

MEMORANDUM

To: Billy Meyer

From: Christie Zawtocky, PE
Timothy Klotz

Date: June 13, 2014

Project: One Hour Martinizing Site, DSCA ID 32-0013
1103 W Club Blvd, Durham, NC

Subject: Monthly Update

Hart & Hickman, PC (H&H) is proceeding with implementation of the Remedial Action Plan (RAP) for the One Hour Martinizing site. The groundwater remedial action, which consisted of injecting EHC into the source area aquifer, was completed at the site between January 8 and 25, 2014. An *EHC Injection Report* was submitted to the DSCA Program on March 31, 2014, and post-injection sampling activities and results have been described in the monthly updates. A brief summary of recent post-injection sampling activities is provided below. An updated project calendar is provided in Attachment A.

Soil Vapor Field Screening

H&H completed a post-injection soil vapor field screening event at the site on May 22, 2014. The event included measuring total volatile organic compounds (VOCs), methane, carbon dioxide, and oxygen in soil vapor, indoor air, and outdoor ambient air. The primary purpose of the sampling is to confirm methane levels are within acceptable standards. Measurements were scheduled to be collected at the following locations:

- Soil Vapor Monitoring Points: SV-8S/8I, SV-18S, SV-19S, SV-20S/D, SV-29S, SV-55S/I
- Excavation Vent Exhaust Pipe
- Sub-Slab Depressurization (SSD) System Exhaust and Indoor Air at 1414 Watts St (Triangle Family Church)
- Ambient, Outdoor Air on Source Property

Measurements could not be collected from SV-55I due to moisture/lack of air flow and could not be collected from the sub-slab depressurization system exhaust at the Triangle Family Church. Additional measurements were collected from SV-14, SV-21S/D, SV-27S, SV-28D, SV-29D, and SV-49S/D. The field screening data are summarized in the attached Table 1, and the methane readings collected between May 2013 and May 2014 are shown on the attached Figure 1. Recorded field measurements indicate that methane was detected in two of the sampled soil

vapor points located near the source excavation area at low levels of 0.3% by volume (SV-8I) and 0.1% by volume (SV-55S), during the May 2014 sampling event. These methane readings are well within acceptable levels.

Methane was detected at a concentration of 4.2% by volume in the vapors from the excavation passive exhaust vent during the May 2014 sampling event. These vapors are exhausted into the atmosphere through the stack installed on the source property where they dissipate into the atmosphere. Ambient air monitoring conducted near ground level in the immediate vicinity of the exhaust vent did not detect any measurable methane.

VOCs were detected in each of the monitored soil vapor points, except for SV-19. In general, the soil vapor VOC concentrations are lower than the pre-injection concentrations at most sampling locations. The highest VOC concentration was detected in deep soil vapor point SV-29D (1019 ppm) located on the 1419 Dollar Ave property east/southeast of the source property. The shallow soil gas at this location had a much lower VOC concentration of 22.3 ppm (SV-29S).

Indoor Air Monitoring

In April and May 2014, H&H collected post-injection indoor air samples at the three structures adjacent to the source property where vapor mitigation systems are in place (1419 Dollar Ave, 1421 Dollar Ave, and 1414 Watts St). The April 2014 samples were collected with the original vapor mitigation systems in place, and the May 2014 samples were collected following installation of additional vapor mitigation measures. In May 2014, the mitigation systems at 1419 and 1421 Dollar Ave were modified to include sub-membrane depressurization in the crawlspaces and sub-slab depressurization in the basements. The mitigation system at 1414 Watts St was modified to include additional sub-slab vapor extraction points and vent fans.

On April 13, 2014 and May 25, 2014, H&H collected two Summa canister indoor air samples from the Triangle Family Church at 1414 Watts St during the church's Sunday service. The samples were collected over a time period of two to three hours. For the residences at 1419 and 1421 Dollar Ave, H&H collected two 24-hour Summa canister indoor air samples in April 2014 and two 14-day indoor air samples using passive Radiello sampling devices. In May 2014, H&H collected two 14-day indoor air samples from the 1419 and 1421 Dollar Ave residences using passive Radiello sampling devices. The sampling dates are shown on the attached calendar for both April and May. The results for the May 2014 samples collected at 1419 and 1421 Dollar Ave are not yet available.

The indoor air samples were submitted for laboratory analysis of tetrachloroethene (PCE), trichloroethene (TCE), cis-1,2-dichloroethene, trans-1,2-dichloroethene, and vinyl chloride. The analytical results for the indoor air samples are summarized in Table 2 and presented on Figure 2. Please note that the May 2014 indoor air sample results for 1419 and 1421 Dollar Ave will be provided in the next monthly update.

PCE was detected in each of the indoor air samples collected at 1414 Watts St at concentrations of $11 \mu\text{g}/\text{m}^3$ (1414-Front) and $43 \mu\text{g}/\text{m}^3$ (1414-Rear) in April 2014 and at concentrations of $1.9 \mu\text{g}/\text{m}^3$ (1414-Front) and $2.2 \mu\text{g}/\text{m}^3$ (1414-Rear) in May 2014. TCE was also detected at an estimated concentration of $0.072 \mu\text{g}/\text{m}^3$ (1414-Front) in the April 2014 sample. The May 2014 indoor air concentrations at the Triangle Family Church are the lowest concentrations detected to date indicating that the mitigation system improvements are effectively reducing indoor air concentrations. To evaluate the risk associated with the detected indoor air concentrations, H&H evaluated a residential exposure scenario assuming 6 hours per week of exposure time, which is typical of a Triangle Family Church parishioner. As shown in the worksheets provided in Attachment B, the calculated cumulative carcinogenic risk levels range from 7.5×10^{-9} to 1.7×10^{-7} and the hazard index levels range from 0.0017 and 0.04. These risk levels are well within acceptable levels.

PCE was detected in each of the indoor air samples collected from the residences at 1419 Dollar Ave (ranging from $5.9 \mu\text{g}/\text{m}^3$ to $24 \mu\text{g}/\text{m}^3$) and 1421 Dollar Ave (ranging from $1.9 \mu\text{g}/\text{m}^3$ to $4.8 \mu\text{g}/\text{m}^3$). The PCE concentrations detected in the 24-hour samples (April 15, 2014) from 1419 Dollar Ave exceed the DWM Residential Indoor Air Screening Level of $8.34 \mu\text{g}/\text{m}^3$. TCE was not detected in any of the 24-hr indoor air samples, but was detected in two of the 14-day samples at concentrations of $1.2 \mu\text{g}/\text{m}^3$ (1419-UP) and $0.47 \mu\text{g}/\text{m}^3$ (1421-UP). The detected TCE concentrations exceed the DWM Residential Indoor Air Screening Level of $0.43 \mu\text{g}/\text{m}^3$. H&H calculated the risk associated with the detected indoor air concentrations. As shown in the worksheets in Attachment C, the carcinogenic risk levels are less than 1×10^{-5} and the hazard index levels are less than 1.

Future Sampling Activities

A project calendar identifying planned sampling activities through January 2015 is provided in Attachment A. Details regarding the planned sampling activities were provided in the May 13, 2014 update. The next sampling activities include monthly methane field screening and indoor air sampling events in June 2014.

TABLES

Table 1: Soil Vapor Point and Indoor/Outdoor Air Field Measurements						ADT 1
DSCA ID No.: 32-0013						
Sample ID	Depth [feet bgs]	Sampling Date (mm/dd/yy)	Total Volatile Organic Compounds (VOC)	Methane	Carbon Dioxide	Oxygen
			ppm			
SV-8S	5.0	11/27/12	427	0.1	1.7	20.0
		01/08/13	1,833	0.8	2.2	18.7
		02/07/13	NA	0.1	2.0	19.2
		03/08/13	NA	0.0	2.4	18.8
		04/08/13	465	0.0	2.4	17.7
		05/08/13	473	0.0	4.1	15.7
		06/13/13	360	0.0	5.7	13.7
		07/08/13	349	0.0	5.8	13.4
		08/14/13	427	0.1	5.4	15.6
		09/11/13	423	0.2	4.1	15.1
		10/09/13	313	0.3	3.0	18.0
		11/13/13	385	0.2	3.4	16.2
		12/19/13	390	0.2	3.1	16.1
		01/08/14	492	0.2	3.8	18.4
		02/03/14	50.8	0.1	1.5	19.5
		02/17/14	140	0.0	1.5	18.8
		03/17/14	109	0.0	2.0	18.4
		04/14/14	164	0.0	3.0	16.2
05/22/14	324	0.0	8.0	8.4		
SV-8I	17.0	11/27/12	>9,999	0.0	2.5	18.8
		01/08/13	2222	1.3	2.8	18.3
		02/07/13	NM	0.2	2.2	18.6
		03/08/13	NM	0.1	2.4	17.9
		04/08/13	4,098	0.2	1.8	17.6
		05/08/13	1,720	0.2	3.9	13.3
		06/13/13	248	0.2	1.8	16.5
		07/08/13	305	0.2	2.3	15.9
		08/14/13	165	0.3	2.1	15.6
		09/11/13	3,056	0.2	1.2	11.2
		10/09/13	119	0.5	2.5	15.9
		11/13/13	310	0.3	1.8	12.4
		12/19/13	320	0.4	2.1	13.4
		01/08/14	534	0.2	2.4	19.4
		02/03/14	NM	NM	NM	NM
		02/17/14	317	0.0	3.8	19.1
03/17/14	265	0.0	4.1	19.5		
04/14/14	92.5	0.0	1.3	20.2		
05/22/14	249	0.3	29.1	0.9		
SV-14	5.0	05/22/14	220	0.0	5.8	13.3

Table 1: Soil Vapor Point and Indoor/Outdoor Air Field Measurements **ADT 1**

DSCA ID No.: 32-0013

Sample ID	Depth [feet bgs]	Sampling Date (mm/dd/yy)	Total Volatile Organic Compounds (VOC)	Methane	Carbon Dioxide	Oxygen
			ppm	%	%	%
SV-18	5.0	11/27/12	22.3	0.0	2.5	19.2
		01/08/13	51.1	0.4	0.0	21.5
		02/07/13	NM	0.0	2.3	18.6
		03/08/13	NM	0.0	4.1	16.9
		04/08/13	2.1	0.0	2.5	18.1
		05/08/13	14.9	0.0	4.9	15.9
		06/13/13	20.7	0.0	4.7	16.2
		08/14/13	26.1	0.1	3.0	18.2
		09/11/13	84.5	0.1	2.9	16.5
		10/09/13	201	0.0	3.5	17.5
		11/13/13	102	0.0	3.1	16.8
		12/19/13	100	0.0	3.2	15.8
		01/08/14	52.5	0.0	3.6	18.5
		02/03/14	25.7	0.2	1.3	20.8
		02/17/14	22.1	0.1	0.9	20.8
		03/17/14	NM	NM	NM	NM
		04/14/14	6.3	0.0	3.0	18.1
05/23/14	11.5	0.0	5.2	14.8		
SV-19	5.0	11/27/12	2.25	0.0	10.8	11.5
		01/08/13	4.50	0.6	9.1	13.3
		02/07/13	NM	0.0	8.6	13.9
		03/08/13	NM	0.0	8.3	13.5
		04/08/13	1.2	0.0	8.3	13.7
		05/08/13	0.9	0.0	9.1	13.0
		06/13/13	6.2	0.0	9.7	11.7
		08/15/13	4.4	0.0	9.2	12.1
		09/11/13	22.9	0.0	10.1	9.3
		10/09/13	156	0.0	11.9	9.8
		11/13/13	86.4	0.0	9.8	10.4
		12/19/13	92.6	0.0	8.7	13.4
		01/08/14	91.6	0.0	9.8	13.5
		02/03/14	16.4	0.2	3.3	18.8
		02/17/14	19.7	0.0	2.8	19.4
		03/17/14	0.0	0.0	2.8	20.2
		04/14/14	0.0	0.0	2.5	18.5
05/23/14	552.0	0.0	4.4	16.6		

Table 1: Soil Vapor Point and Indoor/Outdoor Air Field Measurements						ADT 1
DSCA ID No.: 32-0013						
Sample ID	Depth [feet bgs]	Sampling Date (mm/dd/yy)	Total Volatile Organic Compounds (VOC)	Methane	Carbon Dioxide	Oxygen
			ppm	%	%	%
SV-20S	5.0	11/27/12	75.5	0.0	6.3	16.1
		01/08/13	15.0	1.3	5.0	16.9
		02/07/13	NM	0.1	6.4	15.5
		03/08/13	NM	0.0	5.0	16.0
		04/08/13	47.4	0.0	5.2	15.3
		05/08/13	62.5	0.0	6.3	14.6
		06/13/13	64.0	0.0	7.7	13.1
		08/15/13	61.8	0.0	6.8	13.6
		09/11/13	60.4	0.1	5.1	15.3
		10/09/13	89.7	0.1	7.0	15.3
		11/13/13	78.1	0.0	6.8	14.4
		12/19/13	84.1	0.0	7.2	14.8
		01/08/14	104.0	0.0	7.3	15.5
		02/03/14	20.8	0.2	2.5	19.3
		02/17/14	28.4	0.0	3.4	18.4
		03/17/14	7.6	0.0	4.7	18.8
		04/14/14	13.4	0.0	3.5	17.3
05/23/14	80.5	0.0	4.3	15.7		
SV-20D	20.0	01/08/13	11.10	0.4	7.6	15.2
		02/07/13	NM	0.1	6.7	15.6
		03/08/13	NM	0.0	6.8	14.9
		04/08/13	46.8	0.0	6.7	15.2
		05/08/13	61.4	0.0	5.8	15.1
		06/13/13	58.9	0.0	7.1	13.5
		08/15/13	60.1	0.0	6.6	14.1
		09/11/13	93.1	0.1	7.6	12.5
		10/09/13	113	0.1	8.8	13.4
		11/13/13	101	0.0	8.2	12.8
		12/19/13	98.6	0.0	8.6	11.4
		01/08/14	115	0.0	8.6	15.3
		02/03/14	31.9	0.2	1.9	20.1
		02/17/14	34.4	0.0	2.5	19.5
		03/17/14	11.4	0.0	2.7	19.7
04/14/14	23.9	0.0	3.1	18.3		
05/23/14	65.2	0.0	5.3	14.6		
SV-21S	8.0	05/23/14	131	0.0	8.8	10.5
SV-21D	20.0	05/22/14	98.9	0.0	6.6	13.3
SV-27S	8.0	05/22/14	250	0.0	5.4	10.9
SV-28D	20.0	05/22/14	37.2	0.0	8.1	8.0

Table 1: Soil Vapor Point and Indoor/Outdoor Air Field Measurements						ADT 1
DSCA ID No.: 32-0013						
Sample ID	Depth [feet bgs]	Sampling Date (mm/dd/yy)	Total Volatile Organic Compounds (VOC)	Methane	Carbon Dioxide	Oxygen
			ppm	%	%	%
SV-29S	5.0	11/27/12	344	0.0	1.9	19.9
		01/08/13	96.3	0.3	2.0	19.8
		02/07/13	NM	0.1	2.3	18.6
		03/08/13	NM	0.0	2.8	17.6
		04/08/13	235	0.0	2.6	17.2
		05/08/13	151	0.0	3.3	16.7
		06/13/13	197	0.0	3.6	16.2
		08/14/13	317	0.1	3.4	17.7
		09/11/13	268	0.1	2.2	17.6
		10/09/13	356	0.0	3.2	18.0
		11/13/13	294	0.0	2.8	17.8
		12/19/13	264	0.0	3.1	15.4
		01/08/14	475	0.0	3.4	18.8
		02/03/14	266	0.2	1.2	20.6
		02/17/14	104	0.0	1.0	20.6
		03/17/14	56.4	0.0	0.7	20.6
		04/14/14	117	0.0	0.9	19.5
05/23/14	22.3	0.0	1.9	18.7		
SV-29D	20.0	05/23/14	1019	0.0	3.9	14.0
SV-49S	8.0	05/22/14	148	0.0	0.5	18.5
SV-49D	14.5	05/22/14	97	0.0	1.2	17.4
SV-55S	5.0	11/27/12	430	0.2	0.2	21.1
		01/08/13	295	4.1	3.0	14.7
		02/07/13	NM	2.1	2.8	14.6
		03/08/13	NM	1.8	3.1	14.0
		04/08/13	311	1.4	3.0	14.3
		05/08/13	290	1.1	3.9	13.3
		06/13/13	295	0.8	4.5	11.8
		07/08/13	258	0.7	4.9	11.1
		08/14/13	133	0.2	1.8	17.8
		09/11/13	229	0.9	5.5	10.6
		10/09/13	501	0.8	5.4	13.6
		11/13/13	444	0.4	4.8	11.1
		12/19/13	421	0.6	4.2	16.2
		01/08/14	191	0.6	5.2	14.0
		02/03/14	58.3	0.4	3.6	18.1
		02/17/14	NM	NM	NM	NM
		03/17/14	7.3	0.3	1.4	19
04/14/14	57.3	0.0	2.3	17.1		
05/22/14	176	0.1	5.3	11.3		

Table 1: Soil Vapor Point and Indoor/Outdoor Air Field Measurements						ADT 1
DSCA ID No.: 32-0013						
Sample ID	Depth [feet bgs]	Sampling Date (mm/dd/yy)	Total Volatile Organic Compounds (VOC)	Methane	Carbon Dioxide	Oxygen
			ppm	%	%	%
SV-55I	17.0	11/27/12	12	4.1	0.6	12.4
		01/08/13	442	3.6	2.0	12.1
		02/07/13	NM	1.4	2.9	14.8
		03/08/13	NM	1.6	3.5	14.6
		04/08/13	NM	NM	NM	NM
		05/08/13	NM	1.6	2.7	10.7
		06/13/13	86.5	1.5	1.6	11.0
		07/08/13	NM	1.5	2.1	10.6
		08/14/13	26.7	0.3	0.2	16.5
		09/11/13	31.3	0.3	1.9	15.4
		10/09/13	4.9	0.1	0.0	21.2
		11/13/13	17.4	0.2	1.0	16.5
		12/19/13	19.4	0.4	1.0	18.1
		01/08/14	127	0.7	3.2	16.9
		02/03/14	NM	NM	NM	NM
		02/17/14	NM	NM	NM	NM
		03/17/14	NM	NM	NM	NM
		04/14/14	NM	NM	NM	NM
05/22/14	NM	NM	NM	NM		
Vent Exhaust Pipe		11/27/12	38.0	12.5	11.1	9.7
		01/08/13	173	11.0	9.3	10.6
		02/07/13	NM	17.3	15.9	1.5
		03/08/13	NM	16.4	15.0	1.7
		04/08/13	6.5	12.6	11.7	4.9
		05/08/13	10.8	15.0	14.4	1.9
		06/13/13	9.6	14.9	13.4	0.7
		07/08/13	9.6	14.5	13.0	0.8
		08/14/13	17.7	15.2	14.5	1.7
		09/11/13	14.7	15.7	13.4	1.5
		10/09/13	16.0	13.8	10.4	6.7
		11/13/13	15.8	12.9	11.1	4.4
		12/19/13	12.8	10.9	10.0	3.8
		01/08/14	9.2	8.7	12.0	5.1
		02/03/14	7.5	0.2	0.0	21.9
		02/17/14	30.7	23.2	16.2	6.1
		03/17/14	0.0	0.0	0.0	21.6
		04/14/14	0.0	6.4	6.1	13.2
05/22/14	287.0	4.2	4.3	14.1		

Table 1: Soil Vapor Point and Indoor/Outdoor Air Field Measurements						ADT 1
DSCA ID No.: 32-0013						
Sample ID	Depth [feet bgs]	Sampling Date (mm/dd/yy)	Total Volatile Organic Compounds (VOC)	Methane	Carbon Dioxide	Oxygen
			ppm			
SSD System Triangle Family Church 1414 Watts Street		11/27/12	2.4	0.1	0.0	21.0
		01/08/13	159	1.0	0.0	21.1
		02/07/13	NM	0.2	0.0	21.4
		03/08/13	NM	0.0	0.0	20.8
		04/08/13	0.0	0.0	0.0	20.8
		05/08/13	0.0	0.0	0.0	20.6
		06/13/13	0.0	0.0	0.0	20.4
		07/08/13	0.0	0.0	0.0	20.5
		08/14/13	4.4	0.1	0.0	20.5
		09/18/13	0.5	0.1	0.0	20.2
		10/09/13	6.1	0.1	0.1	21.1
		11/13/13	4.6	0.0	0.0	20.8
		12/19/13	5.2	0.0	0.0	21.4
		01/08/14	NM	NM	NM	NM
		02/03/14	NM	NM	NM	NM
		02/19/14	0.0	0.0	0.1	21.1
		03/17/14	0.0	0.0	0.0	21.4
		04/14/14	0.0	0.0	0.0	20.8
	05/22/14	NM	NM	NM	NM	
Indoor Air Triangle Family Church 1414 Watts Street		11/27/12	0.0	0.0	0.0	21.0
		01/08/13	0.0	0.0	0.0	20.9
		02/07/13	NM	0.0	0.0	20.8
		03/08/13	NM	0.0	0.0	21.0
		04/08/13	0.0	0.0	0.0	20.9
		05/08/13	0.0	0.0	0.0	20.5
		06/13/13	0.0	0.0	0.0	20.5
		07/08/13	0.0	0.0	0.0	20.5
		08/14/13	0.0	0.1	0.0	20.6
		09/18/13	0.0	0.0	0.0	20.3
		10/09/13	0.0	0.1	0.0	21.2
		11/13/13	0.0	0.0	0.0	20.8
		12/19/13	0.0	0.0	0.0	21.2
		01/08/14	NM	NM	NM	NM
		02/03/14	NM	NM	NM	NM
		02/17/14	0.0	0.0	0.1	21.1
		03/17/14	0.0	0.0	0.0	21.6
		04/14/14	NM	NM	NM	NM
	05/22/14	0.0	0.0	0.0	20.6	

Table 1: Soil Vapor Point and Indoor/Outdoor Air Field Measurements						ADT 1
DSCA ID No.: 32-0013						
Sample ID	Depth [feet bgs]	Sampling Date (mm/dd/yy)	Total Volatile Organic Compounds (VOC)	Methane	Carbon Dioxide	Oxygen
			ppm	%	%	%
Ambient, Outdoor Air (near excavation area on subject site)		11/27/12	0.0	0.0	0.0	20.9
		01/08/13	0.0	0.0	0.0	20.9
		02/07/13	NM	0.0	0.0	21.5
		03/08/13	NM	0.0	0.0	20.9
		04/08/13	0.0	0.0	0.0	20.9
		05/08/13	0.0	0.0	0.0	20.4
		06/13/13	0.0	0.0	0.0	20.4
		07/08/13	0.0	0.0	0.0	20.4
		08/14/13	0.0	0.0	0.0	20.6
		09/11/13	0.0	0.0	0.0	20.3
		10/09/13	0.0	0.3	0.0	21.3
		11/13/13	0.0	0.0	0.0	22.1
		12/19/13	0.0	0.0	0.0	22.4
		01/08/14	0.0	0.2	0.2	20.6
		02/03/14	0.5	0.1	0.0	21.3
		02/17/14	0.0	0.0	0.1	21.3
		03/17/14	0.0	0.0	0.0	21.3
		04/14/14	0.0	0.0	0.0	21.2
	05/22/14	NM	0.0	0.0	NM	

Notes:

- VOC concentrations measured using a photoionization detector (PID)
- Methane, carbon dioxide, and oxygen concentrations measured using GEM 2000 multi-gas meter.
- NM denotes not measured; NA denotes not available.

Table 2: Analytical Data for Indoor Air								ADT 2	
DSCA ID No.: 32-0013									
Sample ID	Sampling Date (mm/dd/yy)	Sample Location ¹	Sampling Method ²	Sampling Duration ³	cis-1,2-Dichloroethylene	Tetrachloroethylene	trans-1,2-Dichloroethylene	Trichloroethylene	Vinyl chloride
					[µg/m ³]				
1414 Watts St									
BG-1414	05/07/10		SU	6h	<0.0339	2.11	<0.0339	0.0162J	<0.0129
	05/14/10		P	7d	<0.24	2.1	<0.24	<0.14	<0.38
	03/17/11		P	7d	<0.15	0.36	<0.15	<0.092	<0.24
	11/11/12		SU	3h	<0.079	0.38	<0.079	<0.11	<0.051
1414-South	07/29/09	C	SU	3h	<34	814	<34	<45	<22
1414-Chase	03/17/11	C	P	7d	<0.15	31	<0.15	<0.092	<0.24
1414-Front	07/16/09	C	SU	1h	<3.2	510	<3.2	<4.3	<2.0
	07/29/09		SU	3h	<32	692	<32	<43	<21
	03/15/10		SU	6h	<0.0336	163	<95.5	0.0892	<0.0128
	04/09/10		SU	6h	<0.0348	143	<0.0348	0.0403J	<0.0132
	05/07/10		SU	6h	<0.0305	90.4	0.105	0.0740	<0.0116
	05/14/10		P	7d	<0.24	89	<0.24	<0.14	<0.38
	03/17/11		P	7d	<0.15	19	<0.15	<0.091	<0.24
	08/11/11		P	30d	<0.052	100	<0.052	<0.031	<0.084
	09/25/11		SU	3h	1.7	55	0.24	1.3	<0.051
	01/29/12		SU	3h	0.48	28	<0.079	0.42	<0.051
	04/22/12		SU	3h	1.8	5.4	<0.079	<0.11	<0.051
	11/11/12		SU	3h	<0.079	320	<0.079	<0.11	<0.051
	01/13/13		SU	3h	<0.079	61	<0.079	<0.11	<0.051
	07/28/13		SU	3h	0.33	150	<0.079	<0.11	<0.051
	09/15/13		SU	3h	<0.14	66	<0.14	<0.19	<0.090
	12/08/13		SU	3h	<0.14	120	<0.14	<0.19	<0.090
	02/23/14		SU	3h	<0.14	91	<0.14	<0.19	<0.090
	03/16/14		SU	3h	<0.14	120	<0.14	<0.19	<0.090
	04/13/14		SU	2h 45m	<0.14	11	<0.14	0.072J	<0.090
	05/25/14		SU	2h 6m	<0.14	1.9	<0.14	<0.19	<0.090
1414-Rear	07/29/09	C	SU	3h	<35	841	<35	<47	<22
	12/28/09		SU	6h	<0.191	99	<0.20	<0.395	<0.21
	03/15/10		SU	6h	<0.0345	181	<0.0345	0.0870	<0.0131
	04/09/10		SU	6h	<0.0336	213	<0.0336	0.0785	<0.0128
	05/07/10		SU	6h	<0.0344	104	0.0978	0.0717	<0.0131
	05/14/10		P	7d	<0.24	120	<0.24	<0.14	<0.38
	03/17/11		P	7d	<0.15	30	<0.15	<0.092	<0.24
	08/11/11		P	30d	<0.052	110	<0.052	<0.031	<0.084
	09/25/11		SU	3h	1.4	95	<0.079	0.17	<0.051
	01/29/12		SU	3h	2.6	81	<0.079	<0.11	<0.051
	04/22/12		SU	3h	1.2	25	<0.079	<0.11	<0.051
	11/11/12		SU	3h	<0.079	190	<0.079	<0.11	<0.051
	01/13/13		SU	3h	<0.079	180	<0.079	<0.11	<0.051
	07/28/13		SU	3h	0.29	240	<0.079	<0.11	<0.051
	09/15/13		SU	3h	<0.14	210	<0.14	0.057 J	<0.090
	12/08/13		SU	3h	<0.14	280	<0.14	0.068 J	<0.090
	02/23/14		SU	3h 5m	<0.14	160	<0.14	<0.19	<0.090
	03/16/14		SU	3h	<0.14	180	<0.14	<0.19	<0.090
	04/13/14		SU	2h 55m	<0.14	43	<0.14	<0.19	<0.090
	05/25/14		SU	2h 1m	<0.14	2.2	<0.14	<0.19	<0.090

Table 2: Analytical Data for Indoor Air **ADT 2**

DSCA ID No.: 32-0013

Sample ID	Sampling Date (mm/dd/yy)	Sample Location ¹	Sampling Method ²	Sampling Duration ³	cis-1,2-Dichloroethylene	Tetrachloroethylene	trans-1,2-Dichloroethylene	Trichloroethylene	Vinyl chloride
					[µg/m ³]				
1419 Dollar Ave									
1419-SUMP	03/30/10	R	SU	24h	<0.0310	0.581	<0.0310	0.0318J	<0.0142
BG-1419	03/30/10	R	SU	24h	<0.0332	0.369	<0.0332	0.0198J	<0.0126
	01/07/11		SU	24h	<0.079	1.0	<0.079	<0.11	<0.051
	01/07/11		P	24h	<1.7 C	<1.2	<1.7	<1.0	<2.7
	03/14/11		P	30d	<0.060 C	0.35	<0.060 C	<0.036	<0.096 C
	04/14/11		P	28d	<0.060 C	0.42	<0.060 C	<0.036	<0.096 C
	12/05/12		P	30d	<0.077 C	1.2	<0.080 C	<0.035	<0.11 C
	02/01/13		P	30d	<0.074 C	0.49	<0.077 C	<0.034	<0.10 C
1419-UP	10/15/09	R	SU	24h	<1.1	1.2J	<1.1	<1.5	<0.7
	11/10/09		SU	24h	3.73	16.3	<5.15	7.52	<1.74
	11/16/09		SU	24h	0.276	9.15	<0.04	0.07J	<0.0153
	11/24/09		SU	24h	4.36	21.69	<5.15	5.91	<1.74
	12/28/09		SU	24h	<0.040	3.13	<0.0749	0.193J	<0.0141
	03/30/10		SU	24h	0.512	2.71	<0.0324	0.0501	<0.0123
	01/07/11		SU	24h	<0.079	4.8	<0.079	<0.11	<0.051
	01/07/11		P	24h	<1.7 C	5.2	<1.7 C	<1.0	<2.7 C
	03/14/11		P	30d	<0.060 C	3.1	<0.060 C	<0.036	<0.096 C
	04/14/11		P	28d	<0.060 C	4.8	<0.060 C	<0.036	<0.096 C
	10/05/11		P	34d	<0.049 C	5.8	<0.049 C	<0.029	<0.079 C
	02/13/12		P	30d	<0.060 C	6.7	<0.060 C	<0.036	<0.096 C
	05/16/12		SU	24h	<0.079	17.0	<0.079	<0.11	<0.051
	05/21/12		P	30d	<0.051 C	5.4	<0.051 C	<0.030	<0.082 C
	12/05/12		P	30d	<0.077 C	6.0	<0.080 C	<0.035	<0.11 C
	02/01/13		P	30d	<0.074 C	4.7	<0.077 C	<0.034	<0.10 C
	10/01/13		P	14d	<0.16 C	5.1	<0.17 C	<0.072	<0.22 C
	12/17/13		P	14d	<0.16 C	5.2	<0.17 C	<0.072	<0.22 C
	02/20/14		SU	24h	<0.14	4.8	<0.14	<0.19	<0.090
	03/06/14		P	14d	<0.12 C	5.7	<0.60 C	1.4	<0.077 C
	03/18/14		SU	24h	<0.14	2.2	<0.14	<0.19	<0.090
	04/01/14		P	14d	<0.12	6.5	<0.60	0.88	<0.077
	04/15/14		SU	24h	<0.14	9.6	<0.14	<0.19	<0.090
04/29/14	P	14d	<0.12 C	6.2	<0.60 C	1.2	<0.077 C		

Table 2: Analytical Data for Indoor Air

ADT 2

DSCA ID No.: 32-0013

Sample ID	Sampling Date (mm/dd/yy)	Sample Location ¹	Sampling Method ²	Sampling Duration ³	cis-1,2-Dichloroethylene	Tetrachloroethylene	trans-1,2-Dichloroethylene	Trichloroethylene	Vinyl chloride
					[µg/m ³]				
1419-DOWN	10/15/09	R	SU	24h	<1.1	6.1	<1.1	<1.5	<0.7
	11/10/09		SU	24h	<55.09	54.2	<106.21	63.39J	<35.006
	11/16/09		SU	24h	0.165	8.47	<0.0346	0.0468J	<0.014
	11/24/09		SU	24h	4.4	18	<5.15	5.9	<1.74
	12/28/09		SU	24h	<0.03	1.78	<0.030	0.021J	<0.0114
	03/30/10		SU	24h	<0.0347	2.83	<0.0347	0.0219J	<0.0132
	01/07/11		SU	24h	<0.079	5.2	<0.079	<0.11	<0.051
	01/07/11		P	24h	<1.7 C	5.7	<1.7 C	<1.0	<2.7 C
	03/14/11		P	30d	<0.060 C	6.6	<0.060 C	<0.036	<0.096 C
	04/14/11		P	28d	<0.060 C	8.6	<0.060 C	<0.036	<0.096 C
	10/05/11		P	34d	<0.049 C	12	<0.049 C	<0.029	<0.079 C
	02/13/12		P	30d	<0.060 C	5.1	<0.060 C	<0.036	<0.096 C
	05/16/12		SU	24h	<0.079	12	<0.079	<0.11	<0.051
	05/21/12		P	30d	<0.051 C	10	<0.051 C	<0.030	<0.082 C
	12/05/12		P	30d	<0.077 C	7.3	<0.080 C	<0.035	<0.11 C
	02/01/13		P	30d	<0.074 C	6.3	<0.077 C	<0.034	<0.10 C
	10/01/13		P	14d	<0.16 C	6.1	<0.17 C	<0.072	<0.22 C
	12/17/13		P	14d	<0.16 C	6.2	<0.17 C	<0.072	<0.22 C
	02/20/14		SU	24h	<0.14	9.8	<0.14	<0.19	<0.090
	03/06/14		P	14d	<0.12 C	7.7	<0.60 C	<0.14	<0.077 C
03/18/14	SU	24h	<0.14	2.0	<0.14	<0.19	<0.090		
04/01/14	P	14d	<0.12	5.5	<0.60	<0.14	<0.077		
04/15/14	SU	24h	<0.14	24	<0.14	<0.19	<0.090		
04/29/14	P	14d	<0.12 C	5.9	<0.60 C	<0.14	<0.077 C		
1421 Dollar Ave									
BG-1421	03/02/10		SU	24h	<0.0270	0.0626	<0.0270	0.0109J	<0.0103
1421-UP	10/06/09	R	SU	24h	<1.1	4.70	<1.1	<1.5	<1.8653
	11/10/09		SU	24h	<2.93	6.24	<5.55	8.59	<1.8653
	11/16/09		SU	24h	0.14	2.23	<0.03	0.045J	<0.01265
	11/24/09		SU	24h	4.76	10.85	<5.15	8.06	<1.738
	12/28/09		SU	24h	<0.0345	0.64	<0.0345	0.03J	0.01661J
	01/13/10		SU	24h	<0.029	0.98	<0.029	0.0334J	<0.011
	03/02/10		SU	24h	<0.0297	0.564	<0.0297	0.0125J	<0.0113
	06/03/10		SU	24h	<0.0352	1.07	<0.0352	0.0302J	<0.0134
	01/07/11		SU	24h	0.36	2.2	<0.079	<0.11	<0.051
	01/07/11		P	24h	<1.7 C	2.3	<1.7 C	<1.0	<2.7 C
	04/14/11		P	28d	<0.049 C	3.7	<0.049 C	<0.029	<0.079 C
	02/13/12		P	30d	<0.060 C	1.1	<0.060 C	<0.036	<0.096 C
	05/16/12		SU	24h	0.75	2.5	<0.079	<0.11	<0.051
	05/21/12		P	30d	<0.054 C	1.6	<0.054 C	<0.032	<0.087 C
	12/05/12		P	30d	<0.077 C	6.7	<0.080 C	<0.035	<0.110 C
	02/01/13		P	30d	<0.074 C	2.1	<0.077 C	<0.034	<0.100 C
	09/19/13		P	13.3 d	<0.17 C	7.2	<0.17 C	<0.076	<0.23 C
	12/17/13		P	14 d	<0.16 C	13	<0.17 C	<0.072	<0.22 C
	02/25/14		SU	24h	<0.14	1.3	<0.14	<0.19	<0.090
	03/11/14		P	14d	<0.12 C	1.7	<0.60 C	1.0	<0.077 C
03/18/14	SU	24h	<0.14	0.47	<0.14	<0.19	<0.090		
04/01/14	P	14d	<0.12	1.1	<0.60	0.98	<0.077		
04/22/14	SU	24h	<0.14	1.9	<0.14	<0.19	<0.090		
05/06/14	P	14d	<0.12 C	0.37	<0.60 C	0.47	<0.077 C		

Table 2: Analytical Data for Indoor Air

ADT 2

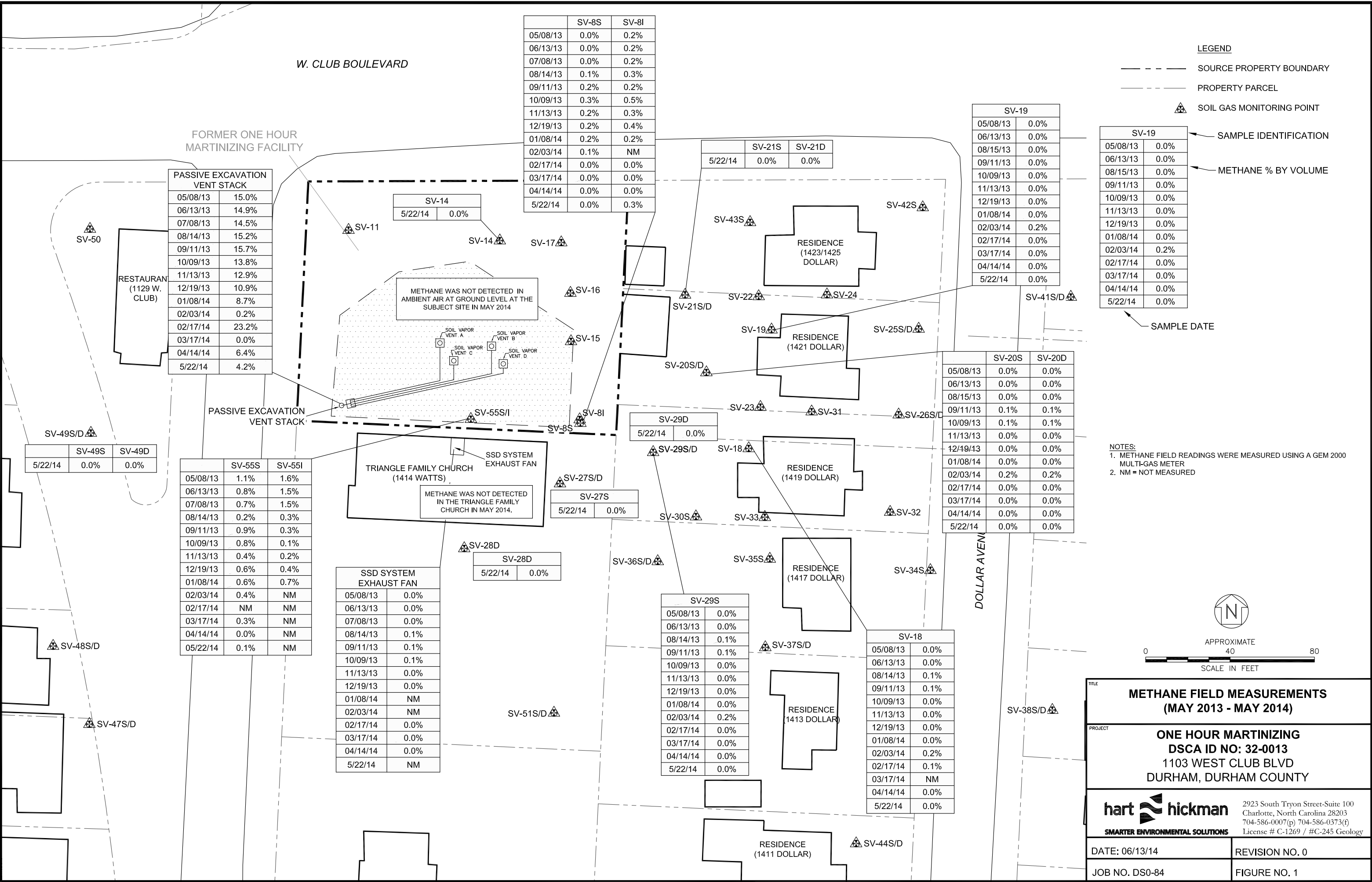
DSCA ID No.: 32-0013

Sample ID	Sampling Date (mm/dd/yy)	Sample Location ¹	Sampling Method ²	Sampling Duration ³	cis-1,2-Dichloroethylene	Tetrachloroethylene	trans-1,2-Dichloroethylene	Trichloroethylene	Vinyl chloride
					[µg/m ³]				
1421-DOWN	10/06/09	R	SU	24h	<21.7	86.4	<21.7	18.9J	<13.9
	11/10/09		SU	24h	<2.77	9.5	<5.15	<3.8	<1.738
	11/16/09		SU	24h	0.07	3.32	<0.03	0.0430J	<0.0128
	11/24/09		SU	24h	3.84	11.53	<5.15	7.0	<1.738
	12/28/09		SU	24h	<0.033	0.71	<0.033	0.0215J	0.01536J
	01/13/10		SU	24h	<0.0298	1.32	<0.030	0.0327J	<0.01132
	03/02/10		SU	24h	<0.0279	0.927	<0.0279	0.0119J	<0.0106
	06/03/10		SU	24h	<0.0348	2.44	<0.035	0.0184	<0.01324
	01/07/11		SU	24h	0.11	2.9	<0.079	<0.11	<0.051
	01/07/11		P	24h	<1.7 C	3.5	<1.7	<1.0	<2.7
	04/14/11		P	28d	<0.049 C	7.0	<0.049 C	<0.029	<0.079 C
	02/13/12		P	30d	<0.060 C	1.9	<0.060 C	<0.036	<0.096 C
	05/16/12		SU	24h	0.21	5.6	<0.079	<0.11	<0.051
	05/21/12		P	30d	<0.054 C	4.3	<0.054 C	<0.032	<0.087 C
	12/05/12		P	30d	<0.077 C	11	<0.080 C	<0.035	<0.110 C
	02/01/13		P	30d	<0.074 C	3.5	<0.077 C	<0.034	<0.100 C
	09/19/13		P	13.3 d	<0.17 C	13	<0.17 C	<0.076	<0.23 C
	12/17/13		P	14 d	<0.16 C	27	<0.17 C	<0.072	<0.22 C
	02/25/14		SU	24h	<0.14	1.9	<0.14	<0.19	<0.090
	03/11/14		P	14d	<0.12 C	2.6	<0.60 C	26	<0.077 C
03/18/14	SU	24h	<0.14	0.41	<0.14	<0.19	<0.090		
04/01/14	P	14d	<0.12	1.7	<0.60	<0.14	<0.077		
04/22/14	SU	24h	<0.14	4.8	<0.14	<0.19	<0.090		
05/06/14	P	14d	<0.12 C	2.4	<0.60 C	<0.14	<0.077 C		
DWM Residential IASLs					NE	8.34	12.6	0.43	0.16
DWM Non-Residential IASLs					NE	35.1	52	1.76	2.8

Notes:
 1. "C" denotes commercial space; "R" denotes residence.
 2. "SU" denotes Summa canister. "P" denotes passive sampler.
 3. **Bold** exceeds DWM Non-Residential Indoor Air Screening Levels (IASLs) for 1414 Watts St samples and Residential IASLs for 1419 and 1421 Dollar Ave samples.
 4. NA = Not Analyzed; NE = Not Established
 5. J denotes estimated concentration between laboratory reporting limit and method detection limit.

FIGURES

S:\AAA-Master Projects\DSCA - DS0\DS0-84 One Hr Martinizing (former BB&T)\Website Updates\June 2014\DC320013_20140613_Figures.dwg, Methane, 6/13/2014 8:46:15 AM



	SV-8S	SV-8I
05/08/13	0.0%	0.2%
06/13/13	0.0%	0.2%
07/08/13	0.0%	0.2%
08/14/13	0.1%	0.3%
09/11/13	0.2%	0.2%
10/09/13	0.3%	0.5%
11/13/13	0.2%	0.3%
12/19/13	0.2%	0.4%
01/08/14	0.2%	0.2%
02/03/14	0.1%	NM
02/17/14	0.0%	0.0%
03/17/14	0.0%	0.0%
04/14/14	0.0%	0.0%
5/22/14	0.0%	0.3%

	SV-21S	SV-21D
5/22/14	0.0%	0.0%

	SV-19
05/08/13	0.0%
06/13/13	0.0%
08/15/13	0.0%
09/11/13	0.0%
10/09/13	0.0%
11/13/13	0.0%
12/19/13	0.0%
01/08/14	0.0%
02/03/14	0.2%
02/17/14	0.0%
03/17/14	0.0%
04/14/14	0.0%
5/22/14	0.0%

	SV-19
05/08/13	0.0%
06/13/13	0.0%
08/15/13	0.0%
09/11/13	0.0%
10/09/13	0.0%
11/13/13	0.0%
12/19/13	0.0%
01/08/14	0.0%
02/03/14	0.2%
02/17/14	0.0%
03/17/14	0.0%
04/14/14	0.0%
5/22/14	0.0%

	SV-20S	SV-20D
05/08/13	0.0%	0.0%
06/13/13	0.0%	0.0%
08/15/13	0.0%	0.0%
09/11/13	0.1%	0.1%
10/09/13	0.1%	0.1%
11/13/13	0.0%	0.0%
12/19/13	0.0%	0.0%
01/08/14	0.0%	0.0%
02/03/14	0.2%	0.2%
02/17/14	0.0%	0.0%
03/17/14	0.0%	0.0%
04/14/14	0.0%	0.0%
5/22/14	0.0%	0.0%

	Passive Excavation Vent Stack
05/08/13	15.0%
06/13/13	14.9%
07/08/13	14.5%
08/14/13	15.2%
09/11/13	15.7%
10/09/13	13.8%
11/13/13	12.9%
12/19/13	10.9%
01/08/14	8.7%
02/03/14	0.2%
02/17/14	23.2%
03/17/14	0.0%
04/14/14	6.4%
5/22/14	4.2%

	SV-55S	SV-55I
05/08/13	1.1%	1.6%
06/13/13	0.8%	1.5%
07/08/13	0.7%	1.5%
08/14/13	0.2%	0.3%
09/11/13	0.9%	0.3%
10/09/13	0.8%	0.1%
11/13/13	0.4%	0.2%
12/19/13	0.6%	0.4%
01/08/14	0.6%	0.7%
02/03/14	0.4%	NM
02/17/14	NM	NM
03/17/14	0.3%	NM
04/14/14	0.0%	NM
05/22/14	0.1%	NM

	SSD System Exhaust Fan
05/08/13	0.0%
06/13/13	0.0%
07/08/13	0.0%
08/14/13	0.1%
09/11/13	0.1%
10/09/13	0.1%
11/13/13	0.0%
12/19/13	0.0%
01/08/14	NM
02/03/14	NM
02/17/14	0.0%
03/17/14	0.0%
04/14/14	0.0%
5/22/14	NM

	SV-27S
5/22/14	0.0%

	SV-29D
5/22/14	0.0%

	SV-29S
05/08/13	0.0%
06/13/13	0.0%
08/14/13	0.1%
09/11/13	0.1%
10/09/13	0.0%
11/13/13	0.0%
12/19/13	0.0%
01/08/14	0.0%
02/03/14	0.2%
02/17/14	0.0%
03/17/14	0.0%
04/14/14	0.0%
5/22/14	0.0%

	SV-18
05/08/13	0.0%
06/13/13	0.0%
08/14/13	0.1%
09/11/13	0.1%
10/09/13	0.0%
11/13/13	0.0%
12/19/13	0.0%
01/08/14	0.0%
02/03/14	0.2%
02/17/14	0.1%
03/17/14	NM
04/14/14	0.0%
5/22/14	0.0%

LEGEND

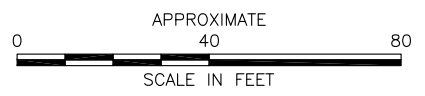
- SOURCE PROPERTY BOUNDARY
- - - PROPERTY PARCEL
- ▲ SOIL GAS MONITORING POINT

← SAMPLE IDENTIFICATION

← METHANE % BY VOLUME

← SAMPLE DATE

- NOTES:**
- METHANE FIELD READINGS WERE MEASURED USING A GEM 2000 MULTI-GAS METER
 - NM = NOT MEASURED



METHANE FIELD MEASUREMENTS (MAY 2013 - MAY 2014)	
PROJECT ONE HOUR MARTINIZING DSCA ID NO: 32-0013 1103 WEST CLUB BLVD DURHAM, DURHAM COUNTY	
hart hickman <small>SMARTER ENVIRONMENTAL SOLUTIONS</small>	2923 South Tryon Street-Suite 100 Charlotte, North Carolina 28203 704-586-0007(p) 704-586-0373(f) License # C-1269 / #C-245 Geology
DATE: 06/13/14	REVISION NO. 0
JOB NO. DS0-84	FIGURE NO. 1

S:\AAA-Master Projects\DSCA - DS0\DS0-84 One Hr Martinizing (former BB&T)\Website Updates\2014 Website Updates\June 2014\DC320013_20140613_Figures.dwg, Indoor Air, 6/13/2014 8:47:15 AM.

W. CLUB BOULEVARD

FORMER ONE HOUR MARTINIZING FACILITY

RESTAURANT
(1129 W. CLUB)

RESIDENCE
(1423/1425 DOLLAR)

1421-UP	04/22/14	05/06/14
PCE	1.9	2.0
TCE	<0.19	0.47

RESIDENCE
(1421 DOLLAR)

1421-DOWN	04/22/14	05/06/14
PCE	4.8	2.4
TCE	<0.19	<0.14

1419-UP	04/15/14	04/29/14
PCE	9.6	6.2
TCE	<0.19	1.2

RESIDENCE
(1419 DOLLAR)

1419-DOWN	04/15/14	04/29/14
PCE	24	5.9
TCE	<0.19	<0.14

1414-FRONT	04/13/14	05/25/14
PCE	11	1.9
TCE	0.072J	<0.19

TRIANGLE FAMILY CHURCH
(1414 WATTS)

1414-REAR	04/13/14	05/25/14
PCE	43	2.2
TCE	<0.19	<0.19

RESIDENCE
(1417 DOLLAR)

RESIDENCE
(1413 DOLLAR)

RESIDENCE
(1411 DOLLAR)

WATTS STREET

DOLLAR AVENUE

LEGEND

- SOURCE PROPERTY BOUNDARY
- - - PROPERTY PARCEL
- ⊕ INDOOR AIR SAMPLE

SAMPLE IDENTIFICATION

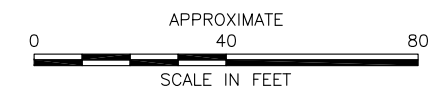
1419-DOWN	04/15/14	04/29/14
PCE	24	5.9
TCE	<0.19	<0.14

CONCENTRATION (µg/m³)

CONSTITUENT

NOTES:

- INDOOR AIR SAMPLES FROM 1414 WATTS ST WERE COLLECTED USING SUMMA CANISTERS OVER A 2 TO 3 HR PERIOD.
- INDOOR AIR SAMPLES FROM 1419 AND 1421 DOLLAR AVENUE ON 4/29/14 AND 5/6/14 WERE COLLECTED USING PASSIVE RADIELLO SAMPLERS DEPLOYED FOR 14 DAYS. OTHER SAMPLES FROM 1419 AND 1421 DOLLAR AVENUE WERE COLLECTED USING 24-HOUR SUMMA CANISTERS.
- BOLD** CONCENTRATIONS EXCEED DIVISION OF WASTE MANAGEMENT RESIDENTIAL OR NON-RESIDENTIAL INDOOR AIR SCREENING LEVELS.
- J FLAG DENOTES ESTIMATED CONCENTRATION BETWEEN LABORATORY REPORTING LIMIT AND METHOD DETECTION LIMIT.
- APRIL AND MAY 2014 DATA ARE SHOWN FOR 1414 WATTS ST. ONLY APRIL 2014 DATA ARE SHOWN FOR 1419 AND 1421 DOLLAR AVENUE.



TITLE	INDOOR AIR CONTAMINANT CONCENTRATION MAP (APRIL AND MAY 2014)	
PROJECT	ONE HOUR MARTINIZING DSCA ID NO: 32-0013 1103 WEST CLUB BLVD DURHAM, DURHAM COUNTY	
		2923 South Tryon Street-Suite 100 Charlotte, North Carolina 28203 704-586-0007(p) 704-586-0373(f) License # C-1269 / #C-245 Geology
DATE: 06/13/14	REVISION NO. 0	
JOB NO. DS0-84	FIGURE NO. 2	

ATTACHMENT A
PROJECT CALENDAR

~ March 2014 ~

Sunday	Monday	Tuesday	Wednesday	Thursday	Friday	Saturday
2	3	4	5	6	7	8
14-Day Radiello Indoor Air Sampling at 1419 Dollar Ave						
14-Day Radiello Indoor Air Sampling at 1421 Dollar Ave						
9	10	11	12	13	14	15
14-Day Radiello Indoor Air Sampling at 1421 Dollar Ave						
16	17	18	19	20	21	22
3-Hour Summa Canister Indoor Air Sampling at 1414 Watts St	24-Hour Summa Canister Indoor Air Sampling at 1419 & 1421 Dollar Ave					
	Methane Field Screening	14-Day Radiello Indoor Air Sampling at 1419 & 1421 Dollar Ave				
23	24	25	26	27	28	29
	Post-Injection Groundwater and Soil Vapor Sampling					
14-Day Radiello Indoor Air Sampling at 1419 & 1421 Dollar Ave						
30	31	Note: Schedule tentative and subject to change. Please check http://portal.ncdenr.org/web/wm/dsca/bbt_updates regularly for any changes in the schedule.				
14-Day Radiello Indoor Air Sampling at 1419 & 1421 Dollar Ave						

~ April 2014 ~

Sunday	Monday	Tuesday	Wednesday	Thursday	Friday	Saturday
		1	2	3	4	5
6	7	8	9	10	11	12
13	14	15	16	17	18	19
3-Hour Summa Canister Indoor Air Sampling at 1414 Watts St	24-Hour Summa Canister Indoor Air Sampling at 1419 Dollar Ave					
	Methane Field Screening	14-Day Radiello Indoor Air Sampling at 1419 Dollar Ave				
20	21	22	23	24	25	26
	24-Hour Summa Canister Indoor Air Sampling at 1421 Dollar	14-Day Radiello Indoor Air Sampling at 1421 Dollar Ave				
		Post-Injection Groundwater and Soil Vapor Sampling				
14-Day Radiello Indoor Air Sampling at 1419 Dollar Ave						
27	28	29	30	Note: Schedule tentative and subject to change. Please check http://portal.ncdenr.org/web/wm/dsca/bbt_updates regularly for any changes in the schedule.		
14-Day Radiello Indoor Air Sampling at 1419 Dollar Ave						
14-Day Radiello Indoor Air Sampling at 1421 Dollar Ave						

~ May 2014 ~

Sunday	Monday	Tuesday	Wednesday	Thursday	Friday	Saturday
				1	2	3
Note: Schedule tentative and subject to change. Please check http://portal.ncdenr.org/web/wm/dsca/bbt_updates regularly for any changes in the schedule.				14-Day Radiello Indoor Air Sampling at 1421 Dollar Ave		
4	5	6	7	8	9	10
14-Day Radiello Indoor Air Sampling at 1421 Dollar Ave			Install Vapor Mitigation Systems at 1414 Watts St, 1419 & 1421 Dollar Ave			
11	12	13	14	15	16	17
	Install Vapor Mitigation Systems at 1414 Watts St, 1419 & 1421 Dollar Ave					
18	19	20	21	22	23	24
				Methane Field Screening		
	14-Day Radiello Indoor Air Sampling at 1419 & 1421 Dollar Ave					
25	26	27	28	29	30	31
3-Hour Summa Canister Indoor Air Sampling at 1414 Watts St						
14-Day Radiello Indoor Air Sampling at 1419 & 1421 Dollar Ave						

~ June 2014 ~

Sunday	Monday	Tuesday	Wednesday	Thursday	Friday	Saturday
1	2	3	4	5	6	7
14-Day Radiello Indoor Air Sampling at 1419 & 1421 Dollar Ave						
8	9	10	11	12	13	14
15	16	17	18	19	20	21
3-Hour Summa Canister Indoor Air Sampling at 1414 Watts St		Methane Field Screening				
14-Day Radiello Indoor Air Sampling at 1419 & 1421 Dollar Ave						
22	23	24	25	26	27	28
14-Day Radiello Indoor Air Sampling at 1419 & 1421 Dollar Ave						
29	30	Note: Schedule tentative and subject to change. Please check http://portal.ncdenr.org/web/wm/dsca/bbt_updates regularly for any changes in the schedule.				
14-Day Radiello Indoor Air Sampling at 1419 & 1421 Dollar Ave						

~ July 2014 ~

Sunday	Monday	Tuesday	Wednesday	Thursday	Friday	Saturday
		1	2	3	4	5
6	7	8	9	10	11	12
	Post-Injection Groundwater and Soil Vapor Sampling					
13	14	15	16	17	18	19
3-Hour Summa Canister Indoor Air Sampling at 1414 Watts St		Methane Field Screening				
		14-Day Radiello Indoor Air Sampling at 1419 & 1421 Dollar Ave				
20	21	22	23	24	25	26
14-Day Radiello Indoor Air Sampling at 1419 & 1421 Dollar Ave						
27	28	29	30	31	Note: Schedule tentative and subject to change. Please check http://portal.ncdenr.org/web/wm/dsca/bbt_updates regularly for any changes in the schedule.	
14-Day Radiello Indoor Air Sampling at 1419 & 1421 Dollar Ave						

~ August 2014 ~

Sunday	Monday	Tuesday	Wednesday	Thursday	Friday	Saturday
Note: Schedule tentative and subject to change. Please check http://portal.ncdenr.org/web/wm/dsca/bbt_updates regularly for any changes in the schedule.					1	2
3	4	5	6	7	8	9
10	11	12	13	14	15	16
17	18	19	20	21	22	23
24	25	26	27	28	29	30

~ September 2014 ~

Sunday	Monday	Tuesday	Wednesday	Thursday	Friday	Saturday
	1	2	3	4	5	6
7	8	9	10	11	12	13
14	15	16	17	18	19	20
21	22	23	24	25	26	27
28	29	30	<p>Note: Schedule tentative and subject to change. Please check http://portal.ncdenr.org/web/wm/dsca/bbt_updates regularly for any changes in the schedule.</p>			

~ October 2014 ~

Sunday	Monday	Tuesday	Wednesday	Thursday	Friday	Saturday
Note: Schedule tentative and subject to change. Please check http://portal.ncdenr.org/web/wm/dsca/bbt_updates regularly for any changes in the schedule.			1	2	3	4
	5	6	7	8	9	10
Post-Injection Groundwater and Soil Vapor Sampling						
12	13	14	15	16	17	18
3-Hour Summa Canister Indoor Air Sampling at 1414 Watts St		Methane Field Screening	14-Day Radiello Indoor Air Sampling at 1419 & 1421 Dollar Ave			
19	20	21	22	23	24	25
14-Day Radiello Indoor Air Sampling at 1419 & 1421 Dollar Ave						
26	27	28	29	30	31	
14-Day Radiello Indoor Air Sampling at 1419 & 1421 Dollar Ave						

~ November 2014 ~

Sunday	Monday	Tuesday	Wednesday	Thursday	Friday	Saturday
Note: Schedule tentative and subject to change. Please check http://portal.ncdenr.org/web/wm/dsca/bbt_updates regularly for any changes in the schedule.						1
2	3	4	5	6	7	8
9	10	11	12	13	14	15
16	17	18	19	20	21	22
23	24	25	26	27	28	29
30						

~ December 2014 ~

Sunday	Monday	Tuesday	Wednesday	Thursday	Friday	Saturday
	1	2	3	4	5	6
7	8	9	10	11	12	13
14	15	16	17	18	19	20
21	22	23	24	25	26	27
28	29	30	31	Note: Schedule tentative and subject to change. Please check http://portal.ncdenr.org/web/wm/dsca/bbt_updates regularly for any changes in the schedule.		

~ January 2015 ~

Sunday	Monday	Tuesday	Wednesday	Thursday	Friday	Saturday
Note: Schedule tentative and subject to change. Please check http://portal.ncdenr.org/web/wm/dsca/bbt_updates regularly for any changes in the schedule.				1	2	3
4	5	6	7	8	9	10
Post-Injection Groundwater and Soil Vapor Sampling						
11	12	13	14	15	16	17
3-Hour Summa Canister Indoor Air Sampling at 1414 Watts St		Methane Field Screening				
14-Day Radiello Indoor Air Sampling at 1419 & 1421 Dollar Ave						
18	19	20	21	22	23	24
14-Day Radiello Indoor Air Sampling at 1419 & 1421 Dollar Ave						
25	26	27	28	29	30	31
14-Day Radiello Indoor Air Sampling at 1419 & 1421 Dollar Ave						

ATTACHMENT B
INDOOR AIR RISK CALCULATORS

**Calculated Cumulative Indoor Air Risks (April 2014)
Triangle Family Church, 1414 Watts Street, Durham, NC
One Hour Martinizing Site, DSCA ID 32-0013
H&H Job No. DS0-84**

Risk Exposure Scenario: Residential exposure based on 6 hrs per week occupancy (typical parishioner)

Cumulative Carcinogenic Risk								
Unit	Compound	Exposure Conc. ug/m ³	IUR (ug/m ³) ⁻¹	AT days	EF days/yr	ED years	ET hr/day	LICR
1414-Front	Tetrachloroethene	11	2.60E-07	25550	208	30	1.500	0.00000004
	Trichloroethene	0.072	4.10E-06	25550	208	30	1.500	0.00000000
	Total							4.8E-08
1414-Rear	Tetrachloroethene	43	2.60E-07	25550	208	30	1.500	0.00000017
	Trichloroethene		4.10E-06	25550	208	30	1.500	0.00000000
	Total							1.7E-07

Cumulative Non-Carcinogenic Risk								
Unit	Compound	Exposure Conc. ug/m ³	Rfc mg/m ³	AT days	EF days/yr	ED years	ET hr/day	Hazard Index
1414-Front	Tetrachloroethene	11	4.00E-02	10950	208	30	1.5	0.00979452
	Trichloroethene	0.072	2.00E-03	10950	208	30	1.5	0.00128219
	Total							0.01
1414-Rear	Tetrachloroethene	43	4.00E-02	10950	208	30	1.5	0.03828767
	Trichloroethene		2.00E-03	10950	208	30	1.5	0.00000000
	Total							0.04

Notes:

IUR and Rfc concentrations from EPA Regional Screening Level (RSL) Residential Air Table, November 2013.

LICR = Lifetime Incremental Cancer Risk

AT = Averaging Time

IUR = Inhalation Unit Rate

Rfc = Reference Concentration

EF = Exposure Frequency

ED = Exposure Duration

ET = Exposure Time

Calculated Cumulative Indoor Air Risks (May 2014)
Triangle Family Church, 1414 Watts Street, Durham, NC
One Hour Martinizing Site, DSCA ID 32-0013
H&H Job No. DS0-84

Risk Exposure Scenario: Residential exposure based on 6 hrs per week occupancy (typical parishioner)

Cumulative Carcinogenic Risk								
Unit	Compound	Exposure Conc. ug/m ³	IUR (ug/m ³) ⁻¹	AT days	EF days/yr	ED years	ET hr/day	LICR
1414-Front	Tetrachloroethene	1.9	2.60E-07	25550	208	30	1.500	0.00000001
							Total	7.5E-09
1414-Rear	Tetrachloroethene	2.2	2.60E-07	25550	208	30	1.500	0.00000001
							Total	8.7E-09

Cumulative Non-Carcinogenic Risk								
Unit	Compound	Exposure Conc. ug/m ³	Rfc mg/m ³	AT days	EF days/yr	ED years	ET hr/day	Hazard Index
1414-Front	Tetrachloroethene	1.9	4.00E-02	10950	208	30	1.5	0.00169178
							Total	0.0017
1414-Rear	Tetrachloroethene	2.2	4.00E-02	10950	208	30	1.5	0.00195890
							Total	0.0020

Notes:

IUR and Rfc concentrations from EPA Regional Screening Level (RSL) Residential Air Table, November 2013.

LICR = Lifetime Incremental Cancer Risk

AT = Averaging Time

IUR = Inhalation Unit Rate

Rfc = Reference Concentration

EF = Exposure Frequency

ED = Exposure Duration

ET = Exposure Time

DSCA Indoor Air Risk Calculator - Cumulative Risk for Resident
Version 1, 4/11/2014

DSCA ID No: 32-0013
 Name/Address of DSCA Site: One Hour Martinizing, 1103 West Club Blvd, Durham, NC
 Name/Address of Sampling Location: Drey Residence, 1419 Dollar Ave, Durham, NC

Sampling Date: 4/15/2014
 Sample ID: 1419-UP

CAS	Chemical Name	Indoor Air Concentration	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
		(ug/m ³)	(ug/m3)	(ug/m3)	CR	HI
127-18-4	Tetrachloroethylene	9.6	9.36E+00	8.34E+00	1.03E-06	0.2301
Cumulative:					1.03E-06	0.23

Notes:

1. Target indoor air concentrations calculated using the EPA Vapor Intrusion Screening Level (VISL) Calculator, which is based on the EPA Regional Screening Levels. Note that concentrations are equivalent to the Inactive Hazardous Sites Branch (IHSB) VISLs.
2. Cumulative carcinogenic risk (CR) and hazard index (HI) calculated using the following formulas, per the procedure detailed in the EPA Regional Screening Levels User's Guide.

$$CR = [(Conc_x/SL_x) + (Conc_y/SL_y) + (Conc_z/SL_z)] \times 10^{-6}$$

Where,

Conc = indoor air concentration for constituent of concern

SL = target indoor air concentration for constituent of concern based on carcinogenic risk of 10⁻⁶

$$HI = [(Conc_x/SL_x) + (Conc_y/SL_y) + (Conc_z/SL_z)]$$

Where,

Conc = indoor air concentration for constituent of concern

SL = target indoor air concentration for constituent of concern based on hazard quotient of 1*

* = Tabulated values are based on a hazard quotient of 0.2. These values are multiplied by 5 to convert to a hazard quotient of 1.

DSCA Indoor Air Risk Calculator - Cumulative Risk for Resident
Version 1, 4/11/2014

DSCA ID No: 32-0013
 Name/Address of DSCA Site: One Hour Martinizing, 1103 West Club Blvd, Durham, NC
 Name/Address of Sampling Location: Drey Residence, 1419 Dollar Ave, Durham, NC

Sampling Date: 4/15/2014
 Sample ID: 1419-DOWN

CAS	Chemical Name	Indoor Air Concentration	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
		(ug/m ³)	(ug/m3)	(ug/m3)	CR	HI
127-18-4	Tetrachloroethylene	24	9.36E+00	8.34E+00	2.56E-06	0.5753
Cumulative:					2.56E-06	0.58

Notes:

1. Target indoor air concentrations calculated using the EPA Vapor Intrusion Screening Level (VISL) Calculator, which is based on the EPA Regional Screening Levels. Note that concentrations are equivalent to the Inactive Hazardous Sites Branch (IHSB) VISLs.
2. Cumulative carcinogenic risk (CR) and hazard index (HI) calculated using the following formulas, per the procedure detailed in the EPA Regional Screening Levels User's Guide.

$$CR = [(Conc_x/SL_x) + (Conc_y/SL_y) + (Conc_z/SL_z)] \times 10^{-6}$$

Where,

Conc = indoor air concentration for constituent of concern

SL = target indoor air concentration for constituent of concern based on carcinogenic risk of 10⁻⁶

$$HI = [(Conc_x/SL_x) + (Conc_y/SL_y) + (Conc_z/SL_z)]$$

Where,

Conc = indoor air concentration for constituent of concern

SL = target indoor air concentration for constituent of concern based on hazard quotient of 1*

* = Tabulated values are based on a hazard quotient of 0.2. These values are multiplied by 5 to convert to a hazard quotient of 1.

DSCA Indoor Air Risk Calculator - Cumulative Risk for Resident
Version 1, 4/11/2014

DSCA ID No: 32-0013
 Name/Address of DSCA Site: One Hour Martinizing, 1103 West Club Blvd, Durham, NC
 Name/Address of Sampling Location: Drey Residence, 1419 Dollar Ave, Durham, NC

Sampling Date: 4/29/2014
 Sample ID: 1419-UP

CAS	Chemical Name	Indoor Air Concentration	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
		(ug/m ³)	(ug/m3)	(ug/m3)	CR	HI
127-18-4	Tetrachloroethylene	6.2	9.36E+00	8.34E+00	6.62E-07	0.1486
79-01-6	Trichloroethylene	1.2	4.32E-01	4.17E-01	2.78E-06	0.5753
Cumulative:					3.44E-06	0.72

Notes:

1. Target indoor air concentrations calculated using the EPA Vapor Intrusion Screening Level (VISL) Calculator, which is based on the EPA Regional Screening Levels. Note that concentrations are equivalent to the Inactive Hazardous Sites Branch (IHSB) VISLs.
2. Cumulative carcinogenic risk (CR) and hazard index (HI) calculated using the following formulas, per the procedure detailed in the EPA Regional Screening Levels User's Guide.

$$CR = [(Conc_x/SL_x) + (Conc_y/SL_y) + (Conc_z/SL_z)] \times 10^{-6}$$

Where,

Conc = indoor air concentration for constituent of concern

SL = target indoor air concentration for constituent of concern based on carcinogenic risk of 10⁻⁶

$$HI = [(Conc_x/SL_x) + (Conc_y/SL_y) + (Conc_z/SL_z)]$$

Where,

Conc = indoor air concentration for constituent of concern

SL = target indoor air concentration for constituent of concern based on hazard quotient of 1*

* = Tabulated values are based on a hazard quotient of 0.2. These values are multiplied by 5 to convert to a hazard quotient of 1.

DSCA Indoor Air Risk Calculator - Cumulative Risk for Resident
Version 1, 4/11/2014

DSCA ID No: 32-0013
 Name/Address of DSCA Site: One Hour Martinizing, 1103 West Club Blvd, Durham, NC
 Name/Address of Sampling Location: Drey Residence, 1419 Dollar Ave, Durham, NC
 Sampling Date: 4/29/2014
 Sample ID: 1419-DOWN

CAS	Chemical Name	Indoor Air Concentration	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
		(ug/m ³)	(ug/m3)	(ug/m3)	CR	HI
127-18-4	Tetrachloroethylene	5.9	9.36E+00	8.34E+00	6.30E-07	0.1414
Cumulative:					6.30E-07	0.14

Notes:

1. Target indoor air concentrations calculated using the EPA Vapor Intrusion Screening Level (VISL) Calculator, which is based on the EPA Regional Screening Levels. Note that concentrations are equivalent to the Inactive Hazardous Sites Branch (IHSB) VISLs.
2. Cumulative carcinogenic risk (CR) and hazard index (HI) calculated using the following formulas, per the procedure detailed in the EPA Regional Screening Levels User's Guide.

$$CR = [(Conc_x/SL_x) + (Conc_y/SL_y) + (Conc_z/SL_z)] \times 10^{-6}$$

Where,

Conc = indoor air concentration for constituent of concern

SL = target indoor air concentration for constituent of concern based on carcinogenic risk of 10⁻⁶

$$HI = [(Conc_x/SL_x) + (Conc_y/SL_y) + (Conc_z/SL_z)]$$

Where,

Conc = indoor air concentration for constituent of concern

SL = target indoor air concentration for constituent of concern based on hazard quotient of 1*

* = Tabulated values are based on a hazard quotient of 0.2. These values are multiplied by 5 to convert to a hazard quotient of 1.

DSCA Indoor Air Risk Calculator - Cumulative Risk for Resident
Version 1, 4/11/2014

DSCA ID No: 32-0013
 Name/Address of DSCA Site: One Hour Martinizing, 1103 West Club Blvd, Durham, NC
 Name/Address of Sampling Location: Gilligan Residence, 1421 Dollar Ave, Durham, NC

Sampling Date: 5/6/2014
 Sample ID: 1421-DOWN

CAS	Chemical Name	Indoor Air Concentration	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
		(ug/m ³)	(ug/m3)	(ug/m3)	CR	HI
127-18-4	Tetrachloroethylene	2.4	9.36E+00	8.34E+00	2.56E-07	0.0575
Cumulative:					2.56E-07	0.06

Notes:

1. Target indoor air concentrations calculated using the EPA Vapor Intrusion Screening Level (VISL) Calculator, which is based on the EPA Regional Screening Levels. Note that concentrations are equivalent to the Inactive Hazardous Sites Branch (IHSB) VISLs.
2. Cumulative carcinogenic risk (CR) and hazard index (HI) calculated using the following formulas, per the procedure detailed in the EPA Regional Screening Levels User's Guide.

$$CR = [(Conc_x/SL_x) + (Conc_y/SL_y) + (Conc_z/SL_z)] \times 10^{-6}$$

Where,

Conc = indoor air concentration for constituent of concern

SL = target indoor air concentration for constituent of concern based on carcinogenic risk of 10⁻⁶

$$HI = [(Conc_x/SL_x) + (Conc_y/SL_y) + (Conc_z/SL_z)]$$

Where,

Conc = indoor air concentration for constituent of concern

SL = target indoor air concentration for constituent of concern based on hazard quotient of 1*

* = Tabulated values are based on a hazard quotient of 0.2. These values are multiplied by 5 to convert to a hazard quotient of 1.

DSCA Indoor Air Risk Calculator - Cumulative Risk for Resident
Version 1, 4/11/2014

DSCA ID No: 32-0013
 Name/Address of DSCA Site: One Hour Martinizing, 1103 West Club Blvd, Durham, NC
 Name/Address of Sampling Location: Gilligan Residence, 1421 Dollar Ave, Durham, NC

Sampling Date: 5/6/2014
 Sample ID: 1421-UP

CAS	Chemical Name	Indoor Air Concentration	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
		(ug/m ³)	(ug/m3)	(ug/m3)	CR	HI
156-59-2	Dichloroethylene, 1,2-cis-	0.37				
127-18-4	Tetrachloroethylene	2	9.36E+00	8.34E+00	2.14E-07	0.0479
79-01-6	Trichloroethylene	0.47	4.32E-01	4.17E-01	1.09E-06	0.2253

Cumulative:	1.30E-06	0.27
--------------------	----------	------

Notes:

1. Target indoor air concentrations calculated using the EPA Vapor Intrusion Screening Level (VISL) Calculator, which is based on the EPA Regional Screening Levels. Note that concentrations are equivalent to the Inactive Hazardous Sites Branch (IHSB) VISLs.
2. Cumulative carcinogenic risk (CR) and hazard index (HI) calculated using the following formulas, per the procedure detailed in the EPA Regional Screening Levels User's Guide.

$$CR = [(Conc_x/SL_x) + (Conc_y/SL_y) + (Conc_z/SL_z)] \times 10^{-6}$$

Where,

Conc = indoor air concentration for constituent of concern

SL = target indoor air concentration for constituent of concern based on carcinogenic risk of 10⁻⁶

$$HI = [(Conc_x/SL_x) + (Conc_y/SL_y) + (Conc_z/SL_z)]$$

Where,

Conc = indoor air concentration for constituent of concern

SL = target indoor air concentration for constituent of concern based on hazard quotient of 1*

* = Tabulated values are based on a hazard quotient of 0.2. These values are multiplied by 5 to convert to a hazard quotient of 1.

DSCA Indoor Air Risk Calculator - Cumulative Risk for Resident
Version 1, 4/11/2014

DSCA ID No: 32-0013
 Name/Address of DSCA Site: One Hour Martinizing, 1103 West Club Blvd, Durham, NC
 Name/Address of Sampling Location: Gilligan Residence, 1421 Dollar Ave, Durham, NC
 Sampling Date: 4/22/2014
 Sample ID: 1421-DOWN

CAS	Chemical Name	Indoor Air Concentration	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
		(ug/m ³)	(ug/m3)	(ug/m3)	CR	HI
127-18-4	Tetrachloroethylene	4.8	9.36E+00	8.34E+00	5.13E-07	0.1151
Cumulative:					5.13E-07	0.12

Notes:

1. Target indoor air concentrations calculated using the EPA Vapor Intrusion Screening Level (VISL) Calculator, which is based on the EPA Regional Screening Levels. Note that concentrations are equivalent to the Inactive Hazardous Sites Branch (IHSB) VISLs.
2. Cumulative carcinogenic risk (CR) and hazard index (HI) calculated using the following formulas, per the procedure detailed in the EPA Regional Screening Levels User's Guide.

$$CR = [(Conc_x/SL_x) + (Conc_y/SL_y) + (Conc_z/SL_z)] \times 10^{-6}$$

Where,

Conc = indoor air concentration for constituent of concern

SL = target indoor air concentration for constituent of concern based on carcinogenic risk of 10⁻⁶

$$HI = [(Conc_x/SL_x) + (Conc_y/SL_y) + (Conc_z/SL_z)]$$

Where,

Conc = indoor air concentration for constituent of concern

SL = target indoor air concentration for constituent of concern based on hazard quotient of 1*

* = Tabulated values are based on a hazard quotient of 0.2. These values are multiplied by 5 to convert to a hazard quotient of 1.

DSCA Indoor Air Risk Calculator - Cumulative Risk for Resident
Version 1, 4/11/2014

DSCA ID No: 32-0013
 Name/Address of DSCA Site: One Hour Martinizing, 1103 West Club Blvd, Durham, NC
 Name/Address of Sampling Location: Gilligan Residence, 1421 Dollar Ave, Durham, NC

Sampling Date: 4/22/2014
 Sample ID: 1421-UP

CAS	Chemical Name	Indoor Air Concentration	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
		(ug/m ³)	(ug/m3)	(ug/m3)	CR	HI
127-18-4	Tetrachloroethylene	1.9	9.36E+00	8.34E+00	2.03E-07	0.0455
Cumulative:					2.03E-07	0.05

Notes:

1. Target indoor air concentrations calculated using the EPA Vapor Intrusion Screening Level (VISL) Calculator, which is based on the EPA Regional Screening Levels. Note that concentrations are equivalent to the Inactive Hazardous Sites Branch (IHSB) VISLs.
2. Cumulative carcinogenic risk (CR) and hazard index (HI) calculated using the following formulas, per the procedure detailed in the EPA Regional Screening Levels User's Guide.

$$CR = [(Conc_x/SL_x) + (Conc_y/SL_y) + (Conc_z/SL_z)] \times 10^{-6}$$

Where,

Conc = indoor air concentration for constituent of concern

SL = target indoor air concentration for constituent of concern based on carcinogenic risk of 10⁻⁶

$$HI = [(Conc_x/SL_x) + (Conc_y/SL_y) + (Conc_z/SL_z)]$$

Where,

Conc = indoor air concentration for constituent of concern

SL = target indoor air concentration for constituent of concern based on hazard quotient of 1*

* = Tabulated values are based on a hazard quotient of 0.2. These values are multiplied by 5 to convert to a hazard quotient of 1.