OPERATION, MAINTENANCE
&
MONITORING PLAN

For

Sub-Slab Depressurization System

PREPARED FOR

135 KENT AVENUE MANAGEMENT CORP.

135 Kent Avenue

Brooklyn, New York 11249-3154

Site No.: C224177

SUBMITTED TO

NEW YORK STATE DEPARTMENT OF

ENVIRONMENTAL CONSERVATION Region 2

47-40 21st Street,

Long Island City, New York

PREPARED BY

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OCTOBER 2015

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1.0 INTRODUCTION

This Startup, Operation, Maintenance and Monitoring Plan has been developed for the installed Sub-Slab Depressurization System (SSDS) of the subject property (Figure-1 and Figure-2). The installation of this system was completed on June 20, 2014 and started to confirm system operation. During that start up vacuum measurements were obtained from all vapor wells to confirm a radius of influence was seen under the entire sub-slab. Additionally, an exhaust stack emission sample was obtained for testing to confirm discharge standards were being met. Once preliminary test results were obtained they were forwarded to NYSDEC and NYSDOH for review. On July 10th, 2014, the Remedial Engineer (John V. Soderberg) received a written confirmation via email from the NYSDEC authorizing the official start-up of the SSDS. See Appendix-F. On July 11th, 2014 BEI mobilized to the 135 Kent Avenue site and started the SSDS system which remains operational to date.

Berninger Environmental personnel, under the direction of the Remedial Engineer, conducted two (2) pilot tests to confirm the SSDS system operated properly and was able to achieve the necessary zone of influence. The first pilot test was conducted on March 04, 2014 with a temporary radon vacuum blower unit (installed at current V-3 location in hallway adjacent to clothing store) which did not achieve enough suction at all vacuum monitoring points to create a radius of influence to affect the entire sub surface of the 135 Kent building. The temporary radon fan was installed for a duration of approximately two (2) hours. The second pilot test was conducted during June of 2014. Vacuum readings were achieved with the 3 horsepower Rotron vacuum motor between each vapor well confirmed that the entire sub surface of the building was achieved. A third pilot test was conducted on October 8, 2014 utilizing permanent vapor points installed throughout the buildings foundation. Figure-3 depicts the results of the third pilot test and provides vacuum readings detected at each permanent vapor well.

Two site visits were performed during July 2014 to provided access for Verizon to install a phone line and jack confirmed the vacuum motor has continued to operate. No work was performed during those visits just providing access. A third visit performed July 14, 2014 after we were informed a Fire occurred on the roof found that the NYCFD had shut the Vacuum motor off which was restarted during that check out. Pictures documented areas of the roof fire away from the SSDS and exhaust vents.

In this plan we will discuss the SSDS well installation, flow diagram for the SSDS system along with the Startup, Monitoring and Maintenance schedule. Please note that the information in this report has been adapted and duplicated from the approved SSDS Work Plan dated January 2014 and March 2014 to meet the predefined criteria set forth by the NYSDEC.

2.0 Installation of SSDS

During the months of May and June of 2014 the installation of the system proceeded as per the approved Sub-slab Depressurization Design Document (March 2014). The SSDS design consists of six (6) 2” PVC vertical vacuum wells installed to a depth of five feet below the existing concrete floor. The six (6) wells are located at the following locations: the ladies clothing store, a second in the hallway between the clothing and furniture stores, a third in the furniture store storage room, a fourth in the hallway behind the furniture store/deli area, a fifth in the hallway behind the real estate area and the sixth by the elevator area. Figure 4 of the first floor locates these wells throughout the building’s footprint. Each well has been constructed using a 5’ length of 2" diameter, schedule 40, PVC slotted screened pipe. The screened portion of each well was placed just below the existing floor. See Figure-7 for diagram of a typical extraction point. The wells were installed as close as possible to existing walls in each area to allow for each PVC piping leg to be routed from below the floor, up the walls and along the ceiling where they continue to the treatment system. Before entering the treatment system four (4) (V-3-6) of the six (6) vacuum wells were manifolded together. V-1 and

V-2 are connected in the rear hallway near the elevator shaft and continue to the recovery room where the pipe is connected to form one single inlet pipe. The single pipe is then connected to the vacuum blower motor at the intake valve. The motor selected for the SSDS is a Rotron Regenerative Explosion Proof Blower (3 horsepower) with a maximum flow rate of 200 CFM. The blower specs are attached as Appendix-A.

Schedule 80 PVC riser pipe was connected to the blower exhaust point and routed to carbon filter units (carbon-1 and carbon-2) prior to discharge to the atmosphere, above the roof line. Discharge piping from carbon filters has been routed from the treatment room into the elevator shaft on the west wall and piped to the roof. The exhaust stack has been secured to the elevator shaft enclosure and raised to approximately 10’ above the elevator shaft roofline and secured in place with guide wires and a rain cap. Additionally, a second 2” discharge riser pipe connected to a small 110 volt radon fan, has been installed alongside the SSDS exhaust line (12' above roof line) from the treatment room to the elevator shaft and piped to the roof to handle any heat buildup within the treatment room.

Following the NYSDOH Guideline Section 4.2.2 c.(6)i-iv, the exhaust discharge pipe has been installed above the roof, above the highest eave of the building and 10’ above and away from any opening on the building or any adjacent buildings.

A pre-intake vacuum gauge has been installed prior to the blowers intake port in order to gauge the effectiveness of the systems suction power. Pressure gauges have also been installed on the effluent piping, prior to the first carbon drum, between the drums and after both drums. Sample ports for PID/Summa canister testing have been installed in the same locations as the pressure gauges: pre-carbon, between carbon drums and post carbon drums.

An as-built drawing has been developed which locates the piping scheme, SSDS wells, blower motor, carbon filters and discharge piping to the roof. See Figure-4, Figure-5 and Figure-5b.

3.0 System Operation

The overall construction of the SSDS system located at the subject site has been designed to operate with minimal human intervention. The main component of the SSDS that requires periodic human intervention is: monthly testing with a PID meter of pre, mid and post carbon sample ports to determine where break through has occurred. In this section startup procedures and maximizing efficiency shall be discussed.

3.1 Start Up Checklist

Prior to starting the SSDS system it is important to check over the entire system. See Appendix-G for inspection checklist. Included in this check would be:

3.1.2 All Electrical Connections

The main power for the operation of the SSDS is routed through a sub-panel connected in the building to the recovery room. This power must be switched on and should always be in the "ON" position. A separate panel with an "ON and OFF" switch is located in the system control room. (storage room area in the back part of the building) where a blower unit and carbon canisters are stored. It is this switch that will ultimately control the "on and off" of the SSDS system. A Sensaphone telemetry system has also been incorporated into the system design in order to provide real time information on the systems performance (blower operation, treatment room temp, power status). The Sensaphone is designed to relay a telephone call to designated personnel (BEI staff) in the event of a power failure, disabling the system. During inspection the Sensaphone is visually inspected to ensure all electrical connections are secure and the system is operating properly. The Sensaphone is also contacted via telephone on monthly basis (other then site visits) in order to confirm system operation. The Sensaphone is locked a secured in a separate lock box. See Figure-5b which

depicts the location of the switch panel (ON OFF) and Sensaphone.

3.1.3 All plumbing--Vapor Wells

Incorporated into this system are six (6) SSDS vapor wells. The SSDS has 6 vertical wells located at different locations on the first floor of the building. (Figure 2) One vapor well has been installed in Meg's Clothing store along the east wall of the building, a second vapor well in the eastern hallway, a 3rd just south of the Deli in the hallway, a 4th in the Furniture storage room on the south east side and two vapor wells in the rear hallway on the south side of the building. Each well is connected to the system manifold where individual sampling/monitoring ports have been installed in order to individually monitor the progress of each well. Each well connected to the manifold also possesses a ball valve that can be used to adjust the airflow on each of the Vapor wells. See Figure-4 for location of vapor wells.

Vacuum Pump

The vacuum pump located in the system recovery room should be visibly inspected for abnormalities. The pump is sealed and is designed to be maintenance free.

Dual Carbon Drum Filtration

Located in the system recovery room are the two carbon drum units. The effluent from the vacuum pump is routed with galvanized pipe and a union through the first carbon drum. From the first drum with galvanized pipe and a union to the second carbon drum. From the second carbon drum to schedule 80 PVC exhaust pipe also with a union. The purpose of the unions is to allow for carbon drum replacement as needed. The exhaust is routed to the elevator shaft up the shaft and out the roof. All valves must be in the proper positions prior to start up and during operation.

Stack Inspection

The emissions stack should be visually inspected to ensure that it is securely connected to the building and has maintained a height, at a minimum, of 20' above the roof line.

3.2 Powering on the System

At this point the system has been inspected from all influent sources to final effluent sources and all valves have been placed in the proper position. The main power supply should be on, and as stated earlier, is located in the system recovery room. Pushing the green (Start) button on the panel located within the system recovery room above the vacuum motor will start the system.

After the SSDS system has been turned on the vacuum and pressure gauges located on the inlet and exhaust piping should indicate vacuum and pressure readings. As long as the system is operational the gauges will be indicating both vacuum and pressure readings of 4-7 in/H2O for vacuum and 4-7 psi for pressure. Readings of less then 2 in/H2O or 2 psi would indicate that the system may not be functioning at it's full potential and a thorough inspection of the entire system would be conducted. If the system shuts off due to power outages, electric interruption or a failure of the vacuum motor a Sensaphone telemetry system with dial out on the installed phone line to two cell phone numbers programed into the Sensaphone unit with an alarm status that the system is down and off. Upon receipt of that notice personnel will respond to the 135 Kent Avenue site to assess the alarm diagnosis make any necessary repairs required or just restart the system if caused by power outage or interruption. In the event of a system alarm condition, the NYSDEC and NYSDOH project managers will be notified via email.

3.3 Optimizing the SSDS system

Once the system is in operation all components should be reinspected to ensure that the system is functioning properly. After the system has been inspected for leaks and valves have been double checked all vacuum shall then be diverted to the vapor extraction wells. Once the vacuum has been diverted to the vapor extraction wells the ball valves located on the manifold can be adjusted to maximize the system in order to maintain a negative pressure at the permanent vapor points within the building, while obtaining maximum vacuum to the wells that are recovering the most mass. Refer to Appendix-G, inspection form, which provides a table for assessing air flow readings at vapor wells and vacuum readings at permanent vapor points.

4.0 Post Start-up Monitoring and Maintenance

Routine maintenance of the SSDS system shall start upon permanent system operation. During the first month of operation BEI visited the subject site on three (3) separate occasions with two to provide access for Verizon to install and connect the phone line and activate, and a third after a fire on the roof occurred with no damage to the SSDS. Monitoring and reporting will continue on a monthly basis as required in the Brownfield Cleanup Agreement.

4.1 Carbon Drum Replacement

BEI has implemented a dual carbon drum filtration system, which incorporates two carbon drums into the system. The first drum in the series acts as the primary drum for reducing chemical concentrations while the secondary drum is a back up to prevent carbon breakthrough releasing into the atmosphere. With the use of installed sampling ports (see Figure 5b) BEI will be able to monitor the effluent PID response units of both the primary and the secondary carbon drum. In the event that the primary carbon drums' effluent PID reading is in excess of 5 ppm, this shall be regarded as breakthrough, BEI will remove the primary drum for proper disposal and replace it with the secondary drum which will then become the primary drum. At this time a new activated carbon drum shall be installed as the secondary drum, with one spare drum left on site.

4.1.1 Carbon Drum Disposal

Once a Carbon Drum has reached breakthrough it must be replaced and disposed of as Hazardous Waste. After a carbon drum has reached breakthrough a sample will be collected and analyzed according to the disposal facility parameters/requirements. Regardless of the test results a Carbon Drum Profile sheet will be completed as shown in Appendix B. Any receipts/manifests generated from disposal of spent carbon drums will be produced in the monthly progress report that follows the disposal of the carbon drum. The carbon from the carbon filter units in the apartments, will be treated in the same manner as the spent carbon drums, although breakthrough is hard to determine and largely based upon indoor air sampling results. The manufacturer recommends annual replacement of the carbon in the carbon filter units. All spent carbon will be stored in the locked/secured recovery room. Access to this room is strictly limited to the property manager and inspection technicians.

4.2 Monthly Monitoring and Maintenance Procedures

Routine airflow and concentration sampling of the SSDS will occur on a monthly basis. BEI staff will go to the site to collect airflow and bulk air concentration data. Airflow calculations for the SSDS will be generated using inline airflow rates and VOC concentration data collected at each of the SVE wells' sampling ports, with the use of a PID meter. A monitoring worksheet has been attached within Appendix-G to outline all monitoring and maintenance protocols. On a monthly basis PID readings will be collected from the influent sampling port, middle and the effluent sampling port.

4.2.1 VOC Monitoring at Vapor Extraction Wells

In order to collect VOC air concentration measurements, the vacuum exerted by the SSDS will be temporarily shut down independently at each well head to eliminate the

vacuum on the Vapor well being tested. Within 30 seconds of the vapor well being shut-down, total VOC measurements will be measured with a Photoionization detector (PID) via a sample port installed on the system manifold for each SSDS well. Air concentration measurements will be recorded once stabilization within the PID meter has been established or 30 seconds have passed. Upon recording of the PID readings, the SSDS well will then be slowly turned back on to allow air flow within the piping. Upon completion of this testing the system will be returned to normal operation.

4.2.2 VOC Monitoring at Carbon Drums

During all monitoring events BEI shall record influent, middle and effluent PID readings of the Carbon Filtration system. As stated previously a spare unused Carbon drum shall be left on site so that in the event BEI personnel observe breakthrough within Effluent PID readings of the primary carbon drum the secondary drum can be put in the place of the primary drum and a new carbon drum will be installed in the secondary drum position. The used carbon drum will be labeled and prepared for proper disposal. A pressure reading shall also be attained pre, mid and post-carbon drum.

4.2.3 VOC Testing of Permanent Vapor Points

During this post installation testing all accessible permanent vapor sampling points within the subject property will also be sampled for VOC concentrations with the use of a PID meter. The PID response units shall be recorded and incorporated within the monthly reports and on monthly inspection form. Appendix-G.

4.2.4 Air Flow Calculations

Air flow volumes within the piping will be recorded with the use of a portable

anemometer[1], commencing during the November 2014 monitoring event and continuing thereafter. These readings will be recorded at the manifold for each vapor extraction well along with the post-vacuum pump and post carbon filtration system.

4.2.5 Monthly Reporting

Monthly inspections will consist of observation and documentation of system component operations and conditions. All monthly monitoring data will be reported on a monthly basis and will include a narrative that describes all activities performed on site for the reporting period. Data shall be included with the monthly monitoring report.

4.2.6 Site Sensaphone Notification

BEI has installed a Sensaphone at the site to notify us if power is turned off-interrupted or a power failure occurs. The Sensaphone upon disconnection of power to the vacuum motor also stops power to the Sensaphone outlet. Once this happens battery backup along with a phone line dials out to two cell phone numbers to alert us that an alarms status has occurred and the vacuum motor is off. The Sensaphone also provides a temperature and microphone so we may listen in to hear if the vacuum motor is operating. If the vacuum motor is off a specialist will be sent to the site to determine the cause for the outage and to restart the system based on the task at hand.

Examples of the system becoming inoperable:

a) System electric power is turned off.

[1] Hot Wire Thermo-Anemometer, Model 407123
All readings will be converted to Cubic Feet per Minute according to Inside Diameter of Vapor Well piping

b) Do not hear blower motor

c) Incoming pressure to carbon filters is lower than 5 psi.

d) Hear or feel, air blowing or sucking that can signify a break down in the system.

e) Loud or uncommon sounds projecting from blower motor.

f) Exposed water accumulating in immediate area of carbon filters.

g) Power Outage

h) Temperature out of normal range (>120 F)

If a major repair requires the system to be offline for longer than a 24 hour period, the representative of the owner will contact the NYSDEC to discuss the problem and offer a schedule for repair.

4.3 Termination of SVE/SSDS Operations

The SSDS system will not be turned off without prior approval from the state, except in emergency situations. The SSDS will remain operational until it is no longer needed to address current or potential exposures related to soil vapor intrusion. Termination of the mitigation system will comply with the procedures discussed in the NYSDOH Guidance and with NYSDEC and NYSDOH concurrence.

4.4 Long-Term Operation and Maintenance of SSDS

Routine maintenance will commence within 18 months after the system becomes operational, and will likely be required every 12 to 18 months thereafter. Based upon a demonstration of the system's reliability, a petition to alter the frequency may be submitted for the state's review. During long term routine maintenance, the following activities will be conducted:

a) A visual inspection of the complete system (e.g., vent fan, piping, warning device, labeling on systems, etc.);

b) Identification and repair of leaks; and

c) Inspection of the exhaust or discharge point to verify no air intakes have been located nearby.

As necessary, preventive maintenance e.g., vacuum motor, repairs and/or adjustments will be made to the system to ensure its continued effectiveness at mitigating exposures related to soil vapor intrusion. The need for preventive maintenance will depend upon the life expectancy and warranty for the specific part, as well as visual observations over time. The need for repairs and/or adjustments will depend upon the results of a specific activity compared to that obtained when system operations were initiated. If significant changes are made to the system or when the system's performance is unacceptable, the system may need to be redesigned and restarted.

5.0 Annual Certification

SSDS systems are considered engineering controls. Therefore, depending upon the remedial program, submission of an Annual Certification to the state is required. This certification will be prepared and submitted by a professional engineer or environmental professional acceptable to the state and affirm that the engineering controls are in place, are performing properly and remain effective. This requirement will remain in effect until the NYSDEC provides notification, in writing, that this certification is no longer needed.

EMERGENCY PREPAREDNESS/RESPONSE

All emergency services can be reached by dialing 911 from any facility or mobile telephone. Access to phones and/or radios will be provided to onsite personnel. The Emergency Response Coordinator (ERC) will coordinate all emergency response operations.

Emergency Telephone Numbers

FIRE / POLICE 911

System Correspondence

John V. Soderberg P.E (remedial engineer)
631-834-9537

Berninger Environmental (Walter Berninger)
631-589-6521

Building Superintendent (Raul)
646-413-4108

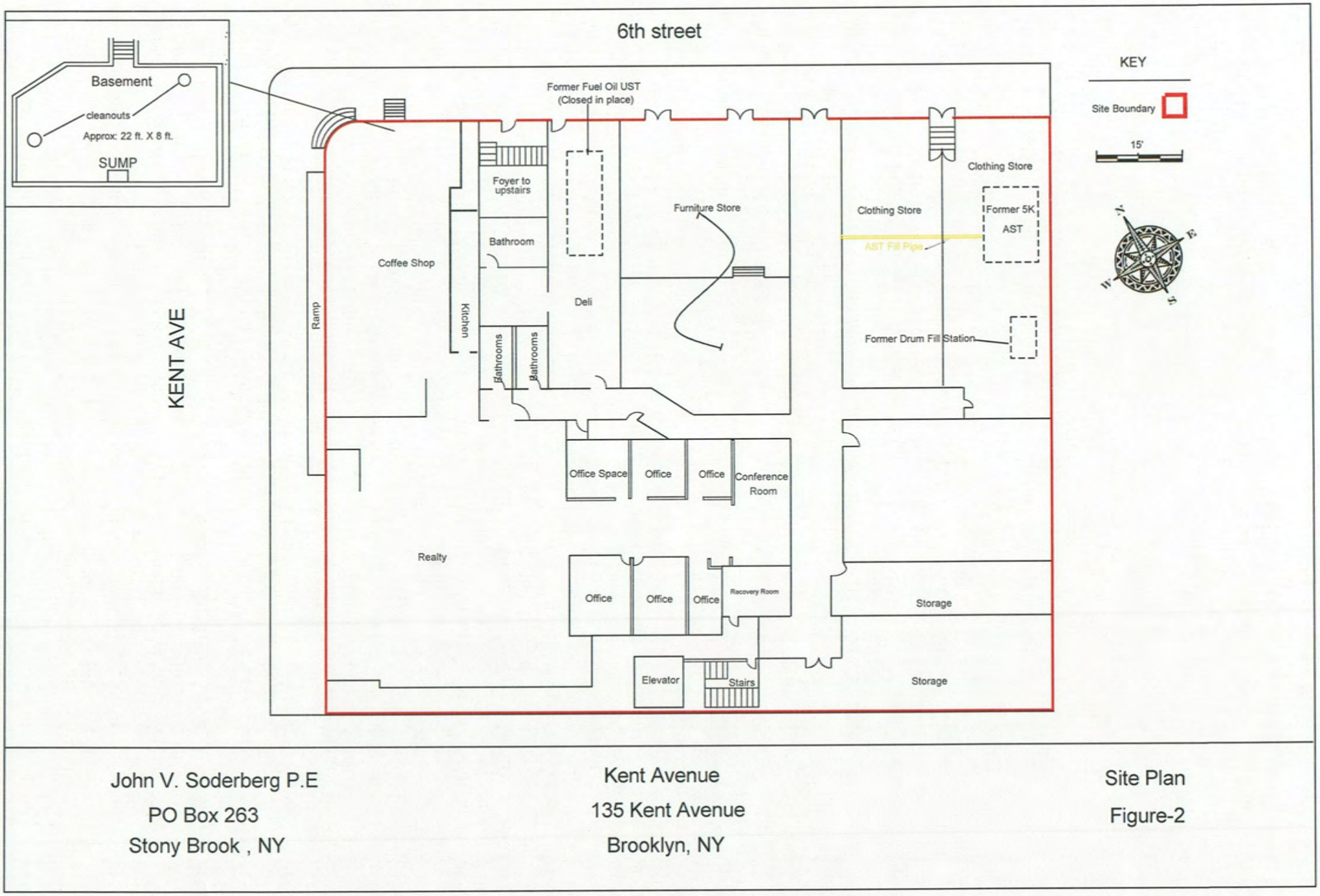
New York State Department of Health
Empire State Plaza
Corning Tower Albany, NY
Albert Demarco
518-402-7860

New York State Department of Environmental Conservation (Ioana Munteanu-Ramnic P.E)
47-40 21st Street, Long Island City,
New York 11101-5407
Phone:718-482-4995

FIGURES

John V. Soderberg P.E
P.O Box 263
Stony Brook, NY 11790

Figure 1.
Site Location Map
135 Kent Avenue
Brooklyn, New York



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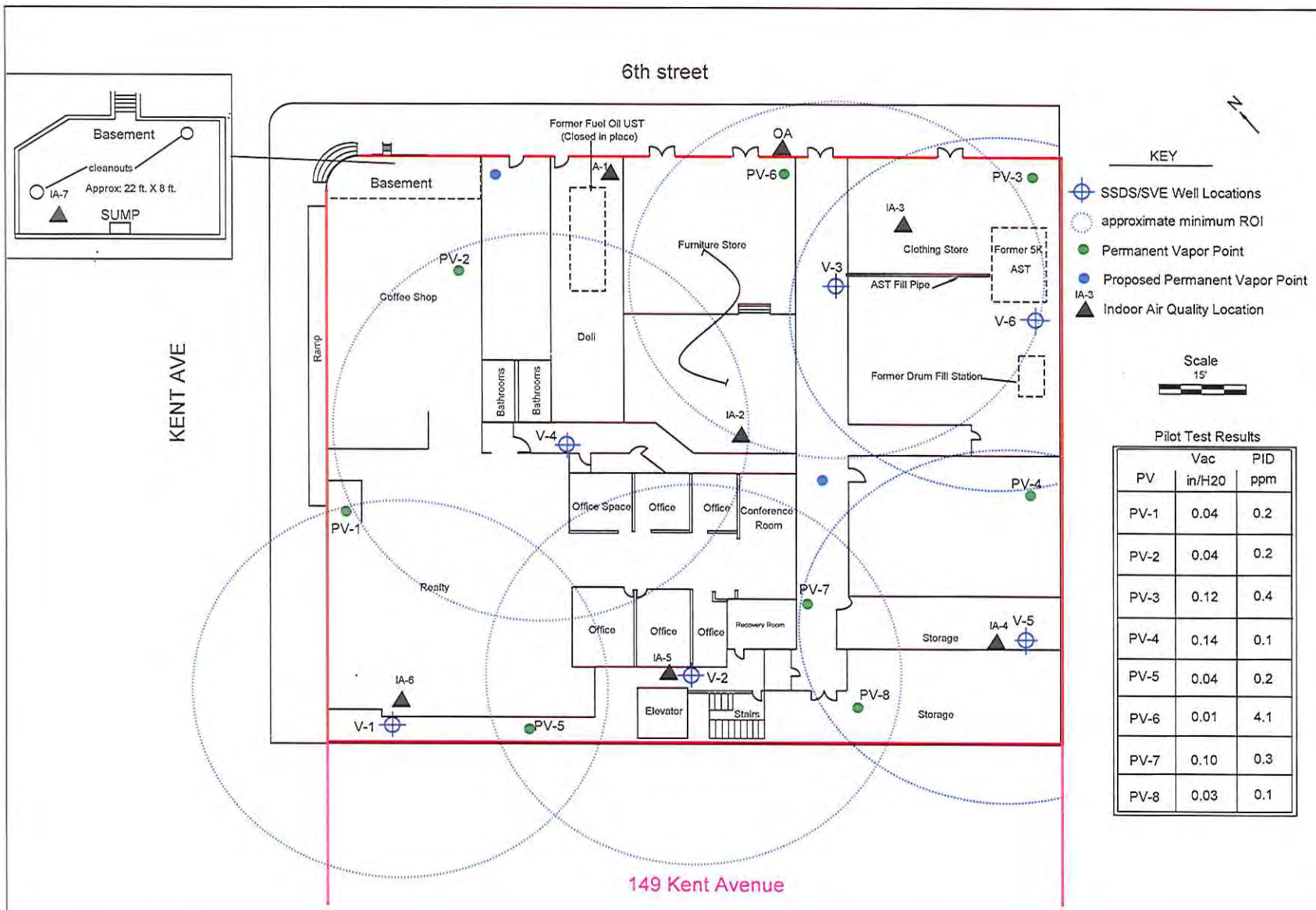
PO Box 263
Stony Brook , NY

Kent Avenue
135 Kent Avenue
Brooklyn, NY

Site Plan
Figure-2



Pilot Test Results

PV	Vac in/H20	PID ppm
PV-1	0.04	0.2
PV-2	0.04	0.2
PV-3	0.12	0.4
PV-4	0.14	0.1
PV-5	0.04	0.2
PV-6	0.01	4.1
PV-7	0.10	0.3
PV-8	0.03	0.1

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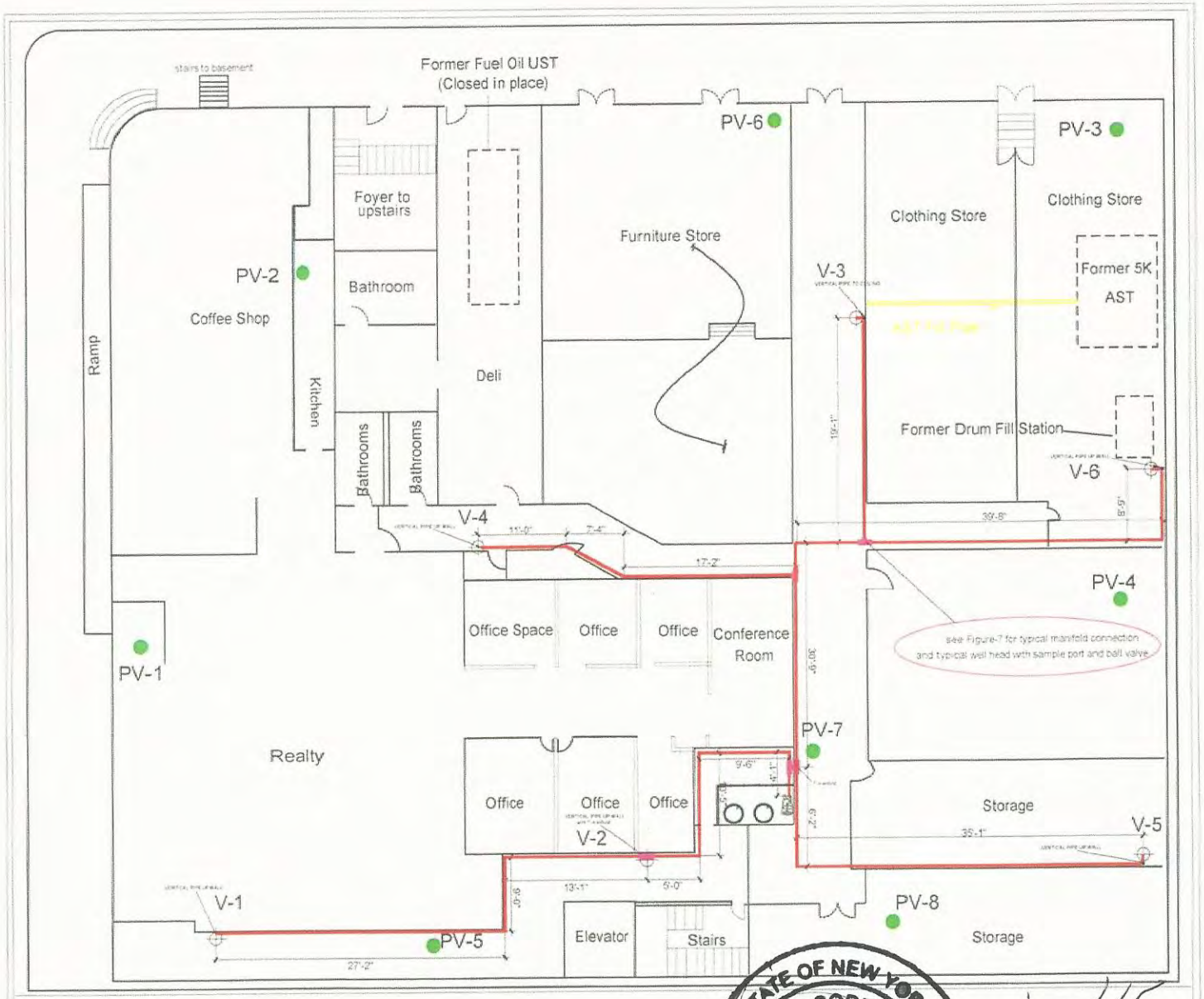
Kent Avenue
135 Kent Avenue
Brooklyn, NY

SSDS/SVE Wells
Radius of Influence
Figure-3



KEY:

Piping

T-manifold

PV Well

Vapor Well

Scale = 15'

135 Kent Avenue
Brooklyn, NY

SSDS As-Built
Schematic
Figure-4

STATE OF NEW YORK
JOHN V. SODERBERG
LICENSED PROFESSIONAL ENGINEER
49975

10/22/15

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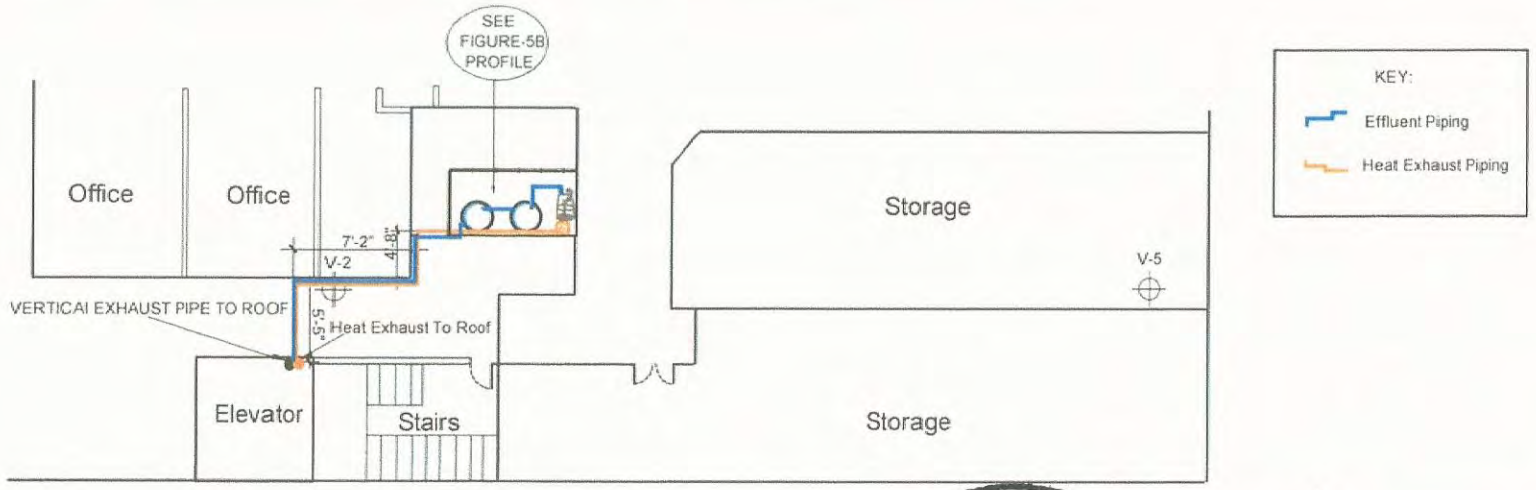
PO Box 263
Stony Brook, NY



135 Kent Avenue
Brooklyn, NY

Scale = 15'

SSDS As-Built
Effluent Piping
Schematic
Figure-5

STATE OF NEW YORK
JOHN V. SODERBERG
LICENSED PROFESSIONAL ENGINEER
49975

10/22/15

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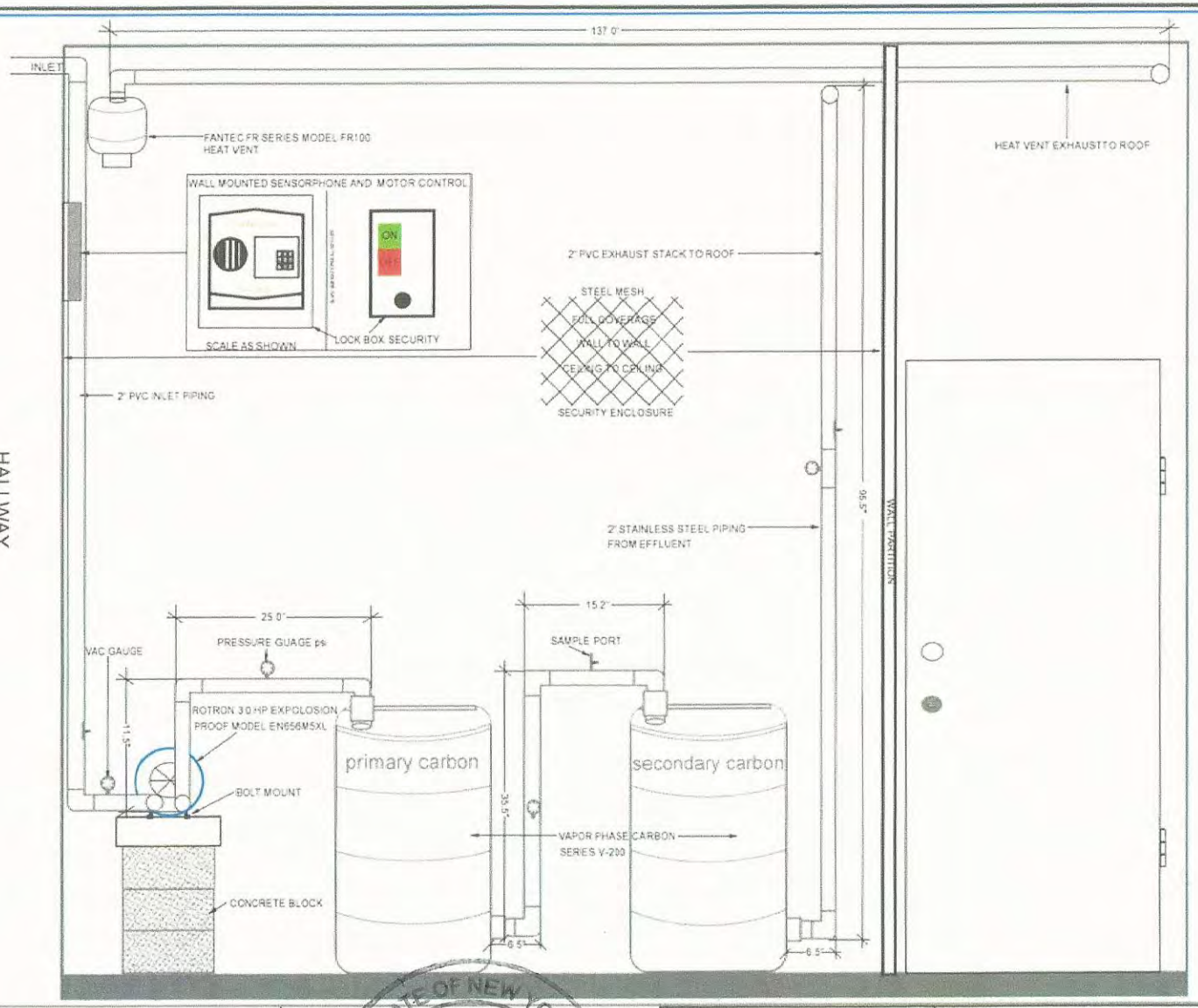
Stony Brook, NY



KEY:

- PRESSURE/VAC GAUGE
- 1/4 TURN SAMPLE PORT
- SECURITY FENCE

P.E CERTIFICATION

STATE OF NEW YORK
JOHN V. SODERBERG
#9975
LICENSED PROFESSIONAL ENGINEER

FIGURE: FIGURE 5B	DESCRIPTION: TREATMENT ROOM AS-BUILT
SITE: 135 KENT AVENUE BROOKLYN, NEW YORK	
SITE #: BCA :C241177	CONTACT: JOHN V. SODERBERG P.E PO BOX 265 STONY BROOK, NY
ADDRESS: 135 KENT AVENUE	
DRAWN BY: JGH	
REVIEWED BY: JVS P.E	DATE: 03-16-15 / SHEET: 1 OF 1 / SCALE: 1":16"

APPENDICES

APPENDIX A

Specification Sheet for Rotron Blower

Environmental / Chemical Processing Blowers

EN 656 & CP 656

ROTRON®

3.0 HP Sealed Regenerative w/Explosion-Proof Motor

FEATURES

- Manufactured in the USA - ISO 9001 and NAFTA compliant
- Maximum flow: 212 SCFM
- Maximum pressure: 75 IWG
- Maximum vacuum: 73 iWG
- Standard motor: 3.0 HP, explosion-proof
- Cast aluminum blower housing, impeller , cover & manifold; cast iron flanges (threaded); teflon® lip seal
- UL & CSA approved motor with permanently sealed ball bearings for explosive gas atmospheres Class I Group D minimum
- Sealed blower assembly
- Quiet operation within OSHA standards

MOTOR OPTIONS

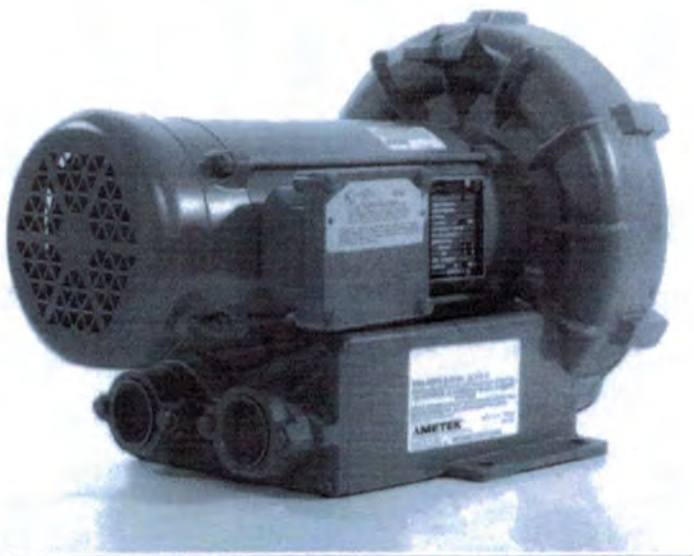
- International voltage & frequency (Hz)
- Chemical duty, high efficiency, inverter duty or industry-specific designs
- Various horsepowers for application-specific needs

BLOWER OPTIONS

- Corrosion resistant surface treatments & sealing options
- Remote drive (motorless) models
- Slip-on or face flanges for application-specific needs

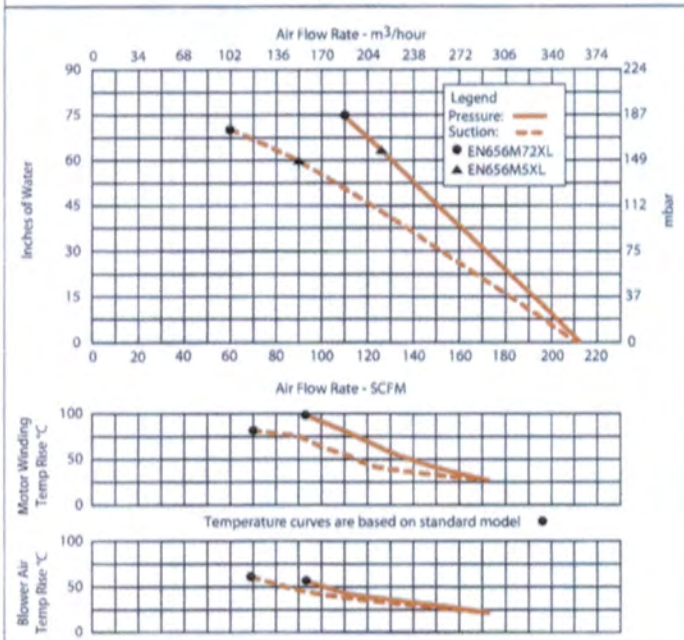
ACCESSORIES

- Flowmeters reading in SCFM
- Filters & moisture separators
- Pressure gauges, vacuum gauges, & relief valves
- Switches - air flow, pressure, vacuum, or temperature
- External mufflers for additional silencing
- Air knives (used on blow-off applications)
- Variable frequency drive package

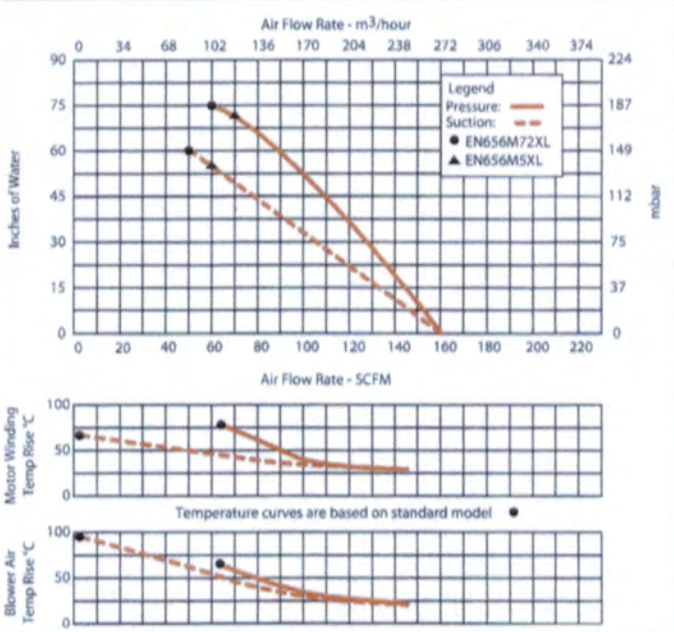


Blower Performance at Standard Conditions

60 Hz



50 Hz



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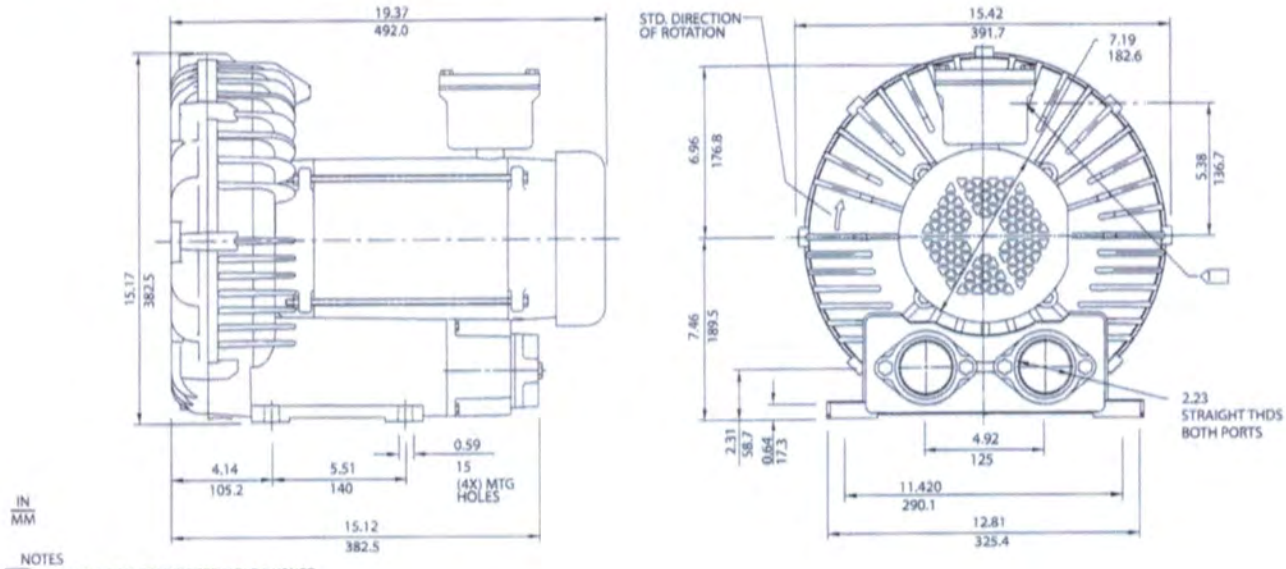
TECHNICAL & INDUSTRIAL PRODUCTS

ROTRON®

3.0 HP Sealed Regenerative w/Explosion-Proof Motor



NOTES
1. TERMINAL BOX CONNECTOR HOLE 3/4" NPT.
2. DRAWING NOT TO SCALE, CONTACT FACTORY FOR SCALE CAD DRAWING.
3. CONTACT FACTORY FOR BLOWER MODEL LENGTHS NOT SHOWN.

		Part/Model Number			
		EN656M5XL	EN656M72XL	EN656M86XL	CP656FU72XLR
Specification	Units	080060	080059	080058	080142
Motor Enclosure - Shaft Mtl.	-	Explosion-proof-CS	Explosion-proof-CS	Explosion-proof-CS	Chem XP-SS
Horsepower	-	3	3	3	3
Phase - Frequency	-	Single-60 hz	Three-60 hz	Three-60 hz	Three-60 hz
Voltage	AC	208-230	208-230/460	575	208-230/460
Motor Nameplate Amps	Amps (A)	15.5-14.5	7.4/3.7	3.0	7.4/3.7
Max. Blower Amps	Amps (A)	17	10/5	4.1	10/5
Inrush Amps	Amps (A)	95-86	54/27	21.6	54/27
Service Factor	-	1.0	1.0	1.0	1.0
Starter Size	-	1	0/0	0	0/0
Thermal Protection	-	Class B - Pilot Duty	Class B - Pilot Duty	Class B - Pilot Duty	Class B - Pilot Duty
XP Motor Class - Group	-	I-D, II-F&G	I-D, II-F&G	I-D, II-F&G	I-D, II-F&G
Shipping Weight	Lbs	142	117	117	117
	Kg	64.4	53.1	53.1	53.1

Voltage - ROTRON motors are designed to handle a broad range of world voltages and power supply variations. Our dual voltage 3 phase motors are factory tested and certified to operate on both: **208-230/415-460 VAC-3 ph-60 Hz** and **190-208/380-415 VAC-3 ph-50 Hz.** Our dual voltage 1 phase motors are factory tested and certified to operate on both: **104-115/208-230 VAC-1 ph-60 Hz** and **100-110/200-220 VAC-1 ph-50 Hz.** All voltages above can handle a ±10% voltage fluctuation. Special wound motors can be ordered for voltages outside our certified range.

Operating Temperatures - Maximum operating temperature: Motor winding temperature (winding rise plus ambient) should not exceed 140°C for Class F rated motors or 120°C for Class B rated motors. Blower outlet air temperature should not exceed 140°C (air temperature rise plus inlet temperature). Performance curve maximum pressure and suction points are based on a 40°C inlet and ambient temperature. Consult factory for inlet or ambient temperatures above 40°C.

Maximum Blower Amps - Corresponds to the performance point at which the motor or blower temperature rise with a 40°C inlet and/or ambient temperature reaches the maximum operating temperature.

XP Motor Class - Group - See Explosive Atmosphere Classification Chart in Section I

AMETEK TECHNICAL & INDUSTRIAL PRODUCTS
75 North Street, Saugerties, NY 12477
USA: +1 215-256-6601 - Europe: +44 (0) 845 366 9664 - Asia: +86 21 5763 1258
Customer Service Fax: +1 215.256.1338
www.ametektip.com

APPENDIX B

Spent Carbon Drum Profile Sheets

EVOQUA WATER TECHNOLOGIES

Profile Name: _____

or internal use only) ☐

Date: _____

Spent Carbon Profile Form

118 Park Road, Darlington, PA 16115
Phone (724) 827-8181 • Fax (724) 827-2257
EPA ID: PAD 987 270 725

Generator Information

1) a) **Generator:** _____

Mailing Address: _____

_____

_____

Name: _____

Phone: _____

Email: _____

b) **Consultant:** _____

Mailing Address: _____

_____

_____

c) **Site:** _____

Site Address: _____

_____

_____

_____

_____

d) EPA ID #: _____

Name: _____

Phone: _____

Fax: _____

Email: _____

Spent Carbon Information

2) Carbon Application:

☐ Waste Water (WW) ☐ Solvent Recovery (SR) ☐ Potable Water (PW) ☐ SVE (AF)

☐ Ground Water (GW) ☐ Chem. Processing (CP) ☐ Food Processing (FP) ☐ Other _____

☐ Water Treatment (WT) ☐ Air Filtration (HVAC) ☐ VOC Control (AF)

☐ Aqueous ☐ Vapor ☐ Foreign Material (rock, dirt, sand etc)

If this is a renewal, provide the existing profile approval number _____

3) Application Systems Description. *Please provide original process details generating constituent (s), (manufacturing, releases etc.) Verify if process /Spent Carbon is considered a listed waste. If not why? If state/federal or other remediation cleanup, please provide historical information.* **ie.*.State/EPA records of decision, influent data and or other site historical characterization***

_____

_____

_____

4) a.) Carbon type: ☐ Lignite ☐ Coconut ☐ Granular

☐ Coal ☐ Wood ☐ Pellet

☐ Impregnat ☐ Powder

☐ Other approved non carbon sorbents

b.) Mesh size: ☐ 8x30 ☐ 4x10 ☐ 4x6

☐ 12x40 ☐ 6x16 ☐ Other _____

c.) Annual Usage: _____lbs d.) System Fill Quantity: _____lbs e.) Current Volume: _____lbs

Will reactivated carbon be returned to the generator? ☐ Yes ☐ No

5) Handling: ☐ Bulk ☐ Drum ☐ Bulk Bag ☐ Adsorber ☐ Other

Regulatory Information

6) Is the Spent Carbon a RCRA regulated material as per 40 CFR 261 or is the spent carbon a hazardous waste per 25 PA Code 261a? ☐ Yes ☐ No

If yes, list codes

_____ _____ _____ _____ _____

_____ _____ _____ _____ _____

Is the Spent Carbon a State Hazardous Waste? If yes, list waste code (s): ☐ Yes ☐ No

_____ _____ _____ _____ _____

_____ _____ _____ _____ _____

_____ _____ _____ _____ _____

7) Does the Spent Carbon treat or contain any of the following:

Special Testing Required

A.	Polychlorinated Biphenyls (PCBs)	☐ Yes	☐ No	Analyses on influent and carbon
B.	Dibromochloropropane (DBCP)	☐ Yes	☐ No	
C.	Dioxins and/or Furans	☐ Yes	☐ No	
D.	Pesticides or Herbicides	☐ Yes	☐ No	
E.	Halogenated Compounds	☐ Yes	☐ No	
F.	Sulfur Containing Compounds	☐ Yes	☐ No	
G.	Cyanide Containing Compounds	☐ Yes	☐ No	
H.	Radioactive Material/Explosive/Pyrophoric and Shock Sensitive	☐ Yes	☐ No	
I.	Heavy Metals (Identify, if yes, run total analysis)	☐ Yes	☐ No	
J.	Chlorinated Phenols	☐ Yes	☐ No	

Metals ☐ Arsenic ☐ Antimony ☐ Barium ☐ Beryllium ☐ Chromium ☐ Cadmium ☐ Lead
☐ Mercury ☐ Selenium ☐ Silver ☐ Thallium ☐ Other ____

8) a) pH: ☐ <2 ☐ 10.5 – 12.4 b) Flash Point: ☐ <70 ☐ 101-140
☐ 2 – 4 ☐ >12.5 ☐ 70-100 ☐ > 140
☐ 4.1 – 10.5

Descriptions

9) Foreign material? (if yes please describe or estimate quantity) ☐ Yes ☐ No

10) Strong Odor? If yes, please describe ☐ Yes ☐ No

11) Is Spent Carbon generated from a Superfund Site ☐ Yes ☐ No

12) Is the Spent Carbon generated from any activity at a chemical manufacturing plant, petroleum refinery or coke by-product recovery plant, i.e., a facility subject to Subpart FF (the Benzene Waste NESHAP? **If yes complete Addendum A** ☐ Yes ☐ No

13) Is this waste subject to one of the following NESHAP rules:

a) Hazardous Organic NESHAP (HON) ☐ Yes ☐ No

b) Pharmaceuticals production (subpart GGG) ☐ Yes ☐ No

Process Schematic / Sketch

Please provide schematic / sketch of process below or attach to profile.

Spent Carbon Composition

14) **Constituents:** **% by Weight**

Activated Carbon	%		
Water (Moisture)	%	Organic Contaminants (list below)	Organic Contaminants (list below)
Organic Contaminants (list below)	%		

15) **I certify that**

_____ Initials A)
The spent carbon material described in this "Spent Carbon Profile Form" does not contain greater than or equal to 50 PPM polychlorinated biphenyls (PCBs) nor any dibenzo-p-dioxins in concentrations greater than or equal to 20 PPB in 2,3,7,8-TCDD Toxicity Equivalents (TEF) on the Carbon as may be calculated by the application of the most recent Toxicity Equivalency Factors (TEFs) as published by the USEPA;

_____ Initials B)
The influent to the spent carbon material described in the "Spent Carbon Profile Form" did not contain greater than or equal to 50 PPM of Polychlorinated biphenyls (PCBs). The subject carbon is not regulated under 40 CFR Part 761.

16) **Certification of Documents by Generator**
I hereby certify that all information on this and all attached documents are true and that this information accurately describes the subject spent carbon. I further certify that all samples and analyses submitted are representative of the subject spent carbon in accordance with the procedures established in 40 CFR 261 Appendix I or by using an equivalent method allowed by the PA Department of Environmental Protection. All relevant information regarding known or suspected hazards in the possession of the generator has been disclosed. I authorize Siemens Water Technologies to obtain a sample from any waste shipment for purposes of confirmation or further investigation. If I am a consultant signing on behalf of the generator, I have their proper approval.

Official: _____ **Title:** _____

Signature: _____ **Date:** _____

APPENDIX C

SSDS Laboratory Data

Pace Analytical
575 Broad Hollow Road, Melville, NY 11747
TEL: (631) 694-3040 FAX: (631) 420-8436
NYSDOH ID#10478 www.pacelabs.com

LABORATORY RESULTS

Results for the samples and analytes requested

The lab is not directly responsible for the integrity of the sample before receipt at the lab and is responsible only for the certified tests requested.

Berninger Environmental, Inc.
90 Knickerbocker Avenue
Bohemia, NY 11716
Attn To : Tina Berninger
Collected :6/27/2014 11:00:00 AM
Received :6/27/2014 12:50:00 PM
Collected By BER

Lab No. : 1406K71-001
Client Sample ID: Stack Emission
135 Kent Ave Brooklyn

Sample Information:
Type : Air
Origin:

Method: ETO-15 :

Parameter(s)	Result	Units	Qualifier	D.F.	Result	Units	Date Analyzed
1,1,1-Trichloroethane	< 0.20	ppbv		1	< 1.09	µg/m³	06/30/2014 1:11 PM
1,1,2,2-Tetrachloroethane	< 0.20	ppbv		1	< 1.37	µg/m³	06/30/2014 1:11 PM
1,1,2-Trichloro-1,2,2-trifluoroethane	0.10	ppbv	J	1	0.77	µg/m³	06/30/2014 1:11 PM
1,1,2-Trichloroethane	< 0.20	ppbv		1	< 1.09	µg/m³	06/30/2014 1:11 PM
1,1-Dichloroethane	< 0.20	ppbv		1	< 0.81	µg/m³	06/30/2014 1:11 PM
1,1-Dichloroethene	< 0.20	ppbv		1	< 0.79	µg/m³	06/30/2014 1:11 PM
1,2,4-Trichlorobenzene	< 0.20	ppbv	cS	1	< 1.48	µg/m³	06/30/2014 1:11 PM
1,2,4-Trimethylbenzene	2.26	ppbv		1	11.1	µg/m³	06/30/2014 1:11 PM
1,2-Dibromoethane	< 0.20	ppbv		1	< 1.54	µg/m³	06/30/2014 1:11 PM
1,2-Dichlorobenzene	< 0.20	ppbv		1	< 1.20	µg/m³	06/30/2014 1:11 PM
1,2-Dichloroethane	< 0.20	ppbv		1	< 0.81	µg/m³	06/30/2014 1:11 PM
1,2-Dichloroethene (cis)	< 0.20	ppbv		1	< 0.79	µg/m³	06/30/2014 1:11 PM
1,2-Dichloroethene (trans)	< 0.20	ppbv		1	< 0.79	µg/m³	06/30/2014 1:11 PM
1,2-Dichloropropane	< 0.20	ppbv		1	< 0.92	µg/m³	06/30/2014 1:11 PM
1,2-Dichlorotetrafluoroethane	< 0.20	ppbv		1	< 1.40	µg/m³	06/30/2014 1:11 PM
1,3,5-Trimethylbenzene	0.71	ppbv		1	3.49	µg/m³	06/30/2014 1:11 PM
1,3-Butadiene	< 0.20	ppbv		1	< 0.44	µg/m³	06/30/2014 1:11 PM
1,3-Dichlorobenzene	< 0.20	ppbv		1	< 1.20	µg/m³	06/30/2014 1:11 PM
1,3-Dichloropropene (cis)	< 0.20	ppbv		1	< 0.91	µg/m³	06/30/2014 1:11 PM
1,3-Dichloropropene (trans)	< 0.20	ppbv		1	< 0.91	µg/m³	06/30/2014 1:11 PM
1,3-Hexachlorobutadiene	< 0.20	ppbv	cS	1	< 2.13	µg/m³	06/30/2014 1:11 PM
1,4-Dichlorobenzene	< 0.20	ppbv		1	< 1.20	µg/m³	06/30/2014 1:11 PM
2,2,4-Trimethylpentane	1.26	ppbv		1	5.89	µg/m³	06/30/2014 1:11 PM
2-Chlorotoluene	< 0.20	ppbv		1	< 1.04	µg/m³	06/30/2014 1:11 PM
4-Ethyltoluene	0.69	ppbv	+	1	3.39	µg/m³	06/30/2014 1:11 PM
Allyl Chloride	< 0.20	ppbv	+	1	< 0.63	µg/m³	06/30/2014 1:11 PM
Benzene	0.86	ppbv		1	2.75	µg/m³	06/30/2014 1:11 PM
Bromodichloromethane	< 0.20	ppbv		1	< 1.34	µg/m³	06/30/2014 1:11 PM
Bromoform	< 0.20	ppbv		1	< 2.07	µg/m³	06/30/2014 1:11 PM
Bromomethane	< 0.20	ppbv		1	< 0.78	µg/m³	06/30/2014 1:11 PM
Carbon disulfide	< 0.20	ppbv		1	< 0.62	µg/m³	06/30/2014 1:11 PM
Carbon tetrachloride	0.12	ppbv	J	1	0.76	µg/m³	06/30/2014 1:11 PM
Chlorobenzene	< 0.20	ppbv		1	< 0.92	µg/m³	06/30/2014 1:11 PM
Chloroethane	< 0.20	ppbv		1	< 0.53	µg/m³	06/30/2014 1:11 PM
Chloroform	0.19	ppbv	J	1	0.93	µg/m³	06/30/2014 1:11 PM

Qualifiers: E = Value above quantitation range, Value estimated.
B = Found in Blank
D.F. = Dilution Factor D = Results for Dilution
H = Received/analyzed outside of analytical holding time
+ = NYSDOH ELAP does not offer certification for this analyte / matrix / method
c = Calibration acceptability criteria exceeded for this analyte
r = Reporting limit > MDL and < LOQ, Value estimated.
J = Estimated value - below calibration range
S = Recovery exceeded control limits for this analyte
N = Indicates presumptive evidence of compound

Joann M. Slavin
Laboratory Manager

Test results meet the requirements of NELAC unless otherwise noted.

Date Reported : 7/22/2014

Pace Analytical
575 Broad Hollow Road , Melville, NY 11747
TEL: (631) 694-3040 FAX: (631) 420-8436
NYSDOH ID#10478 www.pacelabs.com

LABORATORY RESULTS

Results for the samples and analytes requested

The lab is not directly responsible for the integrity of the sample before receipt at the lab and is responsible only for the certified tests requested.

Berninger Environmental, Inc.
90 Knickerbocker Avenue
Bohemia, NY 11716
Attn To : Tina Berninger
Collected :6/27/2014 11:00:00 AM
Received :6/27/2014 12:50:00 PM
Collected By BER

Lab No. : 1406K71-001
Client Sample ID: Stack Emission
135 Kent Ave Brooklyn

Sample Information:
Type : Air
Origin:

Method: ETO-15 :

Parameter(s)	Result	Units	Qualifier	D.F.	Result	Units	Date Analyzed
Chloromethane	0.53	ppbv		1	1.09	µg/m³	06/30/2014 1:11 PM
Cyclohexane	1.56	ppbv		1	5.37	µg/m³	06/30/2014 1:11 PM
Dibromochloromethane	< 0.20	ppbv		1	< 1.70	µg/m³	06/30/2014 1:11 PM
Dichlorodifluoromethane	0.41	ppbv		1	2.03	µg/m³	06/30/2014 1:11 PM
Ethylbenzene	2.62	ppbv		1	11.4	µg/m³	06/30/2014 1:11 PM
Methylene chloride	0.83	ppbv		1	3.22	µg/m³	06/30/2014 1:11 PM
n-Heptane	3.27	ppbv		1	13.4	µg/m³	06/30/2014 1:11 PM
n-Hexane	2.05	ppbv		1	7.22	µg/m³	06/30/2014 1:11 PM
Styrene	1.24	ppbv		1	5.28	µg/m³	06/30/2014 1:11 PM
Tetrachloroethene	0.18	ppbv	J	1	1.22	µg/m³	06/30/2014 1:11 PM
Toluene	8.02	ppbv		1	30.2	µg/m³	06/30/2014 1:11 PM
Trichloroethene	< 0.05	ppbv		1	< 0.25	µg/m³	06/30/2014 1:11 PM
Trichlorofluoromethane	0.45	ppbv		1	2.53	µg/m³	06/30/2014 1:11 PM
Vinyl bromide	< 0.20	ppbv		1	< 0.87	µg/m³	06/30/2014 1:11 PM
Vinyl chloride	< 0.20	ppbv		1	< 0.51	µg/m³	06/30/2014 1:11 PM
Xylenes (m&p)	9.48	ppbv		1	41.2	µg/m³	06/30/2014 1:11 PM
Xylenes (o)	3.18	ppbv		1	13.8	µg/m³	06/30/2014 1:11 PM
Surr: 4-Bromofluorobenzene	112	%REC	Limit 70-130		No M.W. Data		06/30/2014 1:11 PM

Qualifiers: E = Value above quantitation range, Value estimated.
B = Found in Blank
D.F. = Dilution Factor D = Results for Dilution
H = Received/analyzed outside of analytical holding time
+ = NYSDOH ELAP does not offer certification for this analyte / matrix / method
c = Calibration acceptability criteria exceeded for this analyte
r = Reporting limit > MDL and < LOQ, Value estimated.
J = Estimated value - below calibration range
S = Recovery exceeded control limits for this analyte
N = Indicates presumptive evidence of compound

Joann M. Slavin
Laboratory Manager

Test results meet the requirements of NELAC unless otherwise noted.

Date Reported : 7/22/2014

BER138 S16

APPENDIX D

Monthly Monitoring Reports

Berninger Environmental

SSDS Monitor and Maintenance

Site Name: 135 Kent Ave.	**Site#: C241177**
Address: 135 Kent Ave. Brooklyn ,NY	

Remediation System
Type of System?
SSDS
Sampling Date:

Pressure/ Vac Readings	
Pre Carbon Pressure Gauge: psi	**Carb middle Pressure psi**
Post Carb Pressure psi	**Pre Vacuum Gauge: in/H2O**

Optimal Pressure readings: 4-7 psi — Optimal Vacuum: 4-7 in/H2O

MiniRae 2000 PID	
Primary Drum:	**Secondary Drum:**
Influent Carbon:	Middle Carbon:
Effluent Carbon:	

Sampling Method: **PID (influent and effluent)**

Site Data

Wells	PID	CFM ft3/min	Vac in/H2O	Optimal CFM/Vacuum readings
V-1				**85-95 cfm/20+in/H2O**
V-2				**85-95 cfm/20+in/H2O**
V-3				**85-95 cfm/20+in/H2O**
V-4				**85-95 cfm/20+in/H2O**
V-5				**85-95 cfm/20+in/H2O**
V-6				**85-95 cfm/20+in/H2O**
PV-1				0.1-1.0 in/H2O (vacuum only)
PV-2				0.1-1.0 in/H2O (vacuum only)
PV-3				0.1-1.0 in/H2O (vacuum only)
PV-4				0.1-1.0 in/H2O (vacuum only)
PV-5				0.1-1.0 in/H2O (vacuum only)
PV-6				0.1-1.0 in/H2O (vacuum only)
PV-7				0.1-1.0 in/H2O (vacuum only)
PV-8				0.1-1.0 in/H2O (vacuum only)

Site Insp.

Was Carbon Drum Replaced ? Y___N____

Sensor Phone Operating Y___ N ____

If Off Why?

Indicate Any Sampling Procedures:

Any Visible Signs Of Leaks?

PID pre, mid and post carbon filtration

Sampled by:

APPENDIX E

Emergency Contacts

Emergency Equipment On-Site

Private telephones: Site personnel.
Two-way radios: Site personnel where necessary.
Emergency Alarms: On-site vehicle horns.
First Aid Kits: in vehicles or office.
Fire Extinguisher: On-Site, in office or on equipment.

Emergency Telephone Numbers

General Emergencies 911 or 311
New York City Police (211 Union Avenue Brooklyn, NY) 718-963-5311
Woodhull Medical Center 718-963-8000
NYSDEC Spills Division 800-457-7362
NYSDEC Division of Environmental Remediation 718-482-4599
BDEP Brooklyn Department of Environmental Protection 212-NEW-YORK
Brooklyn Fire Department 718-999-2165 (9 Metro Tech Center)
National Response Center 800-424-8802
Poison Control 212-340-4494
Site Safety Office 631-589-6521
Project Manager 631-589-6521 or cell 631-774-6682

APPENDIX F

NYSDEC Authorization Email

Walter Berninger

From: Jane O'Connell <jhoconne@gw.dec.state.ny.us>
Sent: Thursday, July 10, 2014 2:34 PM
To: JOHN SODERBERG; Walter Berninger
Cc: Ioana Munteanu-Ramnic; Louis Oliva; Albert DeMarco; Justin Deming
Subject: Re: FW: C224177 Stack sample

John:

DEC and DOH have reviewed the stack results and concur that the system should be started. Ioana and I spoke with Walter this afternoon and have requested that the system be turned on tomorrow, with the understanding that the dedicated phone line for the telemetry system may not be in place until next week. Ioana will be at the site in the morning to meet with BEI field staff to confirm startup of the system.

Regards,

Jane

>>> On 7/9/2014 at 4:22 PM, in message <BLU178-W39BAA0959FDC434BF25E46CE0F0@phx.gbl>, JOHN SODERBERG <jvsode@hotmail.com> wrote:

Dear Ioana,

As per your request, attached please find the preliminary results for the stack emission samples collected at 135 Kent.

John

John V. Soderberg, PE, Esq.
PO Box 263
Stony Brook, NY 11790
Phone (631) 751-6458
Fax (631) 675-1185
Cell (631) 834-9537
JVSODE@HOTMAIL.COM

APPENDIX G

OM&M Site Inspection Form

Berninger Environmental

SSDS Monitor and Maintenance

Site Name: 135 Kent Ave.	**Site#: C241177**
Address: 135 Kent Ave. Brooklyn ,NY	

Remediation System
Type of System?
SSDS
Sampling Date:

Pressure/ Vac Readings	
Pre Carbon Pressure Gauge: psi	**Carb middle Pressure psi**
Post Carb Pressure psi	**Pre Vacuum Gauge: in/H2O**

Optimal Pressure readings: 4-7 psi — Optimal Vacuum: 4-7 in/H2O

MiniRae 2000 PID **IF PID Middle >5.0ppm change-out required**	
Primary Drum:	**Secondary Drum:**
Influent Carbon:	Middle Carbon:
Effluent Carbon:	****IF Effluent PID >0.5 ppm change-out required****

Sampling Method:	**PID (influent and effluent)**

Site Data

Wells	PID	CFM ft3/min	Vac in/H2O	Optimal CFM/Vacuum readings
V-1				**85-95 cfm/20+in/H2O**
V-2				**85-95 cfm/20+in/H2O**
V-3				**85-95 cfm/20+in/H2O**
V-4				**85-95 cfm/20+in/H2O**
V-5				**85-95 cfm/20+in/H2O**
V-6				**85-95 cfm/20+in/H2O**
PV-1				0.1-1.0 in/H2O (vacuum only)
PV-2				0.1-1.0 in/H2O (vacuum only)
PV-3				0.1-1.0 in/H2O (vacuum only)
PV-4				0.1-1.0 in/H2O (vacuum only)
PV-5				0.1-1.0 in/H2O (vacuum only)
PV-6				0.1-1.0 in/H2O (vacuum only)
PV-7				0.1-1.0 in/H2O (vacuum only)
PV-8				0.1-1.0 in/H2O (vacuum only)

Site Insp.

Was Carbon Drum Replaced ? Y___N____

Sensor Phone Operating Y___ N ____

If Off Why?

Indicate Any Sampling Procedures:

PID pre, mid and post carbon filtration

Any Visible Signs Of Leaks?

Sampled by:

Inspector Name:		Date:
Time IN:		Time OUT:
GENERAL:		
Weather:	Temperature:	Barometric Pressure:
When was the last rain event:		
Is the SSDS Blower currently operating? YES/NO If no ALERT PROJECT MANAGER		
Ambient (backround PID) and Indoor AIR PID:		
Any evidence of system tampering, vandalism or damage? If yes, ALERT PROJECT MANAGER and note findings:		
Any evidence of system tampering, vandalism or damage to the exhaust stack? If yes, ALERT PROJECT MANAGER and note findings:		
Inspection of all electrical system components: YES/NO If no ALERT PROJECT MANAGER Inspection of all system 's plumbing components: YES/NO If no ALERT PROJECT MANAGER		