

Hnat, John J - DNR

**From:** Rob Hoverman <RHoverman@enviroforensics.com>  
**Sent:** Wednesday, November 13, 2013 5:38 PM  
**To:** Hnat, John J - DNR  
**Cc:** Schroyer, Blaine R.; Hodgson, Scott A.; Bill Scott; William. Mulligan (wmulligan@dkattorneys.com); Brian Kappen  
**Subject:** Additional Site Investigation Work Plan - Shorewood Queensway Dry Cleaners (BRRTS# 02-41-552089)  
**Attachments:** 6107.0843\_Additional Site Investigation Work Plan\_11132013.pdf

J.

Attached is a work plan to complete additional site investigation activities for Shorewood Queensway Dry Cleaners (BRRTS# 02-41-552089). The work plan is proposed to fulfill site investigation as discussed in the meeting on October 15, 2013 and in response to your letter dated October 17, 2013. Please let me know if you have any questions or comments.


Sincerely,

**Rob Hoverman, LPG**  
Senior Project Manager

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DEC 3, 2013  
NOV 27 2013  
Walter  
Work Plan  
Reviewed 12/3/13

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November 13, 2013

Mr. J. Hnat  
Remediation and Redevelopment  
Southeast Region Headquarters  
Wisconsin Department of Natural Resources  
2300 N. Dr. Martin Luther King, Jr. Drive  
Milwaukee WI 53212-3128

**Subject: Additional Site Investigation Work Plan  
Shorewood Queensway Dry Cleaners (Shirdon Inc. d/b/a)  
4300 N. Oakland Avenue, Shorewood, Wisconsin 53211  
BRRTS# 02-41-552089  
EnviroForensics Project# 6107**

Dear Mr. Hnat:

Environmental Forensic Investigations, Inc. (EnviroForensics) is pleased to present this Work Plan for additional site investigation activities. The activities described in this Work Plan are designed to further define the extent of impacts at 4312 – 4334 N. Oakland Avenue in Shorewood, Wisconsin (Aunt Peg's). The impacts previously detected at the Aunt Peg's property are associated with past release(s) of dry cleaning solvent at Shorewood Queensway Dry Cleaners located at 4300 N. Oakland Avenue in Shorewood, Wisconsin (Site).

Representatives of Aunt Peg's have petitioned the Wisconsin Department of Natural Resources (WDNR) to demand Shorewood Queensway Dry Cleaners conduct additional vapor intrusion (VI) testing to demonstrate the Sub-Slab Depressurization System (SSDS), as installed, is protective of the entire building. On October 15, EnviroForensics participated in a meeting with the WDNR project manager John Hnat; and representatives Aunt Peg's and Shirdon, Inc. The meeting topics included technical details of the additional VI testing as well as further site investigation activities to define the extent of soil and groundwater impacts under the Aunt Peg's building. In a letter dated October 17, 2013, the WDNR provided a list of data collection activities required to finalize the Site investigation.

WDNR requirements and includes the following tasks:

- Sub-Slab Depressurization System (SSDS) Modification;
- Vapor Intrusion Sampling;

*Document: 6107-0843*

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- Soil and Groundwater Sampling;
- Investigation-Derived Media Management; and
- Data Evaluation and Reporting.

Throughout the following sections, tenant spaces in the Aunt Peg's building are referred to by address (4312 through 4334) Oakland Ave, and apartment number if applicable. A cross-section of the building listing addresses in each tenant space is provided in **Attachment 1**.

### **Sub-Slab Depressurization System Modification**

EnviroForensics proposes moving the SSDS stack to a location above the roofline of the second story of the Aunt Peg's building. It is anticipated the two (2) extraction point exhaust pipes will remain secured to the west wall of the 4312 and 4316 Oakland Avenue spaces, and then run north along the roof of 4312-4316 to the south wall of the 4324 Oakland Avenue tenant space. At that point, the exhaust piping will run vertically up the second story wall and terminate at least 4 feet above the top of the roofline. The proposed layout is depicted on **Figure 1**. If existing structures or ventilation systems prohibit this alteration, an alternative will be determined in the field to orient in a manner most favorable to prevent re-entrainment from the exhaust stack to the Aunt Peg's structure. Additional modifications such as increasing the size of the fan or adding a second fan may be necessary with the proposed exhaust extension and will be determined in the field. EnviroForensics will contract with a licensed electrician to rewire fans if necessary after re-routing the SSDS exhaust.

EnviroForensics also proposes to seal floor level foundation cracks along the north basement wall with low volatile organic compound (VOC) caulk. The water line penetrations will also be sealed with a low VOC expanding foam insulation. While the trash chutes identified in the structure may act as conveyance for vapors, it would be most appropriate for the maintenance staff for Aunt Peg's to disassemble the existing mechanisms holding the chutes closed. If that can be conducted in conjunction with the proposed activities, EnviroForensics will have its subcontractor seal the chute hatches.

### **Vapor Intrusion Sampling**

Vapor intrusion sampling at the Aunt Peg's building will include the collection of sub-slab vapor samples, indoor air samples, and outdoor (background) air samples. A simple building cross-section showing the proposed sample locations is provided as **Attachment 1**. Outdoor sample locations will be determined in the field upon evaluating weather conditions. All indoor and outdoor air samples will be collected in individually certified 6-liter vacuum canisters over a 24-hour period. The sub-slab samples will be collected in 1-liter batch certified canisters at a rate of 200 milliliters per minute. The samples will be identified by project number, address, and apartment number or location within the tenant space, as applicable.



A total of 14 indoor air samples, four (4) outdoor air samples, five (5) sub-slab vapor samples, and one (1) SSDS exhaust sample will be submitted to an environmental laboratory for analysis of VOCs according to EPA Method TO-15. The full list of compounds will be analyzed and reported to determine if other non-target compounds are potentially interfering with the analysis causing elevated detection limits.

### ***Sub-Slab Vapor Port Installation***

EnviroForensics will install three (3) additional permanent sub-slab vapor sampling ports at locations in the basement of the Aunt Peg's building to facilitate sample collection and pressure measurements. Sub-slab vapor sampling ports will be installed in the following tenant spaces:

- 4314
- 4320
- 4322

Initially, a 5/8-inch hole will be drilled through the concrete slab using an electric impact-drill. Vapor Pin™ sampling ports, constructed with a silicon sleeve to provide a mechanical seal between the sample port and the slab, will be installed using a dead blow hammer. The ports will be capped during installation until sampling is initiated. The Vapor Pins™ will be counter-sunk and plastic caps will be installed flush with the floor for re-use during future sampling events.

### ***Sub-Slab Vapor Sampling***

EnviroForensics will collect sub-slab vapor samples from the permanent sampling ports installed in the basements of the 4312, 4314, 4316, 4320, and 4322 tenant spaces. VOC concentrations measurements will also be collected from each sub-slab port using a photo-ionization detector (PID) and pressure readings will be collected from all available sub-slab ports using a digital micro manometer.

Potential ambient air entering into the sample through leaks in the sampling train and thus potentially into the sampling port can dilute the sample and lead to underestimation of concentration in the sample. To ensure that the sub-slab vapor samples are representative of subsurface vapor conditions, leak testing will be performed per methods required by WDNR Publication RR-800 and presented in *Standard Practice for Active Soil Gas Sampling in the Vadose Zone for Vapor Intrusion Evaluation*, ASTM Standard D7663-11.

Helium tracer gas will be delivered into a sealed shroud encompassing the sub-slab vapor point. The tubing for the sampling train will be attached to a helium detection device outside of the shroud. The helium detector will display an indicator if any helium is drawn into the point. If helium is detected the point will be re-sealed and re-tested

The canisters will be connected to the sub-slab vapor points using compression fittings and Teflon-lined polyethylene tubing. The integrity of the sample tubing and fittings will be conducted utilizing a negative pressure test with a hand pump. All fittings and the sample canister will be connected with its valve closed. A negative pressure of approximately 25-inches of mercury will be induced on the sampling train and held for approximately 60-seconds while being monitored visually. If a pressure drop is noted, all fittings will be retightened and the test will be repeated. The results of the leak detection and negative pressure tests will be noted on field sampling forms.

Just prior to sample collection, the tubing will be purged of all ambient air using a peristaltic pump prior to initiating sub-slab sampling. Initial and final pressure readings will be collected from each sampling canister and recorded on field sampling forms, along with all other required information.

### ***Indoor/Outdoor Air Sampling***

All indoor samples will be collected from the breathable space (3-5 feet above ground surface). Outdoor air samples (24-hour duration) will be collected from an upwind location to evaluate ambient air conditions. Initial and final pressure readings will be collected from each vacuum canister and recorded on field sampling form, along with all other required information.

The following air sampling is proposed to evaluate the effectiveness of the vapor mitigation:

- Collect one (1) indoor air sample from each of the basements of 4312, 4314, and 4316;
- Collect one (1) indoor air sample from each of the first floors of 4312, 4314, and 4316;
- Collect one (1) indoor air sample from each of the first floor spaces in 4320 and 4322;
- Collect one (1) indoor air sample from second floor hallway of 4324;
- Collect one (1) indoor air sample from each of the 4324 apartments #203 and #204;
- Collect one (1) indoor air sample from one eastern facing apartment. If access cannot be secured then collect a sample from the common hallway in 4332;
- Collect four (4) outdoor ambient samples; and
- Collect one (1) SSDS exhaust grab sample after modifying the exhaust stack.

The following parameters will be collected using a Davis Vantage Pro Weather Station during the sampling event:

- Climatic data for the sample period;
- Indoor air pressure data for each space sampled;
- Outdoor air pressure data at the time of sample collection; and
- Pressure readings from each sub-slab vapor port.



## Soil and Groundwater Sampling

Two (2) soil borings designated HA-7 and HA-8 will be advanced in the basement of 4312 and 4314 to further define the extent of soil and groundwater impacts. The locations of hand auger borings and well will be determined in the field upon access to the site buildings and field screening. The subsurface will be accessed by first coring through the concrete flooring with a 4-inch wet bit. The soil borings will be advanced using a hand auger to a maximum depth of 8 feet below ground surface (bgs). A portion of each one foot interval of soil will be field-screened using a PID, described lithologically and recorded on boring logs (WDNR 4400-122) in accordance with the Unified Soil Classification System (USCS). The results of field-screening using a PID will also be recorded on the boring logs. Two (2) soil samples will be collected from each boring at the depth of the highest PID reading and from the bottom of the boring.

One of the soil borings will be converted into a monitoring well constructed of 1-inch diameter Schedule 40 PVC screen and casing. A flush-mount cover will be installed to protect the well at the floor surface. The WDNR agreed in the aforementioned meeting, that a variance for the well installation per NR 141 would be granted. The approval of this work plan is assumed to constitute written variance approval. A sand pack will be used to fill the annulus of the boring. The final construction will be determined by the encountered conditions. The well will remain in place until it is no longer needed. One groundwater sample will be collected from the temporary well using a disposable bailer upon completion of its installation. Given the low yield of the water previously encountered at the site, development is not possible and a sample will be collected at a minimum of 48 hours after completion of the well, depending on the availability of water. The well will be surveyed relative to the other wells in the network.

If after one week, the new well does not produce enough water to sample it will be considered dry. In order to obtain a single, contemporaneous groundwater data set, a groundwater monitoring event will be conducted including depth to water measurements and sample collection from all eight (8) existing monitoring wells at the Site, assuming the new well produces water. Low-flow sampling techniques cannot be used at the Site due to drawdown during purging. Therefore, the wells will be purged of three well volumes if possible using new, disposable bailers to remove stagnant water. At each monitoring well, groundwater samples will be collected immediately after three well volumes have been removed.

The soil and groundwater samples will be collected in clean, laboratory-supplied containers. A total of four (4) soil samples, nine (9) groundwater samples, and three (3) quality assurance/quality control (QA/QC) samples will be collected. The samples will be submitted under chain-of-custody protocol to a state-certified environmental laboratory for analysis of VOCs according to EPA Method 8260.

### **Investigation-Derived Media Management**

Investigation-derived media (IDM) generated during the site investigation activities will be placed in DOT 17H-rated 55 gallon drums for subsequent characterization and management. Composite samples will be collected from the drums and analyzed for total VOCs. EnviroForensics anticipates that all IDM will be characterized as non-hazardous for disposal. The drums will be manifested and transported for disposal by a licensed contractor.

### **Data Evaluation and Reporting**

EnviroForensics will analyze the additional site investigation data and update the August 1, 2013 Site Investigation Report accordingly. Tables and figures will be revised, as appropriate, to incorporate the new data. Additional time will be spent completing a data submittal package to Aunt Peg's.

### **Schedule**

Data collection activities can be implemented within two weeks of WDNR approval of this Work Plan. EnviroForensics anticipates that field work can be completed in two weeks. The updated Site Investigation Report will be submitted within six weeks of receiving all analytical data.

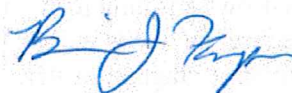
We appreciate the opportunity to provide you with this Work Plan. If you have any questions or require additional information, please don't hesitate to contact us at 866-888-7911.

Sincerely,

**Environmental Forensic Investigations, Inc.**

Handwritten signature of Rob Hoverman in blue ink.

Rob Hoverman, LPG  
*Senior Project Manager*

Handwritten signature of Brian Kappen in blue ink.

Brian Kappen, PG  
*Project Manager*

Cc: William J. Mulligan, Esq., Davis & Kuelthau  
Michael Scott, Esq., Davis & Kuelthau  
Shirley Carlson, Shorewood Queensway Dry Cleaners

**FIGURES**



**FIGURES**

Figure 1  
Modification of SSDS Exhaust Stack



**ATTACHMENT**





**Attachment 1  
Aunt Peg's Building Cross Section**

Looking east from street level

4332 IA Apartment or Hall	4324		Second floor
	#203 IA	IA Hall #204 IA	
4334	4330	4322	Ground floor
		IA	
		4316	Basement Level
		IA/SS	
		4314	Ground floor
		IA	
		4312	Basement Level
		IA/SS	

IA = Indoor air sample  
SS = Sub-slab sample