

# MEMORANDUM

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**To:** Billy Meyer

**From:** Christie Zawtocky, PE  
Timothy Klotz

**Date:** March 7, 2014

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

**Subject:** Monthly Update

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Hart & Hickman, PC (H&H) is proceeding with implementation of the Remedial Action Plan (RAP) for the One Hour Martinizing site. A brief summary of recently completed activities and upcoming activities is provided below. An updated project calendar is provided in Attachment A.

### *Injection of EHC*

The RAP includes injection of EHC (a commercial remediation product that contains zero-valent iron and carbon) to treat groundwater impacts at the source property targeting PCE groundwater concentrations of 15 mg/L or greater. The EHC injection activities were performed at the site between January 8 and January 25, 2014. The activities included injecting a EHC slurry (EHC mixed with water) into thirty shallow injection points and thirteen intermediate injection points. A total of 20,000 lbs of EHC was injected as a 30% slurry resulting in a total injection volume of 7,134 gallons EHC slurry. Water was obtained from a fire hydrant located near the site and was temporarily stored in a holding tank on the source property.

The injection design included spacing the shallow and intermediate injection points on approximate 12-ft centers. The target injection interval for the shallow points was approximately 22 to 40 ft below ground surface (bgs). For the intermediate injection points, the design included injecting over a 10-ft vertical interval with the bottom of the injection interval at the refusal depth of the direct-push rig. The refusal depth was estimated to be between 45 and 50 ft bgs. Actual refusal depth for the intermediate points varied between 36 and 55 ft bgs. The injection point locations and injection intervals were slightly adjusted in the field due to access, difficult drilling conditions, and proximity to existing monitoring wells. The shallow and intermediate injection point locations are depicted on Figures 1A and 1B, respectively. The injection intervals and pounds of EHC injected into each injection point are summarized on Tables 1A and 1B for the shallow and intermediate points, respectively.

On February 21, 2014, H&H submitted an Injection Event Record to the Underground Injection Control (UIC) Program, in accordance with the UIC permit requirements. H&H is also preparing a report to document the injection activities.

### *Soil Vapor Field Screening*

H&H completed a post-injection soil vapor field screening event at the site on February 16 and 17, 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, SV-8I, SV-18S, SV-19S, SV-20S, SV-20D, SV-29S, SV-55S, SV-55I
- 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-55S and SV-55I due to moisture and lack of air flow in these sampling points. The field screening data are summarized in the attached Table 2, and the methane readings are shown on the attached Figure 2. Recorded field measurements indicate that methane was detected in one soil vapor monitoring point, SV-18, at a low level of 0.1% by volume. This methane reading is well within acceptable levels.

Methane was detected in the vapors from the excavation passive exhaust vent at a level of 23.2% by volume on February 17, 2014, which is substantially higher than recent sampling events. The elevated methane level is likely associated with the recent EHC injection and/or the Daramend material that was placed in the base of the excavation. 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. Methane also was not detected in the sub-slab depressurization system exhaust or indoor air at the Triangle Family Church at 1414 Watts St.

VOCs were detected in each of the monitored soil vapor points. In general, the soil vapor VOC concentrations are lower than the pre-injection concentrations. The highest VOC concentration was detected in soil vapor point SV-8I (317 ppm) located near the southeast corner of the source property.

As indicated on the attached calendar, the next vapor field screening event is scheduled for March 17, 2014.

### *Indoor Air Monitoring*

In February 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). On February 23, 2014, H&H collected two 3-hour Summa canister indoor air samples from the Triangle Family Church at 1414 Watts St during the church's Sunday service. H&H also collected two 24-hour Summa canister indoor air samples from the residences at 1419 and 1421 Dollar Ave on February 19-20, 2014 and February 24-25, 2014, respectively. In addition, H&H is collecting two 14-day indoor air samples from the 1419 and 1421 Dollar Ave residences using passive Radiello sampling devices. The sampling periods for the 14-day samples are shown on the attached calendar. The indoor air samples were submitted for laboratory analysis of PCE, TCE, cis-1,2-DCE, trans-1,2-DCE, and VC. The analytical results for the indoor air samples will be presented in the next monthly update.

The next post-injection indoor air sampling event is planned for March 2014.

### *Post-Injection Groundwater and Soil Gas Sampling Activities*

In accordance with the RAP, H&H conducted the first post-injection groundwater and soil gas sampling event in February 2014 to evaluate site conditions approximately one month after the EHC injection. The sampling activities were completed during the week of February 24, 2014. Groundwater samples were collected from the following locations:

- Source property: MW-3R, MW-3I, MW-4R, MW-4I, MW-21, MW-22S, MW-22I, MW-23S, MW-23I
- West of source property: MW-10
- South of source property: MW-15S, MW-15I, MW-18
- East of source property: MW-14S, MW-14I, MW-16S, MW-16I

Soil gas samples were collected from the following locations:

- Source property: SV-8S, SV-8I, SV-14, SV-55S
- West of source property: SV-49S, SV-49D, SV-50
- South of source property: SV-27S, SV-27D, SV-28D, SV-36S
- East of source property: SV-18, SV-19, SV-20D, SV-21S, SV-21D, SV-25S, SV-29S

The analytical results for the groundwater and soil gas samples will be provided in the next monthly update. In accordance with the RAP, H&H plans to conduct monthly post-injection groundwater and soil gas sampling for a minimum of three months. The next post-injection sampling event is scheduled for the week of March 24, 2014. A calendar which shows the post-injection schedule through April 2014 is attached.

## **TABLES**

**Table 1A**  
**Summary of Shallow Injection Point Data**  
**One Hour Martinizing**  
**Durham, North Carolina**  
**H&H Job No. DS0-84**

<b>Injection Point</b>	<b>Completion Date</b>	<b>Injection Interval (ft bgs)</b>	<b>EHC Injected (lbs)</b>
IP-1S	01/14/14	22-40	525
IP-2S	01/13/14	22-40	525
IP-3S	01/14/14	22-40	525
IP-4S	01/15/14	22-40	525
IP-5S	01/14/14	22-40	525
IP-6S	01/14/14	22-40	525
IP-7S	01/15/14	22-40	525
IP-8S	01/14/14	22-40	525
IP-9S	01/15/14	22-40	525
IP-10S	01/17/14	22-40	500
IP-11S	01/13/14	22-33 (refusal at 33 ft bgs)	525
IP-12S	01/14/14	22-40	525
IP-13S	01/15/14	22-40	525
IP-14S	01/18/14	22-42	825
IP-15S	01/17/14	22-40	500
IP-16S	01/18/14	22-40	525
IP-17S	01/20/14	22-40	525
IP-18S	01/09/14	22-40	525
IP-19S	01/08/14	22-40	525
IP-20S	01/10/14	22-40	525
IP-21S	01/20/14	22-40	525
IP-22S	01/08/14	22-40	525
IP-23S	01/10/14	22-40	525
IP-24S	01/21/14	22-40	525
IP-25S	01/09/14	22-40	525
IP-26S	01/10/14	22-40	525
IP-27S	01/17/14	22-40	525
IP-28S	01/09/14	22-40	525
IP-29S	01/09/14	22-40	525
IP-30S	01/10/14	22-40	525

**Notes:**

ft bgs = feet below ground surface

**Table 1B**  
**Summary of Intermediate Injection Point Data**  
**One Hour Martinizing**  
**Durham, North Carolina**  
**H&H Job No. DS0-84**

<b>Injection Point</b>	<b>Completion Date</b>	<b>Injection Interval (ft bgs)</b>	<b>EHC Injected (lbs)</b>
IP-1I	01/13/14	45-55	300
IP-2I	01/16/14	45-55	300
IP-3I	01/23/14	28-36 (refusal at 36 ft bgs)	300
IP-4I	01/09/14	45-55	300
IP-5I	01/13/14	45-55	300
IP-6I	01/21/14	45-55	300
IP-7I	01/16/14	45-55	300
IP-8I	01/13/14	45-55	300
IP-9I	01/25/14	38-48 (refusal at 48 ft bgs)	300
IP-10I	01/16/14	42-48 (refusal at 48 ft bgs)	100
IP-11I	01/25/14	28-38 (refusal at 38 ft bgs)	300
IP-12I	01/16/14	45-55	300
IP-13I	01/25/14	33-43 (refusal at 43 ft bgs)	300
IP-14I	01/25/14	28-36 (refusal at 36 ft bgs)	300

**Notes:**

ft bgs = feet below ground surface

**Table 2: Soil Vapor Point and Indoor/Outdoor Air Field Measurements** **ADT 2**

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	5.00	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		
SV-8I	17.00	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	Not measured - no flow					
02/17/14	317	0.0	3.8	19.1		
SV-18	5.00	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		

Table 2: Soil Vapor Point and Indoor/Outdoor Air Field Measurements						ADT 2
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-19	5.00	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		
SV-20S	5.00	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		
SV-20D	20.00	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		



**Table 2: Soil Vapor Point and Indoor/Outdoor Air Field Measurements** **ADT 2**

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	5.00	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			
SV-55S	5.00	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	Not measured - water in probe						
SV-55I	17.00	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	Not measured - water in probe				
		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	Not measured - no flow						
02/17/14	Not measured - no flow						

**Table 2: Soil Vapor Point and Indoor/Outdoor Air Field Measurements** **ADT 2**

**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	%	%	%	
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		
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	Not measured - no access				
		02/03/14	Not measured - no access				
	02/19/14	0.0	0.0	0.1	21.1		

**Table 2: Soil Vapor Point and Indoor/Outdoor Air Field Measurements** **ADT 2**

**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	%	%	%
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	Not measured - no access			
		02/03/14	Not measured - no access			
	02/16/14	0.0	0.0	0.1	21.1	
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	

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

## **FIGURES**

S:\AAA-Master Projects\DSCA - DS0\DS0-84 One Hr Martinizing (former BB&T)\Website Updates\March 2014\DC320013\_20140306\_injectionfigures.dwg, FIG 1A, 3/7/2014 8:32:37 AM.




**LEGEND**

- SOURCE PROPERTY BOUNDARY
- PROPERTY PARCEL LINE
- ⊕ TYPE II MONITORING WELL
- Ⓢ INJECTION POINT
- ▨ EXCAVATION AREA



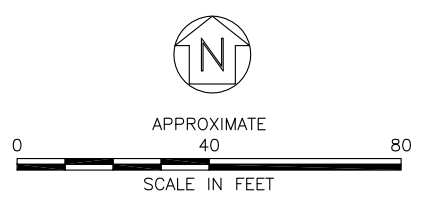
APPROXIMATE  
SCALE IN FEET  
0 20 40


TITLE <b>SHALLOW INJECTION POINT LOCATION MAP</b>	
PROJECT <b>ONE HOUR MARTINIZING DSCA ID NO: 32-0013 1103 WEST CLUB BLVD DURHAM, NORTH CAROLINA</b>	
 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: 3-07-14	REVISION NO. 0
JOB NO. DS0-84	FIGURE. 1A

S:\AAA-Master Projects\DSCA - DS0\DS0-84 One Hr Martinizing (former BB&T)\Website Updates\2014 Website Updates\March 2014\DC320013\_20140306\_injectionfigures.dwg, FIG 1B, 3/7/2014 8:33:12 AM.

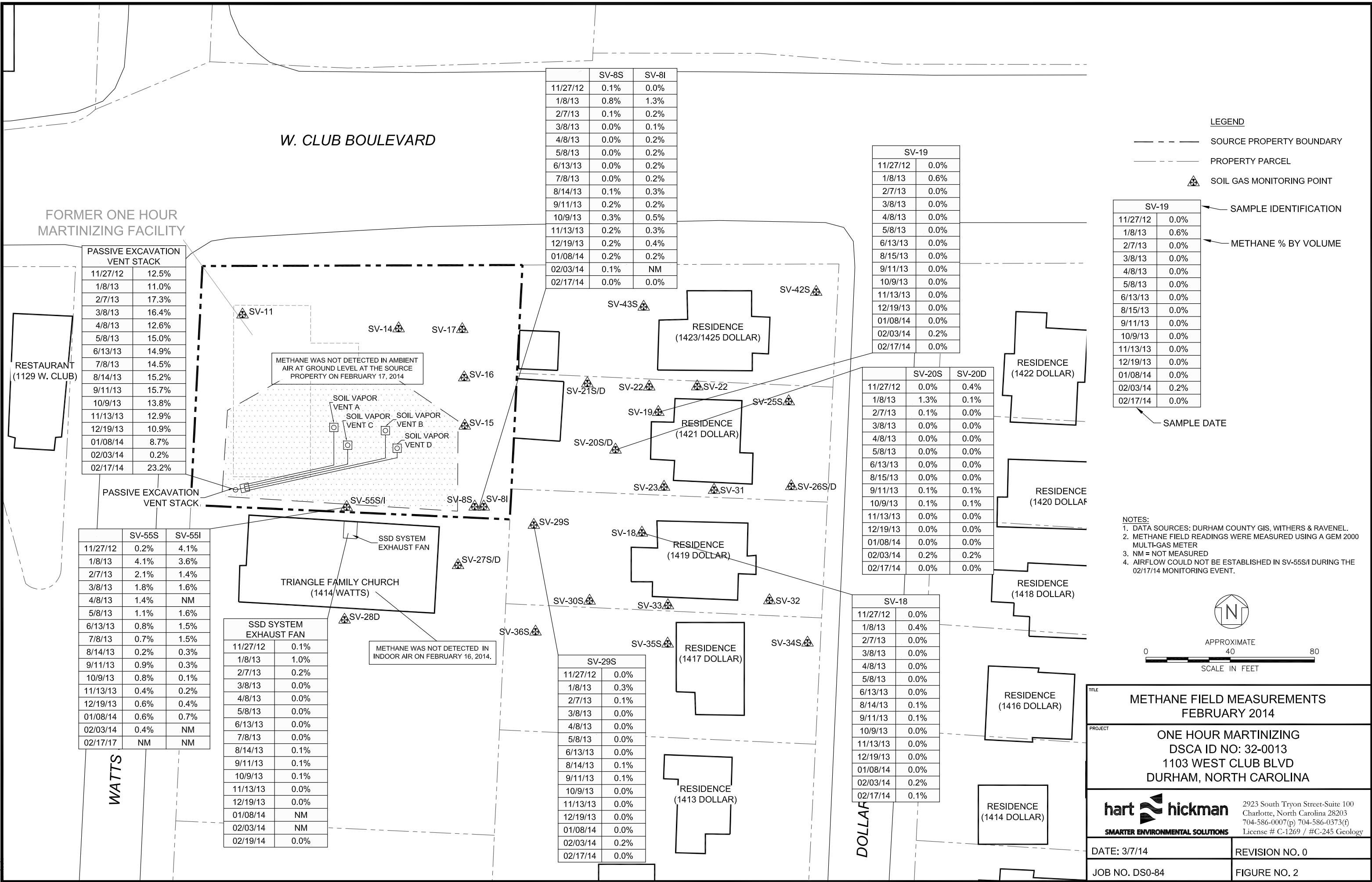


- LEGEND**
- SOURCE PROPERTY BOUNDARY
  - - - PROPERTY PARCEL LINE
  - ⊕ TYPE II MONITORING WELL
  - ⊕ INJECTION POINT
  - [Hatched Box] EXCAVATION AREA



TITLE <b>INTERMEDIATE INJECTION POINT LOCATION MAP</b>	
PROJECT <b>ONE HOUR MARTINIZING DSCA ID NO: 32-0013 1103 WEST CLUB BLVD DURHAM, NORTH CAROLINA</b>	
 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: 3-07-14	REVISION NO. 0
JOB NO. DS0-84	FIGURE. 1B

S:\AAA-Master Projects\DSCA - DS0\DS0-84 One Hr Martinizing (former B&B)Website Updates\2014 Website Updates\March 2014\DC20013\_20140306\_Methane.dwg, Fig 3 Methane, 3/7/2014 7:27:07 AM.



	SV-8S	SV-8I
11/27/12	0.1%	0.0%
1/8/13	0.8%	1.3%
2/7/13	0.1%	0.2%
3/8/13	0.0%	0.1%
4/8/13	0.0%	0.2%
5/8/13	0.0%	0.2%
6/13/13	0.0%	0.2%
7/8/13	0.0%	0.2%
8/14/13	0.1%	0.3%
9/11/13	0.2%	0.2%
10/9/13	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%

SV-19	
11/27/12	0.0%
1/8/13	0.6%
2/7/13	0.0%
3/8/13	0.0%
4/8/13	0.0%
5/8/13	0.0%
6/13/13	0.0%
8/15/13	0.0%
9/11/13	0.0%
10/9/13	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%

SV-19	
11/27/12	0.0%
1/8/13	0.6%
2/7/13	0.0%
3/8/13	0.0%
4/8/13	0.0%
5/8/13	0.0%
6/13/13	0.0%
8/15/13	0.0%
9/11/13	0.0%
10/9/13	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%

	SV-20S	SV-20D
11/27/12	0.0%	0.4%
1/8/13	1.3%	0.1%
2/7/13	0.1%	0.0%
3/8/13	0.0%	0.0%
4/8/13	0.0%	0.0%
5/8/13	0.0%	0.0%
6/13/13	0.0%	0.0%
8/15/13	0.0%	0.0%
9/11/13	0.1%	0.1%
10/9/13	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%

SV-18	
11/27/12	0.0%
1/8/13	0.4%
2/7/13	0.0%
3/8/13	0.0%
4/8/13	0.0%
5/8/13	0.0%
6/13/13	0.0%
8/14/13	0.1%
9/11/13	0.1%
10/9/13	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%

SV-29S	
11/27/12	0.0%
1/8/13	0.3%
2/7/13	0.1%
3/8/13	0.0%
4/8/13	0.0%
5/8/13	0.0%
6/13/13	0.0%
8/14/13	0.1%
9/11/13	0.1%
10/9/13	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%

PASSIVE EXCAVATION VENT STACK	
11/27/12	12.5%
1/8/13	11.0%
2/7/13	17.3%
3/8/13	16.4%
4/8/13	12.6%
5/8/13	15.0%
6/13/13	14.9%
7/8/13	14.5%
8/14/13	15.2%
9/11/13	15.7%
10/9/13	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%

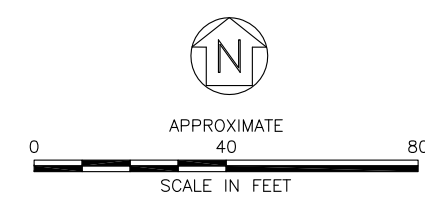
	SV-55S	SV-55I
11/27/12	0.2%	4.1%
1/8/13	4.1%	3.6%
2/7/13	2.1%	1.4%
3/8/13	1.8%	1.6%
4/8/13	1.4%	NM
5/8/13	1.1%	1.6%
6/13/13	0.8%	1.5%
7/8/13	0.7%	1.5%
8/14/13	0.2%	0.3%
9/11/13	0.9%	0.3%
10/9/13	0.8%	0.1%
11/13/13	0.4%	0.2%
12/19/13	0.6%	0.4%
01/08/14	0.6%	0.7%
02/03/14	0.4%	NM
02/17/14	NM	NM

SSD SYSTEM EXHAUST FAN	
11/27/12	0.1%
1/8/13	1.0%
2/7/13	0.2%
3/8/13	0.0%
4/8/13	0.0%
5/8/13	0.0%
6/13/13	0.0%
7/8/13	0.0%
8/14/13	0.1%
9/11/13	0.1%
10/9/13	0.1%
11/13/13	0.0%
12/19/13	0.0%
01/08/14	NM
02/03/14	NM
02/19/14	0.0%

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

← SAMPLE IDENTIFICATION  
 ← METHANE % BY VOLUME  
 ← SAMPLE DATE

**NOTES:**  
 1. DATA SOURCES: DURHAM COUNTY GIS, WITHERS & RAVENEL.  
 2. METHANE FIELD READINGS WERE MEASURED USING A GEM 2000 MULTI-GAS METER  
 3. NM = NOT MEASURED  
 4. AIRFLOW COULD NOT BE ESTABLISHED IN SV-55S/I DURING THE 02/17/14 MONITORING EVENT.



<b>TITLE</b> METHANE FIELD MEASUREMENTS FEBRUARY 2014	
<b>PROJECT</b> ONE HOUR MARTINIZING DSCA ID NO: 32-0013 1103 WEST CLUB BLVD DURHAM, NORTH CAROLINA	
<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</small>	
DATE: 3/7/14	REVISION NO. 0
JOB NO. DS0-84	FIGURE NO. 2

WATTS

DOLLAR

**ATTACHMENT A**  
**PROJECT CALENDAR**



## ~ February 2014 ~

Sunday	Monday	Tuesday	Wednesday	Thursday	Friday	Saturday
<p>Note: Schedule tentative and subject to change. Please check <a href="http://portal.ncdenr.org/web/wm/dsca/bbt_updates">http://portal.ncdenr.org/web/wm/dsca/bbt_updates</a> regularly for any changes in the schedule.</p>						1
2	3 <div style="border: 1px solid black; background-color: #ffcc00; padding: 2px; text-align: center;"><b>Methane Field Screening</b></div>	4	5	6	7	8
9	10	11	12	13	14	15
16	17 <div style="border: 1px solid black; background-color: #ffcc00; padding: 2px; text-align: center;"><b>Methane Field Screening</b></div>	18	19 <div style="border: 1px solid black; background-color: #00b0f0; padding: 2px; text-align: center;"><b>24-Hour Summa Canister Indoor Air Sampling at 1419 Dollar Ave</b></div>		21	22
23	24 <div style="border: 1px solid black; background-color: #00b0f0; padding: 2px; text-align: center;"><b>24-Hour Summa Canister Indoor Air Sampling at 1421 Dollar Ave</b></div>		26	27 <div style="border: 1px solid black; background-color: #00b0f0; padding: 2px; text-align: center;"><b>14-Day Radiello Indoor Air Sampling at 1419 Dollar Ave</b></div>		28
3 <div style="border: 1px solid black; background-color: #00b0f0; padding: 2px; text-align: center;"><b>3-Hour Summa Canister Indoor Air Sampling at 1414 Watts St</b></div>	1 <div style="border: 1px solid black; background-color: #00b0f0; padding: 2px; text-align: center;"><b>14-Day Radiello Indoor Air Sampling at 1421 Dollar Ave</b></div>					1
<div style="border: 1px solid black; background-color: #cc00cc; padding: 2px; text-align: center;"><b>Post-Injection Groundwater and Soil Vapor Sampling</b></div>						1
<div style="border: 1px solid black; background-color: #00b0f0; padding: 2px; text-align: center;"><b>14-Day Radiello Indoor Air Sampling at 1419 Dollar Ave</b></div>						

**~ March 2014 ~**

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

## ~ 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 & 1421 Dollar Ave					
	Methane Field Screening	14-Day Radiello Indoor Air Sampling at 1419 & 1421 Dollar Ave				
20	21	22	23	24	25	26
	Post-Injection Groundwater and Soil Vapor Sampling					
14-Day Radiello Indoor Air Sampling at 1419 & 1421 Dollar Ave						
27	28	29	30	Note: Schedule tentative and subject to change. Please check <a href="http://portal.ncdenr.org/web/wm/dsca/bbt_updates">http://portal.ncdenr.org/web/wm/dsca/bbt_updates</a> regularly for any changes in the schedule.		
14-Day Radiello Indoor Air Sampling at 1419 & 1421 Dollar Ave						