



Shaping the Future

April 3, 2014

Mr. Charles Gurney  
Weingarten Realty Investors  
2600 Citadel Plaza Drive, Suite 300  
Houston, Texas 77008  
*Via E-mail*

Cardno ATC

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**Subject: Limited Subsurface Investigation**  
Speedway Shopping Center – Harbour Point Cleaners  
13619 Mukilteo Speedway  
Lynnwood, WA  
Cardno ATC Project Number: 76.75354.0008

**RECEIVED**

JUN 23 2014

DEPT OF ECOLOGY  
TCP-NWRO

Dear Mr. Gurney:

Cardno ATC is pleased to provide this letter report documenting a limited subsurface investigation conducted at the Speedway Shopping Center. The investigation was performed to investigate the presence of chlorinated volatile organic compounds (cVOCs) associated with dry cleaning solvent that had been previously identified within subsurface soil at the tenant space occupied by Harbour Point Cleaners. The limited subsurface investigation was performed within the Harbour Point Cleaners tenant space (Site) on March 12, 2014.

## Background

The property is located at 13619 Mukilteo Speedway in Lynnwood, Snohomish County, Washington. The property includes six irregular-shaped parcels that total 7.80 acres of land (**Figure 1**). The property is located approximately 1.5 miles west of Interstate 5. Mukilteo Speedway is located along the west property perimeter. Lincoln Way is located along the south property and State Highway 99 is located along the east property line. The property is improved with four generally rectangular-shaped retail buildings designated Buildings A through D (Buildings A and B are in the north portion of the property and Buildings C and D are in the south portion of the property). The property has approximately 91,000 square-feet (net) rentable space and was constructed in 1992.

The Harbour Point Cleaners is located in building B, in tenant space B 6 (**Figure 2**), and has operated as a dry cleaning facility at the property since approximately 1992. Between 1992 and 2007 the facility utilized the cVOC, tetrachloroethene (also known as tetrachloroethylene or perchloroethylene [PCE]) in their dry cleaning operations. In 2007, the operators switched from PCE to a petroleum hydrocarbon based cleaning solvent.

Environmental assessment activities were initiated at the Site in June, 2006 by Buchanan Environmental Associates (BEA). The investigation included the advancement of two soil borings to a maximum depth of 2.75 feet below ground surface (bgs) within the tenant space in the vicinity of the dry cleaning equipment and the installation of one groundwater monitoring well (MW-1) to the east of the southeast corner of Building B. The assessment activities were initiated to evaluate the potential presence of PCE and any degradation compounds (through the dechlorination of PCE) including the

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New Zealand • Papua New Guinea • Peru • Tanzania • United Arab Emirates •  
United Kingdom • United States • Operations in 85 countries



cVOCs: trichloroethene (trichloroethylene [TCE]), cis-1,2-dichloroethene (cis-1,2-dichloroethylene [cis-DCE]), trans-1,2-dichloroethene (trans-1,2-dichloroethylene [trans-DCE]), 1,1-dichloroethene (1,1-dichloroethylene [1,1-DCE]), and vinyl chloride. The exact location of the two interior soil borings were not plotted on any site maps included in the 2006 report. The investigation identified the presence of PCE and TCE in shallow soil within the vicinity of the dry cleaning machine. Soil boring B-1 was only able to be advanced to 1 foot bgs, where a single soil sample was collected throughout the boring interval, this soil sample contained a concentration of 1.0 milligrams per kilogram (mg/kg) PCE, above the Washington State Department of Ecology (Ecology) Model Toxics Control Act (MTCA) Method A soil cleanup level for unrestricted land uses of 0.05 mg/kg. Soil collected from soil boring B-2, which was advanced to 2.75 feet bgs and where three depth intervals of soil was analyzed did contain detections of PCE and TCE, although at concentrations below the MTCA Method A soil cleanup level for unrestricted land use.

Between June and August, 2006, BEA installed a total of five groundwater monitoring wells at depths between 15 and 25 feet bgs, designated MW-1 through MW-5 (**Figure 2**). A groundwater sample collected from groundwater monitoring well MW-1 in June, 2006 contained concentrations of several volatile organic compounds VOCs, including toluene, ethylbenzene, xylene, and naphthalene which are typically associated with gasoline and fuel products. All the detected VOCs were at concentrations below MTCA regulatory cleanup or risk-based formula values and BEA suggested that the VOCs may be from an offsite source or were inadvertently introduced during well construction. Laboratory analytical results from groundwater samples collected from groundwater monitoring wells MW-1 through MW-3 in July, 2006 identified the presence of VOCs, including TCE in the groundwater sample collected from groundwater monitoring well MW-2, although in concentrations below MTCA regulatory cleanup or risk-based formula values. Laboratory analytical results from groundwater samples collected from groundwater monitoring wells MW-1 through MW-5 in August, 2006 only identified the presence of the VOC, 1,1-dichloroethane, although at a concentration below the MTCA Method B non-carcinogenic standard formula value (1,1-dichloroethane is not regulated under MTCA Method A cleanup levels).

In August, 2006 BEA also advanced a soil boring, B-6, south of the tenant space, to 9 feet bgs in order to assess soil in the vicinity of the subsurface sanitary sewer utilized by the dry cleaning facility. Laboratory analytical results of soil samples collected from within the subsurface elevation of a connecting cleanup pipe did not detect any VOCs.

Based on the lack of dissolved PCE and any degradation compounds detected in groundwater samples at concentrations above MTCA regulatory cleanup or risk-based values, BEA did not recommend further investigation, although they did recommend the retro-fitting the dry cleaning machine with secondary containment and the termination of operations with PCE.

Environmental assessment activities resumed in March 2013, EBI Environmental and Engineering (EBI), advanced two soil borings designated B-1 and B-2 south and north of the tenant space, respectively and three soil borings, designated B-3 through B-5 within the tenant space and in the vicinity of the dry cleaning machine (**Figure 2**). Groundwater was not encountered in any of the soil borings, including soil boring B-1, which was advanced to 25 feet bgs, south of the tenant space. Laboratory analytical results of selected soil samples indicated the presence of PCE in soil boring B-3 between 3 and 5 feet bgs, although in a concentration below the MTCA Method A soil cleanup level of 0.05 mg/kg.



EBI also collected soil gas samples from 5 feet bgs in soil borings B-3 through B-5. Laboratory analytical results indicated a concentration of 20 micrograms per cubic meter ( $\mu\text{g}/\text{m}^3$ ) PCE and  $7.0 \mu\text{g}/\text{m}^3$  TCE detected in the soil gas sample collected from soil boring B-3 and concentrations of 4.8 and  $2.4 \mu\text{g}/\text{m}^3$  PCE detected in the soil gas samples collected from soil borings B-4 and B-5 respectively. TCE was not detected above analytical detection limits in the soil gas samples collected from soil borings B-4 and B-5. The concentrations of PCE and TCE in the soil gas samples collected from soil borings B-3 and the concentration of PCE in the soil gas samples collected from soil borings B-4 and B-5 are above the MTCA Method B industrial land use sub-slab carcinogenic soil gas screen level of  $4.2 \mu\text{g}/\text{m}^3$  for PCE and  $1.0 \mu\text{g}/\text{m}^3$  for TCE of per Ecology's draft Publication 09-09-047, *Guidance for Evaluating Soil Vapor Intrusion in Washington State: Investigation and Remedial Action*, October 2009.

### **Objective and Scope**

Based on the results of the subsurface assessment work performed in 2006 and 2013, Cardno ATC proposed the collection of shallow soil samples in locations throughout the interior of the tenant space to laterally and vertically delineate any cVOC impacts to soil potentially caused by release from the historic use of PCE within the tenant space. The scope of work performed included the advancement of seven soil borings, designated B-6 through B-12 by direct push drilling technology.

### **Subsurface Utility Clearance and Site Health and Safety**

Prior to initiating investigation activities, Cardno ATC evaluated the investigation areas for the presence of subsurface structures and utilities by contacting a service that notifies public and private utilities of the proposed subsurface investigation and requests their participation in identifying subsurface utilities. In addition, a site specific health and safety plan was developed for this project in accordance with Occupational Safety and Health Administration (OSHA) and state regulations and implemented during the field investigation. The investigation methods are summarized below.

### **Soil Boring Investigation**

On March 12, 2014, Cardno ATC contracted ESN Northwest (ESN) of Olympia, Washington to advance seven soil borings, designated B-6 through B-12 using direct-push drilling technology in order to collect soil samples from below the floor slab at the Harbour Point Cleaners tenant space. Soil borings B-6 through B-12 were advanced to a maximum depth of 10 feet bgs. Free groundwater was not encountered in any of the soil borings and therefore groundwater samples were not collected.

Soil boring locations are shown on the **Figure 2**.

### **Soil Screening and Soil Sampling**

Monitoring of the drilling and sampling activities was performed by a qualified Cardno ATC field geologist. A detailed log of the subsurface lithologic conditions was maintained and a photoionization detector (PID) was used to screen the soils for organic vapors. Soils were also screened using visual and olfactory techniques to determine the potential for soil impacts by VOCs. Soil samples were obtained by hydraulically pushing a four (4) foot long core barrel sampler (macrocore sampler) containing a disposable acetate liner through the desired sample interval by means of direct push drilling techniques. After the core barrel has advanced through the sample interval, it is retracted from



the borehole and the acetate liner is removed from the core barrel and cut to access soil for monitoring and sampling.

After each soil sampling interval, the core barrel was decontaminated using a biodegradable detergent and potable water wash followed by a clean potable water rinse and a final rinse with distilled water. In addition, disposable latex sampling gloves were worn between samples to avoid cross contamination between sample depths and locations.

Soil samples were also collected throughout the length of each boring for classification of the soils. Soil recovery was generally good with a maximum recovery of four (4) feet from the macrocore sampler. The soils were classified in general accordance with the Unified Soil Classification System (USCS).

Select samples were placed in sealable plastic bags and then mixed to volatilize any organic compounds present in the sample. The PID was then inserted into the bag to measure the organic vapor levels, which were recorded on the boring logs.

Soil samples collected for laboratory VOC analysis were collected under United States Environmental Protection Agency (EPA) Method 5035A using a five-gram soil core sampler inserted into a T-handle plunger. Each core sample was placed into a 40 milliliter (ml) glass volatile organic analysis (VOA) vial containing a sodium bisulfate preservative, bagged, and placed in a cooler on ice.

### **Analytical Methods**

Soil samples were submitted for analysis to Fremont Analytical of Seattle, Washington, an Ecology accredited analytical laboratory. Selected soil samples were analyzed for cVOCs by EPA Method 8260.

### **Lithology**

Subsurface soils encountered during the advancement of soil borings B-6 through B-12 were generally characterized as fine-grained sediments to 10 feet bgs, the greatest depth explored. The fine-grained sediments dominantly consist of brown to olive-brown silt with gravel and sand of strong induration. Soil borings B-6, B-7, B-10, and B-11 contained approximately three feet of dominantly coarse-grained fill material above the fine-grained sediments. Free groundwater was not observed in any of the soil borings.

### **Soil Analytical Results**

Laboratory analytical results indicate that the cVOCs, PCE, was detected in soil samples collected from shallow soil in soil borings B-9, B-10 and B-12. Concentrations of PCE above Ecology's MTCA Method A soil cleanup level for unrestricted land uses of 0.05 mg/kg, were detected in the soil samples collected from between ground surface and 1 foot bgs in soil boring B-9 (0.111 mg/kg), in soil boring B-10 (0.208 mg/kg), and soil boring B-12 (0.156 mg/kg). Concentrations of PCE were also detected at the same depth increment in soil boring B-11, though at a concentration of 0.034 mg/kg, slightly below the Method A cleanup value. PCE was also detected in the soil sample collected from 2 foot bgs in soil boring B-12 at a concentration of 0.047 mg/kg, slightly below the Method A cleanup value. Boring B-12 was located immediately adjacent to the dry cleaning machine. Laboratory analysis of the remaining soil samples indicated PCE concentrations were not detected above the method report limit.



No other cVOC was detected in any of the soil samples selected for laboratory analysis.

### **Conclusions and Recommendations**

WRI requested a limited subsurface investigation to assess the presence of cVOCs in shallow soils associated with dry cleaning operations at the tenant space occupied by Harbour Point Cleaners at the property. Laboratory analysis of soil samples collected from soil borings advanced within the tenant space indicate that soil impacted with concentrations of PCE above MTCA Method A soil cleanup levels for unrestricted land uses were not detected below 1 foot bgs, though concentrations slightly below cleanup values extend to a depth of 3 feet bgs. Furthermore the presence of PCE above MTCA soil cleanup levels for unrestricted land uses are restricted to soil borings B-9, B-10, and B-12, indicating that the lateral migration of PCE to the north attenuates to concentrations below analysis detection limits at the location of soil borings B-7 and B-8 and to concentrations below MTCA Method A soil cleanup levels for unrestricted land uses to the south-south east at the location of soil boring B-11. Due to the limitations of accessibility within the tenant space lateral delineation of cVOC impacts to soil were not achieved to toward the west and the east.

Based on the lack of lateral delineation of cVOC impacted soil, Cardno ATC recommends the collection of additional soil samples through the advancement of direct push soil borings in the west- and east-adjacent tenant spaces, and, in order to better define lateral delineation to the south, the collection of soil samples from a soil boring advanced south of boring B-12.



## **Qualifications and Reliance**

Cardno ATC's professional services have been performed, Cardno ATC's findings obtained and Cardno ATC's recommendations prepared in accordance with customary principles and practices in the fields of environmental science and engineering. This company is not responsible for the independent conclusions, opinions or recommendations made by others based on the information presented in this report.

In preparing this report, Cardno ATC has relied upon presumed accurate certain information (or absence thereof) about the property provided by the Client, and others identified herein. Except as otherwise stated in the report, Cardno ATC has not attempted to verify the accuracy or completeness of any such information.

The data reported and the findings, observations, and conclusions expressed in the report are limited by the Scope of Services, including the extent of subsurface exploration and other tests. The Scope of Services was defined through the requests of Weingarten Realty Investors the time and budgetary constraints and the availability of access to the property.

This report is intended for the sole use of Weingarten Realty Investors. This report may not be used or relied upon by any other party without the written consent of Cardno ATC.



Limited Subsurface Investigation  
Speedway Shopping Center – Harbour Point Cleaners  
Lynnwood, Washington  
April 3, 2014



Cardno ATC would like to thank you for the opportunity. If you have any questions or require further information, please email the undersigned or call (206) 781-1449.

Sincerely,  
Cardno ATC

A handwritten signature in black ink that reads "Terrence S. McDunner".

Terrence S. McDunner  
Branch Manager  
Email: [terry.mcdunner@cardno.com](mailto:terry.mcdunner@cardno.com)

A handwritten signature in blue ink that reads "Simon Payne".

Simon Payne, LG  
Project Geologist  
Email: [simon.payne@cardno.com](mailto:simon.payne@cardno.com)

Attachments:

Property Location Map

Site Plan

Table 1: Summary of Soil Analytical Results – Chlorinated Volatile Organic Compounds

Boring Logs

Laboratory Analytical Results





6347 Seaview Avenue NW  
 Seattle, Washington 98107  
 (206) 781-1449

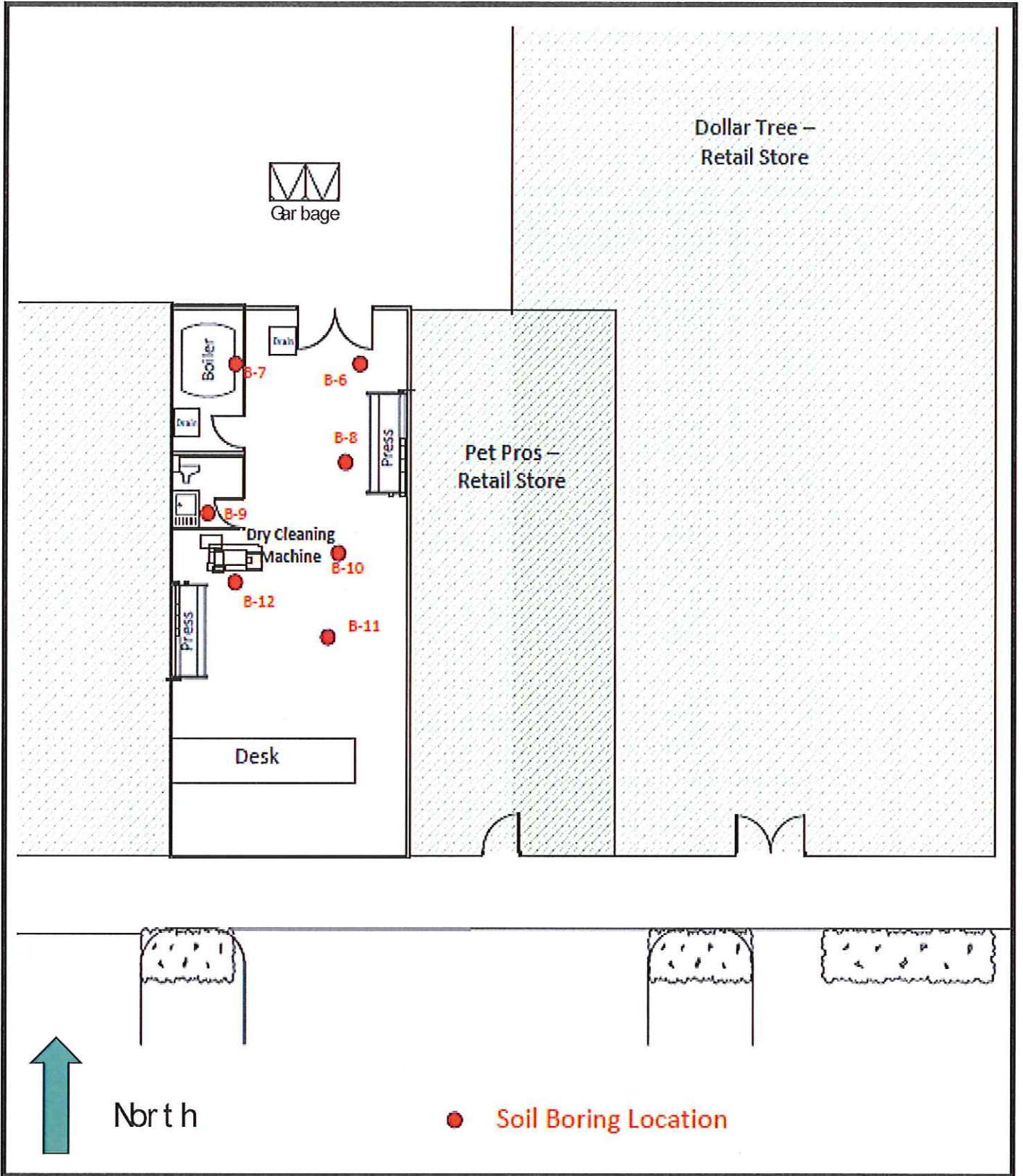
### PROPERTY LOCATION MAP

Speedway Shopping Center – Harbour Point Cleaners  
 13619 Mukilteo Speedway  
 Lynnwood, WA

PROJECT NO.: 076.75354.0008

APPENDIX A	SCALE: N/A	REVIEWED BY: TM
DRAWN BY: N/A	DATE: 4/2014	FILE: SITE VICINITY





 <b>Cardno<sup>®</sup></b> <b>ATC</b> Shaping the Future	6347 Seaview Avenue NW Seattle, Washington 98107 (206) 781-1449	
	PROJECT NO.: 076.75354.0008	
APPENDIX B	SCALE: N/A	REVIEWED BY: TM
DRAWN BY: N/A	DATE: 4/2014	FILE: SITE VICINITY

**SITE PLAN**

Speedway Shopping Center – Harbour Point Cleaners  
 13619 Mukilteo Speedway  
 Lynnwood, WA



Table 1  
 Summary of Soil Analytical Results - Chlorinated Volatile Organic Compounds  
 Speedway Shopping Center  
 13632 Highway 99  
 Lynnwood, Washington  
 Cardno A TC Project No. 76.76354.0008

Boring ID	Sample ID	Sample Depth Interval (feet below ground surface)	Sample Date	Select Chlorinated Volatile Organic Compounds (cVOCs) <sup>1</sup> in mg/kg						
				PCE	TCE	cis-DCE	trans-DCE	1,1-DCE	Vinyl Chloride	
B-6	B-6-0-1	0 - 1	3/12/2014	<0.0189	<0.0189	<0.0189	<0.0189	<0.0472	<0.00189	
	B-6-1-2	1 - 2	3/12/2014	<0.0199	<0.0199	<0.0199	<0.0199	<0.0497	<0.00199	
	B-6-3-4	3 - 4	3/12/2014	<0.0198	<0.198	<0.198	<0.198	<0.0496	<0.00198	
B-7	B-7-0-1	0 - 1	3/12/2014	<0.0414	<0.0414	<0.0414	<0.0414	<0.104	<0.00414	
	B-8-0-1	0 - 1	3/12/2014	<0.0227	<0.0227	<0.0227	<0.0227	<0.0567	<0.00227	
	B-8-1-2	1 - 2	3/12/2014	<0.0177	<0.0177	<0.0177	<0.0177	<0.0442	<0.00177	
B-8	B-8-3-4	3 - 4	3/12/2014	<0.0210	<0.0210	<0.0210	<0.0210	<0.0526	<0.00210	
	B-9-0-1	0 - 1	3/12/2014	0.111	<0.0219	<0.0219	<0.0219	<0.0549	<0.00219	
	B-9-1-2	1 - 2	3/12/2014	<0.0240	<0.0240	<0.0240	<0.0240	<0.0601	<0.00240	
B-10	B-10-0-1	0 - 1	3/12/2014	0.208	<0.0299	<0.0299	<0.0299	<0.0747	<0.00209	
	B-10-1-2	1 - 2	3/12/2014	<0.0205	<0.0205	<0.0205	<0.0205	<0.0512	<0.00205	
	B-10-3-4	3 - 4	3/12/2014	<0.0197	<0.0197	<0.0197	<0.0197	<0.0493	<0.00197	
B-11	B-11-0-1	0 - 1	3/12/2014	0.0337	<0.0185	<0.0185	<0.0185	<0.0482	<0.00185	
	B-11-1-2	1 - 2	3/12/2014	<0.0195	<0.0195	<0.0195	<0.0195	<0.0488	<0.00195	
	B-11-3-4	3 - 4	3/12/2014	<0.0199	<0.0199	<0.0199	<0.0199	<0.0497	<0.00199	
B-12	B-6-0-1	0 - 1	3/12/2014	0.156	<0.0211	<0.0211	<0.0211	<0.0527	<0.00211	
	B-6-1-2	1 - 2	3/12/2014	0.0467	<0.0220	<0.0220	<0.0220	<0.0551	<0.00220	
	B-6-3-4	3 - 4	3/12/2014	<0.0205	<0.0205	<0.0205	<0.0205	<0.0513	<0.00205	
<b>MTCA-Method A Cleanup Levels for Unrestricted Land Uses</b>				<b>0.05</b>	<b>0.03</b>	<b>No Data</b>	<b>No Data</b>	<b>No Data</b>	<b>No Data</b>	
<b>MTCA Method B non-carcinogen Standard Formula Value</b>				<b>480</b>	<b>40</b>	<b>160</b>	<b>1,600</b>	<b>4,000</b>	<b>240</b>	

**Notes:**

mg/kg = milligram per kilogram  
 PCE = Tetrachloroethene (Tetrachloroethylene, perchloroethylene)  
 TCE = Trichloroethene (Trichloroethylene)  
 cis-DCE = cis-1,2-Dichloroethene (cis-1,2-Dichloroethylene)  
 trans-DCE = trans-1,2-Dichloroethene (trans-1,2-Dichloroethylene)  
 1,1-DCE = 1,1-Dichloroethene (1,1-Dichloroethylene)  
 MTCA - Washington State Department of Ecology Model Toxics Contr  
**Bold** denotes concentration at or above regulatory cleanup level.  
 1 = Analytical results by gas chromatography and mass spectrometry  
 All analytical results reported in milligrams per kilogram (mg/kg) equivalent to parts per million (ppm)  
 A complete list of VOC data is provided in Appendix B.



Cardno ATC Project Name:	<u>HP Cleaners</u>	Drilling Information	
Cardno ATC Project #:	<u>76.75354.0008</u>	Drilling Contractor:	<u>ESN</u>
		Drilling Method:	<u>Direct Push</u>
		Borehole Diameter:	<u>2-inch</u>
Location:	<u>13619 Mukilleo Spdwy</u>	Sampler Type:	<u>Macrocore</u>
	<u>Lynnwood, Wa</u>		

Event Information

Logged by:	<u>SP</u>	Well/Boring Designation:	<u>B-6</u>
Boring Depth:	<u>7 feet</u>	Surface Elevation:	
GW Encountered:	<u>No</u>	Start Date:	<u>03/12/14</u>
Static GW Level:		End Date:	<u>03/12/14</u>
Notes:			

Depth (ft)	Recovery	Sample Interval	Blow Counts	PID/FID Readings	USCS Classification	Soil Classification/ Description	Well Construction
1				0.3	SM	Surface: 4-inches concrete SILTY SAND: light brown fine sand with 20% medium sand; 0-20% coarse gravel; 15-35% silt; damp; no product odor	Backfilled with Bentonite Chips
2				0.8			
3							
4				0.9	ML	SILT with SAND: light brown silt with 20% fine sand; 20% medium to coarse sand; strong induration; damp; no product odor	
5							
6							
7				2.2			
8						Boring terminated at 7 feet below surface due to drilling refusal	
9							





Cardno ATC Project Name: HP Cleaners Drilling Information  
 Cardno ATC Project #: 76.75354.0008 Drilling Contractor: ESN  
 Location: 13619 Mukilteo Spdvwy Drilling Method: Direct Push  
Lynnwood, Wa Borehole Diameter: 2-inch  
 Sampler Type: Macrocore

Event Information

Logged by: SP Well/Boring Designation: B-7  
 Boring Depth: 7 feet Surface Elevation: \_\_\_\_\_  
 GW Encountered: No Start Date: 03/12/14  
 Static GW Level: \_\_\_\_\_ End Date: 03/12/14  
 Notes: \_\_\_\_\_

Depth (ft)	Recovery	Sample Interval	Blow Counts	PID/FID Readings	USCS Classification	Soil Classification/ Description	Well Construction
1				1.2	ML	Surface: 4-inches concrete SILTY SAND: medium brown medium sand with 20% fine sand; 30% silt; moderate induration; damp; no product odor; no recovery 2 - 4 feet	Backfilled with Bentonite Chips
2							
3							
4					ML	SILT with SAND: olive-brown silt with 20% fine sand; 10% medium sand; moderate induration; damp; no product odor no recovery 5 to 7 feet	
5							
6							
7						Boring terminated at 7 feet below surface due to drilling refusal	
8							
9							



Cardno ATC Project Name:	<u>HP Cleaners</u>	Drilling Information	
Cardno ATC Project #:	<u>76.75354.0008</u>	Drilling Contractor:	<u>ESN</u>
		Drilling Method:	<u>Direct Push</u>
		Borehole Diameter:	<u>2-inch</u>
Location:	<u>13619 Mukilleo Spdwy</u>	Sampler Type:	<u>Macrocore</u>
	<u>Lynnwood, Wa</u>		

Event Information

Logged by:	<u>SP</u>	Well/Boring Designation:	<u>B-8</u>
Boring Depth:	<u>10 feet</u>	Surface Elevation:	
GW Encountered:	<u>No</u>	Start Date:	<u>03/12/14</u>
Static GW Level:		End Date:	<u>03/12/14</u>
Notes:			

Depth (ft)	Recovery	Sample Interval	Blow Counts	PID/FID Readings	USCS Classification	Soil Classification/Description	Well Construction
1				1.6	ML	Surface: 4-inches concrete SILT with SAND: light brown silt with 30% fine sand; 10% medium sand; 0 to 10% gravel; strong induration; dry; no product odor	Backfilled with Bentonite Chips
2				2.3			
3							
4				2.9		dark olive brown; 55% silt; 30% fine sand; 10% medium sand; 5% gravel; strong induration; dry; no product odor below 4 feet	
5							
6							
7							
8				2.3		olive-brown with orange mottling; 60% silt; 30% fine sand; 10% medium sand; strong induration; dry; no product odor below 8 feet	
9							
10				1.8		Boring terminated at 10 feet below surface due to drilling refusal	







Cardno ATC Project Name:	<u>HP Cleaners</u>	Drilling Information	
Cardno ATC Project #:	<u>76.75354.0008</u>	Drilling Contractor:	<u>ESN</u>
		Drilling Method:	<u>Direct Push</u>
		Borehole Diameter:	<u>2-inch</u>
Location:	<u>13619 Mukilteo Spdwy</u>	Sampler Type:	<u>Macrocore</u>
	<u>Lynnwood, Wa</u>		

Event Information

Logged by:	<u>SP</u>	Well/Boring Designation:	<u>B-10</u>
Boring Depth:	<u>10 feet</u>	Surface Elevation:	
GW Encountered:	<u>No</u>	Start Date:	<u>03/12/14</u>
Static GW Level:		End Date:	<u>03/12/14</u>
Notes:			

Depth (ft)	Recovery	Sample Interval	Blow Counts	PID/FID Readings	USCS Classification	Soil Classification/Description	Well Construction
1				2.2	SM	Surface: 4-inches concrete SILTY SAND: medium brown fine sand with 10% medium sand; 0 to 10% gravel; 25% silt; moderate induration; dry no product odor	Backfilled with Bentonite Chips
2				3.4			
3					ML		
4				1.8			
5						light brown with 55% silt; 35% fine sand; 10% medium sand; trace gravel; moderate induration; dry; no product odor below 4 feet	
6							
7							
8						medium brown with 60% silt; 35% fine sand; 5% medium sand; strong induration; damp; no product odor below 7 feet	
9				1.1			
10						Boring terminated at 10 feet below surface due to drilling refusal	





Cardno ATC Project Name:	<u>HP Cleaners</u>	Drilling Information	
Cardno ATC Project #:	<u>76.75354.0008</u>	Drilling Contractor:	<u>ESN</u>
		Drilling Method:	<u>Direct Push</u>
		Borehole Diameter:	<u>2-inch</u>
Location:	<u>13619 Mukilteo Spdwy</u>	Sampler Type:	<u>Macrocore</u>
	<u>Lynnwood, Wa</u>		

Event Information

Logged by:	<u>SP</u>	Well/Boring Designation:	<u>B-11</u>
Boring Depth:	<u>7 feet</u>	Surface Elevation:	
GW Encountered:	<u>No</u>	Start Date:	<u>03/12/14</u>
Static GW Level:		End Date:	<u>03/12/14</u>
Notes:			

Depth (ft)	Recovery	Sample Interval	Blow Counts	PID/FID Readings	USCS Classification	Soil Classification/Description	Well Construction
1				3.0	SM	Surface: 4-inches concrete SILTY SAND: medium brown fine sand with 15% medium sand; 15% gravel; 20% silt; moderate induration; damp; no product odor	Backfilled with Bentonite Chips
2				2.7			
3					ML	SILT with GRAVEL: dark brown silt with 20% fine sand; 25% gravel; moderate induration; dry; no product odor	
4				2.5			
5							
6							
7						Boring terminated at 7 feet below surface due to drilling refusal	
8							
9							



Cardno ATC Project Name:	<u>HP Cleaners</u>	Drilling Information	
Cardno ATC Project #:	<u>76.75354.0008</u>	Drilling Contractor:	<u>ESN</u>
		Drilling Method:	<u>Direct Push</u>
		Borehole Diameter:	<u>2-inch</u>
Location:	<u>13619 Mukilteo Spdwy</u>	Sampler Type:	<u>Macrocore</u>
	<u>Lynnwood, Wa</u>		

Event Information

Logged by:	<u>SP</u>	Well/Boring Designation:	<u>B-12</u>
Boring Depth:	<u>7 feet</u>	Surface Elevation:	
GW Encountered:	<u>No</u>	Start Date:	<u>03/12/14</u>
Static GW Level:		End Date:	<u>03/12/14</u>
Notes:			

Depth (ft)	Recovery	Sample Interval	Blow Counts	PID/FID Readings	USCS Classification	Soil Classification/Description	Well Construction
1				6.0	ML	Surface: 4-inches concrete SILT with SAND: dark brown silt with 35% fine sand; 0-10% gravel; 10% medium sand; moderate induration; dry no product odor	Backfilled with Bentonite Chips
2				7.2			
3							
4				7.8			
5							
6							
7				10.4			
8						Boring terminated at 7 feet below surface due to drilling refusal	
9							





3600 Fremont Ave. N.  
Seattle, WA 98103  
T: (206) 352-3790  
F: (206) 352-7178  
[info@fremontanalytical.com](mailto:info@fremontanalytical.com)

Cardno ATC  
Simon Payne  
6347 Seaview Ave NW  
Seattle, WA 98107

RE: Speedway Shopping Center (SSC)  
Lab ID: 1403133

March 19, 2014

Attention Simon Payne:

Fremont Analytical, Inc. received 27 sample(s) on 3/12/2014 for the analyses presented in the following report.

*Sample Moisture (Percent Moisture)*  
*Volatile Organic Compounds by EPA Method 8260*

This report consists of the following:

- Case Narrative
- Analytical Results
- Applicable Quality Control Summary Reports
- Chain of Custody

All analyses were performed consistent with the Quality Assurance program of Fremont Analytical, Inc. Please contact the laboratory if you should have any questions about the results.

Thank you for using Fremont Analytical.

Sincerely,

A handwritten signature in black ink, appearing to read "M. Dee".

Michael Dee  
Sr. Chemist / Principal



Date: 03/19/2014

**CLIENT:** Cardno ATC  
**Project:** Speedway Shopping Center (SSC)  
**Lab Order:** 1403133

## Work Order Sample Summary

Lab Sample ID	Client Sample ID	Date/Time Collected	Date/Time Received
1403133-001	B-6-0-1	03/12/2014 9:45 AM	03/12/2014 2:45 PM
1403133-002	B-6-1-2	03/12/2014 9:50 AM	03/12/2014 2:45 PM
1403133-003	B-6-3-4	03/12/2014 10:00 AM	03/12/2014 2:45 PM
1403133-004	B-6-6.5-7	03/12/2014 10:05 AM	03/12/2014 2:45 PM
1403133-005	B-7-0-1	03/12/2014 10:15 AM	03/12/2014 2:45 PM
1403133-006	B-7-4-5	03/12/2014 10:30 AM	03/12/2014 2:45 PM
1403133-007	B-8-0-1	03/12/2014 10:55 AM	03/12/2014 2:45 PM
1403133-008	B-8-1-2	03/12/2014 11:00 AM	03/12/2014 2:45 PM
1403133-009	B-8-3-4	03/12/2014 11:05 AM	03/12/2014 2:45 PM
1403133-010	B-8-7.5-8	03/12/2014 11:10 AM	03/12/2014 2:45 PM
1403133-011	B-8-9.5-10	03/12/2014 11:20 AM	03/12/2014 2:45 PM
1403133-012	B-9-0-1	03/12/2014 11:35 AM	03/12/2014 2:45 PM
1403133-013	B-9-1-2	03/12/2014 11:40 AM	03/12/2014 2:45 PM
1403133-014	B-10-0-1	03/12/2014 11:55 AM	03/12/2014 2:45 PM
1403133-015	B-10-1-2	03/12/2014 12:00 PM	03/12/2014 2:45 PM
1403133-016	B-10-3-4	03/12/2014 12:05 PM	03/12/2014 2:45 PM
1403133-017	B-10-7.5-8	03/12/2014 12:10 PM	03/12/2014 2:45 PM
1403133-018	B-10-9.5-10	03/12/2014 12:15 PM	03/12/2014 2:45 PM
1403133-019	B-11-0-1	03/12/2014 12:20 PM	03/12/2014 2:45 PM
1403133-020	B-11-1-2	03/12/2014 12:25 PM	03/12/2014 2:45 PM
1403133-021	B-11-3-4	03/12/2014 12:30 PM	03/12/2014 2:45 PM
1403133-022	B-11-6.5-7	03/12/2014 12:35 PM	03/12/2014 2:45 PM
1403133-023	B-12-0-1	03/12/2014 12:50 PM	03/12/2014 2:45 PM
1403133-024	B-12-1-2	03/12/2014 1:00 PM	03/12/2014 2:45 PM
1403133-025	B-12-3-4	03/12/2014 1:05 PM	03/12/2014 2:45 PM
1403133-026	B-12-6.5-7	03/12/2014 1:10 PM	03/12/2014 2:45 PM
1403133-027	Trip Blank	03/11/2014 1:00 PM	03/12/2014 2:45 PM

Note: If no "Time Collected" is supplied, a default of 12:00AM is assigned





## Case Narrative

WO#: 1403133

Date: 3/19/2014

---

**CLIENT:** Cardno ATC  
**Project:** Speedway Shopping Center (SSC)

---

### I. SAMPLE RECEIPT:

Samples receipt information is recorded on the attached Sample Receipt Checklist.

### II. GENERAL REPORTING COMMENTS:

Results are reported on a wet weight basis unless dry-weight correction is denoted in the units field on the analytical report ("mg/kg-dry" or "ug/kg-dry").

Matrix Spike (MS) and MS Duplicate (MSD) samples are tested from an analytical batch of "like" matrix to check for possible matrix effect. The MS and MSD will provide site specific matrix data only for those samples which are spiked by the laboratory. The sample chosen for spike purposes may or may not have been a sample submitted in this sample delivery group. The validity of the analytical procedures for which data is reported in this analytical report is determined by the Laboratory Control Sample (LCS) and the Method Blank (MB). The LCS and the MB are processed with the samples and the MS/MSD to ensure method criteria are achieved throughout the entire analytical process.

### III. ANALYSES AND EXCEPTIONS:

Exceptions associated with this report will be footnoted in the analytical results page(s) or the quality control summary page(s) and/or noted below.

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# Analytical Report

WO#: 1403133  
Date Reported: 3/19/2014

Client: Cardno ATC  
Project: Speedway Shopping Center (SSC)  
Lab ID: 1403133-001  
Client Sample ID: B-6-0-1

Collection Date: 3/12/2014 9:45:00 AM

Matrix: Soil

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
<b>Volatile Organic Compounds by EPA Method 8260</b>				Batch ID: 6873		Analyst: GH
Dichlorodifluoromethane (CFC-12)	ND	0.0567		mg/Kg-dry	1	3/15/2014 11:46:00 PM
Chloromethane	ND	0.0567		mg/Kg-dry	1	3/15/2014 11:46:00 PM
Vinyl chloride	ND	0.00189		mg/Kg-dry	1	3/15/2014 11:46:00 PM
Trichlorofluoromethane (CFC-11)	ND	0.0472		mg/Kg-dry	1	3/15/2014 11:46:00 PM
Chloroethane	ND	0.0567		mg/Kg-dry	1	3/15/2014 11:46:00 PM
1,1-Dichloroethene	ND	0.0472		mg/Kg-dry	1	3/15/2014 11:46:00 PM
Methylene chloride	ND	0.0189		mg/Kg-dry	1	3/15/2014 11:46:00 PM
trans-1,2-Dichloroethene	ND	0.0189		mg/Kg-dry	1	3/15/2014 11:46:00 PM
1,1-Dichloroethane	ND	0.0189		mg/Kg-dry	1	3/15/2014 11:46:00 PM
2,2-Dichloropropane	ND	0.0472	*	mg/Kg-dry	1	3/15/2014 11:46:00 PM
cis-1,2-Dichloroethene	ND	0.0189		mg/Kg-dry	1	3/15/2014 11:46:00 PM
Chloroform	ND	0.0189		mg/Kg-dry	1	3/15/2014 11:46:00 PM
1,1,1-Trichloroethane (TCA)	ND	0.0189		mg/Kg-dry	1	3/15/2014 11:46:00 PM
1,1-Dichloropropene	ND	0.0189		mg/Kg-dry	1	3/15/2014 11:46:00 PM
Carbon tetrachloride	ND	0.0189		mg/Kg-dry	1	3/15/2014 11:46:00 PM
1,2-Dichloroethane (EDC)	ND	0.0283		mg/Kg-dry	1	3/15/2014 11:46:00 PM
Trichloroethene (TCE)	ND	0.0189		mg/Kg-dry	1	3/15/2014 11:46:00 PM
1,2-Dichloropropane	ND	0.0189		mg/Kg-dry	1	3/15/2014 11:46:00 PM
Bromodichloromethane	ND	0.0189		mg/Kg-dry	1	3/15/2014 11:46:00 PM
cis-1,3-Dichloropropene	ND	0.0189		mg/Kg-dry	1	3/15/2014 11:46:00 PM
trans-1,3-Dichloropropene	ND	0.0283		mg/Kg-dry	1	3/15/2014 11:46:00 PM
1,1,2-Trichloroethane	ND	0.0283		mg/Kg-dry	1	3/15/2014 11:46:00 PM
1,3-Dichloropropane	ND	0.0472		mg/Kg-dry	1	3/15/2014 11:46:00 PM
Tetrachloroethene (PCE)	ND	0.0189		mg/Kg-dry	1	3/15/2014 11:46:00 PM
Dibromochloromethane	ND	0.0283		mg/Kg-dry	1	3/15/2014 11:46:00 PM
Chlorobenzene	ND	0.0189		mg/Kg-dry	1	3/15/2014 11:46:00 PM
1,1,1,2-Tetrachloroethane	ND	0.0283		mg/Kg-dry	1	3/15/2014 11:46:00 PM
1,1,2,2-Tetrachloroethane	ND	0.0189		mg/Kg-dry	1	3/15/2014 11:46:00 PM
2-Chlorotoluene	ND	0.0189		mg/Kg-dry	1	3/15/2014 11:46:00 PM
4-Chlorotoluene	ND	0.0189		mg/Kg-dry	1	3/15/2014 11:46:00 PM
1,2,3-Trichloropropane	ND	0.0189		mg/Kg-dry	1	3/15/2014 11:46:00 PM
1,2,4-Trichlorobenzene	ND	0.0472		mg/Kg-dry	1	3/15/2014 11:46:00 PM
1,3-Dichlorobenzene	ND	0.0189		mg/Kg-dry	1	3/15/2014 11:46:00 PM
1,4-Dichlorobenzene	ND	0.0189		mg/Kg-dry	1	3/15/2014 11:46:00 PM
1,2-Dichlorobenzene	ND	0.0189		mg/Kg-dry	1	3/15/2014 11:46:00 PM

Qualifiers: B Analyte detected in the associated Method Blank  
E Value above quantitation range  
J Analyte detected below quantitation limits  
RL Reporting Limit  
D Dilution was required  
H Holding times for preparation or analysis exceeded  
ND Not detected at the Reporting Limit  
S Spike recovery outside accepted recovery limits





# Analytical Report

WO#: 1403133  
Date Reported: 3/19/2014

Client: Cardno ATC  
Project: Speedway Shopping Center (SSC)  
Lab ID: 1403133-001  
Client Sample ID: B-6-0-1

Collection Date: 3/12/2014 9:45:00 AM

Matrix: Soil

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
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**Volatile Organic Compounds by EPA Method 8260**

Batch ID: 6873

Analyst: GH

1,2-Dibromo-3-chloropropane	ND	0.0283		mg/Kg-dry	1	3/15/2014 11:46:00 PM
Hexachloro-1,3-butadiene	ND	0.0945		mg/Kg-dry	1	3/15/2014 11:46:00 PM
1,2,3-Trichlorobenzene	ND	0.0189		mg/Kg-dry	1	3/15/2014 11:46:00 PM
Surr: Dibromofluoromethane	89.0	63.7-129		%REC	1	3/15/2014 11:46:00 PM
Surr: Toluene-d8	98.1	61.4-128		%REC	1	3/15/2014 11:46:00 PM
Surr: 1-Bromo-4-fluorobenzene	94.9	63.1-141		%REC	1	3/15/2014 11:46:00 PM

**NOTES:**

\* - Flagged value is not within established control limits.

**Sample Moisture (Percent Moisture)**

Batch ID: R13010

Analyst: KZ

Percent Moisture	8.02			wt%	1	3/13/2014 1:18:48 PM
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<b>Qualifiers:</b>	B	Analyte detected in the associated Method Blank	D	Dilution was required
	E	Value above quantitation range	H	Holding times for preparation or analysis exceeded
	J	Analyte detected below quantitation limits	ND	Not detected at the Reporting Limit
	RL	Reporting Limit	S	Spike recovery outside accepted recovery limits



# Analytical Report

WO#: 1403133  
Date Reported: 3/19/2014

Client: Cardno ATC  
Project: Speedway Shopping Center (SSC)  
Lab ID: 1403133-002  
Client Sample ID: B-6-1-2

Collection Date: 3/12/2014 9:50:00 AM  
Matrix: Soil

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
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**Volatile Organic Compounds by EPA Method 8260**

Batch ID: 6873

Analyst: GH

Dichlorodifluoromethane (CFC-12)	ND	0.0596		mg/Kg-dry	1	3/16/2014 12:47:00 AM
Chloromethane	ND	0.0596		mg/Kg-dry	1	3/16/2014 12:47:00 AM
Vinyl chloride	ND	0.00199		mg/Kg-dry	1	3/16/2014 12:47:00 AM
Trichlorofluoromethane (CFC-11)	ND	0.0497		mg/Kg-dry	1	3/16/2014 12:47:00 AM
Chloroethane	ND	0.0596		mg/Kg-dry	1	3/16/2014 12:47:00 AM
1,1-Dichloroethene	ND	0.0497		mg/Kg-dry	1	3/16/2014 12:47:00 AM
Methylene chloride	ND	0.0199		mg/Kg-dry	1	3/16/2014 12:47:00 AM
trans-1,2-Dichloroethene	ND	0.0199		mg/Kg-dry	1	3/16/2014 12:47:00 AM
1,1-Dichloroethane	ND	0.0199		mg/Kg-dry	1	3/16/2014 12:47:00 AM
2,2-Dichloropropane	ND	0.0497	*	mg/Kg-dry	1	3/16/2014 12:47:00 AM
cis-1,2-Dichloroethene	ND	0.0199		mg/Kg-dry	1	3/16/2014 12:47:00 AM
Chloroform	ND	0.0199		mg/Kg-dry	1	3/16/2014 12:47:00 AM
1,1,1-Trichloroethane (TCA)	ND	0.0199		mg/Kg-dry	1	3/16/2014 12:47:00 AM
1,1-Dichloropropene	ND	0.0199		mg/Kg-dry	1	3/16/2014 12:47:00 AM
Carbon tetrachloride	ND	0.0199		mg/Kg-dry	1	3/16/2014 12:47:00 AM
1,2-Dichloroethane (EDC)	ND	0.0298		mg/Kg-dry	1	3/16/2014 12:47:00 AM
Trichloroethene (TCE)	ND	0.0199		mg/Kg-dry	1	3/16/2014 12:47:00 AM
1,2-Dichloropropane	ND	0.0199		mg/Kg-dry	1	3/16/2014 12:47:00 AM
Bromodichloromethane	ND	0.0199		mg/Kg-dry	1	3/16/2014 12:47:00 AM
cis-1,3-Dichloropropene	ND	0.0199		mg/Kg-dry	1	3/16/2014 12:47:00 AM
trans-1,3-Dichloropropene	ND	0.0298		mg/Kg-dry	1	3/16/2014 12:47:00 AM
1,1,2-Trichloroethane	ND	0.0298		mg/Kg-dry	1	3/16/2014 12:47:00 AM
1,3-Dichloropropane	ND	0.0497		mg/Kg-dry	1	3/16/2014 12:47:00 AM
Tetrachloroethene (PCE)	ND	0.0199		mg/Kg-dry	1	3/16/2014 12:47:00 AM
Dibromochloromethane	ND	0.0298		mg/Kg-dry	1	3/16/2014 12:47:00 AM
Chlorobenzene	ND	0.0199		mg/Kg-dry	1	3/16/2014 12:47:00 AM
1,1,1,2-Tetrachloroethane	ND	0.0298		mg/Kg-dry	1	3/16/2014 12:47:00 AM
1,1,2,2-Tetrachloroethane	ND	0.0199		mg/Kg-dry	1	3/16/2014 12:47:00 AM
2-Chlorotoluene	ND	0.0199		mg/Kg-dry	1	3/16/2014 12:47:00 AM
4-Chlorotoluene	ND	0.0199		mg/Kg-dry	1	3/16/2014 12:47:00 AM
1,2,3-Trichloropropane	ND	0.0199		mg/Kg-dry	1	3/16/2014 12:47:00 AM
1,2,4-Trichlorobenzene	ND	0.0497		mg/Kg-dry	1	3/16/2014 12:47:00 AM
1,3-Dichlorobenzene	ND	0.0199		mg/Kg-dry	1	3/16/2014 12:47:00 AM
1,4-Dichlorobenzene	ND	0.0199		mg/Kg-dry	1	3/16/2014 12:47:00 AM
1,2-Dichlorobenzene	ND	0.0199		mg/Kg-dry	1	3/16/2014 12:47:00 AM

Qualifiers: B Analyte detected in the associated Method Blank  
E Value above quantitation range  
J Analyte detected below quantitation limits  
RL Reporting Limit

D Dilution was required  
H Holding times for preparation or analysis exceeded  
ND Not detected at the Reporting Limit  
S Spike recovery outside accepted recovery limits





# Analytical Report

WO#: 1403133  
Date Reported: 3/19/2014

Client: Cardno ATC  
Project: Speedway Shopping Center (SSC)  
Lab ID: 1403133-002  
Client Sample ID: B-6-1-2

Collection Date: 3/12/2014 9:50:00 AM

Matrix: Soil

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
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**Volatile Organic Compounds by EPA Method 8260**

Batch ID: 6873

Analyst: GH

1,2-Dibromo-3-chloropropane	ND	0.0298		mg/Kg-dry	1	3/16/2014 12:47:00 AM
Hexachloro-1,3-butadiene	ND	0.0993		mg/Kg-dry	1	3/16/2014 12:47:00 AM
1,2,3-Trichlorobenzene	ND	0.0199		mg/Kg-dry	1	3/16/2014 12:47:00 AM
Surr: Dibromofluoromethane	89.7	63.7-129		%REC	1	3/16/2014 12:47:00 AM
Surr: Toluene-d8	98.4	61.4-128		%REC	1	3/16/2014 12:47:00 AM
Surr: 1-Bromo-4-fluorobenzene	94.9	63.1-141		%REC	1	3/16/2014 12:47:00 AM

**NOTES:**

\* - Flagged value is not within established control limits.

**Sample Moisture (Percent Moisture)**

Batch ID: R13010

Analyst: KZ

Percent Moisture	10.0			wt%	1	3/13/2014 1:18:48 PM
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**Qualifiers:** B Analyte detected in the associated Method Blank  
E Value above quantitation range  
J Analyte detected below quantitation limits  
RL Reporting Limit

D Dilution was required  
H Holding times for preparation or analysis exceeded  
ND Not detected at the Reporting Limit  
S Spike recovery outside accepted recovery limits



# Analytical Report

WO#: 1403133  
Date Reported: 3/19/2014

Client: Cardno ATC  
Project: Speedway Shopping Center (SSC)  
Lab ID: 1403133-003  
Client Sample ID: B-6-3-4

Collection Date: 3/12/2014 10:00:00 AM  
Matrix: Soil

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
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**Volatile Organic Compounds by EPA Method 8260**

Batch ID: 6873

Analyst: GH

Dichlorodifluoromethane (CFC-12)	ND	0.0595		mg/Kg-dry	1	3/16/2014 2:47:00 AM
Chloromethane	ND	0.0595		mg/Kg-dry	1	3/16/2014 2:47:00 AM
Vinyl chloride	ND	0.00198		mg/Kg-dry	1	3/16/2014 2:47:00 AM
Trichlorofluoromethane (CFC-11)	ND	0.0496		mg/Kg-dry	1	3/16/2014 2:47:00 AM
Chloroethane	ND	0.0595		mg/Kg-dry	1	3/16/2014 2:47:00 AM
1,1-Dichloroethene	ND	0.0496		mg/Kg-dry	1	3/16/2014 2:47:00 AM
Methylene chloride	ND	0.0198		mg/Kg-dry	1	3/16/2014 2:47:00 AM
trans-1,2-Dichloroethene	ND	0.0198		mg/Kg-dry	1	3/16/2014 2:47:00 AM
1,1-Dichloroethane	ND	0.0198		mg/Kg-dry	1	3/16/2014 2:47:00 AM
2,2-Dichloropropane	ND	0.0496	*	mg/Kg-dry	1	3/16/2014 2:47:00 AM
cis-1,2-Dichloroethene	ND	0.0198		mg/Kg-dry	1	3/16/2014 2:47:00 AM
Chloroform	ND	0.0198		mg/Kg-dry	1	3/16/2014 2:47:00 AM
1,1,1-Trichloroethane (TCA)	ND	0.0198		mg/Kg-dry	1	3/16/2014 2:47:00 AM
1,1-Dichloropropene	ND	0.0198		mg/Kg-dry	1	3/16/2014 2:47:00 AM
Carbon tetrachloride	ND	0.0198		mg/Kg-dry	1	3/16/2014 2:47:00 AM
1,2-Dichloroethane (EDC)	ND	0.0298		mg/Kg-dry	1	3/16/2014 2:47:00 AM
Trichloroethene (TCE)	ND	0.0198		mg/Kg-dry	1	3/16/2014 2:47:00 AM
1,2-Dichloropropane	ND	0.0198		mg/Kg-dry	1	3/16/2014 2:47:00 AM
Bromodichloromethane	ND	0.0198		mg/Kg-dry	1	3/16/2014 2:47:00 AM
cis-1,3-Dichloropropene	ND	0.0198		mg/Kg-dry	1	3/16/2014 2:47:00 AM
trans-1,3-Dichloropropene	ND	0.0298		mg/Kg-dry	1	3/16/2014 2:47:00 AM
1,1,2-Trichloroethane	ND	0.0298		mg/Kg-dry	1	3/16/2014 2:47:00 AM
1,3-Dichloropropane	ND	0.0496		mg/Kg-dry	1	3/16/2014 2:47:00 AM
Tetrachloroethene (PCE)	ND	0.0198		mg/Kg-dry	1	3/16/2014 2:47:00 AM
Dibromochloromethane	ND	0.0298		mg/Kg-dry	1	3/16/2014 2:47:00 AM
Chlorobenzene	ND	0.0198		mg/Kg-dry	1	3/16/2014 2:47:00 AM
1,1,1,2-Tetrachloroethane	ND	0.0298		mg/Kg-dry	1	3/16/2014 2:47:00 AM
1,1,2,2-Tetrachloroethane	ND	0.0198		mg/Kg-dry	1	3/16/2014 2:47:00 AM
2-Chlorotoluene	ND	0.0198		mg/Kg-dry	1	3/16/2014 2:47:00 AM
4-Chlorotoluene	ND	0.0198		mg/Kg-dry	1	3/16/2014 2:47:00 AM
1,2,3-Trichloropropane	ND	0.0198		mg/Kg-dry	1	3/16/2014 2:47:00 AM
1,2,4-Trichlorobenzene	ND	0.0496		mg/Kg-dry	1	3/16/2014 2:47:00 AM
1,3-Dichlorobenzene	ND	0.0198		mg/Kg-dry	1	3/16/2014 2:47:00 AM
1,4-Dichlorobenzene	ND	0.0198		mg/Kg-dry	1	3/16/2014 2:47:00 AM
1,2-Dichlorobenzene	ND	0.0198		mg/Kg-dry	1	3/16/2014 2:47:00 AM

Qualifiers: B Analyte detected in the associated Method Blank  
E Value above quantitation range  
J Analyte detected below quantitation limits  
RL Reporting Limit

D Dilution was required  
H Holding times for preparation or analysis exceeded  
ND Not detected at the Reporting Limit  
S Spike recovery outside accepted recovery limits





# Analytical Report

WO#: 1403133  
Date Reported: 3/19/2014

Client: Cardno ATC  
Project: Speedway Shopping Center (SSC)  
Lab ID: 1403133-003  
Client Sample ID: B-6-3-4

Collection Date: 3/12/2014 10:00:00 AM

Matrix: Soil

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
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**Volatile Organic Compounds by EPA Method 8260**

Batch ID: 6873

Analyst: GH

1,2-Dibromo-3-chloropropane	ND	0.0298		mg/Kg-dry	1	3/16/2014 2:47:00 AM
Hexachloro-1,3-butadiene	ND	0.0992		mg/Kg-dry	1	3/16/2014 2:47:00 AM
1,2,3-Trichlorobenzene	ND	0.0198		mg/Kg-dry	1	3/16/2014 2:47:00 AM
Surr: Dibromofluoromethane	91.1	63.7-129		%REC	1	3/16/2014 2:47:00 AM
Surr: Toluene-d8	98.0	61.4-128		%REC	1	3/16/2014 2:47:00 AM
Surr: 1-Bromo-4-fluorobenzene	95.4	63.1-141		%REC	1	3/16/2014 2:47:00 AM

**NOTES:**

\* - Flagged value is not within established control limits.

**Sample Moisture (Percent Moisture)**

Batch ID: R13010

Analyst: KZ

Percent Moisture	10.6			wt%	1	3/13/2014 1:18:48 PM
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**Qualifiers:** B Analyte detected in the associated Method Blank  
E Value above quantitation range  
J Analyte detected below quantitation limits  
RL Reporting Limit

D Dilution was required  
H Holding times for preparation or analysis exceeded  
ND Not detected at the Reporting Limit  
S Spike recovery outside accepted recovery limits



# Analytical Report

WO#: 1403133  
Date Reported: 3/19/2014

Client: Cardno ATC

Collection Date: 3/12/2014 10:15:00 AM

Project: Speedway Shopping Center (SSC)

Lab ID: 1403133-005

Matrix: Soil

Client Sample ID: B-7-0-1

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
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**Volatile Organic Compounds by EPA Method 8260**

Batch ID: 6873

Analyst: GH

Dichlorodifluoromethane (CFC-12)	ND	0.124		mg/Kg-dry	1	3/16/2014 3:17:00 AM
Chloromethane	ND	0.124		mg/Kg-dry	1	3/16/2014 3:17:00 AM
Vinyl chloride	ND	0.00414		mg/Kg-dry	1	3/16/2014 3:17:00 AM
Trichlorofluoromethane (CFC-11)	ND	0.104		mg/Kg-dry	1	3/16/2014 3:17:00 AM
Chloroethane	ND	0.124		mg/Kg-dry	1	3/16/2014 3:17:00 AM
1,1-Dichloroethene	ND	0.104		mg/Kg-dry	1	3/16/2014 3:17:00 AM
Methylene chloride	ND	0.0414		mg/Kg-dry	1	3/16/2014 3:17:00 AM
trans-1,2-Dichloroethene	ND	0.0414		mg/Kg-dry	1	3/16/2014 3:17:00 AM
1,1-Dichloroethane	ND	0.0414		mg/Kg-dry	1	3/16/2014 3:17:00 AM
2,2-Dichloropropane	ND	0.104	*	mg/Kg-dry	1	3/16/2014 3:17:00 AM
cis-1,2-Dichloroethene	ND	0.0414		mg/Kg-dry	1	3/16/2014 3:17:00 AM
Chloroform	ND	0.0414		mg/Kg-dry	1	3/16/2014 3:17:00 AM
1,1,1-Trichloroethane (TCA)	ND	0.0414		mg/Kg-dry	1	3/16/2014 3:17:00 AM
1,1-Dichloropropene	ND	0.0414		mg/Kg-dry	1	3/16/2014 3:17:00 AM
Carbon tetrachloride	ND	0.0414		mg/Kg-dry	1	3/16/2014 3:17:00 AM
1,2-Dichloroethane (EDC)	ND	0.0621		mg/Kg-dry	1	3/16/2014 3:17:00 AM
Trichloroethene (TCE)	ND	0.0414		mg/Kg-dry	1	3/16/2014 3:17:00 AM
1,2-Dichloropropane	ND	0.0414		mg/Kg-dry	1	3/16/2014 3:17:00 AM
Bromodichloromethane	ND	0.0414		mg/Kg-dry	1	3/16/2014 3:17:00 AM
cis-1,3-Dichloropropene	ND	0.0414		mg/Kg-dry	1	3/16/2014 3:17:00 AM
trans-1,3-Dichloropropene	ND	0.0621		mg/Kg-dry	1	3/16/2014 3:17:00 AM
1,1,2-Trichloroethane	ND	0.0621		mg/Kg-dry	1	3/16/2014 3:17:00 AM
1,3-Dichloropropane	ND	0.104		mg/Kg-dry	1	3/16/2014 3:17:00 AM
Tetrachloroethene (PCE)	ND	0.0414		mg/Kg-dry	1	3/16/2014 3:17:00 AM
Dibromochloromethane	ND	0.0621		mg/Kg-dry	1	3/16/2014 3:17:00 AM
Chlorobenzene	ND	0.0414		mg/Kg-dry	1	3/16/2014 3:17:00 AM
1,1,1,2-Tetrachloroethane	ND	0.0621		mg/Kg-dry	1	3/16/2014 3:17:00 AM
1,1,2,2-Tetrachloroethane	ND	0.0414		mg/Kg-dry	1	3/16/2014 3:17:00 AM
2-Chlorotoluene	ND	0.0414		mg/Kg-dry	1	3/16/2014 3:17:00 AM
4-Chlorotoluene	ND	0.0414		mg/Kg-dry	1	3/16/2014 3:17:00 AM
1,2,3-Trichloropropane	ND	0.0414		mg/Kg-dry	1	3/16/2014 3:17:00 AM
1,2,4-Trichlorobenzene	ND	0.104		mg/Kg-dry	1	3/16/2014 3:17:00 AM
1,3-Dichlorobenzene	ND	0.0414		mg/Kg-dry	1	3/16/2014 3:17:00 AM
1,4-Dichlorobenzene	ND	0.0414		mg/Kg-dry	1	3/16/2014 3:17:00 AM
1,2-Dichlorobenzene	ND	0.0414		mg/Kg-dry	1	3/16/2014 3:17:00 AM

Qualifiers: B Analyte detected in the associated Method Blank  
E Value above quantitation range  
J Analyte detected below quantitation limits  
RL Reporting Limit

D Dilution was required  
H Holding times for preparation or analysis exceeded  
ND Not detected at the Reporting Limit  
S Spike recovery outside accepted recovery limits





# Analytical Report

WO#: 1403133  
Date Reported: 3/19/2014

Client: Cardno ATC  
Project: Speedway Shopping Center (SSC)  
Lab ID: 1403133-005  
Client Sample ID: B-7-0-1

Collection Date: 3/12/2014 10:15:00 AM  
Matrix: Soil

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
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**Volatile Organic Compounds by EPA Method 8260**

Batch ID: 6873 Analyst: GH

1,2-Dibromo-3-chloropropane	ND	0.0621		mg/Kg-dry	1	3/16/2014 3:17:00 AM
Hexachloro-1,3-butadiene	ND	0.207		mg/Kg-dry	1	3/16/2014 3:17:00 AM
1,2,3-Trichlorobenzene	ND	0.0414		mg/Kg-dry	1	3/16/2014 3:17:00 AM
Surr: Dibromofluoromethane	89.8	63.7-129		%REC	1	3/16/2014 3:17:00 AM
Surr: Toluene-d8	98.2	61.4-128		%REC	1	3/16/2014 3:17:00 AM
Surr: 1-Bromo-4-fluorobenzene	95.1	63.1-141		%REC	1	3/16/2014 3:17:00 AM

**NOTES:**

\* - Flagged value is not within established control limits.

**Sample Moisture (Percent Moisture)**

Batch ID: R13010 Analyst: KZ

Percent Moisture	4.01			wt%	1	3/13/2014 1:18:48 PM
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<b>Qualifiers:</b>	B	Analyte detected in the associated Method Blank	D	Dilution was required
	E	Value above quantitation range	H	Holding times for preparation or analysis exceeded
	J	Analyte detected below quantitation limits	ND	Not detected at the Reporting Limit
	RL	Reporting Limit	S	Spike recovery outside accepted recovery limits



# Analytical Report

WO#: 1403133  
Date Reported: 3/19/2014

Client: Cardno ATC  
Project: Speedway Shopping Center (SSC)  
Lab ID: 1403133-007  
Client Sample ID: B-8-0-1

Collection Date: 3/12/2014 10:55:00 AM

Matrix: Soil

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
<b><u>Volatile Organic Compounds by EPA Method 8260</u></b>						
					Batch ID: 6873	Analyst: GH
Dichlorodifluoromethane (CFC-12)	ND	0.0680		mg/Kg-dry	1	3/16/2014 3:48:00 AM
Chloromethane	ND	0.0680		mg/Kg-dry	1	3/16/2014 3:48:00 AM
Vinyl chloride	ND	0.00227		mg/Kg-dry	1	3/16/2014 3:48:00 AM
Trichlorofluoromethane (CFC-11)	ND	0.0567		mg/Kg-dry	1	3/16/2014 3:48:00 AM
Chloroethane	ND	0.0680		mg/Kg-dry	1	3/16/2014 3:48:00 AM
1,1-Dichloroethene	ND	0.0567		mg/Kg-dry	1	3/16/2014 3:48:00 AM
Methylene chloride	ND	0.0227		mg/Kg-dry	1	3/16/2014 3:48:00 AM
trans-1,2-Dichloroethene	ND	0.0227		mg/Kg-dry	1	3/16/2014 3:48:00 AM
1,1-Dichloroethane	ND	0.0227		mg/Kg-dry	1	3/16/2014 3:48:00 AM
2,2-Dichloropropane	ND	0.0567	*	mg/Kg-dry	1	3/16/2014 3:48:00 AM
cis-1,2-Dichloroethene	ND	0.0227		mg/Kg-dry	1	3/16/2014 3:48:00 AM
Chloroform	ND	0.0227		mg/Kg-dry	1	3/16/2014 3:48:00 AM
1,1,1-Trichloroethane (TCA)	ND	0.0227		mg/Kg-dry	1	3/16/2014 3:48:00 AM
1,1-Dichloropropene	ND	0.0227		mg/Kg-dry	1	3/16/2014 3:48:00 AM
Carbon tetrachloride	ND	0.0227		mg/Kg-dry	1	3/16/2014 3:48:00 AM
1,2-Dichloroethane (EDC)	ND	0.0340		mg/Kg-dry	1	3/16/2014 3:48:00 AM
Trichloroethene (TCE)	ND	0.0227		mg/Kg-dry	1	3/16/2014 3:48:00 AM
1,2-Dichloropropane	ND	0.0227		mg/Kg-dry	1	3/16/2014 3:48:00 AM
Bromodichloromethane	ND	0.0227		mg/Kg-dry	1	3/16/2014 3:48:00 AM
cis-1,3-Dichloropropene	ND	0.0227		mg/Kg-dry	1	3/16/2014 3:48:00 AM
trans-1,3-Dichloropropene	ND	0.0340		mg/Kg-dry	1	3/16/2014 3:48:00 AM
1,1,2-Trichloroethane	ND	0.0340		mg/Kg-dry	1	3/16/2014 3:48:00 AM
1,3-Dichloropropane	ND	0.0567		mg/Kg-dry	1	3/16/2014 3:48:00 AM
Tetrachloroethene (PCE)	ND	0.0227		mg/Kg-dry	1	3/16/2014 3:48:00 AM
Dibromochloromethane	ND	0.0340		mg/Kg-dry	1	3/16/2014 3:48:00 AM
Chlorobenzene	ND	0.0227		mg/Kg-dry	1	3/16/2014 3:48:00 AM
1,1,1,2-Tetrachloroethane	ND	0.0340		mg/Kg-dry	1	3/16/2014 3:48:00 AM
1,1,2,2-Tetrachloroethane	ND	0.0227		mg/Kg-dry	1	3/16/2014 3:48:00 AM
2-Chlorotoluene	ND	0.0227		mg/Kg-dry	1	3/16/2014 3:48:00 AM
4-Chlorotoluene	ND	0.0227		mg/Kg-dry	1	3/16/2014 3:48:00 AM
1,2,3-Trichloropropane	ND	0.0227		mg/Kg-dry	1	3/16/2014 3:48:00 AM
1,2,4-Trichlorobenzene	ND	0.0567		mg/Kg-dry	1	3/16/2014 3:48:00 AM
1,3-Dichlorobenzene	ND	0.0227		mg/Kg-dry	1	3/16/2014 3:48:00 AM
1,4-Dichlorobenzene	ND	0.0227		mg/Kg-dry	1	3/16/2014 3:48:00 AM
1,2-Dichlorobenzene	ND	0.0227		mg/Kg-dry	1	3/16/2014 3:48:00 AM

Qualifiers: B Analyte detected in the associated Method Blank  
E Value above quantitation range  
J Analyte detected below quantitation limits  
RL Reporting Limit

D Dilution was required  
H Holding times for preparation or analysis exceeded  
ND Not detected at the Reporting Limit  
S Spike recovery outside accepted recovery limits





# Analytical Report

WO#: 1403133

Date Reported: 3/19/2014

Client: Cardno ATC

Collection Date: 3/12/2014 10:55:00 AM

Project: Speedway Shopping Center (SSC)

Lab ID: 1403133-007

Matrix: Soil

Client Sample ID: B-8-0-1

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
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**Volatile Organic Compounds by EPA Method 8260**

Batch ID: 6873

Analyst: GH

1,2-Dibromo-3-chloropropane	ND	0.0340		mg/Kg-dry	1	3/16/2014 3:48:00 AM
Hexachloro-1,3-butadiene	ND	0.113		mg/Kg-dry	1	3/16/2014 3:48:00 AM
1,2,3-Trichlorobenzene	ND	0.0227		mg/Kg-dry	1	3/16/2014 3:48:00 AM
Surr: Dibromofluoromethane	90.1	63.7-129		%REC	1	3/16/2014 3:48:00 AM
Surr: Toluene-d8	97.2	61.4-128		%REC	1	3/16/2014 3:48:00 AM
Surr: 1-Bromo-4-fluorobenzene	94.3	63.1-141		%REC	1	3/16/2014 3:48:00 AM

**NOTES:**

\* - Flagged value is not within established control limits.

**Sample Moisture (Percent Moisture)**

Batch ID: R13010

Analyst: KZ

Percent Moisture	7.66			wt%	1	3/13/2014 1:18:48 PM
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Qualifiers: B Analyte detected in the associated Method Blank  
 E Value above quantitation range  
 J Analyte detected below quantitation limits  
 RL Reporting Limit

D Dilution was required  
 H Holding times for preparation or analysis exceeded  
 ND Not detected at the Reporting Limit  
 S Spike recovery outside accepted recovery limits



# Analytical Report

WO#: 1403133

Date Reported: 3/19/2014

Client: Cardno ATC

Collection Date: 3/12/2014 11:00:00 AM

Project: Speedway Shopping Center (SSC)

Lab ID: 1403133-008

Matrix: Soil

Client Sample ID: B-8-1-2

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
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**Volatile Organic Compounds by EPA Method 8260**

Batch ID: 6873

Analyst: GH

Dichlorodifluoromethane (CFC-12)	ND	0.0530		mg/Kg-dry	1	3/16/2014 4:18:00 AM
Chloromethane	ND	0.0530		mg/Kg-dry	1	3/16/2014 4:18:00 AM
Vinyl chloride	ND	0.00177		mg/Kg-dry	1	3/16/2014 4:18:00 AM
Trichlorofluoromethane (CFC-11)	ND	0.0442		mg/Kg-dry	1	3/16/2014 4:18:00 AM
Chloroethane	ND	0.0530		mg/Kg-dry	1	3/16/2014 4:18:00 AM
1,1-Dichloroethene	ND	0.0442		mg/Kg-dry	1	3/16/2014 4:18:00 AM
Methylene chloride	ND	0.0177		mg/Kg-dry	1	3/16/2014 4:18:00 AM
trans-1,2-Dichloroethene	ND	0.0177		mg/Kg-dry	1	3/16/2014 4:18:00 AM
1,1-Dichloroethane	ND	0.0177		mg/Kg-dry	1	3/16/2014 4:18:00 AM
2,2-Dichloropropane	ND	0.0442	*	mg/Kg-dry	1	3/16/2014 4:18:00 AM
cis-1,2-Dichloroethene	ND	0.0177		mg/Kg-dry	1	3/16/2014 4:18:00 AM
Chloroform	ND	0.0177		mg/Kg-dry	1	3/16/2014 4:18:00 AM
1,1,1-Trichloroethane (TCA)	ND	0.0177		mg/Kg-dry	1	3/16/2014 4:18:00 AM
1,1-Dichloropropene	ND	0.0177		mg/Kg-dry	1	3/16/2014 4:18:00 AM
Carbon tetrachloride	ND	0.0177		mg/Kg-dry	1	3/16/2014 4:18:00 AM
1,2-Dichloroethane (EDC)	ND	0.0265		mg/Kg-dry	1	3/16/2014 4:18:00 AM
Trichloroethene (TCE)	ND	0.0177		mg/Kg-dry	1	3/16/2014 4:18:00 AM
1,2-Dichloropropane	ND	0.0177		mg/Kg-dry	1	3/16/2014 4:18:00 AM
Bromodichloromethane	ND	0.0177		mg/Kg-dry	1	3/16/2014 4:18:00 AM
cis-1,3-Dichloropropene	ND	0.0177		mg/Kg-dry	1	3/16/2014 4:18:00 AM
trans-1,3-Dichloropropene	ND	0.0265		mg/Kg-dry	1	3/16/2014 4:18:00 AM
1,1,2-Trichloroethane	ND	0.0265		mg/Kg-dry	1	3/16/2014 4:18:00 AM
1,3-Dichloropropane	ND	0.0442		mg/Kg-dry	1	3/16/2014 4:18:00 AM
Tetrachloroethene (PCE)	ND	0.0177		mg/Kg-dry	1	3/16/2014 4:18:00 AM
Dibromochloromethane	ND	0.0265		mg/Kg-dry	1	3/16/2014 4:18:00 AM
Chlorobenzene	ND	0.0177		mg/Kg-dry	1	3/16/2014 4:18:00 AM
1,1,1,2-Tetrachloroethane	ND	0.0265		mg/Kg-dry	1	3/16/2014 4:18:00 AM
1,1,2,2-Tetrachloroethane	ND	0.0177		mg/Kg-dry	1	3/16/2014 4:18:00 AM
2-Chlorotoluene	ND	0.0177		mg/Kg-dry	1	3/16/2014 4:18:00 AM
4-Chlorotoluene	ND	0.0177		mg/Kg-dry	1	3/16/2014 4:18:00 AM
1,2,3-Trichloropropane	ND	0.0177		mg/Kg-dry	1	3/16/2014 4:18:00 AM
1,2,4-Trichlorobenzene	ND	0.0442		mg/Kg-dry	1	3/16/2014 4:18:00 AM
1,3-Dichlorobenzene	ND	0.0177		mg/Kg-dry	1	3/16/2014 4:18:00 AM
1,4-Dichlorobenzene	ND	0.0177		mg/Kg-dry	1	3/16/2014 4:18:00 AM
1,2-Dichlorobenzene	ND	0.0177		mg/Kg-dry	1	3/16/2014 4:18:00 AM

Qualifiers: B Analyte detected in the associated Method Blank  
 E Value above quantitation range  
 J Analyte detected below quantitation limits  
 RL Reporting Limit

D Dilution was required  
 H Holding times for preparation or analysis exceeded  
 ND Not detected at the Reporting Limit  
 S Spike recovery outside accepted recovery limits





# Analytical Report

WO#: 1403133  
Date Reported: 3/19/2014

Client: Cardno ATC  
Project: Speedway Shopping Center (SSC)  
Lab ID: 1403133-008  
Client Sample ID: B-8-1-2

Collection Date: 3/12/2014 11:00:00 AM  
Matrix: Soil

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
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**Volatile Organic Compounds by EPA Method 8260**

Batch ID: 6873 Analyst: GH

1,2-Dibromo-3-chloropropane	ND	0.0265		mg/Kg-dry	1	3/16/2014 4:18:00 AM
Hexachloro-1,3-butadiene	ND	0.0884		mg/Kg-dry	1	3/16/2014 4:18:00 AM
1,2,3-Trichlorobenzene	ND	0.0177		mg/Kg-dry	1	3/16/2014 4:18:00 AM
Surr: Dibromofluoromethane	88.8	63.7-129		%REC	1	3/16/2014 4:18:00 AM
Surr: Toluene-d8	97.8	61.4-128		%REC	1	3/16/2014 4:18:00 AM
Surr: 1-Bromo-4-fluorobenzene	95.2	63.1-141		%REC	1	3/16/2014 4:18:00 AM

**NOTES:**

\* - Flagged value is not within established control limits.

**Sample Moisture (Percent Moisture)**

Batch ID: R13010 Analyst: KZ

Percent Moisture	8.71			wt%	1	3/13/2014 1:18:48 PM
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**Qualifiers:** B Analyte detected in the associated Method Blank  
E Value above quantitation range  
J Analyte detected below quantitation limits  
RL Reporting Limit

D Dilution was required  
H Holding times for preparation or analysis exceeded  
ND Not detected at the Reporting Limit  
S Spike recovery outside accepted recovery limits



# Analytical Report

WO#: 1403133

Date Reported: 3/19/2014

Client: Cardno ATC

Collection Date: 3/12/2014 11:05:00 AM

Project: Speedway Shopping Center (SSC)

Lab ID: 1403133-009

Matrix: Soil

Client Sample ID: B-8-3-4

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
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**Volatile Organic Compounds by EPA Method 8260**

Batch ID: 6873

Analyst: GH

Dichlorodifluoromethane (CFC-12)	ND	0.0631		mg/Kg-dry	1	3/16/2014 4:48:00 AM
Chloromethane	ND	0.0631		mg/Kg-dry	1	3/16/2014 4:48:00 AM
Vinyl chloride	ND	0.00210		mg/Kg-dry	1	3/16/2014 4:48:00 AM
Trichlorofluoromethane (CFC-11)	ND	0.0526		mg/Kg-dry	1	3/16/2014 4:48:00 AM
Chloroethane	ND	0.0631		mg/Kg-dry	1	3/16/2014 4:48:00 AM
1,1-Dichloroethene	ND	0.0526		mg/Kg-dry	1	3/16/2014 4:48:00 AM
Methylene chloride	ND	0.0210		mg/Kg-dry	1	3/16/2014 4:48:00 AM
trans-1,2-Dichloroethene	ND	0.0210		mg/Kg-dry	1	3/16/2014 4:48:00 AM
1,1-Dichloroethane	ND	0.0210		mg/Kg-dry	1	3/16/2014 4:48:00 AM
2,2-Dichloropropane	ND	0.0526	*	mg/Kg-dry	1	3/16/2014 4:48:00 AM
cis-1,2-Dichloroethene	ND	0.0210		mg/Kg-dry	1	3/16/2014 4:48:00 AM
Chloroform	ND	0.0210		mg/Kg-dry	1	3/16/2014 4:48:00 AM
1,1,1-Trichloroethane (TCA)	ND	0.0210		mg/Kg-dry	1	3/16/2014 4:48:00 AM
1,1-Dichloropropene	ND	0.0210		mg/Kg-dry	1	3/16/2014 4:48:00 AM
Carbon tetrachloride	ND	0.0210		mg/Kg-dry	1	3/16/2014 4:48:00 AM
1,2-Dichloroethane (EDC)	ND	0.0316		mg/Kg-dry	1	3/16/2014 4:48:00 AM
Trichloroethene (TCE)	ND	0.0210		mg/Kg-dry	1	3/16/2014 4:48:00 AM
1,2-Dichloropropane	ND	0.0210		mg/Kg-dry	1	3/16/2014 4:48:00 AM
Bromodichloromethane	ND	0.0210		mg/Kg-dry	1	3/16/2014 4:48:00 AM
cis-1,3-Dichloropropene	ND	0.0210		mg/Kg-dry	1	3/16/2014 4:48:00 AM
trans-1,3-Dichloropropene	ND	0.0316		mg/Kg-dry	1	3/16/2014 4:48:00 AM
1,1,2-Trichloroethane	ND	0.0316		mg/Kg-dry	1	3/16/2014 4:48:00 AM
1,3-Dichloropropane	ND	0.0526		mg/Kg-dry	1	3/16/2014 4:48:00 AM
Tetrachloroethene (PCE)	ND	0.0210		mg/Kg-dry	1	3/16/2014 4:48:00 AM
Dibromochloromethane	ND	0.0316		mg/Kg-dry	1	3/16/2014 4:48:00 AM
Chlorobenzene	ND	0.0210		mg/Kg-dry	1	3/16/2014 4:48:00 AM
1,1,1,2-Tetrachloroethane	ND	0.0316		mg/Kg-dry	1	3/16/2014 4:48:00 AM
1,1,2,2-Tetrachloroethane	ND	0.0210		mg/Kg-dry	1	3/16/2014 4:48:00 AM
2-Chlorotoluene	ND	0.0210		mg/Kg-dry	1	3/16/2014 4:48:00 AM
4-Chlorotoluene	ND	0.0210		mg/Kg-dry	1	3/16/2014 4:48:00 AM
1,2,3-Trichloropropane	ND	0.0210		mg/Kg-dry	1	3/16/2014 4:48:00 AM
1,2,4-Trichlorobenzene	ND	0.0526		mg/Kg-dry	1	3/16/2014 4:48:00 AM
1,3-Dichlorobenzene	ND	0.0210		mg/Kg-dry	1	3/16/2014 4:48:00 AM
1,4-Dichlorobenzene	ND	0.0210		mg/Kg-dry	1	3/16/2014 4:48:00 AM
1,2-Dichlorobenzene	ND	0.0210		mg/Kg-dry	1	3/16/2014 4:48:00 AM

Qualifiers: B Analyte detected in the associated Method Blank  
 E Value above quantitation range  
 J Analyte detected below quantitation limits  
 RL Reporting Limit

D Dilution was required  
 H Holding times for preparation or analysis exceeded  
 ND Not detected at the Reporting Limit  
 S Spike recovery outside accepted recovery limits





# Analytical Report

WO#: 1403133  
Date Reported: 3/19/2014

Client: Cardno ATC  
Project: Speedway Shopping Center (SSC)  
Lab ID: 1403133-009  
Client Sample ID: B-8-3-4

Collection Date: 3/12/2014 11:05:00 AM

Matrix: Soil

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
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**Volatile Organic Compounds by EPA Method 8260**

Batch ID: 6873

Analyst: GH

1,2-Dibromo-3-chloropropane	ND	0.0316		mg/Kg-dry	1	3/16/2014 4:48:00 AM
Hexachloro-1,3-butadiene	ND	0.105		mg/Kg-dry	1	3/16/2014 4:48:00 AM
1,2,3-Trichlorobenzene	ND	0.0210		mg/Kg-dry	1	3/16/2014 4:48:00 AM
Surr: Dibromofluoromethane	90.6	63.7-129		%REC	1	3/16/2014 4:48:00 AM
Surr: Toluene-d8	97.9	61.4-128		%REC	1	3/16/2014 4:48:00 AM
Surr: 1-Bromo-4-fluorobenzene	94.4	63.1-141		%REC	1	3/16/2014 4:48:00 AM

**NOTES:**

\* - Flagged value is not within established control limits.

**Sample Moisture (Percent Moisture)**

Batch ID: R13010

Analyst: KZ

Percent Moisture	11.8			wt%	1	3/13/2014 1:18:48 PM
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**Qualifiers:** B Analyte detected in the associated Method Blank  
E Value above quantitation range  
J Analyte detected below quantitation limits  
RL Reporting Limit

D Dilution was required  
H Holding times for preparation or analysis exceeded  
ND Not detected at the Reporting Limit  
S Spike recovery outside accepted recovery limits



# Analytical Report

WO#: 1403133  
Date Reported: 3/19/2014

Client: Cardno ATC  
Project: Speedway Shopping Center (SSC)  
Lab ID: 1403133-012  
Client Sample ID: B-9-0-1

Collection Date: 3/12/2014 11:35:00 AM  
Matrix: Soil

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
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**Volatile Organic Compounds by EPA Method 8260**

Batch ID: 6873

Analyst: GH

Dichlorodifluoromethane (CFC-12)	ND	0.0658		mg/Kg-dry	1	3/16/2014 5:18:00 AM
Chloromethane	ND	0.0658		mg/Kg-dry	1	3/16/2014 5:18:00 AM
Vinyl chloride	ND	0.00219		mg/Kg-dry	1	3/16/2014 5:18:00 AM
Trichlorofluoromethane (CFC-11)	ND	0.0549		mg/Kg-dry	1	3/16/2014 5:18:00 AM
Chloroethane	ND	0.0658		mg/Kg-dry	1	3/16/2014 5:18:00 AM
1,1-Dichloroethene	ND	0.0549		mg/Kg-dry	1	3/16/2014 5:18:00 AM
Methylene chloride	ND	0.0219		mg/Kg-dry	1	3/16/2014 5:18:00 AM
trans-1,2-Dichloroethene	ND	0.0219		mg/Kg-dry	1	3/16/2014 5:18:00 AM
1,1-Dichloroethane	ND	0.0219		mg/Kg-dry	1	3/16/2014 5:18:00 AM
2,2-Dichloropropane	ND	0.0549	*	mg/Kg-dry	1	3/16/2014 5:18:00 AM
cis-1,2-Dichloroethene	ND	0.0219		mg/Kg-dry	1	3/16/2014 5:18:00 AM
Chloroform	ND	0.0219		mg/Kg-dry	1	3/16/2014 5:18:00 AM
1,1,1-Trichloroethane (TCA)	ND	0.0219		mg/Kg-dry	1	3/16/2014 5:18:00 AM
1,1-Dichloropropene	ND	0.0219		mg/Kg-dry	1	3/16/2014 5:18:00 AM
Carbon tetrachloride	ND	0.0219		mg/Kg-dry	1	3/16/2014 5:18:00 AM
1,2-Dichloroethane (EDC)	ND	0.0329		mg/Kg-dry	1	3/16/2014 5:18:00 AM
Trichloroethene (TCE)	ND	0.0219		mg/Kg-dry	1	3/16/2014 5:18:00 AM
1,2-Dichloropropane	ND	0.0219		mg/Kg-dry	1	3/16/2014 5:18:00 AM
Bromodichloromethane	ND	0.0219		mg/Kg-dry	1	3/16/2014 5:18:00 AM
cis-1,3-Dichloropropene	ND	0.0219		mg/Kg-dry	1	3/16/2014 5:18:00 AM
trans-1,3-Dichloropropene	ND	0.0329		mg/Kg-dry	1	3/16/2014 5:18:00 AM
1,1,2-Trichloroethane	ND	0.0329		mg/Kg-dry	1	3/16/2014 5:18:00 AM
1,3-Dichloropropane	ND	0.0549		mg/Kg-dry	1	3/16/2014 5:18:00 AM
Tetrachloroethene (PCE)	0.111	0.0219		mg/Kg-dry	1	3/16/2014 5:18:00 AM
Dibromochloromethane	ND	0.0329		mg/Kg-dry	1	3/16/2014 5:18:00 AM
Chlorobenzene	ND	0.0219		mg/Kg-dry	1	3/16/2014 5:18:00 AM
1,1,1,2-Tetrachloroethane	ND	0.0329		mg/Kg-dry	1	3/16/2014 5:18:00 AM
1,1,2,2-Tetrachloroethane	ND	0.0219		mg/Kg-dry	1	3/16/2014 5:18:00 AM
2-Chlorotoluene	ND	0.0219		mg/Kg-dry	1	3/16/2014 5:18:00 AM
4-Chlorotoluene	ND	0.0219		mg/Kg-dry	1	3/16/2014 5:18:00 AM
1,2,3-Trichloropropane	ND	0.0219		mg/Kg-dry	1	3/16/2014 5:18:00 AM
1,2,4-Trichlorobenzene	ND	0.0549		mg/Kg-dry	1	3/16/2014 5:18:00 AM
1,3-Dichlorobenzene	ND	0.0219		mg/Kg-dry	1	3/16/2014 5:18:00 AM
1,4-Dichlorobenzene	ND	0.0219		mg/Kg-dry	1	3/16/2014 5:18:00 AM
1,2-Dichlorobenzene	ND	0.0219		mg/Kg-dry	1	3/16/2014 5:18:00 AM

Qualifiers: B Analyte detected in the associated Method Blank  
E Value above quantitation range  
J Analyte detected below quantitation limits  
RL Reporting Limit

D Dilution was required  
H Holding times for preparation or analysis exceeded  
ND Not detected at the Reporting Limit  
S Spike recovery outside accepted recovery limits



# Analytical Report

WO#: 1403133  
Date Reported: 3/19/2014

Client: Cardno ATC  
Project: Speedway Shopping Center (SSC)  
Lab ID: 1403133-012  
Client Sample ID: B-9-0-1

Collection Date: 3/12/2014 11:35:00 AM  
Matrix: Soil

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
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### Volatile Organic Compounds by EPA Method 8260

Batch ID: 6873      Analyst: GH

1,2-Dibromo-3-chloropropane	ND	0.0329		mg/Kg-dry	1	3/16/2014 5:18:00 AM
Hexachloro-1,3-butadiene	ND	0.110		mg/Kg-dry	1	3/16/2014 5:18:00 AM
1,2,3-Trichlorobenzene	ND	0.0219		mg/Kg-dry	1	3/16/2014 5:18:00 AM
Surr: Dibromofluoromethane	90.1	63.7-129		%REC	1	3/16/2014 5:18:00 AM
Surr: Toluene-d8	98.8	61.4-128		%REC	1	3/16/2014 5:18:00 AM
Surr: 1-Bromo-4-fluorobenzene	93.6	63.1-141		%REC	1	3/16/2014 5:18:00 AM

**NOTES:**

\* - Flagged value is not within established control limits.

### Sample Moisture (Percent Moisture)

Batch ID: R13010      Analyst: KZ

Percent Moisture	9.29			wt%	1	3/13/2014 1:18:48 PM
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**Qualifiers:** B Analyte detected in the associated Method Blank  
 E Value above quantitation range  
 J Analyte detected below quantitation limits  
 RL Reporting Limit

D Dilution was required  
 H Holding times for preparation or analysis exceeded  
 ND Not detected at the Reporting Limit  
 S Spike recovery outside accepted recovery limits





# Analytical Report

WO#: 1403133  
Date Reported: 3/19/2014

Client: Cardno ATC

Collection Date: 3/12/2014 11:40:00 AM

Project: Speedway Shopping Center (SSC)

Lab ID: 1403133-013

Matrix: Soil

Client Sample ID: B-9-1-2

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
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**Volatile Organic Compounds by EPA Method 8260**

Batch ID: 6873

Analyst: GH

Dichlorodifluoromethane (CFC-12)	ND	0.0721		mg/Kg-dry	1	3/16/2014 5:48:00 AM
Chloromethane	ND	0.0721		mg/Kg-dry	1	3/16/2014 5:48:00 AM
Vinyl chloride	ND	0.00240		mg/Kg-dry	1	3/16/2014 5:48:00 AM
Trichlorofluoromethane (CFC-11)	ND	0.0601		mg/Kg-dry	1	3/16/2014 5:48:00 AM
Chloroethane	ND	0.0721		mg/Kg-dry	1	3/16/2014 5:48:00 AM
1,1-Dichloroethene	ND	0.0601		mg/Kg-dry	1	3/16/2014 5:48:00 AM
Methylene chloride	ND	0.0240		mg/Kg-dry	1	3/16/2014 5:48:00 AM
trans-1,2-Dichloroethene	ND	0.0240		mg/Kg-dry	1	3/16/2014 5:48:00 AM
1,1-Dichloroethane	ND	0.0240		mg/Kg-dry	1	3/16/2014 5:48:00 AM
2,2-Dichloropropane	ND	0.0601	*	mg/Kg-dry	1	3/16/2014 5:48:00 AM
cis-1,2-Dichloroethene	ND	0.0240		mg/Kg-dry	1	3/16/2014 5:48:00 AM
Chloroform	ND	0.0240		mg/Kg-dry	1	3/16/2014 5:48:00 AM
1,1,1-Trichloroethane (TCA)	ND	0.0240		mg/Kg-dry	1	3/16/2014 5:48:00 AM
1,1-Dichloropropene	ND	0.0240		mg/Kg-dry	1	3/16/2014 5:48:00 AM
Carbon tetrachloride	ND	0.0240		mg/Kg-dry	1	3/16/2014 5:48:00 AM
1,2-Dichloroethane (EDC)	ND	0.0360		mg/Kg-dry	1	3/16/2014 5:48:00 AM
Trichloroethene (TCE)	ND	0.0240		mg/Kg-dry	1	3/16/2014 5:48:00 AM
1,2-Dichloropropane	ND	0.0240		mg/Kg-dry	1	3/16/2014 5:48:00 AM
Bromodichloromethane	ND	0.0240		mg/Kg-dry	1	3/16/2014 5:48:00 AM
cis-1,3-Dichloropropene	ND	0.0240		mg/Kg-dry	1	3/16/2014 5:48:00 AM
trans-1,3-Dichloropropene	ND	0.0360		mg/Kg-dry	1	3/16/2014 5:48:00 AM
1,1,2-Trichloroethane	ND	0.0360		mg/Kg-dry	1	3/16/2014 5:48:00 AM
1,3-Dichloropropane	ND	0.0601		mg/Kg-dry	1	3/16/2014 5:48:00 AM
Tetrachloroethene (PCE)	ND	0.0240		mg/Kg-dry	1	3/16/2014 5:48:00 AM
Dibromochloromethane	ND	0.0360		mg/Kg-dry	1	3/16/2014 5:48:00 AM
Chlorobenzene	ND	0.0240		mg/Kg-dry	1	3/16/2014 5:48:00 AM
1,1,1,2-Tetrachloroethane	ND	0.0360		mg/Kg-dry	1	3/16/2014 5:48:00 AM
1,1,2,2-Tetrachloroethane	ND	0.0240		mg/Kg-dry	1	3/16/2014 5:48:00 AM
2-Chlorotoluene	ND	0.0240		mg/Kg-dry	1	3/16/2014 5:48:00 AM
4-Chlorotoluene	ND	0.0240		mg/Kg-dry	1	3/16/2014 5:48:00 AM
1,2,3-Trichloropropane	ND	0.0240		mg/Kg-dry	1	3/16/2014 5:48:00 AM
1,2,4-Trichlorobenzene	ND	0.0601		mg/Kg-dry	1	3/16/2014 5:48:00 AM
1,3-Dichlorobenzene	ND	0.0240		mg/Kg-dry	1	3/16/2014 5:48:00 AM
1,4-Dichlorobenzene	ND	0.0240		mg/Kg-dry	1	3/16/2014 5:48:00 AM
1,2-Dichlorobenzene	ND	0.0240		mg/Kg-dry	1	3/16/2014 5:48:00 AM

Qualifiers: B Analyte detected in the associated Method Blank  
E Value above quantitation range  
J Analyte detected below quantitation limits  
RL Reporting Limit

D Dilution was required  
H Holding times for preparation or analysis exceeded  
ND Not detected at the Reporting Limit  
S Spike recovery outside accepted recovery limits



# Analytical Report

WO#: 1403133  
Date Reported: 3/19/2014

Client: Cardno ATC  
Project: Speedway Shopping Center (SSC)  
Lab ID: 1403133-013  
Client Sample ID: B-9-1-2

Collection Date: 3/12/2014 11:40:00 AM  
Matrix: Soil

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
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**Volatile Organic Compounds by EPA Method 8260**

Batch ID: 6873 Analyst: GH

1,2-Dibromo-3-chloropropane	ND	0.0360		mg/Kg-dry	1	3/16/2014 5:48:00 AM
Hexachloro-1,3-butadiene	ND	0.120		mg/Kg-dry	1	3/16/2014 5:48:00 AM
1,2,3-Trichlorobenzene	ND	0.0240		mg/Kg-dry	1	3/16/2014 5:48:00 AM
Surr: Dibromofluoromethane	90.0	63.7-129		%REC	1	3/16/2014 5:48:00 AM
Surr: Toluene-d8	98.9	61.4-128		%REC	1	3/16/2014 5:48:00 AM
Surr: 1-Bromo-4-fluorobenzene	94.0	63.1-141		%REC	1	3/16/2014 5:48:00 AM

**NOTES:**

\* - Flagged value is not within established control limits.

**Sample Moisture (Percent Moisture)**

Batch ID: R13010 Analyst: KZ

Percent Moisture	10.5			wt%	1	3/13/2014 1:18:48 PM
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**Qualifiers:** B Analyte detected in the associated Method Blank  
E Value above quantitation range  
J Analyte detected below quantitation limits  
RL Reporting Limit

D Dilution was required  
H Holding times for preparation or analysis exceeded  
ND Not detected at the Reporting Limit  
S Spike recovery outside accepted recovery limits



# Analytical Report

WO#: 1403133  
Date Reported: 3/19/2014

Client: Cardno ATC

Collection Date: 3/12/2014 11:55:00 AM

Project: Speedway Shopping Center (SSC)

Lab ID: 1403133-014

Matrix: Soil

Client Sample ID: B-10-0-1

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
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**Volatile Organic Compounds by EPA Method 8260**

Batch ID: 6873

Analyst: GH

Dichlorodifluoromethane (CFC-12)	ND	0.0897		mg/Kg-dry	1	3/16/2014 7:48:00 AM
Chloromethane	ND	0.0897		mg/Kg-dry	1	3/16/2014 7:48:00 AM
Vinyl chloride	ND	0.00299		mg/Kg-dry	1	3/16/2014 7:48:00 AM
Trichlorofluoromethane (CFC-11)	ND	0.0747		mg/Kg-dry	1	3/16/2014 7:48:00 AM
Chloroethane	ND	0.0897		mg/Kg-dry	1	3/16/2014 7:48:00 AM
1,1-Dichloroethene	ND	0.0747		mg/Kg-dry	1	3/16/2014 7:48:00 AM
Methylene chloride	ND	0.0299		mg/Kg-dry	1	3/16/2014 7:48:00 AM
trans-1,2-Dichloroethene	ND	0.0299		mg/Kg-dry	1	3/16/2014 7:48:00 AM
1,1-Dichloroethane	ND	0.0299		mg/Kg-dry	1	3/16/2014 7:48:00 AM
2,2-Dichloropropane	ND	0.0747	*	mg/Kg-dry	1	3/16/2014 7:48:00 AM
cis-1,2-Dichloroethene	ND	0.0299		mg/Kg-dry	1	3/16/2014 7:48:00 AM
Chloroform	ND	0.0299		mg/Kg-dry	1	3/16/2014 7:48:00 AM
1,1,1-Trichloroethane (TCA)	ND	0.0299		mg/Kg-dry	1	3/16/2014 7:48:00 AM
1,1-Dichloropropene	ND	0.0299		mg/Kg-dry	1	3/16/2014 7:48:00 AM
Carbon tetrachloride	ND	0.0299		mg/Kg-dry	1	3/16/2014 7:48:00 AM
1,2-Dichloroethane (EDC)	ND	0.0448		mg/Kg-dry	1	3/16/2014 7:48:00 AM
Trichloroethene (TCE)	ND	0.0299		mg/Kg-dry	1	3/16/2014 7:48:00 AM
1,2-Dichloropropane	ND	0.0299		mg/Kg-dry	1	3/16/2014 7:48:00 AM
Bromodichloromethane	ND	0.0299		mg/Kg-dry	1	3/16/2014 7:48:00 AM
cis-1,3-Dichloropropene	ND	0.0299		mg/Kg-dry	1	3/16/2014 7:48:00 AM
trans-1,3-Dichloropropene	ND	0.0448		mg/Kg-dry	1	3/16/2014 7:48:00 AM
1,1,2-Trichloroethane	ND	0.0448		mg/Kg-dry	1	3/16/2014 7:48:00 AM
1,3-Dichloropropane	ND	0.0747		mg/Kg-dry	1	3/16/2014 7:48:00 AM
Tetrachloroethene (PCE)	0.208	0.0299		mg/Kg-dry	1	3/16/2014 7:48:00 AM
Dibromochloromethane	ND	0.0448		mg/Kg-dry	1	3/16/2014 7:48:00 AM
Chlorobenzene	ND	0.0299		mg/Kg-dry	1	3/16/2014 7:48:00 AM
1,1,1,2-Tetrachloroethane	ND	0.0448		mg/Kg-dry	1	3/16/2014 7:48:00 AM
1,1,2,2-Tetrachloroethane	ND	0.0299		mg/Kg-dry	1	3/16/2014 7:48:00 AM
2-Chlorotoluene	ND	0.0299		mg/Kg-dry	1	3/16/2014 7:48:00 AM
4-Chlorotoluene	ND	0.0299		mg/Kg-dry	1	3/16/2014 7:48:00 AM
1,2,3-Trichloropropane	ND	0.0299		mg/Kg-dry	1	3/16/2014 7:48:00 AM
1,2,4-Trichlorobenzene	ND	0.0747		mg/Kg-dry	1	3/16/2014 7:48:00 AM
1,3-Dichlorobenzene	ND	0.0299		mg/Kg-dry	1	3/16/2014 7:48:00 AM
1,4-Dichlorobenzene	ND	0.0299		mg/Kg-dry	1	3/16/2014 7:48:00 AM
1,2-Dichlorobenzene	ND	0.0299		mg/Kg-dry	1	3/16/2014 7:48:00 AM

Qualifiers: B Analyte detected in the associated Method Blank  
E Value above quantitation range  
J Analyte detected below quantitation limits  
RL Reporting Limit

D Dilution was required  
H Holding times for preparation or analysis exceeded  
ND Not detected at the Reporting Limit  
S Spike recovery outside accepted recovery limits





# Analytical Report

WO#: 1403133  
Date Reported: 3/19/2014

Client: Cardno ATC  
Project: Speedway Shopping Center (SSC)  
Lab ID: 1403133-014  
Client Sample ID: B-10-0-1

Collection Date: 3/12/2014 11:55:00 AM

Matrix: Soil

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
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**Volatile Organic Compounds by EPA Method 8260**

Batch ID: 6873 Analyst: GH

1,2-Dibromo-3-chloropropane	ND	0.0448		mg/Kg-dry	1	3/16/2014 7:48:00 AM
Hexachloro-1,3-butadiene	ND	0.149		mg/Kg-dry	1	3/16/2014 7:48:00 AM
1,2,3-Trichlorobenzene	ND	0.0299		mg/Kg-dry	1	3/16/2014 7:48:00 AM
Surr: Dibromofluoromethane	91.7	63.7-129		%REC	1	3/16/2014 7:48:00 AM
Surr: Toluene-d8	97.0	61.4-128		%REC	1	3/16/2014 7:48:00 AM
Surr: 1-Bromo-4-fluorobenzene	95.3	63.1-141		%REC	1	3/16/2014 7:48:00 AM

**NOTES:**

\* - Flagged value is not within established control limits.

**Sample Moisture (Percent Moisture)**

Batch ID: R13010 Analyst: KZ

Percent Moisture	8.62			wt%	1	3/13/2014 1:18:48 PM
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**Qualifiers:** B Analyte detected in the associated Method Blank  
E Value above quantitation range  
J Analyte detected below quantitation limits  
RL Reporting Limit

D Dilution was required  
H Holding times for preparation or analysis exceeded  
ND Not detected at the Reporting Limit  
S Spike recovery outside accepted recovery limits



# Analytical Report

WO#: 1403133

Date Reported: 3/19/2014

Client: Cardno ATC

Collection Date: 3/12/2014 12:00:00 PM

Project: Speedway Shopping Center (SSC)

Lab ID: 1403133-015

Matrix: Soil

Client Sample ID: B-10-1-2

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
<b>Volatile Organic Compounds by EPA Method 8260</b>						
						Batch ID: 6873 Analyst: GH
Dichlorodifluoromethane (CFC-12)	ND	0.0615		mg/Kg-dry	1	3/16/2014 8:18:00 AM
Chloromethane	ND	0.0615		mg/Kg-dry	1	3/16/2014 8:18:00 AM
Vinyl chloride	ND	0.00205		mg/Kg-dry	1	3/16/2014 8:18:00 AM
Trichlorofluoromethane (CFC-11)	ND	0.0512		mg/Kg-dry	1	3/16/2014 8:18:00 AM
Chloroethane	ND	0.0615		mg/Kg-dry	1	3/16/2014 8:18:00 AM
1,1-Dichloroethene	ND	0.0512		mg/Kg-dry	1	3/16/2014 8:18:00 AM
Methylene chloride	ND	0.0205		mg/Kg-dry	1	3/16/2014 8:18:00 AM
trans-1,2-Dichloroethene	ND	0.0205		mg/Kg-dry	1	3/16/2014 8:18:00 AM
1,1-Dichloroethane	ND	0.0205		mg/Kg-dry	1	3/16/2014 8:18:00 AM
2,2-Dichloropropane	ND	0.0512	*	mg/Kg-dry	1	3/16/2014 8:18:00 AM
cis-1,2-Dichloroethene	ND	0.0205		mg/Kg-dry	1	3/16/2014 8:18:00 AM
Chloroform	ND	0.0205		mg/Kg-dry	1	3/16/2014 8:18:00 AM
1,1,1-Trichloroethane (TCA)	ND	0.0205		mg/Kg-dry	1	3/16/2014 8:18:00 AM
1,1-Dichloropropene	ND	0.0205		mg/Kg-dry	1	3/16/2014 8:18:00 AM
Carbon tetrachloride	ND	0.0205		mg/Kg-dry	1	3/16/2014 8:18:00 AM
1,2-Dichloroethane (EDC)	ND	0.0307		mg/Kg-dry	1	3/16/2014 8:18:00 AM
Trichloroethene (TCE)	ND	0.0205		mg/Kg-dry	1	3/16/2014 8:18:00 AM
1,2-Dichloropropane	ND	0.0205		mg/Kg-dry	1	3/16/2014 8:18:00 AM
Bromodichloromethane	ND	0.0205		mg/Kg-dry	1	3/16/2014 8:18:00 AM
cis-1,3-Dichloropropene	ND	0.0205		mg/Kg-dry	1	3/16/2014 8:18:00 AM
trans-1,3-Dichloropropene	ND	0.0307		mg/Kg-dry	1	3/16/2014 8:18:00 AM
1,1,2-Trichloroethane	ND	0.0307		mg/Kg-dry	1	3/16/2014 8:18:00 AM
1,3-Dichloropropane	ND	0.0512		mg/Kg-dry	1	3/16/2014 8:18:00 AM
Tetrachloroethene (PCE)	ND	0.0205		mg/Kg-dry	1	3/16/2014 8:18:00 AM
Dibromochloromethane	ND	0.0307		mg/Kg-dry	1	3/16/2014 8:18:00 AM
Chlorobenzene	ND	0.0205		mg/Kg-dry	1	3/16/2014 8:18:00 AM
1,1,1,2-Tetrachloroethane	ND	0.0307		mg/Kg-dry	1	3/16/2014 8:18:00 AM
1,1,2,2-Tetrachloroethane	ND	0.0205		mg/Kg-dry	1	3/16/2014 8:18:00 AM
2-Chlorotoluene	ND	0.0205		mg/Kg-dry	1	3/16/2014 8:18:00 AM
4-Chlorotoluene	ND	0.0205		mg/Kg-dry	1	3/16/2014 8:18:00 AM
1,2,3-Trichloropropane	ND	0.0205		mg/Kg-dry	1	3/16/2014 8:18:00 AM
1,2,4-Trichlorobenzene	ND	0.0512		mg/Kg-dry	1	3/16/2014 8:18:00 AM
1,3-Dichlorobenzene	ND	0.0205		mg/Kg-dry	1	3/16/2014 8:18:00 AM
1,4-Dichlorobenzene	ND	0.0205		mg/Kg-dry	1	3/16/2014 8:18:00 AM
1,2-Dichlorobenzene	ND	0.0205		mg/Kg-dry	1	3/16/2014 8:18:00 AM

Qualifiers: B Analyte detected in the associated Method Blank  
 E Value above quantitation range  
 J Analyte detected below quantitation limits  
 RL Reporting Limit

D Dilution was required  
 H Holding times for preparation or analysis exceeded  
 ND Not detected at the Reporting Limit  
 S Spike recovery outside accepted recovery limits



# Analytical Report

WO#: 1403133  
Date Reported: 3/19/2014

Client: Cardno ATC  
Project: Speedway Shopping Center (SSC)  
Lab ID: 1403133-015  
Client Sample ID: B-10-1-2

Collection Date: 3/12/2014 12:00:00 PM  
Matrix: Soil

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
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### Volatile Organic Compounds by EPA Method 8260

Batch ID: 6873 Analyst: GH

1,2-Dibromo-3-chloropropane	ND	0.0307		mg/Kg-dry	1	3/16/2014 8:18:00 AM
Hexachloro-1,3-butadiene	ND	0.102		mg/Kg-dry	1	3/16/2014 8:18:00 AM
1,2,3-Trichlorobenzene	ND	0.0205		mg/Kg-dry	1	3/16/2014 8:18:00 AM
Surr: Dibromofluoromethane	89.6	63.7-129		%REC	1	3/16/2014 8:18:00 AM
Surr: Toluene-d8	96.9	61.4-128		%REC	1	3/16/2014 8:18:00 AM
Surr: 1-Bromo-4-fluorobenzene	94.7	63.1-141		%REC	1	3/16/2014 8:18:00 AM

**NOTES:**

\* - Flagged value is not within established control limits.

### Sample Moisture (Percent Moisture)

Batch ID: R13010 Analyst: KZ

Percent Moisture	9.49			wt%	1	3/13/2014 1:18:48 PM
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Qualifiers:	B	Analyte detected in the associated Method Blank	D	Dilution was required
	E	Value above quantitation range	H	Holding times for preparation or analysis exceeded
	J	Analyte detected below quantitation limits	ND	Not detected at the Reporting Limit
	RL	Reporting Limit	S	Spike recovery outside accepted recovery limits





# Analytical Report

WO#: 1403133  
Date Reported: 3/19/2014

Client: Cardno ATC  
Project: Speedway Shopping Center (SSC)  
Lab ID: 1403133-016  
Client Sample ID: B-10-3-4

Collection Date: 3/12/2014 12:05:00 PM

Matrix: Soil

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
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**Volatile Organic Compounds by EPA Method 8260**

Batch ID: 6873

Analyst: GH

Dichlorodifluoromethane (CFC-12)	ND	0.0592		mg/Kg-dry	1	3/16/2014 9:17:00 AM
Chloromethane	ND	0.0592		mg/Kg-dry	1	3/16/2014 9:17:00 AM
Vinyl chloride	ND	0.00197		mg/Kg-dry	1	3/16/2014 9:17:00 AM
Trichlorofluoromethane (CFC-11)	ND	0.0493		mg/Kg-dry	1	3/16/2014 9:17:00 AM
Chloroethane	ND	0.0592		mg/Kg-dry	1	3/16/2014 9:17:00 AM
1,1-Dichloroethene	ND	0.0493		mg/Kg-dry	1	3/16/2014 9:17:00 AM
Methylene chloride	ND	0.0197		mg/Kg-dry	1	3/16/2014 9:17:00 AM
trans-1,2-Dichloroethene	ND	0.0197		mg/Kg-dry	1	3/16/2014 9:17:00 AM
1,1-Dichloroethane	ND	0.0197		mg/Kg-dry	1	3/16/2014 9:17:00 AM
2,2-Dichloropropane	ND	0.0493	*	mg/Kg-dry	1	3/16/2014 9:17:00 AM
cis-1,2-Dichloroethene	ND	0.0197		mg/Kg-dry	1	3/16/2014 9:17:00 AM
Chloroform	ND	0.0197		mg/Kg-dry	1	3/16/2014 9:17:00 AM
1,1,1-Trichloroethane (TCA)	ND	0.0197		mg/Kg-dry	1	3/16/2014 9:17:00 AM
1,1-Dichloropropene	ND	0.0197		mg/Kg-dry	1	3/16/2014 9:17:00 AM
Carbon tetrachloride	ND	0.0197		mg/Kg-dry	1	3/16/2014 9:17:00 AM
1,2-Dichloroethane (EDC)	ND	0.0296		mg/Kg-dry	1	3/16/2014 9:17:00 AM
Trichloroethene (TCE)	ND	0.0197		mg/Kg-dry	1	3/16/2014 9:17:00 AM
1,2-Dichloropropane	ND	0.0197		mg/Kg-dry	1	3/16/2014 9:17:00 AM
Bromodichloromethane	ND	0.0197		mg/Kg-dry	1	3/16/2014 9:17:00 AM
cis-1,3-Dichloropropene	ND	0.0197		mg/Kg-dry	1	3/16/2014 9:17:00 AM
trans-1,3-Dichloropropene	ND	0.0296		mg/Kg-dry	1	3/16/2014 9:17:00 AM
1,1,2-Trichloroethane	ND	0.0296		mg/Kg-dry	1	3/16/2014 9:17:00 AM
1,3-Dichloropropane	ND	0.0493		mg/Kg-dry	1	3/16/2014 9:17:00 AM
Tetrachloroethene (PCE)	ND	0.0197		mg/Kg-dry	1	3/16/2014 9:17:00 AM
Dibromochloromethane	ND	0.0296		mg/Kg-dry	1	3/16/2014 9:17:00 AM
Chlorobenzene	ND	0.0197		mg/Kg-dry	1	3/16/2014 9:17:00 AM
1,1,1,2-Tetrachloroethane	ND	0.0296		mg/Kg-dry	1	3/16/2014 9:17:00 AM
1,1,2,2-Tetrachloroethane	ND	0.0197		mg/Kg-dry	1	3/16/2014 9:17:00 AM
2-Chlorotoluene	ND	0.0197		mg/Kg-dry	1	3/16/2014 9:17:00 AM
4-Chlorotoluene	ND	0.0197		mg/Kg-dry	1	3/16/2014 9:17:00 AM
1,2,3-Trichloropropane	ND	0.0197		mg/Kg-dry	1	3/16/2014 9:17:00 AM
1,2,4-Trichlorobenzene	ND	0.0493		mg/Kg-dry	1	3/16/2014 9:17:00 AM
1,3-Dichlorobenzene	ND	0.0197		mg/Kg-dry	1	3/16/2014 9:17:00 AM
1,4-Dichlorobenzene	ND	0.0197		mg/Kg-dry	1	3/16/2014 9:17:00 AM
1,2-Dichlorobenzene	ND	0.0197		mg/Kg-dry	1	3/16/2014 9:17:00 AM

Qualifiers:	B	Analyte detected in the associated Method Blank	D	Dilution was required
	E	Value above quantitation range	H	Holding times for preparation or analysis exceeded
	J	Analyte detected below quantitation limits	ND	Not detected at the Reporting Limit
	RL	Reporting Limit	S	Spike recovery outside accepted recovery limits



# Analytical Report

WO#: 1403133  
Date Reported: 3/19/2014

Client: Cardno ATC  
Project: Speedway Shopping Center (SSC)  
Lab ID: 1403133-016  
Client Sample ID: B-10-3-4

Collection Date: 3/12/2014 12:05:00 PM

Matrix: Soil

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
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**Volatile Organic Compounds by EPA Method 8260**

Batch ID: 6873

Analyst: GH

1,2-Dibromo-3-chloropropane	ND	0.0296		mg/Kg-dry	1	3/16/2014 9:17:00 AM
Hexachloro-1,3-butadiene	ND	0.0987		mg/Kg-dry	1	3/16/2014 9:17:00 AM
1,2,3-Trichlorobenzene	ND	0.0197		mg/Kg-dry	1	3/16/2014 9:17:00 AM
Surr: Dibromofluoromethane	89.7	63.7-129		%REC	1	3/16/2014 9:17:00 AM
Surr: Toluene-d8	96.8	61.4-128		%REC	1	3/16/2014 9:17:00 AM
Surr: 1-Bromo-4-fluorobenzene	94.1	63.1-141		%REC	1	3/16/2014 9:17:00 AM

**NOTES:**

\* - Flagged value is not within established control limits.

**Sample Moisture (Percent Moisture)**

Batch ID: R13010

Analyst: KZ

Percent Moisture	8.75			wt%	1	3/13/2014 1:18:48 PM
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**Qualifiers:** B Analyte detected in the associated Method Blank  
E Value above quantitation range  
J Analyte detected below quantitation limits  
RL Reporting Limit

D Dilution was required  
H Holding times for preparation or analysis exceeded  
ND Not detected at the Reporting Limit  
S Spike recovery outside accepted recovery limits



# Analytical Report

WO#: 1403133

Date Reported: 3/19/2014

Client: Cardno ATC

Collection Date: 3/12/2014 12:20:00 PM

Project: Speedway Shopping Center (SSC)

Lab ID: 1403133-019

Matrix: Soil

Client Sample ID: B-11-0-1

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
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**Volatile Organic Compounds by EPA Method 8260**

Batch ID: 6873

Analyst: GH

Dichlorodifluoromethane (CFC-12)	ND	0.0555		mg/Kg-dry	1	3/16/2014 9:47:00 AM
Chloromethane	ND	0.0555		mg/Kg-dry	1	3/16/2014 9:47:00 AM
Vinyl chloride	ND	0.00185		mg/Kg-dry	1	3/16/2014 9:47:00 AM
Trichlorofluoromethane (CFC-11)	ND	0.0462		mg/Kg-dry	1	3/16/2014 9:47:00 AM
Chloroethane	ND	0.0555		mg/Kg-dry	1	3/16/2014 9:47:00 AM
1,1-Dichloroethene	ND	0.0462		mg/Kg-dry	1	3/16/2014 9:47:00 AM
Methylene chloride	ND	0.0185		mg/Kg-dry	1	3/16/2014 9:47:00 AM
trans-1,2-Dichloroethene	ND	0.0185		mg/Kg-dry	1	3/16/2014 9:47:00 AM
1,1-Dichloroethane	ND	0.0185		mg/Kg-dry	1	3/16/2014 9:47:00 AM
2,2-Dichloropropane	ND	0.0462	*	mg/Kg-dry	1	3/16/2014 9:47:00 AM
cis-1,2-Dichloroethene	ND	0.0185		mg/Kg-dry	1	3/16/2014 9:47:00 AM
Chloroform	ND	0.0185		mg/Kg-dry	1	3/16/2014 9:47:00 AM
1,1,1-Trichloroethane (TCA)	ND	0.0185		mg/Kg-dry	1	3/16/2014 9:47:00 AM
1,1-Dichloropropene	ND	0.0185		mg/Kg-dry	1	3/16/2014 9:47:00 AM
Carbon tetrachloride	ND	0.0185		mg/Kg-dry	1	3/16/2014 9:47:00 AM
1,2-Dichloroethane (EDC)	ND	0.0277		mg/Kg-dry	1	3/16/2014 9:47:00 AM
Trichloroethene (TCE)	ND	0.0185		mg/Kg-dry	1	3/16/2014 9:47:00 AM
1,2-Dichloropropane	ND	0.0185		mg/Kg-dry	1	3/16/2014 9:47:00 AM
Bromodichloromethane	ND	0.0185		mg/Kg-dry	1	3/16/2014 9:47:00 AM
cis-1,3-Dichloropropene	ND	0.0185		mg/Kg-dry	1	3/16/2014 9:47:00 AM
trans-1,3-Dichloropropene	ND	0.0277		mg/Kg-dry	1	3/16/2014 9:47:00 AM
1,1,2-Trichloroethane	ND	0.0277		mg/Kg-dry	1	3/16/2014 9:47:00 AM
1,3-Dichloropropane	ND	0.0462		mg/Kg-dry	1	3/16/2014 9:47:00 AM
Tetrachloroethene (PCE)	0.0337	0.0185		mg/Kg-dry	1	3/16/2014 9:47:00 AM
Dibromochloromethane	ND	0.0277		mg/Kg-dry	1	3/16/2014 9:47:00 AM
Chlorobenzene	ND	0.0185		mg/Kg-dry	1	3/16/2014 9:47:00 AM
1,1,1,2-Tetrachloroethane	ND	0.0277		mg/Kg-dry	1	3/16/2014 9:47:00 AM
1,1,2,2-Tetrachloroethane	ND	0.0185		mg/Kg-dry	1	3/16/2014 9:47:00 AM
2-Chlorotoluene	ND	0.0185		mg/Kg-dry	1	3/16/2014 9:47:00 AM
4-Chlorotoluene	ND	0.0185		mg/Kg-dry	1	3/16/2014 9:47:00 AM
1,2,3-Trichloropropane	ND	0.0185		mg/Kg-dry	1	3/16/2014 9:47:00 AM
1,2,4-Trichlorobenzene	ND	0.0462		mg/Kg-dry	1	3/16/2014 9:47:00 AM
1,3-Dichlorobenzene	ND	0.0185		mg/Kg-dry	1	3/16/2014 9:47:00 AM
1,4-Dichlorobenzene	ND	0.0185		mg/Kg-dry	1	3/16/2014 9:47:00 AM
1,2-Dichlorobenzene	ND	0.0185		mg/Kg-dry	1	3/16/2014 9:47:00 AM

Qualifiers: B Analyte detected in the associated Method Blank  
 E Value above quantitation range  
 J Analyte detected below quantitation limits  
 RL Reporting Limit

D Dilution was required  
 H Holding times for preparation or analysis exceeded  
 ND Not detected at the Reporting Limit  
 S Spike recovery outside accepted recovery limits





# Analytical Report

WO#: 1403133  
Date Reported: 3/19/2014

Client: Cardno ATC  
Project: Speedway Shopping Center (SSC)  
Lab ID: 1403133-019  
Client Sample ID: B-11-0-1

Collection Date: 3/12/2014 12:20:00 PM  
Matrix: Soil

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
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**Volatile Organic Compounds by EPA Method 8260**

Batch ID: 6873 Analyst: GH

1,2-Dibromo-3-chloropropane	ND	0.0277		mg/Kg-dry	1	3/16/2014 9:47:00 AM
Hexachloro-1,3-butadiene	ND	0.0924		mg/Kg-dry	1	3/16/2014 9:47:00 AM
1,2,3-Trichlorobenzene	ND	0.0185		mg/Kg-dry	1	3/16/2014 9:47:00 AM
Surr: Dibromofluoromethane	88.1	63.7-129		%REC	1	3/16/2014 9:47:00 AM
Surr: Toluene-d8	97.3	61.4-128		%REC	1	3/16/2014 9:47:00 AM
Surr: 1-Bromo-4-fluorobenzene	92.6	63.1-141		%REC	1	3/16/2014 9:47:00 AM

**NOTES:**

\* - Flagged value is not within established control limits.

**Sample Moisture (Percent Moisture)**

Batch ID: R13010 Analyst: KZ

Percent Moisture	4.84			wt%	1	3/13/2014 1:18:48 PM
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<b>Qualifiers:</b>	B	Analyte detected in the associated Method Blank	D	Dilution was required
	E	Value above quantitation range	H	Holding times for preparation or analysis exceeded
	J	Analyte detected below quantitation limits	ND	Not detected at the Reporting Limit
	RL	Reporting Limit	S	Spike recovery outside accepted recovery limits



# Analytical Report

WO#: 1403133

Date Reported: 3/19/2014

Client: Cardno ATC

Collection Date: 3/12/2014 12:25:00 PM

Project: Speedway Shopping Center (SSC)

Lab ID: 1403133-020

Matrix: Soil

Client Sample ID: B-11-1-2

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
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**Volatile Organic Compounds by EPA Method 8260**

Batch ID: 6873

Analyst: GH

Dichlorodifluoromethane (CFC-12)	ND	0.0585		mg/Kg-dry	1	3/16/2014 10:17:00 AM
Chloromethane	ND	0.0585		mg/Kg-dry	1	3/16/2014 10:17:00 AM
Vinyl chloride	ND	0.00195		mg/Kg-dry	1	3/16/2014 10:17:00 AM
Trichlorofluoromethane (CFC-11)	ND	0.0488		mg/Kg-dry	1	3/16/2014 10:17:00 AM
Chloroethane	ND	0.0585		mg/Kg-dry	1	3/16/2014 10:17:00 AM
1,1-Dichloroethene	ND	0.0488		mg/Kg-dry	1	3/16/2014 10:17:00 AM
Methylene chloride	ND	0.0195		mg/Kg-dry	1	3/16/2014 10:17:00 AM
trans-1,2-Dichloroethene	ND	0.0195		mg/Kg-dry	1	3/16/2014 10:17:00 AM
1,1-Dichloroethane	ND	0.0195		mg/Kg-dry	1	3/16/2014 10:17:00 AM
2,2-Dichloropropane	ND	0.0488	*	mg/Kg-dry	1	3/16/2014 10:17:00 AM
cis-1,2-Dichloroethene	ND	0.0195		mg/Kg-dry	1	3/16/2014 10:17:00 AM
Chloroform	ND	0.0195		mg/Kg-dry	1	3/16/2014 10:17:00 AM
1,1,1-Trichloroethane (TCA)	ND	0.0195		mg/Kg-dry	1	3/16/2014 10:17:00 AM
1,1-Dichloropropene	ND	0.0195		mg/Kg-dry	1	3/16/2014 10:17:00 AM
Carbon tetrachloride	ND	0.0195		mg/Kg-dry	1	3/16/2014 10:17:00 AM
1,2-Dichloroethane (EDC)	ND	0.0293		mg/Kg-dry	1	3/16/2014 10:17:00 AM
Trichloroethene (TCE)	ND	0.0195		mg/Kg-dry	1	3/16/2014 10:17:00 AM
1,2-Dichloropropane	ND	0.0195		mg/Kg-dry	1	3/16/2014 10:17:00 AM
Bromodichloromethane	ND	0.0195		mg/Kg-dry	1	3/16/2014 10:17:00 AM
cis-1,3-Dichloropropene	ND	0.0195		mg/Kg-dry	1	3/16/2014 10:17:00 AM
trans-1,3-Dichloropropene	ND	0.0293		mg/Kg-dry	1	3/16/2014 10:17:00 AM
1,1,2-Trichloroethane	ND	0.0293		mg/Kg-dry	1	3/16/2014 10:17:00 AM
1,3-Dichloropropane	ND	0.0488		mg/Kg-dry	1	3/16/2014 10:17:00 AM
Tetrachloroethene (PCE)	ND	0.0195		mg/Kg-dry	1	3/16/2014 10:17:00 AM
Dibromochloromethane	ND	0.0293		mg/Kg-dry	1	3/16/2014 10:17:00 AM
Chlorobenzene	ND	0.0195		mg/Kg-dry	1	3/16/2014 10:17:00 AM
1,1,1,2-Tetrachloroethane	ND	0.0293		mg/Kg-dry	1	3/16/2014 10:17:00 AM
1,1,2,2-Tetrachloroethane	ND	0.0195		mg/Kg-dry	1	3/16/2014 10:17:00 AM
2-Chlorotoluene	ND	0.0195		mg/Kg-dry	1	3/16/2014 10:17:00 AM
4-Chlorotoluene	ND	0.0195		mg/Kg-dry	1	3/16/2014 10:17:00 AM
1,2,3-Trichloropropane	ND	0.0195		mg/Kg-dry	1	3/16/2014 10:17:00 AM
1,2,4-Trichlorobenzene	ND	0.0488		mg/Kg-dry	1	3/16/2014 10:17:00 AM
1,3-Dichlorobenzene	ND	0.0195		mg/Kg-dry	1	3/16/2014 10:17:00 AM
1,4-Dichlorobenzene	ND	0.0195		mg/Kg-dry	1	3/16/2014 10:17:00 AM
1,2-Dichlorobenzene	ND	0.0195		mg/Kg-dry	1	3/16/2014 10:17:00 AM

Qualifiers: B Analyte detected in the associated Method Blank  
 E Value above quantitation range  
 J Analyte detected below quantitation limits  
 RL Reporting Limit

D Dilution was required  
 H Holding times for preparation or analysis exceeded  
 ND Not detected at the Reporting Limit  
 S Spike recovery outside accepted recovery limits



# Analytical Report

WO#: 1403133  
Date Reported: 3/19/2014

Client: Cardno ATC  
Project: Speedway Shopping Center (SSC)  
Lab ID: 1403133-020  
Client Sample ID: B-11-1-2

Collection Date: 3/12/2014 12:25:00 PM  
Matrix: Soil

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
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**Volatile Organic Compounds by EPA Method 8260**

Batch ID: 6873 Analyst: GH

1,2-Dibromo-3-chloropropane	ND	0.0293		mg/Kg-dry	1	3/16/2014 10:17:00 AM
Hexachloro-1,3-butadiene	ND	0.0975		mg/Kg-dry	1	3/16/2014 10:17:00 AM
1,2,3-Trichlorobenzene	ND	0.0195		mg/Kg-dry	1	3/16/2014 10:17:00 AM
Surr: Dibromofluoromethane	90.2	63.7-129		%REC	1	3/16/2014 10:17:00 AM
Surr: Toluene-d8	97.9	61.4-128		%REC	1	3/16/2014 10:17:00 AM
Surr: 1-Bromo-4-fluorobenzene	94.1	63.1-141		%REC	1	3/16/2014 10:17:00 AM

**NOTES:**

\* - Flagged value is not within established control limits.

**Sample Moisture (Percent Moisture)**

Batch ID: R13010 Analyst: KZ

Percent Moisture	8.88			wt%	1	3/13/2014 1:18:48 PM
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**Qualifiers:** B Analyte detected in the associated Method Blank  
E Value above quantitation range  
J Analyte detected below quantitation limits  
RL Reporting Limit

D Dilution was required  
H Holding times for preparation or analysis exceeded  
ND Not detected at the Reporting Limit  
S Spike recovery outside accepted recovery limits





# Analytical Report

WO#: 1403133  
Date Reported: 3/19/2014

Client: Cardno ATC

Collection Date: 3/12/2014 12:30:00 PM

Project: Speedway Shopping Center (SSC)

Lab ID: 1403133-021

Matrix: Soil

Client Sample ID: B-11-3-4

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
<b><u>Volatile Organic Compounds by EPA Method 8260</u></b>						
					Batch ID: 6873	Analyst: GH
Dichlorodifluoromethane (CFC-12)	ND	0.0596		mg/Kg-dry	1	3/16/2014 10:47:00 AM
Chloromethane	ND	0.0596		mg/Kg-dry	1	3/16/2014 10:47:00 AM
Vinyl chloride	ND	0.00199		mg/Kg-dry	1	3/16/2014 10:47:00 AM
Trichlorofluoromethane (CFC-11)	ND	0.0497		mg/Kg-dry	1	3/16/2014 10:47:00 AM
Chloroethane	ND	0.0596		mg/Kg-dry	1	3/16/2014 10:47:00 AM
1,1-Dichloroethene	ND	0.0497		mg/Kg-dry	1	3/16/2014 10:47:00 AM
Methylene chloride	ND	0.0199		mg/Kg-dry	1	3/16/2014 10:47:00 AM
trans-1,2-Dichloroethene	ND	0.0199		mg/Kg-dry	1	3/16/2014 10:47:00 AM
1,1-Dichloroethane	ND	0.0199		mg/Kg-dry	1	3/16/2014 10:47:00 AM
2,2-Dichloropropane	ND	0.0497	*	mg/Kg-dry	1	3/16/2014 10:47:00 AM
cis-1,2-Dichloroethene	ND	0.0199		mg/Kg-dry	1	3/16/2014 10:47:00 AM
Chloroform	ND	0.0199		mg/Kg-dry	1	3/16/2014 10:47:00 AM
1,1,1-Trichloroethane (TCA)	ND	0.0199		mg/Kg-dry	1	3/16/2014 10:47:00 AM
1,1-Dichloropropene	ND	0.0199		mg/Kg-dry	1	3/16/2014 10:47:00 AM
Carbon tetrachloride	ND	0.0199		mg/Kg-dry	1	3/16/2014 10:47:00 AM
1,2-Dichloroethane (EDC)	ND	0.0298		mg/Kg-dry	1	3/16/2014 10:47:00 AM
Trichloroethene (TCE)	ND	0.0199		mg/Kg-dry	1	3/16/2014 10:47:00 AM
1,2-Dichloropropane	ND	0.0199		mg/Kg-dry	1	3/16/2014 10:47:00 AM
Bromodichloromethane	ND	0.0199		mg/Kg-dry	1	3/16/2014 10:47:00 AM
cis-1,3-Dichloropropene	ND	0.0199		mg/Kg-dry	1	3/16/2014 10:47:00 AM
trans-1,3-Dichloropropene	ND	0.0298		mg/Kg-dry	1	3/16/2014 10:47:00 AM
1,1,2-Trichloroethane	ND	0.0298		mg/Kg-dry	1	3/16/2014 10:47:00 AM
1,3-Dichloropropane	ND	0.0497		mg/Kg-dry	1	3/16/2014 10:47:00 AM
Tetrachloroethene (PCE)	ND	0.0199		mg/Kg-dry	1	3/16/2014 10:47:00 AM
Dibromochloromethane	ND	0.0298		mg/Kg-dry	1	3/16/2014 10:47:00 AM
Chlorobenzene	ND	0.0199		mg/Kg-dry	1	3/16/2014 10:47:00 AM
1,1,1,2-Tetrachloroethane	ND	0.0298		mg/Kg-dry	1	3/16/2014 10:47:00 AM
1,1,2,2-Tetrachloroethane	ND	0.0199		mg/Kg-dry	1	3/16/2014 10:47:00 AM
2-Chlorotoluene	ND	0.0199		mg/Kg-dry	1	3/16/2014 10:47:00 AM
4-Chlorotoluene	ND	0.0199		mg/Kg-dry	1	3/16/2014 10:47:00 AM
1,2,3-Trichloropropane	ND	0.0199		mg/Kg-dry	1	3/16/2014 10:47:00 AM
1,2,4-Trichlorobenzene	ND	0.0497		mg/Kg-dry	1	3/16/2014 10:47:00 AM
1,3-Dichlorobenzene	ND	0.0199		mg/Kg-dry	1	3/16/2014 10:47:00 AM
1,4-Dichlorobenzene	ND	0.0199		mg/Kg-dry	1	3/16/2014 10:47:00 AM
1,2-Dichlorobenzene	ND	0.0199		mg/Kg-dry	1	3/16/2014 10:47:00 AM

Qualifiers: B Analyte detected in the associated Method Blank  
E Value above quantitation range  
J Analyte detected below quantitation limits  
RL Reporting Limit

D Dilution was required  
H Holding times for preparation or analysis exceeded  
ND Not detected at the Reporting Limit  
S Spike recovery outside accepted recovery limits



# Analytical Report

WO#: 1403133  
Date Reported: 3/19/2014

Client: Cardno ATC  
Project: Speedway Shopping Center (SSC)  
Lab ID: 1403133-021  
Client Sample ID: B-11-3-4

Collection Date: 3/12/2014 12:30:00 PM

Matrix: Soil

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
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**Volatile Organic Compounds by EPA Method 8260**

Batch ID: 6873      Analyst: GH

1,2-Dibromo-3-chloropropane	ND	0.0298		mg/Kg-dry	1	3/16/2014 10:47:00 AM
Hexachloro-1,3-butadiene	ND	0.0993		mg/Kg-dry	1	3/16/2014 10:47:00 AM
1,2,3-Trichlorobenzene	ND	0.0199		mg/Kg-dry	1	3/16/2014 10:47:00 AM
Surr: Dibromofluoromethane	89.3	63.7-129		%REC	1	3/16/2014 10:47:00 AM
Surr: Toluene-d8	98.4	61.4-128		%REC	1	3/16/2014 10:47:00 AM
Surr: 1-Bromo-4-fluorobenzene	94.9	63.1-141		%REC	1	3/16/2014 10:47:00 AM

**NOTES:**

\* - Flagged value is not within established control limits.

**Sample Moisture (Percent Moisture)**

Batch ID: R13010      Analyst: KZ

Percent Moisture	8.82			wt%	1	3/13/2014 1:18:48 PM
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**Qualifiers:** B Analyte detected in the associated Method Blank  
E Value above quantitation range  
J Analyte detected below quantitation limits  
RL Reporting Limit

D Dilution was required  
H Holding times for preparation or analysis exceeded  
ND Not detected at the Reporting Limit  
S Spike recovery outside accepted recovery limits



# Analytical Report

WO#: 1403133

Date Reported: 3/19/2014

Client: Cardno ATC

Collection Date: 3/12/2014 12:50:00 PM

Project: Speedway Shopping Center (SSC)

Lab ID: 1403133-023

Matrix: Soil

Client Sample ID: B-12-0-1

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
<b>Volatile Organic Compounds by EPA Method 8260</b>					Batch ID: 6873	Analyst: GH
Dichlorodifluoromethane (CFC-12)	ND	0.0632		mg/Kg-dry	1	3/16/2014 11:17:00 AM
Chloromethane	ND	0.0632		mg/Kg-dry	1	3/16/2014 11:17:00 AM
Vinyl chloride	ND	0.00211		mg/Kg-dry	1	3/16/2014 11:17:00 AM
Trichlorofluoromethane (CFC-11)	ND	0.0527		mg/Kg-dry	1	3/16/2014 11:17:00 AM
Chloroethane	ND	0.0632		mg/Kg-dry	1	3/16/2014 11:17:00 AM
1,1-Dichloroethene	ND	0.0527		mg/Kg-dry	1	3/16/2014 11:17:00 AM
Methylene chloride	ND	0.0211		mg/Kg-dry	1	3/16/2014 11:17:00 AM
trans-1,2-Dichloroethene	ND	0.0211		mg/Kg-dry	1	3/16/2014 11:17:00 AM
1,1-Dichloroethane	ND	0.0211		mg/Kg-dry	1	3/16/2014 11:17:00 AM
2,2-Dichloropropane	ND	0.0527	*	mg/Kg-dry	1	3/16/2014 11:17:00 AM
cis-1,2-Dichloroethene	ND	0.0211		mg/Kg-dry	1	3/16/2014 11:17:00 AM
Chloroform	ND	0.0211		mg/Kg-dry	1	3/16/2014 11:17:00 AM
1,1,1-Trichloroethane (TCA)	ND	0.0211		mg/Kg-dry	1	3/16/2014 11:17:00 AM
1,1-Dichloropropene	ND	0.0211		mg/Kg-dry	1	3/16/2014 11:17:00 AM
Carbon tetrachloride	ND	0.0211		mg/Kg-dry	1	3/16/2014 11:17:00 AM
1,2-Dichloroethane (EDC)	ND	0.0316		mg/Kg-dry	1	3/16/2014 11:17:00 AM
Trichloroethene (TCE)	ND	0.0211		mg/Kg-dry	1	3/16/2014 11:17:00 AM
1,2-Dichloropropane	ND	0.0211		mg/Kg-dry	1	3/16/2014 11:17:00 AM
Bromodichloromethane	ND	0.0211		mg/Kg-dry	1	3/16/2014 11:17:00 AM
cis-1,3-Dichloropropene	ND	0.0211		mg/Kg-dry	1	3/16/2014 11:17:00 AM
trans-1,3-Dichloropropene	ND	0.0316		mg/Kg-dry	1	3/16/2014 11:17:00 AM
1,1,2-Trichloroethane	ND	0.0316		mg/Kg-dry	1	3/16/2014 11:17:00 AM
1,3-Dichloropropane	ND	0.0527		mg/Kg-dry	1	3/16/2014 11:17:00 AM
Tetrachloroethene (PCE)	0.156	0.0211		mg/Kg-dry	1	3/16/2014 11:17:00 AM
Dibromochloromethane	ND	0.0316		mg/Kg-dry	1	3/16/2014 11:17:00 AM
Chlorobenzene	ND	0.0211		mg/Kg-dry	1	3/16/2014 11:17:00 AM
1,1,1,2-Tetrachloroethane	ND	0.0316		mg/Kg-dry	1	3/16/2014 11:17:00 AM
1,1,2,2-Tetrachloroethane	ND	0.0211		mg/Kg-dry	1	3/16/2014 11:17:00 AM
2-Chlorotoluene	ND	0.0211		mg/Kg-dry	1	3/16/2014 11:17:00 AM
4-Chlorotoluene	ND	0.0211		mg/Kg-dry	1	3/16/2014 11:17:00 AM
1,2,3-Trichloropropane	ND	0.0211		mg/Kg-dry	1	3/16/2014 11:17:00 AM
1,2,4-Trichlorobenzene	ND	0.0527		mg/Kg-dry	1	3/16/2014 11:17:00 AM
1,3-Dichlorobenzene	ND	0.0211		mg/Kg-dry	1	3/16/2014 11:17:00 AM
1,4-Dichlorobenzene	ND	0.0211		mg/Kg-dry	1	3/16/2014 11:17:00 AM
1,2-Dichlorobenzene	ND	0.0211		mg/Kg-dry	1	3/16/2014 11:17:00 AM

Qualifiers: B Analyte detected in the associated Method Blank  
 E Value above quantitation range  
 J Analyte detected below quantitation limits  
 RL Reporting Limit  
 D Dilution was required  
 H Holding times for preparation or analysis exceeded  
 ND Not detected at the Reporting Limit  
 S Spike recovery outside accepted recovery limits





# Analytical Report

WO#: 1403133  
Date Reported: 3/19/2014

Client: Cardno ATC  
Project: Speedway Shopping Center (SSC)  
Lab ID: 1403133-023  
Client Sample ID: B-12-0-1

Collection Date: 3/12/2014 12:50:00 PM  
Matrix: Soil

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
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**Volatile Organic Compounds by EPA Method 8260**

Batch ID: 6873 Analyst: GH

1,2-Dibromo-3-chloropropane	ND	0.0316		mg/Kg-dry	1	3/16/2014 11:17:00 AM
Hexachloro-1,3-butadiene	ND	0.105		mg/Kg-dry	1	3/16/2014 11:17:00 AM
1,2,3-Trichlorobenzene	ND	0.0211		mg/Kg-dry	1	3/16/2014 11:17:00 AM
Surr: Dibromofluoromethane	89.2	63.7-129		%REC	1	3/16/2014 11:17:00 AM
Surr: Toluene-d8	97.9	61.4-128		%REC	1	3/16/2014 11:17:00 AM
Surr: 1-Bromo-4-fluorobenzene	95.2	63.1-141		%REC	1	3/16/2014 11:17:00 AM

**NOTES:**

\* - Flagged value is not within established control limits.

**Sample Moisture (Percent Moisture)**

Batch ID: R13010 Analyst: KZ

Percent Moisture	12.1			wt%	1	3/13/2014 1:18:48 PM
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<b>Qualifiers:</b>	B	Analyte detected in the associated Method Blank	D	Dilution was required
	E	Value above quantitation range	H	Holding times for preparation or analysis exceeded
	J	Analyte detected below quantitation limits	ND	Not detected at the Reporting Limit
	RL	Reporting Limit	S	Spike recovery outside accepted recovery limits



# Analytical Report

WO#: 1403133  
Date Reported: 3/19/2014

Client: Cardno ATC  
Project: Speedway Shopping Center (SSC)  
Lab ID: 1403133-024  
Client Sample ID: B-12-1-2

Collection Date: 3/12/2014 1:00:00 PM

Matrix: Soil

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
<b>Volatile Organic Compounds by EPA Method 8260</b>						
					Batch ID: 6873	Analyst: GH
Dichlorodifluoromethane (CFC-12)	ND	0.0661		mg/Kg-dry	1	3/16/2014 11:47:00 AM
Chloromethane	ND	0.0661		mg/Kg-dry	1	3/16/2014 11:47:00 AM
Vinyl chloride	ND	0.00220		mg/Kg-dry	1	3/16/2014 11:47:00 AM
Trichlorofluoromethane (CFC-11)	ND	0.0551		mg/Kg-dry	1	3/16/2014 11:47:00 AM
Chloroethane	ND	0.0661		mg/Kg-dry	1	3/16/2014 11:47:00 AM
1,1-Dichloroethene	ND	0.0551		mg/Kg-dry	1	3/16/2014 11:47:00 AM
Methylene chloride	ND	0.0220		mg/Kg-dry	1	3/16/2014 11:47:00 AM
trans-1,2-Dichloroethene	ND	0.0220		mg/Kg-dry	1	3/16/2014 11:47:00 AM
1,1-Dichloroethane	ND	0.0220		mg/Kg-dry	1	3/16/2014 11:47:00 AM
2,2-Dichloropropane	ND	0.0551	*	mg/Kg-dry	1	3/16/2014 11:47:00 AM
cis-1,2-Dichloroethene	ND	0.0220		mg/Kg-dry	1	3/16/2014 11:47:00 AM
Chloroform	ND	0.0220		mg/Kg-dry	1	3/16/2014 11:47:00 AM
1,1,1-Trichloroethane (TCA)	ND	0.0220		mg/Kg-dry	1	3/16/2014 11:47:00 AM
1,1-Dichloropropene	ND	0.0220		mg/Kg-dry	1	3/16/2014 11:47:00 AM
Carbon tetrachloride	ND	0.0220		mg/Kg-dry	1	3/16/2014 11:47:00 AM
1,2-Dichloroethane (EDC)	ND	0.0331		mg/Kg-dry	1	3/16/2014 11:47:00 AM
Trichloroethene (TCE)	ND	0.0220		mg/Kg-dry	1	3/16/2014 11:47:00 AM
1,2-Dichloropropane	ND	0.0220		mg/Kg-dry	1	3/16/2014 11:47:00 AM
Bromodichloromethane	ND	0.0220		mg/Kg-dry	1	3/16/2014 11:47:00 AM
cis-1,3-Dichloropropene	ND	0.0220		mg/Kg-dry	1	3/16/2014 11:47:00 AM
trans-1,3-Dichloropropene	ND	0.0331		mg/Kg-dry	1	3/16/2014 11:47:00 AM
1,1,2-Trichloroethane	ND	0.0331		mg/Kg-dry	1	3/16/2014 11:47:00 AM
1,3-Dichloropropane	ND	0.0551		mg/Kg-dry	1	3/16/2014 11:47:00 AM
Tetrachloroethene (PCE)	0.0467	0.0220		mg/Kg-dry	1	3/16/2014 11:47:00 AM
Dibromochloromethane	ND	0.0331		mg/Kg-dry	1	3/16/2014 11:47:00 AM
Chlorobenzene	ND	0.0220		mg/Kg-dry	1	3/16/2014 11:47:00 AM
1,1,1,2-Tetrachloroethane	ND	0.0331		mg/Kg-dry	1	3/16/2014 11:47:00 AM
1,1,2,2-Tetrachloroethane	ND	0.0220		mg/Kg-dry	1	3/16/2014 11:47:00 AM
2-Chlorotoluene	ND	0.0220		mg/Kg-dry	1	3/16/2014 11:47:00 AM
4-Chlorotoluene	ND	0.0220		mg/Kg-dry	1	3/16/2014 11:47:00 AM
1,2,3-Trichloropropane	ND	0.0220		mg/Kg-dry	1	3/16/2014 11:47:00 AM
1,2,4-Trichlorobenzene	ND	0.0551		mg/Kg-dry	1	3/16/2014 11:47:00 AM
1,3-Dichlorobenzene	ND	0.0220		mg/Kg-dry	1	3/16/2014 11:47:00 AM
1,4-Dichlorobenzene	ND	0.0220		mg/Kg-dry	1	3/16/2014 11:47:00 AM
1,2-Dichlorobenzene	ND	0.0220		mg/Kg-dry	1	3/16/2014 11:47:00 AM

Qualifiers: B Analyte detected in the associated Method Blank  
 E Value above quantitation range  
 J Analyte detected below quantitation limits  
 RL Reporting Limit  
 D Dilution was required  
 H Holding times for preparation or analysis exceeded  
 ND Not detected at the Reporting Limit  
 S Spike recovery outside accepted recovery limits



# Analytical Report

WO#: 1403133  
Date Reported: 3/19/2014

Client: Cardno ATC  
Project: Speedway Shopping Center (SSC)  
Lab ID: 1403133-024  
Client Sample ID: B-12-1-2

Collection Date: 3/12/2014 1:00:00 PM

Matrix: Soil

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
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**Volatile Organic Compounds by EPA Method 8260**

Batch ID: 6873

Analyst: GH

1,2-Dibromo-3-chloropropane	ND	0.0331		mg/Kg-dry	1	3/16/2014 11:47:00 AM
Hexachloro-1,3-butadiene	ND	0.110		mg/Kg-dry	1	3/16/2014 11:47:00 AM
1,2,3-Trichlorobenzene	ND	0.0220		mg/Kg-dry	1	3/16/2014 11:47:00 AM
Surr: Dibromofluoromethane	88.2	63.7-129		%REC	1	3/16/2014 11:47:00 AM
Surr: Toluene-d8	97.5	61.4-128		%REC	1	3/16/2014 11:47:00 AM
Surr: 1-Bromo-4-fluorobenzene	94.8	63.1-141		%REC	1	3/16/2014 11:47:00 AM

**NOTES:**

\* - Flagged value is not within established control limits.

**Sample Moisture (Percent Moisture)**

Batch ID: R13010

Analyst: KZ

Percent Moisture	8.86			wt%	1	3/13/2014 1:18:48 PM
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<b>Qualifiers:</b>	B	Analyte detected in the associated Method Blank	D	Dilution was required
	E	Value above quantitation range	H	Holding times for preparation or analysis exceeded
	J	Analyte detected below quantitation limits	ND	Not detected at the Reporting Limit
	RL	Reporting Limit	S	Spike recovery outside accepted recovery limits





# Analytical Report

WO#: 1403133

Date Reported: 3/19/2014

Client: Cardno ATC

Collection Date: 3/12/2014 1:05:00 PM

Project: Speedway Shopping Center (SSC)

Lab ID: 1403133-025

Matrix: Soil

Client Sample ID: B-12-3-4

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
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**Volatile Organic Compounds by EPA Method 8260**

Batch ID: 6873

Analyst: GH

Dichlorodifluoromethane (CFC-12)	ND	0.0615		mg/Kg-dry	1	3/16/2014 12:17:00 PM
Chloromethane	ND	0.0615		mg/Kg-dry	1	3/16/2014 12:17:00 PM
Vinyl chloride	ND	0.00205		mg/Kg-dry	1	3/16/2014 12:17:00 PM
Trichlorofluoromethane (CFC-11)	ND	0.0513		mg/Kg-dry	1	3/16/2014 12:17:00 PM
Chloroethane	ND	0.0615		mg/Kg-dry	1	3/16/2014 12:17:00 PM
1,1-Dichloroethene	ND	0.0513		mg/Kg-dry	1	3/16/2014 12:17:00 PM
Methylene chloride	ND	0.0205		mg/Kg-dry	1	3/16/2014 12:17:00 PM
trans-1,2-Dichloroethene	ND	0.0205		mg/Kg-dry	1	3/16/2014 12:17:00 PM
1,1-Dichloroethane	ND	0.0205		mg/Kg-dry	1	3/16/2014 12:17:00 PM
2,2-Dichloropropane	ND	0.0513	*	mg/Kg-dry	1	3/16/2014 12:17:00 PM
cis-1,2-Dichloroethene	ND	0.0205		mg/Kg-dry	1	3/16/2014 12:17:00 PM
Chloroform	ND	0.0205		mg/Kg-dry	1	3/16/2014 12:17:00 PM
1,1,1-Trichloroethane (TCA)	ND	0.0205		mg/Kg-dry	1	3/16/2014 12:17:00 PM
1,1-Dichloropropene	ND	0.0205		mg/Kg-dry	1	3/16/2014 12:17:00 PM
Carbon tetrachloride	ND	0.0205		mg/Kg-dry	1	3/16/2014 12:17:00 PM
1,2-Dichloroethane (EDC)	ND	0.0308		mg/Kg-dry	1	3/16/2014 12:17:00 PM
Trichloroethene (TCE)	ND	0.0205		mg/Kg-dry	1	3/16/2014 12:17:00 PM
1,2-Dichloropropane	ND	0.0205		mg/Kg-dry	1	3/16/2014 12:17:00 PM
Bromodichloromethane	ND	0.0205		mg/Kg-dry	1	3/16/2014 12:17:00 PM
cis-1,3-Dichloropropene	ND	0.0205		mg/Kg-dry	1	3/16/2014 12:17:00 PM
trans-1,3-Dichloropropene	ND	0.0308		mg/Kg-dry	1	3/16/2014 12:17:00 PM
1,1,2-Trichloroethane	ND	0.0308		mg/Kg-dry	1	3/16/2014 12:17:00 PM
1,3-Dichloropropane	ND	0.0513		mg/Kg-dry	1	3/16/2014 12:17:00 PM
Tetrachloroethene (PCE)	ND	0.0205		mg/Kg-dry	1	3/16/2014 12:17:00 PM
Dibromochloromethane	ND	0.0308		mg/Kg-dry	1	3/16/2014 12:17:00 PM
Chlorobenzene	ND	0.0205		mg/Kg-dry	1	3/16/2014 12:17:00 PM
1,1,1,2-Tetrachloroethane	ND	0.0308		mg/Kg-dry	1	3/16/2014 12:17:00 PM
1,1,2,2-Tetrachloroethane	ND	0.0205		mg/Kg-dry	1	3/16/2014 12:17:00 PM
2-Chlorotoluene	ND	0.0205		mg/Kg-dry	1	3/16/2014 12:17:00 PM
4-Chlorotoluene	ND	0.0205		mg/Kg-dry	1	3/16/2014 12:17:00 PM
1,2,3-Trichloropropane	ND	0.0205		mg/Kg-dry	1	3/16/2014 12:17:00 PM
1,2,4-Trichlorobenzene	ND	0.0513		mg/Kg-dry	1	3/16/2014 12:17:00 PM
1,3-Dichlorobenzene	ND	0.0205		mg/Kg-dry	1	3/16/2014 12:17:00 PM
1,4-Dichlorobenzene	ND	0.0205		mg/Kg-dry	1	3/16/2014 12:17:00 PM
1,2-Dichlorobenzene	ND	0.0205		mg/Kg-dry	1	3/16/2014 12:17:00 PM

Qualifiers: B Analyte detected in the associated Method Blank  
 E Value above quantitation range  
 J Analyte detected below quantitation limits  
 RL Reporting Limit

D Dilution was required  
 H Holding times for preparation or analysis exceeded  
 ND Not detected at the Reporting Limit  
 S Spike recovery outside accepted recovery limits



# Analytical Report

WO#: 1403133  
Date Reported: 3/19/2014

Client: Cardno ATC  
Project: Speedway Shopping Center (SSC)  
Lab ID: 1403133-025  
Client Sample ID: B-12-3-4

Collection Date: 3/12/2014 1:05:00 PM  
Matrix: Soil

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
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**Volatile Organic Compounds by EPA Method 8260**

Batch ID: 6873      Analyst: GH

1,2-Dibromo-3-chloropropane	ND	0.0308		mg/Kg-dry	1	3/16/2014 12:17:00 PM
Hexachloro-1,3-butadiene	ND	0.103		mg/Kg-dry	1	3/16/2014 12:17:00 PM
1,2,3-Trichlorobenzene	ND	0.0205		mg/Kg-dry	1	3/16/2014 12:17:00 PM
Surr: Dibromofluoromethane	89.0	63.7-129		%REC	1	3/16/2014 12:17:00 PM
Surr: Toluene-d8	97.4	61.4-128		%REC	1	3/16/2014 12:17:00 PM
Surr: 1-Bromo-4-fluorobenzene	96.0	63.1-141		%REC	1	3/16/2014 12:17:00 PM

**NOTES:**

\* - Flagged value is not within established control limits.

**Sample Moisture (Percent Moisture)**

Batch ID: R13010      Analyst: KZ

Percent Moisture	8.47			wt%	1	3/13/2014 1:18:48 PM
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**Qualifiers:** B Analyte detected in the associated Method Blank  
E Value above quantitation range  
J Analyte detected below quantitation limits  
RL Reporting Limit

D Dilution was required  
H Holding times for preparation or analysis exceeded  
ND Not detected at the Reporting Limit  
S Spike recovery outside accepted recovery limits



Date: 3/19/2014

**QC SUMMARY REPORT**  
**Volatile Organic Compounds by EPA Method 8260**

Work Order: 1403133  
 CLIENT: Cardno ATC  
 Project: Speedway Shopping Center (SSC)

Sample ID:	1403133-001BDUP	SampType:	DUP	Units:	mg/Kg-dry	Prep Date:	3/14/2014	RunNo:	13095		
Client ID:	B-6-0-1	Batch ID:	6873	Analysis Date:	3/16/2014	SeqNo:	262279				
Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Dichlorodifluoromethane (CFC-12)	ND	0.0567						0		30	
Chloromethane	ND	0.0567						0		30	
Vinyl chloride	ND	0.00189						0		30	
Trichlorofluoromethane (CFC-11)	ND	0.0472						0		30	
Chloroethane	ND	0.0567						0		30	
1,1-Dichloroethene	ND	0.0472						0		30	
Methylene chloride	ND	0.0189						0		30	
trans-1,2-Dichloroethene	ND	0.0189						0		30	
1,1-Dichloroethane	ND	0.0189						0		30	
2,2-Dichloropropane	ND	0.0472						0		30	
cis-1,2-Dichloroethene	ND	0.0189						0		30	*
Chloroform	ND	0.0189						0		30	
1,1,1-Trichloroethane (TCA)	ND	0.0189						0		30	
1,1-Dichloropropene	ND	0.0189						0		30	
Carbon tetrachloride	ND	0.0189						0		30	
1,2-Dichloroethane (EDC)	ND	0.0283						0		30	
Trichloroethene (TCE)	ND	0.0189						0		30	
1,2-Dichloropropane	ND	0.0189						0		30	
Bromodichloromethane	ND	0.0189						0		30	
cis-1,3-Dichloropropene	ND	0.0189						0		30	
trans-1,3-Dichloropropene	ND	0.0283						0		30	
1,1,2-Trichloroethane	ND	0.0283						0		30	
1,3-Dichloropropane	ND	0.0472						0		30	
Tetrachloroethene (PCE)	ND	0.0189						0		30	
Dibromochloromethane	ND	0.0283						0		30	
Chlorobenzene	ND	0.0189						0		30	
1,1,1,2-Tetrachloroethane	ND	0.0283						0		30	
1,1,2,2-Tetrachloroethane	ND	0.0189						0		30	
2-Chlorotoluene	ND	0.0189						0		30	

**Qualifiers:** B Analyte detected in the associated Method Blank  
 H Holding times for preparation or analysis exceeded  
 R RPD outside accepted recovery limits  
 D Dilution was required  
 J Analyte detected below quantitation limits  
 RL Reporting Limit  
 E Value above quantitation range  
 ND Not detected at the Reporting Limit  
 S Spike recovery outside accepted recovery limits





Date: 3/19/2014

**QC SUMMARY REPORT**  
**Volatile Organic Compounds by EPA Method 8260**

Work Order: 1403133  
 CLIENT: Cardno ATC  
 Project: Speedway Shopping Center (SSC)

Sample ID:	1403133-001BDUP	SampType:	DUP	Units:	mg/Kg-dry	Prep Date:	3/14/2014	RunNo:	13095		
Client ID:	B-6-0-1	Batch ID:	6873	Analysis Date:	3/16/2014	SeqNo:	262279				
Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
4-Chlorotoluene	ND	0.0189						0		30	
1,2,3-Trichloropropane	ND	0.0189						0		30	
1,2,4-Trichlorobenzene	ND	0.0472						0		30	
1,3-Dichlorobenzene	ND	0.0189						0		30	
1,4-Dichlorobenzene	ND	0.0189						0		30	
1,2-Dichlorobenzene	ND	0.0283						0		30	
1,2-Dibromo-3-chloropropane	ND	0.0945						0		30	
Hexachloro-1,3-butadiene	ND	0.0189						0		30	
1,2,3-Trichlorobenzene	ND	0.0189						0		30	
Surr: Dibromofluoromethane	2.13		2.362		90.2	63.7	129		0		
Surr: Toluene-d8	2.34		2.362		99.1	61.4	128		0		
Surr: 1-Bromo-4-fluorobenzene	2.23		2.362		94.3	63.1	141		0		

**NOTES:**

\* - Flagged value is not within established control limits.

Sample ID:	1403133-002BMS	SampType:	MS	Units:	mg/Kg-dry	Prep Date:	3/14/2014	RunNo:	13095		
Client ID:	B-6-1-2	Batch ID:	6873	Analysis Date:	3/16/2014	SeqNo:	262286				
Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Dichlorodifluoromethane (CFC-12)	0.800	0.0596	0.9935	0	80.5	43.5	121				
Chloromethane	0.929	0.0596	0.9935	0	93.5	45	130				
Vinyl chloride	0.907	0.00199	0.9935	0	91.3	51.2	146				
Trichlorofluoromethane (CFC-11)	0.764	0.0497	0.9935	0	76.9	35	131				
Chloroethane	0.701	0.0596	0.9935	0	70.6	43.8	117				
1,1-Dichloroethene	0.680	0.0497	0.9935	0	68.4	61.9	141				
Methylene chloride	1.03	0.0199	0.9935	0	104	54.7	142				
trans-1,2-Dichloroethene	0.893	0.0199	0.9935	0	89.9	52	136				
1,1-Dichloroethane	0.903	0.0199	0.9935	0	90.9	51.8	141				
2,2-Dichloropropane	0.223	0.0497	0.9935	0	22.4	36	123				S*

**Qualifiers:** B Analyte detected in the associated Method Blank  
 H Holding times for preparation or analysis exceeded  
 R RPD outside accepted recovery limits  
 D Dilution was required  
 J Analyte detected below quantitation limits  
 RL Reporting Limit  
 E Value above quantitation range  
 ND Not detected at the Reporting Limit  
 S Spike recovery outside accepted recovery limits



Date: 3/19/2014

**QC SUMMARY REPORT**  
**Volatile Organic Compounds by EPA Method 8260**

Work Order: 1403133  
 CLIENT: Cardno ATC  
 Project: Speedway Shopping Center (SSC)

Sample ID: 1403133-002BMS      SampType: MS      Units: mg/Kg-dry      Prep Date: 3/14/2014      RunNo: 13095  
 Client ID: B-6-1-2      Batch ID: 6873      Analysis Date: 3/16/2014      SeqNo: 262286

Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
cis-1,2-Dichloroethene	0.885	0.0199	0.9935	0	89.1	58.6	136				
Chloroform	0.904	0.0199	0.9935	0	91.0	53.2	129				
1,1,1-Trichloroethane (TCA)	0.880	0.0199	0.9935	0	88.6	58.3	145				
1,1-Dichloropropene	0.917	0.0199	0.9935	0	92.3	55.1	138				
Carbon tetrachloride	0.814	0.0199	0.9935	0	81.9	53.3	144				
1,2-Dichloroethane (EDC)	0.947	0.0298	0.9935	0	95.4	51.3	139				
Trichloroethene (TCE)	1.00	0.0199	0.9935	0	101	68.6	132				
1,2-Dichloropropane	0.805	0.0199	0.9935	0	81.0	59	136				
Bromodichloromethane	0.911	0.0199	0.9935	0	91.7	50.7	141				
cis-1,3-Dichloropropene	0.764	0.0199	0.9935	0	76.9	50.4	138				
trans-1,3-Dichloropropene	0.751	0.0298	0.9935	0	75.6	44.1	147				
1,1,2-Trichloroethane	0.955	0.0298	0.9935	0	96.1	51.6	137				
1,3-Dichloropropane	0.956	0.0497	0.9935	0	96.2	53.1	134				
Tetrachloroethene (PCE)	0.951	0.0199	0.9935	0.009889	94.7	35.6	158				
Dibromochloromethane	0.937	0.0298	0.9935	0	94.3	55.3	140				
Chlorobenzene	0.943	0.0199	0.9935	0	94.9	60	133				
1,1,1,2-Tetrachloroethane	0.844	0.0298	0.9935	0	84.9	53.1	142				
1,1,2,2-Tetrachloroethane	0.707	0.0199	0.9935	0	71.2	51.9	131				
2-Chlorotoluene	0.950	0.0199	0.9935	0	95.6	51.6	136				
4-Chlorotoluene	0.930	0.0199	0.9935	0	93.6	50.1	139				
1,2,3-Trichloropropane	1.01	0.0199	0.9935	0	102	50.5	131				
1,2,4-Trichlorobenzene	0.918	0.0497	0.9935	0	92.4	50.8	130				
1,3-Dichlorobenzene	0.937	0.0199	0.9935	0	94.3	52.6	131				
1,4-Dichlorobenzene	0.934	0.0199	0.9935	0	94.0	52.9	129				
1,2-Dichlorobenzene	0.949	0.0199	0.9935	0	95.5	55.8	129				
1,2-Dibromo-3-chloropropane	0.939	0.0298	0.9935	0	94.5	40.5	131				
Hexachloro-1,3-butadiene	0.898	0.0993	0.9935	0	90.4	40.6	158				
1,2,3-Trichlorobenzene	0.945	0.0199	0.9935	0	95.1	54.4	124				
Surr: Dibromofluoromethane	2.46		2.484		99.2	63.7	129				

**Qualifiers:** B Analyte detected in the associated Method Blank      D Dilution was required      E Value above quantization range  
 H Holding times for preparation or analysis exceeded      J Analyte detected below quantitation limits      ND Not detected at the Reporting Limit  
 R RPD outside accepted recovery limits      RL Reporting Limit      S Spike recovery outside accepted recovery limits

Date: 3/19/2014



**QC SUMMARY REPORT**  
**Volatile Organic Compounds by EPA Method 8260**

**Work Order:** 1403133  
**CLIENT:** Cardno ATC  
**Project:** Speedway Shopping Center (SSC)

Sample ID: 1403133-002BMS	Samp Type: MS	Units: mg/Kg-dry	Prep Date: 3/14/2014	RunNo: 13095
Client ID: B-6-1-2	Batch ID: 6873	%REC	Analysis Date: 3/16/2014	SeqNo: 262286
Analyte	Result	SPK value	SPK Ref Val	%RPD
Surr: Toluene-d8	2.55	2.484	2.484	103
Surr: 1-Bromo-4-fluorobenzene	2.51	2.484	2.484	101
		RL	HighLimit	RPD Ref Val
			128	
			141	

**NOTES:**  
 \*- Flagged value is not within established control limits.

Sample ID: LCS-6873	Samp Type: LCS	Units: mg/Kg	Prep Date: 3/14/2014	RunNo: 13095
Client ID: LCSS	Batch ID: 6873	%REC	Analysis Date: 3/15/2014	SeqNo: 262294
Analyte	Result	RL	LowLimit	HighLimit
			RPD Ref Val	RPD Ref Val
			%RPD	RPDLimit
			Qual	Qual
Dichlorodifluoromethane (CFC-12)	0.785	0.0600	0	136
Chloromethane	0.870	0.0600	0	132
Vinyl chloride	0.849	0.0200	0	130
Trichlorofluoromethane (CFC-11)	0.860	0.0500	0	132
Chloroethane	0.864	0.0600	0	144
1,1-Dichloroethene	0.853	0.0500	0	142
Methylene chloride	0.975	0.0200	0	135
trans-1,2-Dichloroethene	0.894	0.0200	0	130
1,1-Dichloroethane	0.928	0.0200	0	132
2,2-Dichloropropane	0.275	0.0500	0	149
cis-1,2-Dichloroethene	0.919	0.0200	0	123
Chloroform	0.926	0.0200	0	129
1,1,1-Trichloroethane (TCA)	0.906	0.0200	0	132
1,1-Dichloropropene	0.939	0.0200	0	131
Carbon tetrachloride	0.831	0.0200	0	137
1,2-Dichloroethane (EDC)	0.953	0.0300	0	136
Trichloroethene (TCE)	0.978	0.0200	0	133
1,2-Dichloropropane	0.800	0.0200	0	133
Bromodichloromethane	0.951	0.0200	0	136
cis-1,3-Dichloropropene	0.823	0.0200	0	143

**Qualifiers:**  
 B Analyte detected in the associated Method Blank  
 H Holding times for preparation or analysis exceeded  
 R RPD outside accepted recovery limits  
 D Dilution was required  
 J Analyte detected below quantitation limits  
 RL Reporting Limit  
 E Value above quantitation range  
 ND Not detected at the Reporting Limit  
 S Spike recovery outside accepted recovery limits





Date: 3/19/2014

**QC SUMMARY REPORT**  
**Volatile Organic Compounds by EPA Method 8260**

Work Order: 1403133  
 CLIENT: Cardno ATC  
 Project: Speedway Shopping Center (SSC)

Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual	Units: mg/Kg		RunNo: 13095
												SampType: LCS	Batch ID: 6873	Prep Date: 3/14/2014
trans-1,3-Dichloropropene	0.809	0.0300	1.000	0	80.9	49.2	149							
1,1,2-Trichloroethane	0.967	0.0300	1.000	0	96.7	74.5	129							
1,3-Dichloropropane	0.962	0.0500	1.000	0	96.2	70	130							
Tetrachloroethene (PCE)	0.948	0.0200	1.000	0	94.8	52.7	150							
Dibromochloromethane	0.973	0.0300	1.000	0	97.3	70.6	144							
Chlorobenzene	0.966	0.0200	1.000	0	96.6	76.1	123							
1,1,1,2-Tetrachloroethane	0.870	0.0300	1.000	0	87.0	74.8	131							
1,1,2,2-Tetrachloroethane	0.762	0.0200	1.000	0	76.2	60	130							
2-Chlorotoluene	0.956	0.0200	1.000	0	95.6	76.7	129							
4-Chlorotoluene	0.948	0.0200	1.000	0	94.8	77.5	125							
1,2,3-Trichloropropane	1.01	0.0200	1.000	0	101	67.9	136							
1,2,4-Trichlorobenzene	0.935	0.0500	1.000	0	93.5	65.6	137							
1,3-Dichlorobenzene	0.950	0.0200	1.000	0	95.0	72.8	128							
1,4-Dichlorobenzene	0.956	0.0200	1.000	0	95.6	72.6	126							
1,2-Dichlorobenzene	0.960	0.0200	1.000	0	96.0	72.8	126							
1,2-Dibromo-3-chloropropane	0.983	0.0300	1.000	0	98.3	60.3	130							
Hexachloro-1,3-butadiene	0.902	0.100	1.000	0	90.2	42	151							
1,2,3-Trichlorobenzene	0.964	0.0200	1.000	0	96.4	62.1	140							
Surr: Dibromofluoromethane	2.53		2.500		101	63.7	129							
Surr: Toluene-d8	2.56		2.500		103	61.4	128							
Surr: 1-Bromo-4-fluorobenzene	2.53		2.500		101	63.1	141							

NOTES:  
 S - Outlying spike recovery for 2,2-Dichloropropane was observed. Analyte will be flagged with a "SM".

Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual	Units: mg/Kg		RunNo: 13095
												SampType: MBLK	Batch ID: 6873	Prep Date: 3/14/2014
Dichlorodifluoromethane (CFC-12)	ND	0.0600												

**Qualifiers:** B Analyte detected in the associated Method Blank  
 H Holding times for preparation or analysis exceeded  
 R RPD outside accepted recovery limits  
 D Dilution was required  
 J Analyte detected below quantitation limits  
 RL Reporting Limit  
 E Value above quantitation range  
 ND Not detected at the Reporting Limit  
 S Spike recovery outside accepted recovery limits

Date: 3/19/2014



**QC SUMMARY REPORT**  
**Volatile Organic Compounds by EPA Method 8260**

**Work Order:** 1403133  
**CLIENT:** Cardno ATC  
**Project:** Speedway Shopping Center (SSC)

Sample ID: MB-6873	SampType: MBLK	Units: mg/Kg	Prep Date: 3/14/2014	RunNo: 13095
Client ID: MBLKS	Batch ID: 6873	%REC	Analysis Date: 3/15/2014	SeqNo: 262295
Analyte	Result	RL	SPK value	SPK Ref Val
			LowLimit	HighLimit
			RPD Ref Val	RPD Ref Val
			%RPD	RPDLimit
				Qual

Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Chloromethane	ND	0.0600									
Vinyl chloride	ND	0.00200									
Trichlorofluoromethane (CFC-11)	ND	0.0500									
Chloroethane	ND	0.0600									
1,1-Dichloroethene	ND	0.0500									
Methylene chloride	ND	0.0200									
trans-1,2-Dichloroethene	ND	0.0200									
1,1-Dichloroethane	ND	0.0200									
2,2-Dichloropropane	ND	0.0500									
cis-1,2-Dichloroethene	ND	0.0200									
Chloroform	ND	0.0200									
1,1,1-Trichloroethane (TCA)	ND	0.0200									
1,1-Dichloropropene	ND	0.0200									
Carbon tetrachloride	ND	0.0200									
1,2-Dichloroethane (EDC)	ND	0.0300									
Trichloroethene (TCE)	ND	0.0200									
1,2-Dichloropropane	ND	0.0200									
Bromodichloromethane	ND	0.0200									
cis-1,3-Dichloropropene	ND	0.0200									
trans-1,3-Dichloropropene	ND	0.0300									
1,1,2-Trichloroethane	ND	0.0300									
1,3-Dichloropropane	ND	0.0500									
Tetrachloroethene (PCE)	ND	0.0200									
Dibromochloromethane	ND	0.0300									
Chlorobenzene	ND	0.0200									
1,1,1,2-Tetrachloroethane	ND	0.0300									
1,1,2,2-Tetrachloroethane	ND	0.0200									
2-Chlorotoluene	ND	0.0200									
4-Chlorotoluene	ND	0.0200									

**Qualifiers:** B Analyte detected in the associated Method Blank  
H Holding times for preparation or analysis exceeded  
R RPD outside accepted recovery limits  
D Dilution was required  
J Analyte detected below quantitation limits  
RL Reporting Limit  
E Value above quantitation range  
ND Not detected at the Reporting Limit  
S Spike recovery outside accepted recovery limits



Date: 3/19/2014

**QC SUMMARY REPORT**  
**Volatile Organic Compounds by EPA Method 8260**

Work Order: 1403133  
 CLIENT: Cardno ATC  
 Project: Speedway Shopping Center (SSC)

Sample ID: MB-6873    SampType: MBLK    Units: mg/Kg    Prep Date: 3/14/2014    RunNo: 13095  
 Client ID: MBLKS    Batch ID: 6873    Analysis Date: 3/15/2014    SeqNo: 262295

Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
1,2,3-Trichloropropane	ND	0.0200									
1,2,4-Trichlorobenzene	ND	0.0500									
1,3-Dichlorobenzene	ND	0.0200									
1,4-Dichlorobenzene	ND	0.0200									
1,2-Dichlorobenzene	ND	0.0200									
1,2-Dibromo-3-chloropropane	ND	0.0300									
Hexachloro-1,3-butadiene	ND	0.100									
1,2,3-Trichlorobenzene	ND	0.0200									
Surr: Dibromofluoromethane	2.32		2.500		92.8	63.7		129			
Surr: Toluene-d8	2.47		2.500		98.8	61.4		128			
Surr: 1-Bromo-4-fluorobenzene	2.38		2.500		95.1	63.1		141			

**NOTES:**  
 \* - Flagged value is not within established control limits.

**Qualifiers:** B Analyte detected in the associated Method Blank    D Dilution was required    E Value above quantitation range  
 H Holding times for preparation or analysis exceeded    J Analyte detected below quantitation limits    ND Not detected at the Reporting Limit  
 R RPD outside accepted recovery limits    RL Reporting Limit    S Spike recovery outside accepted recovery limits





Client Name: <b>ATC</b>	Work Order Number: <b>1403133</b>
Logged by: <b>Chelsea Ward</b>	Date Received: <b>3/12/2014 2:45:00 PM</b>

**Chain of Custody**

1. Is Chain of Custody complete? Yes  No  Not Present
2. How was the sample delivered? Client

**Log In**

3. Coolers are present? Yes  No  NA
4. Shipping container/cooler in good condition? Yes  No
5. Custody seals intact on shipping container/cooler? Yes  No  Not Required
6. Was an attempt made to cool the samples? Yes  No  NA
7. Were all coolers received at a temperature of >0°C to 10.0°C? Yes  No  NA
8. Sample(s) in proper container(s)? Yes  No
9. Sufficient sample volume for indicated test(s)? Yes  No
10. Are samples properly preserved? Yes  No
11. Was preservative added to bottles? Yes  No  NA
12. Is the headspace in the VOA vials? Yes  No  NA
13. Did all samples containers arrive in good condition(unbroken)? Yes  No
14. Does paperwork match bottle labels? Yes  No
15. Are matrices correctly identified on Chain of Custody? Yes  No
16. Is it clear what analyses were requested? Yes  No
17. Were all holding times able to be met? Yes  No

**Special Handling (if applicable)**

18. Was client notified of all discrepancies with this order? Yes  No  NA

Person Notified:	<input type="text"/>	Date:	<input type="text"/>
By Whom:	<input type="text"/>	Via:	<input type="checkbox"/> eMail <input type="checkbox"/> Phone <input type="checkbox"/> Fax <input type="checkbox"/> In Person
Regarding:	<input type="text"/>		
Client Instructions:	<input type="text"/>		

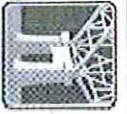
19. Additional remarks:

**Item Information**

Item #	Temp °C	Condition
Cooler	1.7	Good
Sample	0.9	Good







# Fremont

ANALYTICAL

## Chain of Custody Record

3600 Fremont Ave N.  
Seattle, WA 98103

Tel: 206-352-3790  
Fax: 206-352-7178

Date: 03/12/14

Laboratory Project No (Internal): 1403133

Page: 2 of 3

Client:

Cardno ATC

Project Name:

SSC

Address:

City, State, Zip

Location:

S. Payne

City, State, Zip

Tel:

Collected by:

S. Payne

Reports To (PM):

Fax:

Email:

Project No: 76-75354-0008

\*Matrix Codes: A = Air, AQ = Aqueous, B = Bulk, O = Other, P = Product, S = Soil, SD = Sediment, SL = Solid, W = Water, DW = Drinking Water, GW = Ground Water, WW = Waste Water

Sample Name	Sample Date	Sample Time	Sample Type (Matrix)*	VOC (EPA 8260)	GSX/TEX	BTEX	Gasoline Range Organics (GX)	Hydrocarbon Identification (HCDI)	Diesel/Heavy Organics (DHO)	SEM VOL (EPA 8270)	PAH (EPA 8270 - SIM)	PCBs (EPA 8092)	Metals** (6020 / 200.6)	Total (T)   Dissolved (D)	Anions (A)**	EDS (8011)	cVOCs 8260	Comments/Depth
1 B-8-7.5-8	03/12/14	11:10	Soil															hold
2 B-8-9.5-10		11:20																hold
3 B-9-0-1		11:35																X
4 B-9-1-2		11:40																X
5 B-10-0-1		11:55																X
6 B-10-1-2		12:00																X
7 B-10-3-4		12:05																X
8 B-10-7.5-8		12:10																hold
9 B-10-9.5-10		12:15																hold
10 B-11-0-1		12:20																X

\*\*Metals Analysis (Circle): MTCA-5 RCM-8 Priority Pollutants TAL Individual: Ag Al As B Ba Be Ca Cs Co Cr Cu Fe Hg K Mg Mn Mo Na Ni Pb Sn Se Sr Si Tl U V Zn

\*\*\*Anions (Circle): Nitrate Nitrite Chloride Sulfate Bromide D-Phosphate Fluoride Nitrate+Nitrite

Sample Disposal:  Return to Client  Disposed by Lab (A fee may be assessed if samples are returned after 30 days)

Reinspected: 03/12/14 14:45 Date/Time

Received: [Signature] Date/Time: 03/12/14 14:45

TAT -> Same Day Next Day 2 Day 3 Day STD

Applicator coordinate with the lab in advance



