AS-BUILT HRC REMEDIATION ENGINEERING REPORT
XEROX BUILDING 801
(NYSDEC SITE NO. 828069)
HENRIETTA, NEW YORK

By

Haley & Aldrich of New York
Rochester, New York

For

Xerox Corporation
Webster, New York

File No. 32077-053
February 2006

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28 February 2007
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Xerox Corporation
800 Phillips Road, Building 205-99F
Webster, New York, 14580

Attention: Mr. Eliott Duffney

Subject: As-Built HRC Remediation Engineering Report
Xerox Building 801
(NYSDEC Site No. 828069)
Henrietta, New York

Mr. Duffney:

Haley & Aldrich is pleased to submit this report documenting field activities and results associated with remediation completed for Xerox Corporation at the subject property. The work completed conforms with the New York State Department of Environmental Conservation (NYSDEC) approved Draft Remedial Design/Remedial Action Work Plan dated 25 April 2006.

Previous remediation completed at this site includes groundwater recovery and 2-PHASE Extraction application in source areas, both performed as required under agreements with the NYSDEC and to address groundwater and soil contamination. This report is a summary of additional remediation resulting from the completion of a focused feasibility study, performed to achieve a condition of "No Further Remediation" with continued site monitoring as per Section 3 of the above referenced work plan and Section 2.2 of this report. The remediation construction and the biological amendment addition described in the work plan have been completed. Ongoing performance monitoring will continue on a semi-annual basis at the site. Initial monitoring results are also summarized herein.

Please contact the undersigned with any questions you may have, and thank you for the opportunity to continue assisting with this project.

Sincerely yours,
HALEY & ALDRICH OF NEW YORK

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Environmental Scientist

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EXECUTIVE SUMMARY

The Xerox 801 facility is located at 1350 Jefferson Road in Henrietta, New York. Based on remedial investigations performed at the site, soils and groundwater on a portion of the site north of the site building were impacted by 1,1,1-trichloroethane, tetrachloroethene and their biodegradation breakdown products as well as mineral spirits. In characterizing the impacts, soil contamination appeared to have impacted the upper 8-12 feet of soils, and the majority of groundwater impacts were restricted to the upper aquifer.

Xerox has implemented several remedial actions at the site since the early 1990s. Between 1990 and 1994, a pumping and treatment system was utilized as part of an Interim Remedial Measure (IRM). In 1994, a 2-PHASE™ Extraction System was developed and implemented as part of a second IRM, which achieved the removal of both groundwater and soil vapor under high vacuum. This remedial technology was determined by the New York State Department of Environmental Conservation (NYSDEC) to be the preferred remedial technology for the site as per a March 1995 Record of Decision (ROD). In addition to the 2-PHASE™ system, a site drainage stream was relocated to prevent surface water contamination. The 2-PHASE™ extraction was operated until mass recovery rates reached asymptotic conditions, indicating the technology had reached the limits of its effectiveness. Operation of the 2-PHASE™ system was terminated on 14 November 2001 after having removed an estimated total of 9,589 pounds of contaminants from the source areas.

At the NYSDEC's request, a Focused Feasibility Study (FFS) was submitted in November 2001 to assess potential supplemental remedial activities. The FFS recommended evaluation of an "Enhanced Bioremediation and Monitored Natural Attenuation" (EBMNA) approach for the site, to indicate whether or not bioremediation technologies would be capable of enhancing the site remedial effort. As a result of the EBMNA evaluation program, a Pilot Test injection of electron donor (a formulation of Hydrogen Release Compound® (HRC), known as HRC-S) was performed at the site in November 2003, and performance monitoring concluded in October 2005. The results of the Pilot Test indicated that reductive dechlorination is an active site process that was stimulated by electron donor injection within the injection grid.

A larger-scale injection was proposed in April 2006 as part of a draft Remedial Design/Remedial Action Work Plan (April 2006 Work Plan), and was approved by the NYSDEC in a letter dated 6 June 2006. The objectives of the larger-scale injection were to further reduce the residual concentrations of chlorinated compounds in the subsurface, and to achieve a status/classification of "No Further Active Remediation" with continued requirements for semi-annual monitoring at the site.

As described in the April 2006 Work Plan, HRC is a food-grade, polylactate ester that is designed to enhance biodegradation in the subsurface. HRC-S includes iron gluconate, which binds with sulfide ions, and is effective for use at sites with naturally high sulfate concentrations. The remedial approach involved HRC-S injected via a grid-pattern of boreholes directly into the subsurface impacted by the site contaminants. The April 2006 Work Plan presented the injection design and subsequent monitoring of the remediation process. This design prepared by Xerox and Haley & Aldrich was reviewed with Regenesis, the developer and manufacturer of HRC. The NYSDEC also provided input throughout the design process and approved the final injection design.

The HRC-S injection was completed during July and August 2006 per the approved plan. The geologic conditions (dense glacial tills) present at the Xerox 801 facility presented some

challenges during the injection activities, but the full design amount of HRC-S was injected into the subsurface at the designated locations successfully. This report provides the documentation of remediation construction (injection) and an Engineer's Statement that the construction was carried out according to the April 2006 Work Plan, as required by the NYSDEC.

The post-injection monitoring program described in the April 2006 Work Plan is ongoing. Initial monitoring data indicates conditions necessary for biodegradation of site contaminants are being produced. Remediation monitoring will continue through December 2008, at which time the need to continue remediation monitoring will be re-evaluated.

As indicated in the NYSDEC's letter dated 6 June 2006, one event of HRC injection will be acceptable to the Department to allow a status of "No Further Remedial Action" provided that a Site Management Plan (SMP) is developed that includes adequate engineering and institutional controls, periodic reviews, and a long term monitoring program. Xerox has begun installation of a system to mitigate potential sub-slab vapor intrusion at the Building 801 facility. Xerox intends to prepare a SMP upon completion of an As-Built Engineering Report for the sub-slab depressurization system. Therefore, with submittal of this report, Xerox requests that "No Further Remedial Action" status/classification be assigned to the Building 801 site with continued requirements for long-term monitoring at the site.

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1 INTRODUCTION

1.1 Site Description

1.1.1 Building and Property Description

Building 801 (B801) occupies a portion of the Xerox property located at 1350 Jefferson Road, approximately one half mile west of the intersection of Jefferson and Winton Roads in the Town of Henrietta, Monroe County, New York. The Xerox property is shown on the Project Locus, Figure 1 and Site Plan, Figure 2. The property is bounded by undeveloped land to the north, undeveloped and commercial properties to the east and west, and Jefferson Road to the south (beyond which is additional commercial and industrial property use).

The B801 property is an irregularly shaped parcel of approximately 86.6 acres comprised of the 50.4 acre original site and 36.2 acres acquired in 1993 which is located to the north of the original site. The main building on the property covers approximately 12 acres and is located on the southern half of the property. Outside the building, the majority of the site is covered by paved parking areas and roadways, while much of the Northern Area is covered by woody vegetation and weed growth.

Remediation work performed at the site was focused in the "Lawn Area" as this area contains the highest residual concentrations of contaminants as indicated by prior soil sampling performed and based on routine groundwater monitoring. The Lawn Area encompasses the former virgin and waste solvent storage tank area and is a grass-covered area located north of the paved drive (Hofstra Road) adjacent to the northeast corner, bounded on the west by the fire water tank and by the original property lines on the north and east (Figure 3).

1.1.2 Subsurface, Geologic, and Groundwater Conditions

The geology of the B801 site is characterized by approximately 35 to 40 feet of soil fill and glacial overburden underlain by shale bedrock (Vernon Shale). Competent bedrock exists between 30 and 40 feet below ground surface.

The overburden consists of three dominant types of materials: fill, glacio-lacustrine (glacial lake) deposits and glacial till. Fill material was placed over much of the site to raise the natural grade prior to construction of B801. The fill material exists in all areas at the site except the northern, wooded portion. Natural soil materials consisting of medium dense red-brown silty sand, often containing varying amounts of clay or gravel were imported to the site as fill. Lacustrine deposits underlie the fill and are variable in composition. Two separate lacustrine units exist: a silty to sandy layer encountered immediately below the fill and a clay layer situated throughout different portions of the site. Glacial till deposits overlie the shale bedrock. The till composition ranges from very dense, gray-brown, silty sand and dense, clayey silt to a very stiff, brown, silty clay with varying amounts of sand and gravel.

The local hydrogeologic setting of the B801 site consists of two distinct hydrogeologic units: an upper water-table aquifer and a lower confined aquifer which is overlain by a lacustrine clay aquitard. The area of concern for this report is within the upper aquifer and is discussed below.

Static groundwater levels in the upper aquifer lie within 2 to 5 feet below ground surface. The general direction of groundwater flow is towards the north. A groundwater velocity

maximum of approximately 4 x 10^{-5} cm/s was calculated at the site. This calculation was based on maximum hydraulic conductivity and horizontal gradient and an assumed minimum porosity.

The upper till of the upper aquifer has a hydraulic conductivity of approximately 10^{-6} to 10^{-7} cm/s. The hydraulic conductivity of the upper lacustrine silts/sands within the upper aquifer is approximately 10^{-4} to 10^{-5} cm/s. The extremely low conductivity of the upper till may cause it to act, along with the lacustrine clay layer, as a partially confined layer.

Horizontal gradients within the upper aquifer normally range from 0.001 to 0.023 feet per foot and vary with location on the site as well as seasonality. Vertical gradients within the upper aquifer are also present. Upward vertical gradients range between 0.01 and 0.25 feet per foot. The higher vertical gradients exist in summer months.

1.2 Nature & Extent of Contamination

The contamination at the B801 site has impacted site soils, groundwater and, previously a site drainage stream. The nature and extent of contamination at the site was delineated through remedial investigations conducted in coordination with and approval by the NYSDEC. The site compounds of concern (COCs) include methylene chloride, 1,1-dichloroethene (DCE), 1,1-dichloroethane (1,1-DCA), cis-1,2-dichloroethene (cis-DCE), 1,2-dichloroethane (1,2-DCA), 1,1,1-trichloroethane (TCA), trichloroethene (TCE), tetrachloroethene (PCE), vinyl chloride (VC), and mineral spirits. The majority of the soil contamination occurs in the upper 8 to 12 feet of soils. The majority of the groundwater impacts are restricted to the site's upper aquifer (water table). These findings were previously reported to the agency in the site Remedial Investigation Report (RI) dated May 1993. COCs have remained the same since 1993 as identified in routine site groundwater monitoring reports. The most recent groundwater analytical results dated November 2006 indicate that total COC concentrations in the Lawn Area currently range from non-detect to slightly over 458 mg/L. This report is intended to document the implementation of the final remedial action for the Xerox 801 property, which focuses on COCs in soil and groundwater in the Lawn Area.

1.3 Remediation History

Xerox has implemented several remedial actions at this site since the early 1990s. An Interim Remedial Measure (IRM) was implemented at the site in the spring of 1990. The IRM consisted primarily of pumping affected groundwater from five recovery wells through an activated carbon treatment system, and diverting clean surface water and runoff away from areas where chlorinated solvent and petroleum distillates were known to be present. A site-wide Remedial Investigation (RI) was performed in 1993. Based on the Risk Assessment included in the RI dated 1993, effects from exposure to compounds found onsite in soil and groundwater did not exceed USEPA recognized thresholds. The groundwater recovery and treatment system ceased in 1994 with New York State Department of Environmental Conservation (NYSDEC) approval. In late 1994, a more robust IRM was implemented which consisted of 2-PHASE™ Extraction technology that achieved removal of both groundwater and soil vapor under high vacuum.

A Record of Decision (ROD) naming 2-PHASE™ Extraction as the preferred remedial alternative was subsequently issued by the NYSDEC in March 1995. In addition to 2-PHASE™ Extraction, mitigation of surface water impact, in the form of re-direction of stormwater drainage stream around the area of contamination was identified and completed. The stormwater re-direction activities were completed in 1995 after issuance of the ROD. 2-

PHASE™ Extraction was operated until mass recovery rates diminished, indicating that the technology had reached the limits of its effectiveness, at which time Xerox began evaluation of further additional remediation alternatives.

A preliminary Monitored Natural Attenuation (MNA) Evaluation was performed in 1999 to determine if natural attenuation is occurring at the B801 site at a rate sufficient to be included as part of future remediation strategies, either as a stand-alone remedy or in conjunction with other technologies. The MNA evaluation included quarterly sampling of several site wells and a prolonged (one-year) shutdown of the 2-PHASE™ system and a six-month system rebound test in the North-South Ditch Area.

The evaluations concluded:

- Natural Attenuation appears to be ongoing at the site and is supported by three lines of evidence: historical plume stability, presence of direct biodegradation breakdown products, and presence of a geochemical MNA footprint.

- Historical concentration trends indicate overall plume stability. Long-term shutdown of the 2-PHASE™ system for the rebound testing and MNA monitoring did not cause substantial concentration increases in wells outside the source area. Concentration increases were observed for wells in the source area during the rebound test.

Operation of the 2-PHASE™ extraction system was terminated on 14 November 2001, with approval of the NYSDEC, due to asymptotic low mass removal conditions and the lack of substantial rebound during the rebound test which confirmed that the system had reached the limits of its effectiveness. A total of approximately 9,589 pounds of COCs were removed from the subsurface since the system's inception. Following the shutdown of the 2-Phase Extraction System in November 2001 a Focused Feasibility Study (FFS) was submitted to the NYSDEC to assess supplemental remedial activities.

The FFS recommended evaluation of an "Enhanced Bioremediation and Monitored Natural Attenuation" (EBMNA) approach for the site, shifting the focus to the evaluation to EBMNA processes to assess whether these remediation methods are capable of materially enhancing the site remedial effort. The evaluation was performed in accordance with the NYSDEC approved "Enhanced Bioremediation and Monitored Natural Attenuation Work Plan" (EBMNA Work Plan) dated December 2001. The results were described in the "Report on Enhanced Bioremediation and Monitored Natural Attenuation Data Collection and Evaluation Program" (EBMNA Report). The EBMNA approach and results are also summarized in the April 2006 Draft "Remedial Design/Remedial Action Work Plan" for the B801 site.

As a result of the EBMNA evaluation program a Pilot Test injection of electron donor (HRC-S) was performed at the site in November 2003 in accordance with the Pilot Test scoping document entitled "Field Pilot Test Injection of Electron Donor" (Pilot Test Plan) dated 2 October 2003. The results of the Pilot Test indicated that reductive dechlorination is an active process stimulated by electron donor injection within the injection grid area. Based on these results, a larger-scale injection of HRC was recommended. The Pilot Test is further explained in Section 2.

A design for a larger-scale HRC-S injection was provided to the NYSDEC in the draft Remedial Design/Remedial Action Work Plan dated 25 April 2006 (April 2006 Work Plan). The April 2006 Work Plan which specified a single HRC injection was approved by the NYSDEC in their letter dated 6 June 2006. The larger-scale HRC-S injection was completed

during July and August 2006. An Engineer's Statement affirming remediation construction is included at the end of this report. As described in the NYSDEC's letter dated 6 June 2006, Xerox and the NYSDEC are in agreement that a single HRC-S injection will be acceptable to achieve a no further remedial action status provided that a site management plan is developed, which will include adequate engineering and institutional controls, periodic reviews, and a long term monitoring program.

1.4 Remedial Program Goals and Objectives

Five remediation goals were included in the 1995 ROD issued for the B801 site. It should be noted that the ROD was written for the now defunct 2-PHASE™ Extraction System. The ROD goals were as follows:

1. Reduce, control, or eliminate the contamination present within the soils and groundwater on-site;

2. Prevent, to the extent possible, migration of contaminants;

3. Mitigate environmental impacts from contaminated groundwater and provide attainment of Standards, Criteria, and Guidance (SCGs) for groundwater to the extent technically practicable;

4. Provide for attainment of SCGs in soil which is protective of groundwater quality at the limits of the area of concern to the extent practicable; and

5. The remedial action goals presented in Tables 2 and 3 [in the 1995 ROD].

The HRC-S injection documented in this report was designed to stimulate the ongoing natural reductive dechlorination process to further reduce the residual concentrations of chlorinated compounds in groundwater, and to a lesser extent in the saturated soils. It was realized during the technology review and selection process that addition of electron donor was not likely to allow attainment of maximum contaminant levels (MCLs) or the SCGs outlined in the ROD, but is anticipated to improve groundwater quality to the extent practicable and reduce the potential for future impacts to receptors.

2 HRC-S BACKGROUND AND PILOT TEST

2.1 HRC-S Background

HRC® is a proprietary, environmentally safe, food-grade, polylactate ester specially formulated for slow release of lactic acid upon hydration. HRC® is injected into the subsurface contaminant plume and then left in place where it passively works to stimulate contamination degradation. The process by which HRC® operates is a complex series of chemical and biologically mediated reactions. Initially, sugars contained in HRC® stimulate aerobic population "overgrowth" that ultimately consumes oxygen and promotes onset of enhancement of anaerobic conditions. When in contact with subsurface moisture, the HRC® slowly releases lactic acid. Indigenous anaerobic microbes metabolize the lactic acid producing consistent low concentrations of dissolved hydrogen. The resulting hydrogen is then used by other subsurface microbes (dechlorinators) to strip solvent molecules of their chlorine atoms and allow for further biological degradation. When in the subsurface, HRC® continues to operate in this fashion for a period of time, which varies with site conditions. Continued activity by site dechlorinators has typically been observed at remediation sites after diminution of HRC as long as groundwater conditions remain anaerobic.

"HRC-S," is an HRC® formulation used at the B801 site, was made specifically for use at sites with naturally high sulfate concentrations. In general, addition of electron donor will stimulate sulfate reduction (which produces sulfide ion) at the same time that reductive dechlorination could be stimulated. Sulfide ion can inhibit reductive dechlorination at sites with low naturally-occurring iron content in soils. Sulfide reacts rapidly with iron and is removed from solution as an insoluble precipitate (FeS). HRC-S includes iron gluconate, which will bind with sulfide ions. Once the sulfide has precipitated, it is no longer available or toxic to dechlorinating bacteria. Since the bio-available iron content in soils at the B801 site is unknown and natural sulfate concentrations are known to be high, HRC-S was utilized at the site as a conservative measure with a higher likelihood of sustaining insitu biodegradation.

2.2 HRC-S Pilot Test

In accordance with the recommendations of the EBMNA program, a pilot scale injection of HRC-S was performed at the site in November 2003. The Pilot Test was performed in accordance with the document entitled "Field Pilot Test Injection Electron Donor" dated 2 October 2003. The Pilot Test injection grid layout is shown in Figure 4.

The Pilot Test consisted of eight injection locations installed using a Geoprobe (direct push drilling method) to an approximate depth of 17 feet below ground surface (bgs) in the vicinity of RW-1 and VE-12. Injection points were spaced approximately at 5-foot centers in a grid fashion, and within an approximate 5-foot radius of RW-1 and VE-12. Approximately 840 pounds of HRC-S (approximately 100 pounds per borehole) was injected in the source zone using a grout pump and the Geoprobe tooling.

The Pilot Test performance was monitored at the following four well locations: VE-4, VE-12, RW-1, and VE-10. Groundwater samples were collected from the four locations on a quarterly basis using low-flow sampling methods. Samples were analyzed for MNA parameters as well as HRC-S breakdown products. Bio-Traps installed in these wells were also analyzed quarterly to assess the changes in the microbial community.

The Pilot Test area was monitored quarterly until the end of the Pilot Test program in October 2005. The results of the Pilot Test were summarized in semi-annual reports submitted to the NYSDEC between December 2003 and February 2006 and are also included as part of Table 2. The data compiled from the Pilot Test indicated that reductive dechlorination was successfully stimulated by HRC-S; therefore it was recommended that a larger-scale application of HRC-S be performed at the site. As stated in the April 2006 Work Plan approved by the NYSDEC, this large scale amendment addition will constitute a final remedial measure for the B801 site (NYSDEC letter dated 6 June 2006).

3 LARGE-SCALE HRC-S INJECTION

The large-scale HRC-S injection took place during July and August 2006 and was performed in accordance with the April 2006 Work Plan approved by the NYSDEC. Haley & Aldrich provided field oversight of all contractor activities for the injection program. Injection was completed by Nothnagle Drilling of Scottsville, New York. Sampling for remediation monitoring and subsequent laboratory analysis was completed by Columbia Analytical Services of Rochester, New York (CAS). The following sections provide a detailed description of the injection and related site activities.

3.1 Site Preparation

Prior to injection activities at the B801 site, approximately 300 feet of existing aboveground recovery piping remaining from the former 2-PHASE™ Extraction System were removed. Following removal, the piping was flushed with water, crushed, and disposed of at a permitted disposal facility. Representatives from Xerox and Rochester Gas and Electric were onsite to locate utility lines and provide clearance. A safe drilling zone was identified and marked on both sides of a water line that traversed the injection area from east to west.

3.2 Injection Activities

The injection area was approximately 7,700 square feet in size in the Lawn Area (See Figure 5). A total of 100 injection points were advanced in a grid design spaced approximately 10-feet on-center and vertical interval of approximately 5-20 bgs. Approximately 4 pounds per vertical foot of HRC-S was injected at each point for a total of approximately 60 pounds per injection point. A total of 6,000 pounds of HRC-S was applied in the injection area. Based on field data and experience by Regenesis (HRC-S vendor), an application rate of 4 lbs/ft has been shown at a wide range of sites to be the application rate required to achieve sufficient subsurface distribution/radius of influence for a 10-foot on-center grid.

The full designed amount of HRC-S was injected in the subsurface. Figure 5 shows the approximate locations of each of the HRC-S injection points. Deviations from the designed loading rates and injection intervals were minimal and are described in the sections below.

The initial injection design outlined in the April 2006 Work Plan called for "bottom-up" injection methodology using a Geoprobe. Due to dense subsurface conditions, a decision was made in the field to utilize a "top-down" approach using a pressure-activated injection probe. Bottom-up injection involves driving a Geoprobe rod to the desired depth and injecting material into the subsurface as the rod is being pulled to the surface. The top-down method involves injecting material into the subsurface as the Geoprobe rod, affixed with a pressure-activated injection probe, is driven to the desired depth. A valve in the probe tip obstructs the rod following pumping, which prevents the loss of product out the top of the Geoprobe rod, which is especially pertinent in dense soil conditions. Top-down also prevents flow of the material up the bore hole alongside of the drill rods.

Injection points 1 through 4 and a portion of injection point 5 were completed using the bottom up method. Due to the dense soil conditions at the B801 site, additional time had to be taken at each injection location to allow for the HRC-S to infiltrate into the subsurface and to prevent loss of the material out the top of the drill rods due to pressure from the formation. The remaining injection points (GP-6 through GP-100) were completed using the top-down method described above. Because of the pressure-valve mechanism described above, the top-

down approach significantly reduced the loss of product resulting in increased product distribution in the subsurface.

All injection points were advanced to 20 feet bgs except injection point 1, which was only advanced to 17.5 feet due to equipment refusal. The full 60 lbs of HRC-S was still injected at injection point 1. Following the completion of each injection, the injection points were sealed to the surface with bentonite to prevent surface water infiltration.

3.3 Waste Management

Personal protective equipment utilized during injection activities such as disposable gloves and Tyvek suits, were disposed of in onsite dumpsters. Empty HRC-S buckets were rinsed and recycled. Hazardous/contaminated waste, debris, and/or contaminated soil were not generated during injection activities. Manifests or other waste disposal documentation were not required.

4 REMEDIATION MONITORING

There are two monitoring components currently performed at the Building 801 site: (1) Long-Term Site Monitoring and (2) Remediation Monitoring. Each is described in detail below. Sampling to satisfy each monitoring component is performed semi-annually (during June and December) in accordance with the Site Sampling and Analysis Plan (SAP) (Table 1) and the April 2006 Work Plan, which was based on our monitoring program and data evaluation results and trends identified in the HRC Pilot Test. Results of the monitoring events have been and will continue to be documented in semi-annual reports submitted to the NYSDEC. The two monitoring components are defined as follows:

1. Long-Term Site Monitoring – consists of select monitoring wells (MWs) and three surface water sampling locations (SWs). Long-Term Monitoring wells and surface water locations include RW-4, MW-2, MW-10, MW-13S, MW-16, MW-18S, MW-19, MW-24S, SW-29, SW-34, SW-35. These monitoring locations were selected to evaluate long-term plume stability and the potential for impacts to down gradient receptors (See Figure 2). Samples collected from these locations are analyzed for VOCs only.

2. Remediation Monitoring - consists of sampling wells within or proximate to the large scale HRC-S injection grid (see Figures 2 and 3). Remediation Monitoring wells include RW-1, VE-2, VE-4, VE-5, VE-6, VE-10, VE-12, and VE-15. Several groundwater quality parameters, biodegradation indicator parameters, and VOCs are monitored. The purpose of this monitoring is to document, through collection of several lines of evidence that HRC-S is present in the groundwater and subsurface conditions relative to stimulation of biodegradation processes. This level of monitoring will continue through December 2008 according to the SAP (Table 1), at which time the need for continued remediation monitoring will be re-evaluated.

Groundwater samples were collected in June 2006, prior to the larger-scale HRC-S injection to establish baseline monitoring levels. Since the completion of the injection, groundwater has been sampled once (November/December 2006). Results of the most recent remediation monitoring event are summarized below along with descriptions of the parameters and analyses collected. Brief summaries of remediation monitoring events will be included in future semi-annual reports.

4.1 Groundwater Sampling Results

4.1.1 Baseline Groundwater Sampling

During June 2006 (prior to the HRC-S injection), the Remediation Monitoring wells were sampled to establish baseline conditions for future comparison to post injection results. Groundwater sampling and laboratory analysis was conducted by Columbia Analytical Services of Rochester, New York (CAS). Groundwater samples were collected utilizing Low Stress/Low Flow Sampling Methods, as described in EPA's Low Flow (Minimal Drawdown) Groundwater Sampling Procedures, EPA/540/S-95/504, April 1996.

Remediation monitoring parameters are described below. Results of these analyses are summarized in Table 2. Analytical laboratory reports are included in with semi-annual reports.

- VOCs – indicate presence of parent contaminant compounds as well as their associated biodegradation breakdown compounds.

- Dissolved Gases (methane, ethane, and ethene) – methane is an indicator of redox state of the groundwater, ethene and ethane are the end products of the reductive dechlorination process.

- Anions (sulfate, sulfide, chloride, and alkalinity) – provide data relative to biological activity, redox state, increase of chloride ion is indicative of ongoing biodegradation.

- Cations (ferrous and total iron) - provide data relative to biological activity, redox state

- Metabolic Acids (lactic, acetic, proprionic, pyruvic, and butyric acids) – are a qualitative measure of the breakdown of HRC and naturally occurring sources of organic carbon, which releases hydrogen into the groundwater.

- Field measurements obtained at the wellhead (dissolved oxygen, ORP, carbon dioxide, ferrous iron, and alkalinity) - provide data relative to biological activity, redox state.

4.1.2 Post HRC-S Injection Groundwater Monitoring Results

Post HRC-S injection remediation monitoring samples were collected between 29 November 2006 and 13 December 2006 (approximately 3 months after the HRC-S injection). Sampling took place over a course of 2 to 3 weeks due to inclement weather conditions. Sampling and laboratory analysis were conducted by CAS.

In general, as HRC disperses into the aquifer, geochemical shifts occur and monitoring those shifts provide insight as to whether groundwater conditions are changing to support biodegradation of site contaminants. These geochemical shifts include: increases in dissolved organic carbon and organic acids (HRC components), decreases in dissolved oxygen and redox potential as anaerobic conditions and other geochemical shifts are produced (e.g., decreases/increases of sulfate/sulfite, and total iron /dissolved iron). As occurred during the HRC Pilot test, data received to date indicate these geochemical shifts are occurring in site groundwater. The results are described below and summarized in Table 2.

- Metabolic acids increased in the source area. Lactic, acetic, propionic, and butyric acids increased substantially in well VE-15 and were detected in well VE-4, where they were previously non-detect prior to the larger scale injection. Propionic acid in VE-10 and acetic acid in VE-2 were detected, where they were non-detect prior to the larger scale injection. These data indicate HRC-S is effectively liberating hydrogen into the groundwater.

- Dissolved organic carbon concentrations increased in the post HRC-S injection samples compared to baseline concentrations. Increases were most notable in wells VE-4 (8.24 mg/L to 115 mg/L), VE-15 (9.04 mg/L to 2,960 mg/L), and VE-12 (702 mg/L to 1,060 mg/L). These data indicate that HRC-S is dispersing in the subsurface.

- Dissolved oxygen decreased in most wells. These data indicate that the HRC-S is effectively exhausting the available dissolved oxygen in the groundwater and driving redox conditions anaerobic.

- Oxidation Reduction Potential (ORP) decreased in most wells. The most notable decreases in ORP were in VE-4 (-121.0 mV to -207.0 mV post injection), VE-10 (62 mV to -19 mV post injection), and VE-15 (-79 mV to -136 mV post injection). Similar to the dissolved oxygen data, these data indicate that ORP is falling into the theoretical range conducive to sustaining reductive dechlorination.

- Sulfate decreased in most wells. The most notable decreases in sulfate concentrations include VE-4 (242 mg/L to 18.2 mg/L), VE-5 (85.5 mg/L to non-detect), and VE-15 (129 mg/L to 2.85 mg/L). Decreasing sulfate levels suggest that there may be less inhibition of reductive dechlorination caused by sulfate. Exhausting the sulfate concentrations causes less competition between sulfate reducing bacteria and dechlorinating bacteria for the hydrogen produced by HRC-S. Therefore the less competitive dechlorinating bacteria activity should be higher.

- Dissolved iron increased in most of the wells. The most notable increases occurred in VE-2 (3.02 mg/L to 44.2 mg/L); VE-5 (7.17 mg/L to 34.1 mg/L); and VE-15 (2.91 mg/L to 320 mg/L). These data indicate that anaerobic conditions have been stimulated.

Overall, comparisons of baseline and post injection data indicate that VOC concentrations have decreased, and in some wells significant decreases are evident, within the injection grid. The VOC data is summarized below.

- **VE-12:** cis-DCE decreased from 15,000 µg/L to 4,100 µg/L post injection. TCA decreased from 2,900 µg/L to non-detect post injection.

- **VE-4:** TCA decreased from 2,200 µg/L to 47 µg/L, and 1,2-DCA decreased from 540 µg/L to 34 µg/L post injection. Cis-DCE decreased substantially from 18,000 µg/L to 680 µg/L post injection.

- **RW-4:** TCA decreased from 14,000 µg/L to 660 µg/L, TCE decreased from 5,800 µg/L to non-detect, PCE decreased from 1,500 µg/L to non-detect, cis-DCE decreased from 41,000 µg/L to 14,000 µg/L, DCE decreased from 3,100 µg/L to non-detect, 1,1-DCA decreased from 7,800 µg/L to 1,300 µg/L, and VC decreased from 3,500 µg/L to 1,800 µg/L.

- **VE-6:** PCE and TCE decreased substantially to non-detect since the previous sampling event from 11,000 µg/L and 6,800 µg/L respectively. TCA decreased from 10,000 µg/L to 4,000 µg/L. Cis-DCE decreased from 22,000 µg/L to 18,000 µg/L, and 1,1-DCA decreased from 1,100 µg/L to 900 µg/L.

- **VE-15:** VC increased from non-detect to 620 µg/L. These data indicate that reductive dechlorination is taking place in this well.

- **RW-1:** cis-DCE decreased from 520,000 µg/L to 420,000 µg/L , TCA decreased from 48,000 µg/L to 38,000 µg/L. The remaining target VOCs were not detected as was the case during the previous sampling event. Mineral Spirits also decreased slightly in the well from 970 µg/L to 820 µg/L.

- **VE-2:** TCE decreased from 5,200 µg/L to not detect, and the corresponding daughter compound cis-DCE increased from 32,000 µg/L to 45,000 µg/L indicating that reductive dechlorination is likely taking place at this location. TCA decreased from 2,600 µg/L to 1,300 µg/L.

- **VE-5:** DCE, cis-DCE, PCE, TCE, TCA, and VC all decreased to non-detect levels. 1,1-DCA, the daughter product to TCA increased slightly from 81 μg/L to 120 μg/L indicating that reductive dechlorination of TCA to DCA is likely taking place at this location. Trans 1,2-Dichloroethene (Trans-DCE) was detected in this well at 5.5 μg/L. This compound was not detected in previous analysis from this well and other wells on the property. In addition, 96 μg/L of 2-Butanone (MEK) was detected at this location. The MEK detection appears to be an anomaly as it has not been detected in the other well locations, and has not been detected in VE-5 prior to this sampling event.

- **VE-10:** TCE, TCA, and PCE concentrations decreased from 4,000 μg/L to 1,800 μg/L, 4,000 μg/L to 3,200 μg/L, and 2,800 μg/L to 1,700 μg/L respectively. DCA concentration remained at 1,600 μg/L, cis-DCE decreased slightly from 42,000 μg/L to 40,000 μg/L.

4.2 Groundwater Data Verification and Validation

Analytical results for the groundwater and associated quality control samples collected as part of the remediation monitoring at the Xerox Building 801 facility were reviewed to evaluate the data usability in accordance with guidance provided by the NYSDEC DER-10 Appendix B. Each laboratory data package containing a laboratory case narrative, chain of custody documents, analytical report forms, site specific quality assurance/quality control (QA/QC) sample data, and sample preparation and analysis chronologies were reviewed for compliance with the following criterion:

- Maximum Analytical Holding Times
- Laboratory Method Blank Sample Analyses
- Surrogate Compound Recoveries (where applicable)
- Laboratory Control Sample (LCS/LCSD) Analyses
- Matrix Spike/Matrix Spike Duplicate (MS/MSD) Analyses
- Field QA/QC Sample Analyses (Trip and Equipment Blanks)

The data usability was assessed in accordance with guidance provided by the United States Environmental Protection Agency (USEPA) National Functional Guidelines for Organic Data Review (EPA 540/R-99/008), and method protocol criteria where applicable as prescribed by "Test Methods for Evaluating Solid Waste", SW846, Update III, 1996.

The appropriate data qualifiers were assigned to the reported results in accordance with the EPA protocols. Appendix A of this report provides the Data Usability Summary Reports (DUSR) prepared for each laboratory report.

4.3 Microbial Community Monitoring

Historically Bio-Traps have played an integral role at the 801 site. Bio-Traps have been used to gain insight on the active microbial communities in the subsurface, used to field evaluate electron donors for remediation feasibility evaluations, and used as monitoring tools to assess the performance and limitations of biodegradation processes at the site. Bio-Trap data associated with the HRC-S Pilot Test is included on Table 3. Bio-Traps continue to be used for remediation monitoring purposes as they provide insight on the growth of requisite dechlorinating microbes (which can be correlated directly to biodegradation rates) as HRC-S affects the groundwater.

Bio-Traps were installed in remediation monitoring wells in accordance with the SAP (Table 1) during September 2006 and were retrieved 28 November 2006. This is the first Bio-Trap monitoring event conducted at several of the remediation monitoring wells. Bio-Traps deployed prior to the larger scale HRC-S injection to identify a baseline microbial community was not warranted due to the amount of microbiology information obtained earlier with Bio-Traps associated with the Pilot Test.

Bio-Traps were analyzed by Microbial Insights of Rockford, Tennessee. Results of the most recent Bio-Trap analysis (since the larger scale HRC-S) injection are summarized below along with a brief description of the target microbes analyzed. The Bio-Trap results are also summarized in tabular form along with historical Bio-Trap results on Table 3.

- **Universal Bacteria** – is a measure of overall biomass in the subsurface. Universal bacteria should increase in numbers with addition of a carbon source. Universal bacteria numbers have increased at some locations by orders of magnitude in response to the HRC-S injection. Overall, as historical results indicate, universal bacteria population was high at the site to begin with.

- **Sulfate and Iron Reducing Bacteria** – are measured as indicator of redox state and anaerobic bioactivity. As mentioned in the sections above, sulfate reducing bacteria will compete directly with dechlorinating bacteria for hydrogen provided by the HRC-S. It is anticipated that SRB/IRB populations will initially increase in response to carbon addition and begin to decrease as sulfate and iron concentrations diminish. This trend is evident in the Bio-Trap data and corresponds well with the addition of HRC-S during the Pilot Test and corroborates well with sulfate concentration trends in remediation monitoring wells.

- **Methanogens** – are measured as an indicator of extreme reducing conditions. Methanogenic conditions occur beyond sufate reduction and dechlorination and would preclude the latter. The data to date indicate that methanogens are present but are not continually increasing in number, which suggests that conditions are poised for sulfate and/or reductive dechlorination.

- **Dehalococcoides (DHC)** – are the only known microorganisms capable of completely degrading chlorinated solvents to ethene and ethane via the reductive dechlorination process. Since HRC-S injection during the Pilot Test, through the use of Bio-Traps, the 801 site data documents the highest number of DHC reported to date in peer reviewed literature. DHC are present to date in each of the remediation monitoring wells and prolific in the wells exposed to HRC-S during the Pilot Test. It is anticipated that the DHC community in the saturated zone at the site will continue to thrive which should directly effect the dechlorination rate within the injection grid.

- **Dehalobactor (DHB)** – are known efficient degraders of TCA and its associated biological breakdown products. DHB have been detected in each of the remediation monitoring wells. It is anticipated that there numbers will grow in response to HRC-S injection.

- **BAV1 VC R-Dase and VC R-Dase (Vinyl Chloride Reductive Dehalogenase)** – are functional genes found within DHC strains (e.g. BAV1) which allow the microorganism to produce the reductive dehalogenase enzyme that catlyzes the direct dechlorination of VC. VC R-Dase is present in each remediation monitoring well. These data indicate that VC can be biodegraded at the site. The presence of VC R-Dase was particularly strong in well VE-12. Correspondingly, the increase in number of gene copies correlates to the decrease in VC in

VE-12. Overall, it is anticipated that increasing numbers of these genes will be detected in the future in remediation monitoring wells as DHC with VC biodegradation capability thrive in response to HRC-S.

- **TCE R-Dase** (Trichloroethylene Reductive Dehalogenase) - is the functional gene found in DHC strains 192 and FL2,that allows the microorganism to produce TCE reductive dehalogenase which catlyzes the dechorination of TCE and cis-DCE. TCE R-Dase is present in each remediation monitoring well. These data indicate that TCE and cis-DCE can be biodegraded at the site. It is anticipated that increasing numbers of this gene will be detected in the future in remediation monitoring wells as DHC with TCE biodegradation capability thrive in response to HRC-S.

5 FUTURE SITE ACTIVITIES

Xerox intends to complete the following activities in the future:

- Submit under separate cover a Potential Sub-Slab Vapor Intrusion Mitigation System As-Built Engineering Report and a system Operation, Monitoring, and Maintenance Plan.

- Provide the NYSDEC with a Site Management Plan which will include adequate engineering and institutional controls, periodic reviews, and a long term monitoring program.

- Continue to perform semi-annual site monitoring events during months of June and December. Semi-annual monitoring events will be performed in accordance with the SAP (Table 1) and will fulfill two required monitoring components: (1) Long-Term site monitoring to evaluate long-term plume stability and the potential for impacts to down gradient receptors and (2) Remediation Monitoring to document through collection of several lines of evidence that HRC-S is present in the groundwater and should continue to stimulate biodegradation processes. This level of monitoring will continue at least through December 2008, at which time the need for continued remediation monitoring will be re-evaluated.

6 CONCLUSION

It is anticipated that the final HRC-S injection documented in this report will stimulate the ongoing natural reductive dechlorination process to further reduce the residual concentrations of chlorinated compounds in site groundwater, and to a lesser extent in the saturated soils. This enhancement is not expected to reach MCLs or the SCGs outlined in the ROD, but is anticipated to improve groundwater quality to the extent practicable and reduce the potential for future impacts to receptors. As previously agreed upon with the NYSDEC via verbal communication and as indicated in the NYSDEC's letter dated 6 June 2006, the single HRC injection will be acceptable to the Department to achieve a No Further Remedial Action status provided that a Site Management Plan (SMP) is developed that includes adequate engineering and institutional controls, periodic reviews, and a long term monitoring program.

In addition to the completion of the HRC-S injection, Xerox has begun installation of a sub-slab vapor intrusion mitigation system at the Building 801 facility. Xerox will prepare a SMP upon completion of an As-Built Engineering Report for the sub-slab vapor intrusion mitigation system. Therefore, with submittal of this report, Xerox requests that "No Further Remedial Action" status/classification be assigned to the Building 801 site with continued requirements for long-term monitoring at the site.

7 ENGINEERS STATEMENT

On behalf of Haley & Aldrich of New York, the undersigned state that the remediation work described in this document "As-Built HRC Remediation Engineering Report, Xerox B801, Henrietta, New York," dated 16 February 2007, was conducted in conformance with:

- The "DRAFT Remedial Design/Remedial Action Work Plan" dated 25 April 2006;
- Field modifications made to the Work Plan and approved by the NYSDEC during remediation activities, as summarized in the text of this report.

This report is a true and accurate summary of the work performed. Haley & Aldrich of New York was the firm responsible for the day to day performance of activities that comprised this site's remediation. The undersigned certify that the Remediation Work Plan was implemented and that construction activities were completed in accordance with the Department-approved April 2006 draft Remedial Design/Remedial Action Work Plan and were personally witnessed by me (or by a person under my direct supervision).

Vincent B. Dick
Vice President, Haley & Aldrich

Mark N. Ramsdell, P.E.
Senior Engineer, Haley & Aldrich

REFERENCES

1. "Field Pilot Test Injection of Electron Donor, Xerox Building 801, Henrietta, NY," dated 2 October 2003. Prepared for Xerox Corporation, prepared by Haley & Aldrich of New York.

2. "Focused Feasibility Study, Building 801, Henrietta, NY," dated November 2001. Prepared for Xerox Corporation, prepared by Haley & Aldrich of New York.

3. "Monitoring Report No. 38, Xerox-Building 801 Facility (NYSDEC Site No. 828069)," dated February 2005. Prepared for Xerox Corporation, prepared by Haley & Aldrich of New York.

4. "Monitoring Report No. 39, Xerox-Building 801 Facility (NYSDEC Site No. 828069)," dated August 2005. Prepared for Xerox Corporation, prepared by Haley & Aldrich of New York.

5. "Monitoring Report No. 40, Xerox-Building 801 Facility (NYSDEC Site No. 828069)," dated February 2006. Prepared for Xerox Corporation, prepared by Haley & Aldrich of New York.

6. "Monitoring Report No. 41, Xerox-Building 801 Facility (NYSDEC Site No. 828069)," dated September 2006. Prepared for Xerox Corporation, prepared by Haley & Aldrich of New York.

7. "Remedial Investigation, Xerox Building 801, Henrietta, NY," dated May 1993. Prepared for Xerox Corporation, prepared by Haley & Aldrich of New York.

8. "Remedial Design/Remedial Action Work Plan (DRAFT), Xerox Building 801 (NYSDEC Site No. 828069), Henrietta, NY," Prepared for Xerox Corporation, prepared by Haley & Aldrich of New York.

9. "Report on Enhanced Bioremediation and Monitored Natural Attenuation Data Collection and Evaluation Program, Xerox Building 801, (NYSDEC Site No. 828069), Henrietta, NY," dated September 2003. Prepared for Xerox Corporation, prepared by Haley & Aldrich of New York.

TABLE 1 - SAMPLING AND ANALYSIS PLAN
XEROX BUILDING 801
HENRIETTA, NEW YORK
32077-053

WELL ID	Chlorinated VOCs	Dissolved Gasses	MNA-type Parameters (3, 4)	Bio Traps (8)	Metabolic Acids	Field Parameters (6, 7)	Quarterly Water Level Monitoring
Remediation Wells							
RW-1	x*	x	x	x	x	x	x
VE-2	x	x	x	x	x	x	x
VE-4	x	x	x	x	x	x	x
VE-5	x	x	x	x	x	x	x
VE-6	x	x	x	x	x	x	x
VE-10	x	x	x	x	x	x	x
VE-12	x	x	x	x	x	x	x
VE-15	x	x	x	x	x	x	x
Long-Term Monitoring Wells and Surface Water Locations							
RW-4	x						x
MW-2	x						x
MW-10	x						x
MW-13S	x						x
MW-16	x						x
MW-18S	x						x
MW-19	x						x
MW-24S	x						x
SW-29	x						x
SW-34	x						x
SW-35	x						x

Notes:

1. Chlorinated VOCs will be analyzed by EPA Method 8260.
2. Dissolved Gases - methane, ethane, ethene. Analyzed by Method ASTM D1945 (need low detection limits - 5 ppm)
3. TOC (EPA 9060) - dissoved carbon, SOC
4. Nutrients and Electron Acceptors - Sulfate (EPA 300.0), sulfide (total, EPA 376.2), iron (total EPA 200.7), chloride (EPA 9056).
5. Volatile/Metabolic Acids - including lactic, acetic, pyruvic, propionic, and butyrc acids. Method HPLC/UV.
6. Field Parameters include dissolved oxygen, temperature, conductivity, oxidation-reduction potential, and pH
7. Field/Wellhead measurements - Fe+2, dissolved (Hach colorimetric ModelIR-18C), alkalinity (Hach Model AL-DT, Method 8203), CO2 (Hach - CA - DT)
8. Bio-Trap analyses, Bio-Dechlor Census - 4 Panel (Dehalococcoides, Dehalobacter)

* Indicates that EPA Method 8015 (mineral spirits) is also performed
SW indicates surface water samples

TABLE 2 - REMEDIATION PERFORMANCE MONITORING ANALYTICAL SUMMARY
XEROX BUILDING 801
HENRIETTA, NEW YORK
32077-053

Sample ID	RW-1													VE-12							
Analyte or Method	6/25/2003	11/23/2003	11/24/2003 DUPLICATE	3/1/2004	6/2/2004	6/4/2004	7/8/2004 Resampled	12/2/2004	3/29/2005	6/14/2005	12/12/2005	6/23/2006	12/13/2006	11/23/2003	11/24/2003 DUPLICATE	3/1/2004	6/2/2004	12/2/2004	3/29/2005	6/23/2006	12/12/2006
INORGANICS (mg/L)																					
Ammonia	NA	0.921	NA	NA	0.871	NA	0.775	0.824	0.649	NA	NA	NA	NA	1.27	NA	NA	ND (0.05)	0.894	0.643	NA	NA
Chloride	NA	3140	NA	NA	3820	NA	3370	3430	3470	NA	NA	3680	2820	7640	NA	NA	6760	5850	5650	4780	4320
Nitrate Nitrogen	NA	ND (0.05)	NA	NA	ND (0.50)	NA	ND (0.50)	ND (0.05)	ND (0.05)	NA	NA	NA	NA	0.0566	NA	NA	ND (0.50)	ND (1.00)	ND (1.00)	NA	NA
Nitrate/Nitrite Nitrogen	NA	ND (0.05)	NA	NA	NA	NA	NA	ND (0.05)	ND (0.05)	NA	NA	NA	NA	0.0566	NA	NA	NA	ND (1.00)	ND (1.00)	NA	NA
Nitrite Nitrogen	NA	ND (0.01)	NA	NA	0.0135	NA	NA	ND (0.01)	ND (0.02)	NA	NA	NA	NA	0.0383	NA	NA	0.0797	0.0821	0.0537	NA	NA
Sulfate	NA	296	NA	NA	268	NA	244	232	217	NA	NA	2.18	ND (2.00)	186	NA	NA	8.69	ND (2.00)	ND (2.00)	ND (2.00)	ND (2.00)
Total Phosphorus	NA	ND (0.05)	NA	NA	ND (0.05)	NA	0.0776	0.0587	0.0524	NA	NA	NA	NA	0.0589	NA	NA	0.757	0.0898	0.119	NA	NA
Total Sulfide	NA	ND (1.00)	NA	NA	ND (1.00)	NA	ND (1.00)	1.26	ND (1.00)	NA	NA	ND (1.00)	ND (1.00)	ND (1.00)	NA	NA	ND (1.00)	1.12	ND (1.00)	ND (1.00)	ND (1.00)
Dissolved Organic Carbons	NA	6.13	NA	NA	6.97	NA	6.74	6.78	6.17	NA	NA	156	145	4.81	NA	NA	625	9.14	533	702	1060
Iron	NA	4.69	NA	NA	7.87	NA	9.15	10.7	10	NA	NA	52.9	44.9	19.8	NA	NA	111	111	106	123	116
Manganese	NA	2.33	NA	NA	2.3	NA	2.54	2.39	2.07	NA	NA	NA	NA	2.52	NA	NA	4.16	2.47	1.71	NA	NA
DISSOLVED GASSES RSK-175 (ug/L)																				*200X Dil	
Ethane	NA	ND (5.0)	NA	5.7	ND (5.0)	NA	ND (5.0)	ND (5.0)	5.9	NA	NA	4	4.0	12	NA	ND (10)	ND (10)	ND (25)	ND (50)	200	ND (200)
Ethylene	NA	35	NA	48	45	NA	46	45	54	NA	NA	44	44	130	NA	110	120	1900	4200	11000	10000
Methane	NA	240	NA	320	280	NA	290	280	370	NA	NA	160	150	980	NA	840	530	720	1800	3100	3700
Propane	NA	ND (5.0)	NA	ND (5.0)	ND (5.0)	NA	ND (5.0)	ND (5.0)	ND (5.0)	NA	NA	ND (2.5)	ND (2.0)	ND (10)	NA	ND (10)	ND (10)	ND (25)	ND (50)	200	ND (200)
METABOLIC ACIDS (mg/L)																				*10X Dil.	
Pyruvic Acid (C3)	NA	<0.5	NA	<1.0	<1.0	NA	<1.0	<1.0	<1.0	NA	NA	<1.0	<0.5	<0.1	NA	<2.0	230 D	<10	<5.0	<5.0	<5.0
Lactic Acid (C3)	NA	<5.0	NA	<1.0	<1.0	NA	<1.0	<1.0	<1.0	NA	NA	<2.0	<1.0	<1.0	NA	190 D	200 D	<10	6.6	<10	<1.4
Acetic Acid (C2)	NA	<1.0	NA	<1.0	<1.0	NA	<1.0	<1.0	<1.0	NA	NA	50	65	<1.0	NA	59	120 D	270 D	340	770	530
Propionic Acid (C3)	NA	<1.0	NA	<1.0	<1.0	NA	<1.0	<1.0	<1.0	NA	NA	140	130	<1.0	NA	10	460 D	500 D	560 D	790	560
Butyric Acid (C4)	NA	<5.0	NA	<1.0	<2.0	NA	<2.0	<2.1	<2.1	NA	NA	70	68	<5.0	NA	15	<1.0	170 D	140	270	340
VOCs 8260B (ug/L)																					
Acetone	ND (10000)	ND (2000)	ND (20000)	ND (20000)	ND (20000)	ND (10000)	ND (20000)	ND (10000)	ND (20000)	ND (20000)	ND (20000)	ND (40000)	ND (50000)	ND (1000)	ND (5000)	ND (5000)	ND (5000)	ND (20000)	ND (5000)	ND (4000)	ND (4000)
Benzene	ND (2500)	ND (500)	ND (5000)	ND (5000)	ND (5000)	ND (2500)	ND (5000)	ND (2500)	ND (5000)	ND (5000)	ND (5000)	ND (10000)	ND (12500)	ND (250)	ND (1300)	ND (1300)	ND (1300)	ND (5000)	ND (1250)	ND (1000)	ND (1000)
Bromodichloromethane	ND (2500)	ND (500)	ND (5000)	ND (5000)	ND (5000)	ND (2500)	ND (5000)	ND (2500)	ND (5000)	ND (5000)	ND (5000)	ND (10000)	ND (12500)	ND (250)	ND (1300)	ND (1300)	ND (1300)	ND (5000)	ND (1250)	ND (1000)	ND (1000)
Bromoform	ND (2500)	ND (500)	ND (5000)	ND (5000)	ND (5000)	ND (2500)	ND (5000)	ND (2500)	ND (5000)	ND (5000)	ND (5000)	ND (10000)	ND (12500)	ND (250)	ND (1300)	ND (1300)	ND (1300)	ND (5000)	ND (1250)	ND (1000)	ND (1000)
Bromomethane	ND (2500)	ND (500)	ND (5000)	ND (5000)	ND (5000)	ND (2500)	ND (5000)	2500 R	ND (5000)	ND (5000)	ND (5000)	ND (10000)	ND (12500)	ND (250)	ND (1300)	ND (1300)	ND (1300)	ND (5000)	ND (1250)	ND (1000)	ND (1000)
2-Butanone (MEK)	ND (5000)	ND (1000)	ND (10000)	ND (10000)	ND (10000)	ND (5000)	ND (10000)	ND (5000)	ND (10000)	ND (10000)	ND (10000)	ND (20000)	ND (25000)	ND (500)	ND (2500)	ND (2500)	ND (2500)	ND (10000)	ND (2500)	ND (2000)	ND (2000)
Carbon Disulfide	ND (5000)	ND (1000)	ND (10000)	ND (10000)	ND (10000)	ND (5000)	ND (10000)	ND (5000)	ND (10000)	ND (10000)	ND (10000)	ND (20000)	ND (25000)	ND (500)	ND (2500)	ND (2500)	ND (2500)	ND (10000)	ND (2500)	ND (2000)	ND (2000)
Carbon Tetrachloride	ND (2500)	ND (500)	ND (5000)	ND (5000)	ND (5000)	ND (2500)	ND (5000)	ND (2500)	ND (5000)	ND (5000)	ND (5000)	ND (10000)	ND (12500)	ND (250)	ND (1300)	ND (1300)	ND (1300)	ND (5000)	ND (1250)	ND (1000)	ND (1000)
Chlorobenzene	ND (2500)	ND (500)	ND (5000)	ND (5000)	ND (5000)	ND (2500)	ND (5000)	ND (2500)	ND (5000)	ND (5000)	ND (5000)	ND (10000)	ND (12500)	ND (250)	ND (1300)	ND (1300)	ND (1300)	ND (5000)	ND (1250)	ND (1000)	ND (1000)
Chloroethane	ND (2500)	ND (500)	ND (5000)	ND (5000)	ND (5000)	ND (2500)	ND (5000)	ND (2500)	ND (5000)	ND (5000)	ND (5000)	ND (10000)	ND (12500)	ND (250)	ND (1300)	ND (1300)	ND (1300)	ND (5000)	ND (1250)	ND (1000)	ND (1000)
Chloroform	ND (2500)	ND (500)	ND (5000)	ND (5000)	ND (5000)	ND (2500)	ND (5000)	ND (2500)	ND (5000)	ND (5000)	ND (5000)	ND (10000)	ND (12500)	ND (250)	ND (1300)	ND (1300)	ND (1300)	ND (5000)	ND (1250)	ND (1000)	ND (1000)
Chloromethane	ND (2500)	ND (500)	ND (5000)	ND (5000)	ND (5000)	ND (2500)	ND (5000)	ND (2500)	ND (5000)	ND (5000)	ND (5000)	ND (10000)	ND (12500)	ND (250)	ND (1300)	ND (1300)	ND (1300)	ND (5000)	ND (1250)	ND (1000)	ND (1000)
Dibromochloromethane	ND (2500)	ND (500)	ND (5000)	ND (5000)	ND (5000)	ND (2500)	ND (5000)	ND (2500)	ND (5000)	ND (5000)	ND (5000)	ND (10000)	ND (12500)	ND (250)	ND (1300)	ND (1300)	ND (1300)	ND (5000)	ND (1250)	ND (1000)	ND (1000)
1, 1-Dichloroethane	4600	6000	5800	6200	20000	6000	6700	5600	7100	6000	7000	ND (10000)	ND (12500)	2400	2300	3200	1500	31000	16000	15000	14000
1, 2-Dichloroethane	ND (2500)	ND (500)	ND (5000)	ND (5000)	ND (5000)	ND (2500)	ND (5000)	ND (2500)	ND (5000)	ND (5000)	ND (5000)	ND (10000)	ND (12500)	ND (250)	ND (1300)	ND (1300)	ND (1300)	ND (5000)	ND (1250)	ND (1000)	ND (1000)
1, 1-Dichloroethene	ND (2500)	950	ND (5000)	ND (5000)	ND (5000)	ND (2500)	ND (5000)	ND (2500)	ND (5000)	ND (5000)	ND (5000)	ND (10000)	ND (12500)	990	ND (1300)	ND (1300)	ND (1300)	ND (5000)	ND (1250)	ND (1000)	ND (1000)
Cis 1, 2-Dichloroethene	100000	110000 E	110000 D	120000	120000	100000 D	130000	130000 D	150000	200000	340000 D	520000 D	420000	35000 E	36000 D	53000	30000	5800	8100	15000	4100
Trans 1, 2-Dichloroethene	ND (2500)	ND (500)	ND (5000)	ND (5000)	ND (5000)	ND (2500)	ND (5000)	ND (2500)	ND (5000)	ND (5000)	ND (5000)	ND (10000)	ND (12500)	ND (250)	ND (1300)	ND (1300)	ND (1300)	ND (5000)	ND (1250)	ND (1000)	ND (1000)
1, 2-Dichloropropane	ND (2500)	ND (500)	ND (5000)	ND (5000)	ND (5000)	ND (2500)	ND (5000)	ND (2500)	ND (5000)	ND (5000)	ND (5000)	ND (10000)	ND (12500)	ND (250)	ND (1300)	ND (1300)	ND (1300)	ND (5000)	ND (1250)	ND (1000)	ND (1000)
Cis 1, 3-Dichloropropene	ND (2500)	ND (500)	ND (5000)	ND (5000)	ND (5000)	ND (2500)	ND (5000)	ND (2500)	ND (5000)	ND (5000)	ND (5000)	ND (10000)	ND (12500)	ND (250)	ND (1300)	ND (1300)	ND (1300)	ND (5000)	ND (1250)	ND (1000)	ND (1000)
Trans 1, 3-Dichloropropene	ND (2500)	ND (500)	ND (5000)	ND (5000)	ND (5000)	ND (2500)	ND (5000)	ND (2500)	ND (5000)	ND (5000)	ND (5000)	ND (10000)	ND (12500)	ND (250)	ND (1300)	ND (1300)	ND (1300)	ND (5000)	ND (1250)	ND (1000)	ND (1000)
Ethylbenzene	ND (2500)	ND (500)	ND (5000)	ND (5000)	ND (5000)	ND (2500)	ND (5000)	ND (2500)	ND (5000)	ND (5000)	ND (5000)	ND (10000)	ND (12500)	ND (250)	ND (1300)	ND (1300)	ND (1300)	ND (5000)	ND (1250)	ND (1000)	ND (1000)
2-Hexanone	ND (5000)	ND (1000)	ND (10000)	ND (10000)	ND (10000)	ND (5000)	ND (10000)	ND (5000)	ND (10000)	ND (10000)	ND (10000)	ND (20000)	ND (25000)	ND (500)	ND (2500)	ND (2500)	ND (2500)	ND (10000)	ND (2500)	ND (2000)	ND (2000)
Methylene Chloride	ND (2500)	520	ND (5000)	ND (5000)	ND (5000)	ND (2500)	ND (5000)	ND (2500)	ND (5000)	ND (5000)	ND (5000)	ND (10000)	ND (12500)	ND (250)	ND (1300)	ND (1300)	ND (1300)	ND (5000)	ND (1250)	ND (1000)	ND (1000)
4-Methyl-2-Pentanone (MIBK)	ND (5000)	ND (1000)	ND (10000)	ND (10000)	ND (10000)	ND (5000)	ND (10000)	ND (5000)	ND (10000)	ND (10000)	ND (10000)	ND (20000)	ND (25000)	ND (500)	ND (2500)	ND (2500)	ND (2500)	ND (10000)	ND (2500)	ND (2000)	ND (2000)
Styrene	ND (2500)	ND (500)	ND (5000)	ND (5000)	ND (5000)	ND (2500)	ND (5000)	ND (2500)	ND (5000)	ND (5000)	ND (5000)	ND (10000)	ND (12500)	ND (250)	ND (1300)	ND (1300)	ND (1300)	ND (5000)	ND (1250)	ND (1000)	ND (1000)
1, 1, 2, 2-Tetrachloroethane	ND (2500)	ND (500)	ND (5000)	ND (5000)	ND (5000)	ND (2500)	ND (5000)	ND (2500)	ND (5000)	ND (5000)	ND (5000)	ND (10000)	ND (12500)	ND (250)	ND (1300)	ND (1300)	ND (1300)	ND (5000)	ND (1250)	ND (1000)	ND (1000)
Tetrachloroethene	15000	8700	8700	11000	ND (5000)	6300	6500	3900	ND (5000)	ND (5000)	ND (5000)	ND (10000)	ND (12500)	930	ND (1300)	ND (1300)	2500	ND (5000)	ND (1250)	ND (1000)	ND (1000)
Toluene	ND (2500)	ND (500)	ND (5000)	ND (5000)	ND (5000)	ND (2500)	ND (5000)	ND (2500)	ND (5000)	ND (5000)	ND (5000)	ND (10000)	ND (12500)	ND (250)	ND (1300)	ND (1300)	ND (1300)	ND (5000)	ND (1250)	ND (1000)	ND (1000)
1, 1, 1-Trichloroethane	44000	48000 E	46000 D	58000	55000	51000	54000	43000	52000	46000	39000	48000	38000	14000 E	14000 D	15000	13000	ND (5000)	2200	2900	ND (1000)
1, 1, 2-Trichloroethane	ND (2500)	ND (500)	ND (5000)	ND (5000)	ND (5000)	ND (2500)	ND (5000)	ND (2500)	ND (5000)	ND (5000)	ND (5000)	ND (10000)	ND (12500)	ND (250)	ND (1300)	ND (1300)	ND (1300)	ND (5000)	ND (1250)	ND (1000)	ND (1000)
Trichloroethene	4100	2700	ND (5000)	ND (5000)	ND (5000)	3900	ND (5000)	12000	16000	7500	ND (5000)	ND (10000)	ND (12500)	2100	1900	ND (1300)	ND (1300)	ND (5000)	ND (1250)	ND (1000)	ND (1000)
Vinyl Chloride	ND (2500)	ND (500)	ND (5000)	ND (5000)	45000	ND (2500)	ND (5000)	ND (2500)	ND (5000)	ND (5000)	ND (5000)	ND (10000)	ND (12500)	2600	2500	3600	ND (1300)	100000	42000	56000 D	30000
O-Xylene	ND (2500)	ND (500)	ND (5000)	ND (5000)	ND (5000)	ND (2500)	ND (5000)	ND (2500)	ND (5000)	ND (5000)	ND (5000)	ND (10000)	ND (12500)	ND (250)	ND (1300)	ND (1300)	ND (1300)	ND (5000)	ND (1250)	ND (1000)	ND (1000)
M+P-Xylene	ND (2500)	ND (500)	ND (5000)	ND (5000)	ND (5000)	ND (2500)	ND (5000)	ND (2500)	ND (5000)	ND (5000)	ND (5000)	ND (10000)	ND (12500)	ND (250)	ND (1300)	ND (1300)	ND (1300)	ND (5000)	ND (1250)	ND (1000)	ND (1000)
MINERAL SPIRITS (8015) (ug/L)	NA	NA	NA	NA	NA	1500	NA	480	NA	1300	1300	970	820	NA	NA	NA	NA	NA	NA	NA	NA
FIELD PARAMETERS																					
Carbon Dioxide (mg/L)	NA	315	NA	410	157	NA	295	295	271	NA	NA	180	280	297	NA	202	315	312	272	320	151
Total Alkalinity (mg/L)	NA	273	NA	302	285	NA	317	336	292	NA	NA	540	320	318	NA	576	575	690	745	490	385
Conductivity (umhos/cm)	NA	7510	NA	8900	8930	NA	9150	8680	7380	NA	NA	10420	9705	13400	NA	15050	13750	13000	11000	13600	14840
Dissolved Oxygen (mg/L)	NA	0.26	NA	2.48	0.25	NA	2.3	0.98	0.9	NA	NA	0.51	0.36	0.32	NA	0.36	0.33	0.37	0.91	0.28	0.67
Ferrous Iron by Field (mg/L)	NA	3.6	NA	3.2	1.8	NA	4.7	3.9	3.2	NA	NA	5.4	2.6	4.2	NA	3.8	6	4.1	3.2	5.4	3.3
pH	NA	6.86	NA	6.84	6.72	NA	6.82	6.56	7.05	NA	NA	6.36	6.46	6.99	NA	6.98	6.21	6.5	6.86	6.53	6.22
Redox (mV)	NA	421.0	NA	-47.0	-55.0	NA	-148.0	-123.0	-75.0	NA	NA	-75.0	-77	-100	NA	-72	-102	-130.0	-95	-82	-79
Temperature (°C)	NA	11	NA	10.1	11.4	NA	16.6	18.7	7	NA	NA	17.4	12.3	13.6	NA	9.1	12.3	20	6.8	16.5	10.2

TABLE 2 - REMEDIATION PERFORMANCE MONITORING
XEROX BUILDING 801
HENRIETTA, NEW YORK
32077-053

Sample ID	VE-4								VE-10						RW-4		VE-2		VE-5		VE-6		VE-15	
Analyte or Method	11/23/2003	11/24/2003 DUPLICATE	3/1/2004	6/2/2004	12/2/2004	3/29/2005	6/23/2006	12/12/2006	11/23/2003	11/24/2003 DUPLICATE	12/2/2004	3/29/2005	6/23/2006	12/12/2006	6/16/2006	11/29/2006	6/23/2006	12/13/2006	6/23/2006	12/12/2006	6/23/2006	12/13/2006	6/23/2006	12/13/2006
INORGANICS (mg/L)																								
Ammonia	0.653	NA	NA	0.936	0.791	1.83	NA	NA	0.63	NA	0.769	0.629	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Chloride	5980	NA	NA	3000	1170	11400	5290	2610	2500	NA	3170	3730	4210	3600	NA	NA	1270	1380	4660	3950	1180	818	1570	1400
Nitrate Nitrogen	ND (0.05)	NA	NA	ND (0.50)	ND (0.05)	ND (0.10)	NA	NA	ND (0.05)	NA	ND (0.05)	ND (0.05)	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Nitrate/Nitrite Nitrogen	ND (0.05)	NA	NA	NA	ND (0.05)	ND (0.05)	NA	NA	ND (0.05)	NA	ND (0.05)	ND (0.05)	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Nitrite Nitrogen	0.171	NA	NA	0.0247	0.0235	ND (0.02)	NA	NA	ND (0.01)	NA	ND (0.01)	ND (0.01)	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Sulfate	455	NA	NA	520	595	312	242	18.2	104	NA	135	183	179	171	NA	NA	69.5	58.5	85.5	ND (2.00)	302	356	129	2.85
Total Phosphorus	0.103	NA	NA	1.42	0.38	0.204	NA	NA	0.106	NA	ND (0.05)	ND (0.05)	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Total Sulfide	ND (1.00)	NA	NA	2.85	2.46	ND (1.00)	ND (1.00)	3.78	ND (1.00)	NA	ND (1.00)	ND (1.00)	ND (1.00)	ND (1.00)	NA	NA	ND (1.00)	ND (1.00)	ND (1.00)	ND (1.00)	ND (1.00)	ND (1.00)	ND (1.00)	ND (1.00)
Dissolved Organic Carbons	8.48	NA	NA	14.1	7.82	3.4	8.24	115	6.93	NA	5.03	4.91	9.99	8.92	NA	NA	8.79	11.4	3.28	16.7	7.79	10.6	9.04	2960
Iron	8.66	NA	NA	4.02	3.67	3.36	11	8.64	0.131	NA	0.151	ND (0.10)	0.379	0.508	NA	NA	3.02	44.2	7.17	34.1	3.93	5.9	2.91	320
Manganese	4.16	NA	NA	3.76	1.54	1.54	NA	NA	1.28	NA	1.44	0.198	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
DISSOLVED GASSES RSK-175 (ug/L)																								
Ethane	37	NA	ND (5.0)	ND (5.0)	ND (5.0)	2.3	ND (10)	ND (1.0)	ND (1.0)	NA	ND (1.0)	ND (1.0)	ND (5.0)	ND (5.0)	NA	NA	ND (10)	ND (10)	ND (20)	ND (50)	ND (10)	5.6	ND (10)	1.6
Ethylene	330	NA	53	110	340	86	530	8.4	5.4	NA	4.3	2.0	88	80	NA	NA	250	190	39	300	40	22	250	24
Methane	790	NA	300	400	330	170	950	29	60	NA	37	7.7	440	340	NA	NA	740	530	940	4200	460	180	860	54
Propane	18	NA	ND (5.0)	ND (5.0)	ND (5.0)	ND (2.0)	ND (10)	ND (1.0)	ND (1.0)	NA	ND (1.0)	ND (1.0)	ND (5.0)	ND (5.0)	NA	NA	ND (10)	ND (10)	ND (20)	ND (50)	ND (10)	ND (2.0)	ND (10)	ND (1.0)
METABOLIC ACIDS (mg/L)																								
Pyruvic Acid (C3)	< 0.2	NA	< 1.0	5.1	< 1.0	< 1.0	< 0.5	< 0.5	< 0.1	NA	< 1.0	< 1.0	< 0.5	< 0.5	NA	NA	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 5.0
Lactic Acid (C3)	< 1.0	NA	14	2.3	< 1.0	< 1.0	< 1.0	10	< 1.0	NA	< 1.0	< 1.0	< 1.0	< 1.0	NA	NA	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	610
Acetic Acid (C2)	< 1.0	NA	6.7	1.8	< 1.0	2.6	< 1.0	170	< 1.0	NA	< 1.0	1.5	< 1.0	< 1.0	NA	NA	< 1.0	2.2	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	700
Propionic Acid (C3)	< 1.0	NA	2.5	3.3	< 1.0	< 1.0	< 1.0	24	< 1.0	NA	< 1.0	< 1.0	< 1.0	15	NA	NA	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	1600
Butyric Acid (C4)	< 1.0	NA	< 1.0	< 1.0	< 2.0	< 2.0	< 2.0	39	< 2.0	NA	< 2.0	< 2.0	< 2.0	< 2.0	NA	NA	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	730
VOCs 8260B (ug/L)																								
Acetone	ND (1000)	ND (5000)	ND (1000)	ND (1000)	ND (1000)	ND (200)	ND (2000)	ND (100)	ND (1000)	ND (2000)	ND (1000)	ND (1000)	ND (5000)	ND (5000)	ND (5000)	ND (2000)	ND (4000)	ND (4000)	ND (100)	ND (20)	ND (4000)	ND (2000)	ND (5000)	ND (2000)
Benzene	ND (250)	ND (1300)	ND (250)	ND (250)	ND (250)	ND (50)	ND (500)	ND (25)	ND (250)	ND (500)	ND (250)	ND (250)	ND (1250)	ND (1250)	ND (1250)	ND (500)	ND (1000)	ND (1000)	ND (25)	ND (5)	ND (1000)	ND (500)	ND (1250)	ND (500)
Bromodichloromethane	ND (250)	ND (1300)	ND (250)	ND (250)	ND (250)	ND (50)	ND (500)	ND (25)	ND (250)	ND (500)	ND (250)	ND (250)	ND (1250)	ND (1250)	ND (1250)	ND (500)	ND (1000)	ND (1000)	ND (25)	ND (5)	ND (1000)	ND (500)	ND (1250)	ND (500)
Bromoform	ND (250)	ND (1300)	ND (250)	ND (250)	ND (250)	ND (50)	ND (500)	ND (25)	ND (250)	ND (500)	ND (250)	ND (250)	ND (1250)	ND (1250)	ND (1250)	ND (500)	ND (1000)	ND (1000)	ND (25)	ND (5)	ND (1000)	ND (500)	ND (1250)	ND (500)
Bromomethane	ND (250)	ND (1300)	ND (250)	ND (250)	ND (250)	ND (50)	ND (500)	ND (25)	ND (250)	ND (500)	ND (250)	ND (250)	ND (1250)	ND (1250)	ND (1250)	ND (500)	ND (1000)	ND (1000)	ND (25)	ND (5)	ND (1000)	ND (500)	ND (1250)	ND (500)
2-Butanone (MEK)	ND (500)	ND (2500)	ND (500)	ND (500)	ND (500)	ND (100)	ND (1000)	ND (50)	ND (500)	ND (1000)	ND (500)	ND (500)	ND (2500)	ND (2500)	ND (2500)	ND (1000)	ND (2000)	ND (2000)	ND (50)	96	ND (2000)	ND (1000)	ND (2500)	ND (1000)
Carbon Disulfide	ND (500)	ND (2500)	ND (500)	ND (500)	ND (500)	ND (100)	ND (1000)	ND (50)	ND (500)	ND (1000)	ND (500)	ND (500)	ND (2500)	ND (2500)	ND (2500)	ND (1000)	ND (2000)	ND (2000)	ND (50)	ND (10)	ND (2000)	ND (1000)	ND (2500)	ND (1000)
Carbon Tetrachloride	ND (250)	ND (1300)	ND (250)	ND (250)	ND (250)	ND (50)	ND (500)	ND (25)	ND (250)	ND (500)	ND (250)	ND (250)	ND (1250)	ND (1250)	ND (1250)	ND (500)	ND (1000)	ND (1000)	ND (25)	ND (5)	ND (1000)	ND (500)	ND (1250)	ND (500)
Chlorobenzene	ND (250)	ND (1300)	ND (250)	ND (250)	ND (250)	ND (50)	ND (500)	ND (25)	ND (250)	ND (500)	ND (250)	ND (250)	ND (1250)	ND (1250)	ND (1250)	ND (500)	ND (1000)	ND (1000)	ND (25)	ND (5)	ND (1000)	ND (500)	ND (1250)	ND (500)
Chloroethane	ND (250)	ND (1300)	ND (250)	ND (250)	ND (250)	ND (50)	ND (500)	ND (25)	ND (250)	ND (500)	ND (250)	ND (250)	ND (1250)	ND (1250)	ND (1250)	ND (500)	ND (1000)	ND (1000)	ND (25)	ND (5)	ND (1000)	ND (500)	ND (1250)	ND (500)
Chloroform	ND (250)	ND (1300)	ND (250)	ND (250)	ND (250)	ND (50)	ND (500)	ND (25)	ND (250)	ND (500)	ND (250)	ND (250)	ND (1250)	ND (1250)	ND (1250)	ND (500)	ND (1000)	ND (1000)	ND (25)	ND (5)	ND (1000)	ND (500)	ND (1250)	ND (500)
Chloromethane	ND (250)	ND (1300)	ND (250)	ND (250)	ND (250)	ND (50)	ND (500)	ND (25)	ND (250)	ND (500)	ND (250)	ND (250)	ND (1250)	ND (1250)	ND (1250)	ND (500)	ND (1000)	ND (1000)	ND (25)	ND (5)	ND (1000)	ND (500)	ND (1250)	ND (500)
Dibromochloromethane	ND (250)	ND (1300)	ND (250)	ND (250)	ND (250)	ND (50)	ND (500)	ND (25)	ND (250)	ND (500)	ND (250)	ND (250)	ND (1250)	ND (1250)	ND (1250)	ND (500)	ND (1000)	ND (1000)	ND (25)	ND (5)	ND (1000)	ND (500)	ND (1250)	ND (500)
1, 1-Dichloroethane	1400	1500	460	740	310	290	540	34	1200	1200	1100	1300	1600	1600	7800	1300	ND (1000)	ND (1000)	81	120	1100	900	2600	940
1, 2-Dichloroethane	ND (250)	ND (1300)	ND (250)	ND (250)	ND (250)	ND (50)	ND (500)	ND (25)	ND (250)	ND (500)	ND (250)	ND (250)	ND (1250)	ND (1250)	ND (1250)	ND (500)	ND (1000)	ND (1000)	ND (25)	ND (5)	ND (1000)	ND (500)	ND (1250)	ND (500)
1, 1-Dichloroethene	1300	1300	440	660	ND (250)	130	ND (500)	ND (25)	ND (250)	ND (500)	ND (250)	ND (250)	ND (1250)	ND (1250)	3100	ND (500)	ND (1000)	ND (1000)	26	ND (5)	ND (1000)	530	ND (1250)	ND (500)
Cis 1, 2-Dichloroethene	39000 E	41000 D	16000	17000 D	5500	3600 D	18000	680	17000 E	17000 D	17000 D	18000 D	42000	40000	41000 D	14000	32000	45000 D	720	ND (5)	22000	18000	38000	12000
Trans 1, 2-Dichloroethene	ND (250)	ND (1300)	ND (250)	ND (250)	ND (250)	ND (50)	ND (500)	ND (25)	ND (250)	ND (500)	ND (250)	ND (250)	ND (1250)	ND (1250)	ND (1250)	ND (500)	ND (1000)	ND (1000)	ND (25)	5.5	ND (1000)	ND (500)	ND (1250)	ND (500)
1, 2-Dichloropropane	ND (250)	ND (1300)	ND (250)	ND (250)	ND (250)	ND (50)	ND (500)	ND (25)	ND (250)	ND (500)	ND (250)	ND (250)	ND (1250)	ND (1250)	ND (1250)	ND (500)	ND (1000)	ND (1000)	ND (25)	ND (5)	ND (1000)	ND (500)	ND (1250)	ND (500)
Cis 1, 3-Dichloropropene	ND (250)	ND (1300)	ND (250)	ND (250)	ND (250)	ND (50)	ND (500)	ND (25)	ND (250)	ND (500)	ND (250)	ND (250)	ND (1250)	ND (1250)	ND (1250)	ND (500)	ND (1000)	ND (1000)	ND (25)	ND (5)	ND (1000)	ND (500)	ND (1250)	ND (500)
Trans 1, 3-Dichloropropene	ND (250)	ND (1300)	ND (250)	ND (250)	ND (250)	ND (50)	ND (500)	ND (25)	ND (250)	ND (500)	ND (250)	ND (250)	ND (1250)	ND (1250)	ND (1250)	ND (500)	ND (1000)	ND (1000)	ND (25)	ND (5)	ND (1000)	ND (500)	ND (1250)	ND (500)
Ethylbenzene	ND (250)	ND (1300)	ND (250)	ND (250)	ND (250)	ND (50)	ND (500)	ND (25)	ND (250)	ND (500)	ND (250)	ND (250)	ND (1250)	ND (1250)	ND (1250)	ND (500)	ND (1000)	ND (1000)	ND (25)	ND (5)	ND (1000)	ND (500)	ND (1250)	ND (500)
2-Hexanone	ND (500)	ND (2500)	ND (500)	ND (500)	ND (500)	ND (100)	ND (1000)	ND (50)	ND (500)	ND (1000)	ND (500)	ND (500)	ND (2500)	ND (2500)	ND (2500)	ND (1000)	ND (2000)	ND (2000)	ND (50)	ND (10)	ND (2000)	ND (1000)	ND (2500)	ND (1000)
Methylene Chloride	450	ND (1300)	ND (250)	320	ND (250)	ND (50)	ND (500)	ND (25)	450	ND (500)	ND (250)	ND (250)	ND (1250)	ND (1250)	ND (1250)	ND (500)	ND (1000)	ND (1000)	ND (25)	ND (5)	ND (1000)	ND (500)	ND (1250)	ND (500)
4-Methyl-2-Pentanone (MIBK)	ND (500)	ND (2500)	ND (500)	ND (500)	ND (500)	ND (100)	ND (1000)	ND (50)	ND (500)	ND (1000)	ND (500)	ND (500)	ND (2500)	ND (2500)	ND (2500)	ND (1000)	ND (2000)	ND (2000)	ND (50)	ND (10)	ND (2000)	ND (1000)	ND (2500)	ND (1000)
Styrene	ND (250)	ND (1300)	ND (250)	ND (250)	ND (250)	ND (50)	ND (500)	ND (25)	ND (250)	ND (500)	ND (250)	ND (250)	ND (1250)	ND (1250)	ND (1250)	ND (500)	ND (1000)	ND (1000)	ND (25)	ND (5)	ND (1000)	ND (500)	ND (1250)	ND (500)
1, 1, 2, 2-Tetrachloroethane	ND (250)	ND (1300)	ND (250)	ND (250)	ND (250)	ND (50)	ND (500)	ND (25)	ND (250)	ND (500)	ND (250)	ND (250)	ND (1250)	ND (1250)	ND (1250)	ND (500)	ND (1000)	ND (1000)	ND (25)	ND (5)	ND (1000)	ND (500)	ND (1250)	ND (500)
Tetrachloroethene	1000	ND (1300)	ND (250)	ND (250)	ND (250)	ND (50)	ND (500)	ND (25)	1100	1000	820	1000	2800	1700	1500	ND (500)	5200	ND (1000)	62	ND (5)	11000	ND (500)	4100	ND (500)
Toluene	ND (250)	ND (1300)	ND (250)	ND (250)	ND (250)	ND (50)	ND (500)	ND (25)	ND (250)	ND (500)	ND (250)	ND (250)	ND (1250)	ND (1250)	ND (1250)	ND (500)	ND (1000)	ND (1000)	ND (25)	ND (5)	ND (1000)	ND (500)	ND (1250)	ND (500)
1, 1, 1-Trichloroethane	12000 E	12000 D	4400	5600	2000	1600	2200	47	2000	2000	1600	2000	4000	3200	14000	660	2600	1200	74	ND (5)	10000	4000	7500	880
1, 1, 2-Trichloroethane	ND (250)	ND (1300)	ND (250)	ND (250)	ND (250)	ND (50)	ND (500)	ND (25)	ND (250)	ND (500)	ND (250)	ND (250)	ND (1250)	ND (1250)	ND (1250)	ND (500)	ND (1000)	ND (1000)	ND (25)	ND (5)	ND (1000)	ND (500)	ND (1250)	ND (500)
Trichloroethene	2800	2800	ND (250)	290	ND (250)	64	790	ND (25)	1400	1300	1200	ND (250)	4000	1800	5800	ND (500)	ND (1000)	ND (1000)	92	ND (5)	6800	ND (500)	5400	ND (500)
Vinyl Chloride	990	ND (1300)	ND (250)	730	370	390	940	29	ND (250)	ND (500)	ND (250)	1900	ND (1250)	ND (1250)	3500	1800	ND (1000)	ND (1000)	140	ND (5)	ND (1000)	ND (500)	ND (1250)	620
O-Xylene	ND (250)	ND (1300)	ND (250)	ND (250)	ND (250)	ND (50)	ND (500)	ND (25)	ND (250)	ND (500)	ND (250)	ND (250)	ND (1250)	ND (1250)	ND (1250)	ND (500)	ND (1000)	ND (1000)	ND (25)	ND (5)	ND (1000)	ND (500)	ND (1250)	ND (500)
M+P-Xylene	ND (250)	ND (1300)	ND (250)	ND (250)	ND (250)	ND (50)	ND (500)	ND (25)	ND (250)	ND (500)	ND (250)	ND (250)	ND (1250)	ND (1250)	ND (1250)	ND (500)	ND (1000)	ND (1000)	ND (25)	ND (5)	ND (1000)	ND (500)	ND (1250)	ND (500)
MINERAL SPIRITS (8015) (ug/L)	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
FIELD PARAMETERS																								
Carbon Dioxide (mg/L)	286	NA	327	356	312	210	44	NA	291	NA	289	267	191	310	NA	NA	150	178	80	115	78	279	224	465
Total Alkalinity (mg/L)	341	NA	290	372	356	180	328	NA	321	NA	265	291	156	320	NA	NA	525	541	203	365	310	252	239	360
Conductivity (umhos/cm)	12870	NA	10480	8000	8780	4280	14300	9557	6080	NA	6970	7660	12000	12540	NA	NA	4710	5300	12740	12450	4360	3680	5370	7190
Dissolved Oxygen (mg/L)	0.16	NA	0.13	0.100 U	0.12	0.42	0.48	7.64	1.01	NA	0.51	2.1	0.33	0.5	NA	NA	0.25	0.2	0.21	0.33	0.39	0.7	0.37	0.26
Ferrous Iron by Field (mg/L)	6.2	NA	3.2	1.5	3	2.1	4.2	NA	3.8	NA	3.9	0.2	0.6	0.4	NA	NA	3.4	3.2	3.2	3.2	0.35	2.4	1.6	4
pH	7	NA	7.11	7.25	7.09	7.64	7.14	7.95	7.11	NA	7	7.39	6.9	6.72	NA	NA	6.94	7.13	7.1	6.43	6.98	7.08	6.96	6.02
Redox (mV)	-87	NA	-162	-139	-160.0	-134.0	-121.0	-207.0	85	NA	20	-71	62	-19	NA	NA	-75	-87	-122	-67	-45	34	-79	-136
Temperature (°C)	14.6	NA	9.6	12.3	17.8	8.3	17.1	8.4	12.8	NA	17.1	7.2	16.5	11.3	NA	NA	15.5	10.4	16.3	10	15.4	9.6	15	10.1

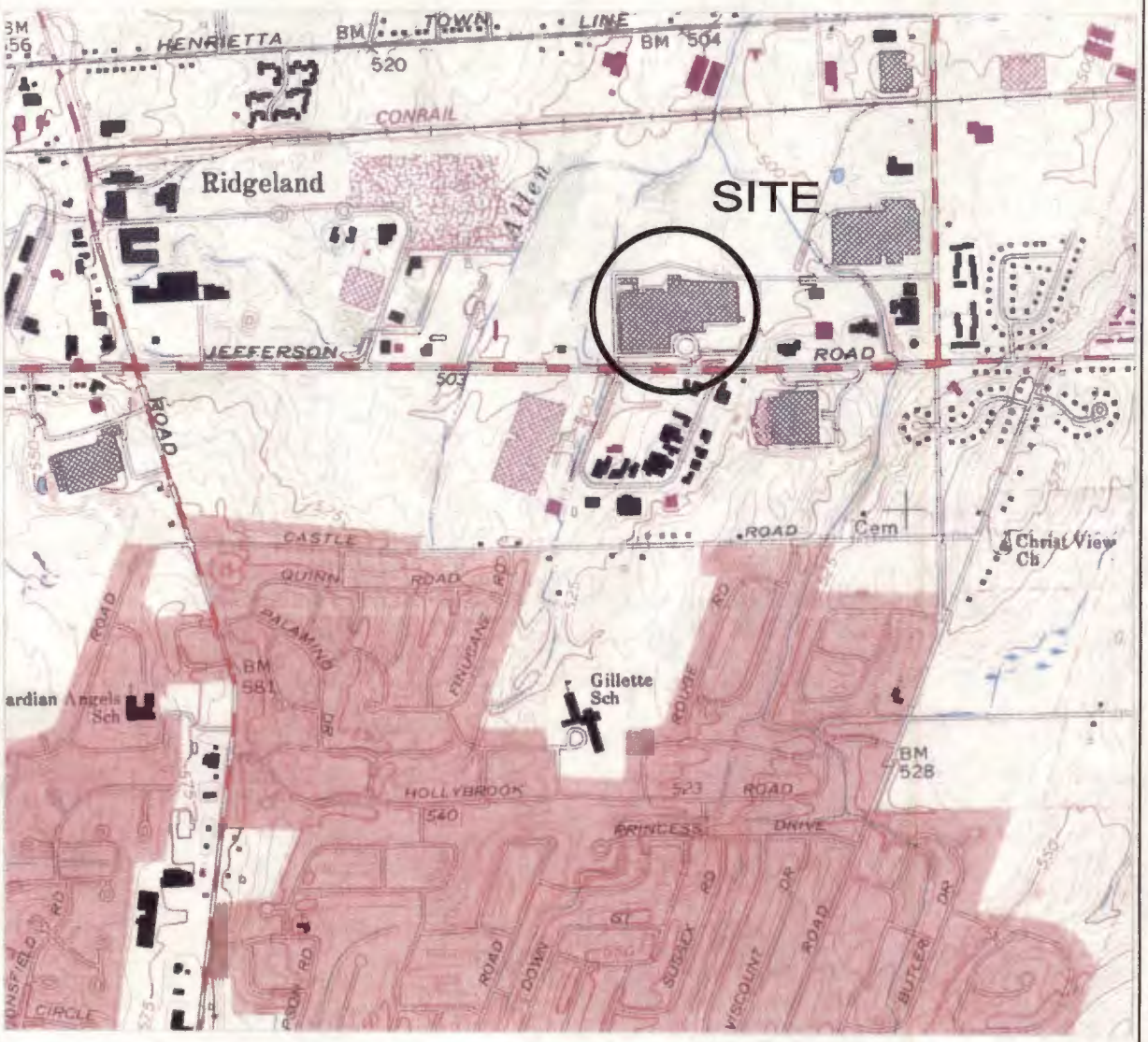
Notes & Abbreviations:

NA: Not Applicable/Not Sampled
ND: Not Detected
D: Diluted
R: Rejected

TABLE 3 - MICROBIAL COMMUNITY MONITORING
XEROX BUILDING 801
HENRIETTA, NEW YORK
32077-053

		Phylogenetic Groups			Dechlorinating Bacteria				
		"Universal" bacteria	Sulfate and Iron Reducing bacteria	Methanogens	Dehalococcoides	Dehalobacter	BAV1 VC R-Dase	TCE R-Dase	VC R-Dase
sample name	date sampled	abundance- gene copies/bead 16S rRNA	abundance- gene copies/bead 16S rRNA	abundance- gene copies/bead 16S rRNA	abundance- gene copies/bead 16S rRNA	abundance- gene copies/bead 16S rRNA	abundance- gene copies/bead 16S rRNA	abundance- gene copies/bead 16S rRNA	abundance- gene copies/bead 16S rRNA
RW-1	11/11/2003	8.64E+06	3.43E+06	-	0	-	ND	ND	-
	2/24/2004	1.98E+07	1.64E+04	-	0	-	-	-	-
	6/1/2004	7.01E+06	2.10E+04	-	0	-	ND	ND	-
	9/1/2004	4.99E+07	8.84E+06	-	5.71E+02	-	6.39E+00	J (<1)	-
	12/1/2004	5.23E+07	4.65E+06	-	6.73E+03	-	-	-	-
	3/2/2005	1.10E+08	1.14E+07	1.40E+06	6.80E+02	-	<2.5E+01	<2.5E+01	-
	10/24/2005	1.58E+08	2.19E+07	3.18E+07	3.64E+02	2.02E+06		-	-
	11/28/2006	8.12E+07	8.12E+04	2.69E+02	1.70E+04	<5E+01	<2.5E+01	9.70E+01	<2.5E+01
VE-2	11/28/2006	2.18E+07	8.12E+04	2.69E+05	2.85E+04	7.01E+03	1.86E+03	5.86E+01	2.06E+04
VE-4	11/11/2003	6.64E+06	2.39E+04	-	3.95E+02	-	1.20E+03	3.74E+01	-
	2/24/2004	2.99E+07	2.30E+05	-	1.90E+01	-	-	-	-
	6/1/2004	4.57E+06	3.06E+04	-	1.83E+03	-	1.25E+01	7.97E+01	-
	9/1/2004	2.00E+07	4.82E+05	-	9.14E+04	-	2.49E+03	5.48E+01	-
	12/1/2004	6.46E+06	1.09E+05	-	1.90E+04	-	-	-	-
	3/2/2005	1.49E+07	1.24E+05	1.05E+06	3.61E+04	-	-	-	-
	10/24/2005	-	-	-	-	-	-	-	-
	11/28/2006	2.08E+08	3.83E+05	1.61E+03	1.90E+05	5.67E+02	9.60E+03	1.71E+03	1.07E+05
VE-5	11/28/2006	1.21E+08	2.90E+06	7.50E+05	1.56E+05	5.08E+02	1.66E+04	1.87E+03	2.11E+05
VE-6	11/28/2006	7.25E+07	5.41E+05	2.06E+03	1.71E+04	1.53E+02	4.79E+02	3.74E+02	1.99E+02
VE-10	11/11/2003	1.55E+04	6.89E+02	-	6.02E+01	-	ND	ND	-
	2/24/2004	1.91E+07	ND	-	2.00E+01	-	-	-	-
	6/1/2004	9.06E+07	5.97E+03	-	1.38E+01	-	ND	ND	-
	9/1/2004	2.45E+07	2.54E+06	-	3.58E+01	-	5.31E+00	ND	-
	12/1/2004	9.09E+06	6.29E+06	-	3.87E+02	-	-	-	-
	3/2/2005	2.37E+07	5.46E+04	2.11E+05	1.16E+03	-	5.35E+01	<2.5E+01	-
	10/24/2005	6.89E+07	2.66E+06	2.91E+07	7.54E+03	9.56E+05	-	-	-
	11/28/2006	1.15E+08	5.15E+05	6.58E+02	1.06E+04	3.98E+04	1.52E+02	3.47E+00 J	3.57E+03
VE-12	11/11/2003	4.63E+06	1.14E+03	-	2.43E+03	-	ND	J (<1)	-
	2/24/2004	2.47E+07	3.06E+02	-	2.00E+01	-	-	-	-
	6/1/2004	2.34E+07	4.77E+03	-	4.61E+03	-	2.87E+02	1.23+02	-
	9/1/2004	3.19E+07	6.52E+05	-	4.22E+06	-	4.91E+03	2.45E+05	-
	12/1/2004	7.31E+07	2.45E+06	-	3.45E+06	-	-	-	-
	3/2/2005	1.84E+08	1.33E+05	2.24E+06	1.30E+07	-	8.95E+04	2.22E+06	-
	10/24/2005	6.08E+07	6.52E+05	1.39E+07	3.57E+06	4.58E+05	-	-	-
	11/28/2006	5.84E+07	8.10E+03	4.18E+03	2.17E+07	7.81E+02	2.32E+03	7.83E+06	6.67E+06
VE-15	11/28/2006	8.49E+07	1.25E+04	1.59E+03	9.02E+03	4.82E+01 J	<2.5E+01	1.16E+01 J	1.67E+03

Notes:
- : Not Analyzed
ND: Not Detected



32077\053_HRC PERF & FINAL REPORT\CAD\LOCUS.DWG

-N-

QUADRANGLE LOCATION: PITTSFORD, N.Y.

HALEY & ALDRICH

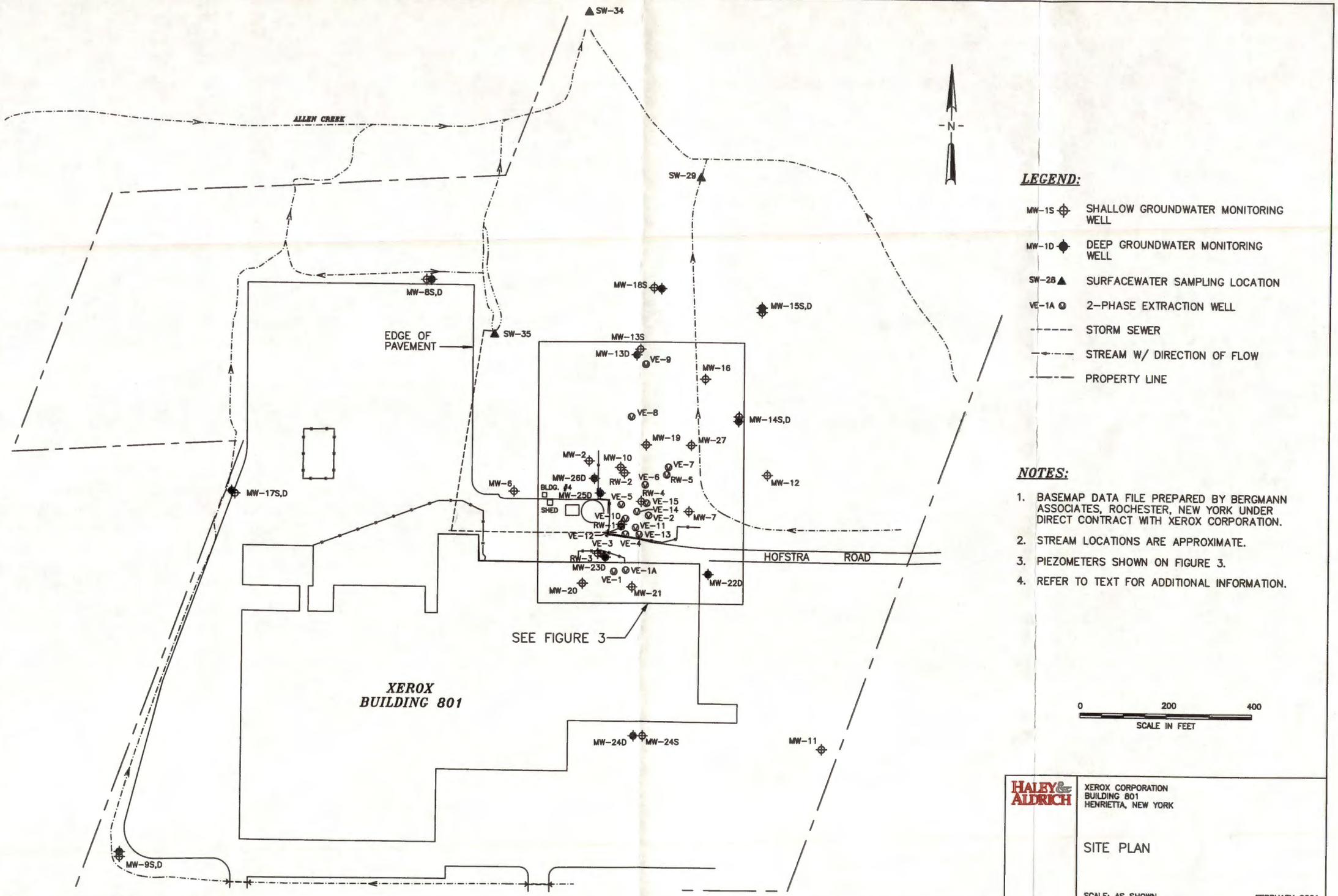
XEROX CORPORATION
BUILDING 801
HENRIETTA, NY

PROJECT LOCUS

SCALE: 1" = 2000'

FEBRUARY 2001

FIGURE 1



32077\053_HRC PERF EVAL & FINAL REPORT\CAD\SITE.DWG

HALEY & ALDRICH

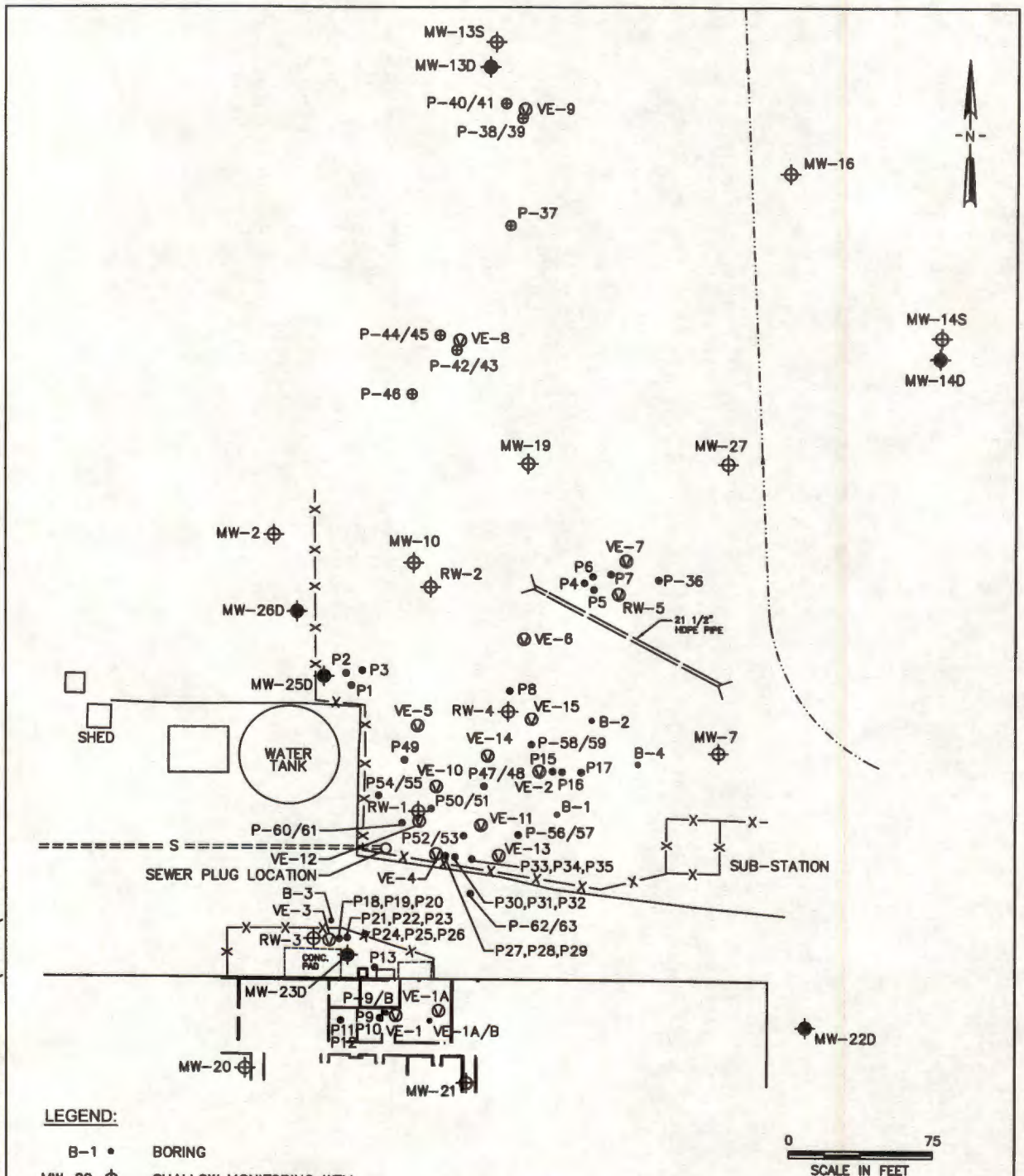
XEROX CORPORATION
BUILDING 801
HENRIETTA, NEW YORK

SITE PLAN

SCALE: AS SHOWN

FEBRUARY 2001

FIGURE 2



LEGEND:

B-1 •	BORING
MW-20 ⊕	SHALLOW MONITORING WELL
MW-20 ◆	DEEP MONITORING WELL
P18 ⊕	PIEZOMETER
VE-1A Ⓥ	2-PHASE EXTRACTION WELL
—·—·—	STREAM WITH DIRECTION OF FLOW

NOTES:

1. LOCATIONS ARE APPROXIMATE.
2. STORM-SEWER PLUG INSTALLED 18 AUGUST 1993.
3. SEE TEXT FOR ADDITIONAL INFORMATION.

HALEY & ALDRICH

XEROX CORPORATION
BUILDING 801
HENRIETTA, NEW YORK

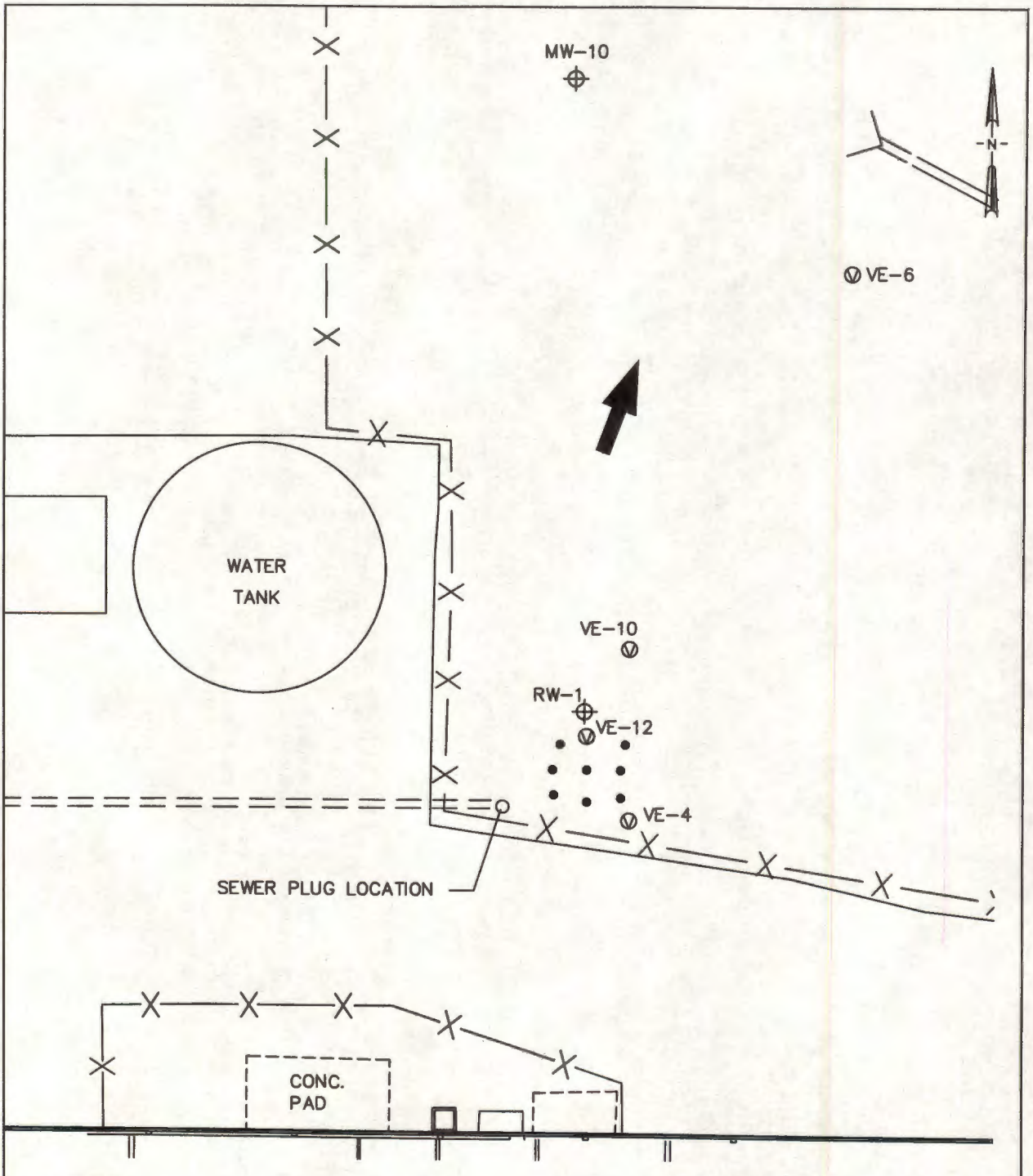
LAWN AREA WELL LOCATION

SCALE: AS SHOWN

FEBRUARY 2001

32077\053_HRC PERF & FINAL REPORT\CAD\FIG3.DWG

FIGURE 3



LEGEND:

RW-1 — SHALLOW MONITORING WELL

VE-1A — FORMER 2-PHASE EXTRACTION WELL

● — ELECTRON DONOR INJECTION POINT

↑ — APPROXIMATE GROUNDWATER FLOW DIRECTION

NOTE:

ELECTRON DONOR INJECTION LOCATIONS ARE APPROXIMATE.

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HENRIETTA, NEW YORK

ELECTRON DONOR PILOT TEST INJECTION GRID

SCALE: AS SHOWN

NOVEMBER 2003

32077\053_HRC PERF EVAL & FINAL REPORT\CAD\PILOT.DWG

FIGURE 4

MW-26D

RW-2

RW-5

MW-25D

INJECTION GRID

1-STY. BLDG.

WATER TANK

SIDE RAIL CL.

VE-6

VE-5

VE-15

VE-2

VE-10

RW-1

VE-12

VE-4

MW-7

SUB-STATION

M

NOTES:
ALL GRID LOCATIONS ARE APPROXIMATE

N
W
E
S

0 10 20 30 40
SCALE IN FEET

HALEY & ALDRICH

XEROX CORPORATION
BUILDING 801
HENRIETTA, NEW YORK

AS-BUILT HRC-S INJECTION GRID

SCALE: AS SHOWN
OCTOBER 2006

FIGURE 5

G:\PROJECTS\320770\53_HRC PERF EVAL & FINAL REPORT\CAD\PROPOSED FS GRID WITH 2PHASE 10-02-06.DWG

APPENDIX A

DATA USABILITY SUMMARY REPORTS (DUSRs)

Data Usability Summary Report (DUSR)
Xerox 801 Groundwater Sampling
Analytical Laboratory: Columbia Analytical Services, Inc. - Rochester, NY
Sample Delivery Group # R2421540 & R2421311

Analytical results for the project samples were reviewed to evaluate the data usability. Data was assessed in accordance with guidance from the following Federal and/or State guidance documents:

- USEPA National Functional Guidelines for Organic Data Review (EPA 540/R-99/008)
- NYSDEC "Guidance for the Development of Quality Assurance Plans and Data Usability Summary Reports (DUSR)", September 1997

and method protocol criteria where applicable as prescribed by "Test Methods for Evaluating Solid Waste", SW846, Update III, 1996.

This DUSR pertains to the following samples:

Sample ID
MW-2
MW-10
MW-13S
MW-16
MW-19
RW-1
RW-4
MW-24
EQUIPMENT BLANK
TRIP BLANK
TRIP BLANK
TRIP BLANK
MW-10 DUP

Sample ID
SW-34
SW-35
RW-1 RESAMPLE

Project Samples were analyzed according to the following analytical methods:

	Parameter	Analytical Method	Holding Time Criteria
1.	VOCs	EPA 8260B/624	14 days
2.	Mineral Spirits	EPA 8015M	14 days

The following items/criteria applicable to the analysis of project samples and associated QA/QC procedures were reviewed.

- Holding Times
- Blank Sample Analysis
- Laboratory Control Samples, Matrix Spike/Matrix Spike Duplicate Recoveries
- Sample Data Reporting Format
- Data Qualifiers
- Summary

Preservation and Holding Times

Maximum allowable holding times, measured from the time of sample collection to the time of sample preparation or analysis, were met for each project sample analyzed as part of this sample delivery group. No qualification of the data is recommended.

Blank Sample Analysis

In accordance with cited USEPA guidelines, positive sample results should be reported unless the concentration of the compound in the project sample is less than or equal to 10 times (10X) the amount in any blank for metals and the common organic laboratory contaminants (methylene chloride, acetone, 2-butanone, cyclohexane, and phthalate esters), or 5 times (5X) the amount for other target compounds. Target analytes were not detected in associated blank samples (trip, equipment, method) prepared and analyzed concurrently with the project samples. No qualification of the data is recommended.

Laboratory Control Samples, Matrix Spike/Matrix Spike Duplicate Recoveries

Analytical precision and accuracy was evaluated based on the laboratory control and matrix spike sample analyses performed concurrently with the project samples. For matrix spike samples, after the addition of a known amount of each target analyte to the sample matrix, the sample was analyzed to confirm the ability to identify these compounds within the sample matrix. For LCS analyses, after the addition of a known amount of each target analyte into laboratory reagent water, the sample was analyzed to confirm the ability of the analytical system to accurately quantify the compounds. The reported recovery of MS/MSD and LCS analyses fell within the laboratory QA acceptance criteria. No qualification of the data is recommended.

Sample Data Reporting Format

The sample data are presented using USEPA Contract Laboratory Protocol (CLP) format. The data package has been reviewed for completeness and found to contain each required sample result and associated QA/QC report form. The reporting format is complete and compliant with the objectives of the project. No qualification of the data is recommended.

Data Qualifiers

Data qualifiers were assigned by the laboratory to the reported results to identify target analytes detected below the reporting limit but above the method detection limit, and/or when target analytes were detected in the associated method/preparation blank sample. Based on a spot check of the data qualifiers used, these flags appeared to be applied to the reported results in accordance with EPA guidance.

Organic analyses samples that contained concentrations of target analytes at a reportable level in the associated method blanks were flagged by the laboratory with a "B". If the target analyte concentration was greater than 10 times (10X) the amount in any blank for the common laboratory contaminants or 5 times (5X) the amount for other target compounds, the "B" qualifier was not carried forward for database input; if less than the 10X or 5X rule the "B" qualifier was replaced with a "U". The "J" qualifier, which indicates an estimated value because the result was between the MDL and RL was carried through to the database.

Summary

The results presented in each report were found to be compliant with the data quality objectives for the project and usable. Based on our review, the usability of the data is 100%, with the few exceptions noted above.

Data Usability Summary Report (DUSR)
Xerox 801 Groundwater Sampling
Analytical Laboratory: Columbia Analytical Services, Inc. - Rochester, NY
Sample Delivery Group # R2424085

Analytical results for the project samples were reviewed to evaluate the data usability. Data was assessed in accordance with guidance from the following Federal and/or State guidance documents:

- USEPA National Functional Guidelines for Inorganic Data Review (EPA 540-R-04-004)
- USEPA National Functional Guidelines for Organic Data Review (EPA 540/R-99/008)
- NYSDEC "Guidance for the Development of Quality Assurance Plans and Data Usability Summary Reports (DUSR)", September 1997

and method protocol criteria where applicable as prescribed by "Test Methods for Evaluating Solid Waste", SW846, Update III, 1996.

This DUSR pertains to the following samples:

Sample ID
RW-1
VE-4
VE-12
VE-10
RW-1 SOLUBLE
VE-4 SOLUBLE
VE-12 SOLUBLE
VE-10 SOLUBLE
TRIP BLANK

Project Samples were analyzed according to the following analytical methods:

	Parameter	Analytical Method	Holding Time Criteria
1.	VOCs	EPA 8260B/624	14 days
2.	Dissolved Gases in Water	RSK 175M	7 days
3.	Metabolic Acids	Lab Method	28 days
4.	ICP Metals	EPA 6010B/200.7	180 days
5.	Alkalinity	SM 2320B	14 days
6.	pH	EPA 150.1	ASAP (24 hours)
7.	Ferrous Iron	SM 3500-Fe D	24 hours
8.	Dissolved Oxygen	SM 4500-O G	8 hours
9.	Redox Potential	ASTM D-1498	24 hours
10.	Sulfide, Total	EPA 376.2	7 days
11.	Nitrogen, Ammonia (NH3)	EPA 350.2/SM 4500-	28 days
12.	Nitrogen, Nitrate (NO3)	EPA 300.0/SM 4500-	48 hours
13.	Nitrogen, Nitrite (NO2)	EPA 300.0/354.1	48 hours
14.	Phosphorus, Total	EPA 365.3	28 days
15.	Dissolved Organic Carbon (DOC)	EPA 415.1	28 days
16.	Sulfate	EPA 300.0/375.4	28 days
17.	Chloride	EPA 300.0/SM 4500-Cl	28 days

The following items/criteria applicable to the analysis of project samples and associated QA/QC procedures were reviewed.

- Holding Times
- Blank Sample Analysis
- Laboratory Control Samples, Matrix Spike/Matrix Spike Duplicate Recoveries
- Duplicate Sample Analysis
- Sample Data Reporting Format
- Data Qualifiers
- Summary

Preservation and Holding Times

Maximum allowable holding times, measured from the time of sample collection to the time of sample preparation or analysis, were met for each project sample analyzed as part of this sample delivery group. No qualification of the data is recommended.

Blank Sample Analysis

In accordance with cited USEPA guidelines, positive sample results should be reported unless the concentration of the compound in the project sample is less than or equal to 10 times (10X) the amount in any blank for metals and the common organic laboratory contaminants (methylene chloride, acetone, 2-butanone, cyclohexane, and phthalate esters), or 5 times (5X) the amount for other target compounds. Target analytes were not detected in associated blank samples (trip, equipment, method) prepared and analyzed concurrently with the project samples. No qualification of the data is recommended.

Laboratory Control Samples, Matrix Spike/Matrix Spike Duplicate Recoveries

Analytical precision and accuracy was evaluated based on the laboratory control and matrix spike sample analyses performed concurrently with the project samples. For matrix spike samples, after the addition of a known amount of each target analyte to the sample matrix, the sample was analyzed to confirm the ability to identify these compounds within the sample matrix. For LCS analyses, after the addition of a known amount of each target analyte into laboratory reagent water, the sample was analyzed to confirm the ability of the analytical system to accurately quantify the compounds. The reported recovery of MS/MSD and LCS analyses fell within the laboratory QA acceptance criteria, with the following exception(s):

LCS ID / Project Sample MS	Target Analyte(s)	%R Criteria	%R	Affected Sample(s)
LCS 784674	Pyruvic Acid	50 - 150	153	All Project Samples

Action:

If the LCS %R is greater than the upper acceptance limit, associated target analyte positive results are qualified "J" and non-detects should not be qualified. If the LCS %R is less than the lower acceptance limit associated target analyte positive results are qualified "J" and non-detects are qualified "R". If the MS/MSD is from a project sample and the %R greater than the upper acceptance limit, associated target analyte positive results are qualified "J" and non-detects should not be qualified. If the MS/MSD %R is >10%, but less than the lower acceptance limit, associated analyte positive results are qualified "J" and non-detects are qualified "UJ". If the MS/MSD %R is less than 10% associated target analyte positive results are qualified "J" and non-detects are qualified "R". MS/MSD qualifiers are only applied to affected samples of the same matrix. If the MS/MSD is a LAB sample do not qualify project samples.

Duplicate Sample Analysis

The replicate percent difference (RPD) was evaluated for each duplicate sample pair to monitor the reproducibility of the data. The RPD for each sample pair was within the QA/QC limit of 30% for aqueous samples and 50% for solid matrices, for those target analytes with sample concentrations >5X the MDL. No qualification of the data is recommended.

Sample Data Reporting Format

The sample data are presented using USEPA Contract Laboratory Protocol (CLP) format. The data package has been reviewed for completeness and found to contain each required sample result and associated QA/QC report form. The reporting format is complete and compliant with the objectives of the project. No qualification of the data is recommended.

Data Qualifiers

Data qualifiers were assigned by the laboratory to the reported results to identify target analytes detected below the reporting limit but above the method detection limit, and/or when target analytes were detected in the associated method/preparation blank sample. Based on a spot check of the data qualifiers used, these flags appeared to be applied to the reported results in accordance with EPA guidance.

Organic analyses samples that contained concentrations of target analytes at a reportable level in the associated method blanks were flagged by the laboratory with a "B". If the target analyte concentration was greater than 10 times (10X) the amount in any blank for the common laboratory contaminants or 5 times (5X) the amount for other target compounds, the "B" qualifier was not carried forward for database input; if less than the 10X or 5X rule the "B" qualifier was replaced with a "U". The "J" qualifier, which indicates an estimated value because the result

was between the MDL and RL was carried through to the database.

Summary

The results presented in each report were found to be compliant with the data quality objectives for the project and usable. Based on our review, the usability of the data is 100%, with the few exceptions noted above.

Data Usability Summary Report (DUSR)
Xerox 801 Groundwater Sampling
Analytical Laboratory: Columbia Analytical Services, Inc. - Rochester, NY
Sample Delivery Group # R2424086

Analytical results for the project samples were reviewed to evaluate the data usability. Data was assessed in accordance with guidance from the following Federal and/or State guidance documents:

- USEPA National Functional Guidelines for Organic Data Review (EPA 540/R-99/008)
- NYSDEC "Guidance for the Development of Quality Assurance Plans and Data Usability Summary Reports (DUSR)", September 1997

and method protocol criteria where applicable as prescribed by "Test Methods for Evaluating Solid Waste", SW846, Update III, 1996.

This DUSR pertains to the following samples:

Sample ID
RW-1
RW-4
MW-2
MW-10
MW-13S
MW-16
MW-19
MW-24S
SW-29
SW-34
SW-35
MW-19 DUPLICATE
TRIP BLANK

Sample ID
EQUIPMENT BLANK
EQUIPMENT BLANK

Project Samples were analyzed according to the following analytical methods:

	Parameter	Analytical Method	Holding Time Criteria
1.	VOCs	EPA 8260B/624	14 days
2.	Mineral Spirits	EPA 8015M	14 days

The following items/criteria applicable to the analysis of project samples and associated QA/QC procedures were reviewed.

- Holding Times
- Blank Sample Analysis
- Laboratory Control Samples, Matrix Spike/Matrix Spike Duplicate Recoveries
- Sample Data Reporting Format
- Data Qualifiers
- Summary

Preservation and Holding Times

Maximum allowable holding times, measured from the time of sample collection to the time of sample preparation or analysis, were met for each project sample analyzed as part of this sample delivery group. No qualification of the data is recommended.

Blank Sample Analysis

In accordance with cited USEPA guidelines, positive sample results should be reported unless the concentration of the compound in the project sample is less than or equal to 10 times (10X) the amount in any blank for metals and the common organic laboratory contaminants (methylene chloride, acetone, 2-butanone, cyclohexane, and phthalate esters), or 5 times (5X) the amount for other target compounds. Target analytes were not detected in associated blank samples (trip, equipment, method) prepared and analyzed concurrently with the project samples. No qualification of the data is recommended.

Laboratory Control Samples, Matrix Spike/Matrix Spike Duplicate Recoveries

Analytical precision and accuracy was evaluated based on the laboratory control and matrix spike sample analyses performed concurrently with the project samples. For matrix spike samples, after the addition of a known amount of each target analyte to the sample matrix, the sample was analyzed to confirm the ability to identify these compounds within the sample matrix. For LCS analyses, after the addition of a known amount of each target analyte into laboratory reagent water, the sample was analyzed to confirm the ability of the analytical system to accurately quantify the compounds. The reported recovery of MS/MSD and LCS analyses fell within the laboratory QA acceptance criteria, with the following exception(s):

LCS ID / Project Sample MS	Target Analyte(s)	%R Criteria	%R	Affected Sample(s)
LCS 786129	Bromomethane	50 - 150	170	All Project Samples

Action:

If the LCS %R is greater than the upper acceptance limit, associated target analyte positive results are qualified "J" and non-detects should not be qualified. If the LCS %R is less than the lower acceptance limit associated target analyte positive results are qualified "J" and non-detects are qualified "R". If the MS/MSD is from a project sample and the %R greater than the upper acceptance limit, associated target analyte positive results are qualified "J" and non-detects should not be qualified. If the MS/MSD %R is >10%, but less than the lower acceptance limit, associated analyte positive results are qualified "J" and non-detects are qualified "UJ". If the MS/MSD %R is less than 10% associated target analyte positive results are qualified "J" and non-detects are qualified "R". MS/MSD qualifiers are only applied to affected samples of the same matrix. If the MS/MSD is a LAB sample do not qualify project samples.

Sample Data Reporting Format

The sample data are presented using USEPA Contract Laboratory Protocol (CLP) format. The data package has been reviewed for completeness and found to contain each required sample result and associated QA/QC report form. The reporting format is complete and compliant with the objectives of the project. No qualification of the data is recommended.

Data Qualifiers

Data qualifiers were assigned by the laboratory to the reported results to identify target analytes detected below the reporting limit but above the method detection limit, and/or when target analytes were detected in the associated method/preparation blank sample. Based on a spot check of the data qualifiers used, these flags appeared to be applied to the reported results in accordance with EPA guidance.

Organic analyses samples that contained concentrations of target analytes at a reportable level in the associated method blanks were flagged by the laboratory with a "B". If the target analyte concentration was greater than 10 times (10X) the amount in any blank for the common laboratory contaminants or 5 times (5X) the amount for other target compounds, the "B" qualifier was not carried forward for database input; if less than the 10X or 5X rule the "B" qualifier was replaced with a "U". The "J" qualifier, which indicates an estimated value because the result was between the MDL and RL was carried through to the database.

Summary

The results presented in each report were found to be compliant with the data quality objectives for the project and usable. Based on our review, the usability of the data is 100%, with the few exceptions noted above.

Data Usability Summary Report (DUSR)
Xerox 801 Groundwater Sampling
Analytical Laboratory: Columbia Analytical Services, Inc. - Rochester, NY
Sample Delivery Group # R2525322

Analytical results for the project samples were reviewed to evaluate the data usability. Data was assessed in accordance with guidance from the following Federal and/or State guidance documents:

- USEPA National Functional Guidelines for Inorganic Data Review (EPA 540-R-04-004)
- USEPA National Functional Guidelines for Organic Data Review (EPA 540/R-99/008)
- NYSDEC "Guidance for the Development of Quality Assurance Plans and Data Usability Summary Reports (DUSR)", September 1997

and method protocol criteria where applicable as prescribed by "Test Methods for Evaluating Solid Waste", SW846, Update III, 1996.

This DUSR pertains to the following samples:

Sample ID
RW-1
VE-4
VE-12
VE-10
RW-1 SOLUBLE
VE-4 SOLUBLE
VE-12 SOLUBLE
VE-10 SOLUBLE
TRIP BLANK

Project Samples were analyzed according to the following analytical methods:

	Parameter	Analytical Method	Holding Time Criteria
1.	VOCs	EPA 8260B/624	14 days
2.	ICP Metals	EPA 6010B/200.7	180 days
3.	Metabolic Acids	Lab Method	28 days
4.	Alkalinity	SM 2320B	14 days
5.	pH	EPA 150.1	ASAP (24 hours)
6.	Dissolved Oxygen	SM 4500-O G	8 hours
7.	Ferrous Iron	SM 3500-Fe D	24 hours
8.	Redox Potential	ASTM D-1498	24 hours
9.	Dissolved Gases in Water	RSK 175M	7 days
10.	Nitrogen, Ammonia (NH3)	EPA 350.2/SM 4500-	28 days
11.	Nitrogen, Nitrate (NO3)	EPA 300.0/SM 4500-	48 hours
12.	Nitrogen, Nitrite (NO2)	EPA 300.0/354.1	48 hours
13.	Chloride	EPA 300.0/SM 4500-Cl	28 days
14.	Sulfate	EPA 300.0/375.4	28 days
15.	Sulfide, Total	EPA 376.2	7 days
16.	Dissolved Organic Carbon (DOC)	EPA 415.1	28 days

The following items/criteria applicable to the analysis of project samples and associated QA/QC procedures were reviewed.

- Holding Times
- Blank Sample Analysis
- Laboratory Control Samples, Matrix Spike/Matrix Spike Duplicate Recoveries
- Duplicate Sample Analysis
- Sample Data Reporting Format
- Data Qualifiers
- Summary

Preservation and Holding Times

Maximum allowable holding times, measured from the time of sample collection to the time of sample preparation or analysis, were met for each project sample analyzed as part of this sample delivery group. No qualification of the data is recommended.

Blank Sample Analysis

In accordance with cited USEPA guidelines, positive sample results should be reported unless the concentration of the compound in the project sample is less than or equal to 10 times (10X) the amount in any blank for metals and the common organic laboratory contaminants (methylene chloride, acetone, 2-butanone, cyclohexane, and phthalate esters), or 5 times (5X) the amount for other target compounds. Target analytes were not detected in associated blank samples (trip, equipment, method) prepared and analyzed concurrently with the project samples. No qualification of the data is recommended.

Laboratory Control Samples, Matrix Spike/Matrix Spike Duplicate Recoveries

Analytical precision and accuracy was evaluated based on the laboratory control and matrix spike sample analyses performed concurrently with the project samples. For matrix spike samples, after the addition of a known amount of each target analyte to the sample matrix, the sample was analyzed to confirm the ability to identify these compounds within the sample matrix. For LCS analyses, after the addition of a known amount of each target analyte into laboratory reagent water, the sample was analyzed to confirm the ability of the analytical system to accurately quantify the compounds. The reported recovery of MS/MSD and LCS analyses fell within the laboratory QA acceptance criteria. No qualification of the data is recommended.

Duplicate Sample Analysis

The replicate percent difference (RPD) was evaluated for each duplicate sample pair to monitor the reproducibility of the data. The RPD for each sample pair was within the QA/QC limit of 30% for aqueous samples and 50% for solid matrices, for those target analytes with sample concentrations >5X the MDL. No qualification of the data is recommended.

Sample Data Reporting Format

The sample data are presented using USEPA Contract Laboratory Protocol (CLP) format. The data package has been reviewed for completeness and found to contain each required sample result and associated QA/QC report form. The reporting format is complete and compliant with the objectives of the project. No qualification of the data is recommended.

Data Qualifiers

Data qualifiers were assigned by the laboratory to the reported results to identify target analytes detected below the reporting limit but above the method detection limit, and/or when target analytes were detected in the associated method/preparation blank sample. Based on a spot check of the data qualifiers used, these flags appeared to be applied to the reported results in accordance with EPA guidance.

Organic analyses samples that contained concentrations of target analytes at a reportable level in the associated method blanks were flagged by the laboratory with a "B". If the target analyte concentration was greater than 10 times (10X) the amount in any blank for the common laboratory contaminants or 5 times (5X) the amount for other target compounds, the "B" qualifier was not carried forward for database input; if less than the 10X or 5X rule the "B" qualifier was replaced with a "U". The "J" qualifier, which indicates an estimated value because the result was between the MDL and RL was carried through to the database.

Summary

The results presented in each report were found to be compliant with the data quality objectives for the project and usable. Based on our review, the usability of the data is 100%, with the few exceptions noted above.

Data Usability Summary Report (DUSR)
Xerox 801 Groundwater Sampling
Analytical Laboratory: Columbia Analytical Services, Inc. - Rochester, NY
Sample Delivery Group # R2526336

Analytical results for the project samples were reviewed to evaluate the data usability. Data was assessed in accordance with guidance from the following Federal and/or State guidance documents:

- USEPA National Functional Guidelines for Organic Data Review (EPA 540/R-99/008)
- NYSDEC "Guidance for the Development of Quality Assurance Plans and Data Usability Summary Reports (DUSR)", September 1997

and method protocol criteria where applicable as prescribed by "Test Methods for Evaluating Solid Waste", SW846, Update III, 1996.

This DUSR pertains to the following samples:

Sample ID
RW-1
RW-4
MW-2
MW-10
MW-13S
MW-16
MW-19
MW-24S
SW-29
SW-34
SW-35
MW-10 DUPLICATE
EQUIPMENT BLANK

Sample ID
TRIP BLANK

Project Samples were analyzed according to the following analytical methods:

	Parameter	Analytical Method	Holding Time Criteria
1.	VOCs	EPA 8260B/624	14 days
2.	Mineral Spirits	EPA 8015M	14 days

The following items/criteria applicable to the analysis of project samples and associated QA/QC procedures were reviewed.

- Holding Times
- Blank Sample Analysis
- Laboratory Control Samples, Matrix Spike/Matrix Spike Duplicate Recoveries
- Sample Data Reporting Format
- Data Qualifiers
- Summary

Preservation and Holding Times

Maximum allowable holding times, measured from the time of sample collection to the time of sample preparation or analysis, were met for each project sample analyzed as part of this sample delivery group. No qualification of the data is recommended.

Blank Sample Analysis

In accordance with cited USEPA guidelines, positive sample results should be reported unless the concentration of the compound in the project sample is less than or equal to 10 times (10X) the amount in any blank for metals and the common organic laboratory contaminants (methylene chloride, acetone, 2-butanone, cyclohexane, and phthalate esters), or 5 times (5X) the amount for other target compounds. Target analytes were not detected in associated blank samples (trip, equipment, method) prepared and analyzed concurrently with the project samples. No qualification of the data is recommended.

Laboratory Control Samples, Matrix Spike/Matrix Spike Duplicate Recoveries

Analytical precision and accuracy was evaluated based on the laboratory control and matrix spike sample analyses performed concurrently with the project samples. For matrix spike samples, after the addition of a known amount of each target analyte to the sample matrix, the sample was analyzed to confirm the ability to identify these compounds within the sample matrix. For LCS analyses, after the addition of a known amount of each target analyte into laboratory reagent water, the sample was analyzed to confirm the ability of the analytical system to accurately quantify the compounds. The reported recovery of MS/MSD and LCS analyses fell within the laboratory QA acceptance criteria, with the following exception(s):

LCS ID / Project Sample MS	Target Analyte(s)	%R Criteria	%R	Affected Sample(s)
RW-1 MS	cis-1,2-Dichloroethene	70 - 130	60	RW-1
RW-1 MSD	cis-1,2-Dichloroethene	70 - 130	60	RW-1

Action:

If the LCS %R is greater than the upper acceptance limit, associated target analyte positive results are qualified "J" and non-detects should not be qualified. If the LCS %R is less than the lower acceptance limit associated target analyte positive results are qualified "J" and non-detects are qualified "R". If the MS/MSD is from a project sample and the %R greater than the upper acceptance limit, associated target analyte positive results are qualified "J" and non-detects should not be qualified. If the MS/MSD %R is >10%, but less than the lower acceptance limit, associated analyte positive results are qualified "J" and non-detects are qualified "UJ". If the MS/MSD %R is less than 10% associated target analyte positive results are qualified "J" and non-detects are qualified "R". MS/MSD qualifiers are only applied to affected samples of the same matrix. If the MS/MSD is a LAB sample do not qualify project samples.

Sample Data Reporting Format

The sample data are presented using USEPA Contract Laboratory Protocol (CLP) format. The data package has been reviewed for completeness and found to contain each required sample result and associated QA/QC report form. The reporting format is complete and compliant with the objectives of the project. No qualification of the data is recommended.

Data Qualifiers

Data qualifiers were assigned by the laboratory to the reported results to identify target analytes detected below the reporting limit but above the method detection limit, and/or when target analytes were detected in the associated method/preparation blank sample. Based on a spot check of the data qualifiers used, these flags appeared to be applied to the reported results in accordance with EPA guidance.

Organic analyses samples that contained concentrations of target analytes at a reportable level in the associated method blanks were flagged by the laboratory with a "B". If the target analyte concentration was greater than 10 times (10X) the amount in any blank for the common laboratory contaminants or 5 times (5X) the amount for other target compounds, the "B" qualifier was not carried forward for database input; if less than the 10X or 5X rule the "B" qualifier was replaced with a "U". The "J" qualifier, which indicates an estimated value because the result was between the MDL and RL was carried through to the database.

Summary

The results presented in each report were found to be compliant with the data quality objectives for the project and usable. Based on our review, the usability of the data is 100%, with the few exceptions noted above.

Data Usability Summary Report (DUSR)
Xerox 801 Groundwater Sampling
Analytical Laboratory: Columbia Analytical Services, Inc. - Rochester, NY
Sample Delivery Group # R2529557

Analytical results for the project samples were reviewed to evaluate the data usability. Data was assessed in accordance with guidance from the following Federal and/or State guidance documents:

- USEPA National Functional Guidelines for Organic Data Review (EPA 540/R-99/008)
- NYSDEC "Guidance for the Development of Quality Assurance Plans and Data Usability Summary Reports (DUSR)", September 1997

and method protocol criteria where applicable as prescribed by "Test Methods for Evaluating Solid Waste", SW846, Update III, 1996.

This DUSR pertains to the following samples:

Sample ID
RW-1
RW-4
MW-2
MW-10
MW-13S
MW-16
MW-19
MW-24S
SW-29
SW-34
SW-35
MW-10 DUPLICATE
EQUIPMENT BLANK

Sample ID
BAILER BLANK
TRIP BLANK

Project Samples were analyzed according to the following analytical methods:

	Parameter	Analytical Method	Holding Time Criteria
1.	VOCs	EPA 8260B/624	14 days
2.	Mineral Spirits	EPA 8015M	14 days

The following items/criteria applicable to the analysis of project samples and associated QA/QC procedures were reviewed.

- Holding Times
- Blank Sample Analysis
- Laboratory Control Samples, Matrix Spike/Matrix Spike Duplicate Recoveries
- Sample Data Reporting Format
- Data Qualifiers
- Summary

Preservation and Holding Times

Maximum allowable holding times, measured from the time of sample collection to the time of sample preparation or analysis, were met for each project sample analyzed as part of this sample delivery group. No qualification of the data is recommended.

Blank Sample Analysis

In accordance with cited USEPA guidelines, positive sample results should be reported unless the concentration of the compound in the project sample is less than or equal to 10 times (10X) the amount in any blank for metals and the common organic laboratory contaminants (methylene chloride, acetone, 2-butanone, cyclohexane, and phthalate esters), or 5 times (5X) the amount for other target compounds. Target analytes were not detected in associated blank samples (trip, equipment, method) prepared and analyzed concurrently with the project samples. No qualification of the data is recommended.

Laboratory Control Samples, Matrix Spike/Matrix Spike Duplicate Recoveries

Analytical precision and accuracy was evaluated based on the laboratory control and matrix spike sample analyses performed concurrently with the project samples. For matrix spike samples, after the addition of a known amount of each target analyte to the sample matrix, the sample was analyzed to confirm the ability to identify these compounds within the sample matrix. For LCS analyses, after the addition of a known amount of each target analyte into laboratory reagent water, the sample was analyzed to confirm the ability of the analytical system to accurately quantify the compounds. The reported recovery of MS/MSD and LCS analyses fell within the laboratory QA acceptance criteria. No qualification of the data is recommended.

Sample Data Reporting Format

The sample data are presented using USEPA Contract Laboratory Protocol (CLP) format. The data package has been reviewed for completeness and found to contain each required sample result and associated QA/QC report form. The reporting format is complete and compliant with the objectives of the project. No qualification of the data is recommended.

Data Qualifiers

Data qualifiers were assigned by the laboratory to the reported results to identify target analytes detected below the reporting limit but above the method detection limit, and/or when target analytes were detected in the associated method/preparation blank sample. Based on a spot check of the data qualifiers used, these flags appeared to be applied to the reported results in accordance with EPA guidance.

Organic analyses samples that contained concentrations of target analytes at a reportable level in the associated method blanks were flagged by the laboratory with a "B". If the target analyte concentration was greater than 10 times (10X) the amount in any blank for the common laboratory contaminants or 5 times (5X) the amount for other target compounds, the "B" qualifier was not carried forward for database input; if less than the 10X or 5X rule the "B" qualifier was replaced with a "U". The "J" qualifier, which indicates an estimated value because the result was between the MDL and RL was carried through to the database.

Summary

The results presented in each report were found to be compliant with the data quality objectives for the project and usable. Based on our review, the usability of the data is 100%, with the few exceptions noted above.

Data Usability Summary Report (DUSR)
Xerox 801 Groundwater Sampling
Analytical Laboratory: Columbia Analytical Services, Inc. - Rochester, NY
Sample Delivery Group # R2632173

Analytical results for the project samples were reviewed to evaluate the data usability. Data was assessed in accordance with guidance from the following Federal and/or State guidance documents:

- USEPA National Functional Guidelines for Organic Data Review (EPA 540/R-99/008)
- NYSDEC "Guidance for the Development of Quality Assurance Plans and Data Usability Summary Reports (DUSR)", September 1997

and method protocol criteria where applicable as prescribed by "Test Methods for Evaluating Solid Waste", SW846, Update III, 1996.

This DUSR pertains to the following samples:

Sample ID
RW-4
MW-2
MW-10
MW-13S
MW-16
MW-16 DUPLICATE
MW-19
MW-24S
SW-34
SW-35
TRIP BLANK

Project Samples were analyzed according to the following analytical methods:

	Parameter	Analytical Method	Holding Time Criteria
1.	VOCs	EPA 8260B/624	14 days

The following items/criteria applicable to the analysis of project samples and associated QA/QC procedures were reviewed.

- Holding Times
- Blank Sample Analysis
- Laboratory Control Samples, Matrix Spike/Matrix Spike Duplicate Recoveries
- Sample Data Reporting Format
- Data Qualifiers
- Summary

Preservation and Holding Times

Maximum allowable holding times, measured from the time of sample collection to the time of sample preparation or analysis, were met for each project sample analyzed as part of this sample delivery group. No qualification of the data is recommended.

Blank Sample Analysis

In accordance with cited USEPA guidelines, positive sample results should be reported unless the concentration of the compound in the project sample is less than or equal to 10 times (10X) the amount in any blank for metals and the common organic laboratory contaminants (methylene chloride, acetone, 2-butanone, cyclohexane, and phthalate esters), or 5 times (5X) the amount for other target compounds. Target analytes were not detected in associated blank samples (trip, equipment, method) prepared and analyzed concurrently with the project samples. No qualification of the data is recommended.

Laboratory Control Samples, Matrix Spike/Matrix Spike Duplicate Recoveries

Analytical precision and accuracy was evaluated based on the laboratory control and matrix spike sample analyses performed concurrently with the project samples. For matrix spike samples, after the addition of a known amount of each target analyte to the sample matrix, the sample was analyzed to confirm the ability to identify these compounds within the sample matrix. For LCS analyses, after the addition of a known amount of each target analyte into laboratory reagent water, the sample was analyzed to confirm the ability of the analytical system to accurately quantify the compounds. The reported recovery of MS/MSD and LCS analyses fell within the laboratory QA acceptance criteria. No qualification of the data is recommended.

Sample Data Reporting Format

The sample data are presented using USEPA Contract Laboratory Protocol (CLP) format. The data package has been reviewed for completeness and found to contain each required sample result and associated QA/QC report form. The reporting format is complete and compliant with the objectives of the project. No qualification of the data is recommended.

Data Qualifiers

Data qualifiers were assigned by the laboratory to the reported results to identify target analytes detected below the reporting limit but above the method detection limit, and/or when target analytes were detected in the associated method/preparation blank sample. Based on a spot check of the data qualifiers used, these flags appeared to be applied to the reported results in accordance with EPA guidance.

Organic analyses samples that contained concentrations of target analytes at a reportable level in the associated method blanks were flagged by the laboratory with a "B". If the target analyte concentration was greater than 10 times (10X) the amount in any blank for the common laboratory contaminants or 5 times (5X) the amount for other target compounds, the "B" qualifier was not carried forward for database input; if less than the 10X or 5X rule the "B" qualifier was replaced with a "U". The "J" qualifier, which indicates an estimated value because the result was between the MDL and RL was carried through to the database.

Summary

The results presented in each report were found to be compliant with the data quality objectives for the project and usable. Based on our review, the usability of the data is 100%, with the few exceptions noted above.

Data Usability Summary Report (DUSR)
Xerox 801 Groundwater Sampling
Analytical Laboratory: Columbia Analytical Services, Inc. - Rochester, NY
Sample Delivery Group # R2632243

Analytical results for the project samples were reviewed to evaluate the data usability. Data was assessed in accordance with guidance from the following Federal and/or State guidance documents:

- USEPA National Functional Guidelines for Inorganic Data Review (EPA 540-R-04-004)
- USEPA National Functional Guidelines for Organic Data Review (EPA 540/R-99/008)
- NYSDEC "Guidance for the Development of Quality Assurance Plans and Data Usability Summary Reports (DUSR)", September 1997

and method protocol criteria where applicable as prescribed by "Test Methods for Evaluating Solid Waste", SW846, Update III, 1996.

This DUSR pertains to the following samples:

Sample ID
RW-1
VE-2
VE-4
VE-5
VE-6
VE-10
VE-12
VE-15
RW-1 SOLUBLE
VE-2 SOLUBLE
VE-4 SOLUBLE
VE-5 SOLUBLE
VE-6 SOLUBLE

Sample ID
VE-10 SOLUBLE
VE-12 SOLUBLE
VE-15 SOLUBLE
TRIP BLANK

Project Samples were analyzed according to the following analytical methods:

	Parameter	Analytical Method	Holding Time Criteria
1.	VOCs	EPA 8260B/624	14 days
2.	Dissolved Gases in Water	RSK 175M	7 days
3.	Metabolic Acids	Lab Method	28 days
4.	Mineral Spirits	EPA 8015M	14 days
5.	Chloride	EPA 300.0/SM 4500-Cl	28 days
6.	Sulfate	EPA 300.0/375.4	28 days
7.	Sulfide, Total	EPA 376.2	7 days
8.	Dissolved Organic Carbon (DOC)	EPA 415.1	28 days
9.	ICP Metals	EPA 6010B/200.7	180 days

The following items/criteria applicable to the analysis of project samples and associated QA/QC procedures were reviewed.

- Holding Times
- Blank Sample Analysis
- Laboratory Control Samples, Matrix Spike/Matrix Spike Duplicate Recoveries
- Duplicate Sample Analysis
- Sample Data Reporting Format
- Data Qualifiers
- Summary

Preservation and Holding Times

Maximum allowable holding times, measured from the time of sample collection to the time of sample preparation or analysis, were met for

each project sample analyzed as part of this sample delivery group. No qualification of the data is recommended.

Blank Sample Analysis

In accordance with cited USEPA guidelines, positive sample results should be reported unless the concentration of the compound in the project sample is less than or equal to 10 times (10X) the amount in any blank for metals and the common organic laboratory contaminants (methylene chloride, acetone, 2-butanone, cyclohexane, and phthalate esters), or 5 times (5X) the amount for other target compounds. Target analytes were not detected in associated blank samples (trip, equipment, method) prepared and analyzed concurrently with the project samples. No qualification of the data is recommended.

Laboratory Control Samples, Matrix Spike/Matrix Spike Duplicate Recoveries

Analytical precision and accuracy was evaluated based on the laboratory control and matrix spike sample analyses performed concurrently with the project samples. For matrix spike samples, after the addition of a known amount of each target analyte to the sample matrix, the sample was analyzed to confirm the ability to identify these compounds within the sample matrix. For LCS analyses, after the addition of a known amount of each target analyte into laboratory reagent water, the sample was analyzed to confirm the ability of the analytical system to accurately quantify the compounds. The reported recovery of MS/MSD and LCS analyses fell within the laboratory QA acceptance criteria. No qualification of the data is recommended.

Duplicate Sample Analysis

The replicate percent difference (RPD) was evaluated for each duplicate sample pair to monitor the reproducibility of the data. The RPD for each sample pair was within the QA/QC limit of 30% for aqueous samples and 50% for solid matrices, for those target analytes with sample concentrations >5X the MDL. No qualification of the data is recommended.

Sample Data Reporting Format

The sample data are presented using USEPA Contract Laboratory Protocol (CLP) format. The data package has been reviewed for completeness and found to contain each required sample result and associated QA/QC report form. The reporting format is complete and compliant with the objectives of the project. No qualification of the data is recommended.

Data Qualifiers

Data qualifiers were assigned by the laboratory to the reported results to identify target analytes detected below the reporting limit but above the method detection limit, and/or when target analytes were detected in the associated method/preparation blank sample. Based on a spot check of the data qualifiers used, these flags appeared to be applied to the reported results in accordance with EPA guidance.

Organic analyses samples that contained concentrations of target analytes at a reportable level in the associated method blanks were flagged by the laboratory with a "B". If the target analyte concentration was greater than 10 times (10X) the amount in any blank for the common laboratory contaminants or 5 times (5X) the amount for other target compounds, the "B" qualifier was not carried forward for database input; if less than the 10X or 5X rule the "B" qualifier was replaced with a "U". The "J" qualifier, which indicates an estimated value because the result was between the MDL and RL was carried through to the database.

Summary

The results presented in each report were found to be compliant with the data quality objectives for the project and usable. Based on our review, the usability of the data is 100%, with the few exceptions noted above.

Data Usability Summary Report (DUSR)
Xerox 801 Groundwater Sampling
Analytical Laboratory: Columbia Analytical Services, Inc. - Rochester, NY
Sample Delivery Group # R2634941

Analytical results for the project samples were reviewed to evaluate the data usability. Data was assessed in accordance with guidance from the following Federal and/or State guidance documents:

- USEPA National Functional Guidelines for Organic Data Review (EPA 540/R-99/008)
- NYSDEC "Guidance for the Development of Quality Assurance Plans and Data Usability Summary Reports (DUSR)", September 1997

and method protocol criteria where applicable as prescribed by "Test Methods for Evaluating Solid Waste", SW846, Update III, 1996.

This DUSR pertains to the following samples:

Sample ID	Sample ID
RW-4	EQUIPMENT BLANK
MW-2	TRIP BLANK
MW-2 DUPLICATE	
MW-10	
MW-13S	
MW-16	
MW-18S	
MW-19	
MW-24S	
SW-29	
SW-34	
SW-35	
EQUIPMENT BLANK	

Project Samples were analyzed according to the following analytical methods:

	Parameter		
1.	VOCs	EPA 8260B/624	14 days

The following items/criteria applicable to the analysis of project samples and associated QA/QC procedures were reviewed.

- Holding Times
- Blank Sample Analysis
- Laboratory Control Samples, Matrix Spike/Matrix Spike Duplicate Recoveries
- Sample Data Reporting Format
- Data Qualifiers
- Summary

Preservation and Holding Times

Maximum allowable holding times, measured from the time of sample collection to the time of sample preparation or analysis, were met for each project sample analyzed as part of this sample delivery group. No qualification of the data is recommended.

Blank Sample Analysis

In accordance with cited USEPA guidelines, positive sample results should be reported unless the concentration of the compound in the project sample is less than or equal to 10 times (10X) the amount in any blank for metals and the common organic laboratory contaminants (methylene chloride, acetone, 2-butanone, cyclohexane, and phthalate esters), or 5 times (5X) the amount for other target compounds. Target analytes were not detected in associated blank samples (trip, equipment, method) prepared and analyzed concurrently with the project samples No qualification of the data is recommended.

Laboratory Control Samples, Matrix Spike/Matrix Spike Duplicate Recoveries

Analytical precision and accuracy was evaluated based on the laboratory control and matrix spike sample analyses performed concurrently with the project samples. For matrix spike samples, after the addition of a known amount of each target analyte to the sample matrix, the sample was analyzed to confirm the ability to identify these compounds within the sample matrix. For LCS analyses, after the addition of a known amount of each target analyte into laboratory reagent water, the sample was analyzed to confirm the ability of the analytical system to accurately quantify the compounds. The reported recovery of MS/MSD and LCS analyses fell within the laboratory QA acceptance criteria, with the following exception(s):

LCS ID / Project Sample MS	Target Analyte(s)	%R Criteria	%R	Affected Sample(s)
LCS 138673	Bromomethane	50 - 150	174	MW-2 MW-2 DUPLICATE MW-10 MW-13S MW-16 MW-18S MW-19 MW-24S SW-29
LCS 138773	Bromomethane	50 - 150	208	RW-4 SW-34 SW-35 EQUIPMENT BLANK EQUIPMENT BLANK TRIP BLANK

Action:

If the LCS %R is greater than the upper acceptance limit, associated target analyte positive results are qualified "J" and non-detects should not be qualified. If the LCS %R is less than the lower acceptance limit associated target analyte positive results are qualified "J" and non-detects are qualified "R". If the MS/MSD is from a project sample and the %R greater than the upper acceptance limit, associated target analyte positive results are qualified "J" and non-detects should not be qualified. If the MS/MSD %R is >10%, but less than the lower acceptance limit, associated analyte positive results are qualified "J" and non-detects are qualified "UJ". If the MS/MSD %R is less than 10% associated target analyte positive results are qualified "J" and non-detects are qualified "R". MS/MSD qualifiers are only applied to affected samples of the same matrix. If the MS/MSD is a LAB sample do not qualify project samples.

Sample Data Reporting Format

The sample data are presented using USEPA Contract Laboratory Protocol (CLP) format. The data package has been reviewed for completeness and found to contain each required sample result and associated QA/QC report form. The reporting format is complete and compliant with the objectives of the project. No qualification of the data is recommended.

Data Qualifiers

Data qualifiers were assigned by the laboratory to the reported results to identify target analytes detected below the reporting limit but above the method detection limit, and/or when target analytes were detected in the associated method/preparation blank sample. Based on a spot check of the data qualifiers used, these flags appeared to be applied to the reported results in accordance with EPA guidance.

Organic analyses samples that contained concentrations of target analytes at a reportable level in the associated method blanks were flagged by the laboratory with a "B". If the target analyte concentration was greater than 10 times (10X) the amount in any blank for the common laboratory contaminants or 5 times (5X) the amount for other target compounds, the "B" qualifier was not carried forward for database input; if less than the 10X or 5X rule the "B" qualifier was replaced with a "U". The "J" qualifier, which indicates an estimated value because the result was between the MDL and RL was carried through to the database.

Summary

The results presented in each report were found to be compliant with the data quality objectives for the project and usable. Based on our review, the usability of the data is 100%, with the few exceptions noted above.

Data Usability Summary Report (DUSR)
Xerox 801 Groundwater Sampling
Analytical Laboratory: Columbia Analytical Services, Inc. - Rochester, NY
Sample Delivery Group # R2635049

Analytical results for the project samples were reviewed to evaluate the data usability. Data was assessed in accordance with guidance from the following Federal and/or State guidance documents:

- USEPA National Functional Guidelines for Inorganic Data Review (EPA 540-R-04-004)
- USEPA National Functional Guidelines for Organic Data Review (EPA 540/R-99/008)
- NYSDEC "Guidance for the Development of Quality Assurance Plans and Data Usability Summary Reports (DUSR)", September 1997

and method protocol criteria where applicable as prescribed by "Test Methods for Evaluating Solid Waste", SW846, Update III, 1996.

This DUSR pertains to the following samples:

Sample ID	Sample ID
RW-1	VE-6 SOLUBLE
VE-2	VE-10 SOLUBLE
VE-4	VE-12 SOLUBLE
VE-5	VE-15 SOLUBLE
VE-6	
VE-10	
VE-12	
VE-15	
TRIP BLANK	
RW-1 SOLUBLE	
VE-2 SOLUBLE	
VE-4 SOLUBLE	
VE-5 SOLUBLE	

Project Samples were analyzed according to the following analytical methods:

	Parameter	Analytical Method	Holding Time Criteria
1.	VOCs	EPA 8260B/624	14 days
2.	Dissolved Gases in Water	RSK 175M	7 days
3.	Metabolic Acids	Lab Method	28 days
4.	Mineral Spirits	EPA 8015M	14 days
5.	Chloride	EPA 300.0/SM 4500-Cl	28 days
6.	Sulfate	EPA 300.0/375.4	28 days
7.	Sulfide, Total	EPA 376.2	7 days
8.	ICP Metals	EPA 6010B/200.7	180 days

The following items/criteria applicable to the analysis of project samples and associated QA/QC procedures were reviewed.

- Holding Times
- Blank Sample Analysis
- Sample Data Reporting Format
- Data Qualifiers
- Summary

Preservation and Holding Times

Maximum allowable holding times, measured from the time of sample collection to the time of sample preparation or analysis, were met for each project sample analyzed as part of this sample delivery group. No qualification of the data is recommended.

Blank Sample Analysis

In accordance with cited USEPA guidelines, positive sample results should be reported unless the concentration of the compound in the project sample is less than or equal to 10 times (10X) the amount in any blank for metals and the common organic laboratory contaminants (methylene chloride, acetone, 2-butanone, cyclohexane, and phthalate esters), or 5 times (5X) the amount for other target compounds. Target analytes were not detected in associated blank samples (trip, equipment, method) prepared and analyzed concurrently with the project samples. No qualification of the data is recommended.

Sample Data Reporting Format

The sample data are presented using USEPA Contract Laboratory Protocol (CLP) format. The data package has been reviewed for completeness and found to contain each required sample result and associated QA/QC report form. The reporting format is complete and compliant with the objectives of the project. No qualification of the data is recommended.

Data Qualifiers

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Summary

The results presented in each report were found to be compliant with the data quality objectives for the project and usable. Based on our review, the usability of the data is 100%, with the few exceptions noted above.