7.67E-03	3.20E-01	1.78E-04	1.28E-02	289.8

Convection path length, L_p (cm)	Source vapor conc., C_{source} ($\mu g/m^3$)	Crack radius, r_{crack} (cm)	Average vapor flow rate into bldg., Q_{soil} (cm^3/s)	Crack effective diffusion coefficient, D^{crack} (cm^2/s)	Area of crack, A_{crack} (cm^2)	Exponent of equivalent foundation Peclet number, $exp(Pe^f)$ (unitless)	Infinite source indoor attenuation coefficient, α (unitless)	Infinite source bldg. conc., $C_{building}$ ($\mu g/m^3$)
15	3.20E-01	0.10	8.33E+01	1.28E-02	4.00E+02	7.02E+70	1.70E-03	5.44E-04

Unit risk factor, URF ($\mu g/m^3)^{-1}$	Reference conc., RfC (mg/m^3)
1.1E-04	4.0E-02

END

RESULTS SHEET

INCREMENTAL RISK CALCULATIONS:

Incremental risk from vapor intrusion to indoor air, carcinogen (unitless)	Hazard quotient from vapor intrusion to indoor air, noncarcinogen (unitless)
1.5E-08	9.3E-06

MESSAGE SUMMARY BELOW:

MESSAGE: Risk/HQ or risk-based soil concentration is based on a route-to-route extrapolation.

END

SG-SCREEN
Version 3.1; 02/04

Reset to Defaults

Soil Gas Concentration Data

ENTER Chemical CAS No. (numbers only, no dashes)	ENTER Soil gas conc., C_g ($\mu g/m^3$)	OR	ENTER Soil gas conc., C_g (ppmv)	Chemical
79016	3.20E-01			Trichloroethylene

MORE ↓

ENTER Depth below grade to bottom of enclosed space floor, L_F (15 or 200 cm)	ENTER Soil gas sampling depth below grade, L_s (cm)	ENTER Average soil temperature, T_S (^oC)	ENTER Vadose zone SCS soil type (used to estimate soil vapor permeability)	OR	ENTER User-defined vadose zone soil vapor permeability, k_v (cm^2)
15	304.8	19	S		

MORE ↓

ENTER Vandose zone SCS soil type (Lookup Soil Parameters)	ENTER Vadose zone soil dry bulk density, ρ_b^A (g/cm^3)	ENTER Vadose zone soil total porosity, n^V (unitless)	ENTER Vadose zone soil water-filled porosity, θ_w^V (cm^3/cm^3)	ENTER Average vapor flow rate into bldg. (Leave blank to calculate) Q_{soil} (L/m)
S	1.66	0.375	0.054	5

MORE ↓

ENTER Averaging time for carcinogens, AT_C (yrs)	ENTER Averaging time for noncarcinogens, AT_{NC} (yrs)	ENTER Exposure duration, ED (yrs)	ENTER Exposure frequency, EF (days/yr)
70	25	25	250

END

CHEMICAL PROPERTIES SHEET

Diffusivity in air, D_a (cm^2/s)	Diffusivity in water, D_w (cm^2/s)	Henry's law constant at reference temperature, H (atm-m^3/mol)	Henry's law constant reference temperature, T_R (^oC)	Enthalpy of vaporization at the normal boiling point, $\Delta H_{v,b}$ (cal/mol)	Normal boiling point, T_B (^oK)	Critical temperature, T_C (^oK)	Unit risk factor, URF ($\mu g/m^3)^{-1}$	Reference conc., RfC (mg/m^3)	Molecular weight, MW (g/mol)
7.90E-02	9.10E-06	1.03E-02	25	7,505	360.36	544.20	1.1E-04	4.0E-02	131.39

END

INTERMEDIATE CALCULATIONS SHEET

Source-building separation, L_T (cm)	Vadose zone soil air-filled porosity, θ_a^V (cm^3/cm^3)	Vadose zone effective total fluid saturation, S_{te} (cm^3/cm^3)	Vadose zone soil intrinsic permeability, k_i (cm^2)	Vadose zone soil relative air permeability, k_{rg} (cm^2)	Vadose zone soil effective vapor permeability, k_v (cm^2)	Floor-wall seam perimeter, X_{crack} (cm)	Soil gas conc. ($\mu g/m^3$)	Bldg. ventilation rate, $Q_{building}$ (cm^3/s)
289.8	0.321	0.003	1.01E-07	0.998	1.01E-07	4,000	3.20E-01	1.69E+04

Area of enclosed space below grade, A_B (cm^2)	Crack-to-total area ratio, η (unitless)	Crack depth below grade, Z_{crack} (cm)	Enthalpy of vaporization at ave. soil temperature, $\Delta H_{v,TS}$ (cal/mol)	Henry's law constant at ave. soil temperature, H_{TS} (atm-m^3/mol)	Henry's law constant at ave. soil temperature, H'_{TS} (unitless)	Vapor viscosity at ave. soil temperature, μ_{TS} (g/cm-s)	Vadose zone effective diffusion coefficient, D^{eff}_V (cm^2/s)	Diffusion path length, L_d (cm)
1.00E+06	4.00E-04	15	8,445	7.67E-03	3.20E-01	1.78E-04	1.28E-02	289.8

Convection path length, L_p (cm)	Source vapor conc., C_{source} ($\mu g/m^3$)	Crack radius, r_{crack} (cm)	Average vapor flow rate into bldg., Q_{soil} (cm^3/s)	Crack effective diffusion coefficient, D^{crack} (cm^2/s)	Area of crack, A_{crack} (cm^2)	Exponent of equivalent foundation Peclet number, $exp(Pe^f)$ (unitless)	Infinite source indoor attenuation coefficient, α (unitless)	Infinite source bldg. conc., $C_{building}$ ($\mu g/m^3$)
15	3.20E-01	0.10	8.33E+01	1.28E-02	4.00E+02	7.02E+70	1.70E-03	5.44E-04

Unit risk factor, URF ($\mu g/m^3)^{-1}$	Reference conc., RfC (mg/m^3)
1.1E-04	4.0E-02

END

RESULTS SHEET

INCREMENTAL RISK CALCULATIONS:

Incremental risk from vapor intrusion to indoor air, carcinogen (unitless)	Hazard quotient from vapor intrusion to indoor air, noncarcinogen (unitless)
1.5E-08	9.3E-06

MESSAGE SUMMARY BELOW:

MESSAGE: Risk/HQ or risk-based soil concentration is based on a route-to-route extrapolation.

END

SG-SCREEN
Version 3.1; 02/04

Reset to Defaults

Soil Gas Concentration Data

ENTER Chemical CAS No. (numbers only, no dashes)	ENTER Soil gas conc., C_g ($\mu g/m^3$)	OR	ENTER Soil gas conc., C_g (ppmv)	Chemical
79016	2.40E+00			Trichloroethylene

MORE ↓

ENTER Depth below grade to bottom of enclosed space floor, L_F (15 or 200 cm)	ENTER Soil gas sampling depth below grade, L_s (cm)	ENTER Average soil temperature, T_S (^oC)	ENTER Vadose zone SCS soil type (used to estimate soil vapor permeability)	OR	ENTER User-defined vadose zone soil vapor permeability, k_v (cm^2)
15	762	19	S		

MORE ↓

ENTER Vandose zone SCS soil type (Lookup Soil Parameters)	ENTER Vadose zone soil dry bulk density, ρ_b^A (g/cm^3)	ENTER Vadose zone soil total porosity, n^V (unitless)	ENTER Vadose zone soil water-filled porosity, θ_w^V (cm^3/cm^3)	ENTER Average vapor flow rate into bldg. (Leave blank to calculate) Q_{soil} (L/m)
S	1.66	0.375	0.054	5

MORE ↓

ENTER Averaging time for carcinogens, AT_C (yrs)	ENTER Averaging time for noncarcinogens, AT_{NC} (yrs)	ENTER Exposure duration, ED (yrs)	ENTER Exposure frequency, EF (days/yr)
70	25	25	250

END

CHEMICAL PROPERTIES SHEET

Diffusivity in air, D_a (cm^2/s)	Diffusivity in water, D_w (cm^2/s)	Henry's law constant at reference temperature, H (atm-m^3/mol)	Henry's law constant reference temperature, T_R (^oC)	Enthalpy of vaporization at the normal boiling point, $\Delta H_{v,b}$ (cal/mol)	Normal boiling point, T_B (^oK)	Critical temperature, T_C (^oK)	Unit risk factor, URF ($\mu g/m^3)^{-1}$	Reference conc., RfC (mg/m^3)	Molecular weight, MW (g/mol)
7.90E-02	9.10E-06	1.03E-02	25	7,505	360.36	544.20	1.1E-04	4.0E-02	131.39

END

INTERMEDIATE CALCULATIONS SHEET

Source-building separation, L_T (cm)	Vadose zone soil air-filled porosity, θ_a^V (cm^3/cm^3)	Vadose zone effective total fluid saturation, S_{te} (cm^3/cm^3)	Vadose zone soil intrinsic permeability, k_i (cm^2)	Vadose zone soil relative air permeability, k_{rg} (cm^2)	Vadose zone soil effective vapor permeability, k_v (cm^2)	Floor-wall seam perimeter, X_{crack} (cm)	Soil gas conc. ($\mu g/m^3$)	Bldg. ventilation rate, $Q_{building}$ (cm^3/s)
747	0.321	0.003	1.01E-07	0.998	1.01E-07	4,000	2.40E+00	1.69E+04

Area of enclosed space below grade, A_B (cm^2)	Crack-to-total area ratio, η (unitless)	Crack depth below grade, Z_{crack} (cm)	Enthalpy of vaporization at ave. soil temperature, $\Delta H_{v,TS}$ (cal/mol)	Henry's law constant at ave. soil temperature, H_{TS} (atm-m^3/mol)	Henry's law constant at ave. soil temperature, H'_{TS} (unitless)	Vapor viscosity at ave. soil temperature, μ_{TS} (g/cm-s)	Vadose zone effective diffusion coefficient, D^{eff}_V (cm^2/s)	Diffusion path length, L_d (cm)
1.00E+06	4.00E-04	15	8,445	7.67E-03	3.20E-01	1.78E-04	1.28E-02	747

Convection path length, L_p (cm)	Source vapor conc., C_{source} ($\mu g/m^3$)	Crack radius, r_{crack} (cm)	Average vapor flow rate into bldg., Q_{soil} (cm^3/s)	Crack effective diffusion coefficient, D^{crack} (cm^2/s)	Area of crack, A_{crack} (cm^2)	Exponent of equivalent foundation Peclet number, $exp(Pe^f)$ (unitless)	Infinite source indoor attenuation coefficient, α (unitless)	Infinite source bldg. conc., $C_{building}$ ($\mu g/m^3$)
15	2.40E+00	0.10	8.33E+01	1.28E-02	4.00E+02	7.02E+70	8.37E-04	2.01E-03

Unit risk factor, URF ($\mu g/m^3)^{-1}$	Reference conc., RfC (mg/m^3)
1.1E-04	4.0E-02

END

RESULTS SHEET

INCREMENTAL RISK CALCULATIONS:

Incremental risk from vapor intrusion to indoor air, carcinogen (unitless)	Hazard quotient from vapor intrusion to indoor air, noncarcinogen (unitless)
5.4E-08	3.4E-05

MESSAGE SUMMARY BELOW:

MESSAGE: Risk/HQ or risk-based soil concentration is based on a route-to-route extrapolation.

END