SUPPLEMENTAL REMEDIAL INVESTIGATION WORK PLAN
FORMER CHARLTON CLEANERS FACILITY
FOREST AVENUE SHOPPERS TOWN
STATEN ISLAND, NEW YORK
VCP SITE ID NO. W3-0891-01-06

APPENDIX II

QUALITY ASSURANCE/QUALITY CONTROL (QA/QC) PLAN

LEGGETTE, BRASHEARS & GRAHAM, INC.

QUALITY ASSURANCE/QUALITY CONTROL (QA/QC) PLAN FORMER CHARLTON CLEANERS FACILITY FOREST AVENUE SHOPPERS TOWN STATEN ISLAND, NEW YORK VCP SITE ID NO. W3-0891-01-06

Prepared For

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QUALITY ASSURANCE/QUALITY CONTROL

During soil, groundwater and soil gas/indoor air sampling, latex gloves will be worn and changed between sampling locations. All of the samples will be preserved for holding time (if necessary) and properly labeled in the field. This includes the following:

- name of collector;
- date and time of collection;
- place of collection; and,
- sample identification and/or number.

Chain-of-Custody Record will be completely filled out for every shipment and every sample to trace sample possession including:

- sample number and/or identification;
- signature of sample collector;
- date and time of sample collection;
- place of sample collection;
- sample type (water, soil, etc.);
- sample preservatives;
- sample container;
- requested analysis;
- signature of person involved with sample possession;
- inclusive dates of sample possession; and,
- pertinent comments and/or notes.

The laboratory portion of the Chain-of-Custody Form will be completed by the designated analytical laboratory person and contain the following information:

- inclusive dates of sample possession;
- pertinent comments and/or notes;
- name of person receiving the sample;
- laboratory sample number;
- date of sample receipt;
- analysis requested; and,
- sample condition and temperature.

Detailed field records for all site activities will be kept by the personnel performing or supervising the work. Recordkeeping will be completed in a field notebook and/or preprinted date sheets used by LBG. The field notebook and/or preprinted date sheets will be used to record pertinent observations (odors, visual observation, matters of interest, weather), all field measurements (water levels, pH, specific conductance) and any irregularities or deviations from the prescribed sampling procedures. All entries into the field book and/or preprinted date sheets will be with waterproof ink pen, initialed by the person completing the measurements/observations, and the pages of the field book numbered.

During sample collection, extreme care should be taken in order to ensure that high quality data are obtained. The sampling team should avoid fueling vehicles, using permanent marking pens or any other materials containing volatile organic compounds (VOCs) which can cause sample interference in the field.

Analytical data control checks will be established by utilizing trip blanks and field blanks. Trip blanks will be prepared in the laboratory using organic free water. Trip blanks will accompany a batch of samples from the start of sampling to delivery of samples to the laboratory for analysis, remaining unopened. The purpose of the trip blank is to measure possible cross contamination of samples during the shipping and handling stages. The Field Blank is prepared in the field by passing the analyte-free water from the full bottle to the empty Field Blank container. The purpose of the Field Blank is to demonstrate ambient field conditions and/or equipment conditions that may potentially affect the quality of the samples.

One field blank and one trip blank will be collected per twenty sampling locations for VOCs in ground water.

Sample storage should be in an appropriate shipping container such as a cooler. The sample storage container should be secured to ensure that the samples have not been disturbed during transport.

Unless otherwise stated in the Work Plan, laboratory analysis of soil and groundwater samples will consist of Category A (as defined in the ASP) or Category Spills laboratory data deliverables for all sampling performed at the Site with the exception of confirmatory (post remediation) samples and final delineation samples. For all confirmatory (post remediation) samples and final delineation samples, Category B laboratory data deliverables as defined in the analytical services protocol (ASP) will be submitted. In addition, a Data Usability Summary Report (DUSR) will be prepared by a party independent from the laboratory performing the analysis.

For all soil gas and indoor air quality sampling, Category B laboratory data deliverables as defined in the analytical services protocol (ASP) will be submitted. In addition, a DUSR will be prepared by a party independent from the laboratory performing the analysis.

In accordance with the DER-10 guidance document, analytical results without all quality control documentation and raw data may be provided for all intermediate sampling events and for all long-term groundwater monitoring samples where the Site has Department of Environmental Remediation oversight, provided the following information is submitted:

- a cover page, including facility name and address, laboratory name and address, laboratory certification number, if applicable, date of analytical report preparation and signature of laboratory director;
- a listing of all field sample identification numbers and corresponding laboratory sample identification numbers;
- a listing of all analytical methods used, including matrix cleanup method;
- the method detection limit and practical quantitation level for each analyte for each sample analysis;
- all sample results including date of analysis;

- all method blank results; and
- all chain-of-custody documentation.

SOIL SAMPLING PROCEDURES

Although no soil sampling is proposed in this SRIWP, this section has been retained to describe QA/QC procedures used previously at the Site as well as that which may be used in the future.

Soil samples may be collected several ways: grab sample, hand auger, geoprobe macrocore and split-spoon sampling.

Grab Sampling

Grab samples will be collected from exposed surficial soil and from stockpiled soil. Collection of a grab sample will be performed with the field personnel using latex or nitrile sampling gloves. The soil sample(s) will be placed into laboratory prepared sampling containers and stored on ice. The sample will then be shipped to the laboratory under chain-of-custody procedures.

Hand Auger Sampling

Pending access to the subsurface, the hand auger will be advanced from grade to the designated termination depth. Samples will be removed from the hand auger and placed on polyethylene liner for observation. During advancement of the hand auger, the samples obtained will be screened in the field for VOCs using a photoionization detector (PID). The soil samples will be handled by field personnel using new latex or nitrile sampling gloves for each sampling interval. Pending review of all samples collected, the previously collected soil samples will be stored in plastic Ziploc bags to prevent off-gassing of VOCs. The soil sample(s) selected for analysis will be placed into laboratory prepared sampling containers and stored on ice. The sample will then be shipped to the laboratory under chain-of-custody procedures.

Following completion of each individual boring, the hand auger sampling point and extension rods will be decontaminated using alconox and water.

Geoprobe Macrocore Sampling

Soil samples will be collected from several locations throughout the Site using a Geoprobe drill rig. This rig uses direct push technology to recover 4-foot long macrocore samples. The samples are collected in dedicated polyethylene liners. The liners are then cut open to expose the soil cross-section. The soil is then characterized on a geologic log. The soil samples will be handled by field personnel using new latex or nitrile sampling gloves for each sampling interval. Pending review of all samples collected, the previously collected soil samples will be stored in plastic Ziploc bags to prevent off-gassing of VOCs. The soil sample(s) selected for analysis will be placed into laboratory prepared sampling containers and stored on ice. The sample will then be shipped to the laboratory under chain-of-custody procedures.

Following completion of each macrocore sample, the macrocore will be decontaminated using alconox and water and a new dedicated polyethylene sleeve will be used.

Split-Spoon Sampling

Soil samples will be collected from several locations throughout the Site using a stainless steel split-spoon sampler in association with a hollow-stem auger and/or mud-rotary drill rig. This technique involves sending a 2-foot sampling device to the termination depth of a drill boring and hammering the sampler through the soil. The samples are collected within the split-spoon sampler and prevented from falling out of the sampler with a plastic basket at the bottom. After the split-spoon sampler is advanced two feet, it is removed from the boring. The split-spoon sampler is then taken apart exposing the soil sample. The soil is then characterized on a geologic log. The soil samples will be handled by field personnel using new latex or nitrile sampling gloves for each sampling interval. Pending review of all samples collected, the previously collected soil samples will be stored in plastic Ziploc bags to prevent off-gassing of VOCs. The soil sample(s) selected for analysis will be placed into laboratory prepared sampling containers and stored on ice. The sample will then be shipped to the laboratory under chain-of-custody procedures.

Following completion of each split-spoon sample, the split-spoon sampler will be decontaminated using alconox and water.

GROUNDWATER SAMPLING PROCEDURES

In the interest of generating additional groundwater parameter information, a low-flow sample technique will be used. Ground water will be sampled from onsite monitor wells using either a peristaltic sampling pump or an inertial (Waterra©) sampling pump. The pump intake will be placed at predetermined positions within each well and, if necessary, lowered as pumping progresses. The pump intake positions within each well will be determined from geologic logs.

The low flow purge and sample methodology will be utilized for the collection of groundwater samples. Prior to sampling, the depth to water with respect to the top of well casing and total depth of each well will be measured with an electric tape and weighted steel tape, respectively. Both measurements will be recorded in a field logbook. Dedicated Tygon tubing will be set within each well at the approximate mid-point of each well screen and connected to a sampling pump. The sampling pump will be operated at a discharge rate of 100-500 milliliters per minute and will discharge to a Flow-Through Cell. Geochemical parameters of the associated ground water such as pH, conductivity, dissolved oxygen and temperature will be continuously monitored inside the Flow-Through Cell using a Horiba multi-parameter meter. Once all of the above geochemical parameters stabilize ($\pm 5\%$), a groundwater sample will be collected from the dedicated Tygon tubing through an inline sampling port prior to the Flow-Through Cell. During the sampling, latex gloves will be worn and changed between sampling locations.

All of the samples will be preserved for holding time and properly labeled in the field. A chain-of-custody form will be filled out and the samples will be placed in a cooler with ice. The sample will then be shipped to the laboratory under chain-of-custody procedures.

SOIL GAS AND INDOOR AIR SAMPLING PROCEDURES

The purpose of soil gas and indoor air sampling is to determine the following:

- potential for current human exposure;
- potential for future human exposure;
- necessary measures to be implemented for removal of vapors from the subsurface and/or indoor air;
- potential for offsite soil vapor contamination;
- determine any offsite preferential migration pathways;
- characterize the vapors in the vadose zone; and,
- investigate the relationship between contaminated ground water and soil vapor.

In all circumstances of soil gas and indoor air sampling, the New York State Department of Health (NYSDOH) Guidance for Evaluating Soil Vapor Intrusion in the State of New York (October 2006) will be used to determine the sampling and evaluation methods.

Soil Gas

Soil gas samples will be collected from temporary or permanent soil gas probes. The following procedure will be used for the installation of temporary points:

- a 0.75-inch diameter probe will be installed at predetermined locations to no greater than 2 inches into sub-slab material (sub-slab vapor) or to a depth comparable to the depth of foundation footings (soil vapor);
- the probe will be fitted with inert polyethylene tubing of 1/8 inch to 1/4 inch diameter from the sampling zone to the surface; and,
- soil gas probes will be sealed above the sampling zone with a bentonite or other inert clay to avoid outdoor air infiltration.

Soil gas samples will be collected from the soil gas probes using the following procedures.

- a soil gas sample will be collected from the temporary probe after one to three volumes of the sample probe and the tube are purged using a peristaltic pump;
- flow rates for both purging and sampling will not exceed 0.2 liters per minute; and,
- each sample will be collected using a Summa canister with a regulator set to a flow rate not to exceed 0.2 liters per minute.

The soil gas sample will then be sent to the laboratory via overnight courier service under chain-of-custody procedures. The soil gas sample will be analyzed by a New York State Department of Health (NYSDOH) Environmental Laboratory Accreditation Program (ELAP) certified laboratory by EPA Method TO-15 and the laboratory results will be reported with ASP Category B deliverables.

Indoor Air

Indoor air samples will be collected from predetermined locations throughout the interior of the building. A 6-liter Summa canister will be placed in the sample location at a slightly elevated height. Each Summa canister used for collecting indoor air samples will be fitted with a dedicated regulator calibrated to a flow rate of 0.0125 liters per minute or 0.75 liters per hour resulting in an 8-hour sampling period. The indoor air sample will be analyzed by a NYSDOH ELAP certified laboratory by EPA Method TO-15 and the laboratory results will be reported with ASP Category B deliverables. The indoor air sample will be sent to the laboratory via overnight courier service under chain-of-custody procedures.

Whenever indoor air is sampled, the products used in the building will be inventoried to determine the potential contribution of volatile chemicals. In addition, the type of structure, floor layout and physical conditions of the building will be noted. At the end of this Appendix is a copy of the NYSDOH Indoor Air Quality Questionnaire and Building Inventory (October 2006 Guidance for Evaluating Soil Vapor Intrusion in the State of New York) which will be used for this inventory:

FORMER CHARLTON CLEANER FACILITY
VOLUNTARY CLEANUP PROGRAM INDEX # W3-0891-01-06
FOREST AVENUE SHOPPERS TOWN
24 BARRETT AVENUE
STATEN ISLAND, NEW YORK

Analytical Methods/Quality Assurance Summary Table

Matrix Type	Analytical Parameters	Analytical Method	Number of Samples to be Collected	Field Blank Frequency	Trip Blank Frequency	Number of Matrix and Matrix Spike Duplicate Samples	Number of Duplicate Samples	Number of Split Samples	Sample Preservation	Sample Container Type	Sample Container Volume	Sample Holding Time
Ground-Water	VOCs [1]	EPA 8260	50 + 12 bimonthly (pilot study)	1 per 20 Samples	1 per 20 Samples	None	None	None	Hydrochloric Acid; Ice	Glass	40 ml	14 Days
	TOC[2]	EPA 415.1 or SM 5310B	12 bimonthly (pilot study)	None	None	None	None	None	Sulfuric Acid, Ice	Glass	120 ml	28 Days
	Organic Acids	Ion Chromatography	12 quarterly (pilot study)	None	None	None	None	None	Ice	Amber Glass	120 ml	28 Days
	Nitrate, Sulfate	EPA 353.2, 300D516-2	12 bimonthly (pilot study)	None	None	None	None	None	Ice	Plastic	100 ml	48 Hours
	Methane, Ethane, Ethene	ASTM D1945, RSK-175	12 quarterly (pilot study)	None	None	None	None	None	Hydrochloric Acid; Ice	Glass	120 ml	14 Days
	Total and Dissolved Fe and Mn	EPA 6010B	12 quarterly (pilot study)	None	None	None	None	None	Nitric Acid, Ice	Plastic	250 ml	180 Days
Soil Gas/Indoor Air	VOCs	TO-15	14	None	None	None	None	None	None	Summa Canister	6 Liter	Not Applicable

1) Volatile organic compounds
2) Total organic carbon

NEW YORK STATE DEPARTMENT OF HEALTH
INDOOR AIR QUALITY QUESTIONNAIRE
AND BUILDING INVENTORY

FROM:

NYSDOH GUIDANCE FOR EVALUATING SOIL
VAPOR INTRUSION IN THE STATE OF NEW YORK
OCTOBER 2006

OSR – 3

NEW YORK STATE DEPARTMENT OF HEALTH
INDOOR AIR QUALITY QUESTIONNAIRE AND BUILDING INVENTORY
CENTER FOR ENVIRONMENTAL HEALTH

This form must be completed for each residence involved in indoor air testing.

Preparer's Name ________________________________ Date/Time Prepared ____________

Preparer's Affiliation ____________________________ Phone No.___________________

Purpose of Investigation____

1. OCCUPANT:

Interviewed: Y / N

Last Name: ______________________ First Name: ______________________

Address: ____

County: _______________

Home Phone: __________________ Office Phone: __________________

Number of Occupants/persons at this location ______ Age of Occupants ___________________

2. OWNER OR LANDLORD: (Check if same as occupant ___)

Interviewed: Y / N

Last Name: ______________________First Name: ________________________

Address: ____

County: _______________

Home Phone: __________________ Office Phone: __________________

3. BUILDING CHARACTERISTICS

Type of Building: (Circle appropriate response)

Residential	School	Commercial/Multi-use
Industrial	Church	Other: _______________

If the property is residential, type? (Circle appropriate response)

Ranch	2-Family	3-Family
Raised Ranch	Split Level	Colonial
Cape Cod	Contemporary	Mobile Home
Duplex	Apartment House	Townhouses/Condos
Modular	Log Home	Other:______________

If multiple units, how many? _______

If the property is commercial, type?

Business Type(s) ___________________________________

Does it include residences (i.e., multi-use)? Y / N If yes, how many? ______

Other characteristics:

Number of floors______ Building age______

Is the building insulated? Y / N How air tight? Tight / Average / Not Tight

4. AIRFLOW

Use air current tubes or tracer smoke to evaluate airflow patterns and qualitatively describe:

Airflow between floors

____

____

____

Airflow near source

____

____

____

Outdoor air infiltration

____

____

____

Infiltration into air ducts

____

____

____

5. BASEMENT AND CONSTRUCTION CHARACTERISTICS (Circle all that apply)

a. Above grade construction:	wood frame	concrete	stone	brick
b. Basement type:	full	crawlspace	slab	other ________
c. Basement floor:	concrete	dirt	stone	other ________
d. Basement floor:	uncovered	covered	covered with _______________	
e. Concrete floor:	unsealed	sealed	sealed with ________________	
f. Foundation walls:	poured	block	stone	other ________
g. Foundation walls:	unsealed	sealed	sealed with ________________	
h. The basement is:	wet	damp	dry	moldy
i. The basement is:	finished	unfinished	partially finished	
j. Sump present?	Y / N			
k. Water in sump?	Y / N / not applicable			

Basement/Lowest level depth below grade: ________(feet)

Identify potential soil vapor entry points and approximate size (e.g., cracks, utility ports, drains)

____

____

6. HEATING, VENTING and AIR CONDITIONING (Circle all that apply)

Type of heating system(s) used in this building: (circle all that apply – note primary)

Hot air circulation	Heat pump	Hot water baseboard	
Space Heaters	Stream radiation	Radiant floor	
Electric baseboard	Wood stove	Outdoor wood boiler	Other __________

The primary type of fuel used is:

Natural Gas	Fuel Oil	Kerosene
Electric	Propane	Solar
Wood	Coal	

Domestic hot water tank fueled by: ____________________________

Boiler/furnace located in:	Basement	Outdoors	Main Floor	Other__________
Air conditioning:	Central Air	Window units	Open Windows	None

Are there air distribution ducts present? Y / N

Describe the supply and cold air return ductwork, and its condition where visible, including whether there is a cold air return and the tightness of duct joints. Indicate the locations on the floor plan diagram.

____

____

____

____

7. OCCUPANCY

Is basement/lowest level occupied? Full-time Occasionally Seldom Almost Never

Level	General Use of Each Floor (e.g., familyroom, bedroom, laundry, workshop, storage)
Basement	______________________________
1st Floor	______________________________
2nd Floor	______________________________
3rd Floor	______________________________
4th Floor	______________________________

8. FACTORS THAT MAY INFLUENCE INDOOR AIR QUALITY

a. Is there an attached garage?		Y / N
b. Does the garage have a separate heating unit?		Y / N / NA
c. Are petroleum-powered machines or vehicles stored in the garage (e.g., lawnmower, atv, car)		Y / N / NA Please specify__________
d. Has the building ever had a fire?		Y / N When?__________
e. Is a kerosene or unvented gas space heater present?		Y / N Where?__________
f. Is there a workshop or hobby/craft area?	Y / N	Where & Type? __________
g. Is there smoking in the building?	Y / N	How frequently? __________
h. Have cleaning products been used recently?	Y / N	When & Type? __________
i. Have cosmetic products been used recently?	Y / N	When & Type? __________

j. Has painting/staining been done in the last 6 months? Y / N Where & When? ______________

k. Is there new carpet, drapes or other textiles? Y / N Where & When? ______________

l. Have air fresheners been used recently? Y / N When & Type? _______________

m. Is there a kitchen exhaust fan? Y / N If yes, where vented?___________

n. Is there a bathroom exhaust fan? Y / N If yes, where vented?___________

o. Is there a clothes dryer? Y / N If yes, is it vented outside? Y / N

p. Has there been a pesticide application? Y / N When & Type?________________

Are there odors in the building? Y / N
If yes, please describe: ____

Do any of the building occupants use solvents at work? Y / N
(e.g., chemical manufacturing or laboratory, auto mechanic or auto body shop, painting, fuel oil delivery, boiler mechanic, pesticide application, cosmetologist

If yes, what types of solvents are used? ____

If yes, are their clothes washed at work? Y / N

Do any of the building occupants regularly use or work at a dry-cleaning service? (Circle appropriate response)

Yes, use dry-cleaning regularly (weekly) No
Yes, use dry-cleaning infrequently (monthly or less) Unknown
Yes, work at a dry-cleaning service

Is there a radon mitigation system for the building/structure? Y / N Date of Installation: ___________
Is the system active or passive? Active/Passive

9. WATER AND SEWAGE

Water Supply:	Public Water	Drilled Well	Driven Well	Dug Well	Other: _______
Sewage Disposal:	Public Sewer	Septic Tank	Leach Field	Dry Well	Other: _______

10. RELOCATION INFORMATION **(for oil spill residential emergency)**

a. Provide reasons why relocation is recommended: ______________________________________

b. Residents choose to: remain in home relocate to friends/family relocate to hotel/motel

c. Responsibility for costs associated with reimbursement explained? Y / N

d. Relocation package provided and explained to residents? Y / N

11. FLOOR PLANS

Draw a plan view sketch of the basement and first floor of the building. Indicate air sampling locations, possible indoor air pollution sources and PID meter readings. If the building does not have a basement, please note.

Basement:

First Floor:

12. OUTDOOR PLOT

Draw a sketch of the area surrounding the building being sampled. If applicable, provide information on spill locations, potential air contamination sources (industries, gas stations, repair shops, landfills, etc.), outdoor air sampling location(s) and PID meter readings.

Also indicate compass direction, wind direction and speed during sampling, the locations of the well and septic system, if applicable, and a qualifying statement to help locate the site on a topographic map.

13. PRODUCT INVENTORY FORM

Make & Model of field instrument used: ______________________

List specific products found in the residence that have the potential to affect indoor air quality.

Location	Product Description	Size (units)	Condition*	Chemical Ingredients	Field Instrument Reading (units)	Photo ** Y / N

* Describe the condition of the product containers as **Unopened** (UO), **Used** (U), or **Deteriorated** (D)
** Photographs of the **front and back** of product containers can replace the handwritten list of chemical ingredients. However, the photographs must be of good quality and ingredient labels must be legible.

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KEY PROJECT PERSONNEL

LBG will be responsible for all soil sampling, groundwater sampling, soil gas and indoor air sampling, waste disposal classification, health and safety, reporting and oversight aspects of the project. Subcontractors will be used to perform onsite soil borings; install the onsite groundwater monitoring wells, extraction wells and soil-vapor extraction wells; perform onsite pilot tests; and dispose of any waste generated on Site. Additionally, all laboratory analysis will be subcontracted to a New York State certified laboratory which maintains current NYSDOH ELAP Certification. LBG project personnel are listed below along with brief descriptions of their experience and anticipated project responsibilities.

Dan C. Buzea, Vice President, Principal-in-Charge

Mr. Buzea is one of the managing partners of LBG and has been with the firm since 1978. Mr. Buzea has over 37 years of experience with groundwater supply and contamination projects (including several Voluntary Cleanup/Brownfield projects) in the U. S. and overseas and he has been in charge of the New York office since it opened in 1995.

As Principal-in-Charge, Mr. Buzea's responsibilities would include contract execution and overall quality assurance and quality control. He will be briefed regularly by the Project Manager and will review all final work products.

Paul Woodell, Associate, Project Manager, Site Manager

Mr. Woodell has been with LBG since 1999 and has been an Associate with the company since 2007. Mr. Woodell's hydrogeologic experience includes but is not limited to groundwater, surface-water and soil sampling; drilling supervision during installation of monitor wells; the maintenance of hydrocarbon remediation systems; supervision of underground storage rank removals; supervision of pumping tests and the analysis of test data; stream gauging and quantitative dye tracing.

As Project Manager, Mr. Woodell would be the primary contact for the project and would be responsible for coordinating and conducting all tasks necessary to complete the required scope of work. Mr. Woodell would work with all associated subcontractors and would report directly to the Principal-in-Charge.

Michael De Felice, Senior Hydrogeologist, Field Personnel

Mr. De Felice has been with LBG since 2002 and has been a Senior Hydrogeologist with the company since 2007. Mr. De Felice's hydrogeologic experience includes but is not limited to collection of soil and groundwater samples; drilling supervision and formation sampling during the installation of groundwater monitor and recovery wells; development and test pumping of recovery wells, monitor well design; supervision of hazardous soil removals, and air monitoring.

As field personnel, Mr. De Felice would be responsible for monitor well installation oversight, soil sampling, groundwater sampling and indoor air and soil-vapor sampling. Mr. De Felice would work with all associated subcontractors and would report directly to the Project Manager.

Jason Stouffer, Hydrogeologist, Field Personnel

Mr. Stouffer has been with LBG since 2005. His hydrogeologic experience includes drilling supervision, soil, ground-water, surface water, indoor air and soil-vapor sampling. As field personnel, Mr. Stouffer would be responsible for monitor well installation oversight, soil sampling, groundwater sampling and indoor air and soil-vapor sampling. Mr. Stouffer would work with all associated subcontractors and would report directly to the Project Manager.

Brian Hawe, Hydrogeologist, Field Personnel

Mr. Hawe has been with LBG since 2006. His hydrogeologic experience includes drilling supervision, soil, ground-water, surface water, indoor air and soil-vapor sampling. As field personnel, Mr. Hawe would be responsible for monitor well installation oversight, soil sampling, groundwater sampling and indoor air and soil-vapor sampling. Mr. Hawe would work with all associated subcontractors and would report directly to the Project Manager.