

# RECKSON ASSOCIATES

November 13, 2002

Mr. Robert Stewart, Engineer NYSDEC Division of Environmenta<sup>†</sup> Remediation, Region One SUNY, Stony Brook Building 40 Stony Brook, New York 11790-2356 (631) 444-0244 (tel) (631) 444-0248 (fax)

RE: Quarterly Indoor PCE Sampling, October 2002 333 S nith Street, Farmingdale, NY

Dear Mr. Stewart:

Attached is a copy of the most recent indoor PCE sampling at 333 Smith Street

I would greatly appreciate any comments you may have regarding the attached report, or the program.

Sincerely,

Phillip J. Fallon Jr.

V.P. and Director of Environmental Affairs



October 31, 2002

Mr. Phillip J. Fallon, Jr. Vice President and Director of Environmental Affairs Reckson Associates Realty Corporation 225 Broadhollow Road Melville, New York 11747-4883

Re:

333 Smith Street, Farmingdale, NY Quarterly Indoor PCE Sampling October 2002

Dear Mr. Fallon:

This letter report summarizes the October 2002 air monitoring for tetrachloroethene ("PCE") at the Reckson 333 Smith Street facility in Farmingdale, NY. This monitoring event is part of Reckson's Indoor Air Quality Protection Plan, which has the specific purpose of ensuring indoor air quality.

#### Background

Berger utilized 3M passive sampling badges (3M 3500) and Galson analytical laboratory services for PCE analysis to maintain continuity in sampling methodology and analysis with previous surveys. This is the same device and laboratory utilized in all previous monitoring events. Also, a similar number of sampling badges were employed as in previous surveys. The focus of the investigation is to sample the indoor air quality at representative areas for PCE upon the entire ground floor of the building, balancing the placement of badges in closed as well as open areas of the building.

It should be noted that both this and the previous sampling event (July 2002), occurred after the termination of active sub-slab venting. Berger Senior Industrial Hygienist, Joshua Cupriks, performed the air monitoring from October 24 to October 25, 2002.

### Materials and Methodology

# Passive Sampling Badges

Samples were collected for PCE analysis via 3M passive sampling badges (3M 3500). This is the preferred sampling media of the New York State Department of Health (NYSDOH), and is used to monitor very low levels of PCE vapor. Twenty-seven badges were placed throughout the first floor of the facility, in both open and closed areas, and four were placed outside the building

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(courtyard and parking areas). Open areas consisted of corridors and cubicle spaces, while closed areas included offices, conference rooms, a stairwell and a food storage room. One additional badge (for a total of 31) was used as a blank quality control sample, and not placed for sampling.

All monitoring badges were placed in the breathing zone (4-6 feet from the floor) for at least 24 hours, and then returned to their original containers, sealed and submitted to Galson Laboratories at 6601 Kirkville Road, East Syracuse, NY for laboratory analysis. Samples were analyzed for PCE concentrations utilizing NYSDOH Method 311-9. Galson is accredited by the NYSDOH Environmental Laboratory Approval Program (ELAP), certification number 11626 and the American Industrial Hygiene Association (AIHA), certification number 100324.

#### Carbon Dioxide

Carbon Dioxide readings were measured using a Quest AQ-5000. This device is a direct-reading instrument that measures instantaneous carbon dioxide levels. Readings were taken at all sample locations at the time of badge placement on the first morning, later that day, and again the next day when the badges were recovered. Carbon dioxide levels are an indicator of air circulation and ventilation in an office space, and elevated levels may indicate poor circulation or inadequate outside air entering the building. The purpose of measuring CO2 levels was to determine whether there is a direct correlation between CO2 level (i.e. ventilation) and PCE in air concentrations.

#### **Quality Control Procedures**

Four badges were placed outside to determine ambient background levels. One was placed in the interior courtyard, and the remaining three in the parking lot located approximately fifty feet from the building, where they would not be influenced by indoor air quality (i.e. away from exhaust vents, doors, etc.). In this case, the level of contamination was below the minimum detection limit of the instrument, so no corrections were made

The outdoor sample results are utilized to determine outdoor PCE levels, away from the confines of the building. PCE vapor concentrations within the detection limit of the badges in outdoor samples could indicate a contribution from sources located outside the building.

An additional badge was used as a quality control blank to check for contamination of the samples during shipping and handling, or if there were any defects in the manufacturing process. The blank was handled in the same manner as the other badges, but was not exposed to the atmosphere.

#### Results

#### Passive Sampling Badges

Table 1, which is presented at the end of this report, is a summary of the results taken throughout the facility ground floor. The analysis results of the 26 indoor air samples averaged 1.27 µg/m<sup>3</sup>

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(0.7 to 1.8 μg/m³). All sample results are below the DOH guideline of 100 μg/m³. Appendix I contains the sample analysis results, report received from Galson Laboratories, Inc. and Chain-of-Custody forms. A floor plan illustrating sample locations is located in Appendix II.

## Carbon Dioxide

The American Society of Heating, Refrigeration and Air Conditioning Engineers (ASHRAE) currently recommends that the limit for indoor air be 700 ppm plus the value of outside air (ppm) (ANSI/ASHRAE Standard 62-2001). In this case, the recommended limit for this property at this time should be approximately 1,200 ppm. The measurements obtained (589-771 ppm) are well below this reference guideline and generally indicate excellent ventilation. No direct correlation between PCE and CO2 levels can be discerned from the data; however, CO2 readings may assist in interpreting the differences in the PCE levels observed in future sampling events.

#### **Quality Control**

Three of the four outdoor samples were below the method's analytical detection limit, while the fourth had a concentration at the detection limit of  $0.7 \, \mu g/m^3$ . The blank badge had a PCE concentration below the method quantitation limit, and therefore no adjustment in the results of the exposed badges was necessary.

#### **Discussion and Conclusions**

Previous results have been well below the NYSDOH guideline value of 100 micrograms per cubic meter ( $\mu g/m^3$ ), with out a single exception. The readings taken each sampling event fell substantially in the second half of 2001, with average of 32.1, 55.4, 2.81 and < 2.15  $\mu g/m^3$  for January, April, July and November, 2001, respectively. The substantial drop from April to July may be accounted for by the change from partial (approximately 1/3) HVAC operation in April to nearly full operation by July 2001. Average readings taken so far in 2002 have been consistently low: <0.83, 3.21 and 1.27  $\mu g/m^3$  for April, July and October, respectively. The very low concentrations in April, and then again in October, 2002, may be a consequence of both active sub-slab venting (conducted between March 18 and June 10, 2002) and the HVAC operating on full fresh air, which is typical for the spring and fall. The higher proportion of fresh air causes the building's air to be flushed out at a faster rate and therefore may help in further reducing the already very minor amounts of PCE vapor. Sampling dates, mean PCE concentrations, range and notes are summarized in Table 2.

In summary, the concentrations of PCE in the air within the building as measured in October 2002 were all below the NYSDOH Guideline Value of  $100 \,\mu\text{g/m}^3$ . Furthermore, the results were within the "background" concentration of PCE in air, which is typically less than  $10 \,\mu\text{g/m}^3$ .

These data indicate that the mitigative measures continue to be effective in maintaining acceptable indoor air quality. It should be noted that since sub slab venting operations were completed, the low PCE readings noted in this report were likely related to the amount of outside air (temperature/economizer setting dependent) being supplied to the building on these two days.

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The results of this sampling demonstrate the continuing effectiveness of the control measures undertaken to date in maintaining the quality of indoor air.

If you have any questions or comments regarding this report, please contact me at (212) 363-4223, ext. 45 or Joshua Cupriks at ext. 54.

Sincerely yours,

THE LOUIS BERGER GROUP, INC.

Steven Eget, P.E., C.E.M.

Manager, NY Engineering Operations

cc: T. Lewis, P. Debiase, J. Cupriks (Berger) Attachments

Table 1 SURVEY DATA, OCTOBER 24<sup>th</sup> AND 25<sup>th</sup> 2002

Sample	Concentration		
		ELLO DESTRACIONA	
PCE-1024-20	0.7	501 / 514	506
PCE-1024-26	<0.7	462 / 534	505
PCE-1024-29	<0.7	538 / 494	508
PCE-1024-30	< 0.7	504 / 507	508
PCE-1024-01	1.6	630 / 600	650
PCE-1024-02	1.1	633 / 600	651
PCE-1024-03	1.8	641 / 748	627
PCE-1024-04	0.9	628 / 624	610
PCE-1024-05	1.4	618 / 614	595
PCE-1024-06	1.1	633 / 632	598
PCE-1024-07	1.1	589 / 584	594
PCE-1024-08	1.4	709 / 632	657
PCE-1024-09	1.4	711 / 647	657
PCE-1024-10	1.1	771 / 736	710
PCE-1024-11	1.1	725 / 638	655
PCE-1024-12	0.9	663 / 648	651
PCE-1024-13	1.4	630 / 608	623
PCE-1024-14	1.1	685 / 702	652
PCE-1024-15	1.1	688 / 699	752
PCE-1024-16	1.4	728 / 722	662
PCE-1024-17	1.1	620 / 641	640
PCE-1024-18	1.4	696 / 674	659
PCE-1024-19	1.4	688 / 681	630
PCE-1024-21	1.6	631 / 614	612
PCE-1024-22	1.1	646 / 601	596
PCE-1024-23	1.4	658 / 638	687
PCE-1024-24	1.4	631 / 602	596
PCE-1024-25	0.9	700 / 677	567
PCE-1024-27	1.4	620 / 613	602
PCE-1024-28	1.4	604 / 574	608

Italic Rows represent outside air sample locations

TABLE 2

# INDOOR AIR QUALITY PROTECTION PLAN PCE MONITORING Cumulative Summary of Monitoring Results 2001-2002

Target Collection Date		Mean <sup>(2)</sup> -(112/111 <sup>2</sup> )	Range <sup>(3)</sup> (µg/m <sup>3</sup> )	$N^{(4)}$	HVAC Notes	Sub-stab Venting Notes:
Jan 25, 2001	Feb 1, 2001	32.1	30-40	17	Minimum HVAC only	No venting
Apr 25	Apr 26	55.4	22-100	16	Partial (1/3) HVAC	No venting
Jul 25	Jul 25	2.81	1.5-8.8	25	Min. fresh air <sup>(5)</sup>	No venting
Oct 25	Nov 20	<2.15	<0.7-6.5	25	Max. fresh air <sup>(6)</sup>	No venting
Jan 25, 2002	Missed <sup>(1)</sup>	-	-	-	-	
Apr 25	Apr 23, 2002	< 0.83	<0.7-1.4	26	Max. fresh air	Active venting underway <sup>(7)</sup>
Jul 25	Jul 22	3.21	1.2-9.8	26	Min. fresh air	No venting
Oct 25	Oct 25	1.27	0.7-1.8	27	Max. fresh air	No venting
Jan 25, 2003	Scheduled					

#### Notes:

- 1. The miss of this quarter's sampling was a result of the personnel loss experienced by IT Corp. in their Chapter 11 filing, and of the delay in bringing on The Louis Berger Group, the consultant selected for subsequent monitoring events.
- 2. Arithmetic mean of indoor sample results only. The outdoor and QC results have been excluded.
- 3. Lowest and highest result. The outdoor and QC results have been excluded.
- 4. Number of results in the Mean and Range computations.
- 5. This sampling event occurred just after the beginning of the building's occupancy. The fresh air intake is typically set at a minimum (but greater than 20%) in summer months.
- 6. Fresh air is typically at a maximum (economizers on) during the "swing" months of the Spring and Fall.
- 7. Active venting of the two sub-slab areas occurred between March 18 and June 10, 2002.

# APPENDIX I SAMPLE ANALYSIS RESULTS AND CHAIN OF CUSTODY FORMS

# Galson Laboratories 6601 Kirk Mile Rd. E. Syracuse, NY 13057

#### LABORATORY ANALYSIS REPORT

Client : Louis Berger Group, Inc.

Site : 333 Smith St., Farmingdale, NY

Date Sampled : 24-OCT-02 - 25-OCT-02 Account No.: 14785
Date Received : 28-OCT-02 Login No. : L87220

Date Analyzed: 29-OCT-02 - 30-OCT-02

#### Perchloroethylene

Sample ID	Lab ID	Time minutes	Total uq	Conc ug/m3
	<u> </u>	marrace,		
PCE-1024-01	L87220-1	1487	0.07	1.6
PCE-1024-02	L87220-2	1560	0.05	1.1
PCE-1024-03	L87220-3	1491	0.08	1.8
PCE-1024-04	L87220-4	1487	0.04	0.9
PCE-1024-05	L87220-5	1495	0.06	1. <b>4</b>
PCE-1024-06	L87220-6	1495	0.05	1.1
PCE-1024-07	L87220-7	1499	0.05	1.1
PCE-1024-08	L87220-8	1499	0.06	1.4
PCE-1024-09	L87220-9	1499	0.06	1.4
PCE-1024-10	L87220-10	1497	0.05	1.1
PCE-1024-11	L87220-11	1528	0.05	1.1
PCE-1024-12	L87220-12	1498	0.04	0.9
PCE-1024-13	L87220-13	1502	0.06	1.4
PCE-1024-14	L87220-14	1499	0.05	1.1
PCE-1024-15	L87220-15	1501	0.05	1.1
PCE-1024-16	L87220-16	1499	0.06	1.4
PCE-1024-17	L87220-17	1501	0.05	1.1
PCE-1024-18	L87220-18	1502	0.06	1.4
PCE-1024-19	L87220-19	1503	0.06	1.4
PCE-1024-20	L87220-20	1539	0.03	0.7
PCE-1024-21	L87220-21	1512	0.07	1.6
PCE-1024-22	L87220-22	1516	0.05	1.1
PCE-1024-23	L87220-23	1445	0.06	1.4
PCE-1024-24	L87220-24	1503	0.06	1.4
PCE-1024-25	L87220-25	1502	0.04	0.9

<u>COMMENTS:</u> Sample results have not been corrected for the blank value since blank value is below the level of quantitation.

Level of quantitation: 0.03 ug

Analytical Method: NYS DOH 311-9

OSHA PEL (TWA): 100 ppm

Collection Media: OVM

Submitted by: BW

Approved by: jal

Date: 30-OCT-02

QC by: QC STAFF

NYS DOH # : 11626

< -Less Than
> -Greater Than

mg -Milligrams ug -Micrograms m3 -Cubic Meters 1 -Liters kg -Kilograms NS -Not Specified

NA -Not Applicable ND -Not Detected

ppm -Parts per Million

# Udisuii Laboratories 6601 Kirkville Rd. E. Syracuse NY 13057

#### LABORATORY ANALYSIS REPORT

Client

: Louis Berger Group, Inc.

Site

: 333 Smith St., Farmingdale, NY

Date Sampled : 24-OCT-02 - 25-OCT-02 Account No.: 14785

Login No. : L87220

Date Received : 28-OCT-02

Date Analyzed: 29-OCT-02 - 30-OCT-02

#### Perchloroethylene

<u>Sample ID</u>	<u>Lab ID</u>	Time <u>minutes</u>	Total uq	Conc ug/m3
PCE-1024-26	L87220-26	1514	<0.03	< 0.7
PCE-1024-27	L87220-27	1498	0.06	1.4
PCE-1024-28	L87220-28	1492	0.06	1.4
PCE-1024-29	L87220-29	1509	<0.03	< 0.7
PCE-1024-30	L87220-30	1504	<0.03	< 0.7
PCE-1024-31 BLANK	L87220-31	AN	<0.03	AИ

COMMENTS: Sample results have not been corrected for the blank value since blank value is below the level of quantitation.

Level of quantitation: 0.03 ug

Analytical Method : NYS DOH 311-9 OSHA PEL (TWA) : 100 ppm

Collection Media

: OVM

Submitted by: BW Approved by : jal Date : 30-OCT-02 QC by: QC STAFF

NYS DOH # : 11626

-Less Than

mg -Milligrams

m3 -Cubic Meters kg -Kilograms

-Greater Than

ug -Micrograms

1 -Liters NS -Not Specified

ND -Not Detected

## **Request For Industrial Hygiene Analysis** 6601 Kirkville Road Company Name: P. O. Box 369 E\_ Syracuse, NY 13057-0369 Site Name: Tel: (315) 437-7252 888-577-Labs (5227) Sampled By: Project #: Fax: (315) 437-0571 Chec**≸** if Report to: Invoice to: Chan ⊈9e of Addre≥ss Purchase order number: Verbal Authorization: Credit Card (type): Cárd #: Exp Date: \_\_\_ Standard Tum-Around Time (5 business days) Same Day (SD) Next Day(ND) 12PM 5PM 2 Day 4 Day Surcharges: SD = 200% ND by 12PM = 150% ND by 5PM = 100% 2 Day= 75% 3 Day = 50%4 Day = 35%Fax #: (2/2) 363 ☐ Fax Results to: Email Results to: PCE Andym Sample Identification Date Sampled Air Sample **Analysis** Method Sample Medium Catalog # / Lot # Volume (liters)\* Requested Reference Q -24831 JL 25/2 QL2591 062566 1062501 PE = 1024 - 06 QL2570 -1029-09 If blanks are not submitted, our policy states that a laboratory blank will be added for each analyte and it will be charged at the normal rate. IF YOU DO NOT WANT A LABORATORY BLANK ADDED PLEASE CHECK BOX \*For passive monitors please list time exposed in minutes. Comments (Please list any known interferences present in sampling area): Chain of Custody Date/Time Relinquished by: Received by LAB. Samples received after 3pm will be considered as next day's business.

Galson	Request For Industrial Hygiene Analysis						
6601 Kirkville Road		Company Name: Louis Berger Group Account #:					
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Galson		Request For Industrial Hygiene Analysis							
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Tel: (315) 437-7252 Fex: (315) 437-057	Tel: (315) 437-7252 888-577-Labs (5227) Fax: (315) 437-0571  Sampled By: Project #:								
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Galson		Request For Industrial Hygiene Analysis							
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Received by LAB.	/		·						
	Samples received	d after 3pm will be cor	nsidered as next da	y's business.					

# APPENDIX II BUILDING SAMPLE LOCATION MAP

