Risk-Based Corrective Action Report Forms
for
North Carolina Dry-Cleaning Solvent Cleanup Act Program

Facility Name:	Former Douglas-Furrier
	1200 Charlottetown Ave, Charlotte, NC
DSCA ID No.:	DC600043
Submittal Date:	9/2/2016
Prepared By:	Rob MacWilliams - URS NC

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Note:
1. All maps must include a bar scale, north arrow, site name, DSCA ID No., and date.

Protection of Groundwater Use and Surface Water Evaluation **Form 1**

DSCA ID No.: DC600043

Source Area Representative Concentrations

Description of Representative Concentration Calculations:

The maximum soil contaminant concentrations and maximum groundwater contaminant concentrations observed at the site since 2013 were selected for use in this evaluation. Soil and groundwater quality summary figures are included in Attachment 1. Soil and groundwater summary tables with the selected data highlighted are included in Attachment 2.

Protection of Groundwater Use

Distance to POE for Protection of Groundwater Use: 1950 feet

Explanation of POE location selection:

The POE distance was selected to be the distance to downgradient property boundary of the first property encountered where groundwater impacts have not been observed. This POE is defined as the Little Sugar Creek which is located on the north side of the Mecklenburg County property located on between East 4th Street and Elizabeth Ave (ID 12509601), Charlotte, NC and is identified on the attached Figure 1 of Attachment 1. The groundwater and soil source area are shown on Figures 1 - 4 in Attachment 1.

Exceedences of SSTLs? Source Soil no Source Groundwater **yes**

Discussion:

The modeling results for the protection of groundwater use from a groundwater source to a POE over a distance of 1950 feet indicated exceedences of the SSTLs for PCE. The modeling results for the propection of groundwater use from a soil source to a POE over a distance of 1950 feet indicated no exceedences of the SSTLs.

Protection of Surface Water

Distance to POE for Protection of Surface Water: 1950 feet

Explanation of POE location selection:

As documented in the updated Prioritization Assessment Report, the nearest surface water feature is the Little Sugar Creek (a Class C water body) located approximately 1950 feet northwest and downgradient of the site.

Exceedences of SSTLs? Source Soil no Source Groundwater no

Discussion:

The modeling results for the protection of surface water from a groundwater source to a POE over a distance of 1950 feet indicated no exceedences of the SSTLs. The modeling results for the protection of surface water from a soil source to a POE over a distance of 1950 feet indicated no exceedences of the SSTLs.

Cumulative Risk Evaluation for Exposure Unit #1 **Form 2**

DSCA ID No.: DC600043 **Exposure Unit: Exposure Unit #1**

Cumulative Risk Evaluation

Land Use: Exposure Unit #1 is currently zoned for commercial land use. The unit has been evaluated for both residential and commercial zoning as part of future use.

Exposure Evaluation		
Exposure Pathway	Complete	Explanation
Indoor Inhalation Pathway	(●) Yes ( ) No	Impacted soil and groundwater is present within exposure unit #1 so this pathway is complete. A soil gas contaminant summary map is included in Attachment 1.
Surficial Soil Combined Pathways	(●) Yes ( ) No	Impacted soil is present within exposure unit #1 and assumed to exist at the surface so this pathway is complete. A soil quality summary map is included in Attachment 1.
Dermal Contact with Groundwater Pathway	( ) Yes (●) No	Evaluation of the Dermal Contact with Groundwater Exposure Pathway, as described in DSCA's 9/12/2012 memo, revised 9/11/13 memo, and 5/15 DSCA Risk Assessment Guidance, will no longer be performed as part of DSCA site risk evaluations

Description of Representative Concentration Calculations:

The maximum groundwater contaminant concentrations (MW-1, MW-4, MW-6, DMW-1) observed during sampling events completed since 2013, maximum soil contaminant concentrations (SB-1, SV-1A, SV-1), maximum soil gas (SSV-1) and maximum indoor air (IA-2) were used in this evaluation. Summary tables depicting this data with the selected concentrations highlighted are included in Attachment 2. Figures depicting the locations of the selected data are included in Attachment 1. Applicable modeling sheets are included in Attachment 3.

Results - CURRENT RISK							
EXPOSURE PATHWAY	MODELING SOURCE	RESIDENTIAL		COMMERCIAL*		CONSTRUCTION WORKER	
		Carcino-genic Risk	Hazard Index	Carcino-genic Risk	Hazard Index	Carcino-genic Risk	Hazard Index
Indoor Air Exposure Pathway	DSCA Indoor Air Risk Calculator	7.56E-07	1.80E-01	1.47E-07	4.00E-02	NA	NA
Surficial Soil Exposure Pathways	DSCA Soil Ingestion & Outdoor Inhalion Risk Calculator	4.20E-09	2.47E-02	8.94E-10	1.69E-03	1.18E-10	7.54E-04
Dermal Contact with Groundwater Exposure Pathway	DSCA Groundwater Dermal Contact Risk Calculator	NC	NC	NC	NC	NC	NC
Cumulative Risk		7.60E-07	2.05E-01	1.48E-07	4.17E-02	1.18E-10	7.54E-04
Target Risk Limit		1.00E-05	1	1.00E-05	1	1.00E-05	1
Risk Limit Exceeded		NO	NO	NO	NO	NO	NO

Cumulative Risk Evaluation for Exposure Unit #1 **Form 2**

DSCA ID No.: DC600043 **Exposure Unit: Exposure Unit #1**

Results - FUTURE RISK							
EXPOSURE PATHWAY	MODELING SOURCE	RESIDENTIAL		COMMERCIAL*		CONSTRUCTION WORKER	
		Carcino-genic Risk	Hazard Index	Carcino-genic Risk	Hazard Index	Carcino-genic Risk	Hazard Index
Indoor Air Exposure Pathway	DSCA Soil Gas to Indoor Air Risk Calculator	6.75E-07	1.75E-01	5.15E-08	1.39E-02	NA	NA
Surficial Soil Exposure Pathways	DSCA Soil Ingestion & Outdoor Inhalion Risk Calculator	4.20E-09	2.47E-02	8.94E-10	1.69E-03	1.18E-10	7.54E-04
Dermal Contact with Groundwater Exposure Pathway	DSCA Groundwater Dermal Contact Risk Calculator	NC	NC	NC	NC	NC	NC
Cumulative Risk		6.79E-07	2.00E-01	5.24E-08	1.56E-02	1.18E-10	7.54E-04
Target Risk Limit		1.00E-05	1	1.00E-05	1	1.00E-05	1
Risk Limit Exceeded		NO	NO	NO	NO	NO	NO

* - Evaluation for commercial land use is only required if risk assessment fails for residential land use and property is not residential.

NM = Not modeled. NC = Pathway not complete. NA = Not applicable.

Discussion:

Exposure unit #1 passed for commercial land use under current conditions. Exposure unit #1 passed for commercial land use and residential land use under future conditions.

Cumulative Risk Evaluation for Exposure Unit #2 **Form 3**

DSCA ID No.: DC600043 **Exposure Unit: Exposure Unit #2**

Cumulative Risk Evaluation

Land Use:

Exposure Unit #2 is currently zoned for commercial land use. The unit has been evaluated for both residential and commercial zoning as part of future use.

Exposure Evaluation		
Exposure Pathway	Complete	Explanation
Indoor Inhalation Pathway	(●) Yes ( ) No	Impacted groundwater is present within exposure unit #2 so this pathway is complete. A soil gas contaminant summary map is included in Attachment 1.
Surficial Soil Combined Pathways	( ) Yes (●) No	Impacted soil is not present within exposure unit #2 so this pathway is not complete. A soil quality summary map is included in Attachment 1.
Dermal Contact with Groundwater Pathway	( ) Yes (●) No	Evaluation of the Dermal Contact with Groundwater Exposure Pathway, as described in DSCA's 9/12/2012 memo, revised 9/11/13 memo, and 5/15 DSCA Risk Assessment Guidance, will no longer be performed as part of DSCA site risk evaluations

Description of Representative Concentration Calculations:

The maximum maximum soil gas (SG-4), and maximum indoor air (greek restaurant) were used in this evaluation. Summary tables depicting this data with the selected concentrations highlighted are included in Attachment 2. Figures depicting the locations of the selected data are included in Attachment 1. Applicable modeling sheets are included in Attachment 3.

Results - CURRENT RISK							
EXPOSURE PATHWAY	MODELING SOURCE	RESIDENTIAL		COMMERCIAL*		CONSTRUCTION WORKER	
		Carcino-genic Risk	Hazard Index	Carcino-genic Risk	Hazard Index	Carcino-genic Risk	Hazard Index
Indoor Air Exposure Pathway	DSCA Indoor Air Risk Calculator	5.06E-07	1.20E-01	8.99E-08	2.58E-02	NA	NA
Surficial Soil Exposure Pathways	DSCA Soil Ingestion & Outdoor Inhalion Risk Calculator	NC	NC	NC	NC	NC	NC
Dermal Contact with Groundwater Exposure Pathway	DSCA Groundwater Dermal Contact Risk Calculator	NC	NC	NC	NC	NC	NC
Cumulative Risk		5.06E-07	1.20E-01	8.99E-08	2.58E-02	0.00E+00	0.00E+00
Target Risk Limit		1.00E-05	1	1.00E-05	1	1.00E-05	1
Risk Limit Exceeded		NO	NO	NO	NO	NO	NO

Cumulative Risk Evaluation for Exposure Unit #2 **Form 3**

DSCA ID No.: DC600043 **Exposure Unit: Exposure Unit #2**

Results - FUTURE RISK							
EXPOSURE PATHWAY	MODELING SOURCE	RESIDENTIAL		COMMERCIAL*		CONSTRUCTION WORKER	
		Carcino-genic Risk	Hazard Index	Carcino-genic Risk	Hazard Index	Carcino-genic Risk	Hazard Index
Indoor Air Exposure Pathway	DSCA Soil Gas to Indoor Air Risk Calculator	7.97E-05	2.06E+00	6.08E-06	1.64E+00	NA	NA
Surficial Soil Exposure Pathways	DSCA Soil Ingestion & Outdoor Inhalion Risk Calculator	NC	NC	NC	NC	NC	NC
Dermal Contact with Groundwater Exposure Pathway	DSCA Groundwater Dermal Contact Risk Calculator	NC	NC	NC	NC	NC	NC
Cumulative Risk		7.97E-05	2.06E+00	6.08E-06	1.64E+00	0.00E+00	0.00E+00
Target Risk Limit		1.00E-05	1	1.00E-05	1	1.00E-05	1
Risk Limit Exceeded		**YES**	**YES**	NO	**YES**	NO	NO

* - Evaluation for commercial land use is only required if risk assessment fails for residential land use and property is not residential.

NM = Not modeled. NC = Pathway not complete. NA = Not applicable.

Discussion:

Exposure unit #2 passed for commercial land use under current conditions. Exposure unit #2 did not pass for commercial land use and residential land use under future conditions.

Cumulative Risk Evaluation for Exposure Unit #3 **Form 4**

DSCA ID No.: DC600043 **Exposure Unit: Exposure Unit #3**

Cumulative Risk Evaluation

Land Use:

Exposure Unit #3 is currently zoned for commercial land use. The unit has been evaluated for both residential and commercial zoning as part of future use.

Exposure Evaluation		
Exposure Pathway	Complete	Explanation
Indoor Inhalation Pathway	(●) Yes ( ) No	Impacted groundwater is present within exposure unit #3 so this pathway is complete. A soil gas contaminant summary map is included in Attachment 1.
Surficial Soil Combined Pathways	( ) Yes (●) No	Impacted soil is not present within exposure unit #3 so this pathway is not complete. A soil quality summary map is included in Attachment 1.
Dermal Contact with Groundwater Pathway	( ) Yes (●) No	Evaluation of the Dermal Contact with Groundwater Exposure Pathway, as described in DSCA's 9/12/2012 memo, revised 9/11/13 memo, and 5/15 DSCA Risk Assessment Guidance, will no longer be performed as part of DSCA site risk evaluations

Description of Representative Concentration Calculations:

The maximum soil gas (SG-9), and maximum indoor air (IA-CATS011) were used in this evaluation. Summary tables depicting this data with the selected concentrations highlighted are included in Attachment 2. Figures depicting the locations of the selected data are included in Attachment 1. Applicable modeling sheets are included in Attachment 3.

Results - CURRENT RISK							
EXPOSURE PATHWAY	MODELING SOURCE	RESIDENTIAL		COMMERCIAL*		CONSTRUCTION WORKER	
		Carcino-genic Risk	Hazard Index	Carcino-genic Risk	Hazard Index	Carcino-genic Risk	Hazard Index
Indoor Air Exposure Pathway	DSCA Indoor Air Risk Calculator	1.33E-07	3.12E-02	2.29E-08	7.42E-03	NA	NA
Surficial Soil Exposure Pathways	DSCA Soil Ingestion & Outdoor Inhalion Risk Calculator	NC	NC	NC	NC	NC	NC
Dermal Contact with Groundwater Exposure Pathway	DSCA Groundwater Dermal Contact Risk Calculator	NC	NC	NC	NC	NC	NC
Cumulative Risk		1.33E-07	3.12E-02	2.29E-08	7.42E-03	0.00E+00	0.00E+00
Target Risk Limit		1.00E-05	1	1.00E-05	1	1.00E-05	1
Risk Limit Exceeded		NO	NO	NO	NO	NO	NO

Cumulative Risk Evaluation for Exposure Unit #3 **Form 4**

DSCA ID No.: DC600043 **Exposure Unit: Exposure Unit #3**

Results - FUTURE RISK							
EXPOSURE PATHWAY	MODELING SOURCE	RESIDENTIAL		COMMERCIAL*		CONSTRUCTION WORKER	
		Carcino-genic Risk	Hazard Index	Carcino-genic Risk	Hazard Index	Carcino-genic Risk	Hazard Index
Indoor Air Exposure Pathway	DSCA Soil Gas to Indoor Air Risk Calculator	1.47E-04	3.50E+01	8.76E-06	2.77E+00	NA	NA
Surficial Soil Exposure Pathways	DSCA Soil Ingestion & Outdoor Inhalion Risk Calculator	NC	NC	NC	NC	NC	NC
Dermal Contact with Groundwater Exposure Pathway	DSCA Groundwater Dermal Contact Risk Calculator	NC	NC	NC	NC	NC	NC
Cumulative Risk		1.47E-04	3.50E+01	8.76E-06	2.77E+00	0.00E+00	0.00E+00
Target Risk Limit		1.00E-05	1	1.00E-05	1	1.00E-05	1
Risk Limit Exceeded		**YES**	**YES**	NO	**YES**	NO	NO

* - Evaluation for commercial land use is only required if risk assessment fails for residential land use and property is not residential.

NM = Not modeled. NC = Pathway not complete. NA = Not applicable.

Discussion:

Exposure unit #3 passed for commercial land use under current conditions. Exposure unit #3 did not pass for commercial land use and residential land use under future conditions.

Cumulative Risk Evaluation for Exposure Unit #4 **Form 5**

DSCA ID No.: DC600043 **Exposure Unit: Exposure Unit #4**

Cumulative Risk Evaluation

Land Use:

Exposure Unit #4 is currently zoned for commercial land use. The unit has been evaluated for both residential and commercial zoning as part of future use.

Exposure Evaluation		
Exposure Pathway	Complete	Explanation
Indoor Inhalation Pathway	(●) Yes ( ) No	Impacted groundwater is present within exposure unit #4 so this pathway is complete. A soil gas contaminant summary map is included in Attachment 1.
Surficial Soil Combined Pathways	( ) Yes (●) No	Impacted soil is not present within exposure unit #4 so this pathway is not complete. A soil quality summary map is included in Attachment 1.
Dermal Contact with Groundwater Pathway	( ) Yes (●) No	Evaluation of the Dermal Contact with Groundwater Exposure Pathway, as described in DSCA's 9/12/2012 memo, revised 9/11/13 memo, and 5/15 DSCA Risk Assessment Guidance, will no longer be performed as part of DSCA site risk evaluations

Description of Representative Concentration Calculations:

The maximum soil gas (SG-MW-11) was used in this evaluation. Summary tables depicting this data with the selected concentrations highlighted are included in Attachment 2. Figures depicting the locations of the selected data are included in Attachment 1. Applicable modeling sheets are included in Attachment 3.

Results - CURRENT RISK							
EXPOSURE PATHWAY	MODELING SOURCE	RESIDENTIAL		COMMERCIAL*		CONSTRUCTION WORKER	
		Carcino-genic Risk	Hazard Index	Carcino-genic Risk	Hazard Index	Carcino-genic Risk	Hazard Index
Indoor Air Exposure Pathway	DSCA Soil Gas to Indoor Air Risk Calculator	3.05E-06	7.54E-01	2.05E-07	5.98E-02	NA	NA
Surficial Soil Exposure Pathways	DSCA Soil Ingestion & Outdoor Inhalion Risk Calculator	NC	NC	NC	NC	NC	NC
Dermal Contact with Groundwater Exposure Pathway	DSCA Groundwater Dermal Contact Risk Calculator	NC	NC	NC	NC	NC	NC
Cumulative Risk		3.05E-06	7.54E-01	2.05E-07	5.98E-02	0.00E+00	0.00E+00
Target Risk Limit		1.00E-05	1	1.00E-05	1	1.00E-05	1
Risk Limit Exceeded		NO	NO	NO	NO	NO	NO

Cumulative Risk Evaluation for Exposure Unit #4 **Form 5**

DSCA ID No.: DC600043 **Exposure Unit: Exposure Unit #4**

Results - FUTURE RISK							
EXPOSURE PATHWAY	MODELING SOURCE	RESIDENTIAL		COMMERCIAL*		CONSTRUCTION WORKER	
		Carcino-genic Risk	Hazard Index	Carcino-genic Risk	Hazard Index	Carcino-genic Risk	Hazard Index
Indoor Air Exposure Pathway	DSCA Soil Gas to Indoor Air Risk Calculator	3.05E-06	7.54E-01	2.05E-07	5.98E-02	NA	NA
Surficial Soil Exposure Pathways	DSCA Soil Ingestion & Outdoor Inhalion Risk Calculator	NC	NC	NC	NC	NC	NC
Dermal Contact with Groundwater Exposure Pathway	DSCA Groundwater Dermal Contact Risk Calculator	NC	NC	NC	NC	NC	NC
Cumulative Risk		3.05E-06	7.54E-01	2.05E-07	5.98E-02	0.00E+00	0.00E+00
Target Risk Limit		1.00E-05	1	1.00E-05	1	1.00E-05	1
Risk Limit Exceeded		NO	NO	NO	NO	NO	NO

* - Evaluation for commercial land use is only required if risk assessment fails for residential land use and property is not residential.

NM = Not modeled. NC = Pathway not complete. NA = Not applicable.

Discussion:

Exposure unit #4 passed for commercial land use under current conditions. Exposure unit #4 passed for commercial land use and residential land use under future conditions.

Summary of Risk Assessment Results **Form 1G**

DSCA ID No.: DC600043

Exposure Unit: Exposure Unit #1

	Residential			Non-Residential			Construction Worker		
Pathway	**Carcin-ogenic Risk**	**Hazard Index**	**Risk exceeded?**	**Carcin-ogenic Risk**	**Hazard Index**	**Risk exceeded?**	**Carcin-ogenic Risk**	**Hazard Index**	**Risk exceeded?**
SURFICIAL SOIL COMBINED PATHWAYS									
Soil Ingestion	4.20E-09	2.41E-02	**NO**	8.94E-10	1.61E-03	**NO**	1.18E-10	7.47E-04	**NO**
Soil Dermal	0.00E+00	6.51E-04	**NO**	0.00E+00	7.77E-05	**NO**	0.00E+00	6.48E-06	**NO**
Soil Outdoor Inhalation	0.00E+00	0.00E+00	**NO**	0.00E+00	0.00E+00	**NO**	0.00E+00	0.00E+00	**NO**
Surficial Soil Combined Pathways	4.20E-09	2.47E-02	**NO**	8.94E-10	1.69E-03	**NO**	1.18E-10	7.54E-04	**NO**
INDOOR INHALATION EXPOSURE PATHWAY									
Indoor Air	7.56E-07	1.82E-01	**NO**	1.41E-07	4.34E-02	**NO**	NA	NA	**NA**
Soil Gas to Indoor Air	6.75E-07	1.75E-01	**NO**	5.15E-08	1.39E-02	**NO**	NA	NA	**NA**
Groundwater to Indoor Air	0.00E+00	0.00E+00	**NO**	0.00E+00	0.00E+00	**NO**	NA	NA	**NA**
DERMAL CONTACT WITH GROUNDWATER EXPOSURE PATHWAY									
Groundwater Dermal	0.00E+00	0.00E+00	**NO**	0.00E+00	0.00E+00	**NO**	0.00E+00	0.00E+00	**NO**
Allowable Risk	**1.0E-05**	**1**		**1.0E-05**	**1**		**1.0E-05**	**1**	

Protection of Groundwater Use

Exceedences of SSTLs? Source Soil No Source Groundwater Yes

Protection of Surface Water

Exceedences of SSTLs? Source Soil No Source Groundwater No

DC600043 Conclusions and Recommendations

In accordance with 15A NCAC 02S .0509(a)(2), prior to proceeding with site closure actions, such as completion of a risk assessment, the stability of the plume must be verified by a monitoring period of at least one year. As documented in the **Updated Assessment Report**, dated February 14, 2015, groundwater quality stability at the site has been empirically demonstrated (based on a review of the groundwater quality data generated to date), and groundwater contamination above the NCDENR 2L groundwater standards is not expected to create a 2L exceedance at the point of exposure(s).

URS has completed a risk assessment at the subject site in accordance with the DSCA Program's Risk Assessment procedures. URS evaluated current and future exposure pathways for one (1) exposure unit:

- **Exposure Unit #1** – includes the source property (identified as Parcel Identification Numbers (PINs) 08019405) owned by G&K Enterprises Co. LLC, which encompasses the former Douglass Furrier dry-cleaning facility historically located at 200 East Independence Blvd. in Charlotte, NC;
- **Exposure Unit #2** – includes three (3) off-source properties identified as follows:
    1. **PIN 08019404** – owned by Kaveah Properties IV LLC and encompasses the CP Textbook store as well as the Shiraz Grill located at 1214 Charlottetowne Ave, Charlotte, NC;
    2. **PIN 08019403** – owned by Nicholas J Karres & Elizabeth S Karres and encompasses the Double Door Inn located at 1218 Charlottetowne Ave, Charlotte, NC;
    3. **PIN 08019402** - owned by Nicholas J Karres & Elizabeth S Karres and encompasses the parking lot of the adjacent Double Door Inn located at 1220 Charlottetowne Ave, Charlotte, NC; and,
- **Exposure Unit #3** – includes a portion of the off-source property owned by College The Trustees of Central Piedmont Community (identified as PIN 12510106), which encompasses the three (3) buildings of the Central Piedmont Community College (CPCC) – parking deck, Center for the Arts Technology and Taylor Hall located at 1201/1206/1139/1308/1300 Elizabeth Avenue/1225 E. 4th Street, Charlotte, NC; and,
- **Exposure Unit #4** - includes portions of the off-source properties identified as follows:
    1. **PIN 08013203** – owned by Community College Central Piedmont encompassing several CPCC buildings located at 1237 Elizabeth Avenue;
    2. **PIN 08013201** – owned by Community College Central Piedmont encompassing several CPCC building located at 224 N Kings Drive;
    3. **PIN 12510108** - owned by College Trustees of Central Piedmont encompassing parking lot for CPCC located at 1148 Elizabeth Avenue;
    4. **PIN 12510109** - owned by College Trustees of Central Piedmont encompassing parking lot for CPCC located at 1146 Elizabeth Avenue;
    5. **PIN 12510110** - owned by College Trustees of Central Piedmont encompassing parking lot for CPCC located at 1140 Elizabeth Avenue;
    6. **PIN 12510111 -** owned by College Trustees of Central Piedmont encompassing parking lot for CPCC located at 1138 Elizabeth Avenue;

7. **PIN 12510106** - owned by College Trustees of Central Piedmont encompassing several buildings at CPCC located at 1201/1206/1139/1308/1300 Elizabeth Avenue/1225 E. 4th Street;
8. **PIN 12510115** - owned by College Trustees of Central Piedmont encompassing parking lot at CPCC located at 1105 Charlottetowne Avenue;
9. **PIN 12510114** - owned by College Trustees of Central Piedmont encompassing Levine Information Technology building at CPCC located at 1125 Charlotttowne Avenue;
10. **PIN 12510901** - owned by College Trustees (Attn: Financial Central Piedmont Community encompassing Disher Building located 1300/1308/1322/1330 E 4th Street;
11. **PIN 12510998** – owned by AOA Leasing Co., C/O Adams Outdoor Advertising encompassing a vacant lot;
12. **PIN 12510305** - owned by Mecklenburg County encompassing commercial building located 1427/1423 E 4th Street;
13. **PIN 12510302** - owned by College Central Piedmont Community encompassing CPCC building located 1112/1108 Charlottetowne Avenue;
14. **PIN 12510319** - owned by 1427 East Fourth Street LLC encompassing a commercial building located 1422 Elizabeth Avenue;
15. **PIN 08019407** - owned by G&K Enterprises Co. LLC encompassing parking lot for Malay Cusine and Fortune Cookie located 1425 Elizabeth Avenue;
16. **PIN 08019413** - owned by Eighteen East Fifth Street No 1 One Thousand Four Hundred encompassing parking lot for Malay Cusine and Fortune Cookie located 1418 E. 5th Street;
17. **PIN 08019415** - owned by Kaveah Properties IV LLC encompassing parking lot for Malay Cusine and Fortune Cookie located 1414 E. 5th Street;
18. **PIN 08019414** - owned by Gary D Hixson & Jame B Hixson encompassing Hixson Design building located 1412 E. 5th Street;
19. **PIN 08019401** - owned by Mcree Family Property – east Independence BV LLC encompassing Delectables by Holy Catering building located 1224 Charlottetowne Avenue;
20. **PIN 08019302** - owned by Trustee of the Central Piedmont Community College encompassing CPCC building located 1230 Charlottetowne Avenue;
21. **PIN 08019303** – owned by Central Piedmont Community College encompassing a building located at 1409 E 5th Street;
22. **PIN 08013205** - owned by College (TST) % Financial Central Piedmont Community encompassing CPCC building located 1205 Charlottetowne Avenue;,
23. **PIN 08013204** - owned by College (TST) % Financial Central Piedmont Community encompassing CPCC building located NA/1205 Charlottetowne Avenue;
24. **PIN 12509501** – owned by Mecklenburg County encompassing Elizabeth Neighborhood Park located 1124 Elizabeth Avenue;
25. **PIN 12509502** – owned by Mecklenburg County and % Real Estate/Finance Dept encompassing Elizabeth Neighborhood Park located 1127 E 4th Street;

26. **PIN 12509503** - owned by Mecklenburg County and % Real Estate/Finance Dept encompassing Elizabeth Neighborhood Park located 125 N Kings Drive; and,
27. **PIN 12510112** - owned by Howard R Fierman encompassing the curb located 1132 Elizabeth Avenue.

Site specific Domenico groundwater modeling results indicate an exceedance of the SSTLs for tetrachloroethene (PCE) in source groundwater as modeled to be protective of the closest POE which is considered to be the boundary of the property (Mecklenburg County property located between East 4th Street and Elizabeth Ave) and the Little Sugar Creek located approximately 1950 feet northwest (downgradient as indicated on **Figure #1**) from what is considered to be the soil and groundwater source area. Site specific Domenico groundwater modeling results did not indicate an exceedance of the SSTLs for source soil or source groundwater at the Little Sugar Creek located approximately 1950 feet northwest (downgradient as indicated on **Figure #1**) from what is considered to be the soil and groundwater source area. As downgradient monitoring well MW-12 still exhibited low levels of chlorinated solvent constituents, a surface water sample (SW-01) was collected from the Little Sugar Creek to evaluate if affected groundwater was impacting surface water quality. Surface water quality analytical results of sample SW-01 did not identify any contaminants above the NCAC 2B surface water MCLs. As temporal monitoring of groundwater quality at the site has indicated that affected groundwater is static and stable in respect to contaminant concentration and distribution, similar correlation can be made in respect to surface water quality remaining stable and below NCAC 2B MCLs. The location of the Mecklenburg County property located between East 4th Street and Elizabeth Ave and the Little Sugar Creek in respect to the site is indicated on **Figure 1** of **Attachment 1**. Contrarily, our evaluation of site groundwater, as depicted on **Figure 2** of **Attachment 1**, indicates that the plume has not migrated as far as the modeling projects as indicated by the absence of chlorinated solvent constituents in groundwater samples collected from shallow monitoring well MW-13A (which is located closer to the identified contaminant source area than the selected POEs). This may be attributed to the following:

- The Domenico groundwater model utilized as part of this evaluation does not account for physical and/or biological mediated contaminant degradation that may be occurring naturally in the subsurface as the contaminant(s) migrate between the source area and the point of exposure.
- The rate of infiltration is a significant variable in the leaching of contaminants from contaminated soil to groundwater. Specifically, the concentration of dissolved phase contaminants in the groundwater beneath the site is proportional to the degree of partitioning of contaminants from affected source soils to groundwater. As the rate of infiltration is a significant variable in the leaching of contaminants from contaminated soil to groundwater it is reasonable to assume that plume expansion will occur in the event that infiltration rates increase in the area of source soil contaminations. In general, increased contaminant

partitioning from soil to groundwater may result in a greater groundwater contaminant mass and ultimately a larger contaminant plume.

The exposure units are indicated on **Figure 1** in **Attachment 1**. The results of the risk assessment are summarized as follows:

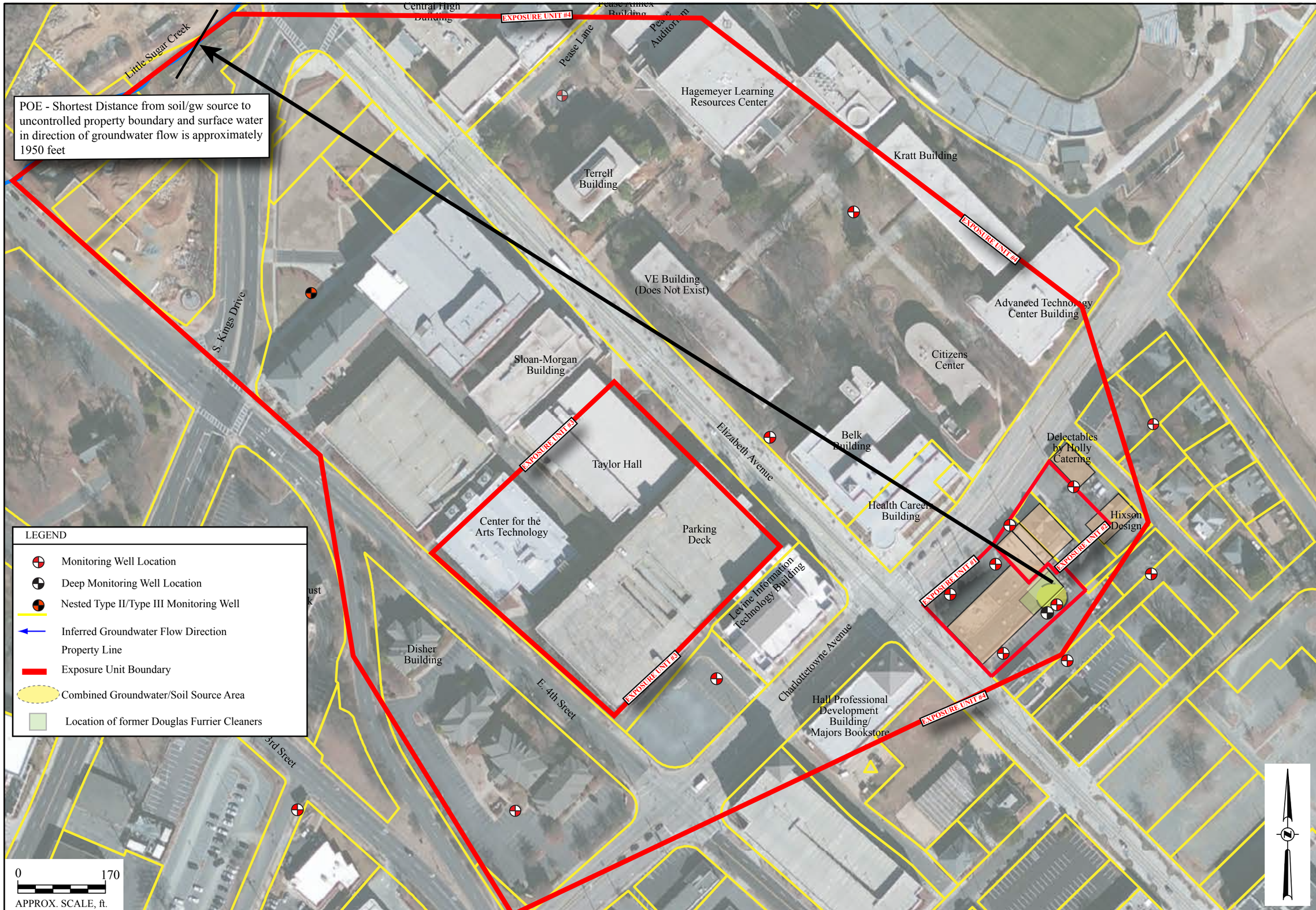
- **Exposure Unit #1** – Assuming current conditions, the levels of carcinogenic risk and hazard index are acceptable for commercial use. Assuming future conditions, the levels of carcinogenic risk and hazard index are acceptable for commercial use as well as residential use.
- **Exposure Unit #2** – Assuming current conditions, the levels of carcinogenic risk and hazard index are acceptable for commercial use. Assuming future conditions, the levels of carcinogenic risk and hazard index are not acceptable for commercial use as well as residential use due to exceedences of the indoor air exposure pathway. Therefore applicable vapor intrusion land use restrictions should be implemented as part of the risk management plan.
- **Exposure Unit #3** – Assuming current conditions, the levels of carcinogenic risk and hazard index are acceptable for commercial use. Assuming future conditions, the levels of carcinogenic risk and hazard index are not acceptable for commercial use as well as residential use due to exceedences of the indoor air exposure pathway. Therefore applicable vapor intrusion land use restrictions should be implemented as part of the risk management plan.
- **Exposure Unit #4** – Assuming current conditions, the levels of carcinogenic risk and hazard index are acceptable for commercial use. Assuming future conditions, the levels of carcinogenic risk and hazard index are acceptable for commercial use as well as residential use.

As groundwater contaminant concentrations above the NCDENR 2L Groundwater Standards are present within Exposure Unit #1 through #4, land use controls should be implemented preventing the installation of water supply wells within Exposure unit #1 through #4.

A figure depicting the proposed land use controls for each exposure unit is included as **Figure 5** in **Attachment 1**.

Attachment 1

Exposure Unit Figures



Exposure Unit Map
Douglas Furrier
1200 Charlottetown Avenue
Charlotte, NC
DSCA Site DC600043

URS CORPORATION - NORTH CAROLINA
SOUTHPARK TOWERS
6000 FAIRVIEW ROAD, SUITE 200
CHARLOTTE, NC 28210
TEL: (704) 522-0330
FAX: (704) 522-0063

URS

NC

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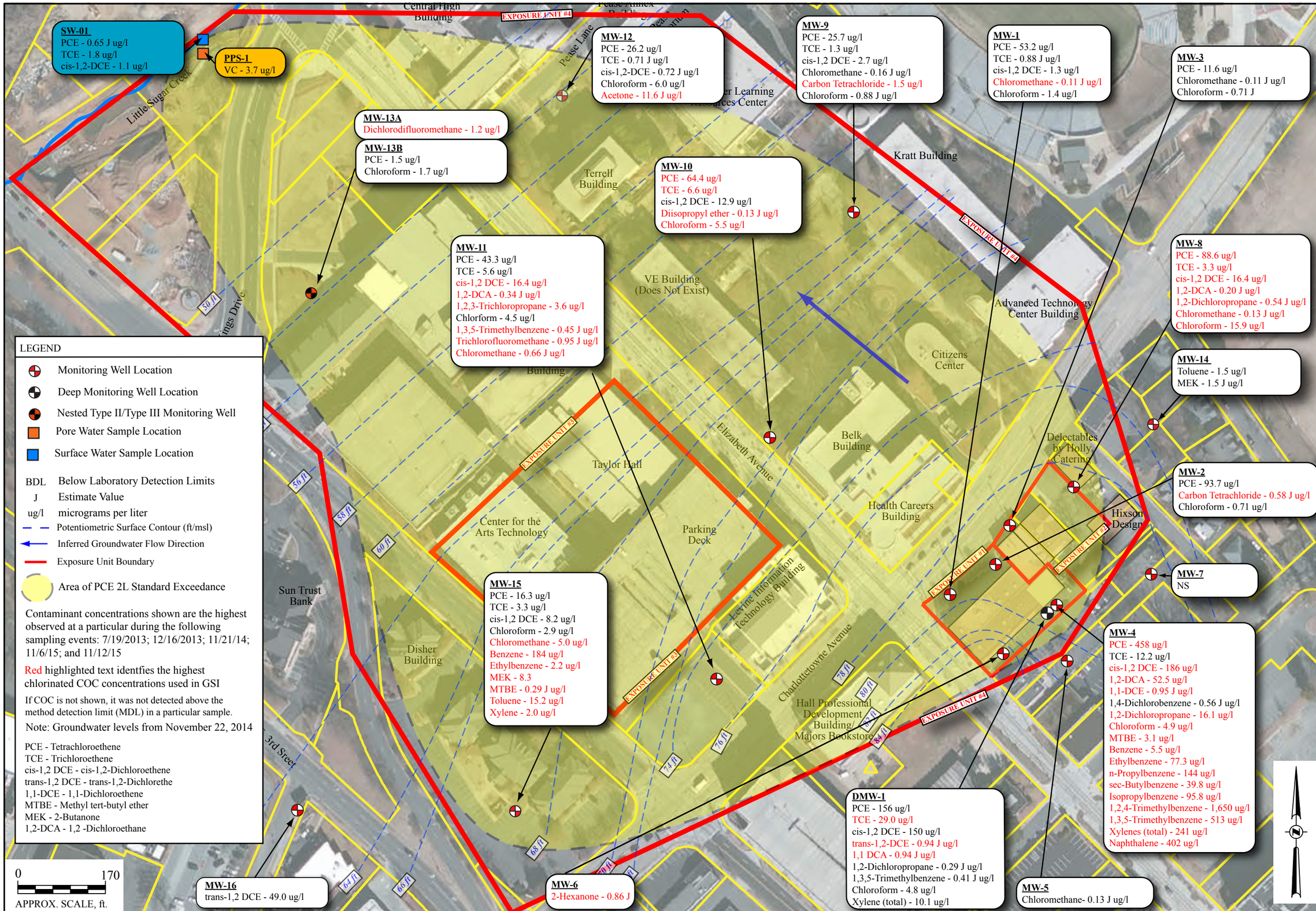
PROJECT NO.: 60488265

SHEET: FIG. 1



Groundwater Quality Map
Douglas Furrier Cleaners
1200 Charlottetown Avenue
Charlotte, NC
DSCA Site #60-0043

URS CORPORATION - NORTH CAROLINA
SOUTHPARK TOWERS
6000 FAIRVIEW ROAD, SUITE 200
CHARLOTTE, NC 28210
TEL: (704) 522-0330
FAX: (704) 522-0063

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SHEET: FIG. 2

LEGEND

- Property Line
- Approximate Location of former Douglas-Furrier$2.50 Cleaners
- Soil Source Area
- Exposure Unit Boundary
- Soil Boring Location
- Monitoring Well Location

PCE - Tetrachloroethene
TCE - Trichloroethene
mg/kg - milligrams per kilogram

Red highlighted text indicates concentrations used in Risk Assessment Model.

Soil COCs used in Risk Assessment Model include: All Listed

BDL - Below Laboratory Detection Limits

SB-1 (1'-2')
PCE - 0.030 mg/kg
cis-1,2 DCE - 0.0049 mg/kg
2-Butanone (MEK)- 0.0072 J mg/kg
1,2,4-Trimethylbenzene- 0.0017 J mg/kg

SB-1 (3'-4')
BDL

Soil Sample SV-6 (2'-3')
PCE - 0.024 mg/kg
2-Butanone - 0.011J mg/kg

Soil Sample SV-6 (5'-6')
BDL

SB-2 (1'-2')
BDL

SB-2 (5'-6')
2-Butanone (MEK) - 0.0059J mg/kg

Soil Sample SV-5 (2'-3')
PCE - 0.018 mg/kg

Soil Sample SV-5 (5'-6')
BDL

SB-4 (1'-2')
PCE - 0.019 mg/kg

SB-4 (5'-6')
PCE - 0.0071 mg/kg

Soil Sample SV-3 (1'-2')
PCE - 0.023 mg/kg
2-Butanone - 0.017J mg/kg

Soil Sample SV-3 (5'-6')
BDL

SB-3 (1'-2'
BDL

SB-3 (5'-6')
BDL

Soil Sample SV-1A (1'-2')
Ethylbenzene - 0.10 J mg/kg
Xylenes (Total) - 0.61 mg/kg
Naphthalene - 3.3 mg/kg
1,1,1 TCA - 0.098 J mg/kg
n-Butylbenzene - 5.3 mg/kg
sec-Butylbenzene - 2.9 mg/kg
tert-Butylbenzene - 1.3 mg/kg
Cumene - 0.80 mg/kg
p-Isopropyltoluene - 11.5 mg/kg
n-Propylbenzene - 1.8 mg/kg
1,2,4 Trimethylbenzene - 38.7 mg/kg
1,3,5 Trimethylbenzene - 15.2 mg/kg
m&p-Xylene - 0.51J mg/kg
Isopropylbenzene - 0.80 mg/kg

Soil Sample SV-1A (2'-3')
Naphthalene - 0.013 mg/kg
2-Butanone - 0.015 J mg/kg
n-Butylbenzene - 0.050 mg/kg
sec-Butylbenzene - 0.028 mg/kg
tert-Butylbenzene - 0.013 mg/kg
Cumene - 0.0064 mg/kg
p-Isopropyltoluene - 0.12 mg/kg
n-Propylbenzene - 0.015 mg/kg
1,2,4 Trimethylbenzene - 0.30 mg/kg
1,3,5 Trimethylbenzene - 0.14 mg/kg
Isopropylbenzene - 0.0064 mg/kg

Soil Sample SV-1A (3'-4')
Ethylbenzene - 0.33 mg/kg
Xylenes (Total) - 0.57 mg/kg
Naphthalene - 1.6 mg/kg
1,1,1 TCA - 0.10 J mg/kg
n-Butylbenzene - 1.4 mg/kg
sec-Butylbenzene - 2.2 mg/kg
tert-Butylbenzene - 0.86 mg/kg
Cumene - 1.2 mg/kg
p-Isopropyltoluene - 2.7 mg/kg
n-Propylbenzene - 1.9 mg/kg
1,2,4 Trimethylbenzene - 25.9 mg/kg
mXylene - 0.51 J mg/kg
Isopropylbenzene - 1.2 mg/kg

Soil Sample SV-1 (2'-3')
cis-1,2 DCE - 0.075 J mg/kg
Naphthalene - 0.42 mg/kg
1,1,1 TCA - 0.09 J mg/kg
tert-Butylbenzene - 0.40 mg/kg

Soil Sample SV-1 (5'-6')
Ethylbenzene - 0.26 J mg/kg
Naphthalene - 3.3 mg/kg
1,1,1 TCA - 0.21 J mg/kg
n-Butylbenzene - 3.1 mg/kg
sec-Butylbenzene - 2.9 mg/kg
tert-Butylbenzene - 0.80 mg/kg
Xylenes (total) - 1.1 mg/kg
Cumene - 0.96 mg/kg
p-Isopropyltoluene - 4.7 mg/kg
n-Propylbenzene - 2.3 mg/kg
1,2,4 Trimethylbenzene - 31.4 mg/kg
1,3,5 Trimethylbenzene - 1.2 mg/kg
Isopropylbenzene - 0.96 mg/kg

Soil Sample SV-2 (1'-2')
PCE - 0.0039 J mg/kg

Soil Sample SV-2 (4'-5')
BDL

MW-4 (2'-3')
BDL

MW-4 (4'-5')
BDL

REFRIGERATOR
STORAGE BUILDING
KITCHEN
WOMEN
MEN
DRINKS
WOMEN
STORAGE
MEN
DJ
TABLE
KITCHEN
BAR

SV-5
SV-3
SB-4
SB-3
SV-6
SB-1
SB-2
SV-2
SV-1A
SV-1
MW-4

0 10
APPROX. SCALE, ft.

Soil Summary Map
Douglas-Furrier Cleaners
1200 Charlottetown Avenue
Charlotte, NC
DSCA Site # 60-0043

URS CORPORATION - NORTH CAROLINA
TWO SOUTH EXECUTIVE PARK
6135 PARK SOUTH DRIVE, SUITE 300
CHARLOTTE, NC 28210
TEL: (704) 522-0330
FAX: (704) 522-0063

URS

NCDENR

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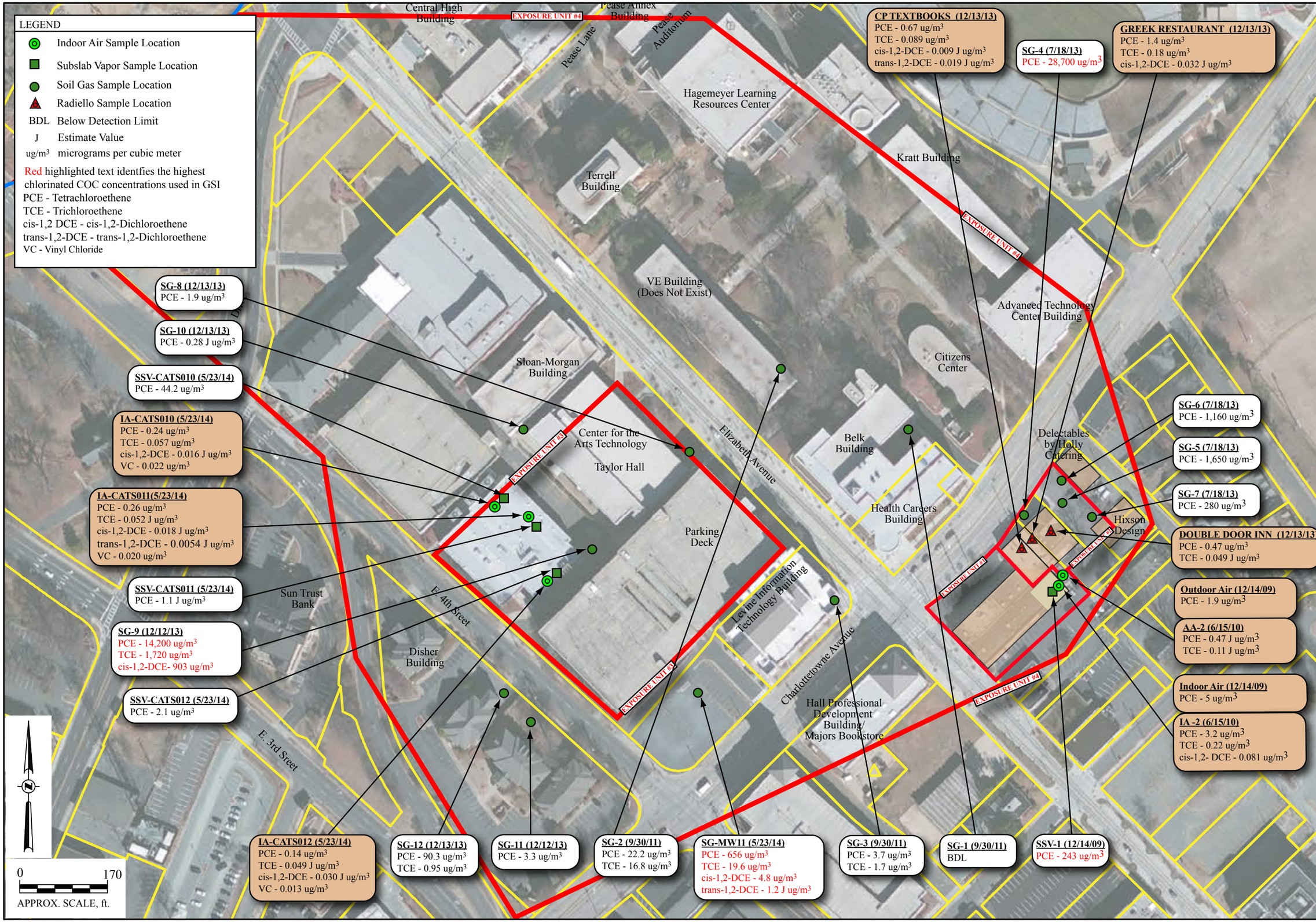
SHEET: FIG. 3



Air Analytical Summary Map
Douglas Furrier Cleaners
1200 Charlottetown Avenue
Charlotte, NC
DSCA Site # 60-0043

URS CORPORATION - NORTH CAROLINA
SOUTHPARK TOWERS
6000 FAIRVIEW ROAD, SUITE 200
CHARLOTTE, NC 28210
TEL: (704) 522-0330
FAX: (704) 522-0063

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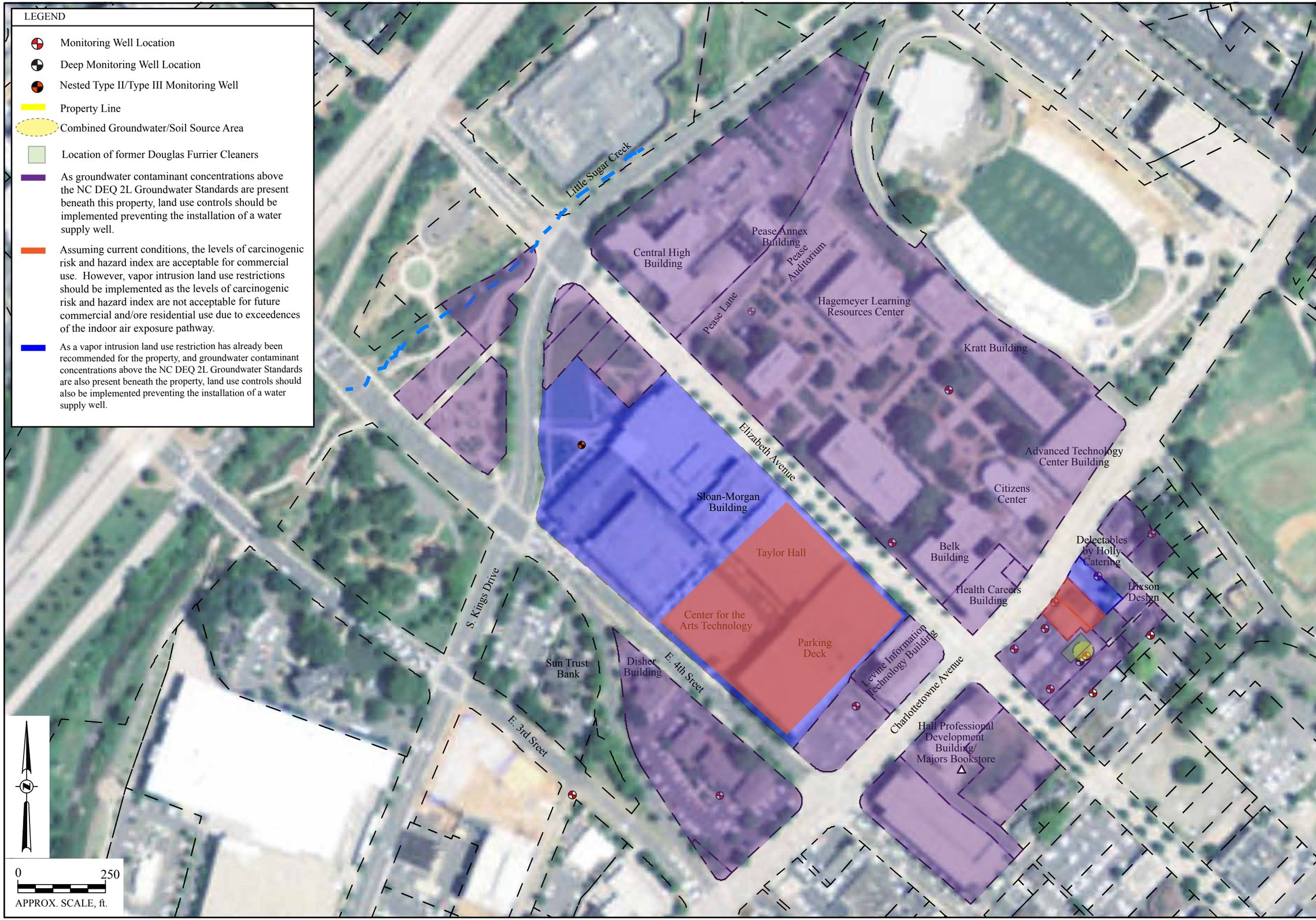
PROJECT NO.: 60488265

SHEET: FIG. 4



Land Use Control Areas
Douglas Furrier
1200 Charlottetown Avenue
Charlotte, NC
DSCA Site DC600043

URS CORPORATION - NORTH CAROLINA
SOUTHPARK TOWERS
6000 FAIRVIEW ROAD, SUITE 200
CHARLOTTE, NC 28210
TEL: (704) 522-0330
FAX: (704) 522-0063

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PROJECT NO.:	60488265

SHEET:
FIG. 5

Attachment 2

Analytical Data Tables

Table 8: Analytical Data for Groundwater **ADT 8**

DSCA ID No.: DC600043

Groundwater Sampling Point	Sampling Date (mm/dd/yy)	Benzene	cis-1,2-Dichloroethylene	Ethylbenzene	Methyl tert-butyl ether (MTBE)	Naphthalene	Tetrachloroethylene	Toluene	trans-1,2-Dichloroethylene	Trichloroethylene	Vinyl chloride	Xylenes (total)	1,1,2-Trichloroethane	1,1-Dichloroethane	1,1-Dichloroethylene	1,2-Dichloroethane (EDC)	Carbon tetrachloride	Chloroform	1,2,4-Trimethylbenzene	1,2-Dichloropropane	1,3,5-Trimethylbenzene
		[mg/L]																			
TMW-01	5/26/2008	< 0.00025	0.003	< 0.0003	< 0.00021	< 0.00024	0.0274	< 0.00026	< 0.00049	0.0011	< 0.00062	< 0.00066	< 0.00029	< 0.00032	< 0.00056	< 0.00012	< 0.00025	0.00057 J	< 0.00031	< 0.00027	< 0.00036
TMW-02	5/26/2008	0.03	0.157	0.0122	< 0.00021	< 0.00024	1.91	0.00082 j	0.0021	0.261	0.0017	0.001 j	< 0.00029	< 0.00032	< 0.00056	0.0225	< 0.00025	< 0.00014	0.00094 J	< 0.00027	0.0025
TMW-03	5/26/2008	< 0.00025	0.0015	< 0.0003	< 0.00021	< 0.00024	0.152	< 0.00026	< 0.00049	0.0045	< 0.00062	< 0.00066	< 0.00029	< 0.00032	< 0.00056	< 0.00012	< 0.00025	< 0.00014	< 0.00031	< 0.00027	< 0.00036
TMW-04	5/26/2008	0.0134	0.116	< 0.0003	< 0.00021	0.0022	4.72	0.00032 J	0.00063 J	0.158	0.00089 J	< 0.00066	0.003	< 0.00032	< 0.00056	0.0265	< 0.00025	< 0.00014	< 0.00031	0.00092 J	< 0.00036
MW-1	05/21/09	<0.001	0.0017	<0.001	<0.001	<0.001	0.0529	<0.001	<0.001	0.002	<0.001	<0.002	<0.001	<0.001	<0.001	<0.001	<0.001	0.0035	<0.001	<0.001	<0.001
MW-2	05/21/09	<0.001	0.0002 J	<0.001	<0.001	<0.001	0.0461	<0.001	<0.001	0.00058 J	<0.001	<0.002	<0.001	<0.001	<0.001	<0.001	0.00046 J	0.00037 J	<0.001	<0.001	<0.001
MW-3	05/21/09	<0.001	<0.001	<0.001	<0.001	0.00024 J	0.0491	<0.001	<0.001	<0.001	<0.001	<0.002	<0.001	<0.001	<0.001	<0.001	<0.001	0.00076 J	<0.001	<0.001	<0.001
MW-4	05/21/09	0.00085 J	0.0193	0.0281	<0.001	0.271	0.659	0.00062 J	<0.001	0.0056	<0.001	0.206	<0.001	<0.001	<0.001	0.196	<0.001	0.0235	1.14	0.0042	<0.001
MW-5	05/21/09	<0.001	<0.001	<0.001	<0.001	0.00027 J	<0.001	<0.001	<0.001	<0.001	<0.001	<0.002	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
MW-6	05/21/09	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.002	<0.001	<0.001	<0.001	<0.001	<0.001	0.00078 J	<0.001	<0.001	<0.001
MW-7	1/8/2010	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.002	<0.001	<0.001	<0.001	<0.001	<0.001	0.00085J	<0.001	<0.001	<0.001
MW-8	12/16/2009	<0.001	0.0099	<0.001	<0.001	<0.001	0.16	0.0022	<0.001	0.0039	<0.001	<0.002	<0.001	<0.001	<0.001	<0.001	<0.001	0.0072	<0.001	0.0032	<0.001
MW-9	12/16/2009	<0.001	0.003	0.003	<0.001	<0.001	0.0116	0.0032	<0.001	0.0027	<0.001	0.0094	<0.001	<0.001	<0.001	<0.001	<0.001	0.0078	0.0026	<0.001	<0.001
MW-10	12/16/2009	<0.001	0.0164	0.0032	0.0021	<0.001	0.0841	0.0031	<0.001	0.0093	<0.001	0.0106	<0.001	<0.001	<0.001	<0.001	<0.001	0.0108	0.003	<0.001	<0.001
MW-11	12/16/2009	<0.001	0.0109	0.0031	<0.001	<0.001	0.0444	0.0029	<0.001	0.0058	<0.001	0.0101	<0.001	<0.001	<0.001	<0.001	<0.001	0.0082	0.0028	<0.001	<0.001

Table 8: Analytical Data for Groundwater **ADT 8**

DSCA ID No.: DC600043

Groundwater Sampling Point	Sampling Date (mm/dd/yy)	Benzene	cis-1,2-Dichloroethylene	Ethylbenzene	Methyl tert-butyl ether (MTBE)	Naphthalene	Tetrachloroethylene	Toluene	trans-1,2-Dichloroethylene	Trichloroethylene	Vinyl chloride	Xylenes (total)	1,1,2-Trichloroethane	1,1-Dichloroethane	1,1-Dichloroethylene	1,2-Dichloroethane (EDC)	Carbon tetrachloride	Chloroform	1,2,4-Trimethylbenzene	1,2-Dichloropropane	1,3,5-Trimethylbenzene
		[mg/L]																			
DMW-1	12/16/2009	<0.001	0.0103	0.0032	<0.001	0.0085	0.0244	0.0028	<0.001	0.0033	<0.001	0.0113	<0.001	<0.001	<0.001	0.0033	<0.001	0.0037	0.034	<0.001	0.0134
MW-1	7/19/2013	<0.001	0.0013	<0.001	<0.001	<0.001	0.0532	<0.001	<0.001	0.0008 8 J	<0.001	<0.002	<0.001	<0.001	<0.001	<0.001	<0.001	0.0014	<0.001	<0.001	<0.001
MW-2	7/19/2013	<0.001	<0.001	<0.001	<0.001	<0.001	0.0937	<0.001	<0.001	<0.001	<0.001	<0.002	<0.001	<0.001	<0.001	<0.001	0.0005 8 J	0.0005 4 J	<0.001	<0.001	<0.001
MW-3	7/19/2013	<0.001	<0.001	<0.001	<0.001	<0.001	0.0116	<0.001	<0.001	<0.001	<0.001	<0.002	<0.001	<0.001	<0.001	<0.001	<0.001	0.0007 1 J	<0.001	<0.001	<0.001
MW-4	7/19/2013	0.0055	0.186	0.0773	0.0031	0.402	0.458	<0.001	<0.001	0.0122	<0.001	0.241	<0.001	<0.001	0.0009 5 J	0.0525	<0.001	0.0049	1.65	0.0161	0.513
MW-5	7/19/2013	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.002	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
MW-6	7/19/2013	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.002	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
MW-7	7/19/2013	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
MW-8	7/19/2013	<0.001	0.0164	<0.001	<0.001	<0.001	0.0886	<0.001	<0.001	0.0033	<0.001	<0.002	<0.001	<0.001	<0.001	0.0002 0 J	<0.001	0.0159	<0.001	0.0005 4 J	<0.001
MW-9	7/19/2013	<0.001	0.0027	<0.001	<0.001	<0.001	0.0257	<0.001	<0.001	0.0013	<0.001	<0.002	<0.001	<0.001	<0.001	<0.001	0.0015	0.0008 8 J	<0.001	<0.001	<0.001
MW-10	7/19/2013	<0.001	0.0129	<0.001	<0.001	<0.001	0.0644	<0.001	<0.001	0.0066	<0.001	<0.002	<0.001	<0.001	<0.001	<0.001	<0.001	0.0055	<0.001	<0.001	<0.001
MW-11	7/19/2013	<0.001	0.0108	<0.001	<0.001	<0.001	0.0364	<0.001	<0.001	0.005	<0.001	<0.002	<0.001	<0.001	<0.001	<0.001	<0.001	0.0045	<0.001	<0.001	<0.001
DMW-1	7/19/2013	<0.001	0.150	<0.001	<0.001	<0.001	0.1560	<0.001	0.0009 4 J	0.029	<0.001	0.0101	<0.001	0.0009 4 J	<0.001	<0.001	<0.001	0.0048	<0.001	0.0002 9 J	0.0004 1 J
MW-12	12/16/2013	<0.001	0.0004 7 J	<0.001	<0.001	<0.001	0.0223	0.0006 1 J	<0.001	0.0007 0 J	<0.001	<0.002	<0.001	<0.001	<0.001	<0.001	<0.001	0.0054	<0.001	<0.001	<0.001
MW-13A	12/16/2013	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.002	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
MW-13B	12/16/2013	<0.001	<0.001	<0.001	<0.001	<0.001	0.0017	<0.001	<0.001	<0.001	<0.001	<0.002	<0.001	<0.001	<0.001	<0.001	<0.001	0.0017	<0.001	<0.001	<0.001
MW-14	12/16/2013	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	0.0015	<0.001	<0.001	<0.001	<0.002	<0.001	<0.001	<0.001	<0.001	<0.001	0.0092	<0.001	<0.001	<0.001

Table 8: Analytical Data for Groundwater **ADT 8**

DSCA ID No.: DC600043

Groundwater Sampling Point	Sampling Date (mm/dd/yy)	Benzene	cis-1,2-Dichloroethylene	Ethylbenzene	Methyl tert-butyl ether (MTBE)	Naphthalene	Tetrachloroethylene	Toluene	trans-1,2-Dichloroethylene	Trichloroethylene	Vinyl chloride	Xylenes (total)	1,1,2-Trichloroethane	1,1-Dichloroethane	1,1-Dichloroethylene	1,2-Dichloroethane (EDC)	Carbon tetrachloride	Chloroform	1,2,4-Trimethylbenzene	1,2-Dichloropropane	1,3,5-Trimethylbenzene
		[mg/L]																			
MW-11	11/21/2014	<0.001	0.0164	<0.001	<0.001	<0.001	0.0433	<0.001	<0.001	0.0056	<0.001	<0.002	<0.001	<0.001	<0.001	0.00034 J	<0.001	0.003	<0.001	<0.001	0.00045 J
MW-12	11/21/2014	<0.001	0.00072 J	<0.001	<0.001	<0.001	0.0262	<0.001	<0.001	0.00071 J	<0.001	<0.002	<0.001	<0.001	<0.001	<0.001	<0.001	0.006	<0.001	<0.001	<0.001
MW-13A	11/21/2014	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.002	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
MW-13B	11/21/2014	<0.001	<0.001	<0.001	<0.001	<0.001	0.0015	<0.001	<0.001	<0.001	<0.001	<0.002	<0.001	<0.001	<0.001	<0.001	<0.001	0.0011	<0.001	<0.001	<0.001
MW-15	11/21/2014	0.184	0.0082	0.0022	0.00029 J	<0.001	0.0163	0.0152	<0.001	0.0033	<0.001	0.002	<0.001	<0.001	<0.001	<0.001	<0.001	0.0029	<0.001	<0.001	<0.001
MW-16	11/6/2015	<0.25	<0.19	<0.30	<0.21	<0.24	<0.46	<0.26	0.49	<0.47	<0.62	<0.66	<0.29	<0.32	<0.56	<0.27	<0.25	<0.14	<0.31	<0.30	<0.36
MW-16	11/12/2015	<0.25	<0.19	<0.30	<0.21	<0.24	<0.46	<0.26	0.49	<0.47	<0.62	<0.66	<0.29	<0.32	<0.56	<0.27	<0.25	<0.14	<0.31	<0.30	<0.36
PPS-1	4/6/2016	NA	<0.00019	NA	NA	NA	<0.00046	NA	<0.00049	<0.00047	0.0037	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
MW-2	5/31/2016	<0.001	<0.001	<0.001	<0.001	<0.001	0.150	<0.001	<0.001	0.00082 J	<0.001	<0.002	<0.001	<0.001	<0.001	<0.001	0.0022	0.00096 J	<0.001	<0.001	<0.001
MW-4	5/31/2016	<0.04	0.0988	0.0558	<0.04	0.512	0.539	<0.04	<0.04	<0.04	<0.04	0.162	<0.04	<0.04	<0.04	0.0214 J	<0.04	<0.04	2.81	<0.04	0.991
MW-5	5/31/2016	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	0.0043	<0.001	<0.001	<0.001	<0.002	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
MW-7	5/31/2016	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.002	<0.001	<0.001	<0.001	<0.001	<0.001	0.00086 J	<0.001	<0.001	<0.001
MW-8	5/31/2016	<0.002	0.0622	<0.002	<0.002	<0.002	0.177	0.00092 J	<0.002	0.0125	<0.002	<0.004	<0.002	<0.002	<0.002	0.00053 J	<0.002	0.01	<0.002	<0.002	<0.002
MW-10	5/31/2016	<0.001	0.0123	<0.001	<0.001	<0.001	0.054	<0.001	<0.001	0.0057	<0.001	<0.002	<0.001	<0.001	<0.001	0.00040 J	<0.001	<0.001	<0.001	<0.001	<0.001
MW-11	5/31/2016	<0.001	0.027	<0.001	<0.001	<0.001	0.0711	<0.001	<0.001	0.009	<0.001	<0.002	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	0.0038	<0.001	<0.001

Table 8: Analytical Data for Groundwater **ADT 8**

DSCA ID No.: DC600043

Groundwater Sampling Point	Sampling Date (mm/dd/yy)	Benzene	cis-1,2-Dichloroethylene	Ethylbenzene	Methyl tert-butyl ether (MTBE)	Naphthalene	Tetrachloroethylene	Toluene	trans-1,2-Dichloroethylene	Trichloroethylene	Vinyl chloride	Xylenes (total)	1,1,2-Trichloroethane	1,1-Dichloroethane	1,1-Dichloroethylene	1,2-Dichloroethane (EDC)	Carbon tetrachloride	Chloroform	1,2,4-Trimethylbenzene	1,2-Dichloropropane	1,3,5-Trimethylbenzene
		[mg/L]																			
MW-12	5/31/2016	<0.001	0.00084 J	<0.001	<0.001	<0.001	0.0293	<0.001	<0.001	<0.001	<0.001	<0.002	<0.001	<0.001	<0.001	<0.001	<0.001	0.0063	<0.001	<0.001	<0.001
MW-13A	5/31/2016	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.002	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
MW-13B	5/31/2016	<0.001	<0.001	<0.001	<0.001	<0.001	0.0025	<0.001	<0.001	<0.001	<0.001	<0.002	<0.001	<0.001	<0.001	<0.001	<0.001	0.0021	<0.001	<0.001	<0.001
MW-15	5/31/2016	0.00041 J	0.0115	<0.001	<0.001	<0.001	0.0341	<0.001	<0.001	0.0061	<0.001	<0.002	<0.001	<0.001	<0.001	<0.001	<0.001	0.0035	<0.001	<0.001	<0.001
MW-16	5/31/2016	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.002	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
MW-2	8/2/2016	<0.001	<0.001	<0.001	<0.001	0.0045	0.193	<0.001	<0.001	0.0011	<0.001	<0.002	<0.001	<0.001	<0.001	<0.001	0.0023	0.0013	<0.001	<0.001	<0.001
MW-4	8/2/2016	<0.01	0.154	0.0351	<0.01	0.399	0.457	<0.01	<0.01	0.0125	<0.01	0.103	<0.01	0.0266	<0.01	<0.01	<0.01	<0.01	1.42	<0.01	0.482
MW-5	8/2/2016	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.002	<0.001	<0.001	<0.001	<0.001	<0.001	0.0023	<0.001	<0.001	<0.001
MW-8	8/2/2016	<0.002	0.0866	<0.002	<0.002	<0.002	0.207	<0.002	<0.002	0.0154	<0.002	<0.004	<0.002	<0.002	<0.002	<0.002	<0.002	0.008	<0.002	<0.002	<0.002
MW-10	8/2/2016	<0.001	0.0106	<0.001	<0.001	<0.001	0.0412	<0.001	<0.001	0.004	<0.001	<0.002	<0.001	<0.001	<0.001	<0.001	<0.001	0.0023	<0.001	<0.001	<0.001
MW-11	8/2/2016	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.002	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
MW-12	8/2/2016	<0.001	<0.001	<0.001	<0.001	<0.001	0.0267	<0.001	<0.001	0.001	<0.001	<0.002	<0.001	<0.001	<0.001	<0.001	<0.001	0.0062	<0.001	<0.001	<0.001
MW-13A	8/2/2016	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.002	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
MW-13B	8/2/2016	<0.001	<0.001	<0.001	<0.001	<0.001	0.003	<0.001	<0.001	<0.001	<0.001	<0.002	<0.001	<0.001	<0.001	<0.001	<0.001	0.005	<0.001	<0.001	<0.001

Table 8: Analytical Data for Groundwater **ADT 8**

DSCA ID No.: DC600043

Groundwater Sampling Point	Sampling Date (mm/dd/yy)	Benzene	cis-1,2-Dichloroethylene	Ethylbenzene	Methyl tert-butyl ether (MTBE)	Naphthalene	Tetrachloroethylene	Toluene	trans-1,2-Dichloroethylene	Trichloroethylene	Vinyl chloride	Xylenes (total)	1,1,2-Trichloroethane	1,1-Dichloroethane	1,1-Dichloroethylene	1,2-Dichloroethane (EDC)	Carbon tetrachloride	Chloroform	1,2,4-Trimethylbenzene	1,2-Dichloropropane	1,3,5-Trimethylbenzene
		[mg/L]																			
MW-15	8/2/2016	<0.001	0.011	<0.001	<0.001	<0.001	0.0312	<0.001	<0.001	0.006	<0.001	<0.002	<0.001	<0.001	<0.001	<0.001	<0.001	0.0029	<0.001	<0.001	<0.001
MW-16	8/2/2016	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.002	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001

Table 8(1): Analytical Data for Groundwater (User Specified Chemicals) **ADT 8(1)**

DSCA ID No.: DC600043

Groundwater Sampling Point	Sampling Date (mm/dd/yy)	Dichlorodifluoromethane	Isopropylbenzene (Cumene)	Diisopropyl ether	p-Isopropyltoluene	sec-Butylbenzene	tert-Butylbenzene	trans-1,3-Dichloropropene	Trichlorofluoromethane	1,4-Dichlorobenzene	2-Hexanone	Bromodichloromethane	Chloromethane	Dibromochloromethane	m&p-Xylene	o-Xylene	n-Butylbenzene	n-Propylbenzene	Acetone	2-Butanone (MEK)	1,2,3-Trichloropropane
		[mg/L]																			
TMW-01	05/26/08	< 0.00021	< 0.0004	< 0.00012	< 0.00031	< 0.00038	0.00051 J	< 0.00026	< 0.0002	<0.001	<0.005	<0.001	<0.001	<0.001	<0.002	<0.001	<0.001	<0.001	<0.025	<0.005	<0.001
TMW-02	05/26/08	< 0.00021	0.011	0.0295	0.00081 J	0.0041	< 0.0004	0.00034 J	< 0.0002	<0.001	<0.005	<0.001	<0.001	<0.001	<0.002	<0.001	<0.001	<0.001	<0.025	<0.005	<0.001
TMW-03	05/26/08	< 0.00021	< 0.0004	< 0.00012	< 0.00031	< 0.00038	< 0.0004	< 0.00026	0.00021 J	<0.001	<0.005	<0.001	<0.001	<0.001	<0.002	<0.001	<0.001	<0.001	<0.025	<0.005	<0.001
TMW-04	05/26/08	0.00024 J	0.0015	0.0777	< 0.00031	< 0.00038	< 0.0004	< 0.00026	< 0.0002	<0.001	<0.005	<0.001	<0.001	<0.001	<0.002	<0.001	<0.001	<0.001	<0.025	<0.005	<0.001
MW-1	05/21/09	<0.001	<0.001	NA	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.005	0.00087 J	0.00063 J	0.00023 J	<0.002	<0.001	<0.001	<0.001	<0.025	<0.005	<0.001
MW-2	05/21/09	<0.001	<0.001	NA	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.005	<0.001	0.0015	<0.001	<0.002	<0.001	<0.001	<0.001	<0.025	<0.005	<0.001
MW-3	05/21/09	<0.001	<0.001	NA	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.005	<0.001	<0.001	<0.001	<0.002	<0.001	<0.001	<0.001	<0.025	<0.005	<0.001
MW-4	05/21/09	<0.001	0.0787	NA	<0.001	<0.001	<0.001	<0.001	<0.001	0.00044 J	<0.005	<0.001	<0.001	<0.001	0.0591	0.147	0.034	0.0924	<0.025	<0.005	<0.001
MW-5	05/21/09	<0.001	<0.001	NA	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.005	<0.001	<0.001	<0.001	<0.002	<0.001	<0.001	<0.001	<0.025	<0.005	<0.001
MW-6	05/21/09	<0.001	<0.001	NA	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	0.00086 J	<0.001	<0.001	<0.001	<0.002	<0.001	<0.001	<0.001	<0.025	<0.005	<0.001
MW-7	1/8/10	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.005	<0.001	<0.001	<0.001	<0.002	<0.001	<0.001	<0.001	<0.025	<0.005	<0.001
MW-8	12/16/09	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.005	<0.001	<0.001	<0.001	<0.002	<0.001	<0.001	<0.001	<0.025	<0.005	<0.001
MW-9	12/16/09	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.005	0.0051	<0.001	0.0049	0.0061	0.0033	<0.001	<0.001	<0.025	<0.005	<0.001
MW-10	12/16/09	<0.001	<0.001	0.0027	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.005	<0.001	<0.001	<0.001	0.0069	0.0037	<0.001	<0.001	<0.025	<0.005	<0.001
MW-11	12/16/09	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.005	<0.001	<0.001	<0.001	0.0065	0.0035	0.0026	<0.001	<0.025	<0.005	<0.001

Table 8(1): Analytical Data for Groundwater (User Specified Chemicals) **ADT 8(1)**

DSCA ID No.: DC600043

Groundwater Sampling Point	Sampling Date (mm/dd/yy)	Dichlorodifluoromethane	Isopropylbenzene (Cumene)	Diisopropyl ether	p-Isopropyltoluene	sec-Butylbenzene	tert-Butylbenzene	trans-1,3-Dichloropropene	Trichlorofluoromethane	1,4-Dichlorobenzene	2-Hexanone	Bromodichloromethane	Chloromethane	Dibromochloromethane	m&p-Xylene	o-Xylene	n-Butylbenzene	n-Propylbenzene	Acetone	2-Butanone (MEK)	1,2,3-Trichloropropane
		[mg/L]																			
DMW-1	12/16/09	<0.001	0.0043	<0.001	0.0074	<0.001	<0.001	<0.001	<0.001	<0.001	<0.005	0.0034	<0.001	<0.001	0.0069	0.0044	0.005	0.0047	<0.025	<0.005	<0.001
MW-1	7/19/13	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.005	<0.001	0.00011 J	<0.001	<0.002	<0.001	<0.001	<0.001	<0.025	<0.005	<0.001
MW-2	7/19/13	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.005	<0.001	<0.001	<0.001	<0.002	<0.001	<0.001	<0.001	<0.025	<0.005	<0.001
MW-3	7/19/13	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.005	<0.001	0.00011 J	<0.001	<0.002	<0.001	<0.001	<0.001	<0.025	<0.005	<0.001
MW-4	7/19/13	<0.001	0.0958	<0.001	<0.001	0.0398	<0.001	<0.001	<0.001	0.00056 J	<0.005	<0.001	<0.001	<0.001	0.130	0.112	<0.001	0.144	<0.025	<0.005	<0.001
MW-5	7/19/13	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.005	<0.001	0.00013 J	<0.001	<0.002	<0.001	<0.001	<0.001	<0.025	<0.005	<0.001
MW-6	7/19/13	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	0.00086 J	<0.001	<0.001	<0.001	<0.002	<0.001	<0.001	<0.001	<0.025	<0.005	<0.001
MW-7	7/19/13	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	<0.001
MW-8	7/19/13	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.005	<0.001	0.00013 J	<0.001	<0.002	<0.001	<0.001	<0.001	<0.025	<0.005	<0.001
MW-9	7/19/13	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.005	<0.001	0.0016 J	<0.001	<0.002	<0.001	<0.001	<0.001	<0.025	<0.005	<0.001
MW-10	7/19/13	<0.001	<0.001	0.00013 J	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.005	<0.001	<0.001	<0.001	<0.002	<0.001	<0.001	<0.001	<0.025	<0.005	<0.001
MW-11	7/19/13	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.005	<0.001	<0.001	<0.001	<0.002	<0.001	<0.001	<0.001	<0.025	<0.005	<0.001
DMW-1	7/19/13	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.005	<0.001	<0.001	<0.001	<0.002	<0.001	<0.001	<0.001	<0.025	<0.005	<0.001
MW-12	12/16/13	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.005	<0.001	<0.001	<0.001	<0.002	<0.001	<0.001	<0.001	0.0116 J	<0.005	<0.001
MW-13A	12/16/13	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.005	<0.001	<0.001	<0.001	<0.002	<0.001	<0.001	<0.001	<0.025	<0.005	<0.001
MW-13B	12/16/13	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.005	<0.001	<0.001	<0.001	<0.002	<0.001	<0.001	<0.001	<0.025	<0.005	<0.001
MW-14	12/16/13	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.005	<0.001	<0.001	<0.001	<0.002	<0.001	<0.001	<0.001	<0.025	0.0015 J	<0.001

Table 8(1): Analytical Data for Groundwater (User Specified Chemicals) **ADT 8(1)**

DSCA ID No.: DC600043

Groundwater Sampling Point	Sampling Date (mm/dd/yy)	Dichlorodifluoromethane	Isopropylbenzene (Cumene)	Diisopropyl ether	p-Isopropyltoluene	sec-Butylbenzene	tert-Butylbenzene	trans-1,3-Dichloropropene	Trichlorofluoromethane	1,4-Dichlorobenzene	2-Hexanone	Bromodichloromethane	Chloromethane	Dibromochloromethane	m&p-Xylene	o-Xylene	n-Butylbenzene	n-Propylbenzene	Acetone	2-Butanone (MEK)	1,2,3-Trichloropropane
		[mg/L]																			
MW-11	11/21/14	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	0.0009 5 J	<0.001	<0.005	<0.001	0.0006 6 J	<0.001	<0.002	<0.001	<0.001	<0.001	<0.025	<0.005	0.0036
MW-12	11/21/14	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.005	<0.001	<0.001	<0.001	<0.002	<0.001	<0.001	<0.001	<0.025	<0.005	<0.001
MW-13A	11/21/14	0.0012	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.005	<0.001	<0.001	<0.001	<0.002	<0.001	<0.001	<0.001	<0.025	<0.005	<0.001
MW-13B	11/21/14	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.005	<0.001	<0.001	<0.001	<0.002	<0.001	<0.001	<0.001	<0.025	<0.005	<0.001
MW-15	11/21/14	<0.001	0.0011	<0.001	0.0023	<0.001	<0.001	<0.001	<0.001	<0.001	<0.005	<0.001	0.005	<0.001	0.002	0.0003 1 J	<0.001	<0.001	0.426	0.0083	<0.001
MW-16	11/6/15	<0.21	<0.40	<0.12	<0.31	<0.38	<0.40	<0.26	<0.20	<0.33	<0.46	<0.18	<0.54	<0.21	<0.66	<0.23	<0.41	<0.42	<10	<0.96	<0.33
MW-16	11/12/15	<0.21	<0.40	<0.12	<0.31	<0.38	<0.40	<0.26	<0.20	<0.33	<0.46	<0.18	<0.54	<0.21	<0.66	<0.23	<0.41	<0.42	<10	<0.96	<0.33
PPS-1	4/6/16	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
MW-2	5/31/16	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.002	<0.001	<0.001	<0.001	<0.025	<0.005	<0.001
MW-4	5/31/16	<0.04	0.127	<0.04	0.452	0.106	<0.04	<0.04	<0.04	<0.04	<0.04	<0.04	<0.04	<0.04	0.1	0.0619	0.142	0.255	1	<0.2	<0.04
MW-5	5/31/16	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.002	<0.001	<0.001	<0.001	<0.025	<0.005	<0.001
MW-7	5/31/16	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.002	<0.001	<0.001	<0.001	<0.025	<0.005	<0.001
MW-8	5/31/16	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.004	<0.002	<0.002	<0.002	<0.050	<0.010	<0.002
MW-10	5/31/16	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.002	<0.001	<0.001	<0.001	<0.025	<0.005	<0.001
MW-11	5/31/16	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.002	<0.001	<0.001	<0.001	<0.025	<0.005	<0.001

Table 8(1): Analytical Data for Groundwater (User Specified Chemicals) **ADT 8(1)**

DSCA ID No.: DC600043

Groundwater Sampling Point	Sampling Date (mm/dd/yy)	Dichlorodifluoromethane	Isopropylbenzene (Cumene)	Diisopropyl ether	p-Isopropyltoluene	sec-Butylbenzene	tert-Butylbenzene	trans-1,3-Dichloropropene	Trichlorofluoromethane	1,4-Dichlorobenzene	2-Hexanone	Bromodichloromethane	Chloromethane	Dibromochloromethane	m&p-Xylene	o-Xylene	n-Butylbenzene	n-Propylbenzene	Acetone	2-Butanone (MEK)	1,2,3-Trichloropropane
		[mg/L]																			
MW-12	5/31/16	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.002	<0.001	<0.001	<0.001	<0.025	<0.005	<0.001
MW-13A	5/31/16	0.0028	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.002	<0.001	<0.001	<0.001	<0.025	<0.005	<0.001
MW-13B	5/31/16	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.002	<0.001	<0.001	<0.001	<0.025	<0.005	<0.001
MW-15	5/31/16	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.002	<0.001	<0.001	<0.001	<0.025	<0.005	<0.001
MW-16	5/31/16	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.002	<0.001	<0.001	<0.001	<0.025	<0.005	<0.001
MW-2	8/2/16	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.002	<0.001	<0.001	<0.001	<0.025	<0.005	<0.001
MW-4	8/2/16	<0.01	0.0718	<0.01	0.152	0.0344	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	0.0702	0.0325	<0.01	0.117	<0.25	<0.05	<0.01
MW-5	8/2/16	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.002	<0.001	<0.001	<0.001	<0.025	<0.005	<0.001
MW-8	8/2/16	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.004	<0.002	<0.002	<0.002	<0.05	<0.005	<0.002
MW-10	8/2/16	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.002	<0.001	<0.001	<0.001	<0.025	<0.01	<0.001
MW-11	8/2/16	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.002	<0.001	<0.001	<0.001	<0.025	<0.005	<0.001
MW-12	8/2/16	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.002	<0.001	<0.001	<0.001	<0.025	<0.005	<0.001
MW-13A	8/2/16	0.0024	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.002	<0.001	<0.001	<0.001	<0.025	<0.005	<0.001
MW-13B	8/2/16	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.002	<0.001	<0.001	<0.001	<0.025	<0.005	<0.001

Table 8(1): Analytical Data for Groundwater (User Specified Chemicals) **ADT 8(1)**

DSCA ID No.: DC600043

Groundwater Sampling Point	Sampling Date (mm/dd/yy)	Dichlorodifluoromethane	Isopropylbenzene (Cumene)	Diisopropyl ether	p-Isopropyltoluene	sec-Butylbenzene	tert-Butylbenzene	trans-1,3-Dichloropropene	Trichlorofluoromethane	1,4-Dichlorobenzene	2-Hexanone	Bromodichloromethane	Chloromethane	Dibromochloromethane	m&p-Xylene	o-Xylene	n-Butylbenzene	n-Propylbenzene	Acetone	2-Butanone (MEK)	1,2,3-Trichloropropane
		[mg/L]																			
MW-15	8/2/16	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.002	<0.001	<0.001	<0.001	<0.025	<0.005	<0.001
MW-16	8/2/16	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.002	<0.001	<0.001	<0.001	<0.025	<0.005	<0.001

Table 9: Analytical Data for Surface Water **ADT 9**

DSCA ID No.: DC600043

Sample ID	Sampling Date (mm/dd/yy)	Benzene	cis-1,2-Dichloroethylene	Ethylbenzene	Methyl tert-butyl ether (MTBE)	Naphthalene	Tetrachloroethylene	Toluene	trans-1,2-Dichloroethylene	Trichloroethylene	Vinyl chloride	Xylenes (total)
		[mg/L]										
SW-01	3/24/16	NA	0.0011	NA	NA	NA	0.0006 5 J	NA	<0.000 49	0.0018	<0.000 62	NA

Table 2: Analytical Data for Soil

DSCA ID No.: DC600043

Sample ID	Depth [feet bgs]	Sampling Date (mm/dd/yy)	Benzene	cis-1,2-Dichloroethylene	Ethylbenzene	Methyl tert-butyl ether (MTBE)	Naphthalene	Tetrachloroethylene	Toluene	trans-1,2-Dichloroethylene	Trichloroethylene	Vinyl chloride	Xylenes (total)	1,1,1-Trichloroethane	1,1,2,2-Tetrachloroethane	1,1,2-Trichloroethanae	1,1-Dichloroethane	1,1-Dichloroethylene
			[mg/kg]															
TMW-01-02-10	2-10	05/24/08	< 0.0026	< 0.0023	< 0.0029	< 0.0024	< 0.0019	< 0.0028	< 0.0029	< 0.0031	< 0.0034	< 0.0029	< 8.9	< 0.0029	< 0.0031	< 0.0034	< 0.0024	< 0.0029
TMW-02-02-10	2-10	05/24/08	< 0.0026	< 0.0022	< 0.0029	< 0.0024	< 0.0019	< 0.0027	< 0.0029	< 0.003	< 0.0034	< 0.0029	< 8.8	< 0.0029	< 0.003	< 0.0034	< 0.0024	< 0.0029
TMW-03-02-10	2-10	05/24/08	< 0.0021	< 0.0018	< 0.0023	< 0.0019	< 0.0015	0.024	< 0.0023	< 0.0024	< 0.0027	< 0.0023	< 7.1	< 0.0023	< 0.0024	< 0.0027	< 0.0019	< 0.0023
TMW-04-02-10	2-10	05/24/08	< 0.0025	< 0.0022	< 0.0028	< 0.0024	< 0.0019	< 0.0027	< 0.0028	< 0.003	< 0.0033	< 0.0028	< 8.6	< 0.0028	< 0.003	< 0.0033	< 0.0024	< 0.0028
SB-1 (1-2')	1-2	05/14/09	<0.0042	0.0049	<0.0042	<0.0042	<0.0042	0.030	<0.0042	<0.0042	<0.0042	<0.0085	<0.0085	<0.0042	<0.0042	<0.0042	<0.0042	<0.0042
SB-1 (3-4')	3-4	05/14/09	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	<0.0099	<0.0099	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050
SB-2 (1-2')	1-2	05/14/09	<0.0051	<0.0051	<0.0051	<0.0051	<0.0051	<0.0051	<0.0051	<0.0051	<0.0051	<0.010	<0.010	<0.0051	<0.0051	<0.0051	<0.0051	<0.0051
SB-2 (5-6')	5-6	05/14/09	<0.0054	<0.0054	<0.0054	<0.0054	<0.0054	<0.0054	<0.0054	<0.0054	<0.0054	<0.011	<0.011	<0.0054	<0.0054	<0.0054	<0.0054	<0.0054
SB-3 (1-2')	1-2	05/14/09	<0.0052	<0.0052	<0.0052	<0.0052	<0.0052	<0.0052	<0.0052	<0.0052	<0.0052	<0.010	<0.010	<0.0052	<0.0052	<0.0052	<0.0052	<0.0052
SB-3 (5-6')	5-6	05/14/09	<0.0051	<0.0051	<0.0051	<0.0051	<0.0051	<0.0051	<0.0051	<0.0051	<0.0051	<0.010	<0.010	<0.0051	<0.0051	<0.0051	<0.0051	<0.0051
SB-4 (1-2')	1-2	05/14/09	<0.0045	<0.0045	<0.0045	<0.0045	<0.0045	0.019	<0.0045	<0.0045	<0.0045	<0.0090	<0.0090	<0.0045	<0.0045	<0.0045	<0.0045	<0.0045
SB-4 (5-6')	5-6	05/14/09	<0.0052	<0.0052	<0.0052	<0.0052	<0.0052	0.0071	<0.0052	<0.0052	<0.0052	<0.010	<0.010	<0.0052	<0.0052	<0.0052	<0.0052	<0.0052
MW-4 (2-3')	2-3	05/20/09	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	<0.010	<0.010	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050
MW-4 (4-5')	4-5	05/20/09	<0.0053	<0.0053	<0.0053	<0.0053	<0.0053	<0.0053	<0.0053	<0.0053	<0.0053	<0.011	<0.011	<0.0053	<0.0053	<0.0053	<0.0053	<0.0053
SV-1 (2-3')	2-3	12/14/09	<0.24	0.075J	<0.24	<0.24	0.42	<0.24	<0.24	<0.24	<0.24	<0.24	<0.47	0.090J	<0.24	<0.24	<0.24	<0.24
SV-1 (5-6')	5-6	12/14/09	<0.54	<0.54	0.26J	<0.54	3.3	<0.54	<0.54	<0.54	<0.54	<0.54	1.1	0.21J	<0.54	<0.54	<0.54	<0.54

Table 2: Analytical Data for Soil

DSCA ID No.: DC600043

Sample ID	Depth [feet bgs]	Sampling Date (mm/dd/yy)	Benzene	cis-1,2-Dichloroethylene	Ethylbenzene	Methyl tert-butyl ether (MTBE)	Naphthalene	Tetrachloroethylene	Toluene	trans-1,2-Dichloroethylene	Trichloroethylene	Vinyl chloride	Xylenes (total)	1,1,1-Trichloroethane	1,1,2,2-Tetrachloroethane	1,1,2-Trichloroethanae	1,1-Dichloroethane	1,1-Dichloroethylene
			[mg/kg]															
SV-2 (1-2')	1-2	12/14/09	<0.0045	<0.0045	<0.0045	<0.0045	<0.0045	0.0039J	<0.0045	<0.0045	<0.0045	<0.0045	<0.0091	<0.0045	<0.0045	<0.0045	<0.0045	<0.0045
SV-2 (4-5')	4-5	12/14/09	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.0099	<0.005	<0.005	<0.005	<0.005	<0.005
SV-3 (1-2')	1-2	12/14/09	<0.0044	<0.0044	<0.0044	<0.0044	<0.0044	0.023	<0.0044	<0.0044	<0.0044	<0.0044	<0.0088	<0.0044	<0.0044	<0.0044	<0.0044	<0.0044
SV-3 (5-6')	5-6	12/14/09	<0.0056	<0.0056	<0.0056	<0.0056	<0.0056	<0.0056	<0.0056	<0.0056	<0.0056	<0.0056	<0.011	<0.0056	<0.0056	<0.0056	<0.0056	<0.0056
SV-5 (2-3')	2-3	12/14/09	<0.0047	<0.0047	<0.0047	<0.0047	<0.0047	0.018	<0.0047	<0.0047	<0.0047	<0.0047	<0.0095	<0.0047	<0.0047	<0.0047	<0.0047	<0.0047
SV-5 (5-6')	5-6	12/14/09	<0.0059	<0.0059	<0.0059	<0.0059	<0.0059	<0.0059	<0.0059	<0.0059	<0.0059	<0.0059	<0.012	<0.0059	<0.0059	<0.0059	<0.0059	<0.0059
SV-6 (2-3')	2-3	12/14/09	<0.0045	<0.0045	<0.0045	<0.0045	<0.0045	0.024	<0.0045	<0.0045	<0.0045	<0.0045	<0.0091	<0.0045	<0.0045	<0.0045	<0.0045	<0.0045
SV-6 (5-6')	5-6	12/14/09	<0.0053	<0.0053	<0.0053	<0.0053	<0.0053	<0.0053	<0.0053	<0.0053	<0.0053	<0.0053	<0.011	<0.0053	<0.0053	<0.0053	<0.0053	<0.0053
SV-1A (1-2')	1-2	12/17/09	<0.26	<0.26	0.10J	<0.26	3.3	<0.26	<0.26	<0.26	<0.26	<0.26	0.61	0.098J	<0.26	<0.26	<0.26	<0.26
SV-1A (2-3')	2-3	12/17/09	<0.0041	<0.0041	<0.0041	<0.0041	0.013	<0.0041	<0.0041	<0.0041	<0.0041	<0.0041	<0.0082	<0.0041	<0.0041	<0.0041	<0.0041	<0.0041
SV-1A (3-4')	3-4	12/17/09	<0.27	<0.27	0.33	<0.27	1.6	<0.27	<0.27	<0.27	<0.27	<0.27	0.57	0.10J	<0.27	<0.27	<0.27	<0.27

ADT 2 **Table 2(1): Analytical Data for Soil (User Specified Chemicals)**

DSCA ID No.: DC600043

1,2-Dichloroethane (EDC)	Benzo(a)pyrene	Carbon tetrachloride	Chloroform	Sample ID	Depth [feet bgs]	Sampling Date (mm/dd/yy)	Acetone	2-Butanone (MEK)	n-Butylbenzene	sec-Butylbenzene	tert-Butylbenzene	Isopropylbenzene (Cumene)	p-Isopropyltoluene	n-Propylbenzene	1,2,4 Trimethylbenzene	1,3,5 Trimethylbenzene	m&p-Xylene	
									[mg/kg]									
< 0.0036	NA	< 0.0042	< 0.0026	TMW-01-02-10	2-10	05/24/08	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	
< 0.0035	NA	< 0.0042	< 0.0026	TMW-02-02-10	2-10	05/24/08	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	
< 0.0028	NA	< 0.0034	< 0.0021	TMW-03-02-10	2-10	05/24/08	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	
< 0.0035	NA	< 0.0041	< 0.0025	TMW-04-02-10	2-10	05/24/08	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	
<0.0042	NA	<0.0042	<0.0042	SB-1 (1-2')	1-2	05/14/09	**0.24**	**0.0072J**	<0.0042	<0.0042	<0.0042	<0.0042	<0.0042	<0.0042	**0.0017J**	<0.0042	N/A	
<0.0050	NA	<0.0050	<0.0050	SB-1 (3-4')	3-4	05/14/09	**0.025J**	<0.099	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	N/A	
<0.0051	NA	<0.0051	<0.0051	SB-2 (1-2')	1-2	05/14/09	**0.099J**	<0.10	<0.0051	<0.0051	<0.0051	<0.0051	<0.0051	<0.0051	<0.0051	<0.0051	N/A	
<0.0054	NA	<0.0054	<0.0054	SB-2 (5-6')	5-6	05/14/09	**0.15**	**0.0059J**	<0.0054	<0.0054	<0.0054	<0.0054	<0.0054	<0.0054	<0.0054	<0.0054	N/A	
<0.0052	NA	<0.0052	<0.0052	SB-3 (1-2')	1-2	05/14/09	**0.24**	<0.10	<0.0052	<0.0052	<0.0052	<0.0052	<0.0052	<0.0052	<0.0052	<0.0052	N/A	
<0.0051	NA	<0.0051	<0.0051	SB-3 (5-6')	5-6	05/14/09	**0.098J**	<0.10	<0.0051	<0.0051	<0.0051	<0.0051	<0.0051	<0.0051	<0.0051	<0.0051	N/A	
<0.0045	NA	<0.0045	<0.0045	SB-4 (1-2')	1-2	05/14/09	**0.16**	<0.090	<0.0045	<0.0045	<0.0045	<0.0045	<0.0045	<0.0045	<0.0045	<0.0045	N/A	
<0.0052	NA	<0.0052	<0.0052	SB-4 (5-6')	5-6	05/14/09	**0.029J**	<0.10	<0.0052	<0.0052	<0.0052	<0.0052	<0.0052	<0.0052	<0.0052	<0.0052	N/A	
<0.0050	NA	<0.0050	<0.0050	MW-4 (2-3')	2-3	05/20/09	<0.10	<0.10	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	N/A	
<0.0053	NA	<0.0053	<0.0053	MW-4 (4-5')	4-5	05/20/09	<0.11	<0.11	<0.0053	<0.0053	<0.0053	<0.0053	<0.0053	<0.0053	<0.0053	<0.0053	N/A	
<0.24	NA	<0.24	<0.24	SV-1 (2-3')	2-3	12/17/09	<4.7	<4.7	<0.24	<0.24	**0.40**	<0.24	<0.24	<0.24	<0.24	<0.24	<0.47	
<0.54	NA	<0.54	<0.54	SV-1 (5-6')	5-6	12/17/09	<10.7	<10.7	**3.1**	**2.9**	**0.80**	**0.96**	**4.7**	**2.3**	**31.4**	**1.2**	<1.1	

ADT 2 **Table 2(1): Analytical Data for Soil (User Specified Chemicals)**

DSCA ID No.: DC600043

1,2-Dichloroethane (EDC)	Benzo(a)pyrene	Carbon tetrachloride	Chloroform	Sample ID	Depth [feet bgs]	Sampling Date (mm/dd/yy)	Acetone	2-Butanone (MEK)	n-Butylbenzene	sec-Butylbenzene	tert-Butylbenzene	Isopropylbenzene (Cumene)	p-Isopropyltoluene	n-Propylbenzene	1,2,4 Trimethylbenzene	1,3,5 Trimethylbenzene	m&p-Xylene	
																		[mg/kg]
<0.0045	NA	<0.0045	<0.0045	SV-2 (1-2')	1-2	12/17/09	**0.095**	<0.091	<0.45	<0.45	<0.45	<0.0045	<0.0045	<0.0045	<0.0045	<0.0045	<0.0091	
<0.005	NA	<0.005	<0.005	SV-2 (4-5')	4-5	12/17/09	<0.099	<0.099	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	<0.0099	
<0.0044	NA	<0.0044	<0.0044	SV-3 (1-2')	1-2	12/17/09	**0.200**	**0.017**	<0.0044	<0.0044	<0.0044	<0.0044	<0.0044	<0.0044	<0.0044	<0.0044	<0.0088	
<0.0056	NA	<0.0056	<0.0056	SV-3 (5-6')	5-6	12/17/09	**0.029**	<0.11	<0.0056	<0.0056	<0.0056	<0.0056	<0.0056	<0.0056	<0.0056	<0.0056	<0.011	
<0.0047	NA	<0.0047	<0.0047	SV-5 (2-3')	2-3	12/17/09	**0.160**	<0.095	<0.0047	<0.0047	<0.0047	<0.0047	<0.0047	<0.0047	<0.0047	<0.0047	<0.0095	
<0.0059	NA	<0.0059	<0.0059	SV-5 (5-6')	5-6	12/17/09	**0.015J**	<0.12	<0.0059	<0.0059	<0.0059	<0.0059	<0.0059	<0.0059	<0.0059	<0.0059	<0.012	
<0.0045	NA	<0.0045	<0.0045	SV-6 (2-3')	2-3	12/17/09	**0.140**	**0.011**	<0.0045	<0.0045	<0.0045	<0.0045	<0.0045	<0.0045	<0.0045	<0.0045	<0.0091	
<0.0053	NA	<0.0053	<0.0053	SV-6 (5-6')	5-6	12/17/09	**0.012J**	<0.11	<0.0053	<0.0053	<0.0053	<0.0053	<0.0053	<0.0053	<0.0053	<0.0053	<0.011	
<0.26	NA	<0.26	<0.26	SV-1A (1-2')	1-2	12/17/09	<5.2	<5.2	**5.3**	**2.9**	**1.3**	**0.80**	**11.50**	**1.8**	**38.7**	**15.2**	**0.51**	
<0.0041	NA	<0.0041	<0.0041	SV-1A (2-3')	2-3	12/17/09	**0.110**	**0.015J**	**0.050**	**0.028**	**0.013**	**0.0064**	**0.12**	**0.015**	**0.30**	**0.14**	<0.0082	
<0.27	NA	<0.27	<0.27	SV-1A (3-4')	3-4	12/17/09	<5.4	<5.4	**1.4**	**2.2**	**0.86**	**1.2**	**2.7**	**1.9**	**25.9**	<0.27	**0.51J**	

Table 5: Analytical Data for Indoor and Outdoor Air **ADT 5**

DSCA ID No.: DC600043

Sample ID	Sampling Date (mm/dd/yy)	Sample Location [1]	Sampling Method [2]	Sampling Duration [3]	Benzene	cis-1,2-Dichloroethylene	Ethylbenzene	Methyl tert-butyl ether (MTBE)	Naphthalene	Tetrachloroethylene	Toluene	trans-1,2-Dichloroethylene	Trichloroethylene	Vinyl chloride	Xylenes (total)						
					[µg/m^3]																
Indoor Air	12/14/09	F	SU	8h	NA	ND	NA	NA	NA	5	NA	ND	ND	ND	NA						
Outdoor Air	12/14/09	F	SU	8h	NA	ND	NA	NA	NA	1.9	NA	ND	ND	ND	NA						
IA-2	6/15/10	F	SU	8h	NA	0.081	NA	NA	NA	3.2	NA	ND	0.11 J	ND	NA						
AA-2	6/15/10	F	SU	8h	NA	ND	NA	NA	NA	0.47 J	NA	ND	0.0426 J	ND	NA						
CP TEXTBOOKS	12/13/13	AD	P	24h	NA	0.009 J	NA	NA	NA	0.67	NA	0.019 J	0.089	<0.013	NA						
GREEK RESTAURANT	12/13/13	AD	P	24h	NA	0.032 J	NA	NA	NA	1.4	NA	<0.040	0.18	<0.013	NA						
DOUBLE DOOR INN	12/13/13	AD	P	24h	NA	<0.040	NA	NA	NA	0.47	NA	<0.040	0.049 J	<0.013	NA						
IA-CATS010	05/23/14	C	SU	8h	NA	0.016 J	NA	NA	NA	0.24	NA	<0.040	0.057	0.022	NA						
IA-CATS011	05/23/14	C	SU	8h	NA	0.018 J	NA	NA	NA	0.26	NA	0.0054 J	0.052 J	0.020	NA						
IA-CATS012	05/23/14	C	SU	8h	NA	0.030 J	NA	NA	NA	0.14	NA	<0.040	0.049 J	0.013	NA						

Table 5: Analytical Data for Indoor and Outdoor Air **ADT 5**

DSCA ID No.: DC600043

Sample ID	Sampling Date (mm/dd/yy)	Sample Location [1]	Sampling Method [2]	Sampling Duration [3]	Benzene	cis-1,2-Dichloroethylene	Ethylbenzene	Methyl tert-butyl ether (MTBE)	Naphthalene	Tetrachloroethylene	Toluene	trans-1,2-Dichloroethylene	Trichloroethylene	Vinyl chloride	Xylenes (total)						
					[µg/m^3]																

Notes:

[1] Indicate "F" for former or current dry-cleaning facility, "AD" for adjacent space, "R" for residence, "C" for commercial not adjacent space. If sample was taken outdoors, leave blank.

[2] Indicate "SU" for summa canister, "FC" for flux chambers, "T" for tedlar bags, "P" for passive samplers, "O" for other.

[3] Indicate "8h" for 8-hour, "24h" for 24-hour, "G" for grab sample, for other hours indicate the number of hours followed by "h" or "d" for days.

Table 4: Analytical Data for Soil Gas **ADT 4**

DSCA ID No.: DC600043

Sample ID	Depth [feet bgs]	Sample Duration[1]	Sampling Date (mm/dd/yy)	Benzene	cis-1,2-Dichloroethylene	Ethylbenzene	Methyl tert-butyl ether (MTBE)	Naphthalene	Tetrachloroethylene	Toluene	trans-1,2-Dichloroethylene	Trichloroethylene	Vinyl chloride	Xylenes (total)							
				[µg/m^3]																	
SV-1	6	0.5h	12/14/09	NA	24200	NA	NA	NA	2150	NA	<21.7	211	94.7	NA							
SV-2	6	0.5h	12/14/09	NA	11 J	NA	NA	NA	9900	NA	<55	28 J	<36	NA							
SV-3	6	0.5h	12/14/09	NA	3.8 J	NA	NA	NA	1900	NA	<11	55	<7.1	NA							
SG-1	6	0.5h	9/30/11	NA	<7.3	NA	NA	NA	<12	NA	<7.3	<9.8	<4.7	NA							
SG-2	6	0.5h	9/30/11	NA	<28	NA	NA	NA	<48	NA	<28	<38	<18	NA							
SG-3	6	0.5h	9/30/11	NA	<3.9	NA	NA	NA	0.53 J	NA	<3.9	<5.4	<2.5	NA							
SG-4	6	0.58h	7/18/13	NA	<24.1	NA	NA	NA	28700	NA	<24.1	<16.4	<7.7	NA							
SG-5	6	0.5h	7/18/13	NA	<28.4	NA	NA	NA	1650	NA	<28.4	<19.2	<9.1	NA							
SG-6	6	0.67h	7/18/13	NA	<24.1	NA	NA	NA	1160	NA	<24.1	<16.4	<7.7	NA							
SG-7	6	0.62h	7/18/13	NA	<25.1	NA	NA	NA	280	NA	<25.1	<17.0	<8.1	NA							
SG-8	6	0.5h	12/13/13	NA	<1.3	NA	NA	NA	1.9	NA	<1.3	<0.85	<0.40	NA							
SG-9	6	0.5h	12/12/13	NA	903	NA	NA	NA	14200	NA	<109	1720	<34.9	NA							
SG-10	6	0.5h	12/13/13	NA	<0.51	NA	NA	NA	0.28 J	NA	<0.79	<1.1	<0.51	NA							
SG-11	6	0.5h	12/12/13	NA	<1.4	NA	NA	NA	3.3	NA	<1.4	<0.92	<0.44	NA							
SG-12	6	0.5h	12/12/13	NA	<1.1	NA	NA	NA	90.3	NA	<1.1	0.95	<0.35	NA							
SG-MW11	6	0.5 h	5/23/14	NA	4.8	NA	NA	NA	656	NA	1.2 J	19.6	<0.48	NA							
SG-9 Shallow	6	0.5 h	11/22/14	NA	364	NA	NA	NA	2790	NA	<4.9	507	<2.8	NA							

Table 4: Analytical Data for Soil Gas **ADT 4**

DSCA ID No.: DC600043

Sample ID	Depth [feet bgs]	Sample Duration[1]	Sampling Date (mm/dd/yy)	Benzene	cis-1,2-Dichloroethylene	Ethylbenzene	Methyl tert-butyl ether (MTBE)	Naphthalene	Tetrachloroethylene	Toluene	trans-1,2-Dichloroethylene	Trichloroethylene	Vinyl chloride	Xylenes (total)							
				[µg/m^3]																	

[1] Indicate "G" for grab sample or for longer samples indicate the number of hours followed by "h".

Table 3: Analytical Data for Sub-slab Gas **ADT 3**

DSCA ID No.: DC600043

Sample ID	Depth [inches bgs]	Slab Thickness [inches]	Sampling Duration [1]	Sampling Date (mm/dd/yy)	Benzene	cis-1,2-Dichloroethylene	Ethylbenzene	Methyl tert-butyl ether (MTBE)	Naphthalene	Tetrachloroethylene	Toluene	trans-1,2-Dichloroethylene	Trichloroethylene	Vinyl chloride	Xylenes (total)						
					[µg/m^3]																
SSV-1			0.5 h	12/14/09	NA	<1.3	NA	NA	NA	243	NA	<1.3	<1.8	<0.86	NA						
SSV-CATS010			0.5 h	5/23/14	NA	<1.3	NA	NA	NA	44.2	NA	<1.3	<1.7	<0.40	NA						
SSV-CATS011			0.5 h	5/23/14	NA	<1.4	NA	NA	NA	1.1 J	NA	<1.4	<1.9	<0.46	NA						
SSV-CAST012			0.5 h	5/23/14	NA	<1.4	NA	NA	NA	2.1	NA	<1.4	<0.92	<0.44	NA						

Table 3: Analytical Data for Sub-slab Gas **ADT 3**

DSCA ID No.: DC600043

Sample ID	Depth [inches bgs]	Slab Thickness [inches]	Sampling Duration [1]	Sampling Date (mm/dd/yy)	Benzene	cis-1,2-Dichloroethylene	Ethylbenzene	Methyl tert-butyl ether (MTBE)	Naphthalene	Tetrachloroethylene	Toluene	trans-1,2-Dichloroethylene	Trichloroethylene	Vinyl chloride	Xylenes (total)						
					[µg/m^3]																

[1] Indicate "G" for grab sample or for longer samples indicate the number of hours followed by "h".

Attachment 3

Modeling Documentation

Risk Assessment Toolkit
for
North Carolina Dry-Cleaning Solvent Cleanup Act Program

DSCA Site Name:	Douglas-Furrier Cleaners
DSCA Site Address:	1200 Charlottetown Ave, Charlotte, NC
DSCA ID No.:	DC600043
Exposure Unit:	Exposure Unit #1
Submittal Date:	9/15/2016
Prepared By:	RHM

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DSCA ID No.:	**DC600043**	
Exposure Unit:	**Exposure Unit #1**	

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Form 1C	Chemicals of Concern	☑
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Form 5G	Protection of Surface Water--Source Groundwater (Backward Mode)	☑
Form 5H	Protection of Surface Water--Source Soil (Backward Mode)	☑

Exposure Factors and Target Risk Limits **Form 1A**

DSCA ID No.: DC600043

Exposure Unit: Exposure Unit #1

Exposure Parameter	Residential Child		Residential Adult		Commercial		Construction Worker
Lifetime (LT) (years)	70		70		70		70
Averaging Time (AT) (days/yr)	365		365		365		365
Body Weight (BW) (kg)	15		80		80		80
Exposure Duration (ED) (yr)	6		20		25		1
Exposure Frequency (EF) (d/yr)	350		350		250		250
Exposure Time (hr)	24		24		8		8
Skin Surface Area (SA) (cm^2)	2373		6032		3527		3527
Soil Adherence Factor (AF) (mg/cm^2)	0.2		0.07		0.12		0.3
Soil Ingestion Rate (IRS) (mg/day)	200		100		100		330
Incidental Dermal Contact with Groundwater Pathway							
Exposure Frequency (EF) (d/yr)	90		90		90		350
Exposure Time (hr)	1		1		1		1
Event Frequency (EV) (events/day)	1		1		1		1

Note: Construction worker averaging time and skin surface area values have been updated to match the values recommended in the EPA June 2015 Regional Screening Level updates. Note that these values do not match the values specified in the May 2015 NC DSCA Program Risk Assessment Guidance. These values will be updated in the guidance document at the time of the next future guidance document update.

Target Health Risk Limits	Individual	Cumulative
Target Cancer Risk	1.00E-06	1.00E-05
Target Hazard Index	0.2	1

Justification for Fate and Transport Parameters **Form 1B**

DSCA ID No.: DC600043

Exposure Unit: Exposure Unit #1

Provide justification for the fate and transport parameters used.

Parameter	Default Value	Site Specific Value	Justification
Distance to Protection of Groundwater Point of Exposure (feet)	0	1950	The POE distance was selected to be the distance to downgradient property boundary of the first property where groundwater impacts hace not been observed as indicated on Att.1. The distance is 1950 feet
Distance to Protection of Surface Water Point of Exposure (feet)	0	1950	The nearest surface water body is the Little Sugar Creek located approximately 1950 feet downgradient of the source. It is a Class C Water Body
Depth to Base of Affected Soils (d_s) (cm)	1244	580	The depth to groundwater is approximately 19 feet as documented in the PAR, dated Aug 2010. 19 feet = 228 inches = 580 cm
Length of Affected Soil Parallel to Assumed GW Flow Direction (L) (cm)	500	610	Assumed length of affected soil is 20 feet = 240 inches = 610 cm
Vadose Zone Volumetric Water Content (θ_w) (unitless)	0.15 (soil to outdoor air pathway)	0.15	Insufficent data - used default value
	0.3 (soil to groundwater pathway)	0.3	Insufficent data - used default value
Vadose Zone Volumetric Air Content (θa) (unitless)	0.28 (soil to outdoor air pathway)	0.28	Insufficent data - used default value
	0.13 (soil to groundwater pathway)	0.13	Insufficent data - used default value
Total Porosity (n) (unitless)	0.43	0.43	Insufficent data - used default value
Dry Bulk Density (ρ_b) (kg/L)	1.5	1.5	Insufficent data - used default value

Justification for Fate and Transport Parameters **Form 1B**

DSCA ID No.: DC600043

Exposure Unit: Exposure Unit #1

Provide justification for the fate and transport parameters used.

Parameter	Default Value	Site Specific Value	Justification
Net Infiltration Estimate (I) (cm/yr)	66	27.36	As documented in the PAR, annual precipitation is approx 43.09 in/yr. Infiltration for Piedmont zone is 25% or 10.77 inches = 27.36 cm

Justification for Fate and Transport Parameters **Form 1B**

DSCA ID No.: DC600043

Exposure Unit: Exposure Unit #1

Provide justification for the fate and transport parameters used.

Parameter	Default Value	Site Specific Value	Justification
Fraction Organic Carbon (foc)	0.006 (soil to outdoor air pathway)	0.006	Insufficent data - used default value
	0.002 (soil leaching to groundwater pathway)	0.002	Insufficent data - used default value
Hydraulic Conductivity (K) (cm/d)	690	7.02	As documented in the PAR, hydraulic conductivity is 2563.88 cm/yr = 7.02 cm/day
Hydraulic Gradient (i)	0.01	0.080	As documented in the PAR the hydraulic gradient is 0.08
Aquifer Thickness (d_a) (cm)	1500	1500	Insufficent data - used default value
Plume Thickness at Source (S_d) (cm)	200	200	Insufficent data - used default value
Plume Width at Source (S_w) (cm)	4,500	4,500.0	Insufficent data - used default value
Plume Thickness at GW/SW Discharge (δsw) (cm)	200	200	Insufficent data - used default value
Plume Width at GW/SW Discharge (W_{gwsw}) (cm)	4,500	4,500.0	Insufficent data - used default value
Surface Water Flowrate at GW/SW Discharge (cm^3/d)	0	0	Insufficent data - used default value

Chemicals of Concern **Form 1C**

DSCA ID No.: DC600043

Exposure Unit: Exposure Unit #1

Select Chemicals of Concern

Put an "X" in the first column to select a chemical of concern.

	CAS Number	Chemical Name
x	71-43-2	Benzene
x	156-59-2	Dichloroethylene, 1,2-cis-
x	156-60-5	Dichloroethylene, 1,2-trans-
x	100-41-4	Ethylbenzene
x	1634-04-4	Methyl tert-Butyl Ether (MTBE)
x	91-20-3	Naphthalene
x	127-18-4	Tetrachloroethylene
x	108-88-3	Toluene
x	79-01-6	Trichloroethylene
x	1330-20-7	Xylenes
x	104-51-8	Butylbenzene, n-
x	135-98-8	Butylbenzene, sec-
x	98-06-6	Butylbenzene, tert-
x	56-23-5	Carbon Tetrachloride
x	67-66-3	Chloroform
x	74-87-3	Chloromethane
x	98-82-8	Cumene
x	75-34-3	Dichloroethane, 1,1-
x	107-06-2	Dichloroethane, 1,2-
x	75-35-4	Dichloroethylene, 1,1-
x	78-87-5	Dichloropropane, 1,2-
x	71-55-6	Trichloroethane, 1,1,1-
x	75-69-4	Trichlorofluoromethane
x	96-18-4	Trichloropropane, 1,2,3-
x	95-63-6	Trimethylbenzene, 1,2,4-
x	108-67-8	Trimethylbenzene, 1,3,5-
x	106-42-3	Xylene, P-
x	108-38-3	Xylene, m-
x	95-47-6	Xylene, o-

Chemicals of Concern **Form 1D**

DSCA ID No.: **DC600043**

Exposure Unit: **Exposure Unit #1**

Soil Representative Concentration Table

CAS Number	Chemical Name	Soil Pathways (concentrations are in mg/kg)			
		Ingestion	Dermal	Outdoor Inhalation	Protection of Groundwater Use/Surface Water
71-43-2	Benzene				
156-59-2	Dichloroethylene, 1,2-cis-	7.50E-02	7.50E-02		7.50E-02
156-60-5	Dichloroethylene, 1,2-trans-				
100-41-4	Ethylbenzene	2.60E-01	2.60E-01		2.60E-01
1634-04-4	Methyl tert-Butyl Ether (MTBE)				
91-20-3	Naphthalene	3.30E+00	3.30E+00		3.30E+00
127-18-4	Tetrachloroethylene	3.00E-02	3.00E-02		3.00E-02
108-88-3	Toluene				
79-01-6	Trichloroethylene				
1330-20-7	Xylenes	1.10E+00	1.10E+00		1.10E+00
104-51-8	Butylbenzene, n-	5.30E+00	5.30E+00		5.30E+00
135-98-8	Butylbenzene, sec-	2.90E+00	2.90E+00		2.90E+00
98-06-6	Butylbenzene, tert-	1.30E+00	1.30E+00		1.30E+00
56-23-5	Carbon Tetrachloride				
67-66-3	Chloroform				
74-87-3	Chloromethane				
98-82-8	Cumene				
75-34-3	Dichloroethane, 1,1-				
107-06-2	Dichloroethane, 1,2-				
75-35-4	Dichloroethylene, 1,1-				
78-87-5	Dichloropropane, 1,2-				
71-55-6	Trichloroethane, 1,1,1-	2.10E-01	2.10E-01		2.10E-01
75-69-4	Trichlorofluoromethane				
96-18-4	Trichloropropane, 1,2,3-				
95-63-6	Trimethylbenzene, 1,2,4-	3.87E+01	3.87E+01		3.87E+01
108-67-8	Trimethylbenzene, 1,3,5-	1.52E+01	1.52E+01		1.52E+01
106-42-3	Xylene, P-				
108-38-3	Xylene, m-				
95-47-6	Xylene, o-				

Chemicals of Concern **Form 1E**

DSCA ID No.: DC600043

Exposure Unit: Exposure Unit #1

Groundwater Representative Concentration Table

CAS Number	Chemical Name	Groundwater Pathways (concentrations are in mg/L)		
		Dermal	Indoor Inhalation	Protection of Groundwater Use/Surface Water
71-43-2	Benzene			5.50E-03
156-59-2	Dichloroethylene, 1,2-cis-			1.86E-01
156-60-5	Dichloroethylene, 1,2-trans-			9.40E-04
100-41-4	Ethylbenzene			7.73E-02
1634-04-4	Methyl tert-Butyl Ether (MTBE)			3.10E-03
91-20-3	Naphthalene			5.12E-01
127-18-4	Tetrachloroethylene			5.39E-01
108-88-3	Toluene			
79-01-6	Trichloroethylene			2.90E-02
1330-20-7	Xylenes			2.42E-01
104-51-8	Butylbenzene, n-			
135-98-8	Butylbenzene, sec-			1.06E-01
98-06-6	Butylbenzene, tert-			
56-23-5	Carbon Tetrachloride			2.30E-03
67-66-3	Chloroform			4.90E-03
74-87-3	Chloromethane			1.10E-04
98-82-8	Cumene			
75-34-3	Dichloroethane, 1,1-			9.40E-04
107-06-2	Dichloroethane, 1,2-			5.25E-02
75-35-4	Dichloroethylene, 1,1-			9.50E-04
78-87-5	Dichloropropane, 1,2-			1.61E-02
71-55-6	Trichloroethane, 1,1,1-			
75-69-4	Trichlorofluoromethane			
96-18-4	Trichloropropane, 1,2,3-			
95-63-6	Trimethylbenzene, 1,2,4-			2.81E+00
108-67-8	Trimethylbenzene, 1,3,5-			9.91E-01
106-42-3	Xylene, P-			
108-38-3	Xylene, m-			
95-47-6	Xylene, o-			

Chemicals of Concern **Form 1F**

DSCA ID No.: DC600043

Exposure Unit: Exposure Unit #1

Air and Soil Gas Representative Concentration Table

CAS Number	Chemical Name	Soil Gas and Air (concentrations are in ug/m^3)	
		Soil Gas	Indoor Air
71-43-2	Benzene		
156-59-2	Dichloroethylene, 1,2-cis-		8.10E-02
156-60-5	Dichloroethylene, 1,2-trans-		
100-41-4	Ethylbenzene		
1634-04-4	Methyl tert-Butyl Ether (MTBE)		
91-20-3	Naphthalene		
127-18-4	Tetrachloroethylene	2.43E+02	3.20E+00
108-88-3	Toluene		
79-01-6	Trichloroethylene		2.20E-01
1330-20-7	Xylenes		
104-51-8	Butylbenzene, n-		
135-98-8	Butylbenzene, sec-		
98-06-6	Butylbenzene, tert-		
56-23-5	Carbon Tetrachloride		
67-66-3	Chloroform		
74-87-3	Chloromethane		
98-82-8	Cumene		
75-34-3	Dichloroethane, 1,1-		
107-06-2	Dichloroethane, 1,2-		
75-35-4	Dichloroethylene, 1,1-		
78-87-5	Dichloropropane, 1,2-		
71-55-6	Trichloroethane, 1,1,1-		
75-69-4	Trichlorofluoromethane		
96-18-4	Trichloropropane, 1,2,3-		
95-63-6	Trimethylbenzene, 1,2,4-		
108-67-8	Trimethylbenzene, 1,3,5-		
106-42-3	Xylene, P-		
108-38-3	Xylene, m-		
95-47-6	Xylene, o-		

DSCA Soil Ingestion Risk Calculator - Cumulative Risk for Resident **Form 2A**

DSCA ID No.: **DC600043**

Exposure Unit: **Exposure Unit #1**

All concentrations are in mg/kg.

CAS #	Chemical Name:	Soil Concentration (mg/kg)	Ingestion SL @ TCR = 1E-06	Ingestion SL @ THQ = 0.2	Calculated Carcinogenic Risk	Calculated Non-Carcinogenic Hazard Quotient
71-43-2	Benzene		1.26E+01	6.26E+01		
156-59-2	Dichloroethylene, 1,2-cis-	0.075		3.13E+01		0.0005
156-60-5	Dichloroethylene, 1,2-trans-			3.13E+02		
100-41-4	Ethylbenzene	0.26	6.32E+01	1.56E+03	4.11E-09	0.0000
1634-04-4	Methyl tert-Butyl Ether (MTBE)		3.86E+02	-		
91-20-3	Naphthalene	3.3		3.13E+02		0.0021
127-18-4	Tetrachloroethylene	0.03	3.31E+02	9.39E+01	9.06E-11	0.0001
108-88-3	Toluene			1.25E+03		
79-01-6	Trichloroethylene		8.78E+00	7.82E+00		
1330-20-7	Xylenes	1.1		3.13E+03		0.0001
104-51-8	Butylbenzene, n-	5.3		7.82E+02		0.0014
135-98-8	Butylbenzene, sec-	2.9		1.56E+03		0.0004
98-06-6	Butylbenzene, tert-	1.3		1.56E+03		0.0002
56-23-5	Carbon Tetrachloride		9.93E+00	6.26E+01		
67-66-3	Chloroform		2.24E+01	1.56E+02		
74-87-3	Chloromethane			-		
98-82-8	Cumene			1.56E+03		
75-34-3	Dichloroethane, 1,1-		1.22E+02	3.13E+03		
107-06-2	Dichloroethane, 1,2-		7.64E+00	9.39E+01		
75-35-4	Dichloroethylene, 1,1-			7.82E+02		
78-87-5	Dichloropropane, 1,2-		1.93E+01	1.41E+03		
71-55-6	Trichloroethane, 1,1,1-	0.21		3.13E+04		0.0000
75-69-4	Trichlorofluoromethane			4.69E+03		
96-18-4	Trichloropropane, 1,2,3-		5.10E-03	6.26E+01		
95-63-6	Trimethylbenzene, 1,2,4-	38.7		-		
108-67-8	Trimethylbenzene, 1,3,5-	15.2		1.56E+02		0.0194
106-42-3	Xylene, p-			3.13E+03		
108-38-3	Xylene, m-			3.13E+03		
95-47-6	Xylene, o-			3.13E+03		

Cumulative:	4.20E-09	0.02

DSCA Soil Dermal Contact Risk Calculator - Cumulative Risk for Resident **Form 2B**

DSCA ID No.: DC600043

Exposure Unit: Exposure Unit #1

All concentrations are in mg/kg.

CAS #	Chemical Name:	Soil Concentration (mg/kg)	Dermal SL @ TCR = 1E-06	Dermal SL @ THQ = 0.2	Calculated Carcinogenic Risk	Calculated Non-Carcinogenic Hazard Quotient
71-43-2	Benzene			-		
156-59-2	Dichloroethylene, 1,2-cis-	0.075		-		
156-60-5	Dichloroethylene, 1,2-trans-			-		
100-41-4	Ethylbenzene	0.26		-		
1634-04-4	Methyl tert-Butyl Ether (MTBE)			-		
91-20-3	Naphthalene	3.3		1.01E+03		0.0007
127-18-4	Tetrachloroethylene	0.03		-		
108-88-3	Toluene			-		
79-01-6	Trichloroethylene			-		
1330-20-7	Xylenes	1.1		-		
104-51-8	Butylbenzene, n-	5.3		-		
135-98-8	Butylbenzene, sec-	2.9		-		
98-06-6	Butylbenzene, tert-	1.3		-		
56-23-5	Carbon Tetrachloride			-		
67-66-3	Chloroform			-		
74-87-3	Chloromethane			-		
98-82-8	Cumene			-		
75-34-3	Dichloroethane, 1,1-			-		
107-06-2	Dichloroethane, 1,2-			-		
75-35-4	Dichloroethylene, 1,1-			-		
78-87-5	Dichloropropane, 1,2-			-		
71-55-6	Trichloroethane, 1,1,1-	0.21		-		
75-69-4	Trichlorofluoromethane			-		
96-18-4	Trichloropropane, 1,2,3-			-		
95-63-6	Trimethylbenzene, 1,2,4-	38.7		-		
108-67-8	Trimethylbenzene, 1,3,5-	15.2		-		
106-42-3	Xylene, p-			-		
108-38-3	Xylene, m-			-		
95-47-6	Xylene, o-			-		
				Cumulative:	0.00E+00	0.00

Note: Calculated soil dermal contact risks for chemicals with no dermal absorption factor are considered negligible. The calculated risk and hazard quotient columns on the calculator will be blank for this scenario. Most volatile organic compounds fall into this catagory. Therefore,calculated risks for most volatile organic compounds will be blank.

DSCA Soil Outdoor Inhalation Risk Calculator - Cumulative Risk for Resident **Form 2C**

DSCA ID No.: **DC600043**

Exposure Unit: **Exposure Unit #1**

All concentrations are in mg/kg.

CAS #	Chemical Name:	Soil Concentration (mg/kg)	Inhalation SL @ TCR = 1E-06	Inhalation SL @ THQ = 0.2	Calculated Carcinogenic Risk	Calculated Non-Carcinogenic Hazard Quotient
71-43-2	Benzene		2.43E+00	4.22E+01		
156-59-2	Dichloroethylene, 1,2-cis-					
156-60-5	Dichloroethylene, 1,2-trans-					
100-41-4	Ethylbenzene		7.57E+00	1.41E+03		
1634-04-4	Methyl tert-Butyl Ether (MTBE)		7.28E+01	4.22E+03		
91-20-3	Naphthalene		4.07E+00	4.22E+00		
127-18-4	Tetrachloroethylene		7.28E+01	5.62E+01		
108-88-3	Toluene			7.03E+03		
79-01-6	Trichloroethylene		3.22E+00	2.81E+00		
1330-20-7	Xylenes			1.41E+02		
104-51-8	Butylbenzene, n-					
135-98-8	Butylbenzene, sec-					
98-06-6	Butylbenzene, tert-					
56-23-5	Carbon Tetrachloride		3.15E+00	1.41E+02		
67-66-3	Chloroform		8.23E-01	1.38E+02		
74-87-3	Chloromethane			1.27E+02		
98-82-8	Cumene			5.62E+02		
75-34-3	Dichloroethane, 1,1-		1.18E+01			
107-06-2	Dichloroethane, 1,2-		7.28E-01	9.84E+00		
75-35-4	Dichloroethylene, 1,1-			2.81E+02		
78-87-5	Dichloropropane, 1,2-		1.89E+00	5.62E+00		
71-55-6	Trichloroethane, 1,1,1-			7.03E+03		
75-69-4	Trichlorofluoromethane			9.84E+02		
96-18-4	Trichloropropane, 1,2,3-			4.22E-01		
95-63-6	Trimethylbenzene, 1,2,4-			9.84E+00		
108-67-8	Trimethylbenzene, 1,3,5-					
106-42-3	Xylene, p-			1.41E+02		
108-38-3	Xylene, m-			1.41E+02		
95-47-6	Xylene, o-			1.41E+02		

Cumulative:	0.00E+00	0.00

DSCA Indoor Air Risk Calculator - Cumulative Risk for Resident **Form 2D**

DSCA ID No.: DC600043

Exposure Unit: Exposure Unit #1

All concentrations are in ug/m^3

CAS #	Chemical Name:	Indoor Air Concentration (ug/m^3)	Target Indoor Air Conc. for Carcinogens @ TCR = 1E-06	Target Indoor Air Conc. for Non-Carcinogens @ THQ = 0.2	Calculated Carcinogenic Risk	Calculated Non-Carcinogenic Hazard Quotient
71-43-2	Benzene		3.60E-01	6.26E+00		
156-59-2	Dichloroethylene, 1,2-cis-	0.081				
156-60-5	Dichloroethylene, 1,2-trans-					
100-41-4	Ethylbenzene		1.12E+00	2.09E+02		
1634-04-4	Methyl tert-Butyl Ether (MTBE)		1.08E+01	6.26E+02		
91-20-3	Naphthalene		8.26E-02	6.26E-01		
127-18-4	Tetrachloroethylene	3.2	1.08E+01	8.34E+00	2.96E-07	0.0767
108-88-3	Toluene			1.04E+03		
79-01-6	Trichloroethylene	0.22	4.78E-01	4.17E-01	4.60E-07	0.1055
1330-20-7	Xylenes			2.09E+01		
104-51-8	Butylbenzene, n-					
135-98-8	Butylbenzene, sec-					
98-06-6	Butylbenzene, tert-					
56-23-5	Carbon Tetrachloride		4.68E-01	2.09E+01		
67-66-3	Chloroform		1.22E-01	2.04E+01		
74-87-3	Chloromethane			1.88E+01		
98-82-8	Cumene			8.34E+01		
75-34-3	Dichloroethane, 1,1-		1.75E+00			
107-06-2	Dichloroethane, 1,2-		1.08E-01	1.46E+00		
75-35-4	Dichloroethylene, 1,1-			4.17E+01		
78-87-5	Dichloropropane, 1,2-		2.81E-01	8.34E-01		
71-55-6	Trichloroethane, 1,1,1-			1.04E+03		
75-69-4	Trichlorofluoromethane			1.46E+02		
96-18-4	Trichloropropane, 1,2,3-			6.26E-02		
95-63-6	Trimethylbenzene, 1,2,4-			1.46E+00		
108-67-8	Trimethylbenzene, 1,3,5-					
106-42-3	Xylene, p-			2.09E+01		
108-38-3	Xylene, m-			2.09E+01		
95-47-6	Xylene, o-			2.09E+01		
				Cumulative:	7.56E-07	0.18

DSCA Soil Gas to Indoor Air Risk Calculator - Cumulative Risk for Resident **Form 2E**

DSCA ID No.: **DC600043**

Exposure Unit: **Exposure Unit #1**

All concentrations are in ug/m^3

CAS #	Chemical Name:	Soil Gas Concentration (ug/m^3)	Calculated Indoor Air Concentration (ug/m^3)	Target Indoor Air Conc. for Carcinogens @ TCR = 1E-06	Target Indoor Air Conc. for Non-Carcinogens @ THQ = 0.2	Calculated Carcinogenic Risk	Calculated Non-Carcinogenic Hazard Quotient
71-43-2	Benzene			3.60E-01	6.26E+00		
156-59-2	Dichloroethylene, 1,2-cis-						
156-60-5	Dichloroethylene, 1,2-trans-						
100-41-4	Ethylbenzene			1.12E+00	2.09E+02		
1634-04-4	Methyl tert-Butyl Ether (MTBE)			1.08E+01	6.26E+02		
91-20-3	Naphthalene			8.26E-02	6.26E-01		
127-18-4	Tetrachloroethylene	243	7.29	1.08E+01	8.34E+00	6.75E-07	0.1748
108-88-3	Toluene				1.04E+03		
79-01-6	Trichloroethylene			4.78E-01	4.17E-01		
1330-20-7	Xylenes				2.09E+01		
104-51-8	Butylbenzene, n-						
135-98-8	Butylbenzene, sec-						
98-06-6	Butylbenzene, tert-						
56-23-5	Carbon Tetrachloride			4.68E-01	2.09E+01		
67-66-3	Chloroform			1.22E-01	2.04E+01		
74-87-3	Chloromethane				1.88E+01		
98-82-8	Cumene				8.34E+01		
75-34-3	Dichloroethane, 1,1-			1.75E+00			
107-06-2	Dichloroethane, 1,2-			1.08E-01	1.46E+00		
75-35-4	Dichloroethylene, 1,1-				4.17E+01		
78-87-5	Dichloropropane, 1,2-			2.81E-01	8.34E-01		
71-55-6	Trichloroethane, 1,1,1-				1.04E+03		
75-69-4	Trichlorofluoromethane				1.46E+02		
96-18-4	Trichloropropane, 1,2,3-				6.26E-02		
95-63-6	Trimethylbenzene, 1,2,4-				1.46E+00		
108-67-8	Trimethylbenzene, 1,3,5-						
106-42-3	Xylene, p-				2.09E+01		
108-38-3	Xylene, m-				2.09E+01		
95-47-6	Xylene, o-				2.09E+01		

Cumulative:	6.75E-07	0.17

DSCA Soil Ingestion Risk Calculator - Cumulative Risk for Non-Residential Worker **Form 3A**

DSCA ID No.: DC600043

Exposure Unit: Exposure Unit #1

All concentrations are in mg/kg.

CAS #	Chemical Name:	Soil Concentration (mg/kg)	Ingestion SL @ TCR = 1E-06	Ingestion SL @ THQ = 0.2	Calculated Carcinogenic Risk	Calculated Non-Carcinogenic Hazard Quotient
71-43-2	Benzene		5.95E+01	9.34E+02		
156-59-2	Dichloroethylene, 1,2-cis-	0.075		4.67E+02		0.0000
156-60-5	Dichloroethylene, 1,2-trans-			4.67E+03		
100-41-4	Ethylbenzene	0.26	2.97E+02	2.34E+04	8.75E-10	0.0000
1634-04-4	Methyl tert-Butyl Ether (MTBE)		1.82E+03			
91-20-3	Naphthalene	3.3		4.67E+03		0.0001
127-18-4	Tetrachloroethylene	0.03	1.56E+03	1.40E+03	1.93E-11	0.0000
108-88-3	Toluene			1.87E+04		
79-01-6	Trichloroethylene		7.11E+01	1.17E+02		
1330-20-7	Xylenes	1.1		4.67E+04		0.0000
104-51-8	Butylbenzene, n-	5.3		1.17E+04		0.0001
135-98-8	Butylbenzene, sec-	2.9		2.34E+04		0.0000
98-06-6	Butylbenzene, tert-	1.3		2.34E+04		0.0000
56-23-5	Carbon Tetrachloride		4.67E+01	9.34E+02		
67-66-3	Chloroform		1.05E+02	2.34E+03		
74-87-3	Chloromethane					
98-82-8	Cumene			2.34E+04		
75-34-3	Dichloroethane, 1,1-		5.74E+02	4.67E+04		
107-06-2	Dichloroethane, 1,2-		3.59E+01	1.40E+03		
75-35-4	Dichloroethylene, 1,1-			1.17E+04		
78-87-5	Dichloropropane, 1,2-		9.08E+01	2.10E+04		
71-55-6	Trichloroethane, 1,1,1-	0.21		4.67E+05		0.0000
75-69-4	Trichlorofluoromethane			7.01E+04		
96-18-4	Trichloropropane, 1,2,3-		1.09E-01	9.34E+02		
95-63-6	Trimethylbenzene, 1,2,4-	38.7				
108-67-8	Trimethylbenzene, 1,3,5-	15.2		2.34E+03		0.0013
106-42-3	Xylene, p-			4.67E+04		
108-38-3	Xylene, m-			4.67E+04		
95-47-6	Xylene, o-			4.67E+04		

Cumulative:	8.94E-10	0.00

DSCA Soil Dermal Risk Calculator - Cumulative Risk for Non-Residential Worker **Form 3B**

DSCA ID No.: **DC600043**

Exposure Unit: **Exposure Unit #1**

All concentrations are in mg/kg.

CAS #	Chemical Name:	Soil Concentration (mg/kg)	Dermal SL @ TCR = 1E-06	Dermal SL @ THQ = 0.2	Calculated Carcinogenic Risk	Calculated Non-Carcinogenic Hazard Quotient
71-43-2	Benzene					
156-59-2	Dichloroethylene, 1,2-cis-	0.075				
156-60-5	Dichloroethylene, 1,2-trans-					
100-41-4	Ethylbenzene	0.26				
1634-04-4	Methyl tert-Butyl Ether (MTBE)					
91-20-3	Naphthalene	3.3		8.49E+03		0.0001
127-18-4	Tetrachloroethylene	0.03				
108-88-3	Toluene					
79-01-6	Trichloroethylene					
1330-20-7	Xylenes	1.1				
104-51-8	Butylbenzene, n-	5.3				
135-98-8	Butylbenzene, sec-	2.9				
98-06-6	Butylbenzene, tert-	1.3				
56-23-5	Carbon Tetrachloride					
67-66-3	Chloroform					
74-87-3	Chloromethane					
98-82-8	Cumene					
75-34-3	Dichloroethane, 1,1-					
107-06-2	Dichloroethane, 1,2-					
75-35-4	Dichloroethylene, 1,1-					
78-87-5	Dichloropropane, 1,2-					
71-55-6	Trichloroethane, 1,1,1-	0.21				
75-69-4	Trichlorofluoromethane					
96-18-4	Trichloropropane, 1,2,3-					
95-63-6	Trimethylbenzene, 1,2,4-	38.7				
108-67-8	Trimethylbenzene, 1,3,5-	15.2				
106-42-3	Xylene, p-					
108-38-3	Xylene, m-					
95-47-6	Xylene, o-					

Cumulative:	0.00E+00	0.00

Note: Calculated soil dermal contact risks for chemicals with no dermal absorption factor are considered negligible. The calculated risk and hazard quotient columns on the calculator will be blank for this scenario. Most volatile organic compounds fall into this catagory. Therefore,calculated risks for most volatile organic compounds will be blank.

DSCA Soil Outdoor Inhalation Risk Calculator - Cumulative Risk for Non-Residential Worker **Form**

DSCA ID No.: **DC600043**

Exposure Unit: **Exposure Unit #1**

All concentrations are in mg/kg.

CAS #	Chemical Name:	Soil Concentration (mg/kg)	Inhalation SL @ TCR = 1E-06	Inhalation SL @ THQ = 0.2	Calculated Carcinogenic Risk	Calculated Non-Carcinogenic Hazard Quotient
			Higher of mass limit and standard VF equations			
71-43-2	Benzene		1.06E+01	1.77E+02		
156-59-2	Dichloroethylene, 1,2-cis-					
156-60-5	Dichloroethylene, 1,2-trans-					
100-41-4	Ethylbenzene		3.31E+01	5.90E+03		
1634-04-4	Methyl tert-Butyl Ether (MTBE)		3.18E+02	1.77E+04		
91-20-3	Naphthalene		1.78E+01	1.30E+02		
127-18-4	Tetrachloroethylene		3.18E+02	2.36E+02		
108-88-3	Toluene			2.95E+04		
79-01-6	Trichloroethylene		2.02E+01	1.18E+01		
1330-20-7	Xylenes			6.04E+02		
104-51-8	Butylbenzene, n-					
135-98-8	Butylbenzene, sec-					
98-06-6	Butylbenzene, tert-					
56-23-5	Carbon Tetrachloride		1.38E+01	5.90E+02		
67-66-3	Chloroform		3.59E+00	5.79E+02		
74-87-3	Chloromethane			5.31E+02		
98-82-8	Cumene			2.36E+03		
75-34-3	Dichloroethane, 1,1-		5.17E+01			
107-06-2	Dichloroethane, 1,2-		3.18E+00	4.13E+01		
75-35-4	Dichloroethylene, 1,1-			1.18E+03		
78-87-5	Dichloropropane, 1,2-		8.27E+00	2.36E+01		
71-55-6	Trichloroethane, 1,1,1-			2.95E+04		
75-69-4	Trichlorofluoromethane			4.13E+03		
96-18-4	Trichloropropane, 1,2,3-			4.40E+00		
95-63-6	Trimethylbenzene, 1,2,4-			5.17E+01		
108-67-8	Trimethylbenzene, 1,3,5-					
106-42-3	Xylene, p-			5.90E+02		
108-38-3	Xylene, m-			5.90E+02		
95-47-6	Xylene, o-			6.02E+02		
				Cumulative:	0.00E+00	0.00

DSCA Indoor Air Risk Calculator - Cumulative Risk for Non-Residential Worker **Form 3D**

DSCA ID No.: DC600043

Exposure Unit: Exposure Unit #1

All concentrations are in ug/m^3

CAS #	Chemical Name:	Indoor Air Concentration (ug/m^3)	Target Indoor Air Conc. for Carcinogens @ TCR = 1E-06	Target Indoor Air Conc. for Non-Carcinogens @ THQ = 0.2	Calculated Carcinogenic Risk	Calculated Non-Carcinogenic Hazard Quotient
71-43-2	Benzene		1.57E+00	2.63E+01		
156-59-2	Dichloroethylene, 1,2-cis-	0.081				
156-60-5	Dichloroethylene, 1,2-trans-					
100-41-4	Ethylbenzene		4.91E+00	8.76E+02		
1634-04-4	Methyl tert-Butyl Ether (MTBE)		4.72E+01	2.63E+03		
91-20-3	Naphthalene		3.61E-01	2.63E+00		
127-18-4	Tetrachloroethylene	3.2	4.72E+01	3.50E+01	6.78E-08	0.0183
108-88-3	Toluene			4.38E+03		
79-01-6	Trichloroethylene	0.22	2.99E+00	1.75E+00	7.35E-08	0.0251
1330-20-7	Xylenes			8.76E+01		
104-51-8	Butylbenzene, n-					
135-98-8	Butylbenzene, sec-					
98-06-6	Butylbenzene, tert-					
56-23-5	Carbon Tetrachloride		2.04E+00	8.76E+01		
67-66-3	Chloroform		5.33E-01	8.58E+01		
74-87-3	Chloromethane			7.88E+01		
98-82-8	Cumene			3.50E+02		
75-34-3	Dichloroethane, 1,1-		7.67E+00			
107-06-2	Dichloroethane, 1,2-		4.72E-01	6.13E+00		
75-35-4	Dichloroethylene, 1,1-			1.75E+02		
78-87-5	Dichloropropane, 1,2-		1.23E+00	3.50E+00		
71-55-6	Trichloroethane, 1,1,1-			4.38E+03		
75-69-4	Trichlorofluoromethane			6.13E+02		
96-18-4	Trichloropropane, 1,2,3-			2.63E-01		
95-63-6	Trimethylbenzene, 1,2,4-			6.13E+00		
108-67-8	Trimethylbenzene, 1,3,5-					
106-42-3	Xylene, p-			8.76E+01		
108-38-3	Xylene, m-			8.76E+01		
95-47-6	Xylene, o-			8.76E+01		
				Cumulative:	1.41E-07	0.04

DSCA Soil Gas to Indoor Air Risk Calculator - Cumulative Risk for Non-Residential Worker **Form 3E**

DSCA ID No.: DC600043

Exposure Unit: Exposure Unit #1

All concentrations are in ug/m^3

CAS #	Chemical Name:	Soil Gas Concentration (ug/m^3)	Calculated Indoor Air Concentration (ug/m^3)	Target Indoor Air Conc. for Carcinogens @ TCR = 1E-06	Target Indoor Air Conc. for Non-Carcinogens @ THQ = 0.2	Calculated Carcinogenic Risk	Calculated Non-Carcinogenic Hazard Quotient
71-43-2	Benzene			1.57E+00	2.63E+01		
156-59-2	Dichloroethylene, 1,2-cis-						
156-60-5	Dichloroethylene, 1,2-trans-						
100-41-4	Ethylbenzene			4.91E+00	8.76E+02		
1634-04-4	Methyl tert-Butyl Ether			4.72E+01	2.63E+03		
91-20-3	Naphthalene			3.61E-01	2.63E+00		
127-18-4	Tetrachloroethylene	243	2.43	4.72E+01	3.50E+01	5.15E-08	0.0139
108-88-3	Toluene				4.38E+03		
79-01-6	Trichloroethylene			2.99E+00	1.75E+00		
1330-20-7	Xylenes				8.76E+01		
104-51-8	Butylbenzene, n-						
135-98-8	Butylbenzene, sec-						
98-06-6	Butylbenzene, tert-						
56-23-5	Carbon Tetrachloride			2.04E+00	8.76E+01		
67-66-3	Chloroform			5.33E-01	8.58E+01		
74-87-3	Chloromethane				7.88E+01		
98-82-8	Cumene				3.50E+02		
75-34-3	Dichloroethane, 1,1-			7.67E+00			
107-06-2	Dichloroethane, 1,2-			4.72E-01	6.13E+00		
75-35-4	Dichloroethylene, 1,1-				1.75E+02		
78-87-5	Dichloropropane, 1,2-			1.23E+00	3.50E+00		
71-55-6	Trichloroethane, 1,1,1-				4.38E+03		
75-69-4	Trichlorofluoromethane				6.13E+02		
96-18-4	Trichloropropane, 1,2,3-				2.63E-01		
95-63-6	Trimethylbenzene, 1,2,4-				6.13E+00		
108-67-8	Trimethylbenzene, 1,3,5-						
106-42-3	Xylene, p-				8.76E+01		
108-38-3	Xylene, m-				8.76E+01		
95-47-6	Xylene, o-				8.76E+01		

Cumulative:	5.15E-08	0.01

DSCA Soil Ingestion Risk Calculator - Cumulative Risk for Construction Worker **Form 4A**

DSCA ID No.: **DC600043**

Exposure Unit: **Exposure Unit #1**

All concentrations are in mg/kg.

CAS #	Chemical Name:	Soil Concentration (mg/kg)	Ingestion SL @ TCR = 1E-06	Ingestion SL @ THQ = 0.2	Calculated Carcinogenic Risk	Calculated Non-Carcinogenic Hazard Quotient
71-43-2	Benzene		4.50E+02	7.08E+02		
156-59-2	Dichloroethylene, 1,2-cis-	0.075		1.42E+03		0.0000
156-60-5	Dichloroethylene, 1,2-trans-			1.42E+04		
100-41-4	Ethylbenzene	0.26	2.25E+03	3.54E+03	1.15E-10	0.0000
1634-04-4	Methyl tert-Butyl Ether (MTBE)		1.38E+04	2.12E+04		
91-20-3	Naphthalene	3.3		4.25E+04		0.0000
127-18-4	Tetrachloroethylene	0.03	1.18E+04	7.08E+03	2.54E-12	0.0000
108-88-3	Toluene			5.66E+04		
79-01-6	Trichloroethylene		5.39E+02	3.54E+01		
1330-20-7	Xylenes	1.1		2.83E+04		0.0000
104-51-8	Butylbenzene, n-	5.3		7.08E+03		0.0001
135-98-8	Butylbenzene, sec-	2.9		7.08E+03		0.0001
98-06-6	Butylbenzene, tert-	1.3		7.08E+03		0.0000
56-23-5	Carbon Tetrachloride		3.54E+02	4.96E+02		
67-66-3	Chloroform		7.99E+02	7.08E+03		
74-87-3	Chloromethane					
98-82-8	Cumene			2.83E+04		
75-34-3	Dichloroethane, 1,1-		4.35E+03	1.42E+05		
107-06-2	Dichloroethane, 1,2-		2.72E+02	1.42E+03		
75-35-4	Dichloroethylene, 1,1-			6.37E+02		
78-87-5	Dichloropropane, 1,2-		6.88E+02	4.96E+03		
71-55-6	Trichloroethane, 1,1,1-	0.21		4.96E+05		0.0000
75-69-4	Trichlorofluoromethane			4.96E+04		
96-18-4	Trichloropropane, 1,2,3-		8.26E-01	5.66E+03		
95-63-6	Trimethylbenzene, 1,2,4-	38.7				
108-67-8	Trimethylbenzene, 1,3,5-	15.2		7.08E+03		0.0004
106-42-3	Xylene, p-			1.42E+04		
108-38-3	Xylene, m-			1.42E+04		
95-47-6	Xylene, o-			1.42E+04		

Cumulative Risk:	1.18E-10	0.00

DSCA Soil Dermal Risk Calculator - Cumulative Risk for Construction Worker **Form 4B**

DSCA ID No.: DC600043

Exposure Unit: Exposure Unit #1

All concentrations are in mg/kg.

CAS #	Chemical Name:	Soil Concentration (mg/kg)	Dermal SL @ TCR = 1E-06	Dermal SL @ THQ = 0.2	Calculated Carcinogenic Risk	Calculated Non-Carcinogenic Hazard Quotient
71-43-2	Benzene					
156-59-2	Dichloroethylene, 1,2-cis-	0.075				
156-60-5	Dichloroethylene, 1,2-trans-					
100-41-4	Ethylbenzene	0.26				
1634-04-4	Methyl tert-Butyl Ether (MTBE)					
91-20-3	Naphthalene	3.3		1.02E+05		0.0000
127-18-4	Tetrachloroethylene	0.03				
108-88-3	Toluene					
79-01-6	Trichloroethylene					
1330-20-7	Xylenes	1.1				
104-51-8	Butylbenzene, n-	5.3				
135-98-8	Butylbenzene, sec-	2.9				
98-06-6	Butylbenzene, tert-	1.3				
56-23-5	Carbon Tetrachloride					
67-66-3	Chloroform					
74-87-3	Chloromethane					
98-82-8	Cumene					
75-34-3	Dichloroethane, 1,1-					
107-06-2	Dichloroethane, 1,2-					
75-35-4	Dichloroethylene, 1,1-					
78-87-5	Dichloropropane, 1,2-					
71-55-6	Trichloroethane, 1,1,1-	0.21				
75-69-4	Trichlorofluoromethane					
96-18-4	Trichloropropane, 1,2,3-					
95-63-6	Trimethylbenzene, 1,2,4-	38.7				
108-67-8	Trimethylbenzene, 1,3,5-	15.2				
106-42-3	Xylene, p-					
108-38-3	Xylene, m-					
95-47-6	Xylene, o-					

Cumulative:	0.00E+00	0.00

Note: In the evaluation of the dermal contact exposure pathway, chemicals (typically VOC's) without a dermal absorption factor make a negligible contribution to calculated risk. Thus if no dermal absorption factor is available for a specific chemical (concentration) all other columns will be blank.Note: Calculated soil dermal contact risks for chemicals with no dermal absorption factor are considered negligible. The calculated risk and

DSCA Soil Outdoor Inhalation Risk Calculator - Cumulative Risk for Construction Worker **Form 4C**

DSCA ID No.: DC600043

Exposure Unit: Exposure Unit #1

All concentrations are in mg/kg.

CAS #	Chemical Name:	Soil Concentration (mg/kg)	Higher of mass limit and standard VF: Inhalation SL @ TCR = 1E-06	Higher of mass limit and standard VF: Inhalation SL @ THQ = 0.2	Calculated Carcinogenic Risk	Calculated Non-Carcinogenic Hazard Quotient
71-43-2	Benzene		3.12E+01	5.56E+01		
156-59-2	Dichloroethylene, 1,2-cis-					
156-60-5	Dichloroethylene, 1,2-trans-			2.72E+02		
100-41-4	Ethylbenzene		1.56E+02	1.00E+04		
1634-04-4	Methyl tert-Butyl Ether (MTBE)		1.30E+03	2.43E+03		
91-20-3	Naphthalene		9.30E+01	2.71E+01		
127-18-4	Tetrachloroethylene		6.21E+02	1.85E+01		
108-88-3	Toluene			4.21E+03		
79-01-6	Trichloroethylene		3.71E+01	8.68E-01		
1330-20-7	Xylenes			5.09E+02		
104-51-8	Butylbenzene, n-					
135-98-8	Butylbenzene, sec-					
98-06-6	Butylbenzene, tert-					
56-23-5	Carbon Tetrachloride		1.71E+01	5.54E+01		
67-66-3	Chloroform		7.86E+00	1.26E+02		
74-87-3	Chloromethane			7.03E+02		
98-82-8	Cumene			1.10E+02		
75-34-3	Dichloroethane, 1,1-		8.96E+01			
107-06-2	Dichloroethane, 1,2-		1.21E+01	6.30E+01		
75-35-4	Dichloroethylene, 1,1-			1.86E+01		
78-87-5	Dichloropropane, 1,2-		2.61E+01	2.41E+01		
71-55-6	Trichloroethane, 1,1,1-			1.62E+03		
75-69-4	Trichlorofluoromethane			2.34E+02		
96-18-4	Trichloropropane, 1,2,3-			9.24E-01		
95-63-6	Trimethylbenzene, 1,2,4-			1.09E+02		
108-67-8	Trimethylbenzene, 1,3,5-			1.30E+01		
106-42-3	Xylene, p-			1.10E+02		
108-38-3	Xylene, m-			1.08E+02		
95-47-6	Xylene, o-			1.27E+02		
				Cumulative:	0.00E+00	0.00

DSCA Protection of Groundwater-- Source Groundwater **Form 5A**

DSCA ID No.: DC600043

Distance to Protection of Groundwater POE 1950 feet

CAS #	Chemical Name:	Source Groundwater Concentration (mg/L)	2L Standard (mg/L)	Groundwater Concentration at POE (mg/L)	Concentration Exceeds 2L Standard?
71-43-2	Benzene	0.0055	0.001	1.72955E-05	NO
156-59-2	Dichloroethylene, 1,2-cis-	0.186	0.07	0.000584902	NO
156-60-5	Dichloroethylene, 1,2-trans-	0.00094	0.1	2.95596E-06	NO
100-41-4	Ethylbenzene	0.0773	0.6	0.00024308	NO
1634-04-4	Methyl tert-Butyl Ether (MTBE)	0.0031	0.02	9.74837E-06	NO
91-20-3	Naphthalene	0.512	0.006	0.001610053	NO
127-18-4	Tetrachloroethylene	0.539	0.0007	0.001694958	**YES**
108-88-3	Toluene		0.6		
79-01-6	Trichloroethylene	0.029	0.003	9.11944E-05	NO
1330-20-7	Xylenes	0.242	0.5	0.000761002	NO
104-51-8	Butylbenzene, n-		0.07		
135-98-8	Butylbenzene, sec-	0.106	0.07	0.000333331	NO
98-06-6	Butylbenzene, tert-		0.07		
56-23-5	Carbon Tetrachloride	0.0023	0.0003	7.23266E-06	NO
67-66-3	Chloroform	0.0049	0.07	1.54087E-05	NO
74-87-3	Chloromethane	0.00011	0.003	3.4591E-07	NO
98-82-8	Cumene		0.07		
75-34-3	Dichloroethane, 1,1-	0.00094	0.006	2.95596E-06	NO
107-06-2	Dichloroethane, 1,2-	0.0525	0.0004	0.000165093	NO
75-35-4	Dichloroethylene, 1,1-	0.00095	0.35	2.9874E-06	NO
78-87-5	Dichloropropane, 1,2-	0.0161	0.0006	5.06286E-05	NO
71-55-6	Trichloroethane, 1,1,1-		0.2		
75-69-4	Trichlorofluoromethane		2		
96-18-4	Trichloropropane, 1,2,3-		0.000005		
95-63-6	Trimethylbenzene, 1,2,4-	2.81	0.4	0.008836423	NO
108-67-8	Trimethylbenzene, 1,3,5-	0.991	0.4	0.003116333	NO
106-42-3	Xylene, p-		0.5		
108-38-3	Xylene, m-		0.5		
95-47-6	Xylene, o-		0.5		

DSCA Protection of Groundwater-- Source Soil **Form 5B**

DSCA ID No.: DC600043

Distance to Protection of Groundwater POE 1950 feet

CAS #	Chemical Name:	Source Soil Concentration (mg/kg)	2L Standard (mg/L)	Groundwater Concentration at POE (mg/L)	Concentration Exceeds 2L Standard?
71-43-2	Benzene		0.001		
156-59-2	Dichloroethylene, 1,2-cis-	0.075	0.07	0.000107136	NO
156-60-5	Dichloroethylene, 1,2-trans-		0.1		
100-41-4	Ethylbenzene	0.26	0.6	0.00026387	NO
1634-04-4	Methyl tert-Butyl Ether (MTBE)		0.02		
91-20-3	Naphthalene	3.3	0.006	0.001140401	NO
127-18-4	Tetrachloroethylene	0.03	0.0007	4.28545E-05	NO
108-88-3	Toluene		0.6		
79-01-6	Trichloroethylene		0.003		
1330-20-7	Xylenes	1.1	0.5	0.001270606	NO
104-51-8	Butylbenzene, n-	5.3	0.07	0.001870922	NO
135-98-8	Butylbenzene, sec-	2.9	0.07	0.001127323	NO
98-06-6	Butylbenzene, tert-	1.3	0.07	0.000657173	NO
56-23-5	Carbon Tetrachloride		0.0003		
67-66-3	Chloroform		0.07		
74-87-3	Chloromethane		0.003		
98-82-8	Cumene		0.07		
75-34-3	Dichloroethane, 1,1-		0.006		
107-06-2	Dichloroethane, 1,2-		0.0004		
75-35-4	Dichloroethylene, 1,1-		0.35		
78-87-5	Dichloropropane, 1,2-		0.0006		

DSCA Protection of Groundwater-- Source Soil **Form 5B**

DSCA ID No.: DC600043

71-55-6	Trichloroethane, 1,1,1-	0.21	0.2	0.000299982	NO
75-69-4	Trichlorofluoromethane		2		
96-18-4	Trichloropropane, 1,2,3-		0.000005		
95-63-6	Trimethylbenzene, 1,2,4-	38.7	0.4	0.030331685	NO
108-67-8	Trimethylbenzene, 1,3,5-	15.2	0.4	0.012038988	NO
106-42-3	Xylene, p-		0.5		
108-38-3	Xylene, m-		0.5		
95-47-6	Xylene, o-		0.5		

DSCA Protection of Surface Water--Source Groundwater **Form 5C**

DSCA ID No.: DC600043

Distance to Protection of Surface Water POE 1950 feet

CAS #	Chemical Name:	Source Groundwater Concentration (mg/L)	2B Standard (mg/L)	Surface Water Concentration at POE (mg/L)	Concentration Exceeds 2B Standard?
71-43-2	Benzene	0.0055	0.051	1.72955E-05	NO
156-59-2	Dichloroethylene, 1,2-cis-	0.186		0.000584902	NA
156-60-5	Dichloroethylene, 1,2-trans-	0.00094		2.95596E-06	NA
100-41-4	Ethylbenzene	0.0773		0.00024308	NA
1634-04-4	Methyl tert-Butyl Ether (MTBE)	0.0031		9.74837E-06	NA
91-20-3	Naphthalene	0.512		0.001610053	NA
127-18-4	Tetrachloroethylene	0.539	0.0033	0.001694958	NO
108-88-3	Toluene		0.00036		
79-01-6	Trichloroethylene	0.029	0.003	9.11944E-05	NO
1330-20-7	Xylenes	0.242		0.000761002	NA
104-51-8	Butylbenzene, n-				
135-98-8	Butylbenzene, sec-	0.106		0.000333331	NA
98-06-6	Butylbenzene, tert-				
56-23-5	Carbon Tetrachloride	0.0023	0.0016	7.23266E-06	NO
67-66-3	Chloroform	0.0049		1.54087E-05	NA
74-87-3	Chloromethane	0.00011		3.4591E-07	NA
98-82-8	Cumene				
75-34-3	Dichloroethane, 1,1-	0.00094		2.95596E-06	NA
107-06-2	Dichloroethane, 1,2-	0.0525		0.000165093	NA
75-35-4	Dichloroethylene, 1,1-	0.00095		2.9874E-06	NA
78-87-5	Dichloropropane, 1,2-	0.0161		5.06286E-05	NA

DSCA Protection of Surface Water--Source Groundwater **Form 5C**

DSCA ID No.: DC600043

71-55-6	Trichloroethane, 1,1,1-				
75-69-4	Trichlorofluoromethane				
96-18-4	Trichloropropane, 1,2,3-				
95-63-6	Trimethylbenzene, 1,2,4-	2.81		0.008836423	NA
108-67-8	Trimethylbenzene, 1,3,5-	0.991		0.003116333	NA
106-42-3	Xylene, p-				
108-38-3	Xylene, m-				
95-47-6	Xylene, o-				

NA = Not applicable because no 2B Standard entered.

DSCA Protection of Surface Water--Source Soil **Form 5D**

DSCA ID No.: DC600043

Distance to Protection of Surface Water POE 1950 feet

CAS #	Chemical Name:	Source Soil Concentration (mg/kg)	2B Standard (mg/L)	Surface Water Concentration at POE (mg/L)	Concentration Exceeds 2B Standard?
71-43-2	Benzene		0.051		
156-59-2	Dichloroethylene, 1,2-cis-	0.075		0.000107136	NA
156-60-5	Dichloroethylene, 1,2-trans-				
100-41-4	Ethylbenzene	0.26		0.00026387	NA
1634-04-4	Methyl tert-Butyl Ether (MTBE)				
91-20-3	Naphthalene	3.3		0.001140401	NA
127-18-4	Tetrachloroethylene	0.03	0.0033	4.28545E-05	NO
108-88-3	Toluene		0.00036		
79-01-6	Trichloroethylene		0.003		
1330-20-7	Xylenes	1.1		0.001270606	NA
104-51-8	Butylbenzene, n-	5.3		0.001870922	NA
135-98-8	Butylbenzene, sec-	2.9		0.001127323	NA
98-06-6	Butylbenzene, tert-	1.3		0.000657173	NA
56-23-5	Carbon Tetrachloride		0.0016		
67-66-3	Chloroform				
74-87-3	Chloromethane				
98-82-8	Cumene				
75-34-3	Dichloroethane, 1,1-				
107-06-2	Dichloroethane, 1,2-				
75-35-4	Dichloroethylene, 1,1-				
78-87-5	Dichloropropane, 1,2-				

DSCA Protection of Surface Water--Source Soil **Form 5D**

DSCA ID No.: DC600043

71-55-6	Trichloroethane, 1,1,1-	0.21		0.000299982	NA
75-69-4	Trichlorofluoromethane				
96-18-4	Trichloropropane, 1,2,3-				
95-63-6	Trimethylbenzene, 1,2,4-	38.7		0.030331685	NA
108-67-8	Trimethylbenzene, 1,3,5-	15.2		0.012038988	NA
106-42-3	Xylene, p-				
108-38-3	Xylene, m-				
95-47-6	Xylene, o-				

NA = Not applicable because no 2B Standard entered.

DSCA Protection of Groundwater--Source Groundwater (Back Calculator) **Form 5E**

DSCA ID No.: DC600043

Distance to Protection of Groundwater POE 1950 feet

CAS #	Chemical Name:	Target Groundwater Concentration at POE (mg/L)	2L Standard (mg/L)	Calculated Source Groundwater Concentration (Tier 2 SSTL) (mg/L)
71-43-2	Benzene		0.001	
156-59-2	Dichloroethylene, 1,2-cis-		0.07	
156-60-5	Dichloroethylene, 1,2-trans-		0.1	
100-41-4	Ethylbenzene		0.6	
1634-04-4	Methyl tert-Butyl Ether (MTBE)		0.02	
91-20-3	Naphthalene		0.006	
127-18-4	Tetrachloroethylene		0.0007	
108-88-3	Toluene		0.6	
79-01-6	Trichloroethylene		0.003	
1330-20-7	Xylenes		0.5	
104-51-8	Butylbenzene, n-		0.07	
135-98-8	Butylbenzene, sec-		0.07	
98-06-6	Butylbenzene, tert-		0.07	
56-23-5	Carbon Tetrachloride		0.0003	
67-66-3	Chloroform		0.07	
74-87-3	Chloromethane		0.003	
98-82-8	Cumene		0.07	
75-34-3	Dichloroethane, 1,1-		0.006	
107-06-2	Dichloroethane, 1,2-		0.0004	
75-35-4	Dichloroethylene, 1,1-		0.35	
78-87-5	Dichloropropane, 1,2-		0.0006	
71-55-6	Trichloroethane, 1,1,1-		0.2	
75-69-4	Trichlorofluoromethane		2	
96-18-4	Trichloropropane, 1,2,3-		0.000005	
95-63-6	Trimethylbenzene, 1,2,4-		0.4	
108-67-8	Trimethylbenzene, 1,3,5-		0.4	
106-42-3	Xylene, p-		0.5	
108-38-3	Xylene, m-		0.5	
95-47-6	Xylene, o-		0.5	

Note: The 2L Standards are shown for convenience. However, if the 2L Standards are the target groundwater concentration at the POE they must be manually entered in column G. This is to allow for situations where the target groundwater concentration at the POE may be values other than 2L Standards (vapor intrusion screening levels for example).

DSCA Protection of Groundwater--Source Soil (Back Calculator) **Form 5F**

DSCA ID No.: DC600043

Distance to Protection of Groundwater POE 1950 feet

CAS #	Chemical Name:	Target Groundwater Concentration at POE (mg/L)	2L Standard (mg/L)	Calculated Source Soil Concentration (Tier 2 SSTL) (mg/kg)
71-43-2	Benzene	0.001	0.001	0.700042949
156-59-2	Dichloroethylene, 1,2-cis-	0.07	0.07	49.0030064
156-60-5	Dichloroethylene, 1,2-trans-	0.1	0.1	70.00429486
100-41-4	Ethylbenzene	0.6	0.6	591.2004908
1634-04-4	Methyl tert-Butyl Ether (MTBE)	0.02	0.02	14.00085897
91-20-3	Naphthalene	0.006	0.006	17.36231999
127-18-4	Tetrachloroethylene	0.0007	0.0007	0.490030064
108-88-3	Toluene	0.6	0.6	420.0257692
79-01-6	Trichloroethylene	0.003	0.003	2.100128846
1330-20-7	Xylenes	0.5	0.5	432.8643207
104-51-8	Butylbenzene, n-	0.07	0.07	198.2979249
135-98-8	Butylbenzene, sec-	0.07	0.07	180.0726459
98-06-6	Butylbenzene, tert-	0.07	0.07	138.4719949
56-23-5	Carbon Tetrachloride	0.0003	0.0003	0.210012885
67-66-3	Chloroform	0.07	0.07	49.0030064
74-87-3	Chloromethane	0.003	0.003	2.100128846
98-82-8	Cumene	0.07	0.07	100.7609413
75-34-3	Dichloroethane, 1,1-	0.006	0.006	4.200257692
107-06-2	Dichloroethane, 1,2-	0.0004	0.0004	0.280017179
75-35-4	Dichloroethylene, 1,1-	0.35	0.35	245.015032
78-87-5	Dichloropropane, 1,2-	0.0006	0.0006	0.420025769
71-55-6	Trichloroethane, 1,1,1-	0.2	0.2	140.0085897
75-69-4	Trichlorofluoromethane	2	2	1400.085897
96-18-4	Trichloropropane, 1,2,3-	0.000005	0.000005	0.003500215
95-63-6	Trimethylbenzene, 1,2,4-	0.4	0.4	510.3574088
108-67-8	Trimethylbenzene, 1,3,5-	0.4	0.4	505.0258315
106-42-3	Xylene, p-	0.5	0.5	428.859326
108-38-3	Xylene, m-	0.5	0.5	429.295685
95-47-6	Xylene, o-	0.5	0.5	432.8643207

Note: The 2L Standards are shown for convenience. However, if the 2L Standards are the target groundwater concentration at the POE they must be manually entered in column G. This is to allow for situations where the target groundwater concentration at the POE may be values other than 2L Standards (vapor intrusion screening levels for example).

DSCA Protection of Surface Water--Source Groundwater (Back Calculator) **Form 5G**

DSCA ID No.: DC600043

Distance to Protection of Surface Water POE 1950 feet

CAS #	Chemical Name:	Target Surface Water Concentration at POE (mg/L)	Calculated Source Groundwater Concentration (Tier 2 SSTL) (mg/L)
71-43-2	Benzene		
156-59-2	Dichloroethylene, 1,2-cis-		
156-60-5	Dichloroethylene, 1,2-trans-		
100-41-4	Ethylbenzene		
1634-04-4	Methyl tert-Butyl Ether (MTBE)		
91-20-3	Naphthalene		
127-18-4	Tetrachloroethylene		
108-88-3	Toluene		
79-01-6	Trichloroethylene		
1330-20-7	Xylenes		
104-51-8	Butylbenzene, n-		
135-98-8	Butylbenzene, sec-		
98-06-6	Butylbenzene, tert-		
56-23-5	Carbon Tetrachloride		
67-66-3	Chloroform		
74-87-3	Chloromethane		
98-82-8	Cumene		
75-34-3	Dichloroethane, 1,1-		
107-06-2	Dichloroethane, 1,2-		
75-35-4	Dichloroethylene, 1,1-		
78-87-5	Dichloropropane, 1,2-		
71-55-6	Trichloroethane, 1,1,1-		
75-69-4	Trichlorofluoromethane		
96-18-4	Trichloropropane, 1,2,3-		
95-63-6	Trimethylbenzene, 1,2,4-		
108-67-8	Trimethylbenzene, 1,3,5-		
106-42-3	Xylene, p-		
108-38-3	Xylene, m-		
95-47-6	Xylene, o-		

DSCA Protection of Surface Water--Source Soil (Back Calculator) **Form 5H**

DSCA ID No.: DC600043

Distance to Protection of Surface Water POE 1950 feet

CAS #	Chemical Name:	Target Surface Water Concentration at POE (mg/L)	Calculated Source Soil Concentration (Tier 2 SSTL) (mg/kg)
71-43-2	Benzene		
156-59-2	Dichloroethylene, 1,2-cis-		
156-60-5	Dichloroethylene, 1,2-trans-		
100-41-4	Ethylbenzene		
1634-04-4	Methyl tert-Butyl Ether (MTBE)		
91-20-3	Naphthalene		
127-18-4	Tetrachloroethylene		
108-88-3	Toluene		
79-01-6	Trichloroethylene		
1330-20-7	Xylenes		
104-51-8	Butylbenzene, n-		
135-98-8	Butylbenzene, sec-		
98-06-6	Butylbenzene, tert-		
56-23-5	Carbon Tetrachloride		
67-66-3	Chloroform		
74-87-3	Chloromethane		
98-82-8	Cumene		
75-34-3	Dichloroethane, 1,1-		
107-06-2	Dichloroethane, 1,2-		
75-35-4	Dichloroethylene, 1,1-		
78-87-5	Dichloropropane, 1,2-		
71-55-6	Trichloroethane, 1,1,1-		
75-69-4	Trichlorofluoromethane		
96-18-4	Trichloropropane, 1,2,3-		
95-63-6	Trimethylbenzene, 1,2,4-		
108-67-8	Trimethylbenzene, 1,3,5-		
106-42-3	Xylene, p-		
108-38-3	Xylene, m-		
95-47-6	Xylene, o-		

Summary of Risk Assessment Results **Form 1G**

DSCA ID No.: DC600043

Exposure Unit: Exposure Unit #1

	Residential			Non-Residential			Construction Worker		
Pathway	**Carcin-ogenic Risk**	**Hazard Index**	**Risk exceeded?**	**Carcin-ogenic Risk**	**Hazard Index**	**Risk exceeded?**	**Carcin-ogenic Risk**	**Hazard Index**	**Risk exceeded?**
SURFICIAL SOIL COMBINED PATHWAYS									
Soil Ingestion	4.20E-09	2.41E-02	**NO**	8.94E-10	1.61E-03	**NO**	1.18E-10	7.47E-04	**NO**
Soil Dermal	0.00E+00	6.51E-04	**NO**	0.00E+00	7.77E-05	**NO**	0.00E+00	6.48E-06	**NO**
Soil Outdoor Inhalation	0.00E+00	0.00E+00	**NO**	0.00E+00	0.00E+00	**NO**	0.00E+00	0.00E+00	**NO**
Surficial Soil Combined Pathways	4.20E-09	2.47E-02	**NO**	8.94E-10	1.69E-03	**NO**	1.18E-10	7.54E-04	**NO**
INDOOR INHALATION EXPOSURE PATHWAY									
Indoor Air	7.56E-07	1.82E-01	**NO**	1.41E-07	4.34E-02	**NO**	NA	NA	**NA**
Soil Gas to Indoor Air	6.75E-07	1.75E-01	**NO**	5.15E-08	1.39E-02	**NO**	NA	NA	**NA**
Groundwater to Indoor Air	0.00E+00	0.00E+00	**NO**	0.00E+00	0.00E+00	**NO**	NA	NA	**NA**
DERMAL CONTACT WITH GROUNDWATER EXPOSURE PATHWAY									
Groundwater Dermal	0.00E+00	0.00E+00	**NO**	0.00E+00	0.00E+00	**NO**	0.00E+00	0.00E+00	**NO**
Allowable Risk	**1.0E-05**	**1**		**1.0E-05**	**1**		**1.0E-05**	**1**	

Protection of Groundwater Use

Exceedences of SSTLs? Source Soil No Source Groundwater Yes

Protection of Surface Water

Exceedences of SSTLs? Source Soil No Source Groundwater No

Risk Assessment Toolkit
for
North Carolina Dry-Cleaning Solvent Cleanup Act Program

DSCA Site Name:	Douglas-Furrier Cleaners
DSCA Site Address:	1200 Charlottetown Ave, Charlotte, NC
DSCA ID No.:	DC600043
Exposure Unit:	Exposure Unit #2
Submittal Date:	8/22/2016
Prepared By:	RHM

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Form 1C	Chemicals of Concern	☑
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Form 5H	Protection of Surface Water--Source Soil (Backward Mode)	☑

Exposure Factors and Target Risk Limits **Form 1A**

DSCA ID No.: DC600043

Exposure Unit: Exposure Unit #2

Exposure Parameter	Residential Child		Residential Adult		Commercial		Construction Worker
Lifetime (LT) (years)	70		70		70		70
Averaging Time (AT) (days/yr)	365		365		365		365
Body Weight (BW) (kg)	15		80		80		80
Exposure Duration (ED) (yr)	6		20		25		1
Exposure Frequency (EF) (d/yr)	350		350		250		250
Exposure Time (hr)	24		24		8		8
Skin Surface Area (SA) (cm^2)	2373		6032		3527		3527
Soil Adherence Factor (AF) (mg/cm^2)	0.2		0.07		0.12		0.3
Soil Ingestion Rate (IRS) (mg/day)	200		100		100		330
Incidental Dermal Contact with Groundwater Pathway							
Exposure Frequency (EF) (d/yr)	90		90		90		350
Exposure Time (hr)	1		1		1		1
Event Frequency (EV) (events/day)	1		1		1		1

Note: Construction worker averaging time and skin surface area values have been updated to match the values recommended in the EPA June 2015 Regional Screening Level updates. Note that these values do not match the values specified in the May 2015 NC DSCA Program Risk Assessment Guidance. These values will be updated in the guidance document at the time of the next future guidance document update.

Target Health Risk Limits	Individual	Cumulative
Target Cancer Risk	1.00E-06	1.00E-05
Target Hazard Index	0.2	1

Justification for Fate and Transport Parameters **Form 1B 1B**

DSCA ID No.: DC600043

Exposure Unit: Exposure Unit #2

Provide justification for the fate and transport parameters used.

Parameter	Default Value	Site Specific Value	Justification
Distance to Protection of Groundwater Point of Exposure (feet)	0	1540	The POE distance was selected to be the distance to downgradient property boundary of the first property where groundwater impacts hace not been observed as indicated on Att.1. The distance is 1540 feet
Distance to Protection of Surface Water Point of Exposure (feet)	0	1620	The nearest surface water body is the Little Sugar Creek located approximately 1620 feet downgradient of the source. It is a Class C Water Body
Depth to Base of Affected Soils (d_s) (cm)	1244	580	The depth to groundwater is approximately 19 feet as documented in the PAR, dated Aug 2010. 19 feet = 228 inches = 580 cm
Length of Affected Soil Parallel to Assumed GW Flow Direction (L) (cm)	500	610	Assumed length of affected soil is 20 feet = 240 inches = 610 cm
Vadose Zone Volumetric Water Content (θ_w) (unitless)	0.15 (soil to outdoor air pathway)	0.15	Insufficent data - used default value
	0.3 (soil to groundwater pathway)	0.3	Insufficent data - used default value
Vadose Zone Volumetric Air Content (θa) (unitless)	0.28 (soil to outdoor air pathway)	0.28	Insufficent data - used default value
	0.13 (soil to groundwater pathway)	0.13	Insufficent data - used default value
Total Porosity (n) (unitless)	0.43	0.43	Insufficent data - used default value
Dry Bulk Density (ρ_b) (kg/L)	1.5	1.5	Insufficent data - used default value

Justification for Fate and Transport Parameters			**Form 1B 1B**
DSCA ID No.: DC600043			
Exposure Unit: Exposure Unit #2			
Provide justification for the fate and transport parameters used.			
Parameter	Default Value	Site Specific Value	Justification
Net Infiltration Estimate (I) (cm/yr)	66	27.36	As documented in the PAR, annual precipitation is approx 43.09 in/yr. Infiltration for Piedmont zone is 25% or 10.77 inches = 27.36 cm

Justification for Fate and Transport Parameters **Form 1B 1B**

DSCA ID No.: DC600043

Exposure Unit: Exposure Unit #2

Provide justification for the fate and transport parameters used.

Parameter	Default Value	Site Specific Value	Justification
Fraction Organic Carbon (foc)	0.006 (soil to outdoor air pathway)	0.006	Insufficent data - used default value
	0.002 (soil leaching to groundwater pathway)	0.002	Insufficent data - used default value
Hydraulic Conductivity (K) (cm/d)	690	7.02	As documented in the PAR, hydraulic conductivity is 2563.88 cm/yr = 7.02 cm/day
Hydraulic Gradient (i)	0.01	0.080	As documented in the PAR the hydraulic gradient is 0.08
Aquifer Thickness (d_a) (cm)	1500	1500	Insufficent data - used default value
Plume Thickness at Source (S_d) (cm)	200	200	Insufficent data - used default value
Plume Width at Source (S_w) (cm)	4,500	4,500.0	Insufficent data - used default value
Plume Thickness at GW/SW Discharge (δsw) (cm)	200	200	Insufficent data - used default value
Plume Width at GW/SW Discharge (W_{gwsw}) (cm)	4,500	4,500.0	Insufficent data - used default value
Surface Water Flowrate at GW/SW Discharge (cm^3/d)	0	0	Insufficent data - used default value

Chemicals of Concern **Form 1C**

DSCA ID No.: DC600043

Exposure Unit: Exposure Unit #2

Select Chemicals of Concern

Put an "X" in the first column to select a chemical of concern.

	CAS Number	Chemical Name
x	71-43-2	Benzene
x	156-59-2	Dichloroethylene, 1,2-cis-
x	156-60-5	Dichloroethylene, 1,2-trans-
x	100-41-4	Ethylbenzene
x	1634-04-4	Methyl tert-Butyl Ether (MTBE)
x	91-20-3	Naphthalene
x	127-18-4	Tetrachloroethylene
x	108-88-3	Toluene
x	79-01-6	Trichloroethylene
x	1330-20-7	Xylenes
x	104-51-8	Butylbenzene, n-
x	135-98-8	Butylbenzene, sec-
x	98-06-6	Butylbenzene, tert-
x	56-23-5	Carbon Tetrachloride
x	67-66-3	Chloroform
x	74-87-3	Chloromethane
x	98-82-8	Cumene
x	75-34-3	Dichloroethane, 1,1-
x	107-06-2	Dichloroethane, 1,2-
x	75-35-4	Dichloroethylene, 1,1-
x	78-87-5	Dichloropropane, 1,2-
x	71-55-6	Trichloroethane, 1,1,1-
x	75-69-4	Trichlorofluoromethane
x	96-18-4	Trichloropropane, 1,2,3-
x	95-63-6	Trimethylbenzene, 1,2,4-
x	108-67-8	Trimethylbenzene, 1,3,5-
x	106-42-3	Xylene, P-
x	108-38-3	Xylene, m-
x	95-47-6	Xylene, o-

Chemicals of Concern **Form 1F**

DSCA ID No.: DC600043

Exposure Unit: Exposure Unit #2

Air and Soil Gas Representative Concentration Table

CAS Number	Chemical Name	Soil Gas and Air (concentrations are in ug/m^3)	
		Soil Gas	Indoor Air
71-43-2	Benzene		
156-59-2	Dichloroethylene, 1,2-cis-		3.20E-02
156-60-5	Dichloroethylene, 1,2-trans-		
100-41-4	Ethylbenzene		
1634-04-4	Methyl tert-Butyl Ether (MTBE)		
91-20-3	Naphthalene		
127-18-4	Tetrachloroethylene	2.87E+04	1.40E+00
108-88-3	Toluene		
79-01-6	Trichloroethylene		1.80E-01
1330-20-7	Xylenes		
104-51-8	Butylbenzene, n-		
135-98-8	Butylbenzene, sec-		
98-06-6	Butylbenzene, tert-		
56-23-5	Carbon Tetrachloride		
67-66-3	Chloroform		
74-87-3	Chloromethane		
98-82-8	Cumene		
75-34-3	Dichloroethane, 1,1-		
107-06-2	Dichloroethane, 1,2-		
75-35-4	Dichloroethylene, 1,1-		
78-87-5	Dichloropropane, 1,2-		
71-55-6	Trichloroethane, 1,1,1-		
75-69-4	Trichlorofluoromethane		
96-18-4	Trichloropropane, 1,2,3-		
95-63-6	Trimethylbenzene, 1,2,4-		
108-67-8	Trimethylbenzene, 1,3,5-		
106-42-3	Xylene, P-		
108-38-3	Xylene, m-		
95-47-6	Xylene, o-		

DSCA Indoor Air Risk Calculator - Cumulative Risk for Resident **Form 2D**

DSCA ID No.: DC600043

Exposure Unit: Exposure Unit #2

All concentrations are in ug/m^3

CAS #	Chemical Name:	Indoor Air Concentration (ug/m^3)	Target Indoor Air Conc. for Carcinogens @ TCR = 1E-06	Target Indoor Air Conc. for Non-Carcinogens @ THQ = 0.2	Calculated Carcinogenic Risk	Calculated Non-Carcinogenic Hazard Quotient
71-43-2	Benzene		3.60E-01	6.26E+00		
156-59-2	Dichloroethylene, 1,2-cis-	0.032				
156-60-5	Dichloroethylene, 1,2-trans-					
100-41-4	Ethylbenzene		1.12E+00	2.09E+02		
1634-04-4	Methyl tert-Butyl Ether (MTBE)		1.08E+01	6.26E+02		
91-20-3	Naphthalene		8.26E-02	6.26E-01		
127-18-4	Tetrachloroethylene	1.4	1.08E+01	8.34E+00	1.30E-07	0.0336
108-88-3	Toluene			1.04E+03		
79-01-6	Trichloroethylene	0.18	4.78E-01	4.17E-01	3.76E-07	0.0863
1330-20-7	Xylenes			2.09E+01		
104-51-8	Butylbenzene, n-					
135-98-8	Butylbenzene, sec-					
98-06-6	Butylbenzene, tert-					
56-23-5	Carbon Tetrachloride		4.68E-01	2.09E+01		
67-66-3	Chloroform		1.22E-01	2.04E+01		
74-87-3	Chloromethane			1.88E+01		
98-82-8	Cumene			8.34E+01		
75-34-3	Dichloroethane, 1,1-		1.75E+00			
107-06-2	Dichloroethane, 1,2-		1.08E-01	1.46E+00		
75-35-4	Dichloroethylene, 1,1-			4.17E+01		
78-87-5	Dichloropropane, 1,2-		2.81E-01	8.34E-01		
71-55-6	Trichloroethane, 1,1,1-			1.04E+03		
75-69-4	Trichlorofluoromethane			1.46E+02		
96-18-4	Trichloropropane, 1,2,3-			6.26E-02		
95-63-6	Trimethylbenzene, 1,2,4-			1.46E+00		
108-67-8	Trimethylbenzene, 1,3,5-					
106-42-3	Xylene, p-			2.09E+01		
108-38-3	Xylene, m-			2.09E+01		
95-47-6	Xylene, o-			2.09E+01		

Cumulative:	5.06E-07	0.12

DSCA Soil Gas to Indoor Air Risk Calculator - Cumulative Risk for Resident **Form 2E**

DSCA ID No.: DC600043

Exposure Unit: Exposure Unit #2

All concentrations are in ug/m^3

CAS #	Chemical Name:	Soil Gas Concentration (ug/m^3)	Calculated Indoor Air Concentration (ug/m^3)	Target Indoor Air Conc. for Carcinogens @ TCR = 1E-06	Target Indoor Air Conc. for Non-Carcinogens @ THQ = 0.2	Calculated Carcinogenic Risk	Calculated Non-Carcinogenic Hazard Quotient
71-43-2	Benzene			3.60E-01	6.26E+00		
156-59-2	Dichloroethylene, 1,2-cis-						
156-60-5	Dichloroethylene, 1,2-trans-						
100-41-4	Ethylbenzene			1.12E+00	2.09E+02		
1634-04-4	Methyl tert-Butyl Ether (MTBE)			1.08E+01	6.26E+02		
91-20-3	Naphthalene			8.26E-02	6.26E-01		
127-18-4	Tetrachloroethylene	28700	861	1.08E+01	8.34E+00	***7.97E-05***	***20.6404***
108-88-3	Toluene				1.04E+03		
79-01-6	Trichloroethylene			4.78E-01	4.17E-01		
1330-20-7	Xylenes				2.09E+01		
104-51-8	Butylbenzene, n-						
135-98-8	Butylbenzene, sec-						
98-06-6	Butylbenzene, tert-						
56-23-5	Carbon Tetrachloride			4.68E-01	2.09E+01		
67-66-3	Chloroform			1.22E-01	2.04E+01		
74-87-3	Chloromethane				1.88E+01		
98-82-8	Cumene				8.34E+01		
75-34-3	Dichloroethane, 1,1-			1.75E+00			
107-06-2	Dichloroethane, 1,2-			1.08E-01	1.46E+00		
75-35-4	Dichloroethylene, 1,1-				4.17E+01		
78-87-5	Dichloropropane, 1,2-			2.81E-01	8.34E-01		
71-55-6	Trichloroethane, 1,1,1-				1.04E+03		
75-69-4	Trichlorofluoromethane				1.46E+02		
96-18-4	Trichloropropane, 1,2,3-				6.26E-02		
95-63-6	Trimethylbenzene, 1,2,4-				1.46E+00		
108-67-8	Trimethylbenzene, 1,3,5-						
106-42-3	Xylene, p-				2.09E+01		
108-38-3	Xylene, m-				2.09E+01		
95-47-6	Xylene, o-				2.09E+01		
					Cumulative:	***7.97E-05***	***20.64***

DSCA Indoor Air Risk Calculator - Cumulative Risk for Non-Residential Worker **Form 3D**

DSCA ID No.: DC600043

Exposure Unit: Exposure Unit #2

All concentrations are in ug/m^3

CAS #	Chemical Name:	Indoor Air Concentration (ug/m^3)	Target Indoor Air Conc. for Carcinogens @ TCR = 1E-06	Target Indoor Air Conc. for Non-Carcinogens @ THQ = 0.2	Calculated Carcinogenic Risk	Calculated Non-Carcinogenic Hazard Quotient
71-43-2	Benzene		1.57E+00	2.63E+01		
156-59-2	Dichloroethylene, 1,2-cis-	0.032				
156-60-5	Dichloroethylene, 1,2-trans-					
100-41-4	Ethylbenzene		4.91E+00	8.76E+02		
1634-04-4	Methyl tert-Butyl Ether (MTBE)		4.72E+01	2.63E+03		
91-20-3	Naphthalene		3.61E-01	2.63E+00		
127-18-4	Tetrachloroethylene	1.4	4.72E+01	3.50E+01	2.97E-08	0.0080
108-88-3	Toluene			4.38E+03		
79-01-6	Trichloroethylene	0.18	2.99E+00	1.75E+00	6.02E-08	0.0205
1330-20-7	Xylenes			8.76E+01		
104-51-8	Butylbenzene, n-					
135-98-8	Butylbenzene, sec-					
98-06-6	Butylbenzene, tert-					
56-23-5	Carbon Tetrachloride		2.04E+00	8.76E+01		
67-66-3	Chloroform		5.33E-01	8.58E+01		
74-87-3	Chloromethane			7.88E+01		
98-82-8	Cumene			3.50E+02		
75-34-3	Dichloroethane, 1,1-		7.67E+00			
107-06-2	Dichloroethane, 1,2-		4.72E-01	6.13E+00		
75-35-4	Dichloroethylene, 1,1-			1.75E+02		
78-87-5	Dichloropropane, 1,2-		1.23E+00	3.50E+00		
71-55-6	Trichloroethane, 1,1,1-			4.38E+03		
75-69-4	Trichlorofluoromethane			6.13E+02		
96-18-4	Trichloropropane, 1,2,3-			2.63E-01		
95-63-6	Trimethylbenzene, 1,2,4-			6.13E+00		
108-67-8	Trimethylbenzene, 1,3,5-					
106-42-3	Xylene, p-			8.76E+01		
108-38-3	Xylene, m-			8.76E+01		
95-47-6	Xylene, o-			8.76E+01		

Cumulative:	8.99E-08	0.03

DSCA Soil Gas to Indoor Air Risk Calculator - Cumulative Risk for Non-Residential Worker **Form 3E**

DSCA ID No.: DC600043

Exposure Unit: Exposure Unit #2

All concentrations are in ug/m^3

CAS #	Chemical Name:	Soil Gas Concentration (ug/m^3)	Calculated Indoor Air Concentration (ug/m^3)	Target Indoor Air Conc. for Carcinogens @ TCR = 1E-06	Target Indoor Air Conc. for Non-Carcinogens @ THQ = 0.2	Calculated Carcinogenic Risk	Calculated Non-Carcinogenic Hazard Quotient
71-43-2	Benzene			1.57E+00	2.63E+01		
156-59-2	Dichloroethylene, 1,2-cis-						
156-60-5	Dichloroethylene, 1,2-trans-						
100-41-4	Ethylbenzene			4.91E+00	8.76E+02		
1634-04-4	Methyl tert-Butyl Ether			4.72E+01	2.63E+03		
91-20-3	Naphthalene			3.61E-01	2.63E+00		
127-18-4	Tetrachloroethylene	28700	287	4.72E+01	3.50E+01	***6.08E-06***	***1.6381***
108-88-3	Toluene				4.38E+03		
79-01-6	Trichloroethylene			2.99E+00	1.75E+00		
1330-20-7	Xylenes				8.76E+01		
104-51-8	Butylbenzene, n-						
135-98-8	Butylbenzene, sec-						
98-06-6	Butylbenzene, tert-						
56-23-5	Carbon Tetrachloride			2.04E+00	8.76E+01		
67-66-3	Chloroform			5.33E-01	8.58E+01		
74-87-3	Chloromethane				7.88E+01		
98-82-8	Cumene				3.50E+02		
75-34-3	Dichloroethane, 1,1-			7.67E+00			
107-06-2	Dichloroethane, 1,2-			4.72E-01	6.13E+00		
75-35-4	Dichloroethylene, 1,1-				1.75E+02		
78-87-5	Dichloropropane, 1,2-			1.23E+00	3.50E+00		
71-55-6	Trichloroethane, 1,1,1-				4.38E+03		
75-69-4	Trichlorofluoromethane				6.13E+02		
96-18-4	Trichloropropane, 1,2,3-				2.63E-01		
95-63-6	Trimethylbenzene, 1,2,4-				6.13E+00		
108-67-8	Trimethylbenzene, 1,3,5-						
106-42-3	Xylene, p-				8.76E+01		
108-38-3	Xylene, m-				8.76E+01		
95-47-6	Xylene, o-				8.76E+01		

Cumulative:	6.08E-06	***1.64***

Summary of Risk Assessment Results **Form 1G**

DSCA ID No.: DC600043

Exposure Unit: Exposure Unit #2

	Residential			Non-Residential			Construction Worker		
Pathway	**Carcin-ogenic Risk**	**Hazard Index**	**Risk exceeded?**	**Carcin-ogenic Risk**	**Hazard Index**	**Risk exceeded?**	**Carcin-ogenic Risk**	**Hazard Index**	**Risk exceeded?**
SURFICIAL SOIL COMBINED PATHWAYS									
Soil Ingestion	0.00E+00	0.00E+00	**NO**	0.00E+00	0.00E+00	**NO**	0.00E+00	0.00E+00	**NO**
Soil Dermal	0.00E+00	0.00E+00	**NO**	0.00E+00	0.00E+00	**NO**	0.00E+00	0.00E+00	**NO**
Soil Outdoor Inhalation	0.00E+00	0.00E+00	**NO**	0.00E+00	0.00E+00	**NO**	0.00E+00	0.00E+00	**NO**
Surficial Soil Combined Pathways	0.00E+00	0.00E+00	**NO**	0.00E+00	0.00E+00	**NO**	0.00E+00	0.00E+00	**NO**
INDOOR INHALATION EXPOSURE PATHWAY									
Indoor Air	5.06E-07	1.20E-01	**NO**	8.99E-08	2.85E-02	**NO**	NA	NA	**NA**
Soil Gas to Indoor Air	7.97E-05	2.06E+01	**YES**	6.08E-06	1.64E+00	**YES**	NA	NA	**NA**
Groundwater to Indoor Air	0.00E+00	0.00E+00	**NO**	0.00E+00	0.00E+00	**NO**	NA	NA	**NA**
DERMAL CONTACT WITH GROUNDWATER EXPOSURE PATHWAY									
Groundwater Dermal	0.00E+00	0.00E+00	**NO**	0.00E+00	0.00E+00	**NO**	0.00E+00	0.00E+00	**NO**
Allowable Risk	**1.0E-05**	**1**		**1.0E-05**	**1**		**1.0E-05**	**1**	

Protection of Groundwater Use

Exceedences of SSTLs? Source Soil No Source Groundwater No

Protection of Surface Water

Exceedences of SSTLs? Source Soil No Source Groundwater No

Risk Assessment Toolkit
for
North Carolina Dry-Cleaning Solvent Cleanup Act Program

DSCA Site Name:	Douglas-Furrier Cleaners
DSCA Site Address:	1200 Charlottetown Ave, Charlotte, NC
DSCA ID No.:	DC600043
Exposure Unit:	Exposure Unit #3
Submittal Date:	8/22/2016
Prepared By:	RHM

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DSCA ID No.:	**DC600043**	
Exposure Unit:	**Exposure Unit #3**	

Form No.	Description	Check box if included
	Section 1: General Forms	
Form 1A	Exposure Factors and Target Risks	☑
Form 1B	Fate and Transport Parameters	☑
Form 1C	Chemicals of Concern	☑
Form 1D	Soil Representative Concentration Table	☑
Form 1E	Groundwater Representative Concentration Table	☑
Form 1F	Air and Soil Gas Representative Concentration Table	☑
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	Section 2: Residential Exposure Forms	
Form 2A	Soil Ingestion	☑
Form 2B	Soil Dermal	☑
Form 2C	Soil Outdoor Inhalation	☑
Form 2D	Indoor Air	☑
Form 2E	Soil Gas to Indoor Air	☑
Form 2F	Groundwater to Indoor Air	☑
Form 2G	Groundwater Dermal	☑
	Section 3: Non-Residential Exposure Forms	
Form 3A	Soil Ingestion	☑
Form 3B	Soil Dermal	☑
Form 3C	Soil Outdoor Inhalation	☑
Form 3D	Indoor Air	☑
Form 3E	Soil Gas to Indoor Air	☑
Form 3F	Groundwater to Indoor Air	☑
Form 3G	Groundwater Dermal	☑
	Section 4: Construction Worker Exposure Forms	
Form 4A	Soil Ingestion	☑
Form 4B	Soil Dermal	☑
Form 4C	Soil Outdoor Inhalation	☑
Form 4D	Groundwater Dermal	☑
	Section 5: Protection of Groundwater Use/Surface Water Forms	
Form 5A	Protection of Groundwater Use--Source Groundwater	☑
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Form 5C	Protection of Surface Water--Source Groundwater	☑
Form 5D	Protection of Surface Water--Source Soil	☑
Form 5E	Protection of Groundwater Use--Source Groundwater (Backward Mode)	☑
Form 5F	Protection of Groundwater Use--Source Soil (Backward Mode)	☑
Form 5G	Protection of Surface Water--Source Groundwater (Backward Mode)	☑
Form 5H	Protection of Surface Water--Source Soil (Backward Mode)	☑

Exposure Factors and Target Risk Limits **Form 1A**

DSCA ID No.: DC600043

Exposure Unit: Exposure Unit #3

Exposure Parameter	Residential Child		Residential Adult		Commercial		Construction Worker
Lifetime (LT) (years)	70		70		70		70
Averaging Time (AT) (days/yr)	365		365		365		365
Body Weight (BW) (kg)	15		80		80		80
Exposure Duration (ED) (yr)	6		20		25		1
Exposure Frequency (EF) (d/yr)	350		350		250		250
Exposure Time (hr)	24		24		8		8
Skin Surface Area (SA) (cm^2)	2373		6032		3527		3527
Soil Adherence Factor (AF) (mg/cm^2)	0.2		0.07		0.12		0.3
Soil Ingestion Rate (IRS) (mg/day)	200		100		100		330
Incidental Dermal Contact with Groundwater Pathway							
Exposure Frequency (EF) (d/yr)	90		90		90		350
Exposure Time (hr)	1		1		1		1
Event Frequency (EV) (events/day)	1		1		1		1

Note: Construction worker averaging time and skin surface area values have been updated to match the values recommended in the EPA June 2015 Regional Screening Level updates. Note that these values do not match the values specified in the May 2015 NC DSCA Program Risk Assessment Guidance. These values will be updated in the guidance document at the time of the next future guidance document update.

Target Health Risk Limits	Individual	Cumulative
Target Cancer Risk	1.00E-06	1.00E-05
Target Hazard Index	0.2	1

Justification for Fate and Transport Parameters **Form 1B 1B**

DSCA ID No.: DC600043

Exposure Unit: Exposure Unit #3

Provide justification for the fate and transport parameters used.

Parameter	Default Value	Site Specific Value	Justification
Distance to Protection of Groundwater Point of Exposure (feet)	0	1540	The POE distance was selected to be the distance to downgradient property boundary of the first property where groundwater impacts hace not been observed as indicated on Att.1. The distance is 1540 feet
Distance to Protection of Surface Water Point of Exposure (feet)	0	1620	The nearest surface water body is the Little Sugar Creek located approximately 1620 feet downgradient of the source. It is a Class C Water Body
Depth to Base of Affected Soils (d_s) (cm)	1244	580	The depth to groundwater is approximately 19 feet as documented in the PAR, dated Aug 2010. 19 feet = 228 inches = 580 cm
Length of Affected Soil Parallel to Assumed GW Flow Direction (L) (cm)	500	610	Assumed length of affected soil is 20 feet = 240 inches = 610 cm
Vadose Zone Volumetric Water Content (θ_w) (unitless)	0.15 (soil to outdoor air pathway)	0.15	Insufficent data - used default value
	0.3 (soil to groundwater pathway)	0.3	Insufficent data - used default value
Vadose Zone Volumetric Air Content (θa) (unitless)	0.28 (soil to outdoor air pathway)	0.28	Insufficent data - used default value
	0.13 (soil to groundwater pathway)	0.13	Insufficent data - used default value
Total Porosity (n) (unitless)	0.43	0.43	Insufficent data - used default value
Dry Bulk Density (ρ_b) (kg/L)	1.5	1.5	Insufficent data - used default value

Justification for Fate and Transport Parameters			**Form 1B 1B**
DSCA ID No.: DC600043			
Exposure Unit: Exposure Unit #3			
Provide justification for the fate and transport parameters used.			
Parameter	Default Value	Site Specific Value	Justification
Net Infiltration Estimate (I) (cm/yr)	66	27.36	As documented in the PAR, annual precipitation is approx 43.09 in/yr. Infiltration for Piedmont zone is 25% or 10.77 inches = 27.36 cm

Justification for Fate and Transport Parameters **Form 1B 1B**

DSCA ID No.: DC600043

Exposure Unit: Exposure Unit #3

Provide justification for the fate and transport parameters used.

Parameter	Default Value	Site Specific Value	Justification
Fraction Organic Carbon (foc)	0.006 (soil to outdoor air pathway)	0.006	Insufficent data - used default value
	0.002 (soil leaching to groundwater pathway)	0.002	Insufficent data - used default value
Hydraulic Conductivity (K) (cm/d)	690	7.02	As documented in the PAR, hydraulic conductivity is 2563.88 cm/yr = 7.02 cm/day
Hydraulic Gradient (i)	0.01	0.080	As documented in the PAR the hydraulic gradient is 0.08
Aquifer Thickness (d_a) (cm)	1500	1500	Insufficent data - used default value
Plume Thickness at Source (S_d) (cm)	200	200	Insufficent data - used default value
Plume Width at Source (S_w) (cm)	4,500	4,500.0	Insufficent data - used default value
Plume Thickness at GW/SW Discharge (δsw) (cm)	200	200	Insufficent data - used default value
Plume Width at GW/SW Discharge (W_{gwsw}) (cm)	4,500	4,500.0	Insufficent data - used default value
Surface Water Flowrate at GW/SW Discharge (cm^3/d)	0	0	Insufficent data - used default value

Chemicals of Concern **Form 1C**

DSCA ID No.: **DC600043**

Exposure Unit: **Exposure Unit #3**

Select Chemicals of Concern

Put an "X" in the first column to select a chemical of concern.

	CAS Number	Chemical Name
x	71-43-2	Benzene
x	156-59-2	Dichloroethylene, 1,2-cis-
x	156-60-5	Dichloroethylene, 1,2-trans-
x	100-41-4	Ethylbenzene
x	1634-04-4	Methyl tert-Butyl Ether (MTBE)
x	91-20-3	Naphthalene
x	127-18-4	Tetrachloroethylene
x	108-88-3	Toluene
x	79-01-6	Trichloroethylene
x	75-01-4	Vinyl Chloride
x	1330-20-7	Xylenes
x	104-51-8	Butylbenzene, n-
x	135-98-8	Butylbenzene, sec-
x	98-06-6	Butylbenzene, tert-
x	56-23-5	Carbon Tetrachloride
x	67-66-3	Chloroform
x	74-87-3	Chloromethane
x	98-82-8	Cumene
x	75-34-3	Dichloroethane, 1,1-
x	107-06-2	Dichloroethane, 1,2-
x	75-35-4	Dichloroethylene, 1,1-
x	78-87-5	Dichloropropane, 1,2-
x	71-55-6	Trichloroethane, 1,1,1-
x	75-69-4	Trichlorofluoromethane
x	96-18-4	Trichloropropane, 1,2,3-
x	95-63-6	Trimethylbenzene, 1,2,4-
x	108-67-8	Trimethylbenzene, 1,3,5-
x	106-42-3	Xylene, P-
x	108-38-3	Xylene, m-
x	95-47-6	Xylene, o-

Chemicals of Concern **Form 1F**

DSCA ID No.: DC600043

Exposure Unit: Exposure Unit #3

Air and Soil Gas Representative Concentration Table

CAS Number	Chemical Name	Soil Gas and Air (concentrations are in ug/m^3)	
		Soil Gas	Indoor Air
71-43-2	Benzene		
156-59-2	Dichloroethylene, 1,2-cis-	9.03E+02	1.80E-02
156-60-5	Dichloroethylene, 1,2-trans-		5.40E-03
100-41-4	Ethylbenzene		
1634-04-4	Methyl tert-Butyl Ether (MTBE)		
91-20-3	Naphthalene		
127-18-4	Tetrachloroethylene	1.42E+04	2.60E-01
108-88-3	Toluene		
79-01-6	Trichloroethylene	1.72E+03	5.20E-02
75-01-4	Vinyl Chloride		2.00E-02
1330-20-7	Xylenes		
104-51-8	Butylbenzene, n-		
135-98-8	Butylbenzene, sec-		
98-06-6	Butylbenzene, tert-		
56-23-5	Carbon Tetrachloride		
67-66-3	Chloroform		
74-87-3	Chloromethane		
98-82-8	Cumene		
75-34-3	Dichloroethane, 1,1-		
107-06-2	Dichloroethane, 1,2-		
75-35-4	Dichloroethylene, 1,1-		
78-87-5	Dichloropropane, 1,2-		
71-55-6	Trichloroethane, 1,1,1-		
75-69-4	Trichlorofluoromethane		
96-18-4	Trichloropropane, 1,2,3-		
95-63-6	Trimethylbenzene, 1,2,4-		
108-67-8	Trimethylbenzene, 1,3,5-		
106-42-3	Xylene, P-		
108-38-3	Xylene, m-		
95-47-6	Xylene, o-		

DSCA Indoor Air Risk Calculator - Cumulative Risk for Resident **Form 2D**

DSCA ID No.: DC600043

Exposure Unit: Exposure Unit #3

All concentrations are in ug/m^3

CAS #	Chemical Name:	Indoor Air Concentration (ug/m^3)	Target Indoor Air Conc. for Carcinogens @ TCR = 1E-06	Target Indoor Air Conc. for Non-Carcinogens @ THQ = 0.2	Calculated Carcinogenic Risk	Calculated Non-Carcinogenic Hazard Quotient
71-43-2	Benzene		3.60E-01	6.26E+00		
156-59-2	Dichloroethylene, 1,2-cis-	0.018				
156-60-5	Dichloroethylene, 1,2-trans-	0.0054				
100-41-4	Ethylbenzene		1.12E+00	2.09E+02		
1634-04-4	Methyl tert-Butyl Ether (MTBE)		1.08E+01	6.26E+02		
91-20-3	Naphthalene		8.26E-02	6.26E-01		
127-18-4	Tetrachloroethylene	0.26	1.08E+01	8.34E+00	2.41E-08	0.0062
108-88-3	Toluene			1.04E+03		
79-01-6	Trichloroethylene	0.052	4.78E-01	4.17E-01	1.09E-07	0.0249
1330-20-7	Xylenes			2.09E+01		
104-51-8	Butylbenzene, n-					
135-98-8	Butylbenzene, sec-					
98-06-6	Butylbenzene, tert-					
56-23-5	Carbon Tetrachloride		4.68E-01	2.09E+01		
67-66-3	Chloroform		1.22E-01	2.04E+01		
74-87-3	Chloromethane			1.88E+01		
98-82-8	Cumene			8.34E+01		
75-34-3	Dichloroethane, 1,1-		1.75E+00			
107-06-2	Dichloroethane, 1,2-		1.08E-01	1.46E+00		
75-35-4	Dichloroethylene, 1,1-			4.17E+01		
78-87-5	Dichloropropane, 1,2-		2.81E-01	8.34E-01		
71-55-6	Trichloroethane, 1,1,1-			1.04E+03		
75-69-4	Trichlorofluoromethane			1.46E+02		
96-18-4	Trichloropropane, 1,2,3-			6.26E-02		
95-63-6	Trimethylbenzene, 1,2,4-			1.46E+00		
108-67-8	Trimethylbenzene, 1,3,5-					
106-42-3	Xylene, p-			2.09E+01		
108-38-3	Xylene, m-			2.09E+01		
95-47-6	Xylene, o-			2.09E+01		

Cumulative:	1.33E-07	0.03

DSCA Soil Gas to Indoor Air Risk Calculator - Cumulative Risk for Resident **Form 2E**

DSCA ID No.: DC600043

Exposure Unit: Exposure Unit #3

All concentrations are in ug/m^3

CAS #	Chemical Name:	Soil Gas Concentration (ug/m^3)	Calculated Indoor Air Concentration (ug/m^3)	Target Indoor Air Conc. for Carcinogens @ TCR = 1E-06	Target Indoor Air Conc. for Non-Carcinogens @ THQ = 0.2	Calculated Carcinogenic Risk	Calculated Non-Carcinogenic Hazard Quotient
71-43-2	Benzene			3.60E-01	6.26E+00		
156-59-2	Dichloroethylene, 1,2-cis-	903	27.09				
156-60-5	Dichloroethylene, 1,2-trans-						
100-41-4	Ethylbenzene			1.12E+00	2.09E+02		
1634-04-4	Methyl tert-Butyl Ether (MTBE)			1.08E+01	6.26E+02		
91-20-3	Naphthalene			8.26E-02	6.26E-01		
127-18-4	Tetrachloroethylene	14200	426	1.08E+01	8.34E+00	***3.94E-05***	***10.2123***
108-88-3	Toluene				1.04E+03		
79-01-6	Trichloroethylene	1720	51.6	4.78E-01	4.17E-01	***1.08E-04***	***24.7397***
1330-20-7	Xylenes				2.09E+01		
104-51-8	Butylbenzene, n-						
135-98-8	Butylbenzene, sec-						
98-06-6	Butylbenzene, tert-						
56-23-5	Carbon Tetrachloride			4.68E-01	2.09E+01		
67-66-3	Chloroform			1.22E-01	2.04E+01		
74-87-3	Chloromethane				1.88E+01		
98-82-8	Cumene				8.34E+01		
75-34-3	Dichloroethane, 1,1-			1.75E+00			
107-06-2	Dichloroethane, 1,2-			1.08E-01	1.46E+00		
75-35-4	Dichloroethylene, 1,1-				4.17E+01		
78-87-5	Dichloropropane, 1,2-			2.81E-01	8.34E-01		
71-55-6	Trichloroethane, 1,1,1-				1.04E+03		
75-69-4	Trichlorofluoromethane				1.46E+02		
96-18-4	Trichloropropane, 1,2,3-				6.26E-02		
95-63-6	Trimethylbenzene, 1,2,4-				1.46E+00		
108-67-8	Trimethylbenzene, 1,3,5-						
106-42-3	Xylene, p-				2.09E+01		
108-38-3	Xylene, m-				2.09E+01		
95-47-6	Xylene, o-				2.09E+01		
					Cumulative:	***1.47E-04***	***34.95***

DSCA Indoor Air Risk Calculator - Cumulative Risk for Non-Residential Worker **Form 3D**

DSCA ID No.: DC600043

Exposure Unit: Exposure Unit #3

All concentrations are in ug/m^3

CAS #	Chemical Name:	Indoor Air Concentration (ug/m^3)	Target Indoor Air Conc. for Carcinogens @ TCR = 1E-06	Target Indoor Air Conc. for Non-Carcinogens @ THQ = 0.2	Calculated Carcinogenic Risk	Calculated Non-Carcinogenic Hazard Quotient
71-43-2	Benzene		1.57E+00	2.63E+01		
156-59-2	Dichloroethylene, 1,2-cis-	0.018				
156-60-5	Dichloroethylene, 1,2-trans-	0.0054				
100-41-4	Ethylbenzene		4.91E+00	8.76E+02		
1634-04-4	Methyl tert-Butyl Ether (MTBE)		4.72E+01	2.63E+03		
91-20-3	Naphthalene		3.61E-01	2.63E+00		
127-18-4	Tetrachloroethylene	0.26	4.72E+01	3.50E+01	5.51E-09	0.0015
108-88-3	Toluene			4.38E+03		
79-01-6	Trichloroethylene	0.052	2.99E+00	1.75E+00	1.74E-08	0.0059
1330-20-7	Xylenes			8.76E+01		
104-51-8	Butylbenzene, n-					
135-98-8	Butylbenzene, sec-					
98-06-6	Butylbenzene, tert-					
56-23-5	Carbon Tetrachloride		2.04E+00	8.76E+01		
67-66-3	Chloroform		5.33E-01	8.58E+01		
74-87-3	Chloromethane			7.88E+01		
98-82-8	Cumene			3.50E+02		
75-34-3	Dichloroethane, 1,1-		7.67E+00			
107-06-2	Dichloroethane, 1,2-		4.72E-01	6.13E+00		
75-35-4	Dichloroethylene, 1,1-			1.75E+02		
78-87-5	Dichloropropane, 1,2-		1.23E+00	3.50E+00		
71-55-6	Trichloroethane, 1,1,1-			4.38E+03		
75-69-4	Trichlorofluoromethane			6.13E+02		
96-18-4	Trichloropropane, 1,2,3-			2.63E-01		
95-63-6	Trimethylbenzene, 1,2,4-			6.13E+00		
108-67-8	Trimethylbenzene, 1,3,5-					
106-42-3	Xylene, p-			8.76E+01		
108-38-3	Xylene, m-			8.76E+01		
95-47-6	Xylene, o-			8.76E+01		

Cumulative:	2.29E-08	0.01

DSCA Soil Gas to Indoor Air Risk Calculator - Cumulative Risk for Non-Residential Worker **Form 3E**

DSCA ID No.: DC600043

Exposure Unit: Exposure Unit #3

All concentrations are in ug/m^3

CAS #	Chemical Name:	Soil Gas Concentration (ug/m^3)	Calculated Indoor Air Concentration (ug/m^3)	Target Indoor Air Conc. for Carcinogens @ TCR = 1E-06	Target Indoor Air Conc. for Non-Carcinogens @ THQ = 0.2	Calculated Carcinogenic Risk	Calculated Non-Carcinogenic Hazard Quotient
71-43-2	Benzene			1.57E+00	2.63E+01		
156-59-2	Dichloroethylene, 1,2-cis-	903	9.03				
156-60-5	Dichloroethylene, 1,2-trans-						
100-41-4	Ethylbenzene			4.91E+00	8.76E+02		
1634-04-4	Methyl tert-Butyl Ether			4.72E+01	2.63E+03		
91-20-3	Naphthalene			3.61E-01	2.63E+00		
127-18-4	Tetrachloroethylene	14200	142	4.72E+01	3.50E+01	***3.01E-06***	***0.8105***
108-88-3	Toluene				4.38E+03		
79-01-6	Trichloroethylene	1720	17.2	2.99E+00	1.75E+00	***5.75E-06***	***1.9635***
1330-20-7	Xylenes				8.76E+01		
104-51-8	Butylbenzene, n-						
135-98-8	Butylbenzene, sec-						
98-06-6	Butylbenzene, tert-						
56-23-5	Carbon Tetrachloride			2.04E+00	8.76E+01		
67-66-3	Chloroform			5.33E-01	8.58E+01		
74-87-3	Chloromethane				7.88E+01		
98-82-8	Cumene				3.50E+02		
75-34-3	Dichloroethane, 1,1-			7.67E+00			
107-06-2	Dichloroethane, 1,2-			4.72E-01	6.13E+00		
75-35-4	Dichloroethylene, 1,1-				1.75E+02		
78-87-5	Dichloropropane, 1,2-			1.23E+00	3.50E+00		
71-55-6	Trichloroethane, 1,1,1-				4.38E+03		
75-69-4	Trichlorofluoromethane				6.13E+02		
96-18-4	Trichloropropane, 1,2,3-				2.63E-01		
95-63-6	Trimethylbenzene, 1,2,4-				6.13E+00		
108-67-8	Trimethylbenzene, 1,3,5-						
106-42-3	Xylene, p-				8.76E+01		
108-38-3	Xylene, m-				8.76E+01		
95-47-6	Xylene, o-				8.76E+01		

Cumulative:	8.76E-06	***2.77***

Summary of Risk Assessment Results **Form 1G**

DSCA ID No.: DC600043

Exposure Unit: Exposure Unit #3

	Residential			Non-Residential			Construction Worker		
Pathway	**Carcin-ogenic Risk**	**Hazard Index**	**Risk exceeded?**	**Carcin-ogenic Risk**	**Hazard Index**	**Risk exceeded?**	**Carcin-ogenic Risk**	**Hazard Index**	**Risk exceeded?**
SURFICIAL SOIL COMBINED PATHWAYS									
Soil Ingestion	0.00E+00	0.00E+00	**NO**	0.00E+00	0.00E+00	**NO**	0.00E+00	0.00E+00	**NO**
Soil Dermal	0.00E+00	0.00E+00	**NO**	0.00E+00	0.00E+00	**NO**	0.00E+00	0.00E+00	**NO**
Soil Outdoor Inhalation	0.00E+00	0.00E+00	**NO**	0.00E+00	0.00E+00	**NO**	0.00E+00	0.00E+00	**NO**
Surficial Soil Combined Pathways	0.00E+00	0.00E+00	**NO**	0.00E+00	0.00E+00	**NO**	0.00E+00	0.00E+00	**NO**
INDOOR INHALATION EXPOSURE PATHWAY									
Indoor Air	1.33E-07	3.12E-02	**NO**	2.29E-08	7.42E-03	**NO**	NA	NA	**NA**
Soil Gas to Indoor Air	1.47E-04	3.50E+01	**YES**	8.76E-06	2.77E+00	**YES**	NA	NA	**NA**
Groundwater to Indoor Air	0.00E+00	0.00E+00	**NO**	0.00E+00	0.00E+00	**NO**	NA	NA	**NA**
DERMAL CONTACT WITH GROUNDWATER EXPOSURE PATHWAY									
Groundwater Dermal	0.00E+00	0.00E+00	**NO**	0.00E+00	0.00E+00	**NO**	0.00E+00	0.00E+00	**NO**
Allowable Risk	**1.0E-05**	**1**		**1.0E-05**	**1**		**1.0E-05**	**1**	

Protection of Groundwater Use

Exceedences of SSTLs? Source Soil No Source Groundwater No

Protection of Surface Water

Exceedences of SSTLs? Source Soil No Source Groundwater No

Risk Assessment Toolkit
for
North Carolina Dry-Cleaning Solvent Cleanup Act Program

DSCA Site Name:	Douglas-Furrier Cleaners
DSCA Site Address:	1200 Charlottetown Ave, Charlotte, NC
DSCA ID No.:	DC600043
Exposure Unit:	Exposure Unit #4
Submittal Date:	8/22/2016
Prepared By:	RHM

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Exposure Factors and Target Risk Limits **Form 1A**

DSCA ID No.: DC600043

Exposure Unit: Exposure Unit #4

Exposure Parameter	Residential Child		Residential Adult		Commercial		Construction Worker
Lifetime (LT) (years)	70		70		70		70
Averaging Time (AT) (days/yr)	365		365		365		365
Body Weight (BW) (kg)	15		80		80		80
Exposure Duration (ED) (yr)	6		20		25		1
Exposure Frequency (EF) (d/yr)	350		350		250		250
Exposure Time (hr)	24		24		8		8
Skin Surface Area (SA) (cm^2)	2373		6032		3527		3527
Soil Adherence Factor (AF) (mg/cm^2)	0.2		0.07		0.12		0.3
Soil Ingestion Rate (IRS) (mg/day)	200		100		100		330
Incidental Dermal Contact with Groundwater Pathway							
Exposure Frequency (EF) (d/yr)	90		90		90		350
Exposure Time (hr)	1		1		1		1
Event Frequency (EV) (events/day)	1		1		1		1

Note: Construction worker averaging time and skin surface area values have been updated to match the values recommended in the EPA June 2015 Regional Screening Level updates. Note that these values do not match the values specified in the May 2015 NC DSCA Program Risk Assessment Guidance. These values will be updated in the guidance document at the time of the next future guidance document update.

Target Health Risk Limits	Individual	Cumulative
Target Cancer Risk	1.00E-06	1.00E-05
Target Hazard Index	0.2	1

Justification for Fate and Transport Parameters **Form 1B 1B**

DSCA ID No.: DC600043

Exposure Unit: Exposure Unit #4

Provide justification for the fate and transport parameters used.

Parameter	Default Value	Site Specific Value	Justification
Distance to Protection of Groundwater Point of Exposure (feet)	0	1540	The POE distance was selected to be the distance to downgradient property boundary of the first property where groundwater impacts hace not been observed as indicated on Att.1. The distance is 1540 feet
Distance to Protection of Surface Water Point of Exposure (feet)	0	1620	The nearest surface water body is the Little Sugar Creek located approximately 1620 feet downgradient of the source. It is a Class C Water Body
Depth to Base of Affected Soils (d_s) (cm)	1244	580	The depth to groundwater is approximately 19 feet as documented in the PAR, dated Aug 2010. 19 feet = 228 inches = 580 cm
Length of Affected Soil Parallel to Assumed GW Flow Direction (L) (cm)	500	610	Assumed length of affected soil is 20 feet = 240 inches = 610 cm
Vadose Zone Volumetric Water Content (θ_w) (unitless)	0.15 (soil to outdoor air pathway)	0.15	Insufficent data - used default value
	0.3 (soil to groundwater pathway)	0.3	Insufficent data - used default value
Vadose Zone Volumetric Air Content (θa) (unitless)	0.28 (soil to outdoor air pathway)	0.28	Insufficent data - used default value
	0.13 (soil to groundwater pathway)	0.13	Insufficent data - used default value
Total Porosity (n) (unitless)	0.43	0.43	Insufficent data - used default value
Dry Bulk Density (ρ_b) (kg/L)	1.5	1.5	Insufficent data - used default value

Justification for Fate and Transport Parameters			**Form 1B 1B**
DSCA ID No.: DC600043			
Exposure Unit: Exposure Unit #4			
Provide justification for the fate and transport parameters used.			
Parameter	Default Value	Site Specific Value	Justification
Net Infiltration Estimate (I) (cm/yr)	66	27.36	As documented in the PAR, annual precipitation is approx 43.09 in/yr. Infiltration for Piedmont zone is 25% or 10.77 inches = 27.36 cm

Justification for Fate and Transport Parameters **Form 1B 1B**

DSCA ID No.: DC600043

Exposure Unit: Exposure Unit #4

Provide justification for the fate and transport parameters used.

Parameter	Default Value	Site Specific Value	Justification
Fraction Organic Carbon (foc)	0.006 (soil to outdoor air pathway)	0.006	Insufficent data - used default value
	0.002 (soil leaching to groundwater pathway)	0.002	Insufficent data - used default value
Hydraulic Conductivity (K) (cm/d)	690	7.02	As documented in the PAR, hydraulic conductivity is 2563.88 cm/yr = 7.02 cm/day
Hydraulic Gradient (i)	0.01	0.080	As documented in the PAR the hydraulic gradient is 0.08
Aquifer Thickness (d_a) (cm)	1500	1500	Insufficent data - used default value
Plume Thickness at Source (S_d) (cm)	200	200	Insufficent data - used default value
Plume Width at Source (S_w) (cm)	4,500	4,500.0	Insufficent data - used default value
Plume Thickness at GW/SW Discharge (δsw) (cm)	200	200	Insufficent data - used default value
Plume Width at GW/SW Discharge (W_{gwsw}) (cm)	4,500	4,500.0	Insufficent data - used default value
Surface Water Flowrate at GW/SW Discharge (cm^3/d)	0	0	Insufficent data - used default value

Chemicals of Concern **Form 1C**

DSCA ID No.: **DC600043**

Exposure Unit: **Exposure Unit #4**

Select Chemicals of Concern

Put an "X" in the first column to select a chemical of concern.

	CAS Number	Chemical Name
x	71-43-2	Benzene
x	156-59-2	Dichloroethylene, 1,2-cis-
x	156-60-5	Dichloroethylene, 1,2-trans-
x	100-41-4	Ethylbenzene
x	1634-04-4	Methyl tert-Butyl Ether (MTBE)
x	91-20-3	Naphthalene
x	127-18-4	Tetrachloroethylene
x	108-88-3	Toluene
x	79-01-6	Trichloroethylene
x	75-01-4	Vinyl Chloride
x	1330-20-7	Xylenes
x	104-51-8	Butylbenzene, n-
x	135-98-8	Butylbenzene, sec-
x	98-06-6	Butylbenzene, tert-
x	56-23-5	Carbon Tetrachloride
x	67-66-3	Chloroform
x	74-87-3	Chloromethane
x	98-82-8	Cumene
x	75-34-3	Dichloroethane, 1,1-
x	107-06-2	Dichloroethane, 1,2-
x	75-35-4	Dichloroethylene, 1,1-
x	78-87-5	Dichloropropane, 1,2-
x	71-55-6	Trichloroethane, 1,1,1-
x	75-69-4	Trichlorofluoromethane
x	96-18-4	Trichloropropane, 1,2,3-
x	95-63-6	Trimethylbenzene, 1,2,4-
x	108-67-8	Trimethylbenzene, 1,3,5-
x	106-42-3	Xylene, P-
x	108-38-3	Xylene, m-
x	95-47-6	Xylene, o-

Chemicals of Concern **Form 1F**

DSCA ID No.: DC600043

Exposure Unit: Exposure Unit #4

Air and Soil Gas Representative Concentration Table

CAS Number	Chemical Name	Soil Gas and Air (concentrations are in ug/m^3)	
		Soil Gas	Indoor Air
71-43-2	Benzene		
156-59-2	Dichloroethylene, 1,2-cis-	4.80E+00	
156-60-5	Dichloroethylene, 1,2-trans-	1.20E+00	
100-41-4	Ethylbenzene		
1634-04-4	Methyl tert-Butyl Ether (MTBE)		
91-20-3	Naphthalene		
127-18-4	Tetrachloroethylene	6.56E+02	
108-88-3	Toluene		
79-01-6	Trichloroethylene	1.96E+01	
75-01-4	Vinyl Chloride		
1330-20-7	Xylenes		
104-51-8	Butylbenzene, n-		
135-98-8	Butylbenzene, sec-		
98-06-6	Butylbenzene, tert-		
56-23-5	Carbon Tetrachloride		
67-66-3	Chloroform		
74-87-3	Chloromethane		
98-82-8	Cumene		
75-34-3	Dichloroethane, 1,1-		
107-06-2	Dichloroethane, 1,2-		
75-35-4	Dichloroethylene, 1,1-		
78-87-5	Dichloropropane, 1,2-		
71-55-6	Trichloroethane, 1,1,1-		
75-69-4	Trichlorofluoromethane		
96-18-4	Trichloropropane, 1,2,3-		
95-63-6	Trimethylbenzene, 1,2,4-		
108-67-8	Trimethylbenzene, 1,3,5-		
106-42-3	Xylene, P-		
108-38-3	Xylene, m-		
95-47-6	Xylene, o-		

DSCA Soil Gas to Indoor Air Risk Calculator - Cumulative Risk for Resident **Form 2E**

DSCA ID No.: DC600043

Exposure Unit: Exposure Unit #4

All concentrations are in ug/m^3

CAS #	Chemical Name:	Soil Gas Concentration (ug/m^3)	Calculated Indoor Air Concentration (ug/m^3)	Target Indoor Air Conc. for Carcinogens @ TCR = 1E-06	Target Indoor Air Conc. for Non-Carcinogens @ THQ = 0.2	Calculated Carcinogenic Risk	Calculated Non-Carcinogenic Hazard Quotient
71-43-2	Benzene			3.60E-01	6.26E+00		
156-59-2	Dichloroethylene, 1,2-cis-	4.8	0.144				
156-60-5	Dichloroethylene, 1,2-trans-	1.2	0.036				
100-41-4	Ethylbenzene			1.12E+00	2.09E+02		
1634-04-4	Methyl tert-Butyl Ether (MTBE)			1.08E+01	6.26E+02		
91-20-3	Naphthalene			8.26E-02	6.26E-01		
127-18-4	Tetrachloroethylene	656	19.68	1.08E+01	8.34E+00	***1.82E-06***	***0.4718***
108-88-3	Toluene				1.04E+03		
79-01-6	Trichloroethylene	19.6	0.588	4.78E-01	4.17E-01	***1.23E-06***	***0.2819***
1330-20-7	Xylenes				2.09E+01		
104-51-8	Butylbenzene, n-						
135-98-8	Butylbenzene, sec-						
98-06-6	Butylbenzene, tert-						
56-23-5	Carbon Tetrachloride			4.68E-01	2.09E+01		
67-66-3	Chloroform			1.22E-01	2.04E+01		
74-87-3	Chloromethane				1.88E+01		
98-82-8	Cumene				8.34E+01		
75-34-3	Dichloroethane, 1,1-			1.75E+00			
107-06-2	Dichloroethane, 1,2-			1.08E-01	1.46E+00		
75-35-4	Dichloroethylene, 1,1-				4.17E+01		
78-87-5	Dichloropropane, 1,2-			2.81E-01	8.34E-01		
71-55-6	Trichloroethane, 1,1,1-				1.04E+03		
75-69-4	Trichlorofluoromethane				1.46E+02		
96-18-4	Trichloropropane, 1,2,3-				6.26E-02		
95-63-6	Trimethylbenzene, 1,2,4-				1.46E+00		
108-67-8	Trimethylbenzene, 1,3,5-						
106-42-3	Xylene, p-				2.09E+01		
108-38-3	Xylene, m-				2.09E+01		
95-47-6	Xylene, o-				2.09E+01		

Cumulative:	3.05E-06	0.75

DSCA Soil Gas to Indoor Air Risk Calculator - Cumulative Risk for Non-Residential Worker **Form 3E**

DSCA ID No.: DC600043

Exposure Unit: Exposure Unit #4

All concentrations are in ug/m^3

CAS #	Chemical Name:	Soil Gas Concentration (ug/m^3)	Calculated Indoor Air Concentration (ug/m^3)	Target Indoor Air Conc. for Carcinogens @ TCR = 1E-06	Target Indoor Air Conc. for Non-Carcinogens @ THQ = 0.2	Calculated Carcinogenic Risk	Calculated Non-Carcinogenic Hazard Quotient
71-43-2	Benzene			1.57E+00	2.63E+01		
156-59-2	Dichloroethylene, 1,2-cis-	4.8	0.048				
156-60-5	Dichloroethylene, 1,2-trans-	1.2	0.012				
100-41-4	Ethylbenzene			4.91E+00	8.76E+02		
1634-04-4	Methyl tert-Butyl Ether			4.72E+01	2.63E+03		
91-20-3	Naphthalene			3.61E-01	2.63E+00		
127-18-4	Tetrachloroethylene	656	6.56	4.72E+01	3.50E+01	1.39E-07	0.0374
108-88-3	Toluene				4.38E+03		
79-01-6	Trichloroethylene	19.6	0.196	2.99E+00	1.75E+00	6.55E-08	0.0224
1330-20-7	Xylenes				8.76E+01		
104-51-8	Butylbenzene, n-						
135-98-8	Butylbenzene, sec-						
98-06-6	Butylbenzene, tert-						
56-23-5	Carbon Tetrachloride			2.04E+00	8.76E+01		
67-66-3	Chloroform			5.33E-01	8.58E+01		
74-87-3	Chloromethane				7.88E+01		
98-82-8	Cumene				3.50E+02		
75-34-3	Dichloroethane, 1,1-			7.67E+00			
107-06-2	Dichloroethane, 1,2-			4.72E-01	6.13E+00		
75-35-4	Dichloroethylene, 1,1-				1.75E+02		
78-87-5	Dichloropropane, 1,2-			1.23E+00	3.50E+00		
71-55-6	Trichloroethane, 1,1,1-				4.38E+03		
75-69-4	Trichlorofluoromethane				6.13E+02		
96-18-4	Trichloropropane, 1,2,3-				2.63E-01		
95-63-6	Trimethylbenzene, 1,2,4-				6.13E+00		
108-67-8	Trimethylbenzene, 1,3,5-						
106-42-3	Xylene, p-				8.76E+01		
108-38-3	Xylene, m-				8.76E+01		
95-47-6	Xylene, o-				8.76E+01		

Cumulative:	2.05E-07	0.06

Summary of Risk Assessment Results **Form 1G**

DSCA ID No.: DC600043

Exposure Unit: Exposure Unit #4

	Residential			Non-Residential			Construction Worker		
Pathway	**Carcin-ogenic Risk**	**Hazard Index**	**Risk exceeded?**	**Carcin-ogenic Risk**	**Hazard Index**	**Risk exceeded?**	**Carcin-ogenic Risk**	**Hazard Index**	**Risk exceeded?**
SURFICIAL SOIL COMBINED PATHWAYS									
Soil Ingestion	0.00E+00	0.00E+00	**NO**	0.00E+00	0.00E+00	**NO**	0.00E+00	0.00E+00	**NO**
Soil Dermal	0.00E+00	0.00E+00	**NO**	0.00E+00	0.00E+00	**NO**	0.00E+00	0.00E+00	**NO**
Soil Outdoor Inhalation	0.00E+00	0.00E+00	**NO**	0.00E+00	0.00E+00	**NO**	0.00E+00	0.00E+00	**NO**
Surficial Soil Combined Pathways	0.00E+00	0.00E+00	**NO**	0.00E+00	0.00E+00	**NO**	0.00E+00	0.00E+00	**NO**
INDOOR INHALATION EXPOSURE PATHWAY									
Indoor Air	0.00E+00	0.00E+00	**NO**	0.00E+00	0.00E+00	**NO**	NA	NA	**NA**
Soil Gas to Indoor Air	3.05E-06	7.54E-01	**NO**	2.05E-07	5.98E-02	**NO**	NA	NA	**NA**
Groundwater to Indoor Air	0.00E+00	0.00E+00	**NO**	0.00E+00	0.00E+00	**NO**	NA	NA	**NA**
DERMAL CONTACT WITH GROUNDWATER EXPOSURE PATHWAY									
Groundwater Dermal	0.00E+00	0.00E+00	**NO**	0.00E+00	0.00E+00	**NO**	0.00E+00	0.00E+00	**NO**
Allowable Risk	**1.0E-05**	**1**		**1.0E-05**	**1**		**1.0E-05**	**1**	

Protection of Groundwater Use

Exceedences of SSTLs? Source Soil No Source Groundwater No

Protection of Surface Water

Exceedences of SSTLs? Source Soil No Source Groundwater No