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HALEY & ALDRICH

MEMORANDUM

12 July 2007
File No. 32077-043

TO: Xerox Corporation
Eliott Duffney

FROM: Haley & Aldrich of New York
Steven E. Schalabba

SUBJECT: Revised Work Plan – Northern Property Assessment
Joseph C. Wilson Center for Technology
Webster, New York

Haley & Aldrich is pleased to provide Xerox with the attached work plan to advance activities associated with the subject program. This program is organized to provide a comprehensive assessment of soil, groundwater, and soil vapor across the approximate 200^{+} acre area located north of Caracus Drive between Phillips and Salt Roads.

We trust that the information contained in this work plan is consistent with discussions with regulatory personnel and satisfies their requirements for determining if environmental impacts are present.

We look forward to the implementation of this program and appreciate the opportunity to be of service.

WORK PLAN
Northern Boundary Parcel Assessment
Xerox Corporation
Webster, New York

This Work Plan has been prepared to assist Xerox with the potential sale of property located in the northern portion of its Webster campus (north of the inactive landfill) between Phillips Road and Salt Road (see Figure 1). The property is an irregularly-shaped parcel, approximately 236 acres in size. The actual size and shape of the parcel is subject to modification, and the limits shown on the figure are approximate and for illustration purposes only. We understand that Xerox desires to have this property released from the Part 373 Permit upon executing the transaction.

The property is generally flat or gently sloping to the north, with four (4) small streams that flow generally northward across the parcel. Keesler's mountain, an area where Xerox uses to manage a variety of materials such as non-hazardous soil, is one exception to this and will be a feature explored in this program. Much of the property is currently leased for agricultural usage. Wooded areas currently abut the manufacturing complex along the southern edges of the subject parcel. Residential properties abut the parcel intermittently on Phillips Road to the west and Schlegel Road to the north (see Figure 2).

Groundwater contamination has been confirmed in northern portions of the developed area of the Webster manufacturing complex from historic releases of chlorinated solvents. Several investigations were performed in accordance with United States Environmental Protection Agency and New York State Department of Environmental Conservation (NYSDEC) regulations and under their oversight. Groundwater remediation systems have been operated or are currently being operated to remediate source areas and/or control contaminant migration. Natural groundwater flow direction in the area of the northern portion of the complex is generally northward.

Several groundwater monitoring wells installed as part of site-wide or area specific investigative activities exist near the proposed property boundary line. Some of these wells continue to be monitored as part of the ongoing site-wide sampling and analysis plan approved by NYSDEC for the site under the Part 373 Permit. To date, this analytical data does not indicate that groundwater, with contaminant concentrations above drinking water standards, has migrated onto the property targeted for disposition.

SPDES monitoring is also currently performed in three (3) locations along the streams that flow northward from the Xerox complex across the northern boundary parcel.

I. WORK PLAN GOALS AND OBJECTIVES

The location of the subject property relative to documented solid waste management units has prompted NYSDEC to request Xerox to further evaluate the subsurface conditions in this area. Although the property targeted for disposition has traditionally been used for agricultural purposes, Xerox desires to perform additional data collection activities to evaluate potential environmental impacts, such as those from soil vapor, which could affect the future sale or development of the property.

We understand the primary objectives of this project to be:

- Summarize historic environmental issues identified in the northern portion of the manufacturing complex, and measures that have been taken to reduce and/or eliminate contamination at these source areas and to prevent migration of contaminants;

- Determine if adverse environmental impact to the soil, soil vapor, groundwater and/or surface water and sediment (if applicable) exists within the northern boundary parcel from historic environmental issues at the Xerox Webster complex;

- Demonstrate that appropriate measures are being taken to provide a reasonable level of assurance that the potential for future northward migration of contaminants from the complex onto the northern boundary parcel will not occur;

- Obtain written NYSDEC approval that the northern boundary parcel can be removed from the conditions of the Part 373 Permit and therefore facilitate unconditional sale of the property and establish permanent limits for the northern boundary parcel.

II. PROPOSED EXPLORATION PROGRAM

This Work Plan describes activities that Xerox will conduct to further evaluate the subject property. The proposed sampling locations described herein are shown in Figure 3 and were developed subsequent to discussions and a site walkthrough with NYSDEC. These activities are focused near the southern corridor of the potential sale area.

In advance of any field program to evaluate the subsurface conditions, the presence of underground utilities will be evaluated. Although this is an important safety activity, the identification of any underground utilities will also be used to determine whether these utilities could be acting as a preferential subsurface conveyance for potentially mobile contaminants, if contaminants are determined to be present during the sampling program.

2.1 Soil Vapor Intrusion Sampling/Analysis Program

The purpose of the vapor intrusion assessment will be to collect soil vapor samples in order to determine if chlorinated compounds of concern are (1) present and (2) if so, do they pose a threat of exposure from the potential migration of soil vapor if the property is developed for residential use. The soil vapor sampling and analysis program was developed based on guidance provided by the New York State Department of Health (NYSDOH) “Guidance for Evaluating Soil Vapor Intrusion in New York State”, October 2006.

The soil vapor sampling and analysis program will be primarily conducted along the southern portion of the subject property where the potential to observe impacts from historical environmental releases and from Xerox waste management activities are greatest. Based on the sampling and analysis of groundwater collected from RW-3 and B-24A in this general vicinity, shallow groundwater impacts from volatile organic compounds (VOC) is not anticipated to be present. However, since contamination from VOCs has the possibility to migrate in soil vapor beyond the limits of groundwater impacts, the following sampling program will be conducted to determine if soil vapor in the northern parcel has been impacted by Xerox activities.

1. Install soil vapor points at a depth of 10 feet, or one foot above the water table, but that a soil vapor point will not be installed if the depth to water table is less than 5.5 feet. If the depth to water is less than 5.5 feet, a groundwater sample will be collected at that location instead. During the installation process, the breathing space air will be monitored for total VOCs using a pre-calibrated photo-ionization detector (PID) instrument. A complete overview of the soil vapor installation and sampling process is provided in Appendix A.

3. Two (2) ambient air samples will also be collected concurrently with the above at appropriate upwind locations using SUMMA® canisters at locations shown on Figure 1. The ambient air samples will be collected in pre-cleaned passivated SUMMA® canisters and placed approximately 3 to 5 feet above ground. The canisters and pre-calibrated flow controllers will be provided by Columbia Analytical Services (CAS) of Rochester, New York and analyzed for VOCs in accordance with EPA Method TO-15. After collection, the samples will be kept at ambient temperature prior to delivery to the laboratory under chain-of-custody.

4. Data evaluation will include a review of the Quality Control and Quality Assurance samples performed by the laboratory. These results will be used to qualify the data, if necessary, in accordance with guidance provided by the USEPA Functional Guidelines for Evaluating Organic Analyses, (7/99). After completion of data verification and validation procedures, the final results will be compared with available screening guidance provided by NYSDOH.

2.2 Soil Borings

The purpose of these borings is to collect soil samples from locations across the subject property for evaluation against the Part 375 Soil Cleanup Objectives. We are proposing to perform twelve soil borings as shown on Figure 3 (field sampling locations will be located using hand-held GPS equipment). The borings will be advanced to a depth of approximately 15 feet unless otherwise specified with an ATV-mount drill rig. All samples will be screened with a PID and observed for evidence of impairment (unusual odor, color, staining, and PID readings).

Samples will be classified by a qualified geologist, and all descriptions and evidence of impairment recorded in field boring logs. One soil sample will be selected from each boring based on the evidence of impairment and analyzed for VOCs. In the event that there is no evidence of impairment to guide sample selection in each boring, by default the first 0-2 foot sample interval will be selected.

Six (6) soil samples will be submitted for Superfund TCL analysis. Soil Samples S-1, S-3, S-6, S-8, S-13, and S-14 have been identified for this analysis. With respect to S-3 and S-8, samples will only be collected from 0-6 inches and 6-18 inches and will analysis for herbicides. The soil samples associated with Keesler's mountain will be performed depending on site access. If access can be achieved, samples will be collected from the 0-2 and 4-6 foot intervals and analyzed for TCL compounds and metals.

Samples will be containerized in laboratory-supplied glass jars, labeled, and stored in a chilled cooler. Samples will be transported to CAS which is a NYS-approved ELAP Certified ASP laboratory. A detailed sample matrix is provided in the attached tables.

2.3 Groundwater/Surface Water Sampling

In addition to a review of historical groundwater data in this vicinity, groundwater samples will be collected from RW-3 and B-24A by CAS personnel to support the evaluation of the subject property. RW-3 is the northern most recovery well associated with the migration control system for the inactive landfill. Monitoring well B-24A is located to the north of Keesler's mountain.

Groundwater samples will be collected using standard sampling procedures for the Webster site and will be analyzed for the Superfund Target Compound List VOCs in order to capture a broad range of analytes. The sample matrix and analyte list and reporting limits for this program are presented in Tables 1 and 2.

In the area north of Keesler's mountain, a surface water and sediment sample will be collected if possible and analyzed for TCL compounds. The intent would be to collect this sample from a location that would most likely receive seepage from the base of Keesler's mountain.

III. DATA EVALUATION

All samples will be containerized and delivered to the analytical laboratory under Chain-of-Custody procedures, observing appropriate preservation techniques (chilled to 4 degrees centigrade or less for VOC analyses herein). The anticipated number of samples, by medium and analyses, are listed in Tables 1, 2, and 3. The laboratory detection limits are provided in Appendix B for your information.

Haley & Aldrich will evaluate the data gathered from the site investigation, including both the newly gathered data as well as that historically gathered from the site. Soil analytical results will be compared to Part 375 Soil Cleanup Objectives.

This work plan contains procedures to satisfy the requirements of NYSDEC's QA/QC criteria. Mr. Denis Conley of Haley & Aldrich of New York, a qualified data validator, will serve as Quality Assurance Officer. Data will be reviewed, and a Data Usability Summary Report (DUSR) will be completed and included with the investigation report consistent with NYSDEC's DUSR guidelines.

IV. HEALTH AND SAFETY

The activities performed in this work plan will be done under the Health and Safety Plan included in the Facility Reference Document.

V. FIELD DOCUMENTATION

Documentation of all field activities will be performed. This documentation will include field reports, geologic logs, and chain-of-custody forms. All will be appended to the Site Investigation Report.

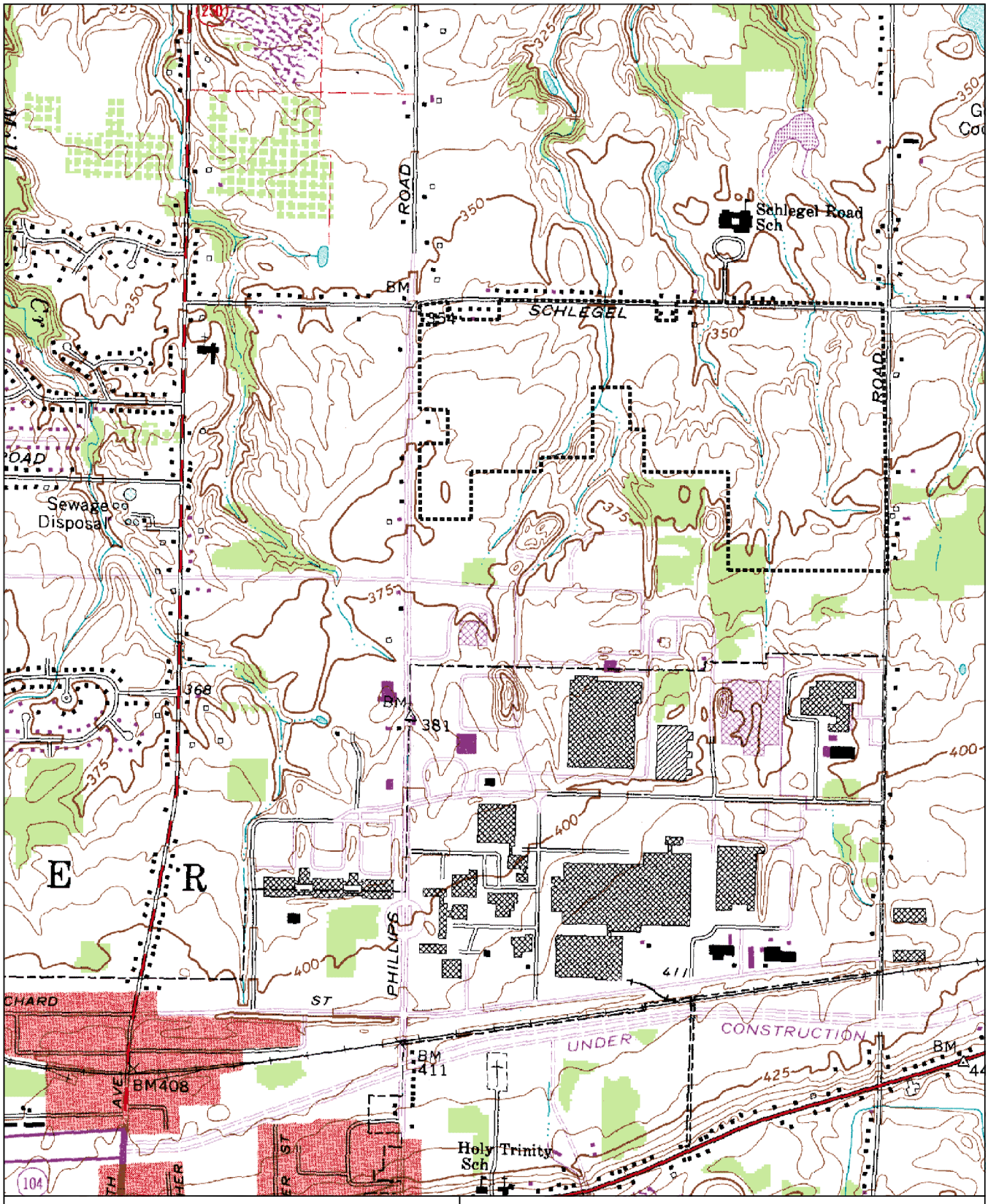
VI. QUALITY ASSURANCE

The activities described in this work plan will be performed under established protocols outlined in Attachment 7 of the Facility Reference Document for the Xerox Webster, NY campus. These activities may include equipment decontamination, field investigative methods, waste containerization, and related quality assurance items.

VII. REPORTING

A single investigation report will be submitted to NYSDEC subsequent to the completion of the proposed sampling events and investigative activities. A combination of electronic and hard-copy formats may be utilized to meet the requirements of those on the distribution list for this project. In additional, the report will contain the following:

- Pertinent data and information generated or obtained during the investigation;
- Assessment and evaluations specified in the Work Plan;
- A list of additional data needs.



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U.S.G.S. QUADRANGLE: WEBSTER, NEW YORK

HALEY & ALDRICH

XEROX CORPORATION
800 PHILLIPS ROAD
WEBSTER, NEW YORK

PROJECT LOCUS

SCALE: AS SHOWN
MAY 2007

FIGURE 1

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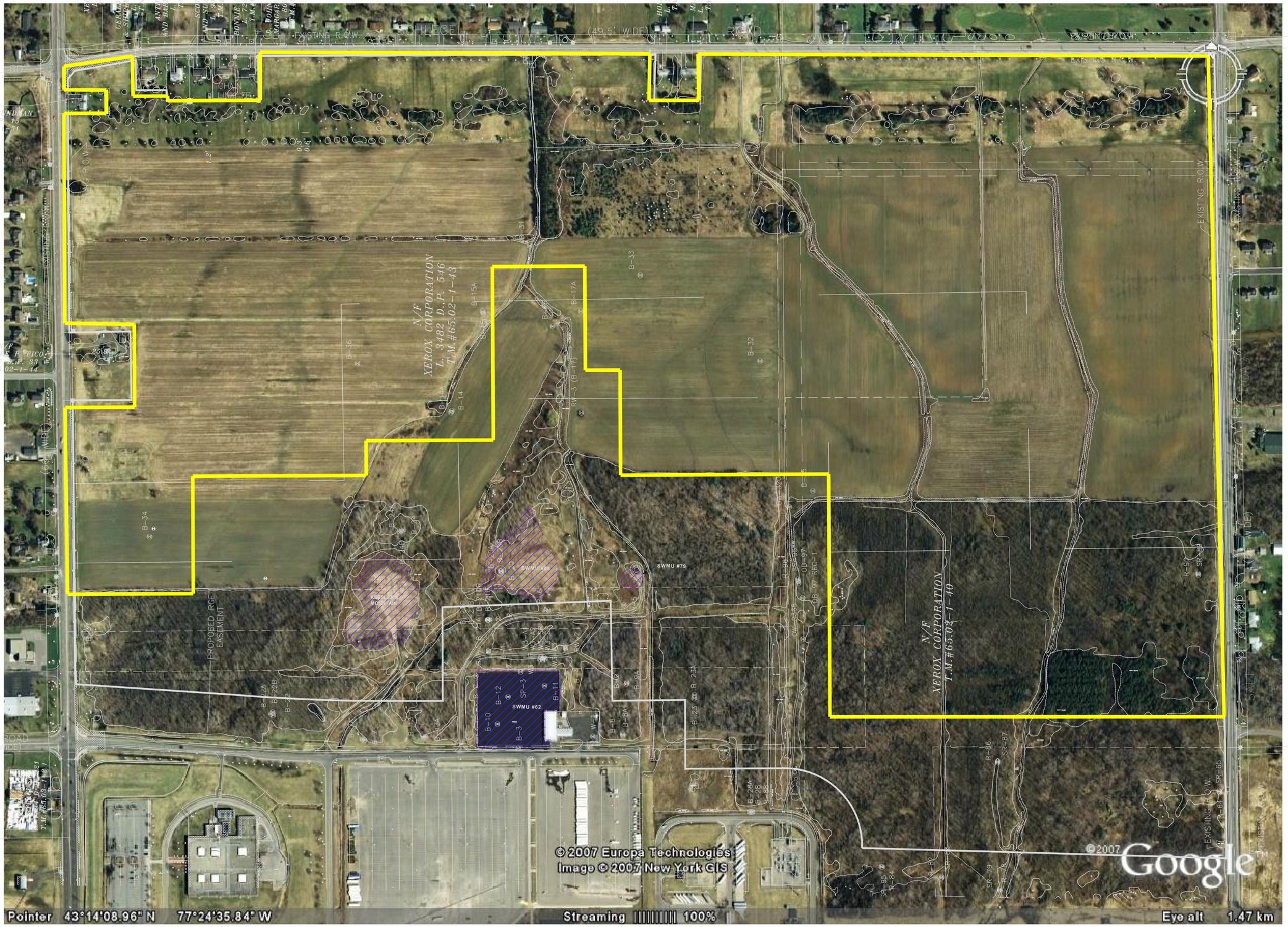

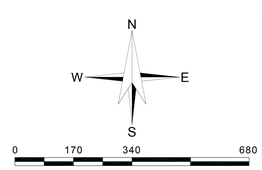

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NORTHERN PROPERTY ASSESSMENT AREA

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JULY 2007

FIGURE 2

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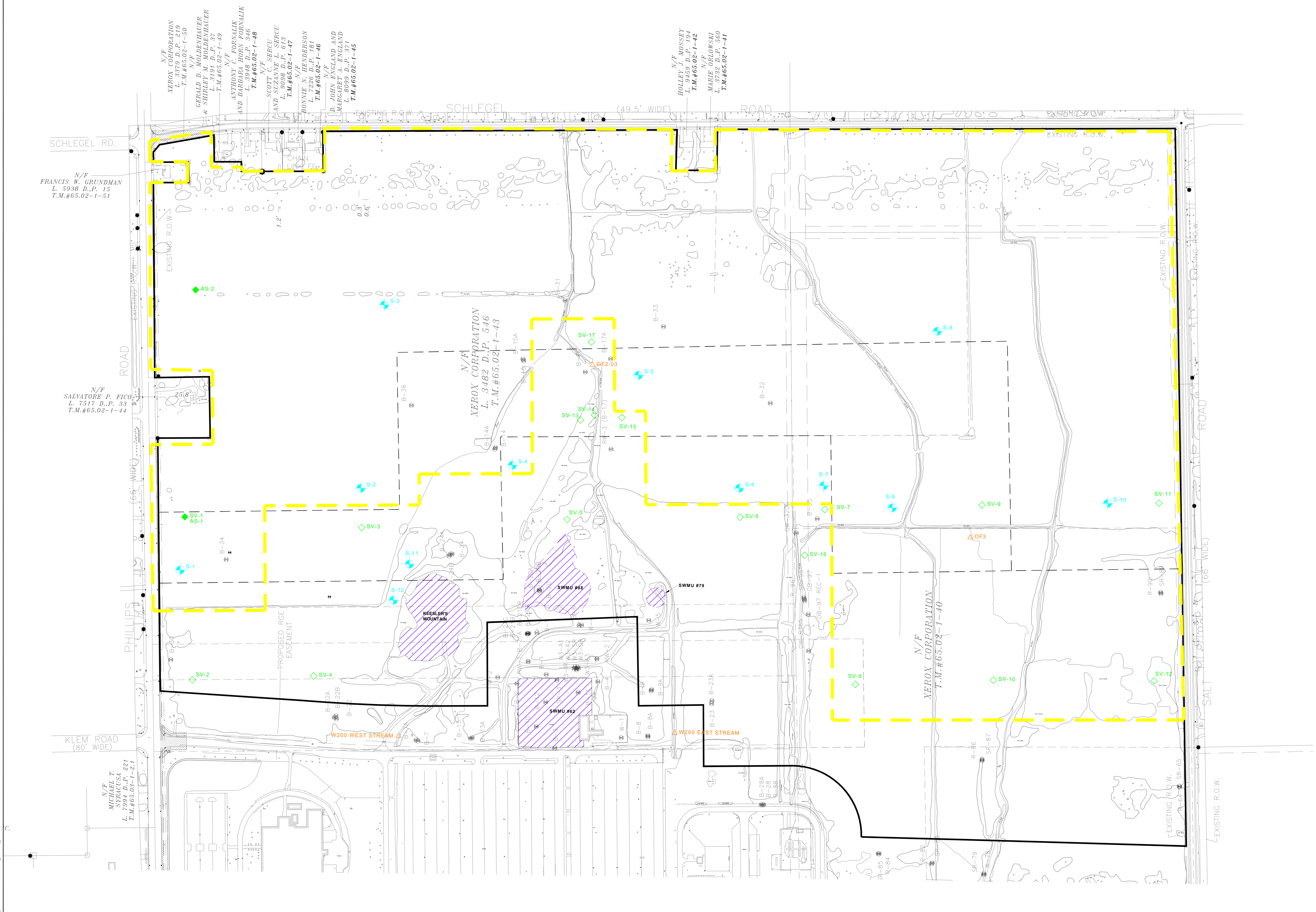

LEGEND

- S-1 SOIL BORING
- SV-16 SOIL VAPOR
- SV6 AS-6 SOIL VAPOR AND AMBIENT AIR
- OF3 SPDES SAMPLE LOCATION

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PROPOSED SUBSURFACE EXPLORATION PLAN

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JULY 2007

FIGURE 3

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Table 1
Xerox Corporation
North Boundary Parcel Assessment Soil Sample Collection Matrix

Location	Matrix	Type	Sample Depth[3] (inches)	Parameters	Method	Sample Container	Preservation	Remarks
S-1	Soil	Composite	0-24	VOCs	8260	(2) 4 oz glass jars with Teflon lid	4ºC	Superfund TCL: OLM04.3 for VOCs, SVOCs, Pesticides and Aroclors and ILM05.3/ILM05.4 for Metals and Cyanide
				SVOCs	8270		4ºC	
				Metals	6010/7471		4ºC	
				Pesticides	8081		4ºC	
				Aroclors	8082		4ºC	
				Cyanide, Total	9014		4ºC	
S-2	Soil	Composite	0-24	VOCs	8021	4 oz glass jar w/Teflon lid	4ºC	TAL metals (24 metals)
				Metals	6010	4 oz glass jar w/Teflon lid	4ºC	
S-3	Soil	Composite	0-6 & 6-18	VOCs	8260	(2) 4 oz glass jars with Teflon lid	4ºC	Superfund TCL: OLM04.3 for VOCs, SVOCs, Pesticides and Aroclors and ILM05.3/ILM05.4 for Metals and Cyanide, plus Herbicides
				SVOCs	8270		4ºC	
				Metals	6010/7471		4ºC	
				Pesticides	8081		4ºC	
				Aroclors	8082		4ºC	
				Cyanide, Total	9014		4ºC	
				Herbicides	8151		4ºC	
S-4	Soil	Composite	0-24	VOCs	8021	4 oz glass jar w/Teflon lid	4ºC	TAL metals (24 metals)
				Metals	6010	4 oz glass jar w/Teflon lid	4ºC	
S-5	Soil	Composite	0-24	VOCs	8021	4 oz glass jar w/Teflon lid	4ºC	TAL metals (24 metals)
				Metals	6010	4 oz glass jar w/Teflon lid	4ºC	
S-6	Soil	Composite	0-24	VOCs	8260	(2) 4 oz glass jars with Teflon lid	4ºC	Superfund TCL: OLM04.3 for VOCs, SVOCs, Pesticides and Aroclors and ILM05.3/ILM05.4 for Metals and Cyanide
				SVOCs	8270		4ºC	
				Metals	6010/7471		4ºC	
				Pesticides	8081		4ºC	
				Aroclors	8082		4ºC	
				Cyanide, Total	9014		4ºC	
				Herbicides	8151		4ºC	
S-7	Soil	Composite	0-24	VOCs	8021	4 oz glass jar w/Teflon lid	4ºC	TAL metals (24 metals)
				Metals	6010	4 oz glass jar w/Teflon lid	4ºC	
S-8[1]	Soil	Composite	0-6 & 6-18	VOCs	8021	4 oz glass jar w/Teflon lid	4ºC	TAL metals (24 metals)
				Metals	6010	4 oz glass jar w/Teflon lid	4ºC	
				Pesticides	8081	4 oz glass jar w/Teflon lid	4ºC	
S-9	Soil	Composite	0-24	VOCs	8021	4 oz glass jar w/Teflon lid	4ºC	TAL metals (24 metals)
				Metals	6010	4 oz glass jar w/Teflon lid	4ºC	
S-10	Soil	Composite	0-24	VOCs	8021	4 oz glass jar w/Teflon lid	4ºC	TAL metals (24 metals)
				Metals	6010	4 oz glass jar w/Teflon lid	4ºC	
S-11[2] (Keeslers)	Soil	Composite	0-24 & 48-60	VOCs	8260	(2) 4 oz glass jars with Teflon lid	4ºC	Superfund TCL: OLM04.3 for VOCs, SVOCs, Pesticides and Aroclors and ILM05.3/ILM05.4 for Metals and Cyanide
				SVOCs	8270		4ºC	
				Metals	6010/7471		4ºC	
				Pesticides	8081		4ºC	
				Aroclors	8082		4ºC	
				Cyanide, Total	9014		4ºC	
S-12[1] (Keeslers)	Soil	Composite	0-24 & 48-60	VOCs	8260	(2) 4 oz glass jars with Teflon lid	4ºC	Superfund TCL: OLM04.3 for VOCs, SVOCs, Pesticides and Aroclors and ILM05.3/ILM05.4 for Metals and Cyanide
				SVOCs	8270		4ºC	
				Metals	6010/7471		4ºC	
				Pesticides	8081		4ºC	
				Aroclors	8082		4ºC	
				Cyanide, Total	9014		4ºC	

Footnotes:

1. Duplicate sample to be collected

2. Samples will be collected at two soil boring locations, assuming drilling rig has access, otherwise surface water samples will be collected for same parameters (see Table 3). One interval will be sampled for TCL (based on highest PID) and the second interval will be analyzed for VOCs/TAL metals.

3. The sample depths are default depths if there is no evidence of impairement (except for S-3 and S-8 which are set sample intervals)

Table 2
Xerox Corporation
North Boundary Parcel Assessment Soil Vapor Sample Collection Matrix

Location	Matrix	Type	Sample Depth (inches)	Parameters	Method	Sample Container	Preservation	Remarks
SV-1	Vapor	2 hr	*	VOCs	TO-15	1L Summa	NA	
SV-2	Vapor	2 hr	*	VOCs	TO-15	1L Summa	NA	
SV-3	Vapor	2 hr	*	VOCs	TO-15	1L Summa	NA	
SV-4	Vapor	2 hr	*	VOCs	TO-15	1L Summa	NA	
SV-5	Vapor	2 hr	*	VOCs	TO-15	1L Summa	NA	
SV-6	Vapor	2 hr	*	VOCs	TO-15	1L Summa	NA	
SV-7	Vapor	2 hr	*	VOCs	TO-15	1L Summa	NA	
SV-8	Vapor	2 hr	*	VOCs	TO-15	1L Summa	NA	
SV-9	Vapor	2 hr	*	VOCs	TO-15	1L Summa	NA	
SV-10	Vapor	2 hr	*	VOCs	TO-15	1L Summa	NA	
SV-11	Vapor	2 hr	*	VOCs	TO-15	1L Summa	NA	
SV-12	Vapor	2 hr	*	VOCs	TO-15	1L Summa	NA	
SV-13	Vapor	2 hr	*	VOCs	TO-15	1L Summa	NA	
SV-14	Vapor	2 hr	*	VOCs	TO-15	1L Summa	NA	
SV-15	Vapor	2 hr	*	VOCs	TO-15	1L Summa	NA	
SV-16	Vapor	2 hr	*	VOCs	TO-15	1L Summa	NA	
SV-17	Vapor	2 hr	*	VOCs	TO-15	1L Summa	NA	
AS-1	Ambient	2 hr	**	VOCs	TO-15	6L Summa	NA	Ambient air sample near SV-1
AS-2	Ambient	2 hr	**	VOCs	TO-15	6L Summa	NA	Ambient air sample north of SV-1

* Sampling points will be installed to a depth of 10 feet or one foot above the water table. No point should be installed if the water table is less than 5.5 feet.

** at a height above the ground surface to represent a typical breathing zone (3 to 5 feet).

Table 3
Xerox Corporation
North Boundary Parcel Assessment Groundwater Sample Collection Matrix

Location	Matrix	Type	Sample Depth (inches)	Parameters	Method	Sample Container	Preservation	Remarks
RW-3	GW	Grab	Mid-screen	VOCs	8260	3-40 mL VOA vials	HCl	Superfund TCL: OLM04.3 for VOCs, SVOCs, Pesticides and Aroclors and ILM05.3/ILM05.4 for Metals and Cyanide
				SVOCs	8270	1L amber glass	NaS_2O_3	
				Metals	6010/7471	250 mL HDPE	HNO_3	
				Pesticides	8081	1L amber glass	NaS_2O_3	
				Aroclors	8082	1L amber glass	NaS_2O_3	
				Cyanide, Total	335.2	500 mL HDPE	NaOH	
B-24A	GW	Grab	Mid-screen	VOCs	8260	3-40 mL VOA vials	HCl	Superfund TCL: OLM04.3 for VOCs, SVOCs, Pesticides and Aroclors and ILM05.3/ILM05.4 for Metals and Cyanide
				SVOCs	8270	1L amber glass	NaS_2O_3	
				Metals	6010/7471	250 mL HDPE	HNO_3	
				Pesticides	8081	1L amber glass	NaS_2O_3	
				Aroclors	8082	1L amber glass	NaS_2O_3	
				Cyanide, Total	9014	500 mL HDPE	NaOH	
Keesler's* Mountain	SW	Grab	Surface Water	VOCs	8260	3-40 mL VOA vials	HCl	Superfund TCL: OLM04.3 for VOCs, SVOCs, Pesticides and Aroclors and ILM05.3/ILM05.4 for Metals and Cyanide
				SVOCs	8270	1L amber glass	NaS_2O_3	
				Metals	6010/7471	250 mL HDPE	HNO_3	
				Pesticides	8081	1L amber glass	NaS_2O_3	
				Aroclors	8082	1L amber glass	NaS_2O_3	
				Cyanide, Total	9014	500 mL HDPE	NaOH	

* One surface water and one sediment will be collected if possible for TCL compounds. If conditions do not support this, a second boring will be located and sampled for the same parameters as initial boring in this area.

Appendix A

Soil Vapor Sampling Guideline

SOIL VAPOR SAMPLING GUIDELINE	
XEROX CORPORATION	EFFECTIVE DATE: 12/21/2005
REVISION #: **0**	REVISION DATE: 07/10/07

SOIL VAPOR SAMPLING

INTRODUCTION

This guideline is for the collection of vapor samples from semi-permanent or permanent well points for laboratory analysis in accordance with USEPA Method TO-15. This procedure includes techniques for outdoor soil vapor collection.

SUPPLIES/ EQUIPMENT REQUIREMENTS

Soil Vapor Sampling
SUMMA can with tag
Critical orifice (2hr for outdoor)
Pressure gauge
COCs
Slam bar
¼ inch OD HDPE tubing roll of >50 feet
20 Vapor points to use with ¼ inch tubing
40-50lbs bentonite
5 gallon bucket glass beads
Water bottle to hydrate bentonite
5 gallons water
Pre-made tracer test bucket
Plastic Sheeting cut into 4 X 3 feet squares
He canister from grocery or party store
He detector "Ion Science Gas Check 5000is" from Ashtead rentals
Or He detector dielectric mdg-2002 from Hazco rentals
¼ inch OD Tygon tubing
Gil Air hand pump set at <0.2L/min
Tedlar bags from SKC

Extras/Misc
Broom/dustpan for mess
Paper towels
Garbage bags
Razors or pocketknife
Nitrile gloves
Stakes/spray paint to mark utilities COCs
Thermometer
Adjustable wrenches
Tape measure
Camera/batteries
Watch
FID/PID from Hazco rentals

PREPATORY AND TEMPORARY WELL INSTALLATION FOR SOIL VAPOR SAMPLING

- Preparatory requirements apply to temporary well points and permanent wells. Personal protective equipment will be donned in accordance with the requirements of the Project Health and Safety Plan.

1. Don a new pair of Nitrile gloves prior to soil vapor sampling activities at each sampling location.

2. Verify soil vapor point identification using project site layout figures. Soil vapor sampling location can only be selected after determining location is free from residential products that may contain or emit SVOCs or VOCs and has been cleared by utility.

3. Assemble slam bar, HDPE tubing and soil vapor implant. Using slam bar, drive ½" – 1" diameter hole into ground to pre-determined depth. When desired depth is obtained, remove slam bar either manually or with jack and insert vapor implant, making sure HDPE tubing clears surface grade by at least 24".

4. Pour inert backfill material into hole, covering vapor implant to create a sampling zone 1 to 2 feet in length (approx. ½ cup glass beads/sand). Add dry bentonite to top of hole (3 foot minimum) and hydrate.

TRACER GAS TEST AND VAPOR POINT PURGING

- Soil Vapor points will be sampled in order of increasing chemical concentrations (if known or anticipated). Equipment calibration, field documentation, sampling, and shipping will be conducted in accordance with the Field Sampling Plan (FSP). Personal protective equipment will be donned in accordance with the requirements of the Project Health and Safety Plan.

1. Begin tracer gas test procedure by laying plastic sheeting at sampling location. Seal tubing and sheeting with hydrated bentonite. Fit tracer bucket over sampling location with tubing clearing bucket. Set up purge tedlar bag and GilAir pump to collect necessary purge volume.

2. Flood the tracer bucket with commercial grade helium from a disposable compressed gas cylinder (commercial grade can be purchased from retail stores or provided by an industrial gas supplier (i.e. welding supply).

3. Using the well point installation report to obtain well depth, calculate the implant volume using the formula:

$$\text{Volume} = \pi\left(\frac{d}{2}\right)^2 h$$

Where,

d = the inner diameter of the tubing

h = the overall tubing length

Note: 1 in^3 = 16.39 mL

For example, ¼" O.D. tubing has an inner diameter of 0.187". Therefore a 1 foot section of that tubing has a volume of:

$$\text{Volume} = 3.14\left(\frac{0.187"}{2}\right)^2 12" * \frac{16.39\ \text{mL}}{\text{in}^3} = 5.4\ \frac{\text{mL}}{\text{foot}}$$

4. Purge the vapor point well by connecting the HDPE tubing well point to GilAir pump (or equivalent device) and extract 1 to 3 implant volumes (i.e., the volume of the sample probe and tubing). The purge rate should not exceed 0.2 L/minute so that the sample collected for analysis will be representative of soil gas located in the vadose zone. GilAir pump should be calibrated to this flow rate.

5. Stop the GilAir pump and close the tedlar bag. Disconnect tedlar bag and release under He analyzer for deflection. If He is detected, modify the surface seal for the vapor sampling point and re-test. If no detection is noted, proceed with sample collection.

SOIL VAPOR COLLECTION USING SUMMA CANISTER

1. After purging, while assembling canister, close off the vapor point to the atmosphere using a hose clamp or similar device. The vapor point is now ready to be sampled.

2. Verify the vacuum level in the passivated SUMMA® canister (or equivalent device) to be used for sample collection using the vacuum gauge supplied by the laboratory. Record the initial vacuum on the Soil Vapor Survey Sampling and Purge Information sheet (sampling record), close the valve.

3. Attach the calibrated orifice to the ¼" male fitting on the vacuum gauge using a stainless steel open end wrench. (Note: Do not over tighten. ¼ turn past finger tight should be adequate to create a proper seal.)

4. Attach tubing from vapor point to the end of the critical orifice. Be sure that the selected orifice is appropriate for the sample time length. Be sure to record any ID numbers from canister, gauge and critical orifices on chain.

5. Turn knob on canister and allow sample collection time.

6. **MONITOR SAMPLE VACUUM DURING COLLECTION SO THAT THE SAMPLING RATE IS CORRECT AND THAT THE CANISTER VACUUM IS NOT EXPENDED.**

7. At the conclusion of the sample collection, record the final time on the sampling record and close the valve.

8. Record final vacuum reading on chains, close the valve, remove the vacuum gauge and orifice and replace the ¼" cap on the canister inlet. Label the SUMMA® canister sample tag with proper well ID, vacuum readings and sampling time interval (e.g. 24 hours).

9. Remove the sampling train tubing apparatus for the individual well and discard. Repair soil area if possible.

10. Fill out Chain of Custody with project name, file number, sample identifications, Summa canister and related equipment serial numbers, date and time collected, and analysis requirements. Retain copies of the Chain of Custody record and relevant shipping information. Place

canisters back into their original boxes and ship them to the laboratory via an overnight courier.

- Sample number/ID
- Date and time
- Parameters to be analyzed
- Project Number
- Sampler's initials

FIELD NOTES

Field notes must document all the events, equipment used, and measurements collected during the sampling activities. The field forms should document the following for each well sampled:

- Identification of soil vapor well point location
- Soil vapor well point depth
- Static groundwater elevation and measurement technique
- Purge volume and pumping rate
- The amount of time required to purge the well point
- Purge/sampling device used
- Sample identification
- Parameters requested for analysis
- Laboratory to which samples were shipped
- Chain of custody number for shipment to laboratory
- Field observations on sampling event
- Name of sample collector(s)
- Climatic conditions including air temperature
- Problems encountered and any deviations made from the established sampling protocol.
- Sample Identification Key

REFERENCES

1. U.S.E.P.A., Soil Gas Sampling SOP# 2042, 1 June 1996, REV. #: 0.0

2. Compendium of Methods for the Determination of Organic Compounds in Ambient Air, EPA/625/R-96/010a, 2nd Edition, June 1999, USEPA ORD, Washington DC.

3. U.S.E.P.A., Soil Gas Sampling SOP# 2042, 1 June 1996, REV. #: 0.0

4. Compendium of Methods for the Determination of Organic Compounds in Ambient Air, EPA/625/R-96/010a, 2nd Edition, June 1999, USEPA ORD, Washington DC.

5. USEPA RCRA Groundwater Monitoring: Draft Technical guidance (EPA/530-R-93-001).

6. New York State Department of Health (NYSDOH) "Guidance for Evaluating Soil Vapor Intrusion in the State of New York", October 2006.

7. USEPA "DRAFT Guidance for Evaluating the Vapor Intrusion to Indoor Air Pathway from Groundwater and Soils (Subsurface Vapor Intrusion)", 2002.

Photo #1 – Typical Personal Air Sampling Pump

Appendix B

Laboratory Detection Limits
(provided by Columbia Analytical Services)

Xerox Corporation
Northern Property Evaluation - Reporting Limit Table

Soils		
Metals		**MG/KG**
Aluminum	6010B	10
Antimony	6010B	6
Arsenic	6010B	1
Barium	6010B	2
Berylium	6010B	.5
Cadmium	6010B	.5
Calcium	6010B	100
Chromium	6010B	1
Cobalt	6010B	5
Copper	6010B	2
Iron	6010B	10
Lead	6010B	5
Magnesium	6010B	100
Manganese	6010B	1
Mercury	7470A	.05
Nickel	6010B	4
Potassium	6010B	200
Selenium	6010B	1
Silver	6010B	1
Sodium	6010B	100
Thallium	6010B	1
Vanadium	6010B	5
Zinc	6010B	2
Pesticides		**UG/KG**
Aldrin	8081A	1.7
Alpha-BHC	8081A	1.7
Beta-BHC	8081A	1.7
Delta-BHC	8081A	1.7
Gamma-BHC (Lindane)	8081A	1.7
Alpha-Chlordane	8081A	1.7
Gamma-Chlordane	8081A	1.7
4,4'-DDD	8081A	3.3
4,4'-DDE	8081A	3.3
4,4'-DDT	8081A	3.3
Dieldrin	8081A	1.7
Alpha-Endosulfan	8081A	3.3
Beta-Endosulfan	8081A	3.3
Endosulfan Sulfate	8081A	3.3
Endrin	8081A	3.3
Endrin Aldehyde	8081A	3.3
Endrin Ketone	8081A	3.3
Heptachlor	8081A	1.7
Heptachlor Epoxide	8081A	1.7
Methoxychlor	8081A	17
Toxaphene	8081A	33
Herbicides		**UG/KG**
2,4-D	8151A	10
Dicamba	8151A	10
Dinoseb	8151A	10
2,2,4-T	8151A	10
2,4,5-TP (Silvex)	8151A	10

Volatile Organics		UG/KG
Acetone	8260B	20
Benzene	8260B	5
Bromodichlormethane	8260B	5
Bromoform	8260B	5
Bromomethane	8260B	5
2-Butanone (MEK)	8260B	10
Carbon Disulfide	8260B	10
Carbon Tetrachloride	8260B	5
Chlorobenzene	8260B	5
Chloroethane	8260B	5
Chloroform	8260B	5
Chloromethane	8260B	5
Dibromochloromethane	8260B	5
1,1-Dichloroethane	8260B	5
1,2-Dichloroethane	8260B	5
1,1-Dichloroethene	8260B	5
cis-1,2-Dichoroethene	8260B	5
trans-1,2-Dichoroethene	8260B	5
1,2-Dichoropropene	8260B	5
cis-1,3-Dichloropropene	8260B	5
trans-1,3-Dichloropropene	8260B	5
Ethylbenzen	8260B	5
2-Hexanone	8260B	10
Methylene Chloride	8260B	5
4-Methyl-2-Pentanone (MIBK)	8260B	10
Styrene	8260B	5
1,1,2,2-Tetrachloroethane	8260B	5
Tetrachloroethene	8260B	5
Toluene	8260B	5
1,1,1-Trichloroethane	8260B	5
1,1,2-Trichloroethane	8260B	5
Trichloroethene	8260B	5
Vinyl Chloride	8260B	5
O-Xylene	8260B	5
M+P-Xylene	8260B	5
PCB's		**UG/KG**
PCB 1016	8082	33
PCB 1221	8082	67
PCB 1232	8082	33
PCB 1242	8082	33
PCB 1248	8082	33
PCB 1254	8082	33
PCB 1260	8082	33

Xerox Corporation
Northern Property Evaluation - Reporting Limit Table

TCL - Waters		
Cyanides		**MG/L**
Total Cyanide	9012T	0.01
Metals		**MG/L**
Aluminum	6010B	0.1
Antimony	6010B	0.06
Arsenic	6010B	0.01
Barium	6010B	0.02
Berylium	6010B	0.005
Cadmium	6010B	0.005
Calcium	6010B	1.0
Chromium	6010B	0.01
Cobalt	6010B	0.05
Copper	6010B	0.02
Iron	6010B	0.1
Lead	6010B	0.005
Magnesium	6010B	1.0
Manganese	6010B	0.01
Mercury	7470A	0.0003
Nickel	6010B	0.04
Potassium	6010B	2.0
Selenium	6010B	0.01
Silver	6010B	0.01
Sodium	6010B	1.0
Thallium	6010B	0.01
Vanadium	6010B	0.05
Zinc	6010B	0.02
Pesticides		**UG/L**
Aldrin	8081A	0.13
Alpha-BHC	8081A	0.14
Beta-BHC	8081A	0.29
Delta-BHC	8081A	0.26
Gamma-BHC (Lindane)	8081A	0.089
Alpha-Chlordane	8081A	0.21
Gamma-Chlordane	8081A	0.085
4,4'-DDD	8081A	0.32
4,4'-DDE	8081A	0.33
4,4'-DDT	8081A	0.26
Dieldrin	8081A	0.19
Alpha-Endosulfan	8081A	0.11
Beta-Endosulfan	8081A	*****
Endosulfan Sulfate	8081A	0.38
Endrin	8081A	0.18
Endrin Aldehyde	8081A	*****
Endrin Ketone	8081A	0.20
Heptachlor	8081A	0.13
Heptachlor Epoxide	8081A	0.14
Methoxychlor	8081A	0.81
Toxaphene	8081A	2.4

Volatile Organics		UG/L
Acetone	8260B	20
Benzene	8260B	5
Bromodichlormethane	8260B	5
Bromoform	8260B	5
Bromomethane	8260B	5
2-Butanone (MEK)	8260B	10
Carbon Disulfide	8260B	10
Carbon Tetrachloride	8260B	5
Chlorobenzene	8260B	5
Chloroethane	8260B	5
Chloroform	8260B	5
Chloromethane	8260B	5
Dibromochloromethane	8260B	5
1,1-Dichloroethane	8260B	5
1,2-Dichloroethane	8260B	5
1,1-Dichloroethene	8260B	5
cis-1,2-Dichoroethene	8260B	5
trans-1,2-Dichoroethene	8260B	5
1,2-Dichoropropene	8260B	5
cis-1,3-Dichloropropene	8260B	5
trans-1,3-Dichloropropene	8260B	5
Ethylbenzene	8260B	5
2-Hexanone	8260B	10
Methylene Chloride	8260B	5
4-Methyl-2-Pentanone (MIBK)	8260B	10
Styrene	8260B	5
1,1,2,2-Tetrachloroethane	8260B	5
Tetrachloroethene	8260B	5
Toluene	8260B	5
1,1,1-Trichloroethane	8260B	5
1,1,2-Trichloroethane	8260B	5
Trichloroethene	8260B	5
Vinyl Chloride	8260B	5
O-Xylene	8260B	5
M+P-Xylene	8260B	5

Semi-volatiles		UG/L
Acenaphthene	8270C	10
Acenaphthylene	8270C	10
Anthracene	8270C	10
Benzo (A) Anthracene	8270C	10
Benzo (A) Pyrene	8270C	10
Benzo (B) Flouranthene	8270C	10
Benzo (G,H,I) Perylene	8270C	10
Benzo (K) Flouranthene	8270C	10
Benzyl Alcohol	8270C	10
Butyl Benzyl Phthalate	8270C	10
Di-N-Butylphthalate	8270C	10
Carbazole	8270C	10
Indeno (1,2,3-CD) Pyrene	8270C	10

TCL - Waters						
Semi-volatiles		**UG/L**				
4-Chloroanaline	8270C	10				
Bis (-2-Chloroethoxy) Methane	8270C	10				
2,6-Dinitrotoluene	8270C	10				
Bis (2-Ethylhexyl) Phthalate	8270C	10				
Fluoroanthene	8270C	10				
Hexachlorobenzene	8270C	10				
Hexachlorobutadiene	8270C	10				
Hexachlorocyclopentadiene	8270C	10				
Hexachoroethane	8270C	10				
Isophorone	8270C	10				
2-Methylnapthalene	8270C	10				
4,6-Dinitro-2-Methylphenol	8270C	50				
4-Chloro-3-methylphenol	8270C	10				
2-methylphenol	8270C	10				
3+4-methylphenol	8270C	10				
Napthalene	8270C	10				
2-Nitroanaline	8270C	50				
3-Nitroanaline	8270C	50				
4-Nitroanaline	8270C	50				
Nitrobenzene	8270C	10				
2-Nitorphenol	8270C	10				
4-Nitorphenol	8270C	50				
N-Nitorsodimethylamine	8270C	10				
N-Nitorsodiphenylamine	8270C	10				
Di-N-Octyl Phthalate	8270C	10				
Pentachlorophenol	8270C	50				
Phenathrene	8270C	10				
Phenol	8270C	10				
4-Bromophenyl-Phenylether	8270C	10				
4-Chlorophenyl-Phenylether	8270C	10				
N-Nitorso-Di-N-Propylamine	8270C	10				
Pyrene	8270C	10				
1,2,4-Trichlorobenzene	8270C	10				
2,4,6-Trichlorophenol	8270C	10				
2,4,5-Trichlorophenol	8270C	10				
Bis (2-Chlorethyl) Ether	8270C	10				
2-Chloronapthalene	8270C	10				
2-Chlorophenol	8270C	10				
2-2'-Oxybis (1-Chloropropane)	8270C	10				
Chrysene	8270C	10				
Dibenzo (A,H) Anthracene	8270C	10				
Dibenzofuran	8270C	10				
1,3-Dichlorobenzene	8270C	10				
1,2-Dichlorobenzene	8270C	10				
1,4-Dichlorobenzene	8270C	10				
3,3'-Dichlorobenzidine	8270C	10				
2,4-Dichlorophenol	8270C	10				
Diethylphthalate	8270C	10				
Dimethyl Phthalate	8270C	10				
2,4-Dimethylphenol	8270C	10				
2,4-Dinotorphenol	8270C	50				
2,4-Dinitrotoluene	8270C	10				

Xerox Corporation
Northern Property Evaluation - Reporting Limit Table

Soil Gas & Ambient Air Samples		
Volatile Organics		**UG/M3**
Acetone	TO-15	1.2
Benzene	TO-15	0.35
Bromodichlormethane	TO-15	0.15
Bromoform	TO-15	1.1
Bromomethane	TO-15	0.43
2-Butanone (MEK)	TO-15	0.65
Methyl-Tert-Butly Ether	TO-15	0.79
Carbon Disulfide	TO-15	0.34
Carbon Tetrachloride	TO-15	0.14
Chlorobenzene	TO-15	0.51
Chloroethane	TO-15	0.58
Chloroform	TO-15	0.54
Chloromethane	TO-15	0.45
Dibromochloromethane	TO-15	0.19
1,2-Dibromoethane	TO-15	0.17
1,3-Dicholorbenzene	TO-15	1.3
1,2-Dicholorbenzene	TO-15	1.3
1,3-Dicholorbenzene	TO-15	1.3
1,1-Dichloroethane	TO-15	0.45
1,2-Dichloroethane	TO-15	0.45
1,1-Dichloroethene	TO-15	0.44
cis-1,2-Dichoroethene	TO-15	0.44
trans-1,2-Dichoroethene	TO-15	0.44
1,2-Dichloropropene	TO-15	0.51
cis-1,3-Dichloropropene	TO-15	1
trans-1,3-Dichloropropene	TO-15	0.5
Ethylbenzene	TO-15	0.95
2-Hexanone	TO-15	0.45
Methylene Chloride	TO-15	0.38
4-Methyl-2-Pentanone (MIBK)	TO-15	0.9
Styrene	TO-15	0.94
1,1,2,2-Tetrachloroethane	TO-15	0.15
Tetrachloroethene	TO-15	0.15
Toluene	TO-15	0.41
1,1,1-Trichloroethane	TO-15	0.6
1,1,2-Trichloroethane	TO-15	0.6
Trichloroethene	TO-15	0.12
Trichlorofluormethane	TO-15	0.62
1,1,2-Trichloro-1,2,2-Trifluorethane	TO-15	0.17
Vinyl Acetate	TO-15	1.8
Vinyl Chloride	TO-15	0.56
O-Xylene	TO-15	0.95
M+P-Xylene	TO-15	1.9