JONES ROAD GROUND WATER PLUME SITE
Site Number SUP075

VAPOR INTRUSION STUDY

HOUSTON, TEXAS

Prepared for

TCEQ

Prepared by

Shaw Environmental, Inc.

May 2008

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Shaw Project No. 129389

882028

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1 INTRODUCTION

1.1 Project Background

The Jones Road Ground Water Plume site (Site) is located approximately one-half mile north of the intersection of Jones Road and FM 1960 in a mixed residential, urban/light industry area outside the city limits of northwest Houston, Harris County, Texas. The site was listed on the federal Superfund program National Priorities List (NPL) on September 29, 2003 based on the presence of hazardous substances, including tetrachloroethene (PCE), cis-1,2-dichloroethene (DCE), vinyl chloride, and tricholorethene (TCE), in drinking water wells.

Based on available site information and environmental testing results to date, the contaminants are believed to be releases from the former Bell Dry Cleaners at 11600 Jones Road. PCE is a manufactured chemical that is widely used for cleaning of fabrics. The plume is documented to extend from the southern end of Echo Spring Lane to Tower Oaks Boulevard and from Timber Hollow to the eastern side of Jones Road. Based on available project information, the owner of the former dry cleaner reportedly stopped using PCE as a solvent in cleaning operations in mid-2002. Figure 1 (Appendix A) presents a general site map of the project area.

Two hundred thirty one water wells have been sampled by the Texas Commission on Environmental Quality (TCEQ) since February 2002. Approximately 150 wells are being sampled every three months by the TCEQ in an effort to protect human health at the site. The sampling area is larger than the known contamination plume, and includes wells with state-supplied filtration systems where confirmed contamination concentrations of PCE were above five parts per billion.

Additional information concerning the history of the site and current project status can be found on the Internet at the TCEQ web site:

(http://www.tceq.state.tx.us/remediation/superfund/jonesroad/index.html)

2 VAPOR INTRUSION STUDY

2.1 Purpose of/Need for Study

Vapor Intrusion is defined herein as the migration of volatile chemicals from the subsurface into overlying buildings. Volatile chemicals in buried wastes and/or contaminated groundwater and soil can emit vapors that may migrate through subsurface soils and into indoor air spaces of overlying buildings. Based on available project information supplied by the TCEQ, the Site has a potential vapor intrusion condition that may impact the health of workers in the shopping center where the former Bell Dry Cleaner is located. The results of this study will aid TCEQ in determination of whether complete pathway(s) for vapor intrusion exist and if the concentrations of the indoor vapor will pose an unacceptable risk of chronic health effects due to long-term exposure to the workers in the shopping center where the former Bell dry cleaner is located and to inhabitants of nearby residences impacted by the vapor intrusion.

In July 2007, Shaw Environmental, Inc. (Shaw) prepared a Work Plan to conduct a vapor intrusion study at the Jones Road Groundwater Plume site. Upon TCEQ's approval of the Work Plan, Shaw conducted the Vapor Intrusion Study (VIS) from February 25, 2007 through February 27, 2007. The work was conducted in general accordance to the Work Plan portions approved by the TCEQ and TCEQ Work Order 180-0070. This report discusses the field activities conducted during the VIS, summary and analysis of analytical data, and recommendations based on data analysis.

2.2 Vapor Intrusion Overview

Chemicals can volatilize from impacted soil and/or groundwater beneath a building and diffuse toward regions of lower chemical concentration (e.g., the atmosphere, conduits, basements). Soil gas can flow into a building due to a number of factors, including barometric pressure changes, wind load, thermal currents, or depressurization from building exhaust fans. The rate of movement of the vapors into the building is a complex value to quantify and depends on soil type, chemical properties, building design and condition, and the pressure differential. Upon entry into a structure, soil gas mixes with the existing air through the natural or mechanical ventilation of the building.

Both diffusion and advection are mechanisms of transport of subsurface soil gas into the indoor air environment. Diffusion is the mechanism by which soil gas moves from high concentration to low concentration due to a concentration gradient. Advection is the transport mechanism by which soil gas moves due to differences in pressure. These pressure differences can be generated by atmospheric pressure changes, temperature changes creating natural convection in the soil, or forced pressure changes due to building ventilation systems. Advective transport is likely to be the most significant in the region very close to a basement or a foundation, and soil gas velocities decrease rapidly with increasing distance from the structure. Once soil gases enter the "building zone of influence," they may be swept into the building through foundation cracks by advection due to the indoor-outdoor building pressure differential. The reach of the "building zone of influence" on soil gas flow is usually less than a few feet, vertically and horizontally.

The movement of contaminants from the source to the receptor is a complicated process in the vapor intrusion pathway. Building depressurization may cause soil gas from soil and/or groundwater contamination to be drawn into buildings through holes and cracks in the foundation. Heating systems, basements, and strong winds promote vapor intrusion into buildings by reducing the internal air pressure and creating a vacuum effect that enhances advective flow from underlying soils and/or groundwater into buildings ("the stack effect").

For the vapor intrusion pathway to be complete, there must be three components—a source of volatile compounds in the subsurface environment (groundwater and/or soil), inhabited buildings or the potential for future inhabited buildings, and a migration route to connect them (as discussed above). Based on available project information, a source of PCE exists in the local contaminated ground water and soil plume. Also a potential pathway(s) through the soil strata in the vadose zone to the overlying occupied building at the Site exist.

2.3 Field Activities

2.3.1 Site Survey

Field work was conducted at the site from February 25 through February 27, 2008. The Property Manager for the site was contacted the first day for site access and an overview of the site work was provided. The assessment area was in a vacant corner building of the strip shopping center. The location of the investigation area is shown in Figure 1 (Appendix A). Field activities consisted of a visual survey of the site and collection of ambient and subsurface air samples.

A site survey was conducted in order to collect inventory data on site (Appendix B). Information on the building construction, heating and cooling systems, building occupants, and stored chemicals that might affect the air quality was noted. Within the last year this part of the building, which is currently vacant, was used as a furniture store. It was noted that the walls of the site were repainted around October 2007 and that household cleaners and paints were currently stored at the site.

2.3.2 Sample Collection

Two (2) indoor ambient air and two (2) subslab air samples were collected as shown in Figure 1. Sample collection followed EPA Method TO-15 which consists of opening a regulated valve on a summa canister for a specified time period, then closing the valve and shipping the container to a laboratory for analysis.

2.3.2.1 Subslab Sample Locations

Two locations in the floor were identified for subslab air sample collection. These locations were selected near the areas where the bulk of the dry-cleaning operations was conducted and at the center of the building. One location was three (3) feet west of a sump that existed when the site was used for dry cleaning. The other location was approximately 25 feet south of the first location, near the center of the room. These locations are shown in Figure 1 (Appendix A).

2.3.2.2 Ambient Air Samples

Summa canisters for ambient air sampling were placed within five (5) feet of the two subslab sampling locations. The ambient air summa canisters were placed approximately three (3) feet above the floor. The ambient air samples were intended to be open 24 hours with a minimum pressure of 15 inches of mercury (Hg) reached. The valve open and close times are shown in Table 1. The summa canister by the West Sump reached 1 inches of Hg within 23 hours and its valve was closed. The summa canister in the center of the room was at 18 inches of Hg after 23 hours therefore was kept open another 13 hours and was closed at a pressure of 13.5 inches of Hg. The fact that the pressure in this canister did not reduce to 1 psi within 24 hours could be attributed to equipment error or malfunction. However, this sample is considered a representative sample, which is also evident from the comparison of the analytical results of the two ambient air sample that are in agreement with each other.

Table 1. Ambient and subslab air summa canister sample collection parameters

Location	Initial Open Time and Date	Initial Pressure Reading (inches of Hg)	Close Time and Date	Final Pressure Reading (inches of Hg)
West Sump Ambient	18:38 2/25/08	29	17:30 2/26/08	1
Center of Room Ambient	18:37 2/25/08	30	7:00 2/27/08	13.5
West Sump Subsurface	18:15 2/25/08	30	18:30 2/25/08	6
Center of Room Subsurface	18:20 2/25/08	28	18:35 2/25/08	3

2.3.2.3 Subslab Vapor Samples

Subslab samples were collected at the two (2) locations noted previously. A one-inch diameter hole was drilled through the concrete floor at each of the selected locations using an electric hammer drill. The concrete floor was approximately 9 inches thick at each location and the drill was pushed an additional 1 inch into the subsurface below. Quarter-inch Teflon-lined PVC tubing was inserted into the 1 inch drill holes then sealed in place with bentonite.

Subsurface vapor samples were collected at the two subslab locations. A one-liter summa canister was attached to the PVC tubing at each location. The summa canisters valves were kept open 15 minutes for each location with the open and close times listed in Table 1.

After the valves were closed on each of the summa canisters, the four canisters were packaged and shipped via FedEx to Accutest laboratory in New Jersey. The access tubes for subsurface sampling were removed and the hole locations were filled with Quikcrete.

2.4 Lab Analysis

After sample collection was completed, the summa canisters were shipped to Accutest Laboratories. The procedure for lab analysis followed EPA Method TO-15 for determining volatile organic compounds in air. The lab portion of this method included collecting samples from the canister then analyzing them using a gas chromatograph. The analytical report is attached in Appendix C.

2.5 Data Analysis

Results of the analytical tests for ambient and subsurface air sampling are shown in Tables D.1 and D.2 respectively (Appendix D). The results of the ambient air analysis were compared to target concentration from a Tier II table from the *Office of Solid Waste and Emergency Response (OSWER) Draft Guidance for Evaluating the Vapor Intrusion to Indoor Air Pathway from Groundwater and Soils (Appendix E).* For the ambient air samples, 14 analytes exhibited values above analytical detection limits. Two (2) analytes, PCE and TCE, exhibited higher concentrations than the OSWER Tier II target concentrations at both ambient air sample locations. These chemicals were of concern from the chlorinated solvent plume beneath the site thus indicating the possibility of the underground plume being a potential source for vapor intrusion.

Fourteen analytes had values above detection limits in the ambient air, while only four were noted above the detection limits in the subsurface sample. More chemicals detected in the ambient air than the subsurface potentially indicates that there were more sources of chemicals affecting ambient air than is present in the subsurface. As discussed in Section 2.3.1, chemicals are stored on site. These residual chemicals may act as a source, thereby rendering more analyte detection in the ambient air samples than the subslab samples.

The subsurface analytical results in Table D.2 exhibited eight (8) chemicals above detection limits. The results of the subslab samples are not directly comparable to Tier II OSWER target concentrations. A risk assessment analysis needs to be conducted to perform that comparison. However, an additional line of evidence was evaluated by estimating attenuation factors as described below. The attenuation factor, α, is a proportionality constant relating indoor air concentrations to soil or groundwater concentrations:

$$C_{indoor\ air} = \alpha_{SG} \times C_{soil\ gas}$$

A larger α indicates less attenuation and a smaller value indicates more attenuation.

For example, the attenuation factor calculation for PCE was calculated as:

$$\alpha_{SG}\ (PCE) = 14 / 59700 = 0.0002$$

Table D.3 (Appendix D) exhibits attenuation factors calculated for all analytes that were detected in the subslab samples. Note that attenuation factors for cis-1,2-DCE, PCE and TCE are in the same order of magnitude. However, the attenuation factors for other analytes such as acetone, benzene, ethanol, and toluene are not in agreement with the

attenuation factors for cis-1,2-DCE, PCE, and TCE. This indicates the possibility of existence of other sources for acetone, benzene, ethanol and toluene.

2.6 Uncertainties in Data

The risk assessment study should consider the following uncertainties that may exist in the analytical data due to the following:

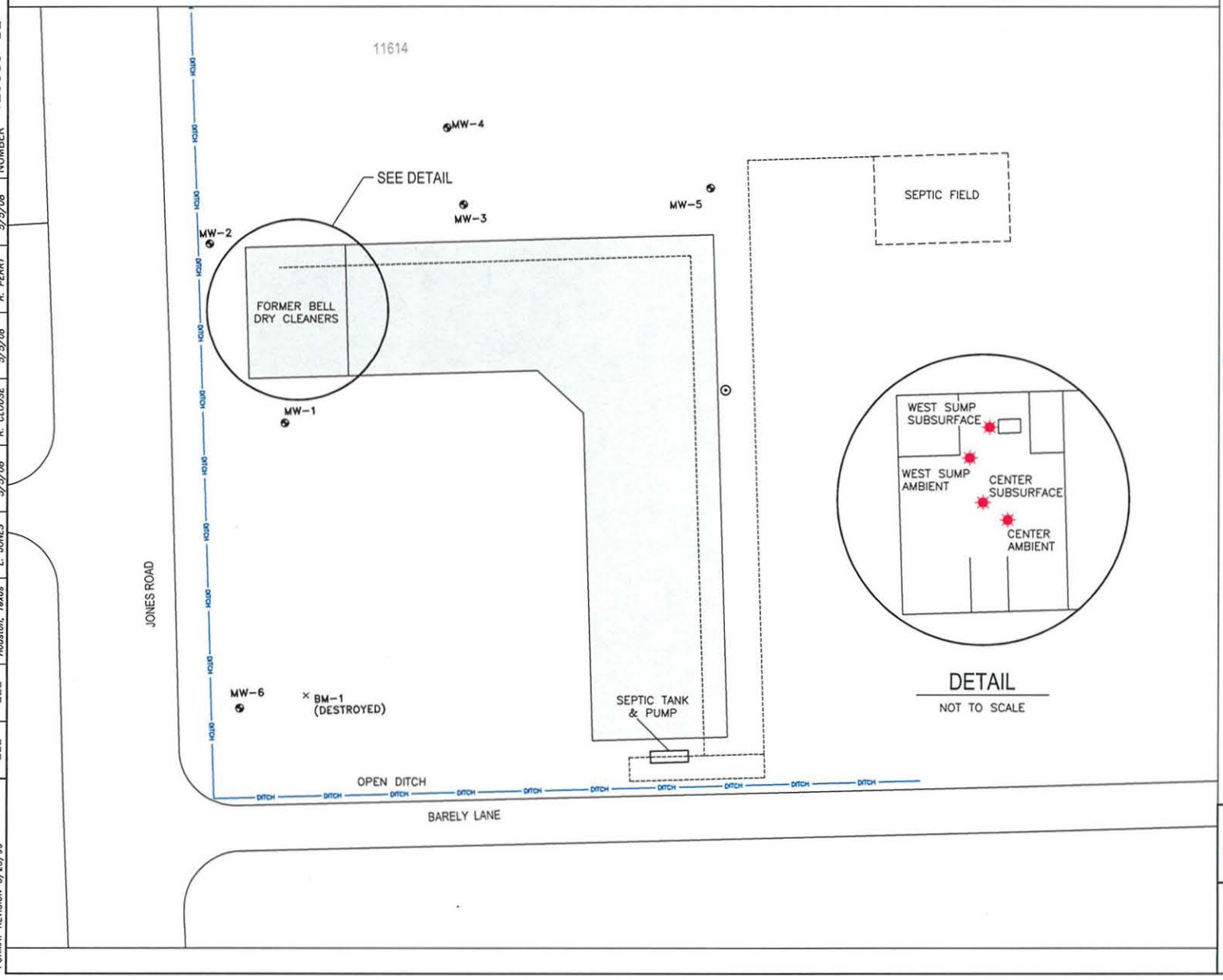
- The detection of larger numbers of chemicals in the ambient air samples as compared to the subsurface samples indicates the potential for impacts on the indoor air from sources other than vapor intrusion. These other chemicals are potentially from household cleaners that have been stored at the site and/or recent painting of the walls of the site.

- The summa canister for the center of the room ambient collection point did not fill to an ideal pressure possibly due to equipment error or malfunction. Although the sample is considered representative (and this was further proven by agreement in resulting data between the two ambient air samples), adjustments for pressure differences may have been made during lab analysis which could have potentially created higher analytical results.

2.7 Conclusions and Recommendations

PCE and TCE concentrations in the west room ambient air sample (9.5 ug/m^3 and 1.7 ug/m^3, respectively) exceed the OSWER Tier II target concentration of 8.1 ug/m^3 and 0.22 ug/m^3, respectively. Similarly, PCE and TCE concentrations in the center room ambient air sample (14 ug/m^3 and 1.8 ug/m^3, respectively) exceed the OSWER Tier II target concentration of 8.1 ug/m^3 and 0.22 ug/m^3, respectively. Also, the attenuation factors for both of these chemicals are in the same order of magnitude. These factors indicate a potential for a complete pathway between subsurface soil/groundwater and indoor air at the site. However, the risk that this complete pathway poses to occupants of the building has not been evaluated. It is recommended that a risk analysis be performed to determine if the levels of analytes observed in ambient air would adversely affect occupants of the site. Additional vapor intrusion samples may be necessary to perform the risk assessment study.

APPENDIX A



DETAIL

NOT TO SCALE

LEGEND:

- × BENCHMARK
- MONITORING WELL LOCATION
- VAPOR SAMPLING LOCATION
- DITCH — APPROXIMATE LOCATION OF STORM DRAIN

SCALE

0 50 100 FEET

Shaw

TEXAS COMMISSION ON ENVIRONMENTAL QUALITY

FIGURE 1
VAPOR INTRUSION STUDY AREA
11600 JONES ROAD
#TXN000605460
HARRIS COUNTY, TEXAS

IMAGE	X-REF	OFFICE	DRAWN BY	CHECKED BY	APPROVED BY	DRAWING NUMBER
---	---	Houston, Texas	L. JONES 5/5/08	R. CLOUSE 5/5/08	R. PERRY 5/5/08	129389-B2

PLOT DATE: 5/5/08
FORMAT REVISION 3/25/99

APPENDIX B

NEW YORK STATE DEPARTMENT OF HEALTH
INDOOR AIR QUALITY QUESTIONNAIRE AND BUILDING INVENTORY
CENTER FOR ENVIRONMENTAL HEALTH

This form must be completed for each residence involved in indoor air testing.

Preparer's Name Randy Clouse Date/Time Prepared 2/26/07

Preparer's Affiliation Contractor Phone No. 713 996 4434

Purpose of Investigation Assess potential for vapor intrusion above dry cleaning material spill

1. OCCUPANT:

Interviewed: Y / N

Last Name: Rhea First Name: Jessie Property Manager

Address: 11600 Jones Road

County: Harris County

Home Phone: Office Phone: 281-890-0992 Direct 281-890-8678

Number of Occupants/persons at this location Age of Occupants

2. OWNER OR LANDLORD: (Check if same as occupant ✓)

Interviewed: Y / N

Last Name: First Name:

Address:

County:

Home Phone: Office Phone:

3. BUILDING CHARACTERISTICS

Type of Building: (Circle appropriate response)

Residential	School	Commercial/Multi-use
Industrial	Church	Other:

If the property is residential, type? (Circle appropriate response) N/A

Ranch	2-Family	3-Family
Raised Ranch	Split Level	Colonial
Cape Cod	Contemporary	Mobile Home
Duplex	Apartment House	Townhouses/Condos
Modular	Log Home	Other:_____

If multiple units, how many? N/A

If the property is commercial, type?

Business Type(s) Previously dry cleaner, then furniture store, Salon next door

Does it include residences (i.e., multi-use)? Y / N If yes, how many? _____

Other characteristics:

Number of floors 1 Building age 1984

Is the building insulated? (Y) / N How air tight? Tight / Average / (Not Tight)

- In Ceiling

4. AIRFLOW

Use air current tubes or tracer smoke to evaluate airflow patterns and qualitatively describe:

Airflow between floors

N/A

Airflow near source

Outdoor air infiltration

Infiltration into air ducts

5. BASEMENT AND CONSTRUCTION CHARACTERISTICS (Circle all that apply)

a. Above grade construction:	wood frame	concrete	stone	brick concrete block
b. Basement type:	full	crawlspace	slab	other x None
c. Basement floor:	concrete	dirt	stone	other NA
d. Basement floor:	uncovered	covered	covered with NA	
e. Concrete floor:	unsealed	sealed	sealed with Latex enamel	
f. Foundation walls:	poured	block	stone	other Steel frame, metal outside
g. Foundation walls:	unsealed	sealed	sealed with —	
h. The basement is:	wet	damp	dry	moldy NA
i. The basement is:	finished	unfinished	partially finished	
j. Sump present?	Y / N Filled			
k. Water in sump?	Y / N / not applicable			

Basement/Lowest level depth below grade: NA (feet)

Identify potential soil vapor entry points and approximate size (e.g., cracks, utility ports, drains)

- Previous 1'x2' sump, but was been filled
- Floor appears solid otherwise

6. HEATING, VENTING and AIR CONDITIONING (Circle all that apply)

Type of heating system(s) used in this building: (circle all that apply – note primary)

Hot air circulation	Heat pump	Hot water baseboard	
Space Heaters	Stream radiation	Radiant floor	
Electric baseboard	Wood stove	Outdoor wood boiler	Other _____

The primary type of fuel used is:

Natural Gas	Fuel Oil	Kerosene
Electric	Propane	Solar
Wood	Coal	

Domestic hot water tank fueled by: - Boiler existed for dry cleaners; No boiler now though; Boiler was beside drain

Boiler/furnace located in: Basement Outdoors Main Floor Other_____

Air conditioning: Central Air (Outside of back door) Window units (In back wall) Open Windows None

Are there air distribution ducts present? Y / N

Describe the supply and cold air return ductwork, and its condition where visible, including whether there is a cold air return and the tightness of duct joints. Indicate the locations on the floor plan diagram.

No return ducts

7. OCCUPANCY = 1st floor

Is basement/lowest level occupied? Full-time Occasionally Seldom Almost Never

Level	General Use of Each Floor (e.g., familyroom, bedroom, laundry, workshop, storage)
Basement	
1st Floor	Commercial Retail
2nd Floor	
3rd Floor	
4th Floor	

8. FACTORS THAT MAY INFLUENCE INDOOR AIR QUALITY

a. Is there an attached garage? Y / N

b. Does the garage have a separate heating unit? Y / N / NA

c. Are petroleum-powered machines or vehicles stored in the garage (e.g., lawnmower, atv, car) Y / N / NA Please specify

d. Has the building ever had a fire? Y / N When? Not under this property Manager (>15 years)

e. Is a kerosene or unvented gas space heater present? Y / N Where?

f. Is there a workshop or hobby/craft area? Y / N Where & Type?

g. Is there smoking in the building? Y / N How frequently?

h. Have cleaning products been used recently? Y / N When & Type? Was swept

i. Have cosmetic products been used recently? Y / N When & Type? ~~NA~~ – Not in furniture store – But Beauty salon next door

j. Has painting/staining been done in the last 6 months? Y / N Where & When? Painted walls in Oct. / Nov.

k. Is there new carpet, drapes or other textiles? Y / N Where & When? _____

l. Have air fresheners been used recently? Y / N When & Type? _____

m. Is there a kitchen exhaust fan? Y / N If yes, where vented? N/A

n. Is there a bathroom exhaust fan? Y / N If yes, where vented? _____

o. Is there a clothes dryer? Y / N If yes, is it vented outside? Y / N

p. Has there been a pesticide application? Y / N When & Type? No

Are there odors in the building? Y / N
If yes, please describe: _____

Do any of the building occupants use solvents at work? Y / N
(e.g., chemical manufacturing or laboratory, auto mechanic or auto body shop, painting, fuel oil delivery, boiler mechanic, pesticide application, cosmetologist

If yes, what types of solvents are used? _____

If yes, are their clothes washed at work? Y / N

Do any of the building occupants regularly use or work at a dry-cleaning service? (Circle appropriate response)

Yes, use dry-cleaning regularly (weekly) No
Yes, use dry-cleaning infrequently (monthly or less) Unknown
Yes, work at a dry-cleaning service

Is there a radon mitigation system for the building/structure? Y / N Date of Installation: _____
Is the system active or passive? Active/Passive

9. WATER AND SEWAGE

Water Supply:	Public Water	Drilled Well	Driven Well	Dug Well	Other: _____
Sewage Disposal:	Public Sewer	Septic Tank	Leach Field	Dry Well	Other: _____

10. RELOCATION INFORMATION (for oil spill residential emergency)

a. Provide reasons why relocation is recommended: _____

b. Residents choose to: remain in home relocate to friends/family relocate to hotel/motel

c. Responsibility for costs associated with reimbursement explained? Y / N

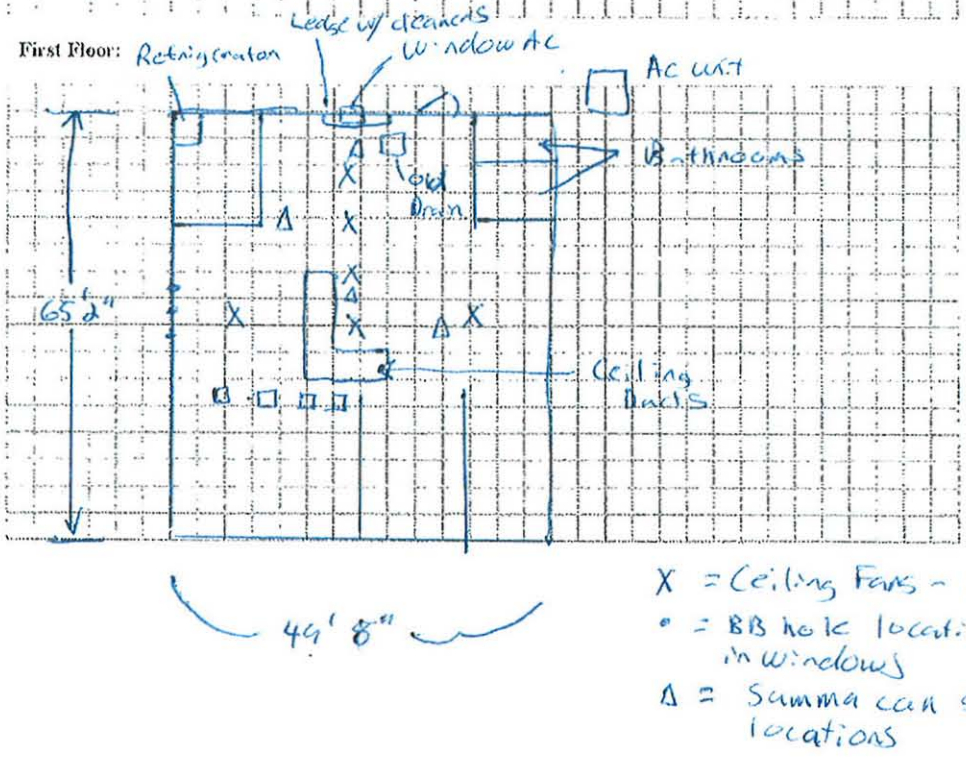
d. Relocation package provided and explained to residents? Y / N

11. FLOOR PLANS

Draw a plan view sketch of the basement and first floor of the building. Indicate air sampling locations, possible indoor air pollution sources and PID meter readings. If the building does not have a basement, please note.

Basement:

First Floor:



X = Ceiling Fans - Not ON

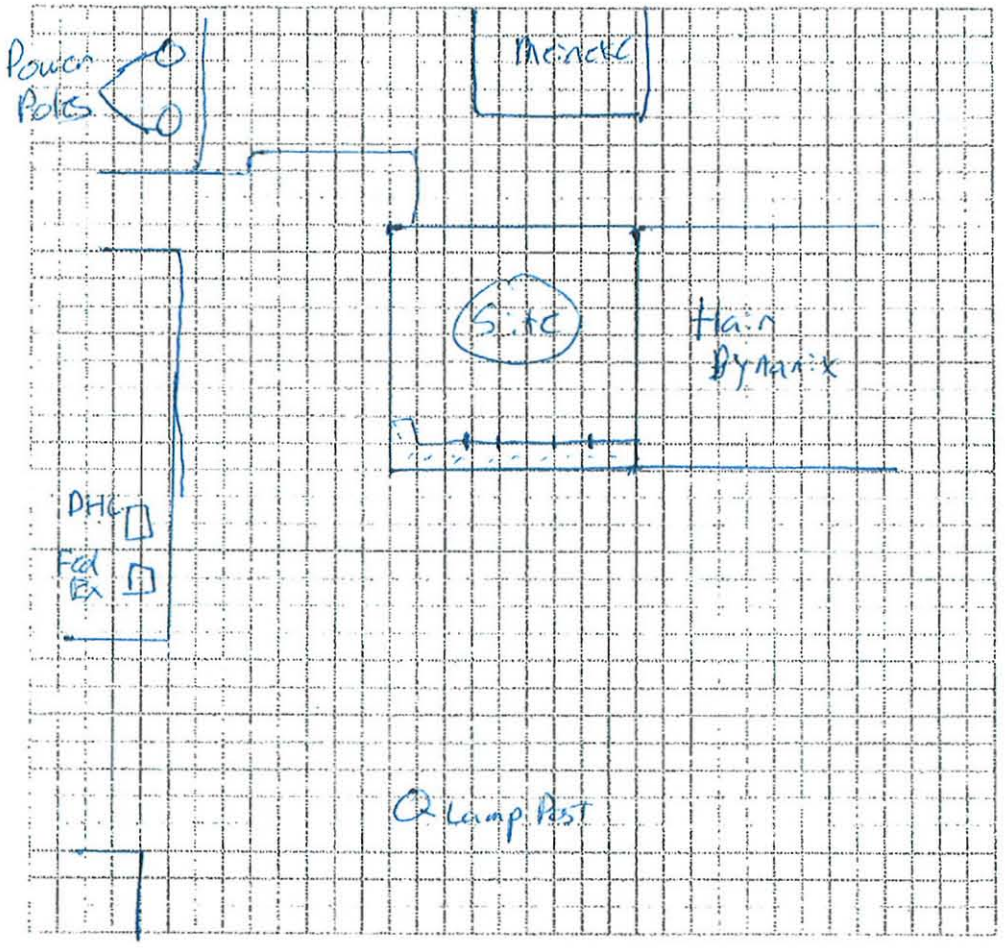
• = BB hole locations in windows

Δ = Summa can sample locations

12. OUTDOOR PLOT

Draw a sketch of the area surrounding the building being sampled. If applicable, provide information on spill locations, potential air contamination sources (industries, gas stations, repair shops, landfills, etc.), outdoor air sampling location(s) and PID meter readings.

Also indicate compass direction, wind direction and speed during sampling, the locations of the well and septic system, if applicable, and a qualifying statement to help locate the site on a topographic map.



13. PRODUCT INVENTORY FORM

Make & Model of field instrument used: _____

List specific products found in the residence that have the potential to affect indoor air quality.

Location	Product Description	Size (units)	Condition*	Chemical Ingredients	Field Instrument Reading (units)	Photo** Y / N
Back Wall	Interior/Exterior Paint	3.43 L	Fair	Acrylic Polymer Sodium Potassium		
	WD-40	5.50 z				
	Ant Killer	16 oz		Pyrethrins, Permethrin		
	water-based polyurethane	1 qt.				
	Mineral Spirits	32 fl oz				
	2 cycle engine oil	1 gal				
	spray paint	12 oz	x5 cans			

* Describe the condition of the product containers as Unopened (UO), Used (U), or Deteriorated (D)
** Photographs of the front and back of product containers can replace the handwritten list of chemical ingredients. However, the photographs must be of good quality and ingredient labels must be legible.

APPENDIX C

New Jersey ACCUTEST Laboratories

IT'S ALL IN THE CHEMISTRY

03/13/08

Technical Report for

Shaw Environmental & Infrastructure,Inc.

Jones Road Superfund, Harris County, TX

129389.0600

Accutest Job Number: J84338

Sampling Dates: 02/25/08 - 02/27/08

Report to:

Shaw Environmental & Infrastructure,Inc.
3010 Briarpark Drive
Suite 400
Houston, TX 77042

ATTN: Larry Duty

Total number of pages in report: 17

ACCUTEST LABORATORIES 50 YEARS 1956-2006

ACCREDITED IN ACCORDANCE WITH nelac

Test results contained within this data package meet the requirements of the National Environmental Laboratory Accreditation Conference and/or state specific certification programs as applicable.

Vincent J. Pugliese
President

Client Service contact: Tony Esposito 732-329-0200

Certifications: NJ(12129), NY(10983), CA, CT, DE, FL, IL, IN, KS, KY, LA, MA, MD, MI, MT, NC, PA, RI, SC, TN, VA, WV

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Test results relate only to samples analyzed.

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Sample Summary

Shaw Environmental & Infrastructure,Inc.

Job No: J84338

Jones Road Superfund, Harris County, TX
Project No: 129389.0600

Sample Number	Collected Date	Time By	Received	Matrix Code	Type	Client Sample ID
J84338-1	02/25/08	18:30 RC	02/28/08	AIR	Air	WEST SUMP-SUBSURFACE
J84338-2	02/25/08	18:35 RC	02/28/08	AIR	Air	CENTER ROOM-SUBSURFACE
J84338-3	02/26/08	17:30 RC	02/28/08	AIR	Air	WEST SUMP-AMBIENT
J84338-4	02/27/08	07:00 RC	02/28/08	AIR	Air	CENTER ROOM-AMBIENT

Sample Results

Report of Analysis

Accutest Laboratories

Report of Analysis

Client Sample ID:	WEST SUMP-SUBSURFACE		
Lab Sample ID:	J84338-1	Date Sampled:	02/25/08
Matrix:	AIR - Air Summa ID: A386,A556	Date Received:	02/28/08
Method:	TO-15	Percent Solids:	n/a
Project:	Jones Road Superfund, Harris County, TX		

	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1	W16886.D	61.5	03/03/08	BR	n/a	n/a	VW729
Run #2	W16856.D	61.5	02/28/08	BR	n/a	n/a	VW727

	Initial Volume
Run #1	400 ml
Run #2	100 ml

CAS No.	MW	Compound	Result	RL	Units	Q	Result	RL	Units
67-64-1	58.08	Acetone	46.0	12	ppbv		109	29	ug/m3
106-99-0	54.09	1,3-Butadiene	ND	12	ppbv		ND	27	ug/m3
71-43-2	78.11	Benzene	7.4	12	ppbv	J	24	38	ug/m3
75-27-4	163.8	Bromodichloromethane	ND	12	ppbv		ND	80	ug/m3
75-25-2	252.8	Bromoform	ND	12	ppbv		ND	120	ug/m3
74-83-9	94.94	Bromomethane	ND	12	ppbv		ND	47	ug/m3
593-60-2	106.9	Bromoethene	ND	12	ppbv		ND	52	ug/m3
100-44-7	126	Benzyl Chloride	ND	12	ppbv		ND	62	ug/m3
75-15-0	76.14	Carbon disulfide	ND	12	ppbv		ND	37	ug/m3
108-90-7	112.6	Chlorobenzene	ND	12	ppbv		ND	55	ug/m3
75-00-3	64.52	Chloroethane	ND	12	ppbv		ND	32	ug/m3
67-66-3	119.4	Chloroform	ND	12	ppbv		ND	59	ug/m3
74-87-3	50.49	Chloromethane	ND	12	ppbv		ND	25	ug/m3
107-05-1	76.53	3-Chloropropene	ND	12	ppbv		ND	38	ug/m3
95-49-8	126.6	2-Chlorotoluene	ND	12	ppbv		ND	62	ug/m3
56-23-5	153.8	Carbon tetrachloride	ND	12	ppbv		ND	75	ug/m3
110-82-7	84.16	Cyclohexane	ND	12	ppbv		ND	41	ug/m3
75-34-3	98.96	1,1-Dichloroethane	ND	12	ppbv		ND	49	ug/m3
75-35-4	96.94	1,1-Dichloroethylene	ND	12	ppbv		ND	48	ug/m3
106-93-4	187.9	1,2-Dibromoethane	ND	12	ppbv		ND	92	ug/m3
107-06-2	98.96	1,2-Dichloroethane	ND	12	ppbv		ND	49	ug/m3
78-87-5	113	1,2-Dichloropropane	ND	12	ppbv		ND	55	ug/m3
123-91-1	88.12	1,4-Dioxane	ND	12	ppbv		ND	43	ug/m3
75-71-8	120.9	Dichlorodifluoromethane	ND	12	ppbv		ND	59	ug/m3
124-48-1	208.3	Dibromochloromethane	ND	12	ppbv		ND	100	ug/m3
156-60-5	96.94	trans-1,2-Dichloroethylene	55.9	12	ppbv		222	48	ug/m3
156-59-2	96.94	cis-1,2-Dichloroethylene	1160	12	ppbv		4600	48	ug/m3
10061-01-5	111	cis-1,3-Dichloropropene	ND	12	ppbv		ND	54	ug/m3
541-73-1	147	m-Dichlorobenzene	ND	12	ppbv		ND	72	ug/m3
95-50-1	147	o-Dichlorobenzene	ND	12	ppbv		ND	72	ug/m3
106-46-7	147	p-Dichlorobenzene	ND	12	ppbv		ND	72	ug/m3
10061-02-6	111	trans-1,3-Dichloropropene	ND	12	ppbv		ND	54	ug/m3

ND = Not detected
RL = Reporting Limit
E = Indicates value exceeds calibration range
J = Indicates an estimated value
B = Indicates analyte found in associated method blank
N = Indicates presumptive evidence of a compound

Accutest Laboratories

Report of Analysis

Client Sample ID:	WEST SUMP-SUBSURFACE		
Lab Sample ID:	J84338-1	Date Sampled:	02/25/08
Matrix:	AIR - Air Summa ID: A386,A556	Date Received:	02/28/08
Method:	TO-15	Percent Solids:	n/a
Project:	Jones Road Superfund, Harris County, TX		

CAS No.	MW	Compound	Result	RL	Units	Q	Result	RL	Units
64-17-5	46.07	Ethanol	24.2	31	ppbv	J	45.6	58	ug/m3
100-41-4	106.2	Ethylbenzene	ND	12	ppbv		ND	52	ug/m3
141-78-6	88	Ethyl Acetate	ND	12	ppbv		ND	43	ug/m3
622-96-8	120.2	4-Ethyltoluene	ND	12	ppbv		ND	59	ug/m3
76-13-1	187.4	Freon 113	ND	12	ppbv		ND	92	ug/m3
76-14-2	170.9	Freon 114	ND	12	ppbv		ND	84	ug/m3
142-82-5	100.2	Heptane	ND	12	ppbv		ND	49	ug/m3
87-68-3	260.8	Hexachlorobutadiene	ND	12	ppbv		ND	130	ug/m3
110-54-3	86.17	Hexane	ND	12	ppbv		ND	42	ug/m3
591-78-6	100	2-Hexanone	ND	12	ppbv		ND	49	ug/m3
67-63-0	60.1	Isopropyl Alcohol	ND	12	ppbv		ND	29	ug/m3
75-09-2	84.94	Methylene chloride	ND	12	ppbv		ND	42	ug/m3
78-93-3	72.11	Methyl ethyl ketone	ND	12	ppbv		ND	35	ug/m3
108-10-1	100.2	Methyl Isobutyl Ketone	ND	12	ppbv		ND	49	ug/m3
1634-04-4	88.15	Methyl Tert Butyl Ether	ND	12	ppbv		ND	43	ug/m3
115-07-1	42	Propylene	ND	31	ppbv		ND	53	ug/m3
100-42-5	104.1	Styrene	ND	12	ppbv		ND	51	ug/m3
71-55-6	133.4	1,1,1-Trichloroethane	ND	12	ppbv		ND	65	ug/m3
79-34-5	167.9	1,1,2,2-Tetrachloroethane	ND	12	ppbv		ND	82	ug/m3
79-00-5	133.4	1,1,2-Trichloroethane	ND	12	ppbv		ND	65	ug/m3
120-82-1	181.5	1,2,4-Trichlorobenzene	ND	12	ppbv		ND	89	ug/m3
95-63-6	120.2	1,2,4-Trimethylbenzene	ND	12	ppbv		ND	59	ug/m3
108-67-8	120.2	1,3,5-Trimethylbenzene	ND	12	ppbv		ND	59	ug/m3
540-84-1	114.2	2,2,4-Trimethylpentane	ND	12	ppbv		ND	56	ug/m3
75-65-0	74.12	Tertiary Butyl Alcohol	ND	12	ppbv		ND	36	ug/m3
127-18-4	165.8	Tetrachloroethylene	6980 [a]	49	ppbv		47300 [a]	330	ug/m3
109-99-9	72.11	Tetrahydrofuran	ND	12	ppbv		ND	35	ug/m3
108-88-3	92.14	Toluene	7.9	12	ppbv	J	30	45	ug/m3
79-01-6	131.4	Trichloroethylene	1690	12	ppbv		9080	64	ug/m3
75-69-4	137.4	Trichlorofluoromethane	ND	12	ppbv		ND	67	ug/m3
75-01-4	62.5	Vinyl chloride	ND	12	ppbv		ND	31	ug/m3
108-05-4	86	Vinyl Acetate	ND	12	ppbv		ND	42	ug/m3
	106.2	m,p-Xylene	ND	12	ppbv		ND	52	ug/m3
95-47-6	106.2	o-Xylene	ND	12	ppbv		ND	52	ug/m3
1330-20-7	106.2	Xylenes (total)	ND	12	ppbv		ND	52	ug/m3

CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits
460-00-4	4-Bromofluorobenzene	88%	90%	78-124%

ND = Not detected
RL = Reporting Limit
E = Indicates value exceeds calibration range
J = Indicates an estimated value
B = Indicates analyte found in associated method blank
N = Indicates presumptive evidence of a compound

Accutest Laboratories

Report of Analysis

Client Sample ID:	WEST SUMP-SUBSURFACE		
Lab Sample ID:	J84338-1	Date Sampled:	02/25/08
Matrix:	AIR - Air Summa ID: A386,A556	Date Received:	02/28/08
Method:	TO-15	Percent Solids:	n/a
Project:	Jones Road Superfund, Harris County, TX		

CAS No.	MW	Compound	Result	RL	Units	Q	Result	RL	Units

(a) Result is from Run# 2

ND = Not detected
RL = Reporting Limit
E = Indicates value exceeds calibration range

J = Indicates an estimated value
B = Indicates analyte found in associated method blank
N = Indicates presumptive evidence of a compound

Accutest Laboratories

Report of Analysis

Client Sample ID:	CENTER ROOM-SUBSURFACE		
Lab Sample ID:	J84338-2	Date Sampled:	02/25/08
Matrix:	AIR - Air Summa ID: A540,A438	Date Received:	02/28/08
Method:	TO-15	Percent Solids:	n/a
Project:	Jones Road Superfund, Harris County, TX		

	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1	3W5786.D	128	03/04/08	YMH	n/a	n/a	V3W250
Run #2	W16857.D	128	02/28/08	BR	n/a	n/a	VW727

	Initial Volume
Run #1	400 ml
Run #2	100 ml

CAS No.	MW	Compound	Result	RL	Units	Q	Result	RL	Units
67-64-1	58.08	Acetone	80.0	26	ppbv		190	62	ug/m3
106-99-0	54.09	1,3-Butadiene	ND	26	ppbv		ND	58	ug/m3
71-43-2	78.11	Benzene	ND	26	ppbv		ND	83	ug/m3
75-27-4	163.8	Bromodichloromethane	ND	26	ppbv		ND	170	ug/m3
75-25-2	252.8	Bromoform	ND	26	ppbv		ND	270	ug/m3
74-83-9	94.94	Bromomethane	ND	26	ppbv		ND	100	ug/m3
593-60-2	106.9	Bromoethene	ND	26	ppbv		ND	110	ug/m3
100-44-7	126	Benzyl Chloride	ND	26	ppbv		ND	130	ug/m3
75-15-0	76.14	Carbon disulfide	ND	26	ppbv		ND	81	ug/m3
108-90-7	112.6	Chlorobenzene	ND	26	ppbv		ND	120	ug/m3
75-00-3	64.52	Chloroethane	ND	26	ppbv		ND	69	ug/m3
67-66-3	119.4	Chloroform	ND	26	ppbv		ND	130	ug/m3
74-87-3	50.49	Chloromethane	ND	26	ppbv		ND	54	ug/m3
107-05-1	76.53	3-Chloropropene	ND	26	ppbv		ND	81	ug/m3
95-49-8	126.6	2-Chlorotoluene	ND	26	ppbv		ND	130	ug/m3
56-23-5	153.8	Carbon tetrachloride	ND	26	ppbv		ND	160	ug/m3
110-82-7	84.16	Cyclohexane	ND	26	ppbv		ND	89	ug/m3
75-34-3	98.96	1,1-Dichloroethane	ND	26	ppbv		ND	110	ug/m3
75-35-4	96.94	1,1-Dichloroethylene	ND	26	ppbv		ND	100	ug/m3
106-93-4	187.9	1,2-Dibromoethane	ND	26	ppbv		ND	200	ug/m3
107-06-2	98.96	1,2-Dichloroethane	ND	26	ppbv		ND	110	ug/m3
78-87-5	113	1,2-Dichloropropane	ND	26	ppbv		ND	120	ug/m3
123-91-1	88.12	1,4-Dioxane	ND	26	ppbv		ND	94	ug/m3
75-71-8	120.9	Dichlorodifluoromethane	ND	26	ppbv		ND	130	ug/m3
124-48-1	208.3	Dibromochloromethane	ND	26	ppbv		ND	220	ug/m3
156-60-5	96.94	trans-1,2-Dichloroethylene	ND	26	ppbv		ND	100	ug/m3
156-59-2	96.94	cis-1,2-Dichloroethylene	ND	26	ppbv		ND	100	ug/m3
10061-01-5	111	cis-1,3-Dichloropropene	ND	26	ppbv		ND	120	ug/m3
541-73-1	147	m-Dichlorobenzene	ND	26	ppbv		ND	160	ug/m3
95-50-1	147	o-Dichlorobenzene	ND	26	ppbv		ND	160	ug/m3
106-46-7	147	p-Dichlorobenzene	ND	26	ppbv		ND	160	ug/m3
10061-02-6	111	trans-1,3-Dichloropropene	ND	26	ppbv		ND	120	ug/m3

ND = Not detected
RL = Reporting Limit
E = Indicates value exceeds calibration range
J = Indicates an estimated value
B = Indicates analyte found in associated method blank
N = Indicates presumptive evidence of a compound

Accutest Laboratories

Report of Analysis

Client Sample ID:	CENTER ROOM-SUBSURFACE		
Lab Sample ID:	J84338-2	Date Sampled:	02/25/08
Matrix:	AIR - Air Summa ID: A540,A438	Date Received:	02/28/08
Method:	TO-15	Percent Solids:	n/a
Project:	Jones Road Superfund, Harris County, TX		

CAS No.	MW	Compound	Result	RL	Units	Q	Result	RL	Units
64-17-5	46.07	Ethanol	85.2	64	ppbv		161	120	ug/m3
100-41-4	106.2	Ethylbenzene	ND	26	ppbv		ND	110	ug/m3
141-78-6	88	Ethyl Acetate	ND	26	ppbv		ND	94	ug/m3
622-96-8	120.2	4-Ethyltoluene	ND	26	ppbv		ND	130	ug/m3
76-13-1	187.4	Freon 113	ND	26	ppbv		ND	200	ug/m3
76-14-2	170.9	Freon 114	ND	26	ppbv		ND	180	ug/m3
142-82-5	100.2	Heptane	ND	26	ppbv		ND	110	ug/m3
87-68-3	260.8	Hexachlorobutadiene	ND	26	ppbv		ND	280	ug/m3
110-54-3	86.17	Hexane	ND	26	ppbv		ND	92	ug/m3
591-78-6	100	2-Hexanone	ND	26	ppbv		ND	110	ug/m3
67-63-0	60.1	Isopropyl Alcohol	ND	26	ppbv		ND	64	ug/m3
75-09-2	84.94	Methylene chloride	ND	26	ppbv		ND	90	ug/m3
78-93-3	72.11	Methyl ethyl ketone	ND	26	ppbv		ND	77	ug/m3
108-10-1	100.2	Methyl Isobutyl Ketone	ND	26	ppbv		ND	110	ug/m3
1634-04-4	88.15	Methyl Tert Butyl Ether	ND	26	ppbv		ND	94	ug/m3
115-07-1	42	Propylene	ND	64	ppbv		ND	110	ug/m3
100-42-5	104.1	Styrene	ND	26	ppbv		ND	110	ug/m3
71-55-6	133.4	1,1,1-Trichloroethane	ND	26	ppbv		ND	140	ug/m3
79-34-5	167.9	1,1,2,2-Tetrachloroethane	ND	26	ppbv		ND	180	ug/m3
79-00-5	133.4	1,1,2-Trichloroethane	ND	26	ppbv		ND	140	ug/m3
120-82-1	181.5	1,2,4-Trichlorobenzene	ND	26	ppbv		ND	190	ug/m3
95-63-6	120.2	1,2,4-Trimethylbenzene	ND	26	ppbv		ND	130	ug/m3
108-67-8	120.2	1,3,5-Trimethylbenzene	ND	26	ppbv		ND	130	ug/m3
540-84-1	114.2	2,2,4-Trimethylpentane	ND	26	ppbv		ND	120	ug/m3
75-65-0	74.12	Tertiary Butyl Alcohol	ND	26	ppbv		ND	79	ug/m3
127-18-4	165.8	Tetrachloroethylene	8800 [a]	100	ppbv		59700 [a]	680	ug/m3
109-99-9	72.11	Tetrahydrofuran	ND	26	ppbv		ND	77	ug/m3
108-88-3	92.14	Toluene	ND	26	ppbv		ND	98	ug/m3
79-01-6	131.4	Trichloroethylene	360	26	ppbv		1930	140	ug/m3
75-69-4	137.4	Trichlorofluoromethane	ND	26	ppbv		ND	150	ug/m3
75-01-4	62.5	Vinyl chloride	ND	26	ppbv		ND	66	ug/m3
108-05-4	86	Vinyl Acetate	ND	26	ppbv		ND	91	ug/m3
	106.2	m,p-Xylene	ND	26	ppbv		ND	110	ug/m3
95-47-6	106.2	o-Xylene	ND	26	ppbv		ND	110	ug/m3
1330-20-7	106.2	Xylenes (total)	ND	26	ppbv		ND	110	ug/m3

CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits
460-00-4	4-Bromofluorobenzene	102%	93%	78-124%

ND = Not detected
RL = Reporting Limit
E = Indicates value exceeds calibration range
J = Indicates an estimated value
B = Indicates analyte found in associated method blank
N = Indicates presumptive evidence of a compound

Accutest Laboratories

Report of Analysis

Client Sample ID:	CENTER ROOM-SUBSURFACE		
Lab Sample ID:	J84338-2	Date Sampled:	02/25/08
Matrix:	AIR - Air Summa ID: A540,A438	Date Received:	02/28/08
Method:	TO-15	Percent Solids:	n/a
Project:	Jones Road Superfund, Harris County, TX		

CAS No.	MW	Compound	Result	RL	Units	Q	Result	RL	Units

(a) Result is from Run# 2

ND = Not detected
RL = Reporting Limit
E = Indicates value exceeds calibration range

J = Indicates an estimated value
B = Indicates analyte found in associated method blank
N = Indicates presumptive evidence of a compound

Accutest Laboratories

Report of Analysis

Client Sample ID:	WEST SUMP-AMBIENT		
Lab Sample ID:	J84338-3	Date Sampled:	02/26/08
Matrix:	AIR - Air Summa ID: A847	Date Received:	02/28/08
Method:	TO-15	Percent Solids:	n/a
Project:	Jones Road Superfund, Harris County, TX		

	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1	W16859.D	1	02/29/08	BR	n/a	n/a	VW727
Run #2							

	Initial Volume
Run #1	400 ml
Run #2	

CAS No.	MW	Compound	Result	RL	Units	Q	Result	RL	Units
67-64-1	58.08	Acetone	14.7	0.20	ppbv		34.9	0.48	ug/m3
106-99-0	54.09	1,3-Butadiene	ND	0.20	ppbv		ND	0.44	ug/m3
71-43-2	78.11	Benzene	0.23	0.20	ppbv		0.73	0.64	ug/m3
75-27-4	163.8	Bromodichloromethane	ND	0.20	ppbv		ND	1.3	ug/m3
75-25-2	252.8	Bromoform	ND	0.20	ppbv		ND	2.1	ug/m3
74-83-9	94.94	Bromomethane	ND	0.20	ppbv		ND	0.78	ug/m3
593-60-2	106.9	Bromoethene	ND	0.20	ppbv		ND	0.87	ug/m3
100-44-7	126	Benzyl Chloride	ND	0.20	ppbv		ND	1.0	ug/m3
75-15-0	76.14	Carbon disulfide	0.32	0.20	ppbv		1.0	0.62	ug/m3
108-90-7	112.6	Chlorobenzene	ND	0.20	ppbv		ND	0.92	ug/m3
75-00-3	64.52	Chloroethane	ND	0.20	ppbv		ND	0.53	ug/m3
67-66-3	119.4	Chloroform	ND	0.20	ppbv		ND	0.98	ug/m3
74-87-3	50.49	Chloromethane	0.73	0.20	ppbv		1.5	0.41	ug/m3
107-05-1	76.53	3-Chloropropene	ND	0.20	ppbv		ND	0.63	ug/m3
95-49-8	126.6	2-Chlorotoluene	ND	0.20	ppbv		ND	1.0	ug/m3
56-23-5	153.8	Carbon tetrachloride	ND	0.20	ppbv		ND	1.3	ug/m3
110-82-7	84.16	Cyclohexane	ND	0.20	ppbv		ND	0.69	ug/m3
75-34-3	98.96	1,1-Dichloroethane	ND	0.20	ppbv		ND	0.81	ug/m3
75-35-4	96.94	1,1-Dichloroethylene	ND	0.20	ppbv		ND	0.79	ug/m3
106-93-4	187.9	1,2-Dibromoethane	ND	0.20	ppbv		ND	1.5	ug/m3
107-06-2	98.96	1,2-Dichloroethane	ND	0.20	ppbv		ND	0.81	ug/m3
78-87-5	113	1,2-Dichloropropane	ND	0.20	ppbv		ND	0.92	ug/m3
123-91-1	88.12	1,4-Dioxane	ND	0.20	ppbv		ND	0.72	ug/m3
75-71-8	120.9	Dichlorodifluoromethane	0.60	0.20	ppbv		3.0	0.99	ug/m3
124-48-1	208.3	Dibromochloromethane	ND	0.20	ppbv		ND	1.7	ug/m3
156-60-5	96.94	trans-1,2-Dichloroethylene	ND	0.20	ppbv		ND	0.79	ug/m3
156-59-2	96.94	cis-1,2-Dichloroethylene	0.44	0.20	ppbv		1.7	0.79	ug/m3
10061-01-5	111	cis-1,3-Dichloropropene	ND	0.20	ppbv		ND	0.91	ug/m3
541-73-1	147	m-Dichlorobenzene	ND	0.20	ppbv		ND	1.2	ug/m3
95-50-1	147	o-Dichlorobenzene	ND	0.20	ppbv		ND	1.2	ug/m3
106-46-7	147	p-Dichlorobenzene	ND	0.20	ppbv		ND	1.2	ug/m3
10061-02-6	111	trans-1,3-Dichloropropene	ND	0.20	ppbv		ND	0.91	ug/m3

ND = Not detected
RL = Reporting Limit
E = Indicates value exceeds calibration range
J = Indicates an estimated value
B = Indicates analyte found in associated method blank
N = Indicates presumptive evidence of a compound

Accutest Laboratories

Report of Analysis

Client Sample ID:	WEST SUMP-AMBIENT		
Lab Sample ID:	J84338-3	**Date Sampled:**	02/26/08
Matrix:	AIR - Air Summa ID: A847	**Date Received:**	02/28/08
Method:	TO-15	**Percent Solids:**	n/a
Project:	Jones Road Superfund, Harris County, TX		

CAS No.	MW	Compound	Result	RL	Units	Q	Result	RL	Units
64-17-5	46.07	Ethanol	50.1	0.50	ppbv	E	94.4	0.94	ug/m3
100-41-4	106.2	Ethylbenzene	0.12	0.20	ppbv	J	0.52	0.87	ug/m3
141-78-6	88	Ethyl Acetate	0.44	0.20	ppbv		1.6	0.72	ug/m3
622-96-8	120.2	4-Ethyltoluene	ND	0.20	ppbv		ND	0.98	ug/m3
76-13-1	187.4	Freon 113	ND	0.20	ppbv		ND	1.5	ug/m3
76-14-2	170.9	Freon 114	ND	0.20	ppbv		ND	1.4	ug/m3
142-82-5	100.2	Heptane	0.34	0.20	ppbv		1.4	0.82	ug/m3
87-68-3	260.8	Hexachlorobutadiene	ND	0.20	ppbv		ND	2.1	ug/m3
110-54-3	86.17	Hexane	0.16	0.20	ppbv	J	0.56	0.70	ug/m3
591-78-6	100	2-Hexanone	ND	0.20	ppbv		ND	0.82	ug/m3
67-63-0	60.1	Isopropyl Alcohol	1.8	0.20	ppbv		4.4	0.49	ug/m3
75-09-2	84.94	Methylene chloride	ND	0.20	ppbv		ND	0.69	ug/m3
78-93-3	72.11	Methyl ethyl ketone	0.62	0.20	ppbv		1.8	0.59	ug/m3
108-10-1	100.2	Methyl Isobutyl Ketone	ND	0.20	ppbv		ND	0.82	ug/m3
1634-04-4	88.15	Methyl Tert Butyl Ether	ND	0.20	ppbv		ND	0.72	ug/m3
115-07-1	42	Propylene	ND	0.50	ppbv		ND	0.86	ug/m3
100-42-5	104.1	Styrene	ND	0.20	ppbv		ND	0.85	ug/m3
71-55-6	133.4	1,1,1-Trichloroethane	ND	0.20	ppbv		ND	1.1	ug/m3
79-34-5	167.9	1,1,2,2-Tetrachloroethane	ND	0.20	ppbv		ND	1.4	ug/m3
79-00-5	133.4	1,1,2-Trichloroethane	ND	0.20	ppbv		ND	1.1	ug/m3
120-82-1	181.5	1,2,4-Trichlorobenzene	ND	0.20	ppbv		ND	1.5	ug/m3
95-63-6	120.2	1,2,4-Trimethylbenzene	0.14	0.20	ppbv	J	0.69	0.98	ug/m3
108-67-8	120.2	1,3,5-Trimethylbenzene	ND	0.20	ppbv		ND	0.98	ug/m3
540-84-1	114.2	2,2,4-Trimethylpentane	ND	0.20	ppbv		ND	0.93	ug/m3
75-65-0	74.12	Tertiary Butyl Alcohol	ND	0.20	ppbv		ND	0.61	ug/m3
127-18-4	165.8	Tetrachloroethylene	1.4	0.20	ppbv		9.5	1.4	ug/m3
109-99-9	72.11	Tetrahydrofuran	ND	0.20	ppbv		ND	0.59	ug/m3
108-88-3	92.14	Toluene	2.1	0.20	ppbv		7.9	0.75	ug/m3
79-01-6	131.4	Trichloroethylene	0.31	0.20	ppbv		1.7	1.1	ug/m3
75-69-4	137.4	Trichlorofluoromethane	0.26	0.20	ppbv		1.5	1.1	ug/m3
75-01-4	62.5	Vinyl chloride	ND	0.20	ppbv		ND	0.51	ug/m3
108-05-4	86	Vinyl Acetate	ND	0.20	ppbv		ND	0.70	ug/m3
	106.2	m,p-Xylene	0.41	0.20	ppbv		1.8	0.87	ug/m3
95-47-6	106.2	o-Xylene	0.13	0.20	ppbv	J	0.56	0.87	ug/m3
1330-20-7	106.2	Xylenes (total)	0.54	0.20	ppbv		2.3	0.87	ug/m3

CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits
460-00-4	4-Bromofluorobenzene	94%		78-124%

ND = Not detected
RL = Reporting Limit
E = Indicates value exceeds calibration range

J = Indicates an estimated value
B = Indicates analyte found in associated method blank
N = Indicates presumptive evidence of a compound

Accutest Laboratories

Report of Analysis

Client Sample ID:	CENTER ROOM-AMBIENT		
Lab Sample ID:	J84338-4	Date Sampled:	02/27/08
Matrix:	AIR - Air Summa ID: A852	Date Received:	02/28/08
Method:	TO-15	Percent Solids:	n/a
Project:	Jones Road Superfund, Harris County, TX		

	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1	W16858.D	1.8	02/28/08	BR	n/a	n/a	VW727
Run #2							

	Initial Volume
Run #1	720 ml
Run #2	

CAS No.	MW	Compound	Result	RL	Units	Q	Result	RL	Units
67-64-1	58.08	Acetone	11.8	0.20	ppbv		28.0	0.48	ug/m3
106-99-0	54.09	1,3-Butadiene	ND	0.20	ppbv		ND	0.44	ug/m3
71-43-2	78.11	Benzene	0.26	0.20	ppbv		0.83	0.64	ug/m3
75-27-4	163.8	Bromodichloromethane	ND	0.20	ppbv		ND	1.3	ug/m3
75-25-2	252.8	Bromoform	ND	0.20	ppbv		ND	2.1	ug/m3
74-83-9	94.94	Bromomethane	ND	0.20	ppbv		ND	0.78	ug/m3
593-60-2	106.9	Bromoethene	ND	0.20	ppbv		ND	0.87	ug/m3
100-44-7	126	Benzyl Chloride	ND	0.20	ppbv		ND	1.0	ug/m3
75-15-0	76.14	Carbon disulfide	ND	0.20	ppbv		ND	0.62	ug/m3
108-90-7	112.6	Chlorobenzene	ND	0.20	ppbv		ND	0.92	ug/m3
75-00-3	64.52	Chloroethane	ND	0.20	ppbv		ND	0.53	ug/m3
67-66-3	119.4	Chloroform	ND	0.20	ppbv		ND	0.98	ug/m3
74-87-3	50.49	Chloromethane	0.84	0.20	ppbv		1.7	0.41	ug/m3
107-05-1	76.53	3-Chloropropene	ND	0.20	ppbv		ND	0.63	ug/m3
95-49-8	126.6	2-Chlorotoluene	ND	0.20	ppbv		ND	1.0	ug/m3
56-23-5	153.8	Carbon tetrachloride	ND	0.20	ppbv		ND	1.3	ug/m3
110-82-7	84.16	Cyclohexane	ND	0.20	ppbv		ND	0.69	ug/m3
75-34-3	98.96	1,1-Dichloroethane	ND	0.20	ppbv		ND	0.81	ug/m3
75-35-4	96.94	1,1-Dichloroethylene	ND	0.20	ppbv		ND	0.79	ug/m3
106-93-4	187.9	1,2-Dibromoethane	ND	0.20	ppbv		ND	1.5	ug/m3
107-06-2	98.96	1,2-Dichloroethane	ND	0.20	ppbv		ND	0.81	ug/m3
78-87-5	113	1,2-Dichloropropane	ND	0.20	ppbv		ND	0.92	ug/m3
123-91-1	88.12	1,4-Dioxane	ND	0.20	ppbv		ND	0.72	ug/m3
75-71-8	120.9	Dichlorodifluoromethane	0.75	0.20	ppbv		3.7	0.99	ug/m3
124-48-1	208.3	Dibromochloromethane	ND	0.20	ppbv		ND	1.7	ug/m3
156-60-5	96.94	trans-1,2-Dichloroethylene	ND	0.20	ppbv		ND	0.79	ug/m3
156-59-2	96.94	cis-1,2-Dichloroethylene	0.46	0.20	ppbv		1.8	0.79	ug/m3
10061-01-5	111	cis-1,3-Dichloropropene	ND	0.20	ppbv		ND	0.91	ug/m3
541-73-1	147	m-Dichlorobenzene	ND	0.20	ppbv		ND	1.2	ug/m3
95-50-1	147	o-Dichlorobenzene	ND	0.20	ppbv		ND	1.2	ug/m3
106-46-7	147	p-Dichlorobenzene	ND	0.20	ppbv		ND	1.2	ug/m3
10061-02-6	111	trans-1,3-Dichloropropene	ND	0.20	ppbv		ND	0.91	ug/m3

ND = Not detected
RL = Reporting Limit
E = Indicates value exceeds calibration range
J = Indicates an estimated value
B = Indicates analyte found in associated method blank
N = Indicates presumptive evidence of a compound

Accutest Laboratories

Report of Analysis

Client Sample ID:	CENTER ROOM-AMBIENT		
Lab Sample ID:	J84338-4	Date Sampled:	02/27/08
Matrix:	AIR - Air Summa ID: A852	Date Received:	02/28/08
Method:	TO-15	Percent Solids:	n/a
Project:	Jones Road Superfund, Harris County, TX		

CAS No.	MW	Compound	Result	RL	Units	Q	Result	RL	Units
64-17-5	46.07	Ethanol	61.1	0.50	ppbv	E	115	0.94	ug/m3
100-41-4	106.2	Ethylbenzene	0.11	0.20	ppbv	J	0.48	0.87	ug/m3
141-78-6	88	Ethyl Acetate	ND	0.20	ppbv		ND	0.72	ug/m3
622-96-8	120.2	4-Ethyltoluene	ND	0.20	ppbv		ND	0.98	ug/m3
76-13-1	187.4	Freon 113	ND	0.20	ppbv		ND	1.5	ug/m3
76-14-2	170.9	Freon 114	ND	0.20	ppbv		ND	1.4	ug/m3
142-82-5	100.2	Heptane	0.52	0.20	ppbv		2.1	0.82	ug/m3
87-68-3	260.8	Hexachlorobutadiene	ND	0.20	ppbv		ND	2.1	ug/m3
110-54-3	86.17	Hexane	0.24	0.20	ppbv		0.85	0.70	ug/m3
591-78-6	100	2-Hexanone	ND	0.20	ppbv		ND	0.82	ug/m3
67-63-0	60.1	Isopropyl Alcohol	4.6	0.20	ppbv		11	0.49	ug/m3
75-09-2	84.94	Methylene chloride	ND	0.20	ppbv		ND	0.69	ug/m3
78-93-3	72.11	Methyl ethyl ketone	0.69	0.20	ppbv		2.0	0.59	ug/m3
108-10-1	100.2	Methyl Isobutyl Ketone	ND	0.20	ppbv		ND	0.82	ug/m3
1634-04-4	88.15	Methyl Tert Butyl Ether	ND	0.20	ppbv		ND	0.72	ug/m3
115-07-1	42	Propylene	ND	0.50	ppbv		ND	0.86	ug/m3
100-42-5	104.1	Styrene	ND	0.20	ppbv		ND	0.85	ug/m3
71-55-6	133.4	1,1,1-Trichloroethane	ND	0.20	ppbv		ND	1.1	ug/m3
79-34-5	167.9	1,1,2,2-Tetrachloroethane	ND	0.20	ppbv		ND	1.4	ug/m3
79-00-5	133.4	1,1,2-Trichloroethane	ND	0.20	ppbv		ND	1.1	ug/m3
120-82-1	181.5	1,2,4-Trichlorobenzene	ND	0.20	ppbv		ND	1.5	ug/m3
95-63-6	120.2	1,2,4-Trimethylbenzene	0.10	0.20	ppbv	J	0.49	0.98	ug/m3
108-67-8	120.2	1,3,5-Trimethylbenzene	ND	0.20	ppbv		ND	0.98	ug/m3
540-84-1	114.2	2,2,4-Trimethylpentane	0.13	0.20	ppbv	J	0.61	0.93	ug/m3
75-65-0	74.12	Tertiary Butyl Alcohol	ND	0.20	ppbv		ND	0.61	ug/m3
127-18-4	165.8	Tetrachloroethylene	2.1	0.20	ppbv		14	1.4	ug/m3
109-99-9	72.11	Tetrahydrofuran	0.32	0.20	ppbv		0.94	0.59	ug/m3
108-88-3	92.14	Toluene	1.7	0.20	ppbv		6.4	0.75	ug/m3
79-01-6	131.4	Trichloroethylene	0.33	0.20	ppbv		1.8	1.1	ug/m3
75-69-4	137.4	Trichlorofluoromethane	0.49	0.20	ppbv		2.8	1.1	ug/m3
75-01-4	62.5	Vinyl chloride	ND	0.20	ppbv		ND	0.51	ug/m3
108-05-4	86	Vinyl Acetate	ND	0.20	ppbv		ND	0.70	ug/m3
	106.2	m,p-Xylene	0.35	0.20	ppbv		1.5	0.87	ug/m3
95-47-6	106.2	o-Xylene	0.13	0.20	ppbv	J	0.56	0.87	ug/m3
1330-20-7	106.2	Xylenes (total)	0.48	0.20	ppbv		2.1	0.87	ug/m3

CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits
460-00-4	4-Bromofluorobenzene	100%		78-124%

ND = Not detected
RL = Reporting Limit
E = Indicates value exceeds calibration range
J = Indicates an estimated value
B = Indicates analyte found in associated method blank
N = Indicates presumptive evidence of a compound

Misc. Forms

Custody Documents and Other Forms

Includes the following where applicable:

- Chain of Custody
- Summa Canister and Flow Controller Log

Air

CHAIN OF CUSTODY

ACCUTEST Laboratories

Air Sampling Field Data Sheet

FED-EX Tracking #	Bottle Order Control #	PAGE 1 OF 1
Lab Quote #	Lab Job # J84338	

Client / Reporting Information

Company Name: Shaw Environmental	Project Name: Jones Road Superfund
Address: 3010 Brian park	Street:
City: Houston State: TX Zip: 77084	City: Harris Co. State: TX
Project Contact: Amandeep Kang E-mail: Amandeep.kang@shawgrp.com	Project #: 129389.0600
Phone #: 214-277-7861 Fax #:	Client Purchase Order #:
Sampler(s) Name(s): Randy Clase	

Weather Parameters

Temperature (Fahrenheit) Start: 72.8 Maximum: Stop: 61.1 (3PM) Minimum:

Atmospheric Pressure (Inches of Hg) Start: 29.62 Maximum: Stop: 30.09 Minimum:

Other weather comment: Front passed thru overnight

Lab Sample #	Field ID / Point of Collection	Air Type: Indoor(I) Soil Vap(SV) Ambient(A)	Sampling Equipment Info: Canister Serial #	Canister Size 6L or 1L	Flow Controller Serial #	Start Sampling Information: Date	Time (24hr clock)	Canister Pressure (-"Hg)	Interior Temp (F)	Sampler Init.	Stop Sampling Information: Date	Time (24hr clock)	Canister Pressure (-"Hg)	Interior Temp (F)	Sampler Init.	Standard TO-15 Reporting List		
-1 A386	West Sump - Subsurface	SV	1097	1L	FC338	2/25	16:15	30		RWC	2/25	18:30	6		RWC	✓		
-2 A510	Center Room - Subsurface	SV	1200	1L	FC163	2/25	18:20	28		RWC	2/25	18:35	3		RWC	✓		
-3 A447	West Sump - Ambient	I	7758	6L	FC249	2/25	18:38	29		RWC	2/26	17:30	1		RWC	✓		
-4 A502	Center Room - ~~Center~~ Ambient	I	7763	6L	FC252	2/25	18:35	3.0		RWC	2/27	7:00	18.5		RWC	✓		

Turnaround Time (Business days)

Standard - 15 Days: ✓
10 Day
5 Day
3 Day
2 Day
1 Day
Other

Approved By: _____

Date: _____

Data Deliverable Information

All NJDEP TO-15 is mandatory Full T1

Comm A
Comm B
Reduced T2
Full T1
Other:

Comments / Remarks

SUMMA

Sample Custody must be documented below each time samples change possession, including courier delivery.

Relinquished by Laboratory:	Date Time:	Received By:	Relinquished By:	Date Time:	Received By:
1 Randy Clase	2/27/08 7:35	1 FEDEX	2 FEDEX	930 2-28-08	2
Relinquished by: 3	Date Time:	Received By: 3	Relinquished By: 4	Date Time:	Received By: 4
Relinquished by: 5	Date Time:	Received By: 5	Custody Seal #		

Accutest Laboratories – NJ, Page 1 of 1

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J84338: Chain of Custody
Page 1 of 1

Summa Canister and Flow Controller Log

Job Number: J84338
Account: ITTXHO Shaw Environmental & Infrastructure,Inc.
Project: Jones Road Superfund, Harris County, TX
Received: 02/28/08

3.2

SUMMA CANISTERS

Shipping							Receiving						
Summa ID	L	Vac " Hg	Date Out	By	SCC Batch	SCC FileID	Sample Number	Date In	By	Vac " Hg	Pres psig	Final psig	Dil Fact
A386	1	29.4	02/21/08	HSC	CP2656	2W16138.D	J84338-1	02/28/08	HSC	2			1
A540	1	29.4	02/21/08	HSC	CP2656	2W16138.D	J84338-2	02/28/08	HSC	2.5			1
A847	6	29.4	02/21/08	HSC	CP2719	3W5659.D	J84338-3	02/28/08	HSC	0			1
A852	6	29.4	02/21/08	HSC	CP2719	3W5659.D	J84338-4	02/28/08	HSC	12		1.1	1.79

FLOW CONTROLLERS

Shipping					Receiving		
Flow Crtl ID	Date Out	By	cc/ min	Time hrs.	Date In	By	cc/ min
FC163	02/21/08	HSC	56	.25	02/28/08	HSC	58
FC229	02/21/08	HSC	3.4	24	02/28/08	HSC	3.5
FC252	02/21/08	HSC	3.4	24	02/28/08	HSC	.8
FC338	02/21/08	HSC	56	.25	02/28/08	HSC	65

Accutest Bottle Order(s):
TE-2/20/2008-9

Prep Date	Room Temp(F)	Bar Pres "Hg
02/21/08	61.7	30.3

APPENDIX D

Table D.1. Ambient Air Collection Analytical Results

CAS No.	Compound	Target Indoor Air Concentration to Satisfy Both the Prescribed Risk Level and the Target Hazard Index ($R=10^{-5}$, HI=1) C_{target}	Result - West Sump - Ambient	Result - Center Room - Ambient
		(ug/m^3)	(ug/m^3)	(ug/m^3)
67-64-1	Acetone	350	34.9	28
106-99-0	1,3 Butadiene	0.0087	ND	ND
71-43-2	Benzene	3.1	0.73	0.83
75-27-4	Bromodichloromethane	1.4	ND	ND
75-25-2	Bromoform	22	ND	ND
74-83-9	Bromomethane	5	ND	ND
593-60-2	Bromoethene		ND	ND
100-44-7	Benzyl Chloride	0.5	ND	ND
75-15-0	Carbon disulfide	700	1	ND
108-90-7	Chlorobenzene	60	ND	ND
75-00-3	Chloroethane	10,000	ND	ND
67-66-3	Chloroform	11	ND	ND
74-87-3	Chloromethane	24	1.5	1.7
107-05-1	3-Chloropropene		ND	ND
95-49-8	2-Chlorotoluene		ND	ND
56-23-5	Carbon tetrachloride	1.6	ND	ND
110-82-7	Cyclohexane		ND	ND
75-34-3	1,1-Dichloroethane	500	ND	ND
75-35-4	1,1-Dichloroethylene	200	ND	ND
106-93-4	1,2-Dibromoethane	0.11	ND	ND
107-06-02	1,2-Dichloroethane	0.94	ND	ND
78-87-5	1,2-Dichloropropane	4	ND	ND
123-91-1	1,4-Dioxane		ND	ND
75-71-8	Dichlorodifluoromethane	200	3	3.7
124-48-1	Dibromochloromethane	1	ND	ND
156-60-5	trans-1,2-Dichloroethylene	70	ND	ND
156-59-2	cis-1,2-Dichloroethylene	35	1.7	1.8
10061-01-5	cis-1,3-Dichloropropene		ND	ND
541-73-1	m-Dichlorobenzene	11	ND	ND
95-50-1	o-Dichlorobenzene	200	ND	ND
106-46-7	p-Dichlorobenzene	800	ND	ND
10061-02-6	trans-1,3-Dichloropropene		ND	ND
64-17-5	Ethanol		94.4	115
100-41-4	Ethylbenzene	22	0.52	0.48
141-78-6	Ethyl Acetate	3,200	1.6	ND
622-96-8	4-Ethyltoluene		ND	ND
76-13-1	Freon 113	30,000	ND	ND
76-14-2	Freon 114		ND	ND
142-82-5	Heptane		1.4	2.1
87-68-3	Hexachlorobutadiene	1.1	ND	ND
110-54-3	Hexane	200	0.56	0.85
591-78-6	2-Hexanone		ND	ND
67-63-0	Isopropyl Alcohol		4.4	11
75-09-2	Methylene chloride	52	ND	ND
78-93-3	Methyl ethyl ketone	1,000	1.8	2
108-10-1	Methyl Isobutyl Ketone	80	ND	ND
1634-04-4	Methyl Tert Butyl Ether	3,000	ND	ND
115-07-1	Propylene		ND	ND
100-42-5	Styrene	1,000	ND	ND

Table D.1. Ambient Air Collection Analytical Results

CAS No.	Compound	Target Indoor Air Concentration to Satisfy Both the Prescribed Risk Level and the Target Hazard Index (R=10^{-5}, HI=1) C_{target}	Result - West Sump - Ambient	Result - Center Room - Ambient
		(ug/m^3)	(ug/m^3)	(ug/m^3)
71-55-6	1,1,1-Trichloroethane	2,200	ND	ND
79-34-5	1,1,2,2-Tetrachloroethane	0.42	ND	ND
79-00-5	1,1,2-Trichloroethane	1.5	ND	ND
120-82-1	1,2,4-Trichlorobenzene	200	ND	ND
95-63-6	1,2,4-Trimethylbenzene	6	0.69	0.49
108-67-8	1,3,5-Trimethylbenzene	6	ND	ND
540-84-1	2,2,4-Trimethylpentane		ND	0.61
75-65-0	Tertiary Butyl Alcohol		ND	ND
127-18-4	Tetrachloroethylene	8.1	**9.5**	**14**
109-99-9	Tetrahydrofuran		ND	0.94
108-88-3	Toluene	400	7.9	6.4
79-01-6	Trichloroethylene	0.22	**1.7**	**1.8**
75-69-4	Trichlorofluoromethane	700	1.5	2.8
75-01-4	Vinyl chloride	2.8	ND	ND
108-05-4	Vinyl Acetate	200	ND	ND
	m,p-Xylene		1.8	1.5
95-47-6	o-Xylene	7,000	0.56	0.56
1330-20-7	Xylenes (total)		2.3	2.1

Notes:
1) Empty cell implies that no target concentration is listed in OSWER tables for that particular analyte
2) ND - Non Detect
3) ug/m^3 - micrograms per cubic meter
4) Concentrations in **BOLD** represent higher than OSWER target concentrations

Table D.2. Subsurface Air Collection Analytical Results			
CAS No.	Compound	Result - West Sump - Subsurface	Result Center Room - Subsurface
		(ug/m3)	(ug/m3)
67-64-1	Acetone	109	190
106-99-0	1,3 Butadiene	ND	ND
71-43-2	Benzene	24	ND
75-27-4	Bromodichloromethane	ND	ND
75-25-2	Bromoform	ND	ND
74-83-9	Bromomethane	ND	ND
593-60-2	Bromoethene	ND	ND
100-44-7	Benzyl Chloride	ND	ND
75-15-0	Carbon disulfide	ND	ND
108-90-7	Chlorobenzene	ND	ND
75-00-3	Chloroethane	ND	ND
67-66-3	Chloroform	ND	ND
74-87-3	Chloromethane	ND	ND
107-05-1	3-Chloropropene	ND	ND
95-49-8	2-Chlorotoluene	ND	ND
56-23-5	Carbon tetrachloride	ND	ND
110-82-7	Cyclohexane	ND	ND
75-34-3	1,1-Dichloroethane	ND	ND
75-35-4	1,1-Dichloroethylene	ND	ND
106-93-4	1,2-Dibromoethane	ND	ND
107-06-02	1,2-Dichloroethane	ND	ND
78-87-5	1,2-Dichloropropane	ND	ND
123-91-1	1,4-Dioxane	ND	ND
75-71-8	Dichlorodifluoromethane	ND	ND
124-48-1	Dibromochloromethane	ND	ND
156-60-5	trans-1,2-Dichloroethylene	222	ND
156-59-2	cis-1,2-Dichloroethylene	4,600	ND
10061-01-5	cis-1,3-Dichloropropene	ND	ND
541-73-1	m-Dichlorobenzene	ND	ND
95-50-1	o-Dichlorobenzene	ND	ND
106-46-7	p-Dichlorobenzene	ND	ND
10061-02-6	trans-1,3-Dichloropropene	ND	ND
64-17-5	Ethanol	46	161
100-41-4	Ethylbenzene	ND	ND
141-78-6	Ethyl Acetate	ND	ND
622-96-8	4-Ethyltoluene	ND	ND
76-13-1	Freon 113	ND	ND
76-14-2	Freon 114	ND	ND
142-82-5	Heptane	ND	ND
87-68-3	Hexachlorobutadiene	ND	ND
110-54-3	Hexane	ND	ND
591-78-6	2-Hexanone	ND	ND
67-63-0	Isopropyl Alcohol	ND	ND
75-09-2	Methylene chloride	ND	ND
78-93-3	Methyl ethyl ketone	ND	ND
108-10-1	Methyl Isobutyl Ketone	ND	ND
1634-04-4	Methyl Tert Butyl Ether	ND	ND
115-07-1	Propylene	ND	ND

Table D.2. Subsurface Air Collection Analytical Results			
CAS No.	**Compound**	**Result - West Sump - Subsurface**	**Result Center Room - Subsurface**
		(ug/m3)	(ug/m3)
100-42-5	Styrene	ND	ND
71-55-6	1,1,1-Trichloroethane	ND	ND
79-34-5	1,1,2,2-Tetrachloroethane	ND	ND
79-00-5	1,1,2-Trichloroethane	ND	ND
120-82-1	1,2,4-Trichlorobenzene	ND	ND
95-63-6	1,2,4-Trimethylbenzene	ND	ND
108-67-8	1,3,5-Trimethylbenzene	ND	ND
540-84-1	2,2,4-Trimethylpentane	ND	ND
75-65-0	Tertiary Butyl Alcohol	ND	ND
127-18-4	Tetrachloroethylene	47,300	59,700
109-99-9	Tetrahydrofuran	ND	ND
108-88-3	Toluene	30	ND
79-01-6	Trichloroethylene	9,080	1,930
75-69-4	Trichlorofluoromethane	ND	ND
75-01-4	Vinyl chloride	ND	ND
108-05-4	Vinyl Acetate	ND	ND
	m,p-Xylene	ND	ND
95-47-6	o-Xylene	ND	ND
1330-20-7	Xylenes (total)	ND	ND

Notes:
1) ND - Non Detect
2) ug/m^3 - micrograms per cubic meter

Table D.3. Attenuation Factors			
CAS No.	**Compound**	**Attenuation Factor - West Sump**	**Attenuation Factor - Center Room**
67-64-1	Acetone	0.3202	0.1837
71-43-2	Benzene	0.0346	
156-59-2	cis-1,2-Dichloroethylene	0.0004	
64-17-5	Ethanol	2.5219	0.7143
127-18-4	Tetrachloroethylene	0.0003	0.0002
108-88-3	Toluene	0.2633	
79-01-6	Trichloroethylene	0.0002	0.0009

Notes:
1) Empty cell indicates that the analyte was not detected at that sample location

APPENDIX E

United States Environmental Protection Agency

OSWER Draft Guidance for Evaluating the Vapor Intrusion to Indoor Air Pathway from Groundwater and Soils (Subsurface Vapor Intrusion Guidance)

November 2002

EPA530-D-02-004

Table 2b: Question 4 Generic Screening Levels and Summary Sheet [1]
Risk = 1 x 10^{-6}

CAS No.	Chemical	Compounds with Provisional Toxicity Data Extrapolated From Oral Sources	Basis of Target Concentration C=cancer risk NC=noncancer risk	Target Indoor Air Concentration to Satisfy Both the Prescribed Risk Level and the Target Hazard Index (R=10^{-6}, HI=1) C_{target} (ug/m3)	(ppbv)	Measured or Reasonably Estimated Indoor Air Concentration [if available] (specify units)	Target Shallow Soil Gas Concentration Corresponding to Target Indoor Air Concentration Where the Soil Gas to Indoor Air Attenuation Factor=0.1 $C_{sub-gas}$ (ug/m3)	(ppbv)	Measured or Reasonably Estimated Shallow Soil Gas Concentration [if available] (specify units)	Target Deep Soil Gas Concentration Corresponding to Target Indoor Air Concentration Where the Soil Gas to Indoor Air Attenuation Factor=0.01 $C_{sub-gas}$ (ug/m3)	(ppbv)	Measured or Reasonably Estimated Deep Soil Gas Concentration [if available] (specify units)	Target Groundwater Concentration Corresponding to Target Indoor Air Concentration Where the Soil Gas to Indoor Air Attenuation Factor = 0.001 and Partitioning Across the Water Table Obeys Henry's Law C_{gw} (ug/L)	Measured or Reasonably Estimated Groundwater Concentration [if available] (specify units)
83329	Acenaphthene	X	NC	2.1E+02	3.3E+01		2.1E+03	3.3E+02		2.1E+04	3.3E+03		**	
75070	Acetaldehyde		NC	9.0E+00	5.0E+00		9.0E+01	5.0E+01		9.0E+02	5.0E+02		2.8E+03	
67641	Acetone	X	NC	3.5E+02	1.5E+02		3.5E+03	1.5E+03		3.5E+04	1.5E+04		2.2E+05	
75058	Acetonitrile		NC	6.0E+01	3.6E+01		6.0E+02	3.6E+02		6.0E+03	3.6E+03		4.2E+04	
98862	Acetophenone	X	NC	3.5E+02	7.1E+01		3.5E+03	7.1E+02		3.5E+04	7.1E+03		8.0E+05	
107028	Acrolein		NC	2.0E-02	8.7E-03		2.0E-01	8.7E-02		2.0E+00	8.7E-01		4.0E+00	
107131	Acrylonitrile		C	3.6E-01	1.7E-01		3.6E+00	1.7E+00		3.6E+01	1.7E+01		8.5E+01	
309002	Aldrin		C	5.0E-03	3.3E-04		5.0E-02	3.3E-03		5.0E-01	3.3E-02		7.1E-01	
319846	alpha-HCH (alpha-BHC)		C	1.4E-02	1.1E-03		1.4E-01	1.1E-02		1.4E+00	1.1E-01		3.1E+01	
100527	Benzaldehyde	X	NC	3.5E+02	8.1E+01		3.5E+03	8.1E+02		3.5E+04	8.1E+03		3.6E+05	
71432	Benzene		C	3.1E+00	9.6E-01		3.1E+01	9.6E+00		3.1E+02	9.6E+01		1.4E+01	
205992	Benzo(b)fluoranthene	X	C	1.2E-01	1.1E-02		1.2E+00	1.1E-01		**	**		**	
100447	Benzylchloride	X	C	5.0E-01	9.7E-02		5.0E+00	9.7E-01		5.0E+01	9.7E+00		3.0E+01	
91587	beta-Chloronaphthalene	X	NC	2.8E+02	4.2E+01		2.8E+03	4.2E+02		2.8E+04	4.2E+03		**	
92524	Biphenyl	X	NC	1.8E+02	2.8E+01		1.8E+03	2.8E+02		1.8E+04	2.8E+03		**	
111444	Bis(2-chloroethyl)ether		C	7.4E-02	1.3E-02		7.4E-01	1.3E-01		7.4E+00	1.3E+00		1.0E+02	
108601	Bis(2-chloroisopropyl)ether		C	2.4E+00	3.5E-01		2.4E+01	3.5E+00		2.4E+02	3.5E+01		5.1E+02	
542881	Bis(chloromethyl)ether		C	3.9E-04	8.4E-05		3.9E-03	8.4E-04		3.9E-02	8.4E-03		4.5E-02	
75274	Bromodichloromethane	X	C	1.4E+00	2.1E-01		1.4E+01	2.1E+00		1.4E+02	2.1E+01		2.1E+01	
75252	Bromoform		C	2.2E+01	2.1E+00		2.2E+02	2.1E+01		2.2E+03	2.1E+02		8.3E-02	
106990	1,3-Butadiene		C	8.7E-02	3.9E-02		8.7E-01	3.9E-01		8.7E+00	3.9E+00		2.9E-02	
75150	Carbon disulfide		NC	7.0E+02	2.2E+02		7.0E+03	2.2E+03		7.0E+04	2.2E+04		5.6E+02	
56235	Carbon tetrachloride		C	1.6E+00	2.6E-01		1.6E+01	2.6E+00		1.6E+02	2.6E+01		5.0E+00 [1]	
57749	Chlordane		C	2.4E-01	1.5E-02		2.4E+00	1.5E-01		2.4E+01	1.5E+00		**	
126998	2-Chloro-1,3-butadiene (chloroprene)		NC	7.0E+00	1.9E+00		7.0E+01	1.9E+01		7.0E+02	1.9E+02		1.4E+01	
108907	Chlorobenzene		NC	6.0E+01	1.3E+01		6.0E+02	1.3E+02		6.0E+03	1.3E+03		3.9E+02	
109693	1-Chlorobutane	X	NC	1.4E+03	3.7E+02		1.4E+04	3.7E+03		1.4E+05	3.7E+04		2.0E+03	
124481	Chlorodibromomethane	X	C	1.0E+00	1.2E-01		1.0E+01	1.2E+00		1.0E+02	1.2E+01		3.2E+01	
75456	Chlorodifluoromethane		NC	5.0E+04	1.4E+04		5.0E+05	1.4E+05		**	**		**	
75003	Chloroethane (ethyl chloride)		NC	1.0E+04	3.8E+03		1.0E+05	3.8E+04		1.0E+06	3.8E+05		2.8E+04	
67663	Chloroform		C	1.1E+00	2.2E-01		1.1E+01	2.2E+00		1.1E+02	2.2E+01		8.0E+01 [1]	
95578	2-Chlorophenol	X	NC	1.8E+01	3.3E+00		1.8E+02	3.3E+01		1.8E+03	3.3E+02		1.1E+03	
75296	2-Chloropropane		NC	1.0E+02	3.2E+01		1.0E+03	3.2E+02		1.0E+04	3.2E+03		1.7E+02	
218019	Chrysene	X	C	1.2E+01	1.2E+00		**	**		**	**		**	
156592	cis-1,2-Dichloroethylene	X	NC	3.5E+01	8.8E+00		3.5E+02	8.8E+01		3.5E+03	8.8E+02		2.1E+02	
123739	Crotonaldehyde (2-butenal)	X	C	4.5E-02	1.6E-02		4.5E-01	1.6E-01		4.5E+00	1.6E+00		5.6E+01	
98828	Cumene		NC	4.0E+02	8.1E+01		4.0E+03	8.1E+02		4.0E+04	8.1E+03		8.4E+00	

Table 2b: Question 4 Generic Screening Levels and Summary Sheet[1]
Risk = 1 x 10^{-6}

CAS No.	Chemical	Compounds with Provisional Toxicity Data Extrapolated From Oral Sources	Basis of Target Concentration C=cancer risk NC=noncancer risk	Target Indoor Air Concentration to Satisfy Both the Prescribed Risk Level and the Target Hazard Index [R=10^{-6}, HI=1] C_{bkgrd} (ug/m3)	(ppbv)	Measured or Reasonably Estimated Indoor Air Concentration [if available] (specify units)	Target Shallow Soil Gas Concentration Corresponding to Target Indoor Air Concentration Where the Soil Gas to Indoor Air Attenuation Factor=0.1 $C_{sub-gas}$ (ug/m3)	(ppbv)	Measured or Reasonably Estimated Shallow Soil Gas Concentration [if available] (specify units)	Target Deep Soil Gas Concentration Corresponding to Target Indoor Air Concentration Where the Soil Gas to Indoor Air Attenuation Factor=0.01 $C_{sub-gas}$ (ug/m3)	(ppbv)	Measured or Reasonably Estimated Deep Soil Gas Concentration [if available] (specify units)	Target Groundwater Concentration Corresponding to Target Indoor Air Concentration Where the Soil Gas to Indoor Air Attenuation Factor = 0.001 and Partitioning Across the Water Table Obeys Henry's Law C_{gw} (ug/L)	Measured or Reasonably Estimated Groundwater Concentration [if available] (specify units)
72559	DDE	X	C	2.5E-01	1.9E-02		2.5E+00	1.9E-01		2.5E+01	1.9E+00		**	
132649	Dibenzofuran	X	NC	1.4E+01	2.0E+00		1.4E+02	2.0E+01		1.4E+03	2.0E+02		**	
96128	1,2-Dibromo-3-chloropropane		NC	2.0E-01	2.1E-02		2.0E+00	2.1E-01		2.0E+01	2.1E+00		3.3E+01	
106934	1,2-Dibromoethane (ethylene dibromide)		C	1.1E-01	1.4E-02		1.1E+00	1.4E-01		1.1E+01	1.4E+00		3.6E+00	
541731	1,3-Dichlorobenzene	X	NC	1.1E+02	1.7E+01		1.1E+03	1.7E+02		1.1E+04	1.7E+03		8.3E+02	
95501	1,2-Dichlorobenzene		NC	2.0E+02	3.3E+01		2.0E+03	3.3E+02		2.0E+04	3.3E+03		2.6E+03	
106467	1,4-Dichlorobenzene		NC	8.0E+02	1.3E+02		8.0E+03	1.3E+03		8.0E+04	1.3E+04		8.2E+03	
75718	Dichlorodifluoromethane		NC	2.0E+02	4.0E+01		2.0E+03	4.0E+02		2.0E+04	4.0E+03		1.4E+01	
75343	1,1-Dichloroethane		NC	5.0E+02	1.2E+02		5.0E+03	1.2E+03		5.0E+04	1.2E+04		2.2E+03	
107062	1,2-Dichloroethane		C	9.4E-01	2.3E-01		9.4E+00	2.3E+00		9.4E+01	2.3E+01		2.3E+01	
75354	1,1-Dichloroethylene		NC	2.0E+02	5.0E+01		2.0E+03	5.0E+02		2.0E+04	5.0E+03		1.9E+02	
78875	1,2-Dichloropropane		NC	4.0E+00	8.7E-01		4.0E+01	8.7E+00		4.0E+02	8.7E+01		3.5E+01	
542756	1,3-Dichloropropene		C	6.1E+00	1.3E+00		6.1E+01	1.3E+01		6.1E+02	1.3E+02		8.4E+00	
60571	Dieldrin		C	5.3E-03	3.4E-04		5.3E-02	3.4E-03		5.3E-01	3.4E-02		8.6E+00	
115297	Endosulfan	X	NC	2.1E+01	1.3E+00		2.1E+02	1.3E+01		**	**		**	
106898	Epichlorohydrin		NC	1.0E+00	2.6E-01		1.0E+01	2.6E+00		1.0E+02	2.6E+01		8.0E+02	
60297	Ethyl ether	X	NC	7.0E+02	2.3E+02		7.0E+03	2.3E+03		7.0E+04	2.3E+04		5.2E+02	
141786	Ethylacetate	X	NC	3.2E+03	8.7E+02		3.2E+04	8.7E+03		3.2E+05	8.7E+04		5.6E+05	
100414	Ethylbenzene		C	2.2E+01	5.1E+00		2.2E+02	5.1E+01		2.2E+03	5.1E+02		7.0E+02[7]	
75218	Ethylene oxide		C	2.4E-01	1.4E-01		2.4E+00	1.4E+00		2.4E+01	1.4E+01		1.1E+01	
97632	Ethylmethacrylate	X	NC	3.2E+02	6.8E+01		3.2E+03	6.8E+02		3.2E+04	6.8E+03		9.1E+03	
86737	Fluorene	X	NC	1.4E+02	2.1E+01		1.4E+03	2.1E+02		**	**		**	
110009	Furan	X	NC	3.5E+00	1.3E+00		3.5E+01	1.3E+01		3.5E+02	1.3E+02		1.6E+01	
58899	gamma-HCH (Lindane)	X	C	6.6E-02	5.5E-03		6.6E-01	5.5E-02		6.6E+00	5.5E-01		1.1E+02	
76448	Heptachlor		C	1.9E-02	1.2E-03		1.9E-01	1.2E-02		1.9E+00	1.2E-01		4.0E-01[1]	
87683	Hexachloro-1,3-butadiene		C	1.1E+00	1.0E-01		1.1E+01	1.0E+00		1.1E+02	1.0E+01		3.3E+00	
118741	Hexachlorobenzene		C	5.3E-02	4.5E-03		5.3E-01	4.5E-02		5.3E+00	4.5E-01		1.0E+00[7]	
77474	Hexachlorocyclopentadiene		NC	2.0E-01	1.8E-02		2.0E+00	1.8E-01		2.0E+01	1.8E+00		5.0E+01[1]	
67721	Hexachloroethane		C	6.1E+00	6.3E-01		6.1E+01	6.3E+00		6.1E+02	6.3E+01		3.8E+01	
110543	Hexane		NC	2.0E+02	5.7E+01		2.0E+03	5.7E+02		2.0E+04	5.7E+03		2.9E+00	
74908	Hydrogen cyanide		NC	3.0E+00	2.7E+00		3.0E+01	2.7E+01		3.0E+02	2.7E+02		5.5E+02	
78831	Isobutanol	X	NC	1.1E+03	3.5E+02		1.1E+04	3.5E+03		1.1E+05	3.5E+04		2.2E+06	
7439976	Mercury (elemental)		NC	3.0E-01	3.7E-02		3.0E+00	3.7E-01		3.0E+01	3.7E+00		6.8E-01	
126987	Methacrylonitrile		NC	7.0E-01	2.6E-01		7.0E+00	2.6E+00		7.0E+01	2.6E+01		6.9E+01	
72435	Methoxychlor	X	NC	1.8E+01	1.2E+00		**	**		**	**		**	
79209	Methyl acetate	X	NC	3.5E+03	1.2E+03		3.5E+04	1.2E+04		3.5E+05	1.2E+05		7.2E+05	
96333	Methyl acrylate	X	NC	1.1E+02	3.0E+01		1.1E+03	3.0E+02		1.1E+04	3.0E+03		1.4E+04	

Table 2b: Question 4 Generic Screening Levels and Summary Sheet [1]
Risk = 1 x 10^{-6}

CAS No.	Chemical	Compounds with Provisional Toxicity Data Extrapolated From Oral Sources	Basis of Target Concentration C=cancer risk NC=noncancer risk	Target Indoor Air Concentration to Satisfy Both the Prescribed Risk Level and the Target Hazard Index [R=10^{-6}, HI=1] C_{Target} (ug/m3)	(ppbv)	Measured or Reasonably Estimated Indoor Air Concentration [if available] (specify units)	Target Shallow Soil Gas Concentration Corresponding to Target Indoor Air Concentration Where the Soil Gas to Indoor Air Attenuation Factor=0.1 $C_{soil-gas}$ (ug/m3)	(ppbv)	Measured or Reasonably Estimated Shallow Soil Gas Concentration [if available] (specify units)	Target Deep Soil Gas Concentration Corresponding to Target Indoor Air Concentration Where the Soil Gas to Indoor Air Attenuation Factor=0.01 $C_{soil-gas}$ (ug/m3)	(ppbv)	Measured or Reasonably Estimated Deep Soil Gas Concentration [if available] (specify units)	Target Groundwater Concentration Corresponding to Target Indoor Air Concentration Where the Soil Gas to Indoor Air Attenuation Factor = 0.001 and Partitioning Across the Water Table Obeys Henry's Law C_{gw} (ug/L)	Measured or Reasonably Estimated Groundwater Concentration [if available] (specify units)
74839	Methyl bromide		NC	5.0E+00	1.3E+00		5.0E+01	1.3E+01		5.0E+02	1.3E+02		2.0E+01	
74873	Methyl chloride (chloromethane)		C	2.4E+01	1.2E+01		2.4E+02	1.2E+02		2.4E+03	1.2E+03		6.7E+01	
108872	Methylcyclohexane		NC	3.0E+03	7.5E+02		3.0E+04	7.5E+03		3.0E+05	7.5E+04		7.1E+02	
74953	Methylene bromide	X	NC	3.5E+01	4.9E+00		3.5E+02	4.9E+01		3.5E+03	4.9E+02		9.9E+02	
75092	Methylene chloride		C	5.2E+01	1.5E+01		5.2E+02	1.5E+02		5.2E+03	1.6E+03		5.8E+02	
78933	Methylethylketone (2-butanone)		NC	1.0E+03	3.4E+02		1.0E+04	3.4E+03		1.0E+05	3.4E+04		4.4E+05	
108101	Methylisobutylketone		NC	8.0E+01	2.0E+01		8.0E+02	2.0E+02		8.0E+03	2.0E+03		1.4E+04	
80626	Methylmethacrylate		NC	7.0E+02	1.7E+02		7.0E+03	1.7E+03		7.0E+04	1.7E+04		5.1E+04	
91576	2-Methylnaphthalene	X	NC	7.0E+01	1.2E+01		7.0E+02	1.2E+02		7.0E+03	1.2E+03		3.3E+03	
1634044	MTBE		NC	3.0E+03	8.3E+02		3.0E+04	8.3E+03		3.0E+05	8.3E+04		1.2E+05	
108383	m-Xylene	X	NC	7.0E+03	1.6E+03		7.0E+04	1.6E+04		7.0E+05	1.6E+05		2.3E+04	
91203	Naphthalene		NC	3.0E+00	5.7E-01		3.0E+01	5.7E+00		3.0E+02	5.7E+01		1.5E+02	
104518	n-Butylbenzene	X	NC	1.4E+02	2.6E+01		1.4E+03	2.6E+02		1.4E+04	2.6E+03		2.6E+02	
98953	Nitrobenzene		NC	2.0E+00	4.0E-01		2.0E+01	4.0E+00		2.0E+02	4.0E+01		2.0E+03	
79469	2-Nitropropane		C	9.0E-03	2.5E-03		9.0E-02	2.5E-02		9.0E-01	2.5E-01		1.8E+00	
924163	N-Nitroso-di-n-butylamine		C	1.5E-02	2.4E-03		1.5E-01	2.4E-02		1.5E+00	2.4E-01		1.2E+00	
103651	n-Propylbenzene	X	NC	1.4E+02	2.8E+01		1.4E+03	2.8E+02		1.4E+04	2.8E+03		3.2E+02	
88722	o-Nitrotoluene	X	NC	3.5E+01	6.2E+00		3.5E+02	6.2E+01		3.5E+03	6.2E+02		6.8E+04	
95476	o-Xylene	X	NC	7.0E+03	1.6E+03		7.0E+04	1.6E+04		7.0E+05	1.6E+05		3.3E+04	
106423	p-Xylene	X	NC	7.0E+03	1.6E+03		7.0E+04	1.6E+04		7.0E+05	1.6E+05		2.2E+04	
129000	Pyrene	X	NC	1.1E+02	1.3E+01		**	**		**	**		**	
135988	sec-Butylbenzene	X	NC	1.4E+02	2.8E+01		1.4E+03	2.6E+02		1.4E+04	2.6E+03		2.5E+02	
100425	Styrene		NC	1.0E+03	2.3E+02		1.0E+04	2.3E+03		1.0E+05	2.3E+04		8.9E+03	
98066	tert-Butylbenzene	X	NC	1.4E+02	2.6E+01		1.4E+03	2.6E+02		1.4E+04	2.6E+03		2.9E+02	
630206	1,1,1,2-Tetrachloroethane		C	3.3E+00	4.8E-01		3.3E+01	4.8E+00		3.3E+02	4.8E+01		3.3E+01	
79345	1,1,2,2-Tetrachloroethane		C	4.2E-01	6.1E-02		4.2E+00	6.1E-01		4.2E+01	6.1E+00		3.0E+01	
127184	Tetrachloroethylene		C	8.1E+00	1.2E+00		8.1E+01	1.2E+01		8.1E+02	1.2E+02		1.1E+01	
108883	Toluene		NC	4.0E+02	1.1E+02		4.0E+03	1.1E+03		4.0E+04	1.1E+04		1.5E+03	
156605	trans-1,2-Dichloroethylene	X	NC	7.0E+01	1.8E+01		7.0E+02	1.8E+02		7.0E+03	1.8E+03		1.8E+02	
76131	1,1,2-Trichloro-1,2,2-trifluoroethane		NC	3.0E+04	3.9E+03		3.0E+05	3.9E+04		3.0E+06	3.9E+05		1.5E+03	
120821	1,2,4-Trichlorobenzene		NC	2.0E+02	2.7E+01		2.0E+03	2.7E+02		2.0E+04	2.7E+03		3.4E+03	
79005	1,1,2-Trichloroethane		C	1.5E+00	2.8E-01		1.5E+01	2.8E+00		1.5E+02	2.8E+01		4.1E+01	
71556	1,1,1-Trichloroethane		NC	2.2E+03	4.0E+02		2.2E+04	4.0E+03		2.2E+05	4.0E+04		3.1E+03	
79016	Trichloroethylene [††]	X	C	2.2E-01	4.1E-02		2.2E+00	4.1E-01		2.2E+01	4.1E+00		5.0E+00 [§]	
75694	Trichlorofluoromethane		NC	7.0E+02	1.2E+02		7.0E+03	1.2E+03		7.0E+04	1.2E+04		1.8E+02	
96184	1,2,3-Trichloropropane		NC	4.9E+00	8.1E-01		4.9E+01	8.1E+00		4.9E+02	8.1E+01		2.9E+02	
95636	1,2,4-Trimethylbenzene		NC	6.0E+00	1.2E+00		6.0E+01	1.2E+01		6.0E+02	1.2E+02		2.4E+01	

Table 2b: Question 4 Generic Screening Levels and Summary Sheet [1]
Risk = 1 x 10^{-6}

CAS No.	Chemical	Compounds with Provisional Toxicity Data Extrapolated From Oral Sources	Basis of Target Concentration C=cancer risk NC=noncancer risk	Target Indoor Air Concentration to Satisfy Both the Prescribed Risk Level and the Target Hazard Index (R=10^{-6}, HI=1) C_{target} (ug/m3)	(ppbv)	Measured or Reasonably Estimated Indoor Air Concentration [if available] (specify units)	Target Shallow Soil Gas Concentration Corresponding to Target Indoor Air Concentration Where the Soil Gas to Indoor Air Attenuation Factor=0.1 $C_{soil-gas}$ (ug/m3)	(ppbv)	Measured or Reasonably Estimated Shallow Soil Gas Concentration [if available] (specify units)	Target Deep Soil Gas Concentration Corresponding to Target Indoor Air Concentration Where the Soil Gas to Indoor Air Attenuation Factor=0.01 $C_{soil-gas}$ (ug/m3)	(ppbv)	Measured or Reasonably Estimated Deep Soil Gas Concentration [if available] (specify units)	Target Groundwater Concentration Corresponding to Target Indoor Air Concentration Where the Soil Gas to Indoor Air Attenuation Factor = 0.001 and Partitioning Across the Water Table Obeys Henry's Law C_{gw} (ug/L)	Measured or Reasonably Estimated Groundwater Concentration [if available] (specify units)
108678	1,3,5-Trimethylbenzene		NC	6.0E+00	1.2E+00		6.0E+01	1.2E+01		6.0E+02	1.2E+02		2.5E+01	
108054	Vinyl acetate		NC	2.0E+02	5.7E+01		2.0E+03	5.7E+02		2.0E+04	5.7E+03		8.6E+03	
75014	Vinyl chloride (chloroethene)		C	2.8E+00	1.1E+00		2.8E+01	1.1E+01		2.8E+02	1.1E+02		2.5E+00	

[1] AF = 0.1 for Shallow Soil Gas Target Concentration
AF = 0.01 for Deep Soil Gas Target Concentration
AF = 0.001 for Groundwater Target Concentration
* Health-based target breathing concentration exceeds maximum possible chemical vapor concentration (pathway incomplete)
** Target soil gas concentration exceeds maximum possible vapor concentration (pathway incomplete)
† The target groundwater concentration is the MCL. (The MCL for chloroform is the MCL for total Trihalomethanes. The MCL listed for m-Xylene, o-Xylene, and p-Xylene is the MCL for total Xylenes.)
†† The target concentration for trichloroethylene is based on the upper bound cancer slope factor identified in EPA's draft risk assessment for trichloroethylene (US EPA, 2001). The slope factor is based on state-of-the-art methodology, however the TCE assessment is still undergoing review. As a result, the slope factor and the target concentration values for TCE may be revised further. (See Appendix D.)