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March 7, 2016

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New York State Department of Environmental Conservation
47-40 21st Street
Long Island City, NY 11101

Dawn Hettrick, P.E.
Public Health Engineer
New York State Department of Health
Bureau of Environmental Exposure Investigation
Empire State Plaza - Corning Tower Room 1787
Albany, NY 12237

Re: Dexter Chemical, LLC
819-845 Edgewater Road
810-842 Whittier Street
Bronx, New York
VCP #V001 86-2
Whitman Project #97-09-10
Soil Vapor Monitoring Report

Dear Ms. Hettrick and Mr. Crawford:

Attached please find paper and electronic copies of Dexter Chemical, LLC's Soil Vapor Monitoring Report, prepared in conformance with Dexter's Site Management Plan approved by NYSDEC on March 23, 2015. The report summarizes the soil vapor monitoring conducted at the former Dexter property on January 9, 2016.

Applicable laboratory data and QA/QC data are attached to this report. Dexter's Progress Report #4, dated April 2005 is also attached, as it contains the relevant data and narrative for Dexter's 2005 round of soil vapor monitoring which provides the historical context for the vapor monitoring conducted in January 2015.

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Please direct any questions regarding this report to me, or to Ed Huss, Jr., P.E. at (732) 390-5858.

Very truly yours,

Ira L. Whitman, P.E.
Principal

ILW/ks
Attachment

cc: Jane O'Connell, NYSDEC (w/attachment)
Leonard Sitver, Dexter Chemical, LLC
Kenneth Ballan, Dexter Chemical, LLC
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Dexter Chemical

BRONX, NEW YORK

Soil Vapor Monitoring Report

NYSDEC Site Number: V00186-2

Prepared for:
Dexter Chemical, LLC
845 Edgewater Road
Bronx, New York 10474

Prepared by:
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DEXTER CHEMICAL
BRONX, NEW YORK
SOIL VAPOR MONITOIRNG REPORT

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1. Progress Report #4, April 2005

DEXTER CHEMICAL
BRONX, NEW YORK
SOIL VAPOR MONITORING REPORT

1.0 INTRODUCTION

Dexter Chemical, LLC completed a Remedial Action at the former Dexter Chemical site located at 819-845 Edgewater Road and 810-842 Whittier Street, Bronx, New York (the Site) under the New York State Department of Environmental Conservation's (NYSDEC) Voluntary Cleanup Program (VCP). The Site was remediated in accordance with the Voluntary Cleanup Agreement (VCA) Site #V00186-2, Index #W2-0864-03-08, which was executed on December 3, 2003. The Site was sold to Edgewater Realty, LLC (Owner) in May 2007. Pursuant to the VAC, NYSDEC issued the Release December 30, 2015.

Under the approved Remedial Action Workplan, a remedial action Soil Vapor Extraction/ Air Sparging (SVE/AS) treatment system was constructed to treat soil and ground water at two areas of concern on the Site. The system was completed and tested in 2009, and operated continuously from that time through the spring of 2012. All reports of the remedial action, including quarterly progress reports, were submitted to and retained by NYSDEC's Region 2 office located at 41-40 21st Street, Long Island City, New York in both hard copy and electronic formats.

Following completion of active remediation under the VCA, subsurface residual contamination remained at the former Dexter site largely as a result of the property having been raised in elevation decades earlier by the use of contaminated historic fill. A Site Management Plan (SMP) was developed to manage residual contamination at the site in perpetuity or until extinguishment of the Declaration of Covenants and Restrictions in accordance with the VCA.

Dexter Chemical, LLC's final Site Management Plan was submitted to NYSDEC in March 2015. The SMP was approved by NYSDEC on March 23, 2015.

2.0 VAPOR MONITORING UNDER THE SMP

SMP Section 3.0, Monitoring Plan, specifies programs for ground water and soil vapor monitoring both during active treatment at the former Dexter property (performance monitoring) and following the completion of active treatment – referred to as "Post Remediation" monitoring.

2.1 Performance Monitoring

The requirements for performance monitoring during active treatment were met in the 2009 – 2012 time period during which the SVE/AS treatment system was in operation. All ground water and soil vapor sampling results obtained during that period were submitted to and reviewed by NYSDEC.

2.2 Post-Remediation Monitoring

Post-Remediation Monitoring requirements and deliverables were specified in Table 5 of the SMP, as follows:

Activity	Frequency	Annual Reporting Requirements
Ground Water Monitoring (sampling)	Semi-annually for two (2) years following SMP approval.	Periodic Review Report (PPR)
Soil Vapor Monitoring	One (1) round of sub-slab and indoor/outdoor air sampling.	Reported herein.

With NYSDEC's Release, Dexter is advising the property Owner, Edgewater Realty, on their post-remediation ground water monitoring requirements. Edgewater Realty will prepare a schedule for the conduct of that monitoring which will be provided to NYSDEC. A meeting attended by Dexter, Edgewater Realty and NYSDEC was held at the site on February 17, 2016, to advise Edgewater Realty of its obligations and to discuss the contents of the Site Management Plan.

On the other hand, Dexter conducted Post-Remediation Soil Vapor Monitoring prior to the Release so it could evaluate the results, notify the property Owner, and advise NYSDEC as to any future recommended actions with regard to soil vapor.

This Soil Vapor Monitoring Report was developed to present the results of Dexter's Post-Remediation Soil Vapor Monitoring activity to NYSDEC.

3.0 HISTORIC SOIL VAPOR MONITORING

3.1 Background Sampling, 2008

In 2004, as a Remedial Investigation for soil and ground water sampling at Dexter was being conducted, NYSDEC directed Dexter to conduct perimeter soil gas sampling that would provide background data for vapor conditions on the property. The sampling was conducted on January 18, 2005, and reported to NYSDEC on April 7, 2005, in Progress Report #4.

Progress Report #4, including Table 1, Summary of Volatile Organic Results for Soil Gas are attached to this report as Attachment 1.

3.1.1 Sampling Approach

Soil gas samples, SG-1 through SG-7, were taken along the perimeter of the Dexter property at locations discussed with and approved by representatives of the NYSDEC. Three (3) samples were taken along Whittier Street on the western property extremity and four (4) samples taken along Edgewater Road on the eastern side of the property. The seven (7) soil gas sample points were advanced using a direct push geoprobe operated by Environmental Probing Investigations (EPI) of Cream Ridge, New Jersey. The soil gas collection technique conducted by Whitman was consistent with the November 2001 EPA document entitled, *Draft Guidance for Evaluation the Vapor Intrusion to Indoor Air Pathway from Ground Water and Soils.*

Using the Geoprobe Standard Operating Procedures, an expendable tip was driven to a depth of five (5) feet below grade surface. A small diameter flexible polyethylene tube was then fed down the drilling rods and attached to the expendable tip. The annular space between the bore-hole and the tubing was sealed with bentonite at the surface to prevent short-circuiting. Prior to sampling, the tubing was purged using a vacuum pump for a minimum of 2 minutes, until all ambient air was purged from the tubing. A 6-liter summa canister was used to collect the soil gas samples at a maximum flow rate of 200 ml/min.

All samples were analyzed in accordance with the "Compendium Method TO-15 Determination of VOCs in Air Collected in Specially Prepared Canister and Analyzed by GC/MS." The summa canisters were analyzed by Severn Trent Laboratories (STL) of Burlington, Vermont using Method TO-15.

3.1.2 2005 Soil Vapor Sampling Results

Over twenty (20) individual compounds were detected in one or more of the soil gas samples at concentrations that exceed the PQL reporting limit. For the most part, these compounds were not found in the many soil and ground water samples taken at Dexter Chemical.

The 2005 soil vapor sampling results were summarized as follows:

Samples	Location	# of Compounds Exceeding PQL	Compound(s) with Highest Soil Gas Concentrations
SG-1	Whittier Street Southwest Corner	2	Methylene Chloride
SG-2	Whittier Street West of Plant	19	Toluene, Chloroform
SG-3	Whittier Street Northwest of Plant	17	Acetone
SG-4	Edgewater Road Southeast Corner	20	Cyclohexane, Benzene
SG-5	Edgewater Road East of Area A	20	Acetone, MTBE
SG-6	Edgewater Road East of Plant	9	Isopropyl Alcohol
SG-7	Edgewater Road Northeast Corner	6	MTBE

Of the compounds listed as having the highest soil gas concentrations in 2005, only Toluene and Benzene were found in any of the soil and ground water samples taken at the Site. SG-2, where Toluene was the compound of highest concentration, is located a significant distance from any area of concern where the manufacturing or blending of paint had taken place.

Another interesting compound was Xylenes, which were the volatile organic of highest concentration in soil and ground water samples in Area of Concern A. Yet in the soil gas samples SG-4 and SG-5, located adjacent to Area A, Xylenes were present in lower soil gas concentrations than such compounds as Acetone, Benzene, Cyclohexane, n-Heptane, n-Hexane, MTBE, PCE and TCE

3.1.3 2005 Soil Vapor Sampling Conclusions

The majority of volatile organic compounds found in the seven (7) soil gas samples were not found in any soil or ground water samples taken at Dexter. The compound of greatest concern, Xylene(s) was present in six (6) of the seven (7) samples, but in only one (1) sample (SG-2) was it a concentration significantly in excess of the PQL reporting limit.

Based on the soil gas sampling results, it was concluded in 2005 that there was no correlation of volatile organic compounds in soil gas and the concentrations of the same compounds in soil and ground water on the Dexter property. Given these result, it was concluded that the majority of these compounds were inherent to the fill material itself, and were not due to industrial operations at Dexter Chemical.

Figure 8 from March 2005 shows the location of the seven (7) 2005 soil vapor samples and the concentrations of the organic parameters found in each sample.

The significant finding in 2005 was the complete diversity and inconsistency of organic parameters found in background soil samples taken from fill material surrounding the Dexter property.

3.2 Soil Vapor Performance Monitoring during Treatment System Operation

During the operation of the on-site Soil Vapor Extraction/Air Sampling treatment system (SVE/AS) 2009 – 2012, vapor sampling was conducted as directed by NYSDEC to monitor for fugitive vapors resulting from air sparging treatment operations.

All subsurface vapor sampling from 2010 – 2012 was conducted in accordance with the final NYSDOH document dated October 2006, entitled "Guidance for Evaluating Soil Vapor Intrusion in the State of New York". Samples were collected in Suma canisters and analyzed for volatile organics via EPA Method TO-15.

Subsurface vapor samples were collected utilizing two (2) methods in accordance with NYSDEC and NYSDOH procedures.

1. Soil vapor in exterior areas were collected using vapor probes.
2. Sub-slab vapors were collected within building interiors.

No fugitive vapor emissions from air sparging operations were detected.

The SVE/AS treatment of Area "A" was initiated in May 2009, prior to the time when NYSDEC specified that subsurface vapor monitoring should be conducted. Hence, no pre-treatment monitoring for vapors at Area A was performed, and Dexter relied on historic subsurface vapor sampling results in this area of the site to be used as "baseline" levels.

Subsurface vapor sampling in Area A commenced in summer/fall 2010 (non-heating season) at four (4) locations chosen based on discussions with NYSDEC where one (1) sample on each side of the treatment area just beyond the estimated influence of the SVE/AS system was desired. One (1) additional round of samples was collected from these four (4) locations during the 2011 heating season. Fugitive vapors were not detected, and the results indicated that no additional subsurface vapor sampling was warranted in Area A.

Performance monitoring in Area I commenced (prior to start of treatment to establish baseline, current levels) in fall of 2010 (non-heating season) at four (4) locations chosen based on discussions with NYSDEC, where one (1) sample on each side of the treatment area, just beyond the estimated influence of the SVE/AS system was desired.

Subsurface performance monitoring vapor sampling in Area I during system operation began in June 2011 and results were evaluated, compared and reported relative to the baseline samples collected prior to system start-up of this area, and the historic subsurface vapor samples collected and analyzed in January 2005 in this area of the site. One (1) additional round of samples was collected from these four (4) locations during the heating season in November 2011. Fugitive vapors were not detected during the operation of the AS/SVE treatment system, and the results indicated that no additional subsurface vapor sampling was warranted in Area I. Results were reported in Progress Report #27, July 2012.

4.0 SMP POST REMEDIATION MONITORING PLAN FOR VAPOR

The approved Site Management Plan, Section 3.4.2 specifies the following program for Post-Remediation Monitoring of Vapor:

One (1) round of sub-slab vapor and indoor/outdoor air sampling will be conducted during the heating season of November 2014-2015.

The vapor sampling is specific to the two (2) areas of soil/ground water treatment, Area A (819 Edgewater Road) and Area I (842 Whittier Street). These areas and the vapor sample locations can be seen on the attached Dexter Site Plan dated April 2015, Figure 1.

As detailed in the SMP, sampling locations can only be determined on the day of the sampling as Areas A and I are active industrial leasehold spaces in use with material constantly being moved in, out and within Areas A and I.

4.1 Area A

Two (2) sub-slab samples were specified to be taken within Area A. To the degree possible, one was to be taken on the south side of the building the other to the north side. One indoor air sample was to be taken within the south side of the building, and one within the north side. One outdoor ambient air sample was to be taken at an exterior area located between near Area A. Note: Only one indoor air sample was taken in Area A due to the potential interference from ongoing industrial operations in the Area A building, 819 Edgewater Road.

4.2 Area I

Two sub-slab samples were specified to be taken within Area I. To the degree possible, one was to be taken toward the west side of Area I, the other toward the east side. One indoor air sample was to be taken within Area I as this building has only one interior space. One ambient air sample was to be taken near Area I.

All vapor sampling conducted at Dexter will conform with current NYSDEC protocols as detailed by New York State Department of Health *Guidance for Evaluating Soil Vapor Intrusion in the State of New York.*

4.3 NYSDOH Guidance for Evaluating Soil Vapor Intrusion

According to the NYSDOH October 2006 *Guidance for Evaluating Soil Vapor Intrusion in the State of New York* (NYSDOH VI Guidance), "the phrase 'soil vapor intrusion' refers to the process by which volatile chemicals migrate from a subsurface source into the indoor air buildings." NYSDOH supplemental guidance dated June 25, 2007 indicates that seven (7) compounds should be assessed, in part, through the utilization of "Decision Matrices" as summarized in the tables below:

Applicable Compounds

Compound	Abbreviation	NYSDOH Decision Matrix
Vinyl chloride	VC	Matrix 1
1,1-Dichloroethene	1,1-DCE	Matrix 2

Compound	Abbreviation	NYSDOH Decision Matrix
cis-1,2-Dichloroethene	Cis-1,2-DCE	Matrix 2
1,1,1-Trichloroethane	1,1,1-TCA	Matrix 2
Carbon tetrachloride	CT	Matrix 1
Trichloroethene	TCE	Matrix 1
Tetrachloroethene	PCE	Matrix 2

NYSDOH Decision Matrix 1 (VC, CT, TCE)

	Indoor Air Concentration			
Sub-Slab Vapor Concentrations	<0.25	0.25 to <1	1 to <0.5	5.0 and above
<5	No further action	Take reasonable and practical action to identify source(s) and reduce exposures	Take reasonable and practical action to identify source(s) and reduce exposures	Take reasonable and practical action to identify source(s) and reduce exposures
5 to <50	No further action	Monitor	Monitor	Mitigate
50 to <250	Monitor	Monitor/Mitigate	Mitigate	Mitigate
250 and above	Mitigate	Mitigate	Mitigate	Mitigate

NYSDOH Decision Matrix 2 (1,1-DCE, Cis-1,2-DCE, 1,1,1-TCA, PCE)

	Indoor Air Concentration			
Sub-Slab Vapor Concentrations	<3	3 to <30	30 to <100	100 and above
<100	No further action	Take reasonable and practical action to identify source(s) and reduce exposures	Take reasonable and practical action to identify source(s) and reduce exposures	Take reasonable and practical action to identify source(s) and reduce exposures
100 to <1,000	Monitor	Monitor/Mitigate	Mitigate	Mitigate
1,000 and above	Mitigate	Mitigate	Mitigate	Mitigate

4.4 2015 Vapor Sampling Program at Dexter

On January 6 – 7, 2015, Dexter collected sub-slab soil vapor, indoor air and outdoor air samples in conformance with the Post-Remediation Vapor Monitoring Program specified in the Site Management Plan as follows:

Area	Type of Sample	Sample Designation
A	Sub-Slab Vapor	SS-819E-1, SS-819E-2
A	Indoor Air	IA-819E-1
A	Ambient Air	AMB-1
I	Sub-Slab Vapor	SS-842W-1 SS-842W-2
I	Indoor Air	IA-842W-1
I	Ambient Air	AMB-2

All vapor sample locations from 2010 – 2015 are shown on Figure 1. Sample locations and results for treatment Area A are shown on Figure 2, and for treatment Area I are shown on Figure 3.

Figures 2 and 3 also show historic sub-slab and air quality sample results for Area A and Area I, respectively.

Table 1 presents all of the January 2015 sub-slab vapor analytical results, including the seven (7) compounds listed in the NYSDOH Decision Matrices. Table 2 presents all of the January 2015 indoor and outdoor air analytical results.

4.4.1 Treatment Area A

4.4.1.1 Tenant Activity in Area A

Treatment Area A is located in 819 Edgewater Road. This leasehold space has an industrial tenant who manufactures and assembles kitchen components including marble counter tops and kitchen cabinets. Within this leasehold space, marble slabs are cut and processed for installation, and kitchen cabinet components are cut, polished, stained, painted, and assembled.

Materials used by the tenant in 819 Edgewater Road include paint thinners, stains, paints, lubricants and polishing agents.

4.4.1.2 Ambient Air and Indoor Air

Of the seven (7) compounds listed by NYSDOH, only Carbon Tetrachloride (CT) exceeded the NYSDOH decision matrix concentration in ambient air, with a concentration of 0.453 $\mu g/m^3$. In the indoor air sample taken in Treatment Area A in January 2015, CT was present in the concentration of 0.478 $\mu g/m^3$.

Tetrachloroethene (PCE) in the January 2015 indoor air sample, was present at 7.39 $\mu g/m^3$, putting it into the Decision Matrix Category of $3 < 30$ $\mu g/m^3$, with the corresponding NYSDOH guidance being monitor/mitigate.

In Treatment Area A, the likely source of CT in the indoor air is its presence in the ambient air at approximately the same concentration $0.4 < CT < 0.5$ $\mu g/m^3$.

The likely source of PCE in indoor air in Area A is sub-slab vapors. In one of the sub-slab vapor samples in Area A, the concentration of PCE was 187 $\mu g/m^3$ which is greater than the lowest NYSDOH Decision Matrix Concentration. This sample was taken from beneath a room on the north side of the cabinet maker's leasehold. On the south side of the cabinet making operation, PCE in the sub-slab vapor was 80 $\mu g/m^3$ which is below the lowest NYSDOH Decision Matrix Concentration

4.4.1.3 Area A – Sub-Slab Vapors

As with most other vapor sampling results over time at the former Dexter Chemical property, the January 2015 sub-slab vapor sampling results were variable and inconsistent.

In sample SS-891E-1, six (6) of the seven (7) matrix compounds were found in concentrations below the lowest NYSDOH Decision Matrix Concentration. The compound that exceeded the lowest Decision Matrix Concentration was PCE at 187 $\mu g/m^3$, as reported in Section 4.4.1.2 above. This sample was taken on the north side of Area A beneath a location where woodworking and cabinet manufacturing takes place.

In sample SS-891E-2, on the south side of the leasehold space, there were also six (6) out of seven (7) matrix compounds that were below the lowest NYSDOH Decision Matrix Concentration. At this location it was TCE, not PCE that exceeded the lowest NYSDOH Decision Matrix Concentration at 535 $\mu g/m^3$.

4.4.1.4 Conclusions, Vapor Sampling in Area A

The primary contaminants of concern during SVE/AS treatment in Area A from 2009 – 2011 were petroleum compounds such as Xylenes and semi-volatile compounds.

- The primary compounds of concern in 2015 in Area A with respect to vapors are chlorinated industrial solvents that were not associated with any of Dexter Chemical's known industrial operations or processes.

- Carbon Tetrachloride (CT) is present in ambient air as well as indoor air. This material has not been used as an industrial solvent for many years, and was banned as much as four (4) decades ago. There is a massive junk yard to the east of the Dexter property across Edgewater Road, and it is this operation that is the most likely source of CT in the ambient air.

- PCE is a concern in the indoor air within the industrial operational space in Area A, 819 Edgewater Road. PCE does not appear to be utilized by the current tenant in this leasehold space. It is present above the lowest NYSDOH allowable matrix concentration in one of two sub-slab samples. Section 5.0 of this report provides a Reasonable and Practical Action to reduce exposures to PCE in Area A.

- TCE is not a concern in the indoor air within the industrial operational space in Area A, but was present in one sub-slab sample above the lowest NYSDOH allowable matrix concentration. A Reasonable and Practical Action is proposed in Section 5.0 of this report to reduce potential exposures to TCE in Area A.

4.4.2 Treatment Area I

Note: Treatment Area I was originally an outdoor area adjacent to a building at 842 Whittier Street which had been labeled on Dexter's site map as "Building H". For consistency with historical reports, the treatment and sampling locations in Building H will be referred to herein as "Area I".

4.4.2.1 Tenant Activity in Area I

The tenant presently occupying Area I is a construction company located in Hunts Point in the vicinity of the former Dexter Chemical property. The tenant in this leasehold space uses Area I to store and service his construction equipment, including trucks and at least one vactor truck, whose contents could be a myriad of volatile liquid compounds.

It is believed that the bodies and engines of the construction equipment kept in Area I are serviced by the tenant in this space, and such service could likely entail the use of chlorinated compounds.

4.4.2.2 Ambient Air and Indoor Air

Of the seven (7) compounds listed by NYSDOH, only Carbon Tetrachloride (CT) exceeded the NYSDOH Decision Matrix Concentration in ambient air, with a concentration of 0.428 µg/m3. In the indoor air sample taken in Treatment Area I in January 2015, CT was present in the concentration of 0.478 $\mu g/m^3$.

No other compound was present in the indoor air sample taken in January 2015 in Area I in excess of the NYSDOH allowable concentration.

As with Treatment Area A, the likely source of CT in the indoor air was its presence in the ambient air at approximately the same concentration $0.4 < CT < 0.5$ $\mu g/m^3$.

4.4.2.3 Area I – Sub-Slab Vapors

Two (2) samples of vapor were taken from the sub-slab in Area I.

Each of these samples, SS-842W-1 and SS-842W-2 had compounds with concentrations exceeding the lowest NYSDOH Decision Matrix Concentration as follows:

Sample SS-842W-1		**Sample SS-842-W2**	
Compound	**Concentration µg/m³**	**Compound**	**Concentration µg/m³**
Vinyl Chloride (VC)	7.62	Vinyl Chloride (VC)	458
CIS-1,2-DCE	1,130	CIS-1,2-DCE	1,240
TCE	40.5	CT	ND
PCE	126	TCE	967

None of these compounds, only Carbon Tetrachloride (CT) was present in indoor air at concentrations exceeding the lowest NYSDOH Decision Matrix Concentration.

4.4.2.4 Conclusions, Vapor Sampling in Area I

- Carbon Tetrachloride is present in Area I in the exterior ambient air sample, and in the January 2015 indoor air sample. Based on the concentrations in each sample, it is not

difficult to conclude that the CT present in indoor air in Area I originates from the ambient air within the region, and that the most likely source is the junk yard to the east of the former Dexter property.

- Other compounds present in sub-slab samples in Area I have not impacted indoor air quality. The presence of Vinyl Chloride, CIS-1,2-DCE, TCE and PCE in sub-slab soil samples in Area I in excess of the lowest NYSDOH Decision Matrix Concentrations warrants consideration by taking Reasonable and Practical Action as proposed in Report Section 5.0

5.0 RECOMMENDED ACTIONS

Dexter Chemical, LLC has completed post-remediation vapor monitoring at two (2) areas of the former property located at 819 Edgewater Road/842 Whittier Street, Bronx, New York. The vapor sampling program was specified in Dexter's Site Management Plan approved by NYSDEC in March 2015. Pursuant to the Agreements between Dexter and the Owner, the Owner is responsible for post-Release compliance.

The presence of volatile organic vapors in the two (2) areas previously remediated by Dexter under its Voluntary Cleanup Agreement with NYSDEC appear to be caused by three (3) separate and distinct causes.

- Ambient air quality containing Carbon Tetrachloride originating off site, most likely at a nearby junk yard.
- Tenant activity, which in Area A includes cabinet making/marble cutting and preparation, and in Area I includes storage, maintenance and repair of construction equipment.
- Sub surface vapors likely associated with contaminated industrial/historic fill.

Based on NYSDOH's October 2006 Soil Vapor/Indoor Air Matrices, the specific site and industrial use conditions at the two (2) monitored areas of the former Dexter property most logically lend themselves to NYSDOH's guidance action "take reasonable and practical actions to identify source(s) and reduce exposure. For the former Dexter property, Reasonable and Practical Actions to be taken by the Owner include:

- Area A – Seal all areas around utility lines that run into the occupied industrial operational areas from the sub-surface.

- Area A – Provide ventilation from the area(s) of industrial use into the external ambient air.
- Area I – Provide ventilation from the equipment storage and service area into the external ambient air.

TABLES

Table 1

Dexter Chemical LLC
819 Edgewater Road
842 Whittier Street
Bronx, New York

Summary of January 2015 Sub-Slab Vapor Analytical Results

Sampling ID	SS-819E-1		SS-819E-2		SS-842W-1		SS-842W-2	
Sampling Date	1/7/2015		1/7/2015		1/7/2015		1/7/2015	
Laboratory ID	L1500579-05		L1500579-06		L1500579-07		L1500579-08	
Units	µg/m³		µg/m³		µg/m³		µg/m³	
	Result	RL	Result	RL	Result	RL	Result	RL
Dichlorodifluoromethane	14.7	0.494	1.05	0.494	ND	2.47	ND	18.3
Chloromethane	ND	2.07	ND	2.07	ND	10.3	ND	76.6
Freon-114	ND	0.699	ND	0.699	ND	3.49	ND	25.9
Vinyl chloride	ND	0.102	ND	0.102	7.62	0.511	458	3.78
1,3-Butadiene	ND	0.089	0.089	0.089	ND	0.442	4.42	3.27
Bromomethane	ND	0.155	ND	0.155	ND	0.777	ND	5.75
Chloroethane	ND	0.106	ND	0.106	ND	0.528	ND	3.91
Ethanol	ND	9.42	ND	9.42	60.3	47.1	1660	350
Vinyl bromide	ND	1.75	ND	1.75	ND	8.74	ND	64.7
Acetone	46.6	9.5	45.8	9.5	1700	47.5	41100	352
Trichlorofluoromethane	86	0.562	3.99	0.562	ND	2.81	ND	20.8
Isopropanol	ND	2.46	ND	2.46	526	12.3	22500 D	364
1,1-Dichloroethene	ND	0.159	ND	0.159	ND	0.793	ND	5.87
Methylene chloride	ND	6.95	ND	6.95	ND	34.7	ND	258
3-Chloropropene	ND	1.25	ND	1.25	ND	6.26	ND	46.3
Carbon disulfide	3.07	1.25	ND	1.25	32.7	6.23	607	46.1
Freon-113	ND	0.766	ND	0.766	ND	3.83	ND	28.4
trans-1,2-Dichloroethene	0.238	0.159	ND	0.159	220	0.793	45.2	5.87
1,1-Dichloroethane	ND	0.162	ND	0.162	ND	0.809	ND	5.99
Methyl tert butyl ether	ND	0.144	ND	0.144	ND	0.721	ND	5.34
2-Butanone	4.42	2.95	3.13	2.95	26	14.7	566	109
cis-1,2-Dichloroethene	0.246	0.159	1.31	0.159	1130	0.793	1240	5.87
Ethyl Acetate	ND	3.6	ND	3.6	ND	18	ND	134
Chloroform	13.3	0.195	6.89	0.195	4.69	0.977	ND	7.23
Tetrahydrofuran	ND	1.18	ND	1.18	ND	5.9	ND	43.6
1,2-Dichloroethane	ND	0.162	ND	0.162	ND	0.809	ND	5.99
n-Hexane	ND	1.41	ND	1.41	ND	7.05	129	52.2
1,1,1-Trichloroethane	3.36	0.218	ND	0.218	ND	1.09	ND	8.07
Benzene	1.15	0.639	0.824	0.639	4.15	3.19	ND	23.7
Carbon tetrachloride	0.264	0.252	ND	0.252	ND	1.26	ND	9.31
Cyclohexane	ND	1.38	ND	1.38	ND	6.88	98.4	50.9
1,2-Dichloropropane	0.185	0.185	ND	0.185	ND	0.924	ND	6.84
Bromodichloromethane	ND	0.268	ND	0.268	ND	1.34	ND	9.92
1,4-Dioxane	ND	0.721	ND	0.721	6.13	3.6	205	26.7
Trichloroethene	3.28	0.215	535 D	0.358	40.5	1.07	967	7.95
2,2,4-Trimethylpentane	ND	1.87	ND	1.87	ND	9.34	141	69.1
Heptane	ND	1.64	ND	1.64	ND	8.2	162	60.7
cis-1,3-Dichloropropene	ND	0.182	ND	0.182	ND	0.908	ND	6.72
4-Methyl-2-pentanone	ND	4.1	ND	4.1	ND	20.5	504	152
trans-1,3-Dichloropropene	ND	0.182	ND	0.182	ND	0.908	ND	6.72
1,1,2-Trichloroethane	ND	0.218	ND	0.218	ND	1.09	ND	8.07
Toluene	1.35	0.377	0.61	0.377	5.43	1.88	70.8	14
2-Hexanone	ND	1.64	ND	1.64	ND	8.2	ND	60.7
Dibromochloromethane	ND	0.341	ND	0.341	ND	1.7	ND	12.6
1,2-Dibromoethane	ND	0.307	ND	0.307	ND	1.54	ND	11.4
Tetrachloroethene	187	0.271	80	0.271	126	1.36	48.3	10
Chlorobenzene	ND	0.184	ND	0.184	7	0.921	ND	6.82
Ethylbenzene	0.417	0.174	ND	0.174	9.73	0.869	604	6.43
p/m-Xylene	1.34	0.347	0.469	0.347	26.1	1.74	1750	12.9
Bromoform	ND	0.414	ND	0.414	ND	2.07	ND	15.3
Styrene	4.68	0.17	7.79	0.17	ND	0.852	ND	6.3
1,1,2,2-Tetrachloroethane	ND	0.275	ND	0.275	ND	1.37	ND	10.2
o-Xylene	0.591	0.174	0.2	0.174	17.8	0.869	1260	6.43
4-Ethyltoluene	0.226	0.197	ND	0.197	ND	0.983	106	7.28
1,3,5-Trimethybenzene	0.374	0.197	ND	0.197	1.57	0.983	159	7.28
1,2,4-Trimethylbenzene	1.08	0.197	0.413	0.197	4.33	0.983	321	7.28
Benzyl chloride	ND	2.07	ND	2.07	ND	10.4	ND	76.6
1,3-Dichlorobenzene	ND	0.24	ND	0.24	30.8	1.2	153	8.9
1,4-Dichlorobenzene	ND	0.24	ND	0.24	53.9	1.2	471	8.9
1,2-Dichlorobenzene	ND	0.24	ND	0.24	3.25	1.2	329	8.9
1,2,4-Trichlorobenzene	ND	0.742	ND	0.742	7.87	3.71	627	27.5
Hexachlorobutadiene	ND	1.07	ND	1.07	ND	5.33	ND	39.6

µg/m³ - Micrograms per cubic meter
RL - Reporting Limit
D - Result reported from diluted run

Table 2

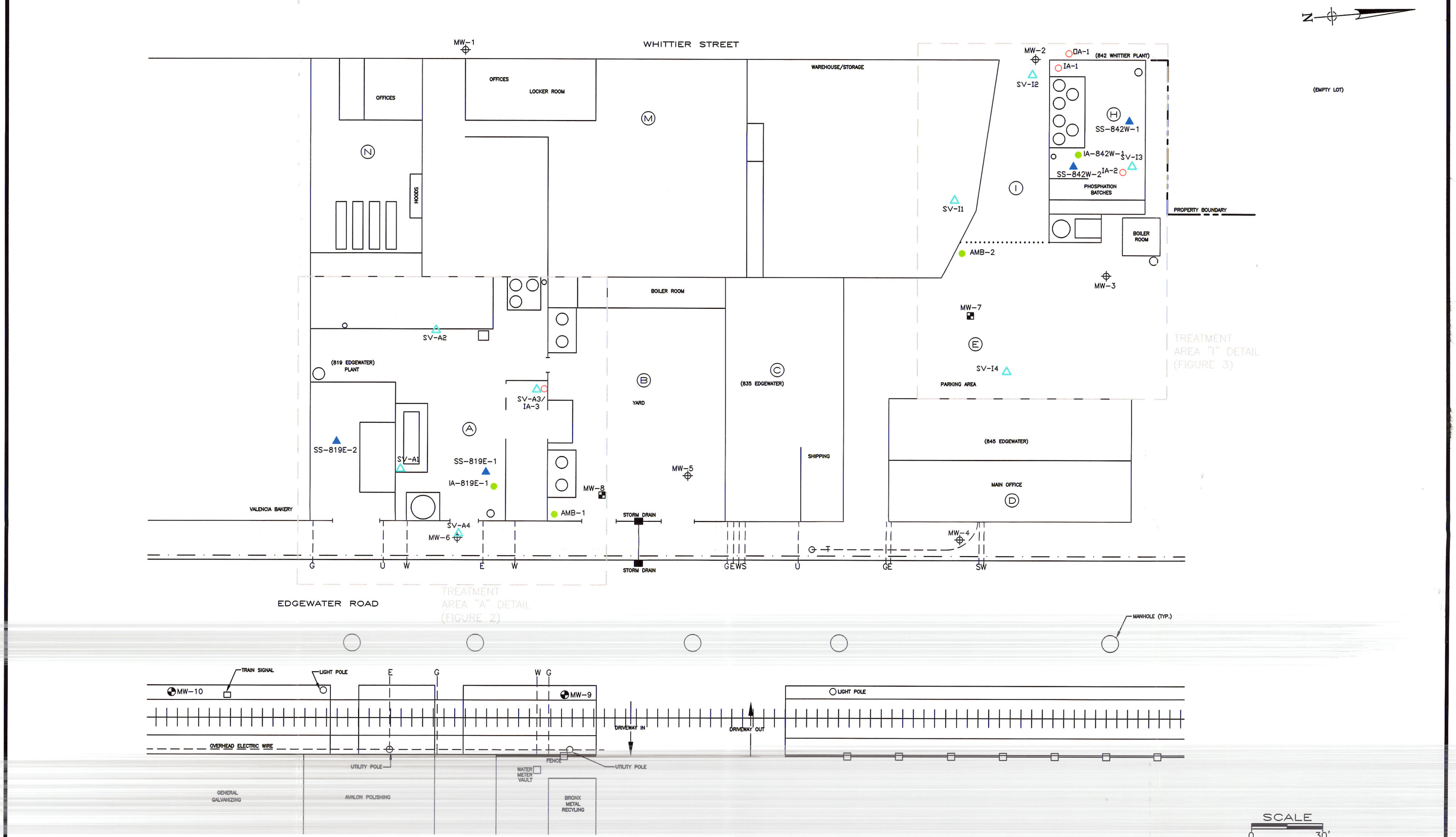
Dexter Chemical LLC
819 Edgewater Road
842 Whittier Street
Bronx, New York

Summary of January 2015 Indoor and Outdoor Air Analytical Results

Sampling ID	IA-819E-1		IA-842W-1		AMB-1		AMB-2	
Sampling Date	1/7/2015		1/7/2015		1/7/2015		1/7/2015	
Laboratory ID	L1500579-01		L1500579-02		L1500579-03		L1500579-04	
Units	µg/m³		µg/m³		µg/m³		µg/m³	
	Result	RL	Result	RL	Result	RL	Result	RL
Dichlorodifluoromethane	1.66	0.247	1.95	0.247	2.28	0.247	1.98	0.247
Chloromethane	1.09	1.03	1.1	1.03	1.06	1.03	1.09	1.03
Freon-114	ND	0.349	ND	0.349	ND	0.349	ND	0.349
Vinyl chloride	ND	0.051	ND	0.051	ND	0.051	ND	0.051
1,3-Butadiene	0.807	0.044	0.557	0.044	0.153	0.044	0.142	0.044
Bromomethane	ND	0.078	ND	0.078	ND	0.078	ND	0.078
Chloroethane	ND	0.053	0.077	0.053	ND	0.053	ND	0.053
Ethanol	56.3	4.71	23.7	4.71	8.23	4.71	7.82	4.71
Vinyl bromide	ND	0.874	ND	0.874	ND	0.874	ND	0.874
Acetone	1960 D	23.8	12.5	4.75	5.06	4.75	5.13	4.75
Trichlorofluoromethane	1.33	0.281	1.33	0.281	1.3	0.281	1.29	0.281
Isopropanol	5.46	1.23	1.82	1.23	1.38	1.23	1.36	1.23
1,1-Dichloroethene	ND	0.079	ND	0.079	ND	0.079	ND	0.079
Methylene chloride	4.48	3.47	ND	3.47	5.18	3.47	ND	3.47
3-Chloropropene	ND	0.626	ND	0.626	ND	0.626	ND	0.626
Carbon disulfide	ND	0.623	ND	0.623	ND	0.623	ND	0.623
Freon-113	0.544	0.383	0.567	0.383	0.529	0.383	0.567	0.383
trans-1,2-Dichloroethene	ND	0.079	ND	0.079	ND	0.079	ND	0.079
1,1-Dichloroethane	ND	0.081	ND	0.081	ND	0.081	ND	0.081
Methyl tert butyl ether	ND	0.072	ND	0.072	ND	0.072	ND	0.072
2-Butanone	3.72	1.47	55.4	1.47	ND	1.47	ND	1.47
cis-1,2-Dichloroethene	ND	0.079	0.365	0.079	ND	0.079	ND	0.079
Ethyl Acetate	6.63	1.8	ND	1.8	ND	1.8	ND	1.8
Chloroform	1.86	0.098	0.41	0.098	0.112	0.098	0.112	0.098
Tetrahydrofuran	2.16	0.59	ND	0.59	ND	0.59	ND	0.59
1,2-Dichloroethane	0.255	0.081	ND	0.081	ND	0.081	ND	0.081
n-Hexane	10.2	0.705	4.37	0.705	ND	0.705	ND	0.705
1,1,1-Trichloroethane	ND	0.109	ND	0.109	ND	0.109	ND	0.109
Benzene	6.8	0.319	2.85	0.319	1.09	0.319	1.01	0.319
Carbon tetrachloride	0.478	0.126	0.478	0.126	0.453	0.126	0.428	0.126
Cyclohexane	4.3	0.688	1.37	0.688	ND	0.688	ND	0.688
1,2-Dichloropropane	ND	0.092	ND	0.092	ND	0.092	ND	0.092
Bromodichloromethane	ND	0.134	ND	0.134	ND	0.134	ND	0.134
1,4-Dioxane	ND	0.36	ND	0.36	ND	0.36	ND	0.36
Trichloroethene	ND	0.107	0.145	0.107	ND	0.107	ND	0.107
2,2,4-Trimethylpentane	7.85	0.934	2.23	0.934	ND	0.934	ND	0.934
Heptane	7.66	0.82	3.96	0.82	ND	0.82	ND	0.82
cis-1,3-Dichloropropene	ND	0.091	ND	0.091	ND	0.091	ND	0.091
4-Methyl-2-pentanone	ND	2.05	11.4	2.05	ND	2.05	ND	2.05
trans-1,3-Dichloropropene	ND	0.091	ND	0.091	ND	0.091	ND	0.091
1,1,2-Trichloroethane	ND	0.109	ND	0.109	ND	0.109	ND	0.109
Toluene	23.7	0.188	6.33	0.188	1.77	0.188	1.64	0.188
2-Hexanone	ND	0.82	ND	0.82	ND	0.82	ND	0.82
Dibromochloromethane	ND	0.17	ND	0.17	ND	0.17	ND	0.17
1,2-Dibromoethane	ND	0.154	ND	0.154	ND	0.154	ND	0.154
Tetrachloroethene	7.39	0.136	0.461	0.136	0.244	0.136	0.237	0.136
Chlorobenzene	ND	0.092	ND	0.092	ND	0.092	ND	0.092
Ethylbenzene	5.04	0.087	3.47	0.087	0.308	0.087	0.287	0.087
p/m-Xylene	17.4	0.174	9.95	0.174	0.934	0.174	0.903	0.174
Bromoform	ND	0.207	ND	0.207	ND	0.207	ND	0.207
Styrene	423	0.085	0.605	0.085	0.111	0.085	ND	0.085
1,1,2,2-Tetrachloroethane	ND	0.137	ND	0.137	ND	0.137	ND	0.137
o-Xylene	6.12	0.087	2.76	0.087	0.343	0.087	0.334	0.087
4-Ethyltoluene	1.77	0.098	ND	0.098	0.098	0.098	ND	0.098
1,3,5-Trimethybenzene	1.86	0.098	0.929	0.098	0.108	0.098	ND	0.098
1,2,4-Trimethylbenzene	6.29	0.098	3.46	0.098	0.329	0.098	0.29	0.098
Benzyl chloride	ND	1.04	ND	1.04	ND	1.04	ND	1.04
1,3-Dichlorobenzene	ND	0.12	ND	0.12	ND	0.12	ND	0.12
1,4-Dichlorobenzene	ND	0.12	0.162	0.12	ND	0.12	ND	0.12
1,2-Dichlorobenzene	ND	0.12	ND	0.12	ND	0.12	ND	0.12
1,2,4-Trichlorobenzene	ND	0.371	ND	0.371	ND	0.371	ND	0.371
Hexachlorobutadiene	ND	0.533	ND	0.533	ND	0.533	ND	0.533

µg/m³ - Micrograms per cubic meter
RL - Reporting Limit
D - Result reported from diluted run

FIGURES



LEGEND

- (A) – AREA IDENTIFICATION TAG
- – – –U – UNKNOWN UTILITY
- – – –G – UNDERGROUND GAS LINE
- – – –E – ELECTRIC LINE
- – – –W – WATER LINE
- – – –S – SEWER LINE
- – – –T – TELEPHONE LINE
- MW-1 – MONITORING WELL LOCATION (MARCH 1998)
- MW-7 – MONITORING WELL LOCATION (SEPTEMBER 6, 2000)
- MW-9 – MONITORING WELL LOCATION (NOVEMBER 14, 2002)
- SV-I1 – SUB-SLAB VAPOR SAMPLE LOCATION (HISTORIC)
- SS-842W-1 – SUB-SLAB VAPOR SAMPLE LOCATION (JANUARY 2015)
- IA-1 – INDOOR AIR/OUTDOOR AIR SAMPLE LOCATION (HISTORIC)
- IA-842W-1 – INDOOR AIR/OUTDOOR AIR SAMPLE LOCATION (JANUARY 2015)

DEXTER CHEMICAL CORPORATION
BRONX, NEW YORK

VAPOR/INDOOR AIR SAMPLE LOCATIONS (2010–2016)

WHITMAN
CERTIFICATE OF AUTHORIZATION No. 24GA28000600
7 PLEASANT HILL ROAD
CRANBURY, NJ 08512
732-390-5858

SIZE	DRAWN BY	ORIGINAL BY	CHECKED BY	DATE	PROJECT NO.	FIGURE
C	P.K./M.E.D	M.A.	I.W.	FEB 2016	97-09-10	1

Z:\WHITMAN\1997\97-09-10\MARCH 2016\970910 – Fig 1– Vapor–Indoor Air Sample Locations.dwg

SV-A2	Sub-Slab Vapor	SVE Operational 10/25/2010	SVE Operational 1/27/2011	Post-SVE 4/12/2012
VC		9.6	2.8	91
1,1-DCE		ND	1.6	1.4
Cis-1,2-DCE		9.4	4.2	170
1,1,1-TCA		ND	ND	ND
CT		ND	ND	ND
TCE		39	6.9	420
PCE		10	2.7	235

SV-A3	Sub-Slab Vapor	SVE Operational 10/25/2010	SVE Operational 1/27/2011	Post-SVE 4/12/2012
VC		ND	ND	ND
1,1-DCE		ND	ND	ND
Cis-1,2-DCE		ND	ND	1.6
1,1,1-TCA		ND	ND	ND
CT		ND	ND	ND
TCE		18	9.4	25
PCE		105	371	450

SV-A1	Sub-Slab Vapor	SVE Operational 10/25/2010	Post-SVE 4/12/2012
VC		ND	ND
1,1-DCE		ND	ND
Cis-1,2-DCE		4.7	1.1
1,1,1-TCA		ND	ND
CT		ND	ND
TCE		3.8	1.5
PCE		5.4	27

SV-A4	Sub-Slab Vapor	SVE Operational 10/25/2010	SVE Operational 1/27/2011	Post-SVE 4/12/2012
VC		ND	ND	ND
1,1-DCE		ND	ND	ND
Cis-1,2-DCE		ND	ND	ND
1,1,1-TCA		ND	ND	ND
CT		ND	ND	ND
TCE		0.6	ND	1.3
PCE		29	3.7	39

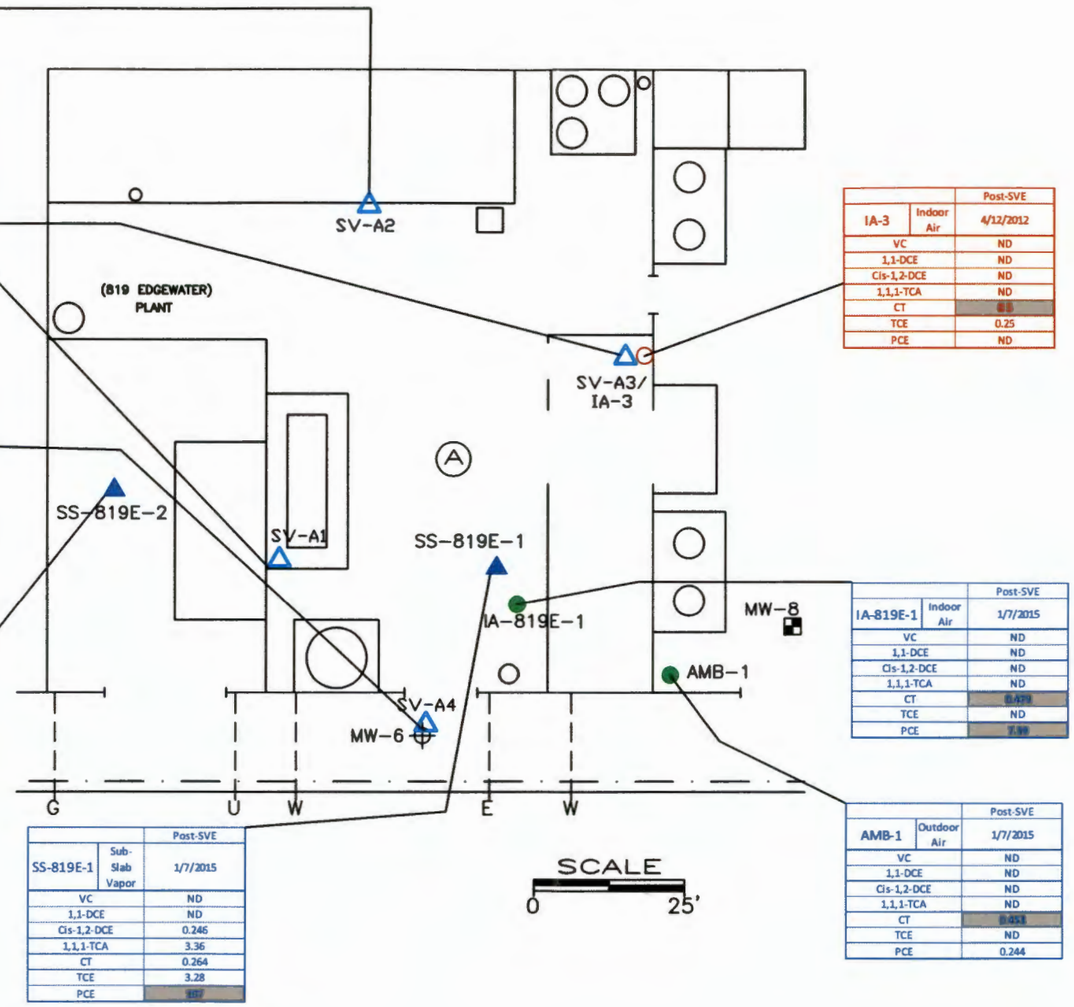
IA-3	Indoor Air	Post-SVE 4/12/2012
VC		ND
1,1-DCE		ND
Cis-1,2-DCE		ND
1,1,1-TCA		ND
CT		0.5
TCE		0.25
PCE		ND

SS-819E-2	Sub-Slab Vapor	Post-SVE 1/7/2015
VC		ND
1,1-DCE		ND
Cis-1,2-DCE		1.31
1,1,1-TCA		ND
CT		ND
TCE		5.5
PCE		80

SS-819E-1	Sub-Slab Vapor	Post-SVE 1/7/2015
VC		ND
1,1-DCE		ND
Cis-1,2-DCE		0.246
1,1,1-TCA		3.36
CT		0.264
TCE		3.28
PCE		187

IA-819E-1	Indoor Air	Post-SVE 1/7/2015
VC		ND
1,1-DCE		ND
Cis-1,2-DCE		ND
1,1,1-TCA		ND
CT		0.479
TCE		ND
PCE		7.99

AMB-1	Outdoor Air	Post-SVE 1/7/2015
VC		ND
1,1-DCE		ND
Cis-1,2-DCE		ND
1,1,1-TCA		ND
CT		0.453
TCE		ND
PCE		0.244



KEY:

Abbreviation	Compound	NYSDOH Decision Matrix
VC	Vinyl chloride	Matrix 1
1,1-DCE	1,1-Dichloroethene	Matrix 2
Cis-1,2-DCE	cis-1,2-Dichloroethene	Matrix 2
1,1,1-TCA	1,1,1-Trichloroethane	Matrix 2
CT	Carbon tetrachloride	Matrix 1
TCE	Trichloroethene	Matrix 1
PCE	Tetrachloroethene	Matrix 2

NYSDOH DECISION MATRIX 1

Sub-Slab Vapor Concentration	Indoor Air Concentration <0.25	0.25 to < 1	1 to < 5.0	5.0 and above
<1	No further action	Take reasonable and practical action to identify source(s) and reduce exposures	Take reasonable and practical action to identify source(s) and reduce exposures	Take reasonable and practical action to identify source(s) and reduce exposures
1 to <5	No further action	Take reasonable and practical action to identify source(s) and reduce exposures	Take reasonable and practical action to identify source(s) and reduce exposures	Take reasonable and practical action to identify source(s) and reduce exposures
5 to <30	No further action	Monitor	Monitor	Mitigate
30 to <250	Monitor	Monitor/Mitigate	Mitigate	Mitigate
250 and above	Mitigate	Mitigate	Mitigate	Mitigate

NYSDOH DECISION MATRIX 2

Sub-Slab Vapor Concentration	Indoor Air Concentration <3	3 to <30	30 to <100	100 and above
<100	No further action	Take reasonable and practical action to identify source(s) and reduce exposures	Take reasonable and practical action to identify source(s) and reduce exposures	Take reasonable and practical action to identify source(s) and reduce exposures
100 to <1,000	Monitor	Monitor/Mitigate	Mitigate	Mitigate
1,000 and above	Mitigate	Mitigate	Mitigate	Mitigate

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- IA-842W-1 – INDOOR AIR/OUTDOOR AIR SAMPLE LOCATION (JANUARY 2015)
- 102 – CONCENTRATION IS GREATER THAN LOWEST NYSDOH DECISION MATRIX CONCENTRATION
- ND – NON DETECT

NOTES:

ALL CONCENTRATIONS FOR VAPOR RESULTS ARE DISPLAYED IN MICROGRAMS PER CUBIC METER (µg/m³).

ONLY COMPOUNDS THAT ARE USED IN NEW YORK DECISION MATRICES ARE LISTED IN RESULT BOXES.

NYSDOH – NEW YORK STATE DEPARTMENT OF HEALTH

A SOIL VAPOR EXTRACTION SYSTEM WAS OPERATING IN AREA A FROM MAY 2009 TO MARCH 2011

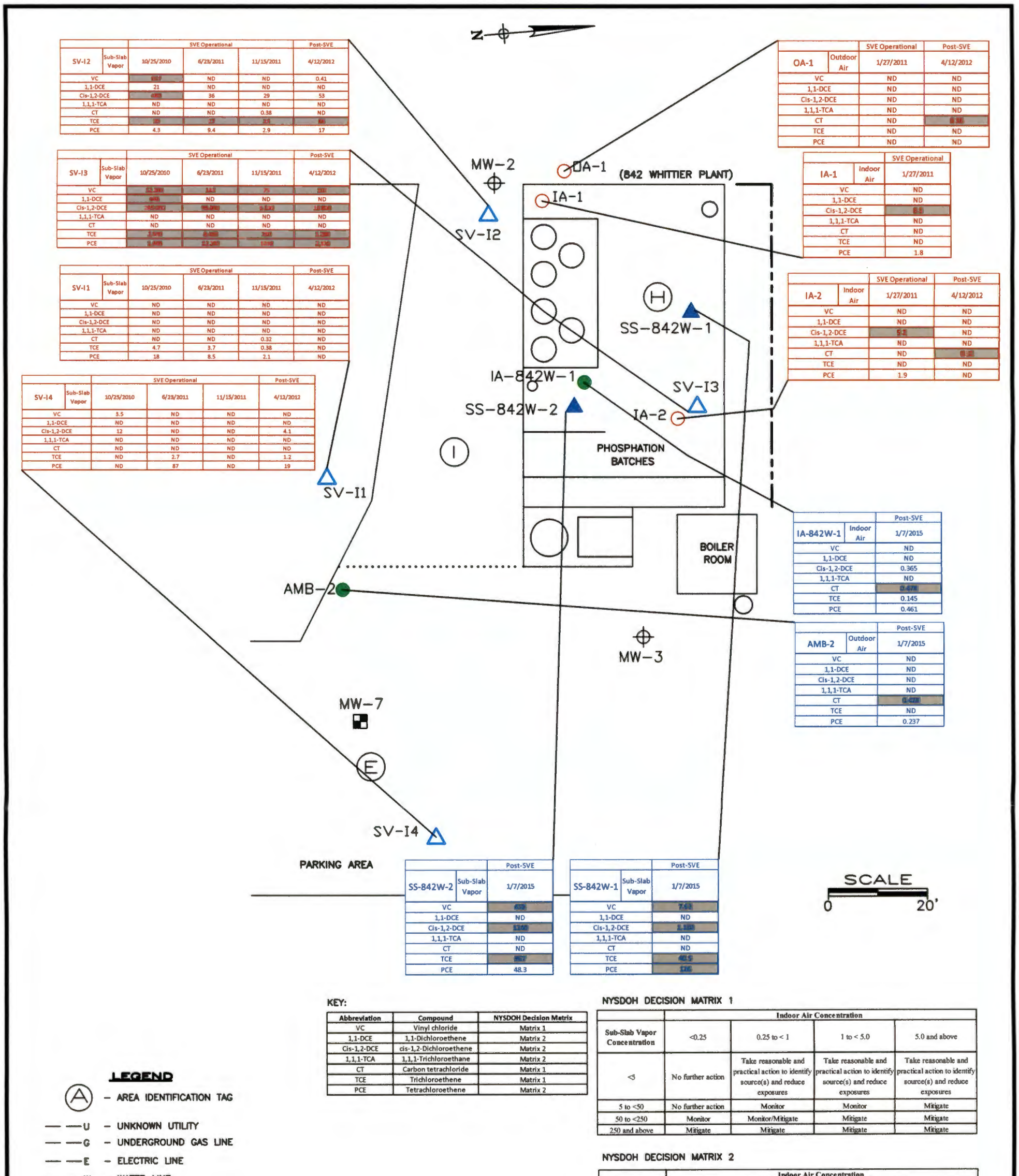
DEXTER CHEMICAL CORPORATION
BRONX, NEW YORK

819 EDGEWATER ROAD
VAPOR ANALYTICAL RESULTS

WHITMAN
7 PLEASANT HILL ROAD
CRANBURY, NJ 08512
732-390-5858

SIZE	DRAWN BY	ORIGINAL BY	CHECKED BY	DATE	PROJECT NO.	FIGURE
	P.K./M.E.D.	M.A.	L.W.	FEB 2016	97-09-10	2

Z:\WHITMAN\1997\97-09-10\MARCH 2016\970910 – Fig 2 – Vapor Anaytical Results.dwg



SV-I2 Sub-Slab Vapor	SVE Operational			Post-SVE
	10/25/2010	6/23/2011	11/15/2011	4/12/2012
VC	[redacted]	ND	ND	0.41
1,1-DCE	21	ND	ND	ND
Cis-1,2-DCE	[redacted]	36	29	53
1,1,1-TCA	ND	ND	ND	ND
CT	ND	ND	0.38	ND
TCE	[redacted]	[redacted]	[redacted]	[redacted]
PCE	4.3	9.4	2.9	17

SV-I3 Sub-Slab Vapor	SVE Operational			Post-SVE
	10/25/2010	6/23/2011	11/15/2011	4/12/2012
VC	[redacted]	[redacted]	[redacted]	[redacted]
1,1-DCE	[redacted]	ND	ND	ND
Cis-1,2-DCE	[redacted]	[redacted]	[redacted]	[redacted]
1,1,1-TCA	ND	ND	ND	ND
CT	ND	ND	ND	ND
TCE	[redacted]	[redacted]	[redacted]	[redacted]
PCE	[redacted]	[redacted]	[redacted]	[redacted]

SV-I1 Sub-Slab Vapor	SVE Operational			Post-SVE
	10/25/2010	6/23/2011	11/15/2011	4/12/2012
VC	ND	ND	ND	ND
1,1-DCE	ND	ND	ND	ND
Cis-1,2-DCE	ND	ND	ND	ND
1,1,1-TCA	ND	ND	ND	ND
CT	ND	ND	0.32	ND
TCE	4.7	3.7	0.38	ND
PCE	18	8.5	2.1	ND

SV-I4 Sub-Slab Vapor	SVE Operational			Post-SVE
	10/25/2010	6/23/2011	11/15/2011	4/12/2012
VC	3.5	ND	ND	ND
1,1-DCE	ND	ND	ND	ND
Cis-1,2-DCE	12	ND	ND	4.1
1,1,1-TCA	ND	ND	ND	ND
CT	ND	ND	ND	ND
TCE	ND	2.7	ND	1.2
PCE	ND	87	ND	19

OA-1 Outdoor Air	SVE Operational	Post-SVE
	1/27/2011	4/12/2012
VC	ND	ND
1,1-DCE	ND	ND
Cis-1,2-DCE	ND	ND
1,1,1-TCA	ND	ND
CT	ND	[redacted]
TCE	ND	ND
PCE	ND	ND

IA-1 Indoor Air	SVE Operational
	1/27/2011
VC	ND
1,1-DCE	ND
Cis-1,2-DCE	[redacted]
1,1,1-TCA	ND
CT	ND
TCE	ND
PCE	1.8

IA-2 Indoor Air	SVE Operational	Post-SVE
	1/27/2011	4/12/2012
VC	ND	ND
1,1-DCE	ND	ND
Cis-1,2-DCE	[redacted]	ND
1,1,1-TCA	ND	ND
CT	ND	[redacted]
TCE	ND	ND
PCE	1.9	ND

IA-842W-1 Indoor Air	Post-SVE
	1/7/2015
VC	ND
1,1-DCE	ND
Cis-1,2-DCE	0.365
1,1,1-TCA	ND
CT	[redacted]
TCE	0.145
PCE	0.461

AMB-2 Outdoor Air	Post-SVE
	1/7/2015
VC	ND
1,1-DCE	ND
Cis-1,2-DCE	ND
1,1,1-TCA	ND
CT	[redacted]
TCE	ND
PCE	0.237

SS-842W-2 Sub-Slab Vapor	Post-SVE
	1/7/2015
VC	[redacted]
1,1-DCE	ND
Cis-1,2-DCE	[redacted]
1,1,1-TCA	ND
CT	ND
TCE	[redacted]
PCE	48.3

SS-842W-1 Sub-Slab Vapor	Post-SVE
	1/7/2015
VC	[redacted]
1,1-DCE	ND
Cis-1,2-DCE	[redacted]
1,1,1-TCA	ND
CT	ND
TCE	[redacted]
PCE	[redacted]

KEY:

Abbreviation	Compound	NYSDOH Decision Matrix
VC	Vinyl chloride	Matrix 1
1,1-DCE	1,1-Dichloroethene	Matrix 2
Cis-1,2-DCE	cis-1,2-Dichloroethene	Matrix 2
1,1,1-TCA	1,1,1-Trichloroethane	Matrix 2
CT	Carbon tetrachloride	Matrix 1
TCE	Trichloroethene	Matrix 1
PCE	Tetrachloroethene	Matrix 2

NYSDOH DECISION MATRIX 1

Sub-Slab Vapor Concentration	Indoor Air Concentration <0.25	0.25 to < 1	1 to < 5.0	5.0 and above
<3	No further action	Take reasonable and practical action to identify source(s) and reduce exposures	Take reasonable and practical action to identify source(s) and reduce exposures	Take reasonable and practical action to identify source(s) and reduce exposures
5 to <50	No further action	Monitor	Monitor	Mitigate
50 to <250	Monitor	Monitor/Mitigate	Mitigate	Mitigate
250 and above	Mitigate	Mitigate	Mitigate	Mitigate

NYSDOH DECISION MATRIX 2

Sub-Slab Vapor Concentration	Indoor Air Concentration <3	3 to <30	30 to <100	100 and above
<100	No further action	Take reasonable and practical action to identify source(s) and reduce exposures	Take reasonable and practical action to identify source(s) and reduce exposures	Take reasonable and practical action to identify source(s) and reduce exposures
100 to <1,000	Monitor	Monitor/Mitigate	Mitigate	Mitigate
1,000 and above	Mitigate	Mitigate	Mitigate	Mitigate

LEGEND

- (A) – AREA IDENTIFICATION TAG
- —U— – UNKNOWN UTILITY
- —G— – UNDERGROUND GAS LINE
- —E— – ELECTRIC LINE
- —W— – WATER LINE
- —S— – SEWER LINE
- —T— – TELEPHONE LINE
- MW-1 – MONITORING WELL LOCATION (MARCH 1998)
- MW-7 – MONITORING WELL LOCATION (SEPTEMBER 6, 2000)
- MW-9 – MONITORING WELL LOCATION (NOVEMBER 14, 2002)
- SV-I1 – SUB-SLAB VAPOR SAMPLE LOCATION (HISTORIC)
- SS-842W-1 – SUB-SLAB VAPOR SAMPLE LOCATION (JANUARY 2015)
- IA-1 – INDOOR AIR/OUTDOOR AIR SAMPLE LOCATION (HISTORIC)
- IA-842W-1 – INDOOR AIR/OUTDOOR AIR SAMPLE LOCATION (JANUARY 2015)
- [redacted] – CONCENTRATION IS GREATER THAN LOWEST NYSDOH DECISION MATRIX CONCENTRATION
- ND – NON DETECT

NOTES:

ALL CONCENTRATIONS FOR VAPOR RESULTS ARE DISPLAYED IN MICROGRAMS PER CUBIC METER (µg/m³).

ONLY COMPOUNDS THAT ARE USED IN NEW YORK DECISION MATRICES ARE LISTED IN RESULT BOXES.

NYSDOH – NEW YORK STATE DEPARTMENT OF HEALTH

A SOIL VAPOR EXTRACTION SYSTEM WAS OPERATING IN AREA I FROM MAY 2011 TO MARCH 2012

DEXTER CHEMICAL CORPORATION
BRONX, NEW YORK

842 WHITTIER STREET
VAPOR ANALYTICAL RESULTS

WHITMAN ENGINEERING
7 PLEASANT HILL ROAD
CRANBURY, NJ 08512
732-390-5858

SIZE	DRAWN BY	ORIGINAL BY	CHECKED BY	DATE	PROJECT NO.	FIGURE
	P.K./M.E.D.	M.A.	I.W.	FEB 2016	97-09-10	3

Z:\WHITMAN\1997\97-09-10\MARCH 2016\970910 – Fig 3 – Vapor Analytical Results.dwg

ATTACHMENT 1

PROGRESS REPORT #4, APRIL 2005

THE WHITMAN COMPANIES, INC.

Corporate Headquarters
116 Tices Lane, Unit B-1
East Brunswick, NJ 08816

Tel: 732.390.5858 • Fax: 732.390.9496
Email: whitman@whitmanco.com
Internet: www.whitmanco.com

April 7, 2005

Hari O. Agrawal, P.E.
New York State Department of Environmental Conservation
47-40 21st Street
Long Island City, NY 11101

RE: Dexter Chemical, LLC
819-845 Edgewater Road
8100842 Whittier Street
Bronx, New York
VCP #V00186-2
Whitman Project #97-09-10
Progress Report #4

Dear Mr. Agrawal:

Please consider this letter to be Progress Report #4 under the recently executed Voluntary Cleanup Agreement between Dexter Chemical, LLC and New York State Department of Environmental Conservation (NYSDEC). Under the schedule submitted to the NYSDEC, the Progress Reports for the next two years will be submitted as follows:

Progress Report	Date	Submittal Date
4	March 31, 2005	April 10, 2005
5	June 30, 2005	July 10, 2005
6	September 30, 2005	October 10, 2005
7	December 31, 2005	January 10, 2006
8	March 31, 2006	April 10, 2006

1.0 BACKGROUND

All historic soil and ground water sampling events for the subject property have been submitted to the NYSDEC in previous reports. A full description of previous investigation activities are described in detail in several of those submittals, which are summarized below.

1.1 Area A Soil Sampling

As shown on Figure 1 and 3 and in Table 1, soil samples were collected in Area A to delineate the extent of the soil contamination. Examination of Figure 1 and 3 and Table 1 indicate several Volatile Organic Compounds (VOCs) exceed the NYSDEC TAGM Recommended Soil Cleanup Objectives. Concentrations of Benzene, Ethylbenzene, Toluene, Xylene, Chlorobenzene, 1,2 Dichlorobenzene, 1,3 Dichlorobenzene, 1,4 Dichlorobenzene, 1,2,4 Trichlorobenzene and Naphthalene were identified above the NYSDEC TAGM Recommended Soil Cleanup Objectives.

1.1.1 Area A Pilot Test

The pilot test proposed in Whitman's February 2004 Workplan and approved by the NYSDEC, in a letter dated May 7, 2004, was conducted at Dexter Chemical, LLC (Dexter) on June 28, 2004 through June 30, 2004. One soil vapor extraction (SVE) well (SVE-1) and one air sparging (AS) well (AS-1) was installed within the known zone of contamination at Area A. A total of five (5) monitoring points, MP-1 through MP-5, were installed within Area A (Figure 1).

The SVE test initiated with the extraction of soil gas from SVE-1 using a regenerative blower as a vacuum source. Soil gas extracted during the course of the pilot test was routed through a 55-gallon (200 lb) granular activated carbon treatment for hydrocarbon removal prior to discharge. Approximately 2 hours after the start of the SVE pilot test, air was introduced to AS-1 using an air compressor. The combination of air sparging and soil vapor extraction continued for 2 hours. After this period, the air sparging system was turned off and SVE only was conducted for the final hour of the test to recover vapors liberated during the combination of air sparging and soil vapor extraction portion of the test.

Tedlar air bag samples, SVE-1 though SVE-3, were collected from the SVE discharge at three (3) times during the SVE test. The three (3) samples were taken as follows:

SVE-1	At the start of the SVE test.
SVE-2	During a period of soil vapor extraction and air sparging.
SVE-3	Prior to shutting off the SVE Blower, but following the termination of air sparging.

Below (Table A) summarizes the analytical results for the Tedlar air bag samples, SVE-1 through SVE-3, at Area A:

Table A

Volatile Organics in Soil Vapor, Area A – Results in Parts per Billion (ppbv)			
	Sample		
Compound**	**SVE-1**	**Sample SVE-2**	**SVE-3**
Benzene	ND	25.6	ND
Ethylbenzene	76.4	578	442
Methylene Chloride	144	ND	ND
Toluene	58.0	ND	ND
Xylene (total)	221.6	1216	968

** Not all five (5) of these compounds were found in each sample.
All other Volatile Organic Compounds were Non-Detect (ND) in each sample.

1.2 Area I Soil Sampling

As shown on Figure 2 and 3 and in Table 2A through 2D, soil samples were collected in Area I to delineate the extent of the soil contamination. Examination of Figure 2 and 3 and Table 2A through 2D indicate several VOCs exceed the NYSDEC TAGM Recommended Soil Cleanup Objectives. Concentrations of Ethylbenzene, Xylene, 1,3 Dichlorobenzene, 1,4 Dichlorobenzene, 1,2,4 Trichlorobenzene and Naphthalene were identified above the NYSDEC TAGM Recommended Soil Cleanup Objectives.

1.3 Ground Water Sampling

Historically, several rounds of ground water samples from the onsite and offsite monitoring wells (MW-1 through MW-10), onsite peizometers (PZ-1 through PZ-4) and three (3) grab ground water samples (GW-1 through GW-3) were collected to evaluate ground water conditions. The most recent samples to date are summarized on Figure 3 and in Table 3. Examination of Figure 3 and Table 3 indicate several VOCs exceed the 1998 NYSDEC Ground Water Criteria. Concentrations of Benzene, Ethylbenzene, Toluene, Xylene, cis-1,2 Dichloroethene, 1,2 Dichloropropane, Vinyl Chloride, Chlorobenzene, 1,2 Dichlorobenzene, 1,4 Dichlorobenzene, 1,2,4 Trichlorobenzene and Naphthalene were identified above the 1998 NYSDEC Ground Water Criteria. All of the historic ground water sampling events have revealed a consistent ground water flow to the Northeast.

2.0 SOIL GAS SAMPLING

On January 18, 2005, Whitman supervised the installation of seven (7) soil gas sample points (Figure 4). The soil gas samples, SG-1 through SG-7, were taken along the perimeter of the Dexter property at locations discussed with and approved by representatives of the NYSDEC. Three samples were taken along Whittier Street on the western property extremity and four samples taken along Edgewater Road on the eastern side of the property. The seven (7) soil gas sample points were advanced using a direct push geoprobe operated by Environmental Probing Investigations (EPI) of Cream Ridge, New Jersey. The soil gas collection technique conducted by Whitman is consistent with the November 2002 EPA document entitled, *Draft Guidance for Evaluating the Vapor Intrusion to Indoor Air Pathway from Ground Water and Soils*.

Using the Geoprobe Standard Operating Procedures, an expendable tip was driven to a depth of five (5) feet below grade surface. A small diameter flexible polyethylene tube was then fed down the drilling rods and attached to the expendable tip. The annular space between the borehole and the tubing was sealed with bentonite at the surface to prevent short-circuiting. Prior to sampling, the tubing was purged using a vacuum pump for a minimum of 2 minutes, until all ambient air was purged from the tubing. A 6-liter summa canister was used to collect the soil gas samples at a maximum flow rate of 200 ml/min.

All samples were analyzed in accordance with the "Compendium Method TO-15 Determination of VOCs in Air Collected in Specially Prepared Canister and Analyzed by GC/MS". The summa canisters were analyzed by Severn Trent Laboratories (STL) of Burlington, Vermont using Method TO-15. Laboratory data summary sheets are provided in Attachment 1.

2.1 Soil Gas Sampling Results

Soil gas samples, SG-1 through SG-7, were collected and analyzed for VOCs utilizing Method TO-15. The soil gas sampling results can be found on Figure 4 and in Table 4. Examination of Figure 4 and Table 4 indicate numerous volatile organic compounds were detected in all the soil gas samples.

Over 20 individual compounds were detected in one or more of the soil gas samples at concentrations that exceed the PQL reporting limit. For the most part, these compounds are not found in the many soil and ground water samples taken at Dexter Chemical.

The soil gas sampling results can be summarized as follows:

Samples	Location	# of Compounds Exceeding PQL	Compound(s) with Highest Soil Gas Concentration
SG-1	Whittier Street Southwest corner	2	Methylene Chloride
SG-2	Whittier Street West of Plant	19	Toluene, Chloroform
SG-3	Whittier Street Northwest of Plant	17	Acetone
SG-4	Edgewater Road Southeast corner	20	Cyclohexane, Benzene
SG-5	Edgewater Road East of Area A	20	Acetone, MTBE
SG-6	Edgewater Road East of Plant	9	Isopropyl Alcohol
SG-7	Edgewater Road Northeast corner	6	MTBE

Of the compounds listed as having the highest soil gas concentrations, only Toluene and Benzene are found in any of the soil and ground water samples. SG-2, where Toluene is the compound of highest concentration, is located a significant distance from any area of concern where the manufacturing or blending of paint has taken place.

Another interesting compound is Xylene, which is the volatile organic of highest concentration in soil and ground water samples in Area A. Yet the soil gas samples SG-4 and SG-5, located adjacent to Area A, Xylenes are present in lower soil gas concentrations than such compounds as Acetone, Benzene, Cyclohexane, n-Heptane, n-Hexane, MTBE, PCE and TCE.

2.2 Conclusions Regarding Soil Gas

Evaluation of the seven (7) soil gas samples taken on the perimeter of the Dexter property indicates that volatile organic compounds are present in soil and groundwater at concentrations that exceed PQLs in all seven (7) locations, regardless of whether the samples were taken adjacent to areas of environmental concern, or at areas at considerable distance from where any manufacturing has taken place.

The majority of volatile organic compounds found in the seven (7) soil gas samples were not found in any soil or ground water samples taken at Dexter. The compound of greatest concern, Xylene(s) is present in six (6) of the seven (7) samples, but in only one sample (SG-2) is it at concentrations significantly in excess of the PQL reporting limit.

Based on the soil gas sampling results, it is concluded that there is no correlation of volatile organic compounds in soil gas and the concentrations of the same compounds in soil and ground water.

3.0 REMEDIAL ACTION WORKPLAN

Correspondence between the NYSDEC and Whitman is currently on going to discuss the Remedial Action Workplan (RAW) system design and final cleanup standards. Upon agreeing on a system design and final cleanup standards, Whitman will assemble and submit a formal RAW for Area A and Area I to the NYSDEC for review.

4.0 GROUND WATER SAMPLING

A full round of ground water baseline sampling from all existing monitoring wells will be conducted at the time the full scale SVE/AS system is installed and about to be operated. This will be the optimal time to acquire baseline ground water quality data that are relevant to the treatment phase of the Dexter soil and ground water remediation program.

Please contact Richard Britton or me if you have any comments or questions regarding this Progress Report.

Very truly yours,

Ira L. Whitman, P. E.
Principal

cc: Leonard Sitver, Dexter Chemical, LLC
Kenneth Ballan, Dexter Chemical, LLC
Richard Conway, Esq., Schenck, Price, Smith & King, LLP
Rosalie K. Rusinko, Esq., NYSDEC
Dennis C. Walsh, Ph.D., NYSDEC
Gary Litwin, NYSDOH
Dawn Hettrick, NYSDOH
Richard Britton, P.G., The Whitman Companies, Inc.
Ed Sullivan, P.G., The Whitman Companies, Inc.
Michael Percelay, The Whitman Companies, Inc.

WORD PROCESSING WORK ORDER

Date: 3/1/16

Client Name: Dexter

Author: Ira

Project #: 97-09-10

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