Site Management Plan

Bon Ton Cleaners
1932 Ralph Avenue
Brooklyn, New York

April 2011

Prepared for:

Ralph Associates
1133 Avenue of the Americas
New York, NY 10036-6799

Prepared by:

CA RICH CONSULTANTS, INC.
17 Dupont Street
Plainview, New York 11803

April 20, 2011

NYSDEC
Division of Hazardous Waste Remediation
625 Broadway
Albany, New York 12233-7015

Attention: Ronnie Lee

Re: **Site Management Plan - Revised**
Bon Ton Cleaners
1932 Ralph Avenue, Brooklyn, NY
Site ID No.: V-00512-2

Dear Mr. Lee:

Attached is a copy of the Revised Site Management Plan prepared by CA Rich Consultants, Inc. (CA RICH) on behalf of Ralph Associates for the above-referenced Site. This plan includes the recently added vents and fans installed at the Dunkin Donuts and Telco Department Store units.

If there are any questions regarding this Report, please do not hesitate to call our Office.

Sincerely,

CA RICH CONSULTANTS, INC.

Eric A. Weinstock
Vice President

cc: Burt Lewis
Miriam Villani, Esq.

Attachments

TABLE OF CONTENTS

SITE MANAGEMENT PLAN

Bon Ton Cleaners
1932 Ralph Avenue
Brooklyn, New York
Site Number V-00512-2
VCP Index Number W2-0916-02-03

1.0 Introduction & Background

The following Site Management Plan (SMP or "Plan") has been prepared by CA RICH Consultants, Inc. (CA RICH) on behalf of Ralph Associates. This document was prepared in accordance with a Voluntary Cleanup Program (VCP) Agreement, Index Number W-20916-02-03 and the May 2002 VCP guidance document and addresses the remediation of an area of the Upper Glacial Aquifer located in the central portion of the property below the former Bon Ton Cleaners (1932 Ralph Avenue). For the purposes of this document, the contaminants of concern are perchloroethene (a.k.a. PCE or tetrachloroethene) and its degradation products. In addition, the dry cleaner unit is currently vacant.

The purpose of this Plan is threefold and includes: a description of how the existing remediation equipment will be operated and maintained; the protocols for site monitoring; and, an outline defining the procedures that will be employed to manage the institutional and engineering controls for the site. A Site Plan is enclosed as Figure 1.

ACT and CA RICH performed a series of previous investigations at this site for refinancing purposes. Copies of these reports, including the corresponding site maps and laboratory data, are appended to the Investigation Work Plan (Ref. 3).

During the winter of 2002 and spring of 2003, a supplemental subsurface investigation of the site was performed to determine the nature and extent of contamination at Bon Ton Cleaners. Based on the results of this investigation, a remedy was designed consisting of two mechanical systems; the cleanout of one concrete sump, and chemical oxidation. The design and installation of the mechanical systems and the cleanout of the sump are described in the Final Engineering Report - Part A and Operations, Maintenance & Monitoring Plan (Ref. 8). The chemical oxidation phase is described in the Final Engineering Report – Part B and Operations, Maintenance & Monitoring Plan (Ref. 9).

Installation of the mechanical remediation systems began during August 2004 and consisted of the installation of Soil Vapor Extraction (SVE) wells and Air Sparging (AS) points. The sump was cleaned out on October 15, 2004. The trenching for the underground AS piping was completed in November 2004. The installation of the SVE blower and the AS compressor was completed in March 2005. Groundwater and indoor air monitoring was performed on a quarterly basis from the second quarter, 2005 to the fourth quarter, 2006. The AS/SVE system was started-up and remained in operation from March 29, 2005 through March 29, 2006 when the AS system was shutdown. On November 29, 2006, the SVE system was shutdown and replaced with four smaller sub-slab depressurization (SSD) fans in accordance with New York State Department of Health's (NYSDOH) October 2006 Guidance. The design of the SSD system is described in the SSD Pilot Test and Design Report (Ref. 10). After the fourth quarter 2006 sampling round, monitoring has been performed on an annual basis.

During the third Quarter 2005 indoor air sampling event, it was concluded that the exhaust from the vapor barrier room or the storage of waste drums in the common hallway were potential sources of the elevated readings at the Golden Krust Bakery (unit 1936). The tenant at Bon Ton Cleaners (unit 1932) removed the waste drums from the common hallway and began storing the waste drums in the vapor barrier. In addition, on December 29, 2005 the tenant modified the exhaust stack so that it discharges upward instead of downward (Ref. 16).

Based on the December 13, 2006 indoor air sampling data, these actions appeared to improve the air quality at the shopping center. However, during November 2007, the southern portion of the Chinese Restaurant unit (1930A) was converted to a Dunkin Donuts (unit 1930). During that conversion, the tenant placed a new HVAC unit on the roof approximately 10 feet from the discharge pipe from the dry cleaner vapor barrier room. When we sampled the indoor air on December 12, 2007, the PCE concentrations in the Dunkin Donuts (unit 1930) and Golden Krust (unit 1936) increased to between 400 and 1,000 ug/m^3. Upon receipt of this data, we visited the property and inspected the roof. The location of the new HVAC unit was pointed out to the operator of Bon Ton Cleaners. The Operator of the cleaners again relocated the discharge stack from the vapor barrier room 30 feet west and eight feet above the roof top. We then resampled the indoor air on January 24, 2008. These results all ranged from between non-detect and 16 ug/m^3 indicating that the relocation of the discharge pipe corrected the issue.

Chemical oxidation applications were performed on two dates to address PCE detections in monitoring well VMW-3. On March 7, 2006 and September 19, 2006, 150 gallon applications of 5% sodium permanganate were applied to three locations around VMW-3 using a Geoprobe™ probing system. Bulk sodium permanganate was purchased from the Carus Chemical Company at a concentration of 40%. Using a portable steel-mixing tank, 50-gallon doses of 5% sodium permanganate were prepared by mixing 5 gallons of 40% sodium permanganate with 45 gallons of tap water.

The permanganate was injected using a high-pressure pump through Geoprobe™ macro-core sampling rods. The permanganate was applied at 4-foot intervals from 8 to 23 feet below grade. Details regarding the design of the chemical oxidation are included in the Final Engineering Report – Part B. (Ref. 9). CA RICH continued to sample well VMW-3 quarterly throughout 2006. As summarized in references 16 through 19, the concentration of PCE in this well decreased significantly after the chemical oxidant was applied. Based on the results of the groundwater monitoring program, operation of the air sparging system was terminated on March 29, 2006 with the approval of the NYSDEC. The SVE system was, in turn, converted into a Sub-Slab Depressurization (SSD). As part of the 2009 annual monitoring program, additional sub-slab vapor samples were collected from the following units: Foodtown (1958 Ralph Avenue); Thriftyway (formerly Go Digital, 1940 Ralph Avenue); Golden Krust (1936 Ralph Avenue); Dunkin Donuts (1930 Ralph Avenue); and Telco Dept. Store (1910 - 1924 Ralph Avenue). Based on those results which were submitted to the NYSDEC as part of Reference 25, additional SSD vents and fans were added to the Dunkin Donuts and Telco spaces as shown on Figure 3.

The following documents prepared for this site should be reviewed for additional details:

Document	**Date**
Phase II Environmental Site Assessment, 1890-1960 Ralph Avenue, Brooklyn, New York	June 5, 2001
Phase II Environmental Site Assessment, 1890-1960 Ralph Avenue, Brooklyn, New York	July 23, 2001
Investigation Work Plan Bon Ton Cleaners, 1932 Ralph Avenue, Brooklyn, New York	October 2002
Supplemental Investigation Work Plan Bon Ton Cleaners, 1932 Ralph Avenue, Brooklyn, New York	May 2003
Investigation Report Bon Ton Cleaners, 1932 Ralph Avenue, Brooklyn, New York	October 2003
Remediation Work Plan Bon Ton Cleaners, 1932 Ralph Avenue, Brooklyn, New York	April 2004

Pilot Test and Final Design Report Bon Ton Cleaners, 1932 Ralph Avenue, Brooklyn, New York.	December 2004
Final Engineering Report - Part A and Operations, Maintenance & Monitoring Plan Bon Ton Cleaners, 1932 Ralph Avenue, Brooklyn, New York	April 2005
Final Engineering Report - Part B and Operations, Maintenance & Monitoring Plan Bon Ton Cleaners, 1932 Ralph Avenue, Brooklyn, New York	May 2006
Second through Fourth Quarter 2005 Quarterly Monitoring Reports, Bon Ton Cleaners, 1932 Ralph Avenue, Brooklyn, New York.	Aug. & Nov. 2006, and Feb. 2007
First through Fourth Quarter 2006 Quarterly Monitoring Reports Bon Ton Cleaners, 1932 Ralph Avenue, Brooklyn, New York.	May, Aug. & Oct. 2006, and Feb. 2007
SSD Pilot Test and Design Report, Bon Ton Cleaners Site, 1932 Ralph Avenue, Brooklyn, New York	November 2006
Annual Report for 2007 Bon Ton Cleaners Site, 1932 Ralph Avenue, Brooklyn, NY	February 2008
Final SSD System Start-Up Test Report, Bon Ton Cleaners Site, 1932 Ralph Avenue, Brooklyn, New York	June 2008
Annual Report for 2008 July 2009 Indoor Air Sampling Bon Ton Cleaners Site, 1932 Ralph Avenue, Brooklyn, NY	September 2009
Annual Report for 2009 Bon Ton Cleaners Site, 1932 Ralph Avenue, Brooklyn, NY	February 2010
Annual Report for 2010 Bon Ton Cleaners Site, 1932 Ralph Avenue, Brooklyn, NY	January 2011

2.0 Installation, Operations and Maintenance of Existing Equipment

2.1 Sub-Slab Depressurization System Design and Installation

Currently, there is a SSD system operating in the basement boiler room and storage room of the former Bon Ton Cleaners (unit 1932) and in the basement common hallway fronting Golden Krust (unit 1936) and the former Bon Ton Cleaners (unit 1932). The SSD system was installed on November 29, 2006 and consists of one Fantech® Model HP2190 SSD fan connected to each of the four SVE wells. The SSD system was completed in such a way that each fan can be operated independently. A magnehelic gauge was retrofitted to each of the SVE riser pipes between the slab and the SSD fans for vacuum readings. These magnehelics also serve as warning devices or indicators to ensure that this active system is working properly. In addition, labels were affixed to each of the SSD points indicating the following:

Sub-Slab Depressurization System

This is a component of a Sub-Slab Depressurization System

DO NOT ALTER OR DISCONNECT

For Service call: CA Rich Consultants, Inc. 516-576-8844

Date Installed: November 29, 2006

The SVE wells are connected to a 2-inch diameter header line that exhausts out of the basement boiler room of the former Bon Ton Cleaners (unit 1932). The header line discharges to the atmosphere through a rooftop stack whose discharge point is above the existing building roof elevation. The SSD system discharge is monitored in accordance with the Final NYSDOH CEH BEEI Soil Vapor Intrusion Guidance document. Figure 2 illustrates a typical SSD fan design/installation and Figure 3 presents the initial and additional SSD system layout and duct locations.

On December 13, 2006, a start-up test was conducted to confirm that the SSD system was maintaining negative pressure. As part of the start-up test vacuum readings were obtained from the magnehelic gauges attached to each of the SVE riser pipes at SVE-1 through SVE-4 and via hand-held magnehelic gauges at vapor monitoring points VMP-1 through VMP-4 and VMP-6. The magnehelic gauges showed that each SSD fan was maintaining a vacuum of 1.5 inches of H_20. In addition, the vacuum readings at the vapor monitoring points ranged from 0.01 inches of H_20 to 0.12 inches of H_20 (see Figure 4). The radius of influence is approximately 75 feet based on the readings collected from SVE-3 and VMP-4. This meets or exceeds the design criteria of 50 feet measured in the SSD Pilot Test and Design Report. The SSD Pilot Test and Design Report is enclosed as Appendix B.

On December 13, 2006, indoor air samples were collected from surrounding tenants Go Digital which is now Thriftyway-unit 1940 (basement only), Golden Krust-unit 1936 (first floor and basement), Chinese Restaurant-unit 1930 and 1930A (first floor and basement), and Telco-unit 1910 -1924 (basement only) via Summa Canisters calibrated to collect air for a 4-hour period. The indoor air quality test indicated that the negative pressure produced by the SSD system is effectively preventing the subsurface PCE vapors from migrating into the building as presented on Table 1. The indoor air sampling locations are illustrated on Figures 5 and 6.

Upon review of our initial SMP and elevated PCE levels measured during the December 12, 2007 indoor air sampling event, the NYSDEC and NYSDOH requested that a second start-up test of the SSD system be performed. This was conducted on June 5, 2008 and is summarized in Reference 22. The test included seven additional, temporary vacuum monitoring points (VMPs) in addition to the initial seven permanent VMPs. The four existing SSD fans were operated with vacuums of between 1.9 and 2.0 inches of water measured at each SSD vent. The vacuum in the initial seven VMPs and the seven newly installed temporary VMPs ranged from 0 to 0.34 inches of water. A map illustrating the results of the final start-up test is included as Figure 4 of this Report. A radius of vacuum of at least 40-feet was measured -- which is in line with the results of the initial pilot test. More importantly, the test confirmed that the SSD system imposes a measureable vacuum below the slab of the former electronics store (Go Digital unit 1940), the Golden Krust Bakery-unit 1936, the Chinese Restaurant unit 1930A, Dunkin Donuts unit 1930, the southern portion of the Telco Department Store-unit 1924 as well as below Bon Ton Cleaners-unit 1932. In addition, the Operator of the cleaners relocated the discharge stack from the vapor barrier room 30 feet west and eight feet above the roof top. This appears to have resolved the elevated indoor PCE readings measured during the December 12, 2007 sampling event.

Based on the results of the sub-slab vapor samples collected during the 2009 annual monitoring event, five new SSD vents were added to the shopping center. One vent and one Fantech model HP2190 fan were added to the rear portion of the Dunkin Donuts unit (1930). Four vents were added to the Telco Department Store Unit (1910 -1924) which are connected to one Fuji Model VFC604A-7W fan.

2.2 Sub-Slab Depressurization System Operations and Maintenance

Operations and maintenance procedures that apply to the Fantech and Fuji fans includes a physical inspection of the fans to confirm that air is being discharged and that the fan is operating. The Fantech and Fuji fan owner's manual are enclosed as Appendix A. No other maintenance is recommended in the owner's manual.

3.0 Monitoring

The following monitoring programs have been established for this site and include: groundwater monitoring and indoor air quality monitoring.

3.1 Groundwater Monitoring

Groundwater at the site was monitored on an annual basis. The monitoring included the sampling and analysis of groundwater from the following monitoring wells: VW-1S, 1I, and 1D, VW-2S, 2I, and 2D, VW-3, VW-4, and VW-5. The results are included as Table 1 of this Plan.

Termination Criteria – Monitoring continued until the groundwater results either met or asymptotically approached the New York State Standards, Criteria, and Guidance (SCGs) for PCE and its degradation products, or the NYSDEC concluded that further monitoring is no longer warranted.

Based on the results of the December 2008 round of groundwater testing, the monitoring termination criteria for groundwater have been achieved. We requested that the post-remediation monitoring program be terminated in the 2008 annual report. The DEC approved this request in their letter dated September 22, 2009 (Ref. 23). As such, groundwater monitoring is no longer required at this site.

3.2 Sub-Slab Depressurization System

The SSD system will be monitored annually by an Environmental Professional or Engineer. Monitoring of the SSD system will consist of a visual inspection of the complete system including checking to confirm that the SSD fans are operating properly, observing the magnehilic at each fan to confirm there is vacuum, identification and repair of leaks (if any), and an inspection of the exhaust or discharge point to verify no intakes from adjacent tenants have been located nearby. If there are any major changes to the building, the vacuum field must be reexamined to ensure the system is working as designed.

Termination Criteria -The SSD system will be terminated when monitoring of the indoor air confirms that there are no impacts to the surrounding tenants: Thriftyway (former Go Digital 1940 Ralph Avenue); Golden Krust (1936 Ralph Avenue); Dunkin Donuts (1930 Ralph Avenue); and Telco (1910 - 1924 Ralph Avenue); after the SSD blowers have been turned off for a period of 30 days during winter conditions (see section 3.3).

3.3 Indoor Air Quality

Indoor air samples will be collected on an annual basis in December from the basements of the following locations: Thirftyway, former Go Digital, unit 1940, Golden Krust unit 1936, the former dry cleaner unit 1932, Dunkin Donuts unit 1930, and Telco unit 1910 – 1924. Samples will be conducted via Summa Canisters calibrated to collect air for a 4-hour period. In addition, an indoor air sample will be collected from the first floor of the vacant dry cleaner unit 1932 prior to occupancy by a new tenant.

The samples will be analyzed by an ELAP-approved Laboratory and will be analyzed for halogenated volatile organic compounds using EPA Method TO-15. Monitoring of the indoor air will continue as long as the SSD system is in operation unless the NYSDEC indicates monitoring is no longer required.

Termination Criteria – Operation of the SSD system will be terminated when the following are demonstrated in accordance with Indoor Air Matrix 2 of the NYSDOH's Guidance document (Ref. 12):

- Indoor air concentrations of PCE in the basement of Golden Krust unit 1936, former dry cleaner unit 1932, the Dunkin Donuts unit 1930 and Telco unit 1910 – 1924 are less than 3 ug/m^3; and,

- Sub-slab vapor concentration of PCE below the unit is less than 100 ug/m^3.

This shall be demonstrated during the winter heating season, to represent the worse case scenario, and after the SSD system has been turned off for a period of 30 days. The termination criteria will be applied on a unit-by-unit basis.

Indoor air detections of PCE in the ground floor units, however, are believed to be a result of the operations of the former dry cleaner and are not a condition of these termination criteria.

4.0 Institutional and Engineering Controls (I&ECs)

The goal of the I&EC portion of this Plan is to describe the procedures that will be employed to manage the institutional and engineering controls for the Site. Specifically, this Plan addresses the following issues:

- Contemplated Use;
- Institutional Controls / Engineering Controls (IC/ECs);
- An Assurance of the Engineering Controls which are part of the Remedy;
- Certification of the IC/ECs; and
- Provisions for the Continued Use, Reuse or Redevelopment of the Site within the Constraints of the Remedy.

Each of these items is addressed in detail in the following sections of this report.

4.1 Contemplated Use

Bon Ton Cleaners is located in a commercial/retail shopping center in Brooklyn, New York. The reasonable, foreseeable future use of Bon Ton Cleaners is commercial/retail.

4.2 Institutional Controls

The following institutional controls for this site have been implemented by the property owner: 1) Pursuant to the VCA, a Declaration of Covenants and Restrictions will be filed with the New York City Register's Office and 2) groundwater beneath the site will not be used for potable or

industrial purposes without treatment unless first obtaining permission to do so from NYSDEC. The property owner has implemented these two institutional controls.

4.3 Engineering Controls

PCE and its degradation products were detected in the underlying soil vapor and groundwater. To address these issues, a mechanical system was installed to serve as an engineering control. Installation of the mechanical remediation system began during August 2004 and consisted of the installation of a SVE/AS system. The AS/SVE system was started-up and remained in operation from March 29, 2005 through March 29, 2006 when the AS system was shutdown. On November 29, 2006, the SVE system was shutdown and replaced with the current SSD system.

The current SSD system, as illustrated on Figure 3, serves as the engineering control for this site. This system, as it is currently configured, includes vents and fans at the following tenant spaces:

Former Cleaners (1932 Ralph Avenue)
Dunkin Donuts (1930 Ralph Avenue)
Telco Dept. Store (1910 - 1924 Ralph Avenue)

The operation of these vents and fans may be terminated on a unit-by-unit basis as criteria in Section 3.3 of the SMP are achieved.

4.4 Assurance of the Engineering Controls which are Part of the Remedy

Assurance of the engineering controls developed for this site will be achieved using a combination of site inspections, monitoring, and annual certification.

The groundwater and indoor air quality will be sampled on an annual basis during the Winter heating season. The operation of the SSD system will be inspected and certified on an annual basis by a professional engineer or qualified environmental professional (see Section 4.5). December of each year will represent the end of a one year certification period. In that regard, the annual monitoring report will also include a certification of the SSD system.

4.5 Certification of the Institutional Controls / Engineering Controls (IC/ECs)

On an annual basis, a professional engineer or qualified environmental professional will review this Plan and the most recent monitoring data. The property owner will also be interviewed to confirm that no potable or industrial groundwater supply wells have been installed at the site.

Specifically, the certification will state the ICs and ECs for the project and certify that:

- they are in place and effective;
- they are performing as designed;
- nothing has occurred that would impair the ability of the controls to protect public health and the environment;
- no violations have occurred and there were no failures to comply with the Site Management Plan;
- Site access is available to maintain the engineering controls; and
- there is no groundwater usage at the Site.

4.6 Provisions for the Continued Use, Reuse or Redevelopment of the Site within the Constraints of the Remedy

This Site Management Plan adequately addresses the operational requirements for continued use of the shopping center. At this time, there are no known plans for the redevelopment or expansion of this Site. Provisions for the continued use, reuse and potential redevelopment of this Site are addressed below by media.

Soil – The tenant of the former Cleaners unit (1932 Ralph Avenue) will be notified to inform the landlord and his environmental consultant of any planned ground intrusive activities. The NYSDEC will, in turn, be notified in advance of these ground intrusive activities. Soil borings will be drilled underneath the basement of the dry cleaner and in any planned excavation areas prior to construction. Soil samples will be obtained from the borings and tested for volatile organic compounds via USEPA 8260. A community air monitoring program will be implemented during any on-site intrusive activities. The excavated soil will be properly disposed of based on the results of the soil samples.

Groundwater – There are currently no future plans to use the groundwater beneath the site either for potable or industrial purposes. The property owner or tenant will not install and operate an on-site supply well or use the groundwater below the site without necessary groundwater treatment unless permission is obtained from NYSDEC in advance.

Soil Vapor – The operation of the current SSD system assures that any remaining PCE vapors in the subsurface do not enter the interior of the shopping center. The procedures for termination of the SSD system are included in sections 3.2 and 3.3 of this Plan.

Indoor Air – Unit number 1932 Ralph Avenue is no loner occupied by a dry cleaning tenant. Therefore the source of PCE vapors within the first floor of the building has been removed. Operation and monitoring of the SSD system will assure that the remnant PCE vapor remaining below the building slab do not enter the structure.

5.0 REFERENCES

1. ACT, (June 5, 2001), Phase II Environmental Site Assessment, 1890-1960 Ralph Avenue Brooklyn, New York.

2. ACT, (July 23, 2001), Phase II Environmental Site Assessment, 1890-1960 Ralph Avenue Brooklyn, New York.

3. CA RICH (October 2002), Investigation Work Plan Bon Ton Cleaners 1932 Ralph Avenue Brooklyn, New York, Site Number V-00512-2.

4. CA RICH (May 2003), Supplemental Investigation Work Plan Bon Ton Cleaners 1932 Ralph Avenue Brooklyn, New York, Site Number V-00512-2.

5. CA RICH (October 2003), Investigation Report Bon Ton Cleaners 1932 Ralph Avenue Brooklyn, New York, Site Number V-00512-2.

6. CA RICH (April 2004), Remediation Work Plan Bon Ton Cleaners, 1932 Ralph Avenue, Brooklyn, New York.

7. CA RICH (December 2004), Pilot Test and Final Design Report Bon Ton Cleaners, 1932 Ralph Avenue, Brooklyn, New York.

8. CA RICH (April 2005), Final Engineering Report - Part A and Operations, Maintenance & Monitoring Plan Bon Ton Cleaners, 1932 Ralph Avenue, Brooklyn, New York.

9. CA RICH (May 2006), Final Engineering Report – Part B and Operations, Maintenance & Monitoring Plan Bon Ton Cleaners, 1932 Ralph Avenue, Brooklyn, New York.

10. CA RICH (November 2006), SSD Pilot Test and Design Report, Bon Ton Cleaners Site, 1932 Ralph Avenue, Brooklyn, New York.

11. NYSDOH, (May 2003), Fact Sheet, Tetrachloroethene (PERC) In Indoor and Outdoor Air.

12. NYSDOH, (October 2006), Guidance for Evaluating Soil Vapor Intrusion in the State of New York.

13. CA RICH, (August 2005), Second Quarter 2005 Quarterly Monitoring Report Bon Ton Cleaners, 1932 Ralph Avenue, Brooklyn, New York.

14. CA RICH, (November 2005), Third Quarter 2005 Quarterly Monitoring Report Bon Ton Cleaners, 1932 Ralph Avenue, Brooklyn, New York.

15. CA RICH, (February 2006), Fourth Quarter 2005 Quarterly Monitoring Report Bon Ton Cleaners, 1932 Ralph Avenue, Brooklyn, New York.

16. CA RICH, (May 2006), First Quarter 2006 Quarterly Monitoring Report Bon Ton Cleaners, 1932 Ralph Avenue, Brooklyn, New York.

17. CA RICH, (August 2006), Second Quarter 2006 Quarterly Monitoring Report Bon Ton Cleaners, 1932 Ralph Avenue, Brooklyn, New York.

18. CA RICH, (October 2006), Third Quarter 2006 Quarterly Monitoring Report Bon Ton Cleaners, 1932 Ralph Avenue, Brooklyn, New York.

19. CA RICH, (February 2007), Fourth Quarter 2006 Quarterly Monitoring Report Bon Ton Cleaners, 1932 Ralph Avenue, Brooklyn, New York.

20. CA RICH, (February 2008), Annual Report for 2007 Bon Ton Cleaners Site, 1932 Ralph Avenue, Brooklyn, NY

21. CA RICH, , (November 2006) SSD Pilot Test and Design Report, Bon Ton Cleaners Site, 1932 Ralph Avenue, Brooklyn, New York

22. CA RICH, (June 2008), Final SSD System Start-Up Test Report, Bon Ton Cleaners Site 1932 Ralph Avenue, Brooklyn, New York

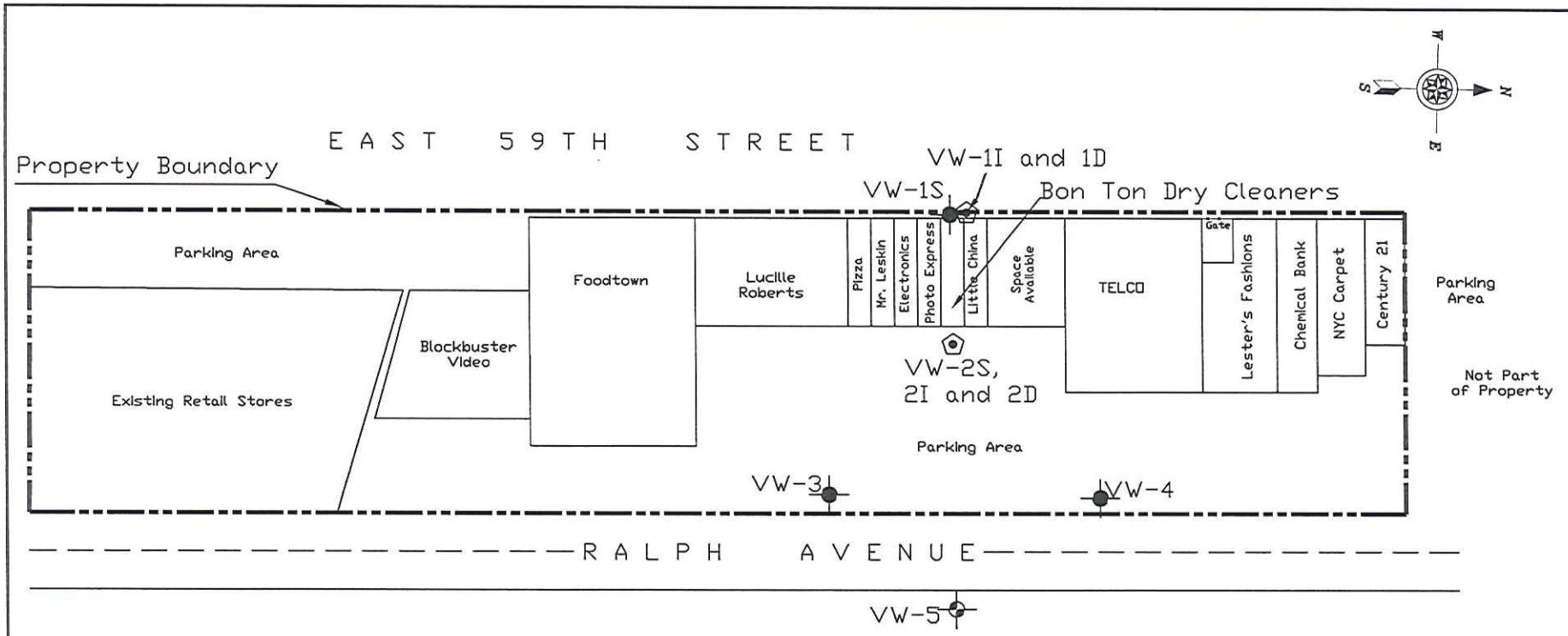
23. NYSDEC, (September 22, 2009) Comment letter regarding the 2008 Annual Report.

24. CA RICH, (September 2009), Annual Report for 2008 July 2009 Indoor Air Sampling Bon Ton Cleaners Site, 1932 Ralph Avenue, Brooklyn, NY

25. CA RICH, (February 2010), Annual Report for 2009 Bon Ton Cleaners Site, 1932 Ralph Avenue, Brooklyn, NY

26. CA RICH, (January 2011), Annual Report for 2010 Bon Ton Cleaners Site, 1932 Ralph Avenue, Brooklyn, NY

Figures



Legend

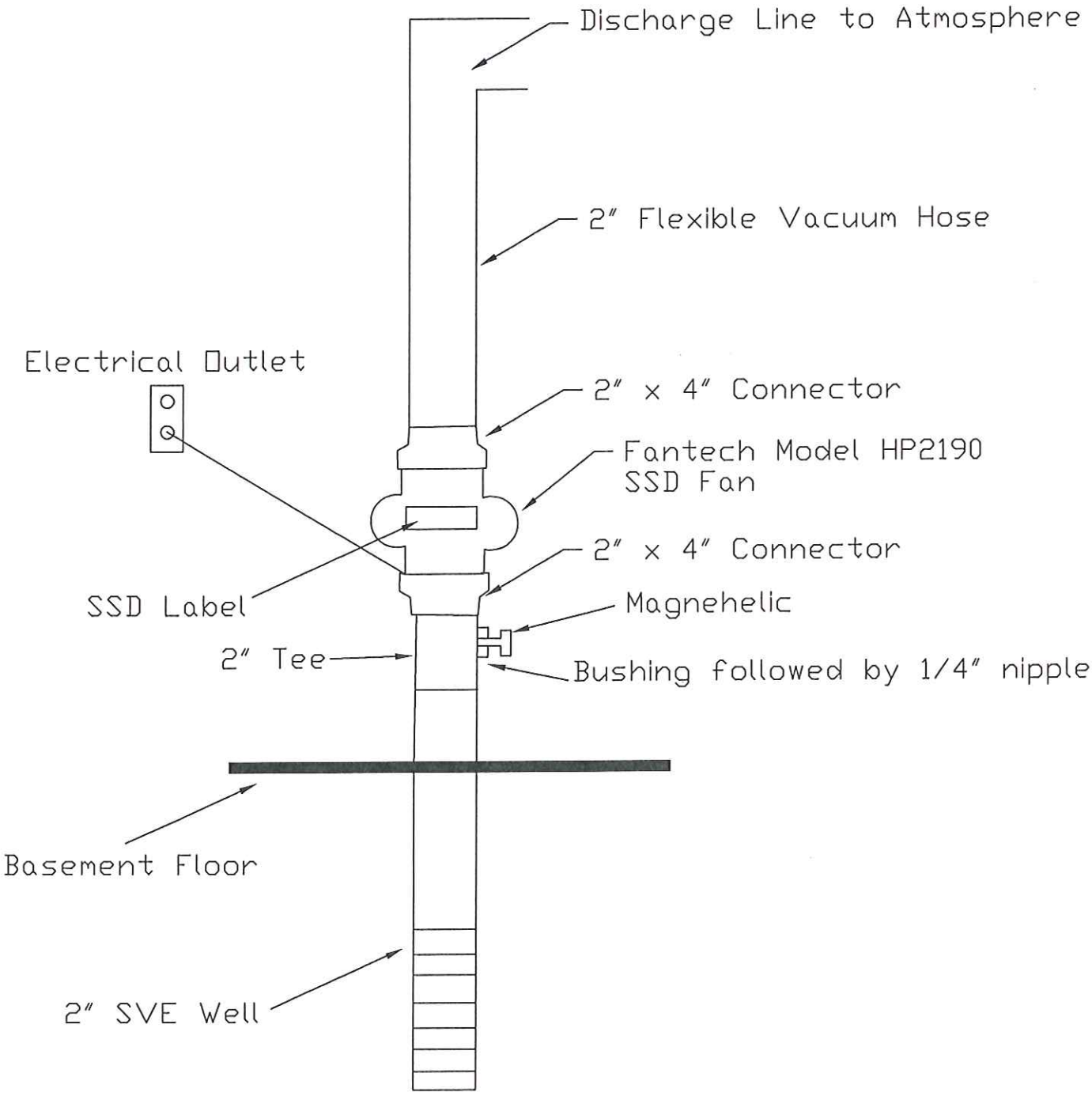
- On-Site Water Table Monitoring Well
- On-Site Multi Depth Cluster Well
- Off-Site Water Table Monitoring Well

0 50 100 200

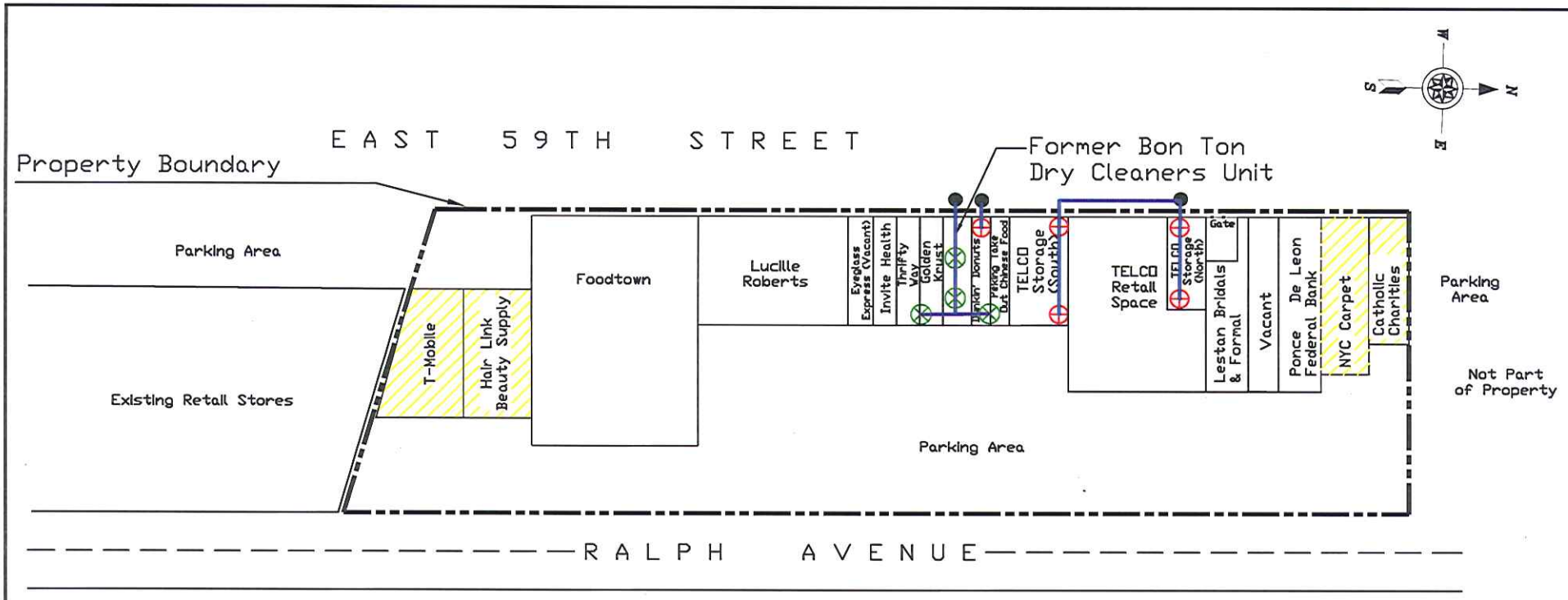
Graphic Scale In Feet

Note:
Map adapted from Property survey by Montrose Surveying Co, LLP dated May 2, 2001 and USGS Brooklyn Quadrangle 1979.

CA RICH CONSULTANTS, INC.		
Certified Ground–Water and Environmental Specialists 17 Dupont Street, Plainview, New York 11803		
TITLE: SITE MAP		DATE: 8/27/04
		SCALE: 1" = 100'
FIGURE: 1	RALPH ASSOCIATES 1932 RALPH AVENUE BROOKLYN, NEW YORK	DRAWN BY: S.T.M.
DWG NO. 1199–1a		APPR. BY: E.A.W.



CA RICH CONSULTANTS, INC.		
Certified Ground-Water and Environmental Specialists 17 Dupont Street, Plainview, NY 11803		
TITLE: TYPICAL SSD FAN INSTALLATION		DATE: 10/23/06
		SCALE: Not To Scale
FIGURE: 2	BON TON CLEANERS 1932 RALPH AVENUE BROOKLYN, NEW YORK	DRAWN BY: D.S.
DRAWING NO: 2006-4a		APPR. BY: S.J.O.



Legend

- Additional SSD Vent with Fan
- Initial SSD Vent with Fan
- Duct
- Exhaust Stack to Roof
- Unit Has No Basement

Notes:

1. Map adapted from Property survey by Montrose Surveying Co, LLP dated May 2, 2001 and USGS Brooklyn Quadrangle 1979.

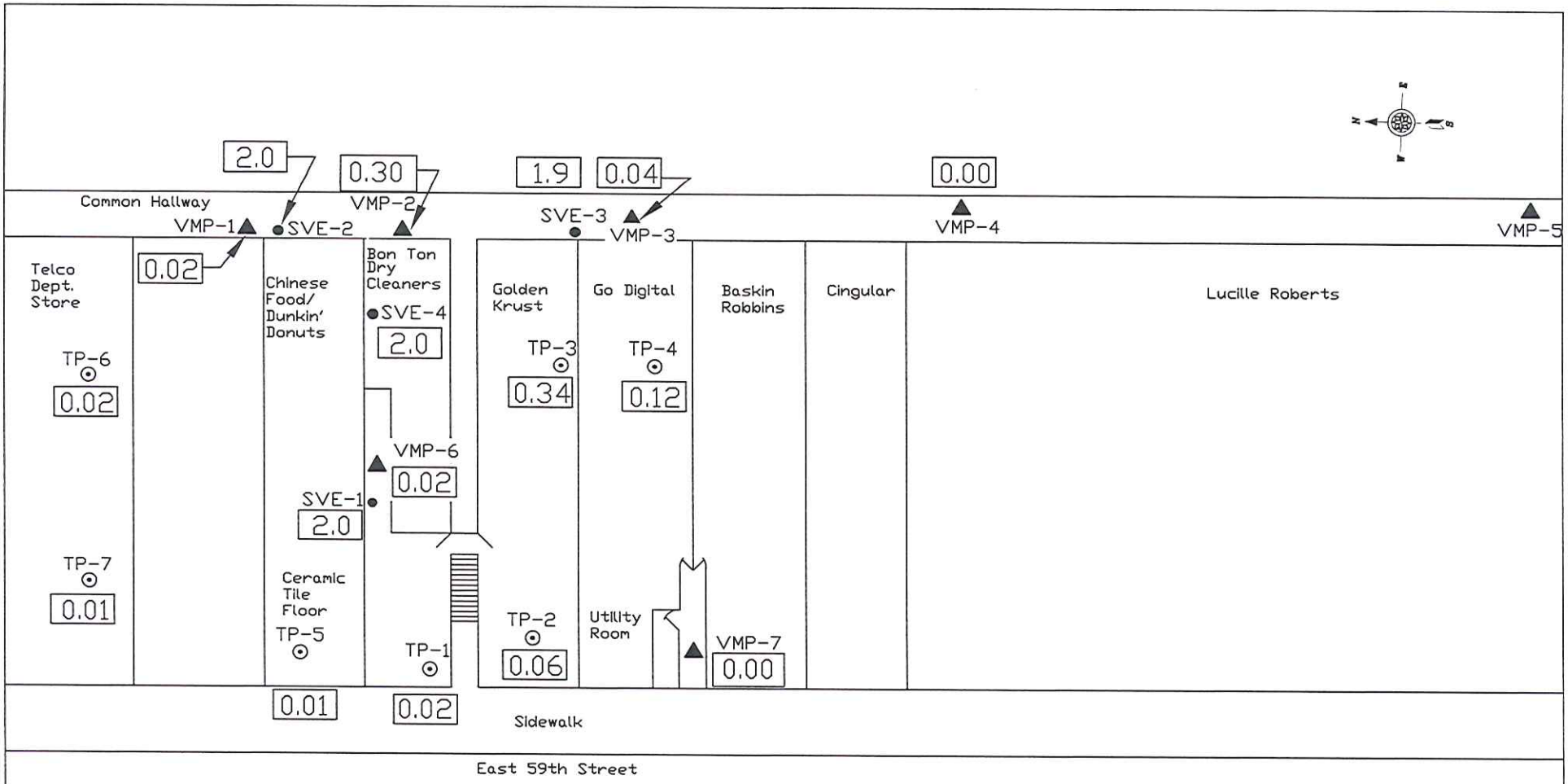
0 50 100 200

Graphic Scale In Feet

CA RICH CONSULTANTS, INC.

Certified Ground-Water and Environmental Specialists
17 Dupont Street, Plainview, New York 11803

TITLE: Layout of Initial and Additional SSD Vents and Ducts	DATE: 4/12/11
	SCALE: As Shown
FIGURE: 3	RALPH ASSOCIATES 1932 RALPH AVENUE BROOKLYN, NEW YORK
DRAWN BY: J.T.C.	
DWG NO. 2011-1	APPR. BY: E.A.W.



Legend

- ● Soil Vapor Extraction Well Converted to SSD Vent
- ⊙ Temporary Vacuum Monitoring Point
- ▲ Existing Vacuum Monitoring Point
- [0.04] Vacuum Measurement in Inches of Water

Notes:
Measured SSD system radius of vacuum - approximately 40 feet.

Measurement taken on 6/5/08 at 10:00 A.M.

0 25 50

Approximate Scale in Feet

CA RICH CONSULTANTS, INC.
Certified Ground-Water and Environmental Specialists
17 Dupont Street, Plainview, New York 11803

TITLE: Final Start Up Test Vacuum Readings		DATE: 6/11/2008
		SCALE: AS SHOWN
FIGURE: 4	Ralph Associates 1931 Ralph Avenue Brooklyn, New York	DRAWN BY: J.T.C.
DRAWING NO: 2008-2		APPR. BY: E.A.W.

Tables

TABLE 1

Perchloroethene (PCE) In Indoor Air Samples
from Summa Canisters* and Passive Diffusion Badges**

Bon Ton Cleaners Site
1932 Ralph Avenue
Brooklyn, New York

Location	Chinese Restaurant	Chinese Restaurant	SVE System Started-Up March 2005	Chinese Restaurant	Chinese Restaurant	Chinese Restaurant	Chinese Restaurant	Chinese Restaurant	Chinese Restaurant	Chinese Restaurant	Chinese Restaurant	Chinese Restaurant	Chinese Restaurant	Chinese Restaurant	Chinese Restaurant	SVE System Replaced With an SSD System November 2006	NYSDOH Action Levels
Matrix	Air	Air		Air	Air	Air	Air	Air	Air	Air	Air	Air	Air	Air	Air		Indoor Air (1)
Date Sampled	1/21/2003	9/4/2003		6/30/2005	7/28/2005	8/23/2005	9/27/2005	10/27/2005	11/21/2005	12/28/2005	1/31/2006	2/27/2006	3/28/2006	6/29/2006	9/28/2006		
Level	First Floor	First Floor		First Floor	First Floor	First Floor	First Floor	First Floor	First Floor	First Floor	First Floor	First Floor	First Floor	First Floor	First Floor		
Sample ID	L-89794-6	AD8761-CGU		AS-1 Back South Corner	PAS-3	AS-4	AS-3	AS-4	AS-6	AS-4	AS-4	AS-4	AS-2	AS-5			
Sample Method	Passive Diffusion Badge	Passive Diffusion Badge		Summa Canister	Passive Diffusion Badge	Passive Diffusion Badge	Passive Diffusion Badge	Passive Diffusion Badge	Passive Diffusion Badge	Passive Diffusion Badge	Passive Diffusion Badge	Passive Diffusion Badge	Passive Diffusion Badge	Passive Diffusion Badge	Not Sampled		
Parameter																	
PCE (ug/m3)	160	226		ND	24	9.9	11	13	20	12	2.6	1.5	2.1	34			100
Level	Basement	Basement		Basement	Basement	Basement	Basement	Basement	Basement	Basement	Basement	Basement	Basement	Basement	Basement		
Sample ID	L-89794-5	AP9406-CGB		AS-2 Basement	PAS-04	AS-5	AS-4	AS-5	AS-5	AS-5	AS-5	AS-5	AS-3	AS-4			
Sample Method	Passive Diffusion Badge	Passive Diffusion Badge		Summa Canister	Passive Diffusion Badge	Passive Diffusion Badge	Passive Diffusion Badge	Passive Diffusion Badge	Passive Diffusion Badge	Passive Diffusion Badge	Passive Diffusion Badge	Passive Diffusion Badge	Passive Diffusion Badge	Passive Diffusion Badge	Not Sampled		
Parameter																	
PCE (ug/m3)	180	364		26.2	30	24	10	12	13	22	3.2	2.0	7.3	46			100
Matrix	Sub Slab	Sub Slab		Sub Slab	Sub Slab	Sub Slab	Sub Slab	Sub Slab	Sub Slab	Sub Slab	Sub Slab	Sub Slab	Sub Slab	Sub Slab	Sub Slab		
Sample ID																	
Sample Method	Not Applicable	Not Applicable		Not Applicable	Not Applicable	Not Applicable	Not Applicable	Not Applicable	Not Applicable	Not Applicable	Not Applicable	Not Applicable	Not Applicable	Not Applicable	Not Applicable		
Parameter																	
PCE (ug/m3)																	NA

Notes:

** Method: VOCs via EPA TO-15*

*** Method: NYSDOH 311-9*

All concentrations are reported in micrograms per cubic meter

ND - Not Detected

Boxed Value Indicates That Value Is Above NYSDOH Action Level

NA - Not Applicable

(1) NYSDOH Tetrachloroethene (PERC) in Indoor and Outdoor Air; May,2003

1. Internal standard recoveries for samples AS-2 and AS-3 were outside QC limits. However, reanalysis of the sample resulted in similar results, indicating that a sample matrix effect is responsible for the internal standard criteria not being met. The greater concentration is shown.

2. Dunkin Donuts occupied the southern portion of the Chinese Restaurant during September 2007.

TABLE 1

Perchloroethene (PCE) in Indoor Air Samples
from Summa Canisters* and Passive Diffusion Badges**

Bon Ton Cleaners Site
1932 Ralph Avenue
Brooklyn, New York

Location	Chinese Restaurant	Dunkin Donuts	Dunkin Donuts	Dunkin Donuts	Dunkin Donuts	Dunkin Donuts	Dunkin Donuts	Dunkin Donuts	NYSDOH Action Levels
Matrix	Air	Air	Air	Air	Air	Air	Air	Air	
Date Sampled	12/13/2006	12/12/2007	1/24/2008	12/5/2008	7/30/2009	12/22/2009	12/29/2010	1/6/2011	Indoor Air (1)
Level	First Floor	First Floor	First Floor	First Floor	First Floor	First Floor	First Floor	First Floor	
Sample ID	AS-1	AS-1	BT-04	BT-04	BT-04	BT-01	IA-04	BT-01	
Sample Method	Summa Canister	Summa Canister	Summa Canister	Summa Canister	Summa Canister	Summa Canister	Summa Canister	Summa Canister	
Parameter									
PCE (ug/m3)	1.8	1,000	5.2	230	160	32.57	180	less than 1.36	100
Level	Basement	Basement	Basement	Basement	Basement	Basement	Basement	Basement	
Sample ID	AS-2[1]	AS-2		BT-05	BT-05	BT-03	IA-05		
Sample Method	Summa Canister	Summa Canister	Summa Canister	Summa Canister	Summa Canister	Summa Canister	Summa Canister	Not Applicable	
Parameter									
PCE (ug/m3)	27	540	16	250	140	30.53	110		100
Matrix	Sub Slab	Sub Slab	Sub Slab	Sub Slab	Sub Slab	Sub Slab	Sub Slab	Sub Slab	
Sample ID						BT-02			
Sample Method	Not Applicable	Not Applicable	Not Applicable	Not Applicable	Not Applicable	Summa Canister	Not Applicable	Not Applicable	
Parameter									
PCE (ug/m3)						6,038.70			NA

Note:
Tenants changed between December 2006 and December 2007 sampling rounds.

TABLE 1

PCE In Indoor Air Samples
from Summa Canisters* and Passive Diffusion Badges**

Bon Ton Cleaners Site
1932 Ralph Avenue
Brooklyn, New York

Location	Golden Krust	Golden Krust		Golden Krust	Golden Krust	Golden Krust	Golden Krust	Golden Krust	Golden Krust	Golden Krust	Golden Krust	Golden Krust	Golden Krust	Golden Krust	Golden Krust		NYSDOH Action Levels
Matrix	Air	Air		Air	Air	Air	Air	Air	Air	Air	Air	Air	Air	Air	Air		
Date Sampled	1/21/2003	9/4/2003	SVE System Started-Up March 2005	6/30/2005	7/28/2005	8/23/2005	9/27/2005	10/27/2005	11/21/2005	12/28/2005	1/31/2006	2/27/2006	3/28/2006	6/29/2006	9/28/2006	SVE System Replaced With an SSD System November 2006	Indoor Air (1)
Level	First Floor	First Floor		First Floor	First Floor	First Floor	First Floor	First Floor	First Floor	First Floor	First Floor	First Floor	First Floor	First Floor	First Floor		
Sample ID	L-89794-3	AP9490-GKU		AS-4 Upstairs	PAS-01	AS-3	AS-6	AS-3	AS-3	AS-3	AS-1	AS-3	AS-1	AS-3	AS-1		
Sample Method	Passive Diffusion Badge	Passive Diffusion Badge		Summa Canister	Passive Diffusion Badge	Passive Diffusion Badge	Passive Diffusion Badge	Passive Diffusion Badge	Passive Diffusion Badge	Passive Diffusion Badge	Passive Diffusion Badge	Passive Diffusion Badge	Passive Diffusion Badge	Passive Diffusion Badge	Passive Diffusion Badge		
Parameter																	
PCE (ug/m3)	44	176		69.0	269	147	33	9.7	14	95	11	5.9	7.3	70	66		100
Level	Basement	Basement		Basement	Basement	Basement	Basement	Basement	Basement	Basement	Basement	Basement	Basement	Basement	Basement		
Sample ID	L-89794-1	AD8794-GKB		AS-5 Basement	PAS-02	AS-2	AS-8	AS-2	AS-2	AS-1	AS-2	AS-1	AS-5	AS-1	AS-2		
Sample Method	Passive Diffusion Badge	Passive Diffusion Badge		Summa Canister	Passive Diffusion Badge	Passive Diffusion Badge	Passive Diffusion Badge	Passive Diffusion Badge	Passive Diffusion Badge	Passive Diffusion Badge	Passive Diffusion Badge	Passive Diffusion Badge	Passive Diffusion Badge	Passive Diffusion Badge	Passive Diffusion Badge		
Parameter																	
PCE (ug/m3)	47	168		98.6	49	23	10	3.7	4.7	7.4	1.9	0.9	3.3	24	22		100
Matrix	Sub Slab	Sub Slab		Sub Slab	Sub Slab	Sub Slab	Sub Slab	Sub Slab	Sub Slab	Sub Slab	Sub Slab	Sub Slab	Sub Slab	Sub Slab	Sub Slab		
Sample ID																	
Sample Method	Not Applicable	Not Applicable		Not Applicable	Not Applicable	Not Applicable	Not Applicable	Not Applicable	Not Applicable	Not Applicable	Not Applicable	Not Applicable	Not Applicable	Not Applicable	Not Applicable		
Parameter																	
PCE (ug/m3)																	NA

Notes:

** Method: VOCs via EPA TO-15*

*** Method: NYSDOH 311-9*

All concentrations are reported in micrograms per cubic meter

Boxed Value Indicates That Value Is Above NYSDOH Action Level

(1) NYSDOH Tetrachloroethene (PERC) in Indoor and Outdoor Air; May,2003

1. Internal standard recoveries for samples AS-2 and AS-3 were outside QC limits. However, reanalysis of the sample resulted in similar results, indicating that a sample matrix effect is responsible for the internal standard criteria not being met. The greater concentration is shown.

TABLE 1

PCE in Indoor Air Samples
from Summa Canisters* and Passive Diffusion Badges**

Bon Ton Cleaners Site
1932 Ralph Avenue
Brooklyn, New York

Location	Golden Krust	Golden Krust	Golden Krust	Golden Krust	Golden Krust	Golden Krust	Golden Krust	Golden Krust	NYSDOH Action Levels
Matrix	Air	Air	Air	Air	Air	Air	Air	Air	Indoor Air (1)
Date Sampled	12/13/2006	12/12/2007	1/24/2008	12/5/2008	7/30/2009	12/22/2009	12/29/2010	1/6/2011	
Level	First Floor	First Floor	First Floor	First Floor	First Floor	First Floor	First Floor	First Floor	
Sample ID	AS-3[1]	AS-3	BT-02	BT-02	BT-02	BT-04	IA-02	BT-03	
Sample Method	Summa Canister	Summa Canister	Summa Canister	Summa Canister	Summa Canister	Summa Canister	Summa Canister	Summa Canister	
Parameter									
PCE (ug/m3)	65	400	7.4	3,700	120	33.25	22	49.53	100
Level	Basement	Basement	Basement	Basement	Basement	Basement	Basement	Basement	
Sample ID	AS-4	AS-4	BT-03	BT-03	BT-03	BT-06	IA-03		
Sample Method	Summa Canister	Summa Canister	Summa Canister	Summa Canister	Summa Canister	Summa Canister	Summa Canister	Not Applicable	
Parameter									
PCE (ug/m3)	30	6.4	ND	130	90	4.75	17		100
Matrix	Sub Slab	Sub Slab	Sub Slab	Sub Slab	Sub Slab	Sub Slab	Sub Slab	Sub Slab	
Sample ID						BT-05			
Sample Method	Not Applicable	Not Applicable	Not Applicable	Not Applicable	Not Applicable	Summa Canister	Not Applicable	Not Applicable	
Parameter									
PCE (ug/m3)						284.97			NA

TABLE 1

PCE in Indoor Air Samples
from Summa Canisters* and Passive Diffusion Badges**

Bon Ton Cleaners Site
1932 Ralph Avenue
Brooklyn, New York

Location	Total Furniture	SVE System Started-Up March 2005	Total Furniture	Total Furniture	Total Furniture	Telco	Telco	Telco	Telco	Telco	Telco	Telco	Telco	Telco	SVE System Replaced With an SSD System November 2006	NYSDOH Action Levels
Matrix / Date Sampled	Air 9/4/2003		Air 6/30/2005	Air 7/28/2005	Air 8/23/2005	Air 9/27/2005	Air 10/27/2005	Air 11/21/2005	Air 12/28/2005	Air 1/31/2006	Air 2/27/2006	Air 3/28/2006	Air 6/29/2006	Air 9/28/2006		Indoor Air (1)
Level / Sample ID / Sample Method / Parameter	First Floor AD8746-TFU Passive Diffusion Badge		First Floor BS-5**** Passive Diffusion Badge	Not Required	Not Required	Not Required	Not Required	Not Required	Not Required	Not Required	Not Required	Not Required	Not Required	Not Required		
PCE (ug/m3)	46		10													100
Level / Sample ID / Sample Method / Parameter	Basement AP9540-TFB Passive Diffusion Badge		Basement AS-3 Basement Summa Canister	Basement PAS-05 Passive Diffusion Badge	Basement AS-6 Passive Diffusion Badge	Basement AS-2 Passive Diffusion Badge	Basement AS-6 Passive Diffusion Badge	Basement AS-4 Passive Diffusion Badge	Basement AS-6 Passive Diffusion Badge	Basement AS-6 Passive Diffusion Badge	Basement AS-6 Passive Diffusion Badge	Basement AS-4 Passive Diffusion Badge	Basement AS-6 Passive Diffusion Badge	Basement AS-4 Passive Diffusion Badge		
PCE (ug/m3)	67		13.1	4.2	4.0	5.3	5.0	11	3.5	1.0	0.4	3.4	11	3.6		100
Matrix / Sample ID / Sample Method / Parameter	Sub Slab Not Applicable		Sub Slab Not Applicable	Sub Slab Not Applicable	Sub Slab Not Applicable	Sub Slab Not Applicable	Sub Slab Not Applicable	Sub Slab Not Applicable	Sub Slab Not Applicable	Sub Slab Not Applicable	Sub Slab Not Applicable	Sub Slab Not Applicable	Sub Slab Not Applicable	Sub Slab Not Applicable		
PCE (ug/m3)																NA

Notes:

** Method: VOCs via EPA TO-15*

*** Method: NYSDOH 311-9*

***** Construction (ie. painting, applying vinyl floor tile) occuring while sample was being obtained.*

All concentrations are reported in micrograms per cubic meter

(1) NYSDOH Tetrachloroethene (PERC) in Indoor and Outdoor Air; May,2003

TABLE 1

PCE in Indoor Air Samples
from Summa Canisters* and Passive Diffusion Badges**

Bon Ton Cleaners Site
1932 Ralph Avenue
Brooklyn, New York

Location	Telco	Telco	Telco	Telco	Telco	Telco	Telco	Telco	NYSDOH Action Levels
Matrix	Air	Air	Air	Air	Air	Air	Air	Air	Indoor Air (1)
Date Sampled	12/13/2006	12/12/2007	1/24/2008	12/5/2008	7/30/2009	12/22/2009	12/22/2009	12/29/2010	
Level									
Sample ID									
Sample Method	Not Required	Not Required	Not Required	Not Required	Not Required	Not Required	Not Required	Not Required	
Parameter									
PCE (ug/m3)									100
Level	Basement	Basement	Basement	Basement	Basement	Basement-North	Basement-South	Basement	
Sample ID	AS-6	AS-5	BT-06	BT-06	BT-06	BT-10	BT-09	IA-06	
Sample Method	Summa Canister	Summa Canister	Summa Canister	Summa Canister	Summa Canister	Summa Canister	Summa Canister	Summa Canister	
Parameter									
PCE (ug/m3)	4.2	35	11	19	16	3.6	21.03	63	100
Matrix	Sub Slab	Sub Slab	Sub Slab	Sub Slab	Sub Slab	Sub Slab	Sub Slab	Sub Slab	
Sample ID						BT-12	BT-11		
Sample Method	Not Applicable	Not Applicable	Not Applicable	Not Applicable	Not Applicable	Summa Canister	Summa Canister	Not Applicable	
Parameter									
PCE (ug/m3)						5,699.40	583.51		NA

TABLE 1

PCE in Indoor Air Samples
from Summa Canisters* and Passive Diffusion Badges**

Bon Ton Cleaners Site
1932 Ralph Avenue
Brooklyn, New York

Location	Go Digital		Go Digital	Go Digital	Go Digital	Go Digital	Go Digital	Go Digital	Go Digital	Go Digital	Go Digital	Go Digital	Go Digital	Go Digital		NYSDOH Action
Matrix	Air		Air	Air	Air	Air	Air	Air	Air	Air	Air	Air	Air	Air		Indoor Air (1)
Date Sampled	9/4/2003	SVE System Started-Up March 2005	6/30/2005	7/28/2005	8/23/2005	9/27/2005	10/27/2005	11/21/2005	12/28/2005	1/31/2006	2/27/2006	3/28/2006	6/29/2005	9/28/2006	SVE System Replaced With an SSD System November 2006	
Level	First Floor		First Floor													
Sample ID	AP9841-GDU		BS-6													
Sample Method	Passive Diffusion Badge		Passive Diffusion Badge	Not Required	Not Required	Not Required	Not Required	Not Required	Not Required	Not Required	Not Required	Not Required	Not Required	Not Required		
Parameter																
PCE (ug/m3)	9.2		2.6													100
Level	Basement		Basement	Basement	Basement	Basement	Basement	Basement	Basement	Basement	Basement	Basement	Basement	Basement		
Sample ID	AP9489-GDB		AS-6 Basement	PAS-06	AS-1	AS-9	AS-1	AS-1	AS-2	AS-3	AS-2	AS-6	AS-2	AS-3		
Sample Method	Passive Diffusion Badge		Summa Canister	Passive Diffusion Badge	Passive Diffusion Badge	Passive Diffusion Badge	Passive Diffusion Badge	Passive Diffusion Badge	Passive Diffusion Badge	Passive Diffusion Badge	Passive Diffusion Badge	Passive Diffusion Badge	Passive Diffusion Badge	Passive Diffusion Badge		
Parameter																
PCE (ug/m3)	72		ND	12	8.2	2.9	2.7	2.2	<0.7	0.7	<0.2	3.8	9.7	11		100
Matrix	Sub Slab		Sub Slab	Sub Slab	Sub Slab	Sub Slab	Sub Slab	Sub Slab	Sub Slab	Sub Slab	Sub Slab	Sub Slab	Sub Slab	Sub Slab		
Sample ID																
Sample Method	Not Applicable		Not Applicable	Not Applicable	Not Applicable	Not Applicable	Not Applicable	Not Applicable	Not Applicable	Not Applicable	Not Applicable	Not Applicable	Not Applicable	Not Applicable		
Parameter																
PCE (ug/m3)																NA

Notes:

** Method: VOCs via EPA TO-15*

*** Method; NYSDOH 311-9*

All concentrations are reported in micrograms per cubic meter

ND - Not Detected

(1) NYSDOH Tetrachloroethene (PERC) in Indoor and Outdoor Air; May,2003

TABLE 1

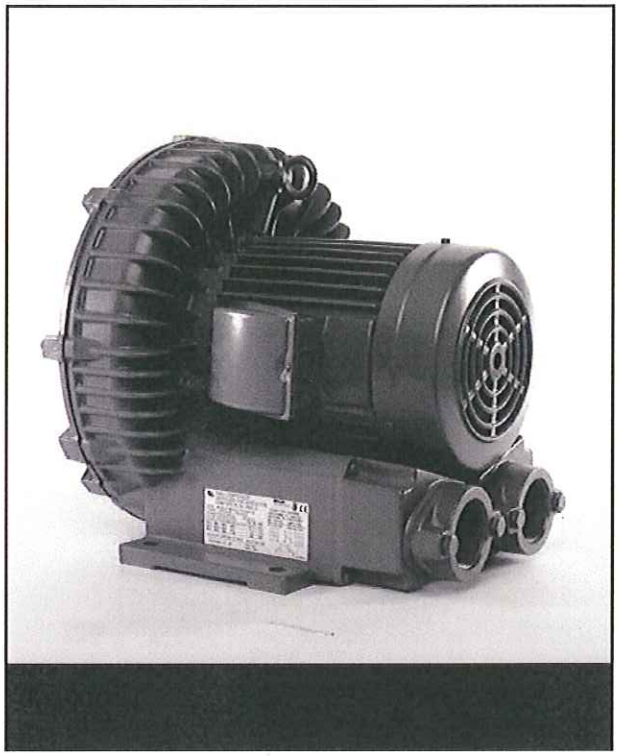
PCE in Indoor Air Samples
from Summa Canisters* and Passive Diffusion Badges**

Bon Ton Cleaners Site
1932 Ralph Avenue
Brooklyn, New York

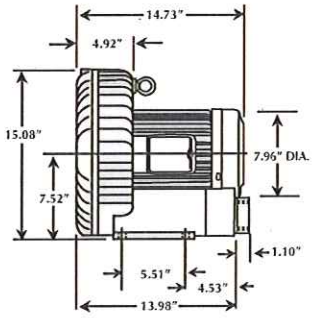
Location	Go Digital	Go Digital	Go Digital	Go Digital	Thriftyway	Thriftyway	Thriftyway	NYSDOH Action Levels
Matrix	Air	Air	Air	Air	Air	Air	Air	Indoor Air (1)
Date Sampled	12/13/2006	12/12/2007	1/24/2008	12/5/2008	7/30/2009	12/22/2009	12/29/2010	
Level								
Sample ID								
Sample Method	Not Required	Not Required	Not Required	Not Required	Not Required	Not Required	Not Required	
Parameter								
PCE (ug/m3)								100
Level	Basement	Basement	Basement	Basement	Basement	Basement	Basement	
Sample ID	AS-5	AS-6	BT-01	BT-01	BT-01	BT-13	IA-01	
Sample Method	Summa Canister	Summa Canister	Summa Canister	Summa Canister	Summa Canister	Summa Canister	Summa Canister	
Parameter								
PCE (ug/m3)	8.0	3.2	1.4	250	76	6.51	3.5	100
Matrix	Sub Slab	Sub Slab	Sub Slab	Sub Slab	Sub Slab	Sub Slab	Sub Slab	
Sample ID						BT-14		
Sample Method	Not Applicable	Not Applicable	Not Applicable	Not Applicable	Not Applicable	Summa Canister	Not Applicable	
Parameter								
PCE (ug/m3)						94.99		NA

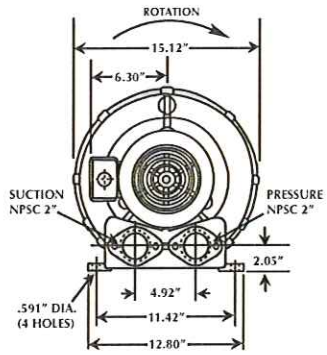
Appendix A
Fantech® & Fuji Operation Manual

VFC60 RING COMPRESSOR



The VFC60 is a single-stage ring compressor with a maximum pressure of 118 in. H_2O, a maximum vacuum of 98 in. H_2O, and a maximum capacity of 206 SCFM. It comes complete with a direct-drive, 4.5 horsepower TEFC motor capable of operating on a wide range of voltages, and on 50 or 60 Hz. A pilot-duty thermal protector is standard equipment on all 3-phase models. All versions have NEMA class B insulation, are UL recognized, CSA certified, and CE. 575 Volt units are CSA certified only.





SPECIFICATIONS

	Model No.	Hz	Voltage	Amps (Max. Rated)	Amps (Locked Rotor)	Max. Pressure	Max. Vacuum	Max. Airflow	Min. Airflow	Max. Temp Rise (ΔT)	Weight
			Low Voltage/High Voltage			in. H_2O	in. H_2O	SCFM	SCFM	°F(°C)	lbs.(kg)
3 Phase	VFC600A-7W	60	200-240/400-480	12-11/6.0-5.5	78-90/39-45	118	98	206	56	126(70)	114(52)
		50	190-230/380-460	9.2-10.5/4.6-5.2	88-102/44-51	86	72	175	28	108(65)	
	VFC600A-5W	60	575	4.4	36	118	98	206	56	126(70)	114(52)

ACCESSORIES

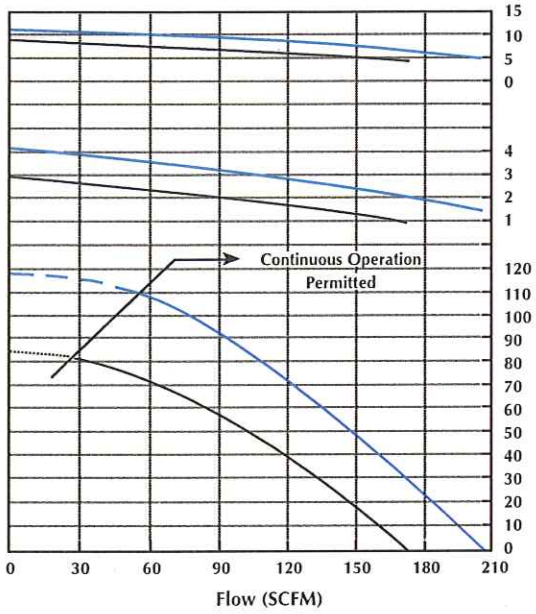
Description	Vacuum Relief Valve	Pressure Relief Valve	Inlet Filter	Inlet Filter Cover	Inlet Filter/Receiver	Exhaust Silencer/Muffler
Model No.	VV6	PV6	F-67	C-67	R30P2.0	VFY-026A

NOTE: Maximum allowable time at deadhead is 60 seconds.

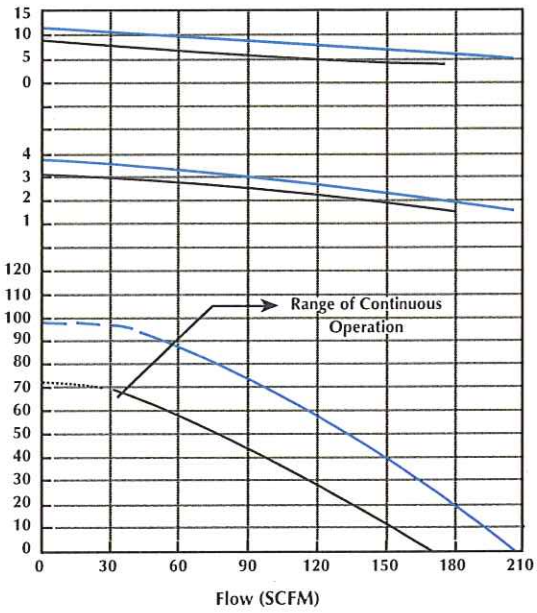
VFC60 PERFORMANCE DATA

KEY
60 Hz
50 Hz

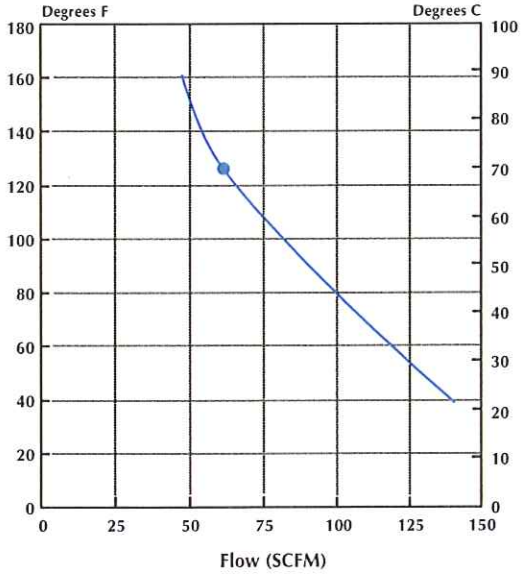
PRESSURE



VACUUM

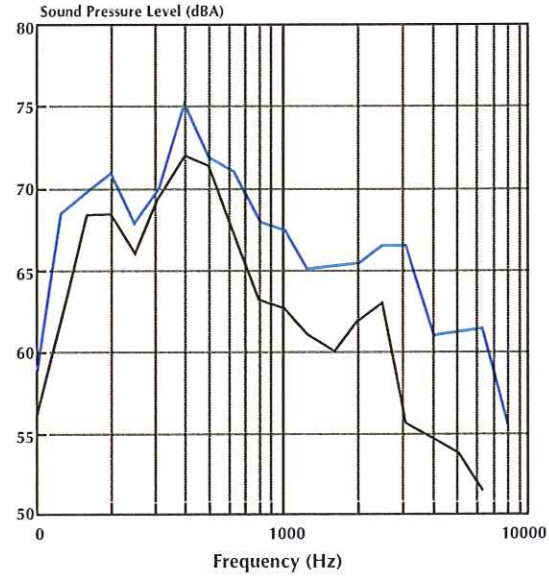


TEMPERATURE RISE



Max. Air Temperature is Value Marked • plus 40 Degrees C Ambient Temperature

SOUND LEVEL



*Measured at distance of 1.0 meter

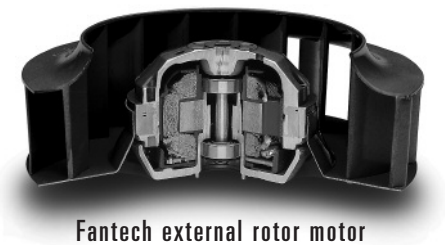
Fantech

HP SERIES

FANS FOR RADON APPLICATIONS
WITH IMPROVED UV RESISTANCE!

TRUST THE INDUSTRY STANDARD.
HERE'S WHY:

Don't put your reputation at stake by installing a fan you know won't perform like a Fantech! For nearly twenty years, Fantech has manufactured quality ventilation equipment for Radon applications. Fantech is the fan Radon contractors have turned to in over 1,000,000 successful Radon installations worldwide.



Fantech external rotor motor

FANTECH HP SERIES FANS MEET THE CHALLENGES OF RADON APPLICATIONS:

HOUSING
- UV resistant, UL Listed durable plastic
- UL Listed for use in commercial applications
- Factory sealed to prevent leakage
- Watertight electrical terminal box
- Approved for mounting in wet locations - i.e. Outdoors

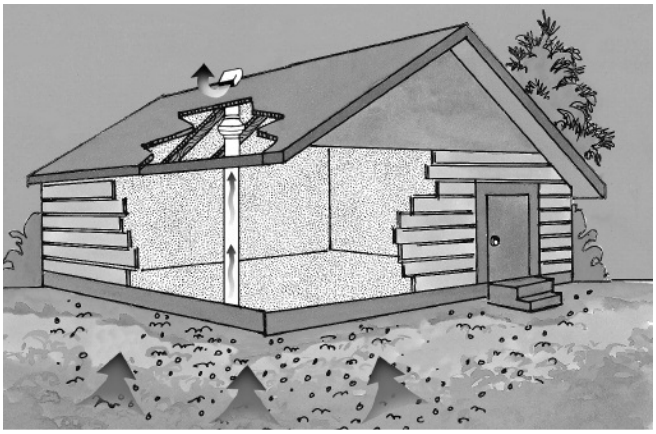
MOTOR
- Totally enclosed for protection
- High efficiency EBM motorized impeller
- Automatic reset thermal overload protection
- Average life expectancy of 7-10 years under continuous load conditions

RELIABILITY
- Five Year Full Factory Warranty
- Over 1,000,000 successful radon installations worldwide

Fantech

HP Series Fans are Specially Designed with Higher Pressure Capabilities for Radon Mitigation Applications

MOST RADON MITIGATORS WHO PREVIOUSLY USED THE FANTECH FR SERIES FANS HAVE SWITCHED TO THE NEW HP SERIES.



PERFORMANCE DATA

Fan Model	Volts	Wattage Range	Max. Amps	CFM vs. Static Pressure in Inches W.G.								Max. Ps
				0"	0.5"	0.75"	1.0"	1.25"	1.5"	1.75"	2.0"	
HP2133	115	14 - 20	0.17	134	68	19	-	-	-	-	-	0.84
HP2190	115	60 - 85	0.78	163	126	104	81	58	35	15	-	1.93
HP175	115	44 - 65	0.57	151	112	91	70	40	12	-	-	1.66
HP190	115	60 - 85	0.78	157	123	106	89	67	45	18	1	2.01
HP220	115	85 - 152	1.30	344	260	226	193	166	137	102	58	2.46

HVI MEMBER™

PERFORMANCE CURVES

Fantech provides you with independently tested performance specifications.

The performance curves shown in this brochure are representative of the actual test results recorded at Texas Engineering Experiment Station/Energy Systems Lab, a recognized testing authority for HVI. Testing was done in accordance with AMCA Standard 210-85 and HVI 916 Test Procedures. Performance graphs show air flow vs. static pressure.

Use of HP Series fans in low resistance applications such as bathroom venting will result in elevated sound levels. We suggest FR Series or other Fantech fans for such applications.

HP FEATURES INCLUDE

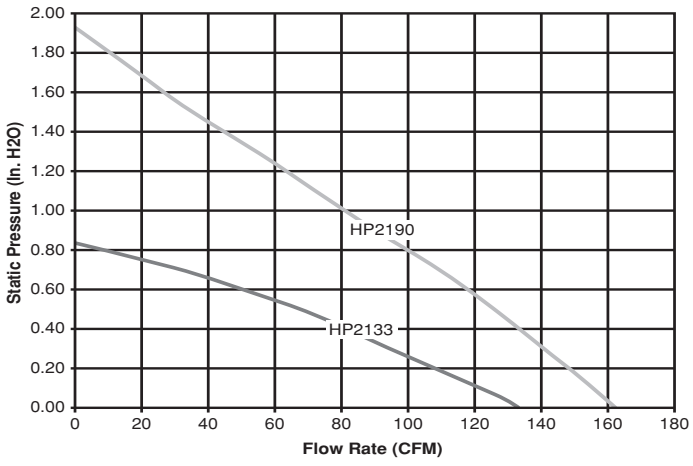
- Improved UV resistant housings approved for commercial applications.
- UL Approved for Wet Locations (Outdoors)
- Sealed housings and wiring boxes to prevent Radon leakage or water penetration
- Energy efficient permanent split capacitor motors
- External wiring box
- Full Five Year Factory Warranty

c UL us

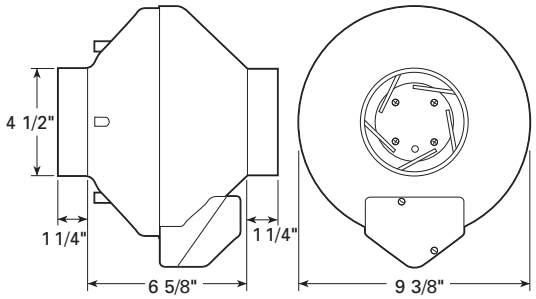
NOTE:

Installations that will result in condensate forming in the outlet ducting should have a condensate bypass installed to route the condensate outside of the fan housing. Conditions that are likely to produce condensate include but are not limited to: outdoor installations in cold climates, long lengths of outlet ducting, high moisture content in soil and thin wall or aluminum outlet ducting. Failure to install a proper condensate bypass may void any warranty claims.

HP2133 & HP2190 RADON MITIGATION FANS



Tested with 4" ID duct and standard couplings.

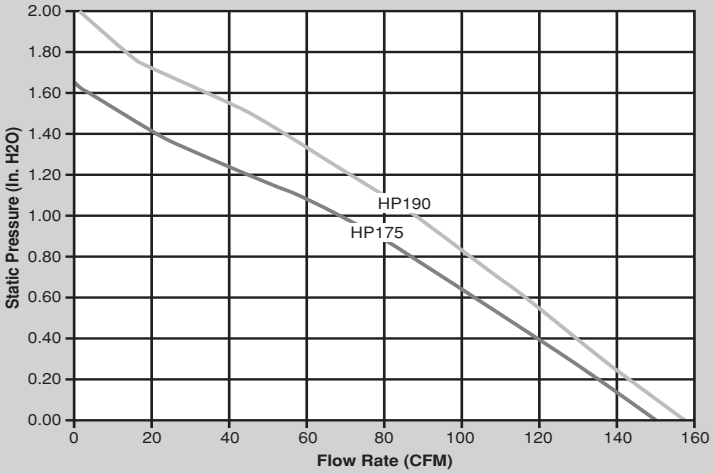


HP2133 – For applications where lower pressure and flow are needed. Record low power consumption of 14-20 watts! Often used where there is good sub slab communication and lower Radon levels.

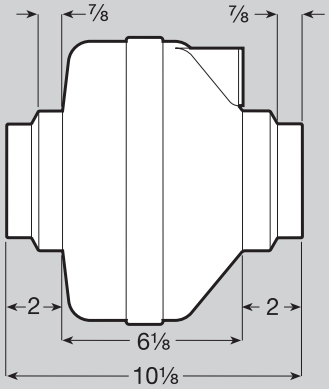
HP2190 – Performance like the HP190 but in a smaller housing. Performance suitable for the majority of installations.

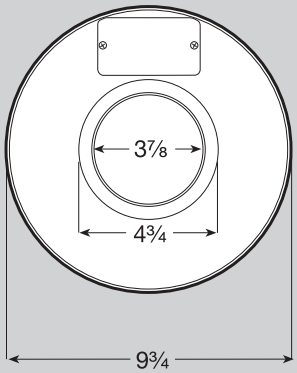
Fans are attached to PVC pipe using flexible couplings.
For 4" PVC pipe use Indiana Seals #156-44, Pipeconx PCX 56-44 or equivalent.
For 3" PVC pipe use Indiana Seals #156-43, Pipeconx PCX 56-43 or equivalent.

HP175 & HP190 RADON MITIGATION FANS



Tested with 4" ID duct and standard couplings.



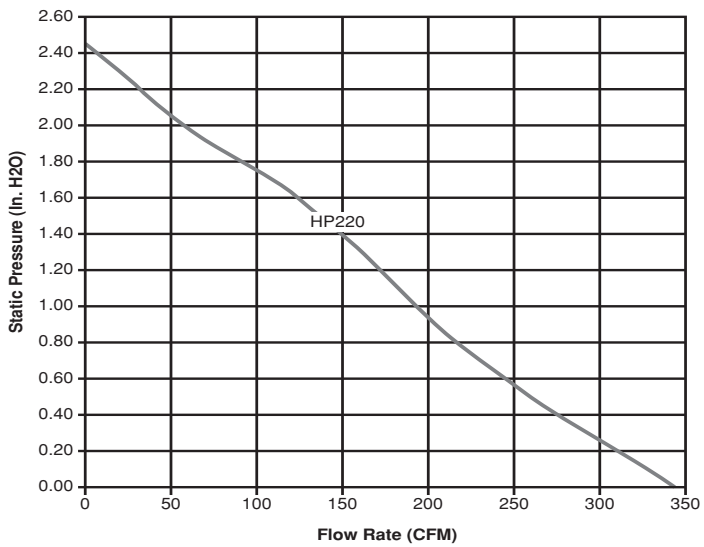


HP175 – The economical choice where slightly less air flow is needed. Often used where there is good sub slab communication and lower Radon levels.

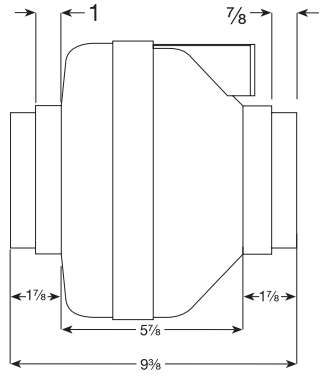
HP190 – The standard for Radon Mitigation. Ideally tailored performance curve for a vast majority of your mitigations.

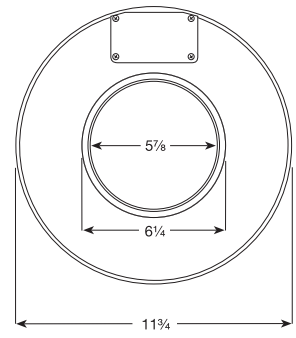
Fans are attached to PVC pipe using flexible couplings.
For 4" PVC pipe use Indiana Seals #151-44, Pipeconx PCX 51-44 or equivalent.
For 3" PVC pipe use Indiana Seals #156-43, Pipeconx PCX 56-43 or equivalent.

HP220 RADON MITIGATION FAN



Tested with 6" ID duct and standard couplings.





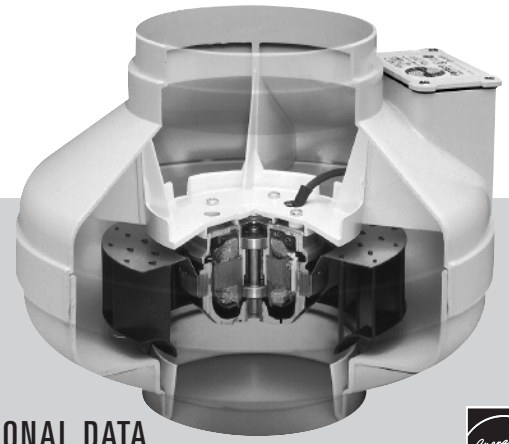
HP 220 – Excellent choice for systems with elevated radon levels, poor communication, multiple suction points and large subslab footprint. Replaces FR 175.

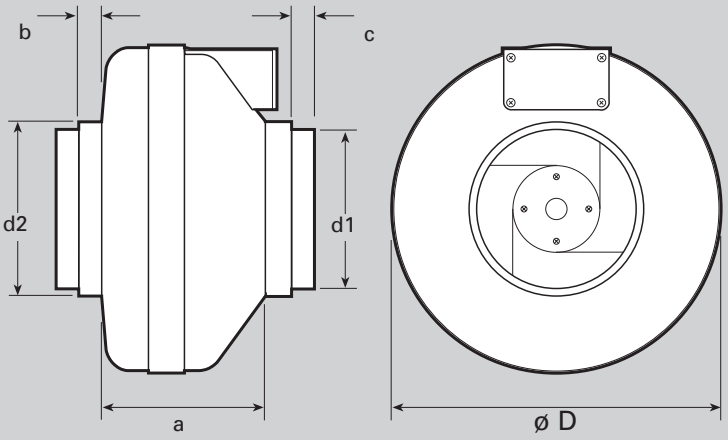
Fans are attached to PVC pipe using flexible couplings.
For 4" PVC pipe use Indiana Seals #156-64, Pipeconx PCX 56-64 or equivalent.
For 3" PVC pipe use Indiana Seals #156-63, Pipeconx PCX 56-63 or equivalent.

Fantech

FR SERIES

THE ORIGINAL MITIGATOR





DIMENSIONAL DATA

model	øD	d1	d2	a	b	c
FR100	9 1/2	3 7/8	4 7/8	6 1/8	7/8	7/8
FR110	9 1/2	3 7/8	4 7/8	6 1/8	7/8	7/8
FR125	9 1/2	–	4 7/8	6 1/8	7/8	–
FR140	11 3/4	5 7/8	6 1/4	5 7/8	1	7/8
FR150	11 3/4	5 7/8	6 1/4	5 7/8	1	7/8
FR160	11 3/4	5 7/8	6 1/4	6 3/8	1	7/8
FR200	13 1/4	7 7/8	9 7/8	6 1/4	1 1/2	1 1/2
FR225	13 1/4	7 7/8	9 7/8	6 1/4	1 1/2	1 1/2
FR250	13 1/4	–	9 7/8	6 1/4	–	1 1/2

All dimensions in inches

PERFORMANCE DATA

Fan Model	Energy Star	RPM	Volts	Rated Watts	Wattage Range	Max. Amps	CFM vs. Static Pressure in Inches W.G.							Max. Ps	Duct Dia.
							0"	.2"	.4"	.6"	.8"	1.0"	1.5"		
FR100	✓	2950	120	21.2	13 - 22	0.18	137	110	83	60	21	-	-	0.90"	4"
FR125	✓	2950	115	18	15 - 18	0.18	148	120	88	47	-	-	-	0.79"	5"
FR150	✓	2750	120	71	54 - 72	0.67	263	230	198	167	136	106	17	1.58"	6"
FR160	-	2750	115	129	103 - 130	1.14	289	260	233	206	179	154	89	2.32"	6"
FR200	✓	2750	115	122	106 - 128	1.11	408	360	308	259	213	173	72	2.14"	8"
FR225	✓	3100	115	137	111 - 152	1.35	429	400	366	332	297	260	168	2.48"	8"
FR250*	-	2850	115	241	146 - 248	2.40	649	600	553	506	454	403	294	2.58"	10"

FR Series performance is shown with ducted outlet. Per HVI's Certified Ratings Program, charted air flow performance has been derated by a factor based on actual test results and the certified rate at .2 inches WG.
** Also available with 8" duct connection. Model FR 250-8. Special Order.*

NOTE:

Installations that will result in condensate forming in the outlet ducting should have a condensate bypass installed to route the condensate outside of the fan housing. Conditions that are likely to produce condensate include but are not limited to: outdoor installations in cold climates, long lengths of outlet ducting, high moisture content in soil and thin wall or aluminum outlet ducting. Failure to install a proper condensate bypass may void any warranty claims.

FIVE YEAR WARRANTY

DURING ENTIRE WARRANTY PERIOD:

FANTECH will replace any fan which has a factory defect in workmanship or material. Product may need to be returned to the Fantech factory, together with a copy of the bill of sale and identified with RMA number.

FOR FACTORY RETURN YOU MUST:

- Have a Return Materials Authorization (RMA) number. This may be obtained by calling FANTECH either in the USA at 1.800.747.1762 or in CANADA at 1.800.565.3548. Please have bill of sale available.
- The RMA number must be clearly written on the outside of the carton, or the carton will be refused.
- All parts and/or product will be repaired/replaced and shipped back to buyer; no credit will be issued.

OR

The Distributor may place an order for the warranty fan and is invoiced.
The Distributor will receive a credit equal to the invoice only after product is returned prepaid and verified to be defective.

FANTECH WARRANTY TERMS DO NOT PROVIDE FOR REPLACEMENT WITHOUT CHARGE PRIOR TO INSPECTION FOR A DEFECT. REPLACEMENTS ISSUED IN ADVANCE OF DEFECT INSPECTION ARE INVOICED, AND CREDIT IS PENDING INSPECTION OF RETURNED MATERIAL. DEFECTIVE MATERIAL RETURNED BY END USERS SHOULD NOT BE REPLACED BY THE DISTRIBUTOR WITHOUT CHARGE TO THE END USER, AS CREDIT TO DISTRIBUTOR'S ACCOUNT WILL BE PENDING INSPECTION AND VERIFICATION OF ACTUAL DEFECT BY FANTECH.

THE FOLLOWING WARRANTIES DO NOT APPLY:

- Damages from shipping, either concealed or visible. Claim must be filed with freight company.
- Damages resulting from improper wiring or installation.
- Damages or failure caused by acts of God, or resulting from improper consumer procedures, such as:

1. Improper maintenance
2. Misuse, abuse, abnormal use, or accident, and
3. Incorrect electrical voltage or current.

- Removal or any alteration made on the FANTECH label control number or date of manufacture.
- Any other warranty, expressed, implied or written, and to any consequential or incidental damages, loss or property, revenues, or profit, or costs of removal, installation or reinstallation, for any breach of warranty.

WARRANTY VALIDATION

- The user must keep a copy of the bill of sale to verify purchase date.
- These warranties give you specific legal rights, and are subject to an applicable consumer protection legislation. You may have additional rights which vary from state to state.

DISTRIBUTED BY:

Fantech

United States 10048 Industrial Blvd. • Lenexa, KS 66215 • 1.800.747.1762 • www.fantech.net
Canada 50 Kanalflakt Way • Bouctouche, NB E4S 3M5 • 1.800.565.3548 • www.fantech.net

Item #: 411741
Rev Date: 021010

Appendix B
SSD Pilot Test and Design Report

CA RICH
ENVIRONMENTAL SPECIALISTS

October 24, 2006

NYSDEC
625 Broadway
Albany, NY 12233-7015

Attention: Joe Peck

Re: **SSD Pilot Test & Design Report**
Bon Ton Cleaners Site
1932 Ralph Avenue
Brooklyn, New York
Site Number V-00512-2
VCP Index Number W2-0916-02-03

Dear Mr. Peck:

CA RICH Consultants, Inc. (CA RICH) is pleased to submit the following document for the Bon Ton Cleaners Site. Included in this document are:

- A summary of the on-site Sub-Slab Depressurization (SSD) pilot test; and
- The final design of the SSD system.

The operation of this SSD system is intended to serve as the final remedy for this site. After the system installation is completed, a Site Management Plan will be prepared.

1.0 Introduction

The following SSD Pilot Test and Design Report has been prepared by CA RICH Consultants, Inc. (CA RICH) on behalf of Ralph Associates. This document was prepared in accordance with a Voluntary Cleanup Program (VCP) Agreement, Index Number W-20916-02-03 and the May 2002 VCP guidance document, and addresses the remediation of an area of the Upper Glacial Aquifer located in the central portion of the property below the present Bon Ton Cleaners. For the purposes of this document, the contaminants of concern are perchloroethene (a.k.a. PCE or tetrachloroethene) and its degradation products.

ACT and CA RICH performed a series of previous investigations at this site for refinancing purposes. Copies of these reports, including the corresponding site maps and laboratory data, are available at the NYSDEC office or in the site's document repository.

During the winter of 2002 and spring of 2003, a supplemental subsurface investigation of the site was performed to determine the nature and extent of contamination at Bon Ton Cleaners. Based on the results of this investigation, a remedy was designed consisting of: two mechanical systems; the cleanout of one concrete sump; and in-situ chemical oxidation. The design and installation of the mechanical systems and the cleanout of the sump are described in the Final Engineering Report - Part A and Operations, Maintenance & Monitoring Plan (Ref. 8). The chemical oxidation phase is described in the Final Engineering Report – Part B and Operations, Maintenance & Monitoring Plan (Ref. 9).

Installation of the mechanical remediation systems began during August 2004 and consisted of the installation of Soil Vapor Extraction (SVE) wells and Air Sparging (AS) points. The sump was cleaned out on October 15, 2004. The trenching for the underground AS piping was completed in November 2004. The installation of the SVE blower and the AS compressor was completed in March 2005. The AS/SVE system was started-up and remained in operation from March 29, 2005 through March 29, 2006. On March 29, 2006, the AS system was shutdown; however, the SVE system remains in operation.

The following documents prepared for this site should be reviewed for additional details:

Document	Date
Phase II Environmental Site Assessment, 1890-1960 Ralph Avenue, Brooklyn, New York	June 5, 2001
Phase II Environmental Site Assessment, 1890-1960 Ralph Avenue, Brooklyn, New York	July 23, 2001
Investigation Work Plan Bon Ton Cleaners, 1932 Ralph Avenue, Brooklyn, New York	October 2002
Supplemental Investigation Work Plan Bon Ton Cleaners, 1932 Ralph Avenue, Brooklyn, New York	May 2003
Investigation Report Bon Ton Cleaners, 1932 Ralph Avenue, Brooklyn, New York	October 2003
Remediation Work Plan Bon Ton Cleaners, 1932 Ralph Avenue, Brooklyn, New York	April 2004
Pilot Test and Final Design Report Bon Ton Cleaners, 1932 Ralph Avenue, Brooklyn, New York.	December 2004
Final Engineering Report - Part A and Operations, Maintenance & Monitoring Plan Bon Ton Cleaners, 1932 Ralph Avenue, Brooklyn, New York	April 2005
Final Engineering Report - Part B and Operations, Maintenance & Monitoring Plan Bon Ton Cleaners, 1932 Ralph Avenue, Brooklyn, New York	May 2006

2.0 Summary of the On-Site Sub-Slab Depressurization (SSD) Pilot Test

On October 10, 2006, a pilot test of the proposed conversion of the existing SVE system to an SSD system was performed at the above-referenced site. The pilot test was performed using one SSD fan that was attached to well SVE-1. The purpose of the pilot test was to determine if the proposed SSD system would be favorable as part of the Final Remedy at the Bon Ton Cleaners Site.

SSD Pilot Test

An AS/SVE system is currently present at the Site and was started up in March 2004. The AS system was turned off on March 29, 2006, and the SVE system remains in operation. The SVE system contains four SVE wells (SVE-1 through SVE-4).

On October 10, 2006, Stephen Osmundsen, and Michael Yager conducted a pilot test of the proposed SSD conversion. Soil Vapor Extraction well - SVE-1, located in the basement, served as the test well during the pilot test. The SSD fan was attached to the top of SVE-1. Approximately five to 10 minutes after turning on the SSD fan, vacuum was measured at SVE-1, VMP-1, VMP-2, and VMP-6 using a hand held field magnehelic. A total of 15 Vapor Monitoring Points (VMPs) (VMP-1 through VMP-11 plus E-1 through E-4) were previously installed throughout the shopping center. For the purpose of this pilot test, only VMP-1, 2, and 6 were measured based upon their location with respect to the test well. All VMPs and SVE wells are illustrated on Figure 1.

A radius of influence of more than 50 feet was measured during the pilot test as shown on Figure 1. Therefore, the results of the pilot test were favorable, which indicates that the application of inline axial fans (SSD fans) will perform adequately for the final remedy.

3.0 SSD System Design

The proposed design for the SSD system includes installing one SSD fan upon each of the four SVE wells. The SSD system will be completed in such a way that each fan can be operated independently. A magnehelic will be retrofitted to each of the SVE riser pipes between the slab and the SSD fans for vacuum readings. These magnehelics will also serve as warning devices or indicators to ensure that this active system is working properly. In addition, labels will be affixed to each of the SSD points indicating the following:

Sub-Slab Depressurization System

This is a component of a Sub-Slab Depressurization System

DO NOT ALTER OR DISCONNECT

For Service call: CA Rich Consultants, Inc 516-576-8844

Date Installed: _____

The SVE wells will then be connected to a 2-inch diameter header line that will exhaust out of the basement boiler room of Bon Ton Cleaners and through a rooftop stack with the discharge point above the existing building roof elevation to the atmosphere. The SSD system discharge will be monitored in accordance with the Final New York State Department of Health (NYSDOH) CEH BEEI Soil Vapor Intrusion Guidance document. Figure 2 illustrates the SSD fan design/installation and Figure 3 presents the proposed SSD system layout and approximate vent line location.

The procedures for monitoring the operation of the SSD system as well as the system's termination criteria will be included in the Site Management Plan. Once this SSD Pilot Test and Design Report are approved, we will proceed with the installation of the system. A Site Management Plan will be submitted to the Department after the system installation and start-up is completed.

4.0 Schedule

Submission of Work Plan	November 2006
Approval by NYSDEC/NYSDOH	(est.) November/December 2006
Installation of SSD System	December 2006
Collection of groundwater samples and indoor air samples (via Summa Canisters)	December 2006/January 2007
Site Management Plan	February 2007

5.0 References

1. CA RICH (June 5, 2001), Phase II Environmental Site Assessment, 1890-1960 Ralph Avenue, Brooklyn, New York
2. CA RICH (July 23, 2001), Phase II Environmental Site Assessment, 1890-1960 Ralph Avenue, Brooklyn, New York
3. CA RICH (October 2002), Investigation Work Plan Bon Ton Cleaners, 1932 Ralph Avenue, Brooklyn, New York
4. CA RICH (May 2003), Supplemental Investigation Work Plan Bon Ton Cleaners, 1932 Ralph Avenue, Brooklyn, New York
5. CA RICH (October 2003), Investigation Report Bon Ton Cleaners, 1932 Ralph Avenue, Brooklyn, New York
6. CA RICH (April 2004), Remediation Work Plan Bon Ton Cleaners, 1932 Ralph Avenue, Brooklyn, New York
7. CA RICH (December 2004), Pilot Test and Final Design Report Bon Ton Cleaners, 1932 Ralph Avenue, Brooklyn, New York.

8. CA RICH (April 2005), Final Engineering Report - Part A and Operations, Maintenance & Monitoring Plan Bon Ton Cleaners, 1932 Ralph Avenue, Brooklyn, New York

9. CA RICH (May 2006), Final Engineering Report - Part B and Operations, Maintenance & Monitoring Plan Bon Ton Cleaners, 1932 Ralph Avenue, Brooklyn, New York

If there are any questions regarding this letter, please do not hesitate to call our Office. Thank you.

Seal:

Oct 24 2006
Date:

Sincerely,

CA RICH CONSULTANTS, INC.

Deborah Shapiro
Project Environmental Scientist

Stephen J. Osmundsen, PE
Senior Engineer

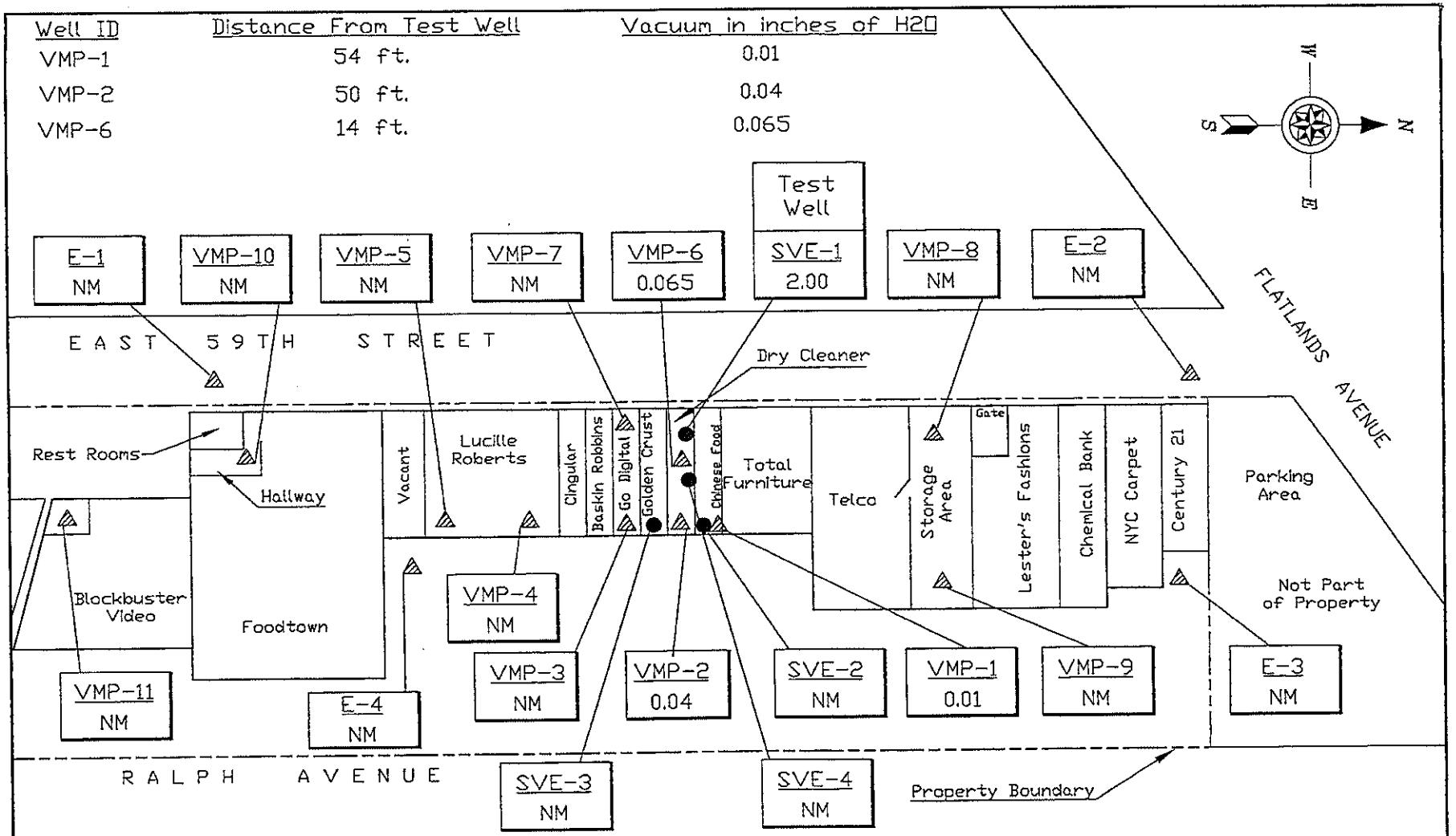
Eric A. Weinstock
Vice President

Attachments

cc: Burt Lewis
Miriam Villani, Esq.
Rosalie Rusinko, Esq. (e-mail only)
Nathan Walz, NYSDOH

H:Users/Eric/Docs/Ralph/SSD Pilot Test/SSD Pilot Test and Design Report

Well ID	Distance From Test Well	Vacuum in inches of H2O
VMP-1	54 ft.	0.01
VMP-2	50 ft.	0.04
VMP-6	14 ft.	0.065



LEGEND

- Vapor Monitoring Point
- Soil Vapor Extraction Point
- NM Not Measured

SSD Pilot Test

SSD Pilot Test: 5 to 15 minutes after SSD fan Start-Up

0 50 100 200

Graphic Scale In Feet

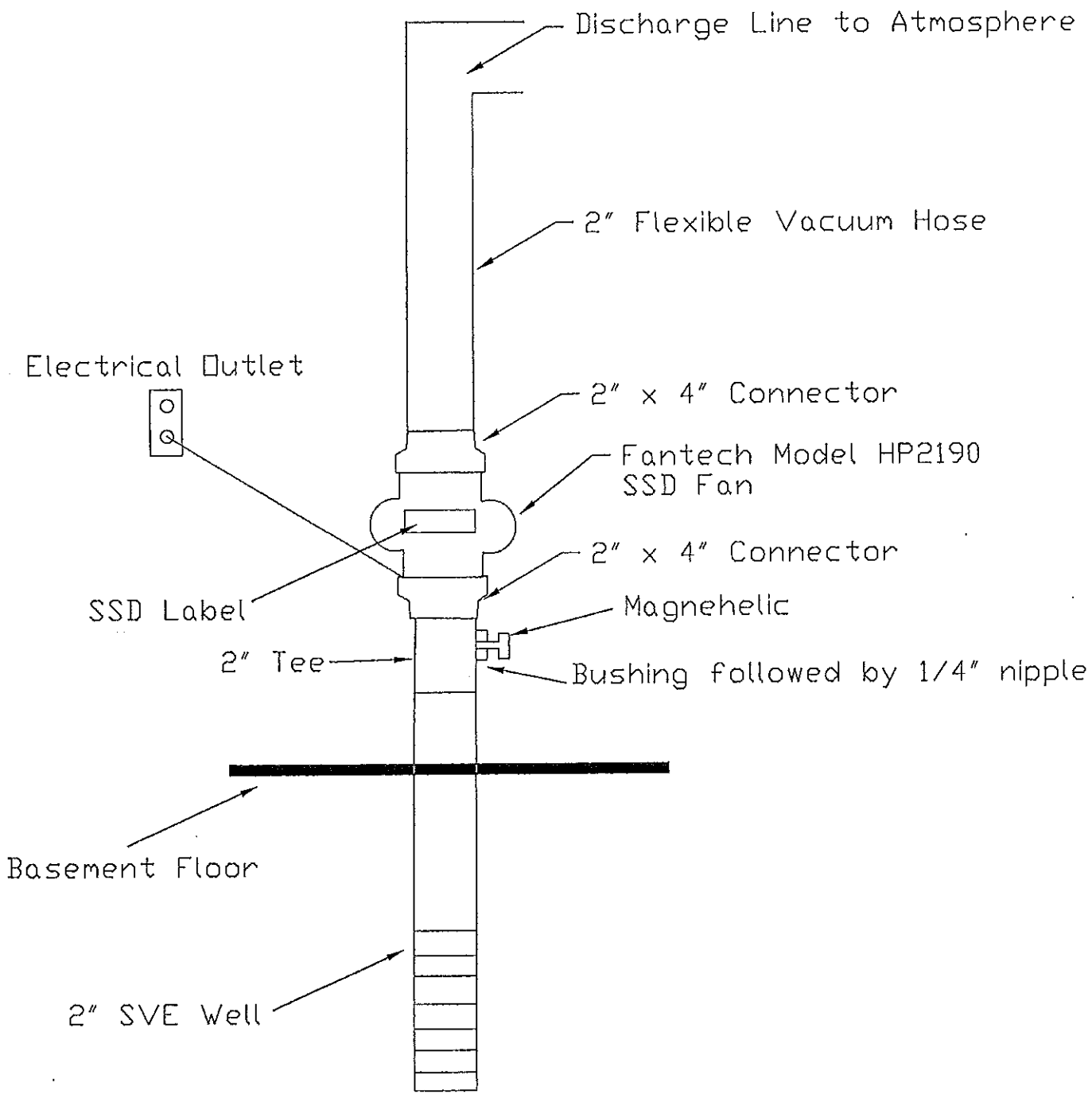
Map adapted from Property survey by Montrose Surveying Co, LLP dated May 2, 2001 and USGS Brooklyn Quadraingle 1979.

CA RICH CONSULTANTS, INC.

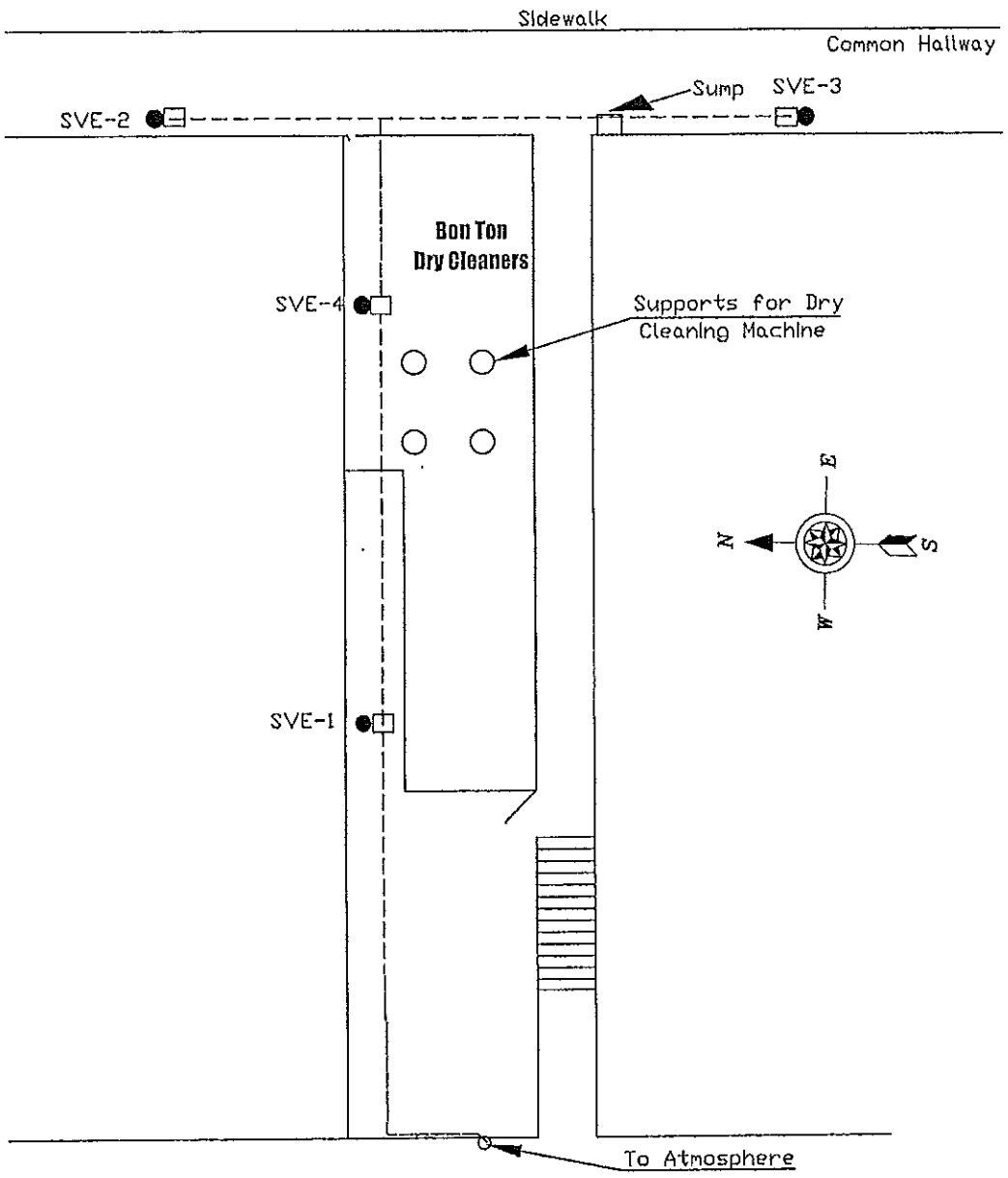
Certified Groundwater and Environmental Specialists
17 Dupont Street, Plainview, New York 11803

TITLE: SSD SYSTEM PILOT TEST WITH VACUUM IN INCHES OF WATER	DATE: 10/16/06
	SCALE: As Shown
FIGURE: 1	DRAWN BY: D.S.
DWG NO.: 2005-8b	APPR. BY: E.A.W.

RALPH ASSOCIATES
1932 RALPH AVENUE
BROOKLYN, NEW YORK



CA RICH CONSULTANTS, INC.		
Certified Ground-Water and Environmental Specialists 17 Dupont Street, Plainview, NY 11803		
TITLE: TYPICAL SSD FAN INSTALLATION		DATE: 10/23/06 SCALE: Not To Scale
FIGURE: 2 DRAWING NO: 2006-4a	BON TON CLEANERS 1932 RALPH AVENUE BROOKLYN, NEW YORK	DRAWN BY: D.S. APPR. BY: S.J.O.



East 59th Street

Legend

- ● Soil Vapor Extraction Well
- □ Fantech Model HP2190 SSD Fan
- ----- Discharge Line

0 5 10 15 20

Approximate Scale In Feet

CA RICH CONSULTANTS, INC. Certified Groundwater and Environmental Specialists 17 Dupont Street, Plainview, New York 11803	
Stephen J. Osundsen, P.E. Professional Engineer 513 Centre Island Road, Oyster Bay, New York 11771	
TITLE: Sub-Slab Depressurization (SSD) System Layout	DATE: 10/23/06 SCALE: As Shown
FIGURE: 3 DWG NO. 2006-3a	RALPH ASOCIATES 1932 RALPH AVENUE BROOKLYN, NEW YORK DRAWN BY: O.S. APPR. BY: S.J.O.

Appendix C
Final Start-Up Test Report

New York State Department of Environmental Conservation
Division of Environmental Remediation
Remedial Bureau B
625 Broadway, Albany, New York 12233-7016
Phone: (518) 402-9768 • FAX: (518) 402-9020
Website: www.dec.state.ny.us

Alexander B. Grannis
Commissioner

September 23, 2008

Mr. Eric Weinstock
CA Rich Environmental Consultants, Inc.
17 Dupont Street
Plainview, New York 11803

Re: **Voluntary Cleanup Project**
Bon Ton Cleaners
Site No.: V00512-2
Final Sub-Slab Depressurization System Start-up Test Report

Dear Mr. Weinstock:

The New York State Department of Environmental Conservation and the New York State Department of Health have completed their review of the June 2008 Final Sub-Slab Depressurization System Start-Up Test Report (Report) for the subject site. Based on that review, the Report is hereby approved.

If you have any questions, you may call me at (518) 402-9768.

Sincerely,

Ronnie E. Lee

Ronnie E. Lee, P.E.
Environmental Engineer II
Remedial Bureau B
Division of Environmental Remediation

cc: R. Lee / file
D. Shapiro, CA Rich

ec: S. Dewes, NYSDEC
A. DeMarco, NYSDOH

RICH
ENVIRONMENTAL SPECIALISTS

Final Sub-Slab Depressurization System Start-Up Test Report
Bon Ton Cleaners Site
1932 Ralph Avenue
Brooklyn, New York
Site Number V-00512-2

June 2008

Prepared for:

Ralph Associates
980 Singleton Avenue
Woodmere, NY 11598

Prepared by:

CA RICH CONSULTANTS, INC.
17 Dupont Street
Plainview, New York 11803

CA RICH
ENVIRONMENTAL SPECIALISTS

June 18, 2008

NYSDEC
625 Broadway
Albany, NY 12233-7015

Attention: Chris Milack

Re: **Final SSD System Start-Up Test Report**
Bon Ton Cleaners Site
1932 Ralph Avenue
Brooklyn, New York
Site Number V-00512-2
VCP Index Number W2-0916-02-03

Dear Mr. Milack:

CA RICH Consultants, Inc. (CA RICH) is pleased to submit the following Final Sub-Slab Depressurization (SSD) System Start-Up Test Report for the Bon Ton Cleaners Site. The Soil Vapor Extraction (SVE) system that was initially installed at this site was converted to an SSD system in November 2006. An initial start-up test was performed at that time using the existing vacuum monitoring points at the site. A Revised Site Management Plan (SMP) (which included the Operation, Maintenance & Monitoring of the SSD system and the results of the start-up test) was then submitted to the NYSDEC in June 2007 (Ref. 11).

Based on the NYSDEC's and NYSDOH's review of the SMP, we were requested to perform a second or final start-up test of the SSD system. This test included additional, temporary vacuum monitoring points placed along the western portion of the site. The final start-up test confirmed that we have achieved vacuum below the area of the site impacted by the former PCE release at Bon Ton Cleaners.

1.0 Introduction

The following Final SSD System Start-Up Test Report has been prepared by CA RICH Consultants, Inc. (CA RICH) on behalf of Ralph Associates. This document was prepared in accordance with a Voluntary Cleanup Program (VCP) Agreement, Index Number W-20916-02-03. For the purposes of this document, the contaminants of concern are perchloroethene (a.k.a. PCE or tetrachloroethene) and its degradation products.

ACT and CA RICH performed a series of previous investigations at this site for refinancing purposes. Copies of these reports, including the corresponding site maps and laboratory data, are available at the NYSDEC office or in the site's document repository.

During the winter of 2002 and spring of 2003, a supplemental subsurface investigation of the site was performed to determine the nature and extent of contamination at Bon Ton Cleaners. Based on the results of this investigation, a remedy was designed consisting of: two mechanical systems; the cleanout of one concrete sump; and in-situ chemical oxidation. The design and installation of the mechanical systems and the cleanout of the sump are described in the Final Engineering Report - Part A and Operations, Maintenance & Monitoring Plan (Ref. 8). The

chemical oxidation phase is described in the Final Engineering Report – Part B and Operations, Maintenance & Monitoring Plan (Ref. 9).

Installation of the mechanical remediation systems began during August 2004 and consisted of the installation of Soil Vapor Extraction (SVE) wells and Air Sparging (AS) points. The sump was cleaned out on October 15, 2004. The trenching for the underground AS piping was completed in November 2004. The installation of the SVE blower and the AS compressor was completed in March 2005. The AS/SVE system was started-up and remained in operation from March 29, 2005 through March 29, 2006 when the AS system was shutdown. On November 29, 2006, the SVE system was shutdown and replaced with four smaller sub-slab depressurization (SSD) fans -- in accordance with New York State Department of Health's (NYSDOH) October 2006 Guidance. The design of the SSD system is described in the SSD Pilot Test and Design Report (Ref. 10).

The following documents, prepared for this site, should be reviewed for additional details:

Document	Date
Phase II Environmental Site Assessment, 1890-1960 Ralph Avenue, Brooklyn, New York	June 2001 (Ref. 1)
Phase II Environmental Site Assessment, 1890-1960 Ralph Avenue, Brooklyn, New York	July 2001 (Ref. 2)
Investigation Work Plan Bon Ton Cleaners, 1932 Ralph Avenue, Brooklyn, New York	October 2002 (Ref. 3)
Supplemental Investigation Work Plan Bon Ton Cleaners, 1932 Ralph Avenue, Brooklyn, New York	May 2003 (Ref. 4)
Investigation Report Bon Ton Cleaners, 1932 Ralph Avenue, Brooklyn, New York	October 2003 (Ref. 5)
Remediation Work Plan Bon Ton Cleaners, 1932 Ralph Avenue, Brooklyn, New York	April 2004 (Ref. 6)
Pilot Test and Final Design Report Bon Ton Cleaners, 1932 Ralph Avenue, Brooklyn, New York.	December 2004 (Ref. 7)
Final Engineering Report - Part A and Operations, Maintenance & Monitoring Plan Bon Ton Cleaners, 1932 Ralph Avenue, Brooklyn, New York	April 2005 (Ref. 8)
Final Engineering Report - Part B and Operations, Maintenance & Monitoring Plan Bon Ton Cleaners, 1932 Ralph Avenue, Brooklyn, New York	May 2006 (Ref. 9)
SSD Pilot Test & Design Report, Bon Ton Cleaners Site 1932 Ralph Avenue Brooklyn, New York	October 2006 (Ref. 10)
Revised Site Management Plan, Bon Ton Cleaners 1932 Ralph Avenue, Brooklyn, New York	June 2007 (Ref. 11)

2.0 Summary of the On-Site SSD System Pilot Test

On October 10, 2006, a pilot test of the proposed conversion of the existing SVE system to an SSD system was performed at the above-referenced site. The pilot test was performed using one SSD fan that was attached to well SVE-1. The purpose of the pilot test was to determine if the proposed SSD system would be favorable as part of the Final Remedy at the Bon Ton Cleaners Site.

A radius of influence of more than 50 feet was measured during the pilot test (Ref 10). Therefore, the results of the pilot test were favorable, which indicated that the application of inline axial SSD fans would perform adequately for the final remedy.

3.0 Summary of SSD System Design, Installation and Start-Up Test

Currently, there is a Sub-Slab Depressurization (SSD) system operating in the basement boiler room and storage room of Bon Ton Cleaners and in the basement common hallway behind Golden Krust and Bon Ton Cleaners. The SSD system was installed on November 29, 2006 and consisted of one Fantech® Model HP2190 SSD fan connected to each of the four SVE wells for a total of four fans. The SSD system was completed in such a way that each fan can be operated independently. A magnehelic gauge was retrofitted to each of the SVE riser pipes between the slab and the SSD fans for vacuum readings. These magnehelics also serve as warning devices or indicators to ensure that this active system is working properly.

The SVE wells are connected to a two-inch diameter header line that exhausts out of the basement boiler room of Bon Ton Cleaners. The header line discharges to the atmosphere through a rooftop stack whose discharge point is above the existing building roof elevation.

On December 13, 2006, a start-up test was conducted to confirm that the SSD system was maintaining negative pressure. As part of the start-up test, vacuum readings were obtained from the magnehelic gauges attached to each of the SVE riser pipes at SVE-1 through SVE-4 and via hand-held magnehelic gauges at vapor monitoring points VMP-1 through VMP-4 and VMP-6. The magnehelic gauges showed that each SSD fan was maintaining a vacuum of 1.5 inches of H_20. In addition, the vacuum readings at the vapor monitoring points ranged from 0.01 inches of H_20 to 0.12 inches of H_20. The radius of influence was approximately 75 feet based on the readings collected from SVE-3 and VMP-4. This meets or exceeds the design criteria of 50 feet measured in the SSD Pilot Test and Design Report

4.0 Summary of the Final SSD Start-Up Test

Upon review of our SMP, the NYSDEC and NYSDOH requested that a second start-up test of the SSD system be performed. This was conducted on June 5, 2008. The test included seven additional, temporary vacuum monitoring points or "TPs" placed along the western portion of the site. These were installed by drilling a one-inch diameter hole through the floor and setting ½-inch diameter PVC pipe and a bentonite seal in each hole. (The TPs were removed and the holes in the floor were filled with concrete at the end of the test.) The four existing SSD fans were operated with vacuums of between 1.9 and 2.0 inches of water measured at each SSD vent. The initial seven permanent Vacuum Monitoring Points (VMPs) and the seven-newly installed TPs were monitored using hand held magnehelic gauges.

The vacuum in the initial seven VMPs and the seven newly installed TPs ranged from 0 to 0.34 inches of water. A map illustrating the results of the final start-up test is included as Figure 1 of this Report. A radius of vacuum of at least 40-feet was measured -- which is in line with the results of the initial pilot test. More importantly, the test confirmed that the SSD system imposes

a measureable vacuum below the slab of the former electronics store (Go Digital), the Golden Krust Bakery, the Chinese Restaurant, Dunkin Donuts, the southern portion of the Telco Department Store as well as below Bon Ton Cleaners.

We trust this test satisfies your request regarding the effectiveness of the SSD system; and look forward to the approval of our SMP in the near future. If there are any questions regarding this Report, please do not hesitate to call our Office.

Sincerely,

CA RICH CONSULTANTS, INC.

Eric Weinstock

Eric A. Weinstock
Vice President

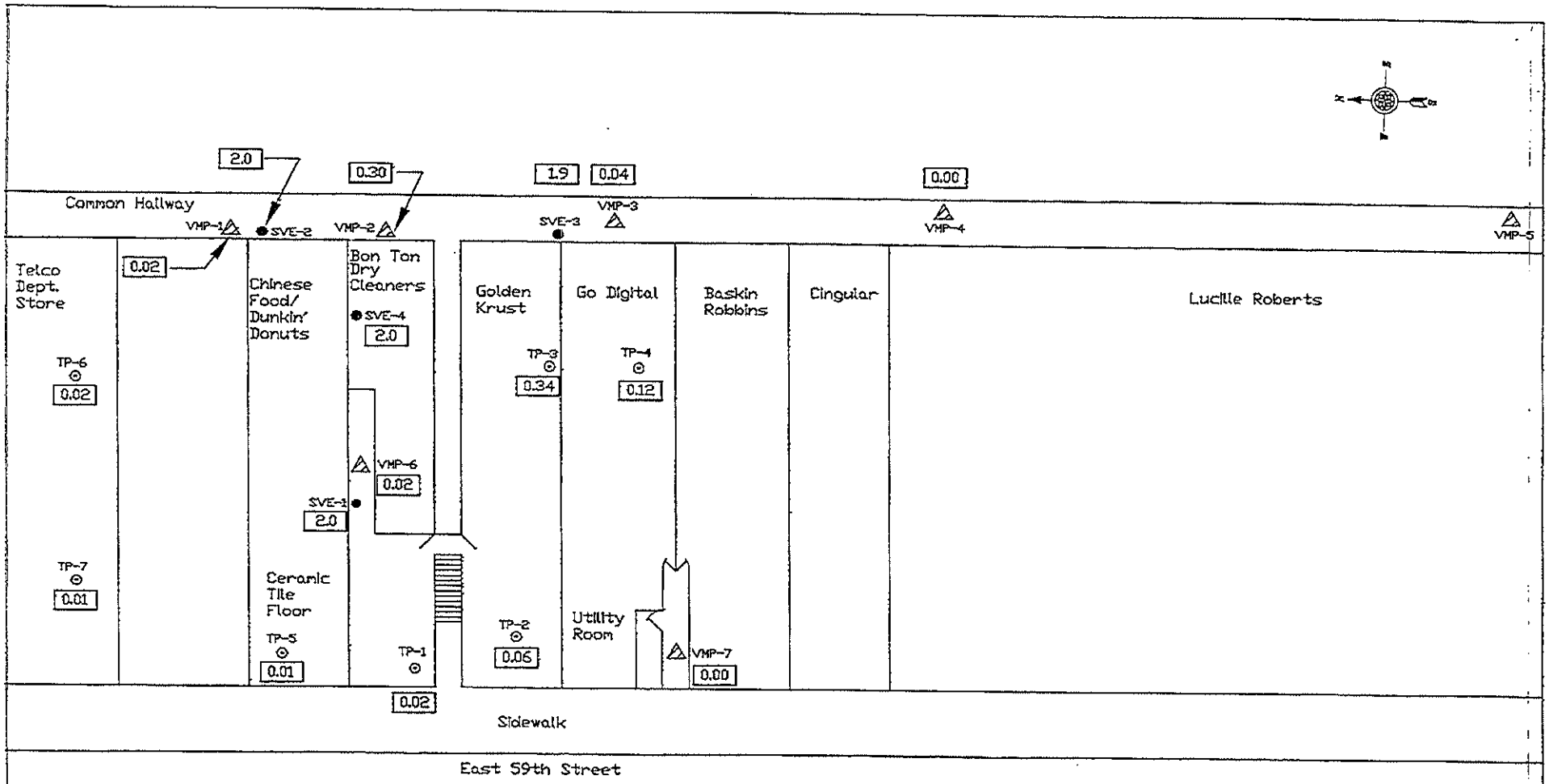
References

1. ACT (June 5, 2001), Phase II Environmental Site Assessment, 1890-1960 Ralph Avenue, Brooklyn, New York
2. ACT (July 23, 2001), Phase II Environmental Site Assessment, 1890-1960 Ralph Avenue, Brooklyn, New York
3. CA RICH (October 2002), Investigation Work Plan Bon Ton Cleaners, 1932 Ralph Avenue, Brooklyn, New York
4. CA RICH (May 2003), Supplemental Investigation Work Plan Bon Ton Cleaners, 1932 Ralph Avenue, Brooklyn, New York
5. CA RICH (October 2003), Investigation Report Bon Ton Cleaners, 1932 Ralph Avenue, Brooklyn, New York
6. CA RICH (April 2004), Remediation Work Plan Bon Ton Cleaners, 1932 Ralph Avenue, Brooklyn, New York
7. CA RICH (December 2004), Pilot Test and Final Design Report Bon Ton Cleaners, 1932 Ralph Avenue, Brooklyn, New York.
8. CA RICH (April 2005), Final Engineering Report - Part A and Operations, Maintenance & Monitoring Plan Bon Ton Cleaners, 1932 Ralph Avenue, Brooklyn, New York
9. CA RICH (May 2006), Final Engineering Report - Part B and Operations, Maintenance & Monitoring Plan Bon Ton Cleaners, 1932 Ralph Avenue, Brooklyn, New York
10. CA RICH (October 2006) SSD Pilot Test & Design Report, Bon Ton Cleaners Site, 1932 Ralph Avenue Brooklyn, New York
11. CA RICH (June 2007) Site Management Plan, Bon Ton Cleaners, 1932 Ralph Avenue, Brooklyn, New York

cc: Burt Lewis
Miriam Villani, Esq.
Rosalie Rusinko, Esq. (e-mail only)
Albert DeMarco, NYSDOH

U:/Eric/Docs/Ralph/Final Start Up Test/Final Start Up Test Report

Figures



0 25 50

Approximate Scale in Feet

Legend

- ● Soil Vapor Extraction Well Converted to SSD Vent
- ⊙ Temporary Vacuum Monitoring Point
- △ Existing Vacuum Monitoring Point
- 0.04 Vacuum Measurement in Inches of Water

Notes:
Measured SSD system radius of vacuum - approximately 40 feet.

Measurement taken on 6/5/08 at 10:00 A.M.

CA RICH CONSULTANTS, INC.
Certified Ground-Water and Environmental Specialists
17 Dupont Street, Plainview, New York 11803

TITLE: Vacuum Readings at Existing SSD Vents, Existing VMPs, and Temporary VMPs.	DATE: 6/11/2008
	SCALE: AS SHOWN
FIGURE: 1	DRAWN BY: J.T.C.
DRAWING NO: 2008-2	APPR. BY: E.A.W.

Ralph Associates
1931 Ralph Avenue
Brooklyn, New York