Alternatives Analysis Report

DRAFT

Jo Lyn Enterprises, Ltd.
21 Valley Street
Mayville, New York 14757

NYSDEC Designation & Identification
Standard Portable Site #C907030

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1.0 INTRODUCTION

1.1 Purpose

This Report has been prepared in accordance with Subsection 4.4(c) Alternatives Analysis Report (AAR) of the NYSDEC's DER-10 "Technical Guidance for Site Investigation and Remediation", issued May 3, 2010. This AAR addresses the Remedy Selection requirements for the site under the Brownfield Cleanup Program as required pursuant to 6 NYCRR Part 375 Section 3.8. The introduction, site description and history, summary of Remedial Investigations and exposure assessments, as required by DER-10 Subsection 4.4(c)(3), are summarized and/or referenced below in Section 1.0 of this document.

The purpose of this Report is to provide the NYSDEC with information in compliance with the agency's document DER-10. Using the site data and information collected during the SSI and IRM, this AAR evaluates and identifies a plan for implementing the most appropriate remedy that will address: 1) free phase DNAPL (TCE) which was encountered along the southeast border of the site and within the "Kick-out Area" (as defined in the Brownfield Cleanup Agreement); 2) the on-site contaminated groundwater and soil profile between the likely source area (former septic tank), and the site boundary; and 3) the potential soil vapor issues within the facility. Per the terms of the Brownfield Cleanup Agreement, this RAR has been prepared to address the TCE contamination on-site (and "Kick-out Area").

1.2 Background Information

The Jo Lyn Enterprises, Ltd. facility is located at 21 Valley Street, Village of Mayville, Chautauqua County, New York (Drawing Nos. 1 and 2, Attachment 1) ("Facility"). This parcel of land consists of approximately 1.06 acres of land located within the lake plain Route 394 along the western side of Chautauqua Lake. Historically, the facility was operated by Wappat Saw Company. Later the facility was operated as Standard Portable Products, Inc. The prior owner(s) reportedly performed various metal working operations, including vapor degreasing using a Trichloroethene (TCE) degreasing unit. It is understood that the spent TCE solvent from this unit was disposed of or stored in an exterior underground septic tank.

The current owner, Jo Lyn Enterprises Ltd. d/b/a Standard Portable ("Jo Lyn"), purchased certain assets, including the facility, in 1996 and began manufacturing operations. Pre-purchase due diligence investigations identified a septic tank historically believed to be used as storage/disposal for TCE waste generated by the vapor degreasing unit; subsequently, a remedial program was conducted by Anderson International, Inc. on Jo Lyn's behalf. It should be noted that the septic tank was removed in 1996 at the time of Jo Lyn's purchase. The waste that Jo Lyn generated in association with the vapor degreaser was containerized and transported off-site for disposal. In late 2002, Jo Lyn sought to sell the subject site, and as part of the due diligence process, a Phase II ESA was performed on behalf of the potential buyer's financial lending institution. The results of that Phase II ESA indicated significant levels of TCE contamination in the soil and groundwater in the vicinity of former septic tank.

During May 2006, Jo Lyn retained Hazard Evaluations, Inc. (HEI) to perform a focused Subsurface Site Investigation (SSI) to collect additional data and information concerning the subsurface condition of the subject site relative to the historical, pre-purchase release of Trichloroethylene. The goals of the SSI included obtaining: 1) a more thorough characterization of Volatile Organic Compounds (VOCs) within on-site soil profile, both vertically and laterally; 2) water table elevations and the approximate on-site groundwater flow direction; 3) definition of the on-site shallow contaminant plume with respect to site boundaries; 4) condition of the subfloor soil/fill in the vicinity of the former degreaser; and 5) identification of any "hot spots" within the soil profile in the impacted area, including any on-site areas exhibiting dense non-aqueous phase liquid (DNAPL) product. The results of the SSI revealed well-defined areas of soil and groundwater contaminated with TCE (Drawing No. 3). In addition, recoverable free phase DNAPL was observed off-site immediately adjacent to the southeastern border of the subject site.

Jo Lyn applied to the Brownfield Cleanup Program and signed a Brownfield Cleanup Agreement as a volunteer on November 16, 2006. An Interim Remedial Measures (IRM) Work Plan was prepared by HEI and submitted to the New York State Department of Environmental Conservation (NYSDEC) in December 2006 (Refer to the "Interim Remedial Measures Report & Work Plan", dated December 2006). The proposed measures (and approved modifications to the IRM) were initiated in January 2007. Information related to implementation of the IRM and the observed effectiveness subsequent to implementation is detailed in HEI's "Interim Remedial Measures Report", dated August 2008 (Attachment 2).

This Alternatives Analysis Report has been prepared using both the findings of the SSI and data collected throughout IRM implementation to provide a basis for a determining the most appropriate remedial approach that will meet the Remedial Action Objectives (RAO s) for the Jo Lyn Site in accordance with the New York State Brownfields Cleanup Program.

1.3 Responsibilities of Personnel

Various personnel have been identified and assigned specific responsibilities for the final remedy, as indicated below. All personnel with assigned responsibilities have worked and may continue work at any location on the subject site, and therefore, received appropriate instruction concerning the health and safety procedures related to all aspects of the site remediation.

Technical Control and Project Oversight

HEI's Principal, C. Mark Hanna, CHMM, has the overall responsibility to commit any resources required to implement and execute the different phases of the site remediation. This individual has the authority to ensure that the site remediation is in accordance with both Jo Lyn's Brownfield Cleanup Agreement and the associated agreements between Jo Lyn and HEI. The resolution of technical issues will be coordinated through HEI's Principal.

Project Management

General project management tasks are the responsibility of Peter Bojczuk, HEI Project Manager. The Project Manager's responsibilities include acting in a supervisory capacity over all HEI and subcontractor employees during the on-site activities. The Project Manager also ensures compliance with Quality Assurance/Quality Control measures, including equipment decontamination, analytical blank preparation and sample custody procedures.

Health & Safety

The Project Manager is responsible for implementing the HASP on-site.

Professional Engineer

Technical aspects of site remediation are certified by John J. Frandina, PE.

Subcontractors

Various subcontractors to HEI have been and will be utilized for specific aspects of the site remediation, including, at a minimum, Zebra Environmental (soil probe and piezometer installation), Paradigm Environmental Services (analytical laboratory), Waste Management, Inc., and Frank's Vacuum Truck Service (liquid waste disposal). All subcontractors will be qualified for the tasks assigned to them by HEI, and will carry appropriate insurance.

2.0 REMEDIAL ACTION GOALS & OBJECTIVES

2.1 Basis for Selection of the Final Remedy

The SSI identified the presence of: 1) TCE at depth within the on-site soil profile (saturated zone) in an area extending generally from the former septic tank location outside of the facility to the southeast property boundary; 2) TCE within the shallow groundwater with a similar, but less widespread, migration plume relative to the soil contamination; 3) Free phase DNAPL (TCE) at the SB1 location; and 4) While most of the contamination is located beneath a pervious area that contains open space and a gravel-covered parking lot, TCE was identified in the soil and water under the Facility, beneath a small portion of portion of the warehouse area and a small portion of the manufacturing area (Drawing No. 3). The SSI also confirmed that only soils within the groundwater saturated zone exhibited observable TCE impacts. Field screening results indicated positive VOCs detections in many soil samples collected from the 0'-4' depth interval; however, these results clearly reflect the impact of contaminated groundwater at an average depth of 2 to 3 feet below grade. Therefore, no TCE impacts to soil were recorded within the 0-2" below grade depth interval. Consequently, remedial measures for surface or other unsaturated soils were not considered to be necessary.

2.2 Remedial Goal

The goal for the selected remedy is to mitigate any significant threats to human health and the environment presented by the on-site TCE contamination and its "daughter" compounds, which include 1,1,2-Trichloroethane, 1,1-Dichloroethene,

trans 1,2-Dichloroethene, cis 1,2-Dichloroethene, and Vinyl chloride, and to implement proactive measures to prevent further off-site migration. This goal will be achieved through product recovery and in-situ chemical oxidation (ISCO) technologies, as well as minimization of the potential for vapor intrusion into the facility. This goal is consistent with the current and future intended use of the subject site, and has taken into consideration the institutional controls that could be incorporated into the environmental easement, including: 1) prohibition of installation of drinking or ancillary use water wells; 2) prohibition of construction and/or use of buildings for other than commercial or industrial purposes; 3) installation of a sub-slab vapor extraction system in future facilities constructed on-site; and 4) preparation of a Site Management Plan (SMP).

2.3 Remedial Action Objectives

Remedial Action Objectives (RAOs) for the subject site have been established for four Operable Units (OU), which are as follows: 1) The area on-site and within the "Kick-out Area" which has exhibited free product (OU-1) (OU-1 includes the seven extraction wells EW-5, 12, 13, 14, 15, 16, and 17 in which free product has been observed); 2) The on-site shallow groundwater (OU-2); 3) The on-site impacted soils saturated with groundwater (OU-3); and 4) The on-site facility subfloor vadose zone air (OU-4).

In OU-1, OU-2 and OU-3, a limited number of VOCs related to the historical, pre-purchase TCE release (including several daughter compounds) exceed either the potentially applicable NYSDEC Recommended Soil Cleanup Objectives for soil [Appendix A, Table 1 of TAGM HWR-94-4046, dated January 24, 1994 (TAGM 4046)] or the Surface Water and Groundwater Classifications and Standards (6 NYCRR 700-706, dated April 11, 2008). Field screenings in OU-4 of the exhaust from the four subfloor extraction zones, have revealed VOCs concentrations ranging from 0 ppm to 5.2 ppm. Potential public health and environmental exposure pathways for the corresponding RAOs are presented below. Additionally, a qualitative discussion regarding potential off-site human and environmental exposure pathways is provided.

OU-1 (On-Site and "Kick-out Area" Free Product) Exposure Routes and RAOs

As indicated above, free product (DNAPL TCE) was observed within the soil profile at 10'-13' below grade (bg) off-site, within the "Kick-out Area", along the southeast property boundary, and has since been observed in seven Extraction Wells installed as part of the IRM. The potential for human exposure to free product within OU-1 is highly unlikely. There are no known on-site underground utilities in this area of the site (based upon the utilities locations for the SSI) that would require Jo Lyn or utility employees to excavate soil from this area. Presuming the environmental easement and SMP set forth in Section 2.2 are implemented, the potential for human exposure to contaminants within OU-1 is negligible because OU-1 includes free product at a depth of 10'-13' below grade and there is limited access to the property at 10'-13' below grade.

There is potential environmental exposure related to the potential presence of free product DNAPL in OU-1. Soil contacted by free product adsorbs varying amounts of the product into the soil structure pore spaces and becomes contaminated. In turn, groundwater that passes through the contaminated soils becomes contaminated through natural chemical dissolution or physical dispersion of those contaminants. Other than these on-site environmental media, there are no specific on-site sensitive environmental receptors such as streams, lakes or estuaries.

The RAO for OU-1 involves the removal of any measurable free product from on-site, and the "Kick-out Area", along the southeastern edge of the site. Additionally, the RAO involves the implementation of proactive measures to prevent future migration of TCE off-site, including product recovery along the southeastern property boundary via a series of twenty one-inch diameter Extraction Wells from which impacted groundwater and free phase DNAPL (if present) will be pumped and in-situ chemical oxidation (ISCO) technologies via the re-injection of carbon treated extracted groundwater to which a 3% Potassium permanganate solution is added prior to injection back into on-site water table through twenty one-inch diameter Injection Wells.

OU-2 (On-Site Impacted Soil Saturated with Groundwater) Exposure Routes and RAOs

As indicated in the SSI, groundwater contamination by TCE or daughter compounds was identified migrating from the facility toward the southeast. The potential for human exposure to this highly contaminated groundwater within OU-2 is unlikely; however, low level TCE and daughter compounds contamination was identified in the groundwater across most of the eastern and southern half of the subject site during the SSI. This area includes the off-site utility rights-of-way along Route 394; therefore, human exposure to contaminated groundwater could occur in the front of the property along the roadway. It should be noted that the contaminant concentrations in the groundwater in this area were determined to be very low (slightly above groundwater standards), and should not result in exposure at levels that would adversely affect utility workers by dermal contact. The ingestion and/or inhalation of of groundwater impacted by TCE or daughter compounds in this area would not be anticipated. Assuming that the environmental easement and SMP set forth in Section 2.2 are implemented, the potential for human exposure via other exposure pathways within OU-2 is unlikely.

There is potential environmental exposure related to the presence of VOCs in OU-2. However, since the groundwater on-site is already contaminated by TCE and daughter compounds, further on-site environmental exposure in not likely.

The RAO for OU-2 includes the reduction and removal of free product TCE, TCE and daughter compound concentrations in on-site groundwater to applicable cleanup requirements at the site boundary by implementation of ISCO (In-Situ Chemical Oxidation) and monitored natural attenuation. Additionally, the RAO

includes the implementation of proactive measures to prevent migration of TCE and daughter compounds off-site. These measures will be fully described in detail in the Final Engineering Report (FER).

OU-3 (On-Site Saturated Soils) Exposure Routes and RAOs

As indicated in the SSI, soil profile contamination by TCE and daughter compounds was identified in a plume from the facility toward the southeast. The potential for human exposure to the area of impacted soil within OU-3 is unlikely; however, lower levels of TCE and daughter compound contamination were identified at depth within the soil profile toward the eastern property boundary along Route 394 during the SSI. This area may include the utility rights-of-way along Route 394; therefore, human exposure to contaminated saturated soil could occur in the front of the property along the roadway. It should be noted that the contaminant concentrations in the soil near the roadway, possibly in the area of these utilities, was determined to be low (below TAGM RSCOs), and should not result in exposure at levels that would adversely affect utility workers by dermal contact. The ingestion and/or inhalation of saturated soils impacted by TCE or its daughter compounds is not anticipated. Presuming the environmental easements set forth in Section 2.2 are implemented, the potential for human exposure to contaminants within OU-3 is low.

There is potential environmental exposure related to the presence of TCE and daughter compounds in on-site soils. However, since the soil profile on-site is already contaminated by TCE, further on-site environmental exposure in not likely.

The RAO for OU-3 includes the reduction of TCE and its daughter compound concentrations in on-site soils to levels below applicable requirements.

OU-4 (On-Site Subfloor Air/Interior Structure Air) Off-Site Exposure Routes and RAOs

As indicated in the SSI, soil and groundwater contamination by TCE and its daughter compounds were identified under the southern portion of the warehouse floor and adjacent manufacturing areas. The potential human exposure to volatile organic compound vapors may exist within the site structure during occupancy (i.e., work shifts), which currently is approximately 40 hours per week. The magnitude of exposure is likely to be low, given that the building has a moderate level of air exchange (i.e., via drafts) due to its age and condition (i.e., limited deterioration).

The RAO for OU-4 involves the installation of an active sub-slab vapor extraction system, which is proposed to address any concerns relative to soil vapor intrusion into the buildings.

Discussion of Potential Off-Site Exposure Routes

A number of potential off-site exposure pathways exist that TCE and its daughter compounds could migrate from the Site.. The likelihood of exposure is based on two factors, including whether TCE and its daughter compound migration has occurred and the nature of the receptor itself.

Contact points for potential off-site human exposure pathways could include: 1) TCE and daughter compound vapors within nearby dwellings due to vapor migration; 2) Dissolved phase TCE or DNAPL from use of ancillary water wells; 3) TCE and daughter compounds could exist in soil or groundwater at off-site locations disturbed during construction activities; 4) TCE and daughter compound vapors in off-site utility trenches disturbed by utility workers; 5) TCE and daughter compound impacted sediments or DNAPL along the shore of Chautauqua Lake.

Potential environmental exposure pathways include the exposure of off-site soils to impacted groundwater or DNAPL and the water, sediments, plants and wildlife of Chautauqua Lake to impacted groundwater or DNAPL.

As a BCP Volunteer Jo Lyn is not required to evaluate off-site impacts as part of the AAR; therefore, there are no data collected to support an analysis of off-site contamination to quantify the magnitude of potentially complete exposure pathways.

3.0 REMEDIAL ALTERNATIVES EVALUATION & SELECTION

3.1 General Response Actions

In accordance with DER-10 Section 4.3(a)(3), general response actions have been identified for selected Remedial Action Objectives. The categories of general response actions identified in this section of the AAR address specific impacted environmental media and their related estimated areas/volumes and characteristics and identify various remedial technologies. In addition, several technologies were eliminated from future consideration. The basis for selecting particular alternatives and eliminating others is described below.

The estimated amounts of impacted media generally include the saturated zone on-site and within the "Kick-out Area" include: 1) Approximately 6,700 cubic yards of impacted soil from within an area 100 feet wide by 150 long by twelve feet deep, a portion of which is located under the existing JoLyn facility; 2) Approximately 675,000 gallons (static volume) of impacted groundwater present within a fine to medium sand layer with an approximate specific yield of 25% (estimated area 150 feet wide by 200 long by twelve feet deep); 3) The vadose zone beneath the floor of a portion of the on-site structure and 4) An undetermined volume of DNAPL .

Contaminated soil on-site may be addressed by various categories of remedial activities, including institutional controls, containment, treatment and removal. Given the physical characteristics of the site, potential future uses, and the concentration and distribution of the contaminants in order to properly address the relatively limited amount of soil contamination, a combination of various remedial methods will be necessary to achieve the remedial goals. In that regard, consideration has been given to: 1) Deed restrictions and notice to the utilities to minimize the potential for human contact with undisturbed subsurface soils; 2)

Contaminant removal techniques through excavation of contaminated soil with off-site disposal and excavation dewatering; 3) Treatment techniques for excavated soil (on-site or off-site thermal destruction) and for contained groundwater from excavation (activated carbon treatment), or in-situ bioremediation techniques if removal techniques are not selected; 4) Containment techniques through construction of subsurface structures (e.g., slurry wall) and impermeable surfaces (e.g., capping, paving, etc.); and 5) Organic vapor extraction. After preliminarily evaluating all of these remedial categories and specific technologies, only two were eliminated from further consideration: subsurface containment structures, which would likely be effective at the subject site based geologic characteristics but would virtually eliminate future site re-use options, and thermal destruction of organics in excavated soils due to the levels of saturation with groundwater and the excessive costs associated with managing soils in this manner. All remaining technologies were deemed both technically implementable and capable of addressing the four RAOs.

Contaminated groundwater on-site and within the "Kick-out Area" may also be addressed by other methods including institutional controls and groundwater treatment. Given the specific physical characteristics of the site, potential future uses, and the concentrations and distribution of the contaminants, to properly address this relatively widespread groundwater contamination, which includes an area with free product TCE, a combination of these remedial methods, will be necessary to achieve the remedial goal. The following were considered: 1) Deed restrictions to prevent human contact to groundwater-borne contaminants (e.g., well restrictions, utilitiy notices, etc.); and 2) Treatment technologies, including DNAPL removal through separation technology with carbon absorption, in-situ chemical oxidation using potassium permanganate solution injection, and in-situ chemical reduction using zero valent iron walls. Through addressing all of these remedial categories and specific technologies on a preliminary basis, only one was eliminated from further consideration: zero valent iron wall technology, which was determined to be too new a technology to be reliable, as mainly field trials and pilot testing have been conducted to date.

Subfloor VOCs vapor intrusion within the on-site building workspace was addressed by installing a vapor extraction system with a rooftop exhaust, which operates continuously and results in sub-slab depressurization zone.

The various technologies have been assembled into several remedial alternatives that most-appropriately reflect on-site physical and contaminant characteristics. Those alternatives are evaluated for technical implementability and other aspects in the paragraphs below.

3.2 Remedial Alternatives Evaluation

The technically implementable remedial alternatives that will be considered for the subject site will include: 1) No Action; 2) Site-wide Excavation/Disposal with High Volume Site Dewatering and On-site Groundwater Treatment; and 3) Source

Removal (DNAPL) coupled with ISCO. Each alternative will be presented as a "site-wide" remedial approach given the specificity of the site contamination and the interrelationship of remedial activities for all four Operable Units.

Alternative 1 - "No Action"

"No Action" would involve allowing the free phase DNAPL plume, if present, the impacted groundwater plume, and impacted soil plume to remain under the current forces of natural mobility and degradation. In accordance with DER-10 Section 4.3(a)(5)(ii), with respect to the listed considerations, the "No Action" alternative poses the following:

Size and Configuration of Process Options - Not Applicable to this Alternative

Time For Remediation - No Action would, in essence, rely on natural attenuation to remediate the site which could take decades to complete.

Spatial Requirements - Not applicable to this Alternative

Options for Disposal - Not Applicable to this Alternative

Substantive Technical Permit Requirements - Not Applicable to this Alternative

Limitations or Other Factors Necessary to Evaluate the Alternative - There are limited data in the media with regard to the timeframe necessary for complete remediation of a similar site via natural attenuation.

Adverse Impacts on Fish and Wildlife Resources - None anticipated for the No Action Alternative for on-site contamination.

In accordance with DER-10 Section 4.2(b)-(h), the "No Action" Alternative will be discussed with regard to the seven criteria shown below:

Overall Protection of Public Health and the Environment - "No Action" does not pursue the goal of protection of the public health and the environment in any manner. Free phase DNAPL would still exist on-site, if present and would continue to present a source of contamination which could migrate off the site. The volume of impacted groundwater would likely increase as natural groundwater flow passes through the site and contacts either DNAPL or impacted soils.

Compliance with SCGs - "No Action" would not achieve (in a reasonable timeframe) compliance with the applicable SCGs.

Long Term Effectiveness and Permanence - "No Action" would provide no benefit of long term effectiveness or permanence.

Reduction of Toxicity, Mobility or Volume of Contamination Through Treatment - "No Action" will not reduce toxicity, mobility or volume using active treatment, although natural processes do degrade the contaminants over time.

Short-Term Impact and Effectiveness - "No Action" poses no short term effectiveness.

Implementability - "No Action" would be easily implementable by definition, as no resources or effort are necessary.

Cost Effectiveness - The cost of "No Action" would appear to be negligible.

This alternative action would not be an appropriate method for this site because taking "No Action" will not satisfy the seven evaluation criteria described in DER-10 Section 4. This method does not pursue the goals of protecting public health and the environment, complying with SCGs, providing long term effectiveness and permanence, reducing contaminant toxicity, mobility or volume with treatment, or providing short term impact. In summary "No Action" fails five of the seven evaluation criteria described in DER-10 Section 4.

Alternative 2 - Widespread Excavation/Disposal with High Volume Site Dewatering and On-site Groundwater Treatment

"Site-wide Excavation/Disposal with High Volume Site Dewatering and On-site Groundwater Treatment" would involve demolition of approximately 30% of the on-site structure, high volume dewatering and carbon treatment of groundwater on the site, excavation and disposal of approximately 10,000 tons of impacted soil, backfilling of the excavation, and reconstruction of the building. In accordance with DER-10 Section 4.3(a)(5)(ii), with respect to the listed considerations, this alternative poses the following:

Size and Configuration of Process Options - The size and configuration of the process options for this alternative are dependant on the volume of impacted material which, for soil, is virtually fixed. The volume of groundwater for this process option may increase substantially due to the inflow of groundwater resulting from the water table depression caused by dewatering during excavation and the proximity of Chautauqua Lake. Certain areas of the site may exhibit preferential flow paths in specific locations on the site which would likely result in increased water volumes needing treatment. Such processes tend to be field modified depending upon the conditions encountered.

Time For Remediation - The time for remediation of the site using this alternative is estimated to be 6-12 months from agency approval. Inclement weather or other unforeseen circumstances would result in an increased project duration.

Spatial Requirements - The spatial requirements for this option would include at least 50% of the site surface area and an additional two acres of adjacent property currently owned by the local municipality. The use of the adjacent or other nearby property would be necessary for the storage of heavy equipment, treatment vessels and tanks, and for maneuvering vehicles used for hauling wastes from the subject site.

Options for Disposal - The options for disposal for this alternative include numerous licensed landfills. It is anticipated that the material would be considered a hazardous waste, and would be disposed of at an appropriately licensed landfill. Options for this include the Waste Management Model City Landfill and Vickery Landfill located in Ohio.

The options for discharge of the treated water may be to the storm sewer system or local sanitary sewer and POTW.

Substantive Technical Permit Requirements - This option would involve obtaining an appropriate SPDES permit for the discharge of the treated groundwater to a local surface water body. Alternatively, a permit for the local POTW may be necessary to discharge treated water to the POTW facilities. In addition, municipal permits will likely be needed for the demolition of the building, excavation, and building reconstruction. Significant effort will be needed to obtain approval for the reconstruction, given updated building codes, etc.

Limitations or Other Factors Necessary to Evaluate the Alternative - This alternative is a presumptive measure, which involves a substantial amount of physical modifications to the site, permitting requirements, business interruption, and potential impacts to local traffic.

Adverse Impacts on Fish and Wildlife Resources - The anticipated adverse impacts on wildlife on, and nearby, the subject site could include the exposure of birds or other animals to vapors and dusts that could emanate from the area during the excavation process. Vapor suppression methods could be effectively implemented during the course of the excavation activities to minimize these concerns.

In accordance with DER-10 Section 4.2(b)-(h), the Widespread Excavation/Disposal with High Volume Site Dewatering and Groundwater Treatment alternative will be discussed with regard to the seven criteria shown below:

Overall Protection of Public Health and the Environment - This alternative will provide the significant benefit of contaminant mass removal which would reduce the exposure of workers who could take part in on-site subsurface work in the future. Additionally, workers within the on-site structure would be protected from any exposure to contaminants within the interior air space of

the on-site building. The subsurface environment would be benefited in that contaminant mass would be removed which would virtually eliminate continued contaminant migration.

However, an excavation of such magnitude would potentially expose remedial workers to elevated levels of contaminants during the site work. Additionally, given the high volatility of the TCE contamination and the fact that there is a public park directly across the road from the site, it is possible that the public could be affected by this remedial alternative, in that odors would likely emanate into the park during excavation activities. However, vapor suppression could be used to prevent this exposure.

In the event that vapor suppression methods were ineffective during the excavation activities due to adverse weather (rain or high winds) or inflowing groundwater, public exposure to TCE vapors may occur, given the proximity of a municipal park located directly across the street from the subject site.

Although the subsurface environment would substantially benefit from this alternative, the atmospheric environment may be negatively affected through volatilization of contaminants if vapor suppression methods become ineffective.

Compliance with SCGs - This alternative is presumptive and would meet the SCGs for the on-site remediation of soil and groundwater. It may be more difficult to meet applicable SCGs with regard to ambient air emissions and exposure of the public to nuisance odors or VOCs in excess of ACGIH exposure limits if vapor suppression methods become ineffective.

Long Term Effectiveness and Permanence - The long term effectiveness and permanence of this alternative is high given the contaminant mass removal.

Reduction of Toxicity, Mobility or Volume of Contamination Through Treatment - This alternative would significantly reduce the toxicity, mobility and volume of the on-site contaminants due to the contaminant mass removal.

Short-Term Impact and Effectiveness - The short term effectiveness this alternative is very good given the relatively short duration of the project and extensive contaminant mass removal.

Implementability - This alternative would be difficult to implement given the excessive scope and cost. Demolition and reconstruction of the on-site structure would be exceptionally complex, and could threaten the viability of the existing business. The soil removal and groundwater treatment would take a significant amount of heavy equipment and labor, which would result in higher costs. The presence of a municipal park and other local tourist

attractions significantly complicates the implementation of this alternative, as high truck traffic and the release of fugitive vapors or nuisance odors is highly likely if vapor suppression methods become ineffective.

Cost Effectiveness - The cost of Site-wide Excavation/Disposal with High Volume Site Dewatering and On-site Groundwater Treatment is calculated to be $2,965,000.

This alternative action is an inappropriate method for the site, due to the excessively high cost and difficult implementation. This method does pursue the goal of protecting public health and the environment, and provides short term impact, toxicity reduction and long tern permanence, although varying conditions during operations could result in poor air quality and public exposure, thereby failing SQGs compliance. In summary "Widespread Excavation/Disposal with High Volume Site Dewatering and On-site Groundwater Treatment" fails four of the seven evaluation criteria described in DER-10 Section 4.

Alternative 3 - Source Removal (DNAPL) with In-Situ Chemical Oxidation (ISCO), and Monitored Natural Attenuation (MNA)

Source Removal (DNAPL) coupled with ISCO, which is the current IRM, would involve the implementation of several different remedial technologies that would concurrently work to achieve the remedial goal of the site, including active product recovery, low-flow hydraulic control of the on-site impacted groundwater, active carbon filtration, ISCO and MNA.

In accordance with DER-10 Section 4.3(a)(5)(ii), with respect to the listed considerations, the "Source Removal (DNAPL) with In-Situ Chemical Oxidation" and MNA alternative poses the following:

Size and Configuration of Process Options - The size and configuration of the process options for this alternative are relatively fixed and are proportional in size to the plume boundaries, given all facilities related to extraction, injection, and treatment will be within the approximate footprint of the contaminant plume. Pump sizes, product and groundwater extraction rates, recovery tank size, treatment vessel specifications, and the specific oxidant injection rates and volumes will be adjusted based on observed effectiveness of the remedial efforts.

Time For Remediation - The time for remediation of the site using this alternative is estimated to be two to five years from agency approval based on the published results of sites exhibiting similar conditions. Favorable oxidant transport and resulting TCE oxidation may decrease the timeframe

Spatial Requirements - The spatial requirements for this option would include an approximate 400 square foot area within the interior of the most southern portion of the former manufacturing area to be used for equipment,

supply, and waste storage. The remainder of the spatial requirement will be localized on the site during installation of extraction or injection points and underground piping.

Options for Disposal - The options for disposal for this alternative are related to the disposal of any recovered free phase DNAPL, spent carbon, or other remediation derived wastes. The DNAPL may be recycled for energy recovery (off-site), incinerated or disposed of using other appropriate methods. Groundwater will be treated via activated carbon and reinjected on-site under an approved Class V Injection Well permit. Spent carbon will likely be regenerated by the carbon supplier, or alternatively, it can be disposed of using other appropriate solid waste disposal methods. Other remediation derived wastes will be disposed of using various methods. The specific method for managing all wastes generated during the remedial project will be dependent on the specific characteristics of the waste themselves, the available treatment or recycling options for those wastes, and the cost associated with those methods.

Substantive Technical Permit Requirements – As part of the IRM, an Injection Well Permit was obtained from the USEPA in compliance with the Underground Injection Control (UIC) Program Regulations. Potassium permanganate will be injected into the subsurface (with treated groundwater). A wastewater discharge permit was obtained from the local POTW to manage surface water that infiltrated the equipment pump vaults. It is not anticipated that any additional substantive technical permits will be required for this alternative.

Limitations or Other Factors Necessary to Evaluate the Alternative - This lack of information does not affect the overall ability to determine if the alternative will result in meeting the remedial goals given what is currently known about the site characteristics.

Adverse Impacts on Fish and Wildlife Resources - There is no anticipated adverse impacts on wildlife or fish as a result of this alternative.

In accordance with DER-10 Section 4.2(b)-(h), the Source Removal (DNAPL) with ISCO and MNA alternative will be discussed with regard to the seven criteria shown below:

Overall Protection of Public Health and the Environment - This alternative will provide a significant benefit of contaminant mass removal through active product recovery and chemical oxidation of the subsurface contaminants, which would reduce the exposure. The vapor intrusion system will protect workers from any potential exposure to contaminants within the interior of the structures. The subsurface environment will benefit in that the contaminant mass will be reduced, which will prevent contaminant migration. This alternative is not expected to expose remedial workers to significantly

elevated levels of contaminant during the site work activities. Additionally, the public will not be affected by this remedial alternative, given that the majority of the contaminant mass removal and treatment will occur through the chemical oxidation processes, on-site and underground.

Compliance with SCGs - This alternative is considered an innovative technology and although not presumptive, it has been proven to be effective at similar sites. It should attain relevant SCGs.

Long Term Effectiveness and Permanence - The goal of long-term effectiveness and permanence will be achieved, given the contaminant mass removal via active product recovery and ISCO.

Reduction of Toxicity, Mobility or Volume of Contamination Through Treatment - This alternative would significantly reduce the toxicity, mobility, and volume of the on-site contaminants by removing the contaminant via active product recovery, ISCO and MNA.

Short-Term Impact and Effectiveness - The short term effectiveness of this alternative is acceptable (or even very favorable) given the immediate active product recovery, low flow hydraulic control, carbon filtration and reinjection, and active ISCO.

Implementability - This alternative would very suitable for implementation at this site given the presence of a municipal park and other local tourist attractions. Additionally, the project can be implemented given the financial resources available to carry out this alternative.

Cost Effectiveness - The cost of the "Source Removal (DNAPL) with In-Situ Chemical Oxidation" alternative is estimated to be $100,000 for the initial pilot testing, system installation and collection of baseline data. Operation, maintenance, monitoring and product and carbon disposal costs have been estimated to be $60,000 per year. The approximate project duration is estimated to be two to five years with ISCO and/or MNA as appropriate, with total project cost ranging from $220,000 to $400,000.

This alternative action proves to be most suitable for the subject site as it satisfies the seven Evaluation Criteria described in DER-10 Section 4. This option provides protection for the public health and the environment, complies with SCGs, remains effective in both the short and long terms and provides permanence, reduces the toxicity, mobility and volume of contaminants with treatment, is technically implementable, and provides a reasonable cost for the nature of the proposal action. In summary "Source Removal (DNAPL) with In-Situ Chemical Oxidation (ISCO), and Monitored Natural Attenuation (MNA)" satisfies all seven of the evaluation criteria described in DER-10 Section 4.

3.3 Remedial Alternative Selection

Alternative 3, Source Removal (DNAPL) with In-Situ Chemical Oxidation (the current IRM), has been selected as the remedial option for the subject site based on the following conceptual criteria, as well as observable remedial effectiveness obtained during implementation of the IRM (Refer to HEI's IRM report, dated August 2008, for more detailed information regarding the effectiveness of the IRM; Attachment 2):

Conceptual Criteria

- It will achieve a higher level of overall protection of the public health and the environment when compared to Alternative 1 or 2, given the in-situ nature of the treatment.
- It will achieve the on-site SCGs.
- Once on-site free product and the free product within the "Kick-out Area" have been removed, and ISCO of impacted soil and groundwater has occurred (followed by MNA), the long term effectiveness and permanence of Alternative 3 will be high.
- The reduction of toxicity, mobility and volume of contaminants for Alternative 3 will be high given the potential use of active product recovery, low flow hydraulic control (demonstrated through mass balance calculations), and ISCO followed by MNA..
- Short term effectiveness is addressed through active product recovery, low flow extraction, and carbon filtration of groundwater, and immediate TCE mass removal through ISCO.
- The practical implementability of Alternative 3 is much better than Alternative 2 for this site, given the geographic setting of the site and the financial resources available to implement the alternative.
- Alternative 3 is the most cost-effective alternative that actively pursues meeting the RAOs.

Observable Remedial Effectiveness of IRM from May 2008 through June 2009

- A total of approximately 71 gallons of free phase TCE (DNAPL) has been recovered from the on-site extraction wells.
- Approximately 170,500 gallons of TCE impacted groundwater have been extracted and carbon treated, removing an estimated 600 pounds of TCE.
- Approximately 6,050 gallons of 3% Potassium permanganate solution (1,480 pounds of solid potassium permanganate) have been injected to the subsurface for the purpose of oxidizing TCE.
- The laboratory analytical results from the groundwater samples collected on June 24, 2009 revealed a noteworthy reduction of the TCE and/or daughter compound concentrations when compared to both the initial May 12, 2006 sampling event and the follow-up July 15, 2008 sampling event.
- The July 15, 2008 gauging event and June 24, 2009 sampling event revealed no free phase product in any of the extraction wells.

4.0 CRITERIA ANALYSIS

As required in DER-10 Section 4.2(a) (Remedy Selection Evaluation Criteria), this section provides a discussion of the first two threshold criteria specified in DER-10 Section 4.2(b)-(c), and the next six balancing criteria specified in in DER-10 Section 4.2(d)-(i), as follows:

Overall Protection of Public Health and the Environment

The proposed IRM provides adequate protection of the public health and will meet the specific related RAOs discussed above. The potential for exposure to on-site free product (OU-1), on-site contaminated groundwater (OU-2) and on-site contaminated soil (OU-3) is unlikely and will be reduced. Institutional controls will prohibit the installation of groundwater wells, construction or use of structures for other than commercial or industrial purposes, and put a Soil Management Plan ("SMP") in place.

The proposed IRM provides protection of the environment and will meet the specific RAOs discussed above. Actions taken to recover free product (OU-1) will reduce contaminant mass, thereby limiting continued contamination of soil and groundwater, and reducing contaminant migration.

The ISCO activities will reduce the contaminants of concern in the groundwater and soil using proven technologies which chemically oxidizes TCE and related VOCs. Significant contaminant mass degradation will occur on the site over the course of the Remedial Action. Groundwater extraction along the property border will further limit off-site migration.

Standards, Criteria and Guidance (SCGs)

The SCGs that the Remedial Action is potentially subject to include, but are not limited to, the following: 1) NYSDEC Spill Response Guidance; 2) TAGM 4046; 3) TOGS 1.1.1; 4) OSHA 40 CFR 1910.1000; 5) OSHA employee exposure limits; and 6) DER-10.

Each of the Remedial activities is an industry-proven method and is highly likely to achieve compliance with the aforementioned SCGs over the Remedial Action period. Similarly, it is anticipated that the active sub-floor vapor extraction system, which is also a proven, widely used technology, will be effective.

Long Term Effectiveness and Permanence

As indicated above, the Remedial Activities are industry proven methods and will provide long term effectiveness and a permanent remedy, given that the original contaminant source was historically removed. Any product recovery (OU-1) and groundwater/soil remediation (OU-2 & OU-3) will remove contaminant mass over time. Once the applicable cleanup goals are met, the remediation will achieve permanence. Once OU-1, OU-2 and OU-3 have been remediated, the need for

continued vapor mitigation (OU-4) may cease, although this active system can be converted to a passive system and operate without a time limitation without a negative effect on the facility or site.

Reduction of Toxicity, Mobility or Volume of Contamination through Treatment

The product recovery measure (OU-1) is reducing the volume of contamination, and as a secondary effect, reducing the mobility of the free product plume. Groundwater extraction performed as part of the ISCO is reducing mobility by exerting hydraulic control on the on-site groundwater plume (OU-2). The ISCO is reducing the plume toxicity and volume, as well as the mobility of the groundwater (OU-2) and soil (OU-3) plumes through carbon filtration and chemical oxidization of the various contaminants. Vapor extraction (OU-4) is reducing the volume of subfloor contamination, as well as migration of the VOCs vapors into the facility, by creating a zone of negative pressure under the facility floor.

Short Term Impact and Effectiveness

Given the relative simplicity of the remedial activities and physical characteristics of the subject site, only minimal potential short term impacts exist. The remediation equipment utilizes a portion of the interior of the facility which reduces the usable area for the site owner. The vent pipes for the product storage tank and oil/water separator are installed on the exterior facility wall at a level that prevents public exposure. Similarly, the risers for the passive vapor extraction system will also terminate two feet above the roof of the facility. Monitored vapor concentrations emanating from the system stacks above the roof of the facility have been shown to be very low, and do not create a public health risk.

Remedial system installation does not present undue risk of exposure to workers or the public. Remedial workers will be required to adhere to a site-specific health and safety plan (contained in the SMP), which will prevent exposure to site-related chemicals.

Implementability

The proposed remedial activities are being appropriately implemented both technically and administratively. The technical aspects of construction are relatively simple, given both the design of the system and the site's characteristics. Monitoring is being effectively performed by collecting specified data from observation wells, as well as the extraction and injection points. There are no anticipated administrative limitations for implementation of the proposed Remedial Action.

Cost Effectiveness

The cost of the proposed remedial activities is estimated to be $100,000 for the initial pilot testing, system installation and collection of baseline data. Operation, maintenance, monitoring and product and carbon disposal costs have been estimated to be $60,000 per year. The approximate project duration is estimated to be up to five years with ISCO and/or MNA as appropriate.

Land Use

The proposed remedial activities are consistent with the current and future intended use of the subject site, which remains mixed industrial and commercial use. These activities take into consideration site institutional controls to be incorporated into the environmental easement, including: 1) prohibition of installation of drinking or ancillary use water wells; 2) prohibition of construction and/or use of buildings for other than commercial or industrial purposes; 3) installation of a sub-slab vapor extraction system in future facilities constructed on-site; and 4) preparation of a Site Management Plan (SMP).

5.0 REMEDIAL WORK PLAN

Remedial Action Objectives (RAOs) for the subject site have been established for four Operable Units (OU), which have been designated as follows: 1) The area on-site and within the "Kick-out Area" which exhibits free product (OU-1); 2) The on-site shallow groundwater (OU-2); 3) The on-site impacted soils saturated with groundwater (OU-3); and 4) The on-site facility subfloor vadose zone air (OU-4). DNAPL Source Removal with ISCO and Monitored Natural Attenuation (MNA) has been selected to achieve the remedial goal of the site. The selected alternative includes active product recovery, low-flow hydraulic control of the on-site impacted groundwater, active carbon filtration, ISCO and MNA.

A Sub-Floor Vapor Extraction System IRM was designed to meet the RAOs of OU-4, and consists of six 6"-diameter extraction points installed at strategic locations within the interior of the portions of southern warehouse and adjacent manufacturing areas of the facility (Drawing No. 4). At each vapor extraction point location, a 3" diameter, Schedule 40 PVC pipe is installed beneath the concrete floor of the facility that extends through the roof of the building for exterior venting. The extraction end of each point is installed through a 6" diameter hole cored through the concrete floor and is seated into a small volume of 2" diameter clean stone to protect the opening of the pipe and allow adequate vapor flow. Each corehole is sealed around the PVC pipe risers with quick-set cement. Each riser is secured to the inside beams or other structures at several locations all the way to the ceiling, and exits the roof with at least two feet extending above the roof line to allow adequate drafting. The roof is sealed appropriately to prevent leakage. A total of four, 125 CFM draft-induced blowers are connected to the vapor extraction piping to actively extract air. Two of the blowers are connected to individual extraction points including Vapor Extraction Point #1 (VEP-1) and VEP-6. There are two other blowers, each of which is connected to two extraction points, with VEP-2 and VEP-3 is connected to one blower and VEP-4 and VEP-5 is to one blower. This system operates continuously and sustains a negative pressure under the slab of the building.

The ISCO IRM was designed to achieve the RAOs of OU-2 and OU-3, and currently consists of the following components: 1) A series of twenty one-inch diameter Extraction Wells (EWs); 2) An oil/water separator; 3) Three carbon treatment vessels (55-gallon each); 4) A potassium permanganate batch tank; 5)

An Injection Tank; and 6) Ten dual-head injection pumps which inject treated groundwater and potassium permanganate solution into twenty one-inch diameter Injection Wells (IWs).

Groundwater extraction is performed from the twenty Extraction Wells using ten dual-head, peristaltic pumps with a rated pumping capacity of between 1 to 3 gallons per hour per head, depending on the tubing size used. Pumps used to extract fluid from EWs which have exhibited DNAPL, and those adjacent to these EWs, are fitted with Gore High Resiliency Tubing™ which is compatible with free phase TCE. The remainder of the pumps that extract only impacted water with dissolved phase TCE are fitted with Santoprene™ tubing. All ten pumps are installed in a series of five, 30" x 30" steel vaults (two pumps per vault). The vacuum side of each pump head is connected to a 1/4" ID x 3/8" OD tubing which extend into the designated extraction well. The construction of the downwell tubing is either PVDF, Teflon Lined or HDPE, depending on the concentration of TCE in the well.

After groundwater is pumped into the oil/water separator and the DNAPL is captured in the oil chamber, the water is pumped through a series of three, 55-gallon carbon treatment vessels. Sampling ports are installed at the pre-carbon, mid-carbon and post-carbon (after the second polishing drum) locations to monitor the treatment efficiency. Samples are routinely taken to ensure that the water is properly treated prior to re-injection.

Subsequent to carbon treatment, a 3% potassium permanganate solution (an effective oxidizer of TCE) is injected into the water stream before entering the injection tank. The resulting 1% Potassium permanganate solution is then injected into twenty PVC Injection Wells located on the upgradient portion of the TCE plume through 1/4 ID x 3/8 OD polyethylene tubing using ten dual-head injection pumps.

The 3% potassium permanganate solution that is injected into the water stream is manually prepared in a 275-gallon polyethylene tote. This 3% solution is obtained by mixing approximately 70 pounds of permanganate with 275 gallons of water. Once a batch is prepared, a pump injects the solution into the carbon-treated water stream as described above. When the tote is empty, this pump is deactivated using a float switch. Once the potassium permanganate pump deactivates then only carbon treated groundwater is injected into the injection wells.

The DNAPL (TCE) Recovery IRM was designed to meet the RAOs of OU-1, and consists of the series of twenty one-inch diameter Extraction Wells (EWs) from which impacted groundwater and free phase DNAPL (if present) are extracted using ten dual-head peristaltic pumps. Eleven of the EWs consist of Schedule 40 PVC, 0.030 slotted screen and riser including EW-1 through EW-7 and EW-17 through EW-20. Nine of the EWs consist of Stainless Steel, 0.030 slotted screen and PVC riser. These extraction wells were installed at the clay confining layer which begins between 12 to 15 feet below grade as determined during the Subsurface Investigation performed at the site.

Fluid is extracted from the well and is then pumped into a brass manifold mounted inside the vault which receives the fluid from all four pump heads within the vault. The fluid then flows through a 1/2" ID Teflon-lined tube which enters the building and connects to the main extraction system manifold. This manifold receives fluid from all five vaults and directs the flow into an oil/water separator. Free phase DNAPL contained in the extracted fluid contacts the oil/water separator's internal, stainless steel coalescing media and is collected in the oil/water separator DNAPL sump. DNAPL is manually drained from the sump during each site visit and is placed in the 190-gallon steel product storage tank. Once a sufficient volume of product is collected in the tank, or a waste pick-up is scheduled, the product is transferred to 55-gallon drums and sent off-site for proper management.

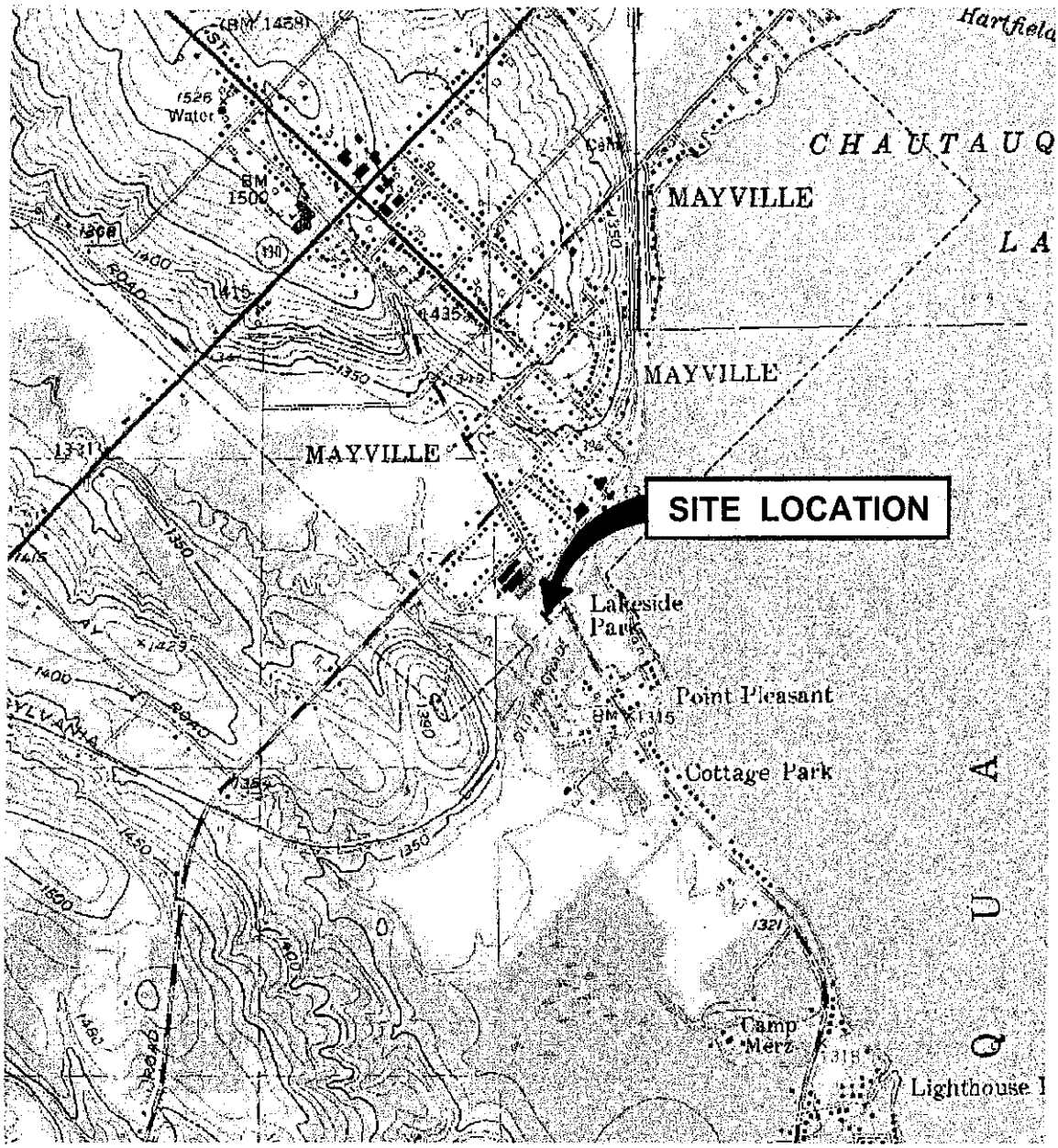
Due to a period of extreme cold throughout January and February 2009, wide-spread pump freeze-ups were experienced which caused substantial damage to many operating extraction and injection pumps (even with protective measures in place). In addition, due to Mayville's geographic location, winter snow falls can routinely exceed two feet in depth during any event, and snow pack can typically exceed one to two feet throughout the winter months. As a result, maintenance activities for the remedial system have proved to be limited by the weather from approximately mid-December through mid-March during all years of operation. In response to these conditions, beginning in 2010, the pumping system will be shut down during this three month winter period. Shut down will be completed by removing the pumps from the vaults for refurbishment and storage during the shut-down period. Ends of lines will be clamped or otherwise secured to ensure both integrity and that they remain open without sediment or other matter infiltrating.

In an effort to maintain a level of treatment/containment during the winter pump shutdown period, two rounds of injection of the 3% Potassium permanganate solution will be completed just prior to pump shutdown. The first round will involve the routine injection of one batch (275 gallons) of solution through the operating injection well system followed by the injection of one batch of solution into six monitoring wells (SB-8, SB-11, SB-12, SB-13, SB-14 and SB-18), both during the week before shutdown. The second round will involve injecting single batches (275 gallons each) through each of the five extraction well vaults (four wells each) immediately prior to shutdown. This approach will allow immediate treatment of the TCE and its daughter compounds directly at the southeastern property boundary and within the "Kick-out Area", as well as provide a residual source of solution within the entire on-site treatment area.

These treatment procedures will be continued until TCE and its daughter compounds have been reduced to levels within the existing monitoring well system which mitigate any significant threats to human health and the environment, thereby allowing monitored natural attenuation to complete the remediation over an extended period of time.

Attachment 1

Drawings



THIS DRAWING IS FOR ILLUSTRATIVE AND INFORMATIONAL PURPOSES ONLY AND WAS ADAPTED FROM USGS, MAYVILLE, NEW YORK QUADRANGLE (TERRASERVERUSA.COM)

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HAZARD EVALUATIONS, INC.

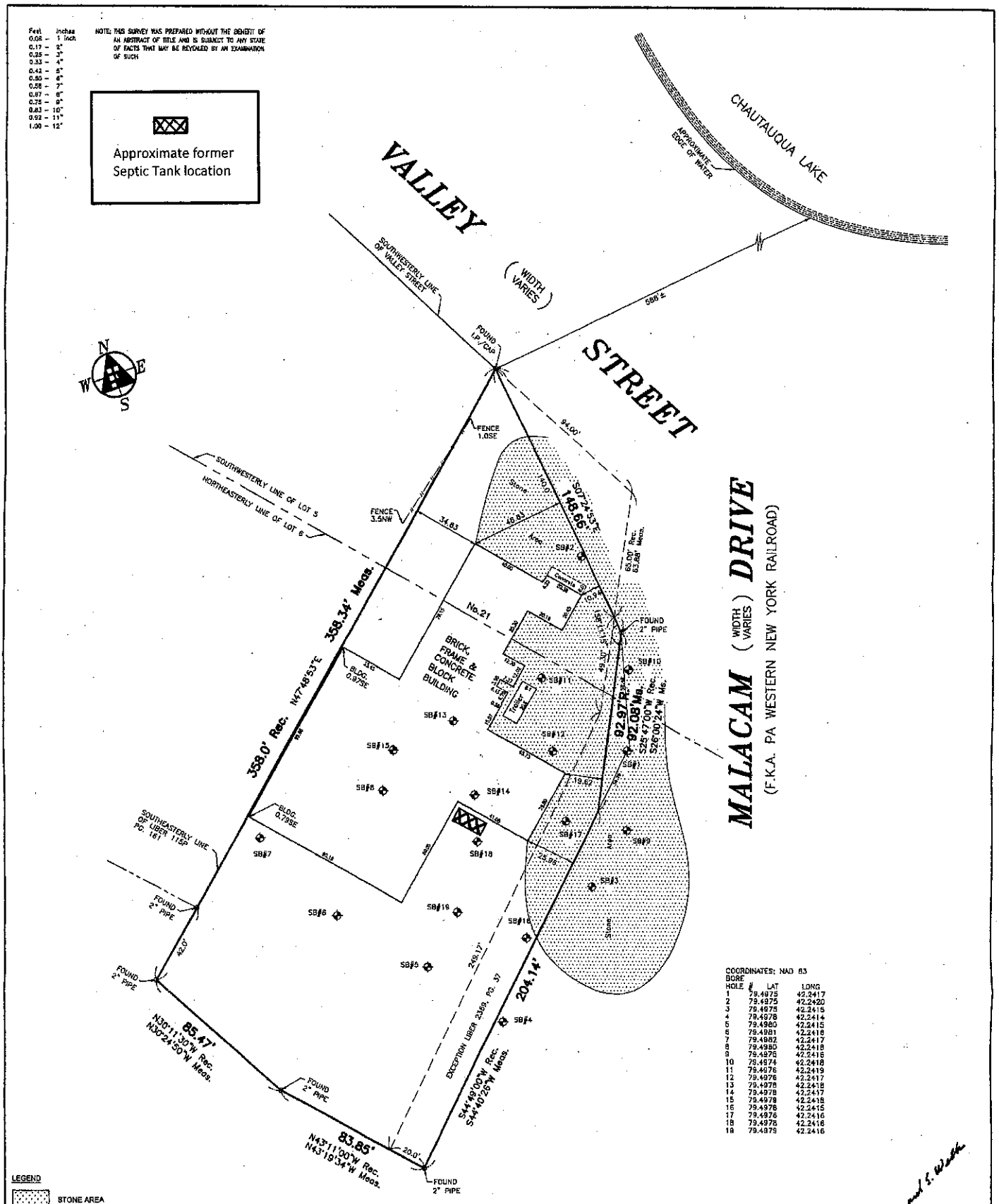
Phase I/II Audits - Site Investigations - Facility Inspections

LOCATION PLAN

JO LYN ENTERPRISES, LTD.

MAYVILLE, NEW YORK

DRAWN BY: DLW	SCALE: NOT TO SCALE	PROJECT: 24505
CHECKED BY: SAO	DATE: 8/08	DRAWING NO: 1



COORDINATES: NAD 83

BORE HOLE #	LAT	LONG
1	79.4975	42.2417
2	79.4975	42.2420
3	79.4978	42.2415
4	79.4978	42.2414
5	79.4980	42.2415
6	79.4981	42.2418
7	79.4982	42.2417
8	79.4980	42.2418
9	79.4976	42.2416
10	79.4974	42.2418
11	79.4976	42.2419
12	79.4976	42.2417
13	79.4978	42.2418
14	79.4978	42.2417
15	79.4978	42.2418
16	79.4976	42.2415
17	79.4976	42.2416
18	79.4976	42.2416
19	79.4979	42.2416

LEGEND

STONE AREA

HAZARD EVALUATIONS, INC. HAS RECEIVED PERMISSION FROM FOIT-ALBERT ASSOCIATES TO USE THIS BASE DRAWING, JOB NO. 06-31317, DATED JUNE 30, 2006; FOR THE PURPOSE OF THIS SUBSURFACE SITE INVESTIGATION REPORT.

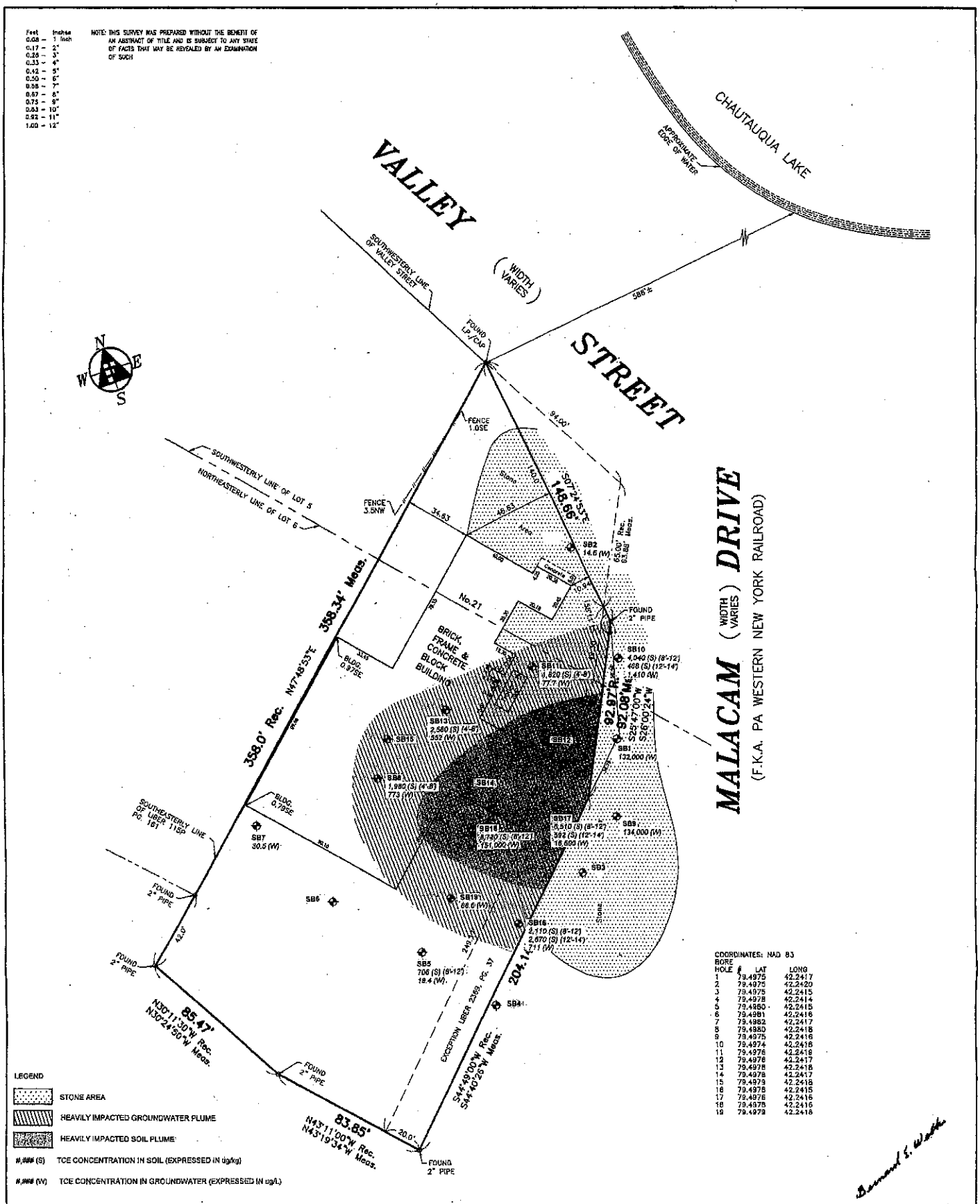
HAZARD EVALUATIONS, INC.
Phase I/II Audits - Site Investigations - Facility Inspections

SOIL BORING LOCATION PLAN
JO LYN ENTERPRISES, LTD.
MAYVILLE, NEW YORK

DRAWN BY: DLW	SCALE: 1" = 30'	PROJECT: 16208
CHECKED BY: CMH	DATE: 12/06	DRAWING NO: 2

LOCATION: VILLAGE OF MAYVILLE	SCALE: 1"=30'	
COUNTY OF CHAUTAUQUA, STATE OF NEW YORK		
PART OF LOTS 5 & 6	DRAWN BY: O. A. REYES	
OF THE HOLLAND LANDS COMPANY'S SURVEY		
MAP COVER:	CHECKED BY: B. E. WELLS	
SUBLOT(S):		
REVISIONS: 9/26/06 COORDINATES ADDED	RESURVEY	
DATE: JUNE 30, 2006	JOB No.: 06-31317	NO COR. MON. SET

Foit-Albert Associates
Architecture, Engineering and Surveying, P.C.
763 Main Street, Buffalo, New York 14203
SUCCESSOR TO THE RECORDS OF CHARLES E. DENYER
PHONE: (716) 856-3933 FAX: (716) 856-3981



COORDINATES: NAD 83

BORE HOLE #	LAT	LONG
1	79.4975	42.2417
2	79.4975	42.2420
3	79.4975	42.2415
4	79.4978	42.2414
5	79.4980	42.2415
6	79.4981	42.2416
7	79.4982	42.2417
8	79.4980	42.2418
9	79.4975	42.2416
10	79.4974	42.2416
11	79.4976	42.2416
12	79.4976	42.2417
13	79.4978	42.2418
14	79.4976	42.2417
15	79.4973	42.2418
16	79.4978	42.2415
17	79.4976	42.2416
18	79.4975	42.2416
19	79.4973	42.2418

HAZARD EVALUATIONS, INC. HAS RECEIVED PERMISSION FROM FOIT-ALBERT ASSOCIATES TO USE THIS BASE DRAWING, JOB NO. 06-31317, DATED JUNE 30, 2006, FOR THE PURPOSE OF THIS SUBSURFACE SITE INVESTIGATION REPORT.

HAZARD EVALUATIONS, INC.
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APPROXIMATE TCE PLUME AREAS
JO LYN ENTERPRISES, LTD.
MAYVILLE, NEW YORK

DRAWN BY: DLW	SCALE: 1" = 30'	PROJECT: 15208
CHECKED BY: CMH	DATE: 12/06	DRAWING NO: 3

LOCATION: VILLAGE OF MAYVILLE	SCALE: 1"=30'
COUNTY OF CHAUTAUQUA, STATE OF NEW YORK	
PART OF LOTS 5 & 6	DRAWN BY: O. A. REYES
OF THE HOLLAND LANDS COMPANY'S SURVEY	
MAP COVER:	CHECKED BY: B. E. WELLS
SUBLOT(S):	
REVISIONS: 9/28/06 COORDINATES ADDED	RESURVEY
DATE: JUNE 30, 2006	JOB No.: 06-31317
	NO COR. MON. SET

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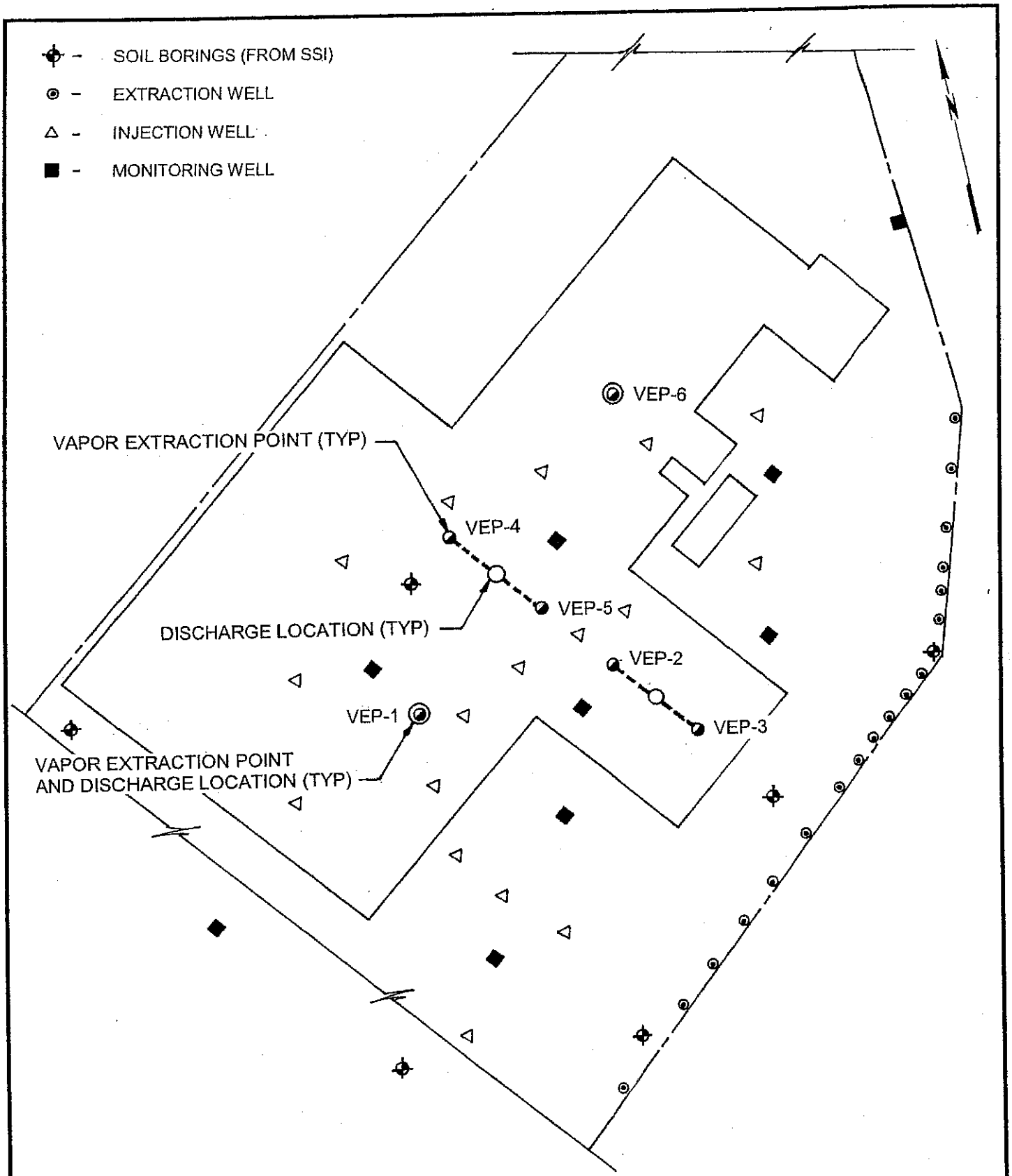


HAZARD EVALUATIONS, INC.

Phase I/II Audits - Site Investigations - Facility Inspections

SUB-FLOOR VAPOR EXTRACTION SYSTEM

JO LYN ENTERPRISES, LTD.

MAYVILLE, NEW YORK

DRAWN BY: DLW	SCALE: NOT TO SCALE	PROJECT: 24505
CHECKED BY: SAO	DATE: 8/08	DRAWING NO: 4

Attachment 2

Interim Remedial Measures Report
August 2008

INTERIM REMEDIAL MEASURES REPORT

Jo Lyn Enterprises, Ltd.
21 Valley Street
Mayville, New York 14757

NYSDEC Designation & Identification
Standard Portable Site #C907030

Prepared by:
Hazard Evaluations, Inc.
3836 North Buffalo Road
Orchard Park, New York 14127

August 2008

1.0 INTRODUCTION

1.1 Background Information

Jo Lyn Enterprises Ltd. owns and operates a facility which is located at 21 Valley Street, Village of Mayville, Chautauqua County, New York (Figure 1, Attachment 1). This parcel consists of approximately 1.06 acres of land located within the lake plain across Route 394 along the western side of Chautauqua Lake. Historically, the facility was operated as Wappat Saw Company. Later, the facility was operated as Standard Portable Products, Inc. One or more of the prior owners reportedly performed various metal working operations, including vapor degreasing using a Trichloroethene (TCE) degreasing unit. It is understood that the spent TCE solvent from this unit was disposed of or stored in an exterior underground septic tank.

The current owner, Jo Lyn Enterprises Ltd. d/b/a Standard Portable ("Jo Lyn"), purchased certain assets including the facility in 1996 and began manufacturing operations. Pre-purchase due diligence investigations identified a septic tank historically believed to be used as storage/disposal for TCE waste generated by the vapor degreasing unit. A remedial program was subsequently conducted by Anderson International, Inc. on Jo Lyn's behalf. It should be noted that the septic tank was removed in 1996 at the time of Jo Lyn's purchase. The waste that Jo Lyn generated in association with the vapor degreaser was containerized and transported off-site for disposal. In late 2002, Jo Lyn sought to sell the subject site, and as part of the due diligence process, a Phase II ESA was performed on behalf of the potential buyer's financial lending institution. The results of that Phase II ESA indicated significant levels of TCE contamination in the soil and groundwater in the vicinity of former septic tank.

During May 2006, Jo Lyn retained Hazard Evaluations, Inc. (HEI) to perform a focused Subsurface Site Investigation (SSI) in order to obtain additional data and information concerning the subsurface condition of the site related to the historic, pre-purchase release of Trichloroethene. The goals of the SSI included obtaining: 1) A more thorough characterization of Volatile Organic Compounds (VOCs) within the on-site and off-site soil profile, both vertically and laterally; 2) Water table elevations and the approximate on-site groundwater flow direction; 3) Definition of the on-site shallow contaminant plume with respect to site boundaries; 4) Condition of the subfloor soil/fill in the vicinity of the former degreaser; and 5) Identification of any "hot spots" within the soil profile in the impacted area, including any areas exhibiting dense non-aqueous phase liquid (DNAPL) product. The results of the SSI revealed well-defined areas of soil and groundwater contaminated with TCE. In addition, recoverable free phase DNAPL was observed off-site along the southeastern border of the subject site. An Interim Remedial Measures (IRM) Work Plan was prepared by HEI and submitted the New York State Department of Environmental Conservation (NYSDEC) in December 2006 (Refer to "Interim Remedial Measures Report & Work Plan", dated December 2006). The proposed Interim Remedial Measures (and approved modifications to the IRM) were subsequently commenced beginning in January 2007. This Interim Remedial

Measures Report details the activities related to implementation of the proposed IRM and the observed effectiveness of the IRM in meeting the Remedial Action Objectives set forth in the IRM Work Plan referenced above. An analysis of the IRM activities with regards to it's suitability for implementation as a Final Remedy is presented in the "Remedial Alternatives Report" prepared by HEI, dated August 2008.

1.2 Purpose

The purpose of this IRM Report is to provide the NYSDEC with information required under the Brownfield Cleanup Program as detailed in Section 6.0 of the "Focused Feasibility Study for the Interim Remedial Measures", dated December 2006. This information includes:

- A summary of each individual IRM system;
- Descriptions of changes to the initially proposed system specifications or operational parameters;
- Descriptions of problems encountered during construction and operation activities related to the IRM;
- Quantities and characteristics of contaminants identified and removed;
- Tabulation of data collected during implementation of the IRM; and
- Disposal documentation for any wastes managed as part of the IRM.

2.0 REMEDIAL ACTION OBJECTIVES & OPERABLE UNITS

Remedial Action Objectives (RAOs) for the subject site have been established for four Operable Units (OU), which have been designated as follows:

1) The area on-site and within the "Kick-out Area" which may exhibit free product (OU-1);

2) The on-site shallow groundwater (OU-2);

3) The on-site impacted soils saturated with groundwater (OU-3); and

4) The on-site facility subfloor vadose zone air (OU-4). In OU-1, OU-2 and OU-3, a limited number of VOCs related to the historic, pre-purchase TCE release (including several degradation compounds) exceed either the potentially applicable NYSDEC Recommended Soil Cleanup Objectives for soil [Appendix A, Table 1 of TAGM HWR-94-4046, dated January 24, 1994 (TAGM 4046)] or the Ambient Water Quality Standards and Guidance Values (TOGS 1.1.1, dated June 1998). Potential public health and environmental exposure pathways and the corresponding RAOs which have been prepared to mitigate them for each OU are presented below. Additionally, a qualitative discussion regarding potential off-site human and environmental exposure pathways is provided.

OU-1 (On-Site and "Kick-out Area" Free Product) Exposure Pathways and RAOs

As indicated above, free product (DNAPL TCE) was observed off-site within the soil profile at 10'-13' below grade (bg) along the southeast property boundary. If free product is identified on-site, or within the "Kick-out Area", the potential for human exposure within OU-1 is highly unlikely. There are no known on-site underground utilities in this area of the subject site (based upon the utilities locations

for the SSI) that would require Jo Lyn or utility employees to excavate soil from this area. Presuming the institutional controls set forth in Section 2.2 are implemented, the potential for human exposure to contaminants within OU-1 is negligible, based on the fact that OU-1, as defined, includes only the free product that is present at a depth of 10'-13' below grade.

If free product is present on-site, or within the "Kick-out Area", there is potential environmental exposure related to the presence of free product DNAPL in OU-1. Soil contacted by free product adsorbs varying amounts of the product into the soil structure pore spaces and becomes contaminated. In turn, groundwater that passes through the contaminated soils becomes contaminated through natural chemical dissolution or physical dispersion of those contaminants. Other than these on-site environmental media, there are no specific, on-site, sensitive environmental receptors such as streams, lakes or estuaries.

The RAO for OU-1 involves the investigation for and removal of any measurable free product from on-site, and the "Kick-out Area", along the southeastern edge of the site near SB-1. Additionally, the RAO involves the implementation of proactive measures to prevent migration of TCE off-site generally, thereby preventing migration of TCE off-site.

OU-2 (On-Site Groundwater) Exposure Pathways and RAOs

As indicated in the SSI, groundwater contamination by TCE was identified migrating from the facility toward the southeast. The potential for human exposure to this highly contaminated groundwater within OU-2 is unlikely; however, low level TCE contamination was identified in the groundwater across most of the eastern and southern half of the subject site during the SSI. This area includes the utility off-site rights-of-way along Route 394; therefore, human exposure to contaminated groundwater could occur in the front of the property along the roadway. It should be noted that the contaminant concentrations in the groundwater in this area were determined to be very low (slightly above groundwater standards), and should not result in exposure at levels that would cause dermal contact impacts to utility workers. The ingestion and/or inhalation of these low levels of groundwater TCE in this area would not be anticipated. Assuming that the institutional controls set forth in Section 2.2 are implemented, the potential for human exposure via other exposure pathways within OU-2 is unlikely.

There is potential environmental exposure related to the presence of VOCs in OU-2. However, since the groundwater on-site is already contaminated by TCE, further on-site environmental exposure in not likely.

The RAO for OU-2 includes the reduction of TCE and related VOCs concentrations in on-site groundwater to levels below site-specific cleanup criteria. Additionally, the RAO includes the implementation of proactive measures to prevent migration of TCE off-site.

OU-3 (On-Site Impacted Soils Saturated with Groundwater) Exposure Pathways and RAOs

As indicated in the SSI, soil profile contamination by TCE was identified in a plume from the facility toward the southeast. The potential for human exposure to the area of impacted soil within OU-3 is unlikely; however, lower level TCE contamination was identified at depth within the soil profile toward eastern property boundary along Route 394 during the SSI. This area may include the utility rights-of-way along Route 394; therefore, human exposure to contaminated saturated soil could occur in the front of the property along the roadway. It should be noted that the contaminant concentrations in the soil near the roadway, possibly in the area of these utilities, was determined to be low (below RSCOs), and should not result in exposure at levels that would cause dermal contact impacts to utility workers. The ingestion and/or inhalation of these low levels of TCE in the saturated soils of this area of OU-3 would not be anticipated. Presuming the institutional controls set forth in Section 2.2 are implemented, the potential for human exposure to contaminants within OU-3 is low.

There is potential environmental exposure related to the presence of TCE and related VOCs in site soils. However, since the soil profile on-site is already contaminated by TCE, further on-site environmental exposure in not likely.

The RAO for OU-3 includes the reduction of TCE and related VOCs concentrations in on-site soils to levels below the Site-Specific Cleanup Levels.

OU-4 (On-Site Subfloor Air/Interior Structure Air) Exposure Pathways and RAOs

As indicated in the SSI, soil and groundwater contamination by TCE were identified under the southern portion of the warehouse floor and adjacent manufacturing areas. The potential human exposure to volatile organic compound vapors may exist within the site structure during occupancy (i.e., work shifts), which currently is approximately 40 hours per week. The magnitude of exposure is likely to be low, given that the building has a moderate level of air exchange (i.e., via drafts) due to its age and condition (i.e., limited deterioration).

The RAO for OU-4 involves the installation of an active sub-floor vapor extraction system to address any concerns relative to soil vapor intrusion into the buildings.

3.0 DNAPL (TCE) RECOVERY IRM

3.1 Summary

The DNAPL (TCE) Recovery IRM was designed to meet the RAOs of OU-1, and consists of a series of twenty one-inch diameter Extraction Wells (EWs) from which impacted groundwater and free phase DNAPL (if present) are extracted using ten dual-head peristaltic pumps. Eleven of the EWs consist of Schedule 40 PVC, 0.030 slotted screen and riser including EW-1 through EW-7 and EW-17 through EW-20. Nine of the EWs consists of Stainless Steel, 0.030 slotted screen and PVC

riser. These extraction wells were installed at the clay confining layer which begins between 12 to 15 feet below grade as determined during the Subsurface Investigation performed at the site. Figure 2 (Attachment 1) presents a Site Map depicting the EW locations. Extraction well construction details are found in Attachment 2.

Extraction is performed using ten Stenner™, dual-head, peristaltic pumps with a rated pumping capacity of between 1 to 3 gph(?) per head, depending on the tubing size used. Pumps used to extract fluid from EWs which have exhibited DNAPL, and those adjacent to these EWs, are fitted with Gore High Resiliency Tubing™ which is compatible with free phase TCE. The remainder of the pumps that extract only impacted water with dissolved phase TCE are fitted with Santoprene™ tubing. All ten pumps are installed in a series of five, 30" x 30" steel vaults (two pumps per vault). The vacuum side of each pump head is connected to a 1/4" ID x 3/8" OD tubing which extend into the designated extraction well. The construction of the downwell tubing is either PVDF, Teflon Lined or HDPE, depending on the concentration of TCE in the well.

Fluid is extracted from the well and is then pumped into a brass manifold mounted inside the vault which receives the fluid from all four pump heads within the vault. The fluid then flows through a 1/2" ID Teflon-lined tube which enters the building and connects to the main extraction system manifold. This manifold receives fluid from all five vaults and directs the flow into an oil/water separator. Free phase DNAPL contained in the extracted fluid contacts the oil/water separator's internal, stainless steel coalescing media and is collected in the oil/water separator DNAPL sump. DNAPL is manually drained from the sump during each site visit and is placed in the 190-gallon steel product storage tank.

Once a sufficient volume of product is collected in the tank, or a waste pick-up is scheduled, the product is transferred to 55-gallon drums and sent off-site for proper management.

3.2 Changes from Initial Specifications

The were several changes made to the initially proposed DNAPL recovery system. These basis for the changes included: 1) Additional research on system mechanics; 2) Field conditions encountered; or 3) Cost considerations. Generally, prior to making any changes to the system, NYSDEC was notified in advance, and changes were discussed with NYSDEC personnel. The specifics of each change, including the basis for making the change, are listed below.

Extraction Well Materials of Construction

The original specification included the installation of all PVC extraction wells; however, a total of nine extraction wells were constructed with stainless steel well screen and PVC riser. The basis for this change was that the stainless steel screen would reduce the likelihood of well failure at locations where free product may be

encountered and extracted for an extended duration of time. Despite the additional cost, this change was made to enhance the system's ability to meet the RAOs for OU-1.

Oil/Water Separator Installation

The original specification included pumping of free phase DNAPL directly into a product recovery tank; however, an oil/water separator was installed which allows all extracted fluid to be pumped to a common location. This change allowed for: 1) A significant reduction in manual adjustments of individual well tubing; 2) A reduction in cost of materials given the change allowed manifolding the pump tubing in each pump vault; and 3) More effective DNAPL recovery from wells in which DNAPL may only intermittently appear, given vertical adjustment of extraction tubing will not be necessary.

Dual-Head Peristaltic Pump

The original specification included 20 individual peristaltic pumps; however, 10 dual-head pumps were installed. The basis for this change was a reduction in cost without sacrificing system performance.

Manifolded Tubing

The original specification included each pump discharging extracted fluid into a piece of tubing all the way to the product tank (for DNAPL extraction only); however, each vault was equipped with a manifold to receive extracted fluid from all four pump heads in the vault. This change was an additional cost savings benefit realized from installation of the oil/water separator.

Pump Tubing Size

The original specification included 3/8" ID tubing to be used for all pump downwell extraction and pump discharge fluid transfer operations; however, 1/4" ID x 3/8" OD tubing was installed (upstream of manifolded tubing). The basis for this change was that the pumps were rated to effectively move fluid through the smaller diameter tubing without sacrificing performance.

3.3 Problems Encountered During Installation

No noteworthy problems were encountered during the installation of the DNAPL recovery system.

3.4 Problems Encountered During Operation

There were several minor problems encountered during the initial operational phase as indicated below.

Silting of Wells and Oil water Separator

Subsequent to sustained extraction, it was found that the extraction tubes were clogging with silt. This also caused a significant amount of silt to accumulate in the oil/water separator. After the tubes and oil/water separator were cleaned and the wells de-silted, this issue did not reoccur.

Pump Gear Failure

Numerous extraction pumps have had the internal phenolic drive gear fail. This has been found to be the result of using the stiffer Gore Tube, which is required for TCE compatibility. The problem has been improved by using Gore Tube with a slightly thinner wall thickness. However, it should be noted that the internal phenolic drive gears are a wear part and will likely need to be replaced in the future, but not at the frequency experienced upon system start-up.

3.5 Operational Performance

The DNAPL Recovery IRM commenced on May 1, 2008, and as of August 1, 2008, approximately 66 gallons of free phase DNAPL have been recovered. It appears that the greatest amount was recovered during the initial few weeks of operations; since then, the recovery rate has decreased to less than 1 gallon per week. Given that the current recovery rate is less than 1 gallon per week, the automatic product pump has been deactivated and manual draining of the product is performed (Refer to the "Trichloroethylene Product Information Table", Attachment 4).

3.6 Waste Disposal Information

When an adequate volume of DNAPL is collected which maximizes the value of scheduling a waste pick-up, the waste pick-up will be scheduled. There are currently 66 gallons of DNAPL on-site, awaiting disposal.

4.0 IN-SITU CHEMICAL OXIDATION (ISCO) IRM

4.1 Summary

The ISCO IRM was designed to achieve the RAOs of OU-2 and OU-3, and currently consists of the following components: 1) A series of twenty one-inch diameter Extraction Wells (EWs); 2) An oil/water separator; 3) Three carbon treatment vessels (55-gallon each); 4) A Potassium Permanganate batch tank; 5) An Injection Tank; and 6) Ten dual-head injection pumps which inject treated groundwater and Potassium permanganate solution into twenty one-inch diameter Injection Wells (IWs).

Groundwater is extracted from the twenty Extraction Wells using ten Stenner™, dual-head peristaltic pumps. Section 2.0 presents a description of the Extraction Well, pump and tube configuration. After groundwater is pumped into the oil/water separator and the oil is captured in the oil chamber, the water is pumped through a series of three, 55-gallon carbon treatment vessels. Sampling ports are installed at the pre-carbon, mid-carbon and post-carbon (after the second polishing drum) locations to monitor the treatment efficiency. Samples are currently taken at least monthly to ensure that the water is properly treated prior to re-injection.

Subsequent to carbon treatment, a 3% Potassium permanganate solution (an effective oxidizer of TCE) is injected into the water stream before entering the injection tank. The resulting 1% Potassium permanganate solution is then injected

into twenty PVC Injection Wells located on the upgradient portion of the TCE plume through 1/4 ID x 3/8 OD polyethylene tubing using ten dual-head injection pumps. Figure 1 (Attachment 1) presents a Site Map depicting the IW Locations. Attachment 2 presents the IW Construction Details.

The 3% Potassium permanganate solution that is injected into the water stream is manually prepared in a 275-gallon polyethylene tote. This 3% solution is obtained by mixing approximately 70 pounds of permanganate with 275-gallons of water. Once a batch is prepared, a pump injects the solution into the carbon-treated water stream as described above. When the tote is empty, this pump is deactivated using a float switch. Once the Potassium permanganate pump deactivates then only carbon treated groundwater is injected into the injection wells.

4.2 Changes from Initial Specifications

There were several changes made to the initially proposed method of treating TCE impacted groundwater and saturated soils. These changes were based on the following general reasons: 1) Additional research on system mechanics; 2) Field conditions encountered; or 3) Cost considerations. The specifics of each change, including the basis for making the change, are listed below. As stated above, NYSDEC was notified prior to any major modifications to the IRM plan specifications.

In-Situ Treatment Method

The most significant change is the site-wide implementation of In-Situ Chemical Oxidation using Potassium permanganate rather than In-Situ Enhanced Bioremediation, which was the originally specified treatment method. This change resulted in the need for a Batch Tank (Potassium permanganate tote) and a tote mixer. Also, an Underground Injection Control Permit had to be obtained from the USEPA for the Potassium permanganate process rather than any additives that would have been injected for Enhanced In-Situ Bioremediation. Refer to Attachment 3 for the USEPA Underground Injection Well Authorization Letter. The basis for this major change resulted from HEI's continued analysis of chemical oxidation case studies which reported favorable results in the remediation of DNAPL and TCE impacted media, coupled with much-improved cost comparisons.

Extraction Well Material of Construction

The original specification included installation of all PVC extraction wells; however, a total of nine extraction wells were constructed of stainless steel well screen and PVC riser. The basis for this change was that the stainless steel screen would reduce the likelihood of well failure at locations where free product may be encountered and extracted for an extended duration of time. This, in-turn, would allow more efficient water extraction over time and enhance the system's ability to meet the RAOs for OU-2 and OU-3.

Oil/Water Separator Installation

The original specification included pumping of impacted water directly into carbon treatment vessel(s); however, an oil/water separator was installed which allows all extracted fluid to be pumped to a common location. There were many reasons for this change, including: 1) A significant reduction in manual adjustments of individual well tubing; 2) A reduction in cost of materials given the change allowed manifolding of pump tubing in each pump vault; and 3) More effective groundwater recovery from wells in which DNAPL may only intermittently appear, eliminating the need to vertical adjust the extraction tubing.

Dual-Head Peristaltic Pump

The original specification included 20 individual peristaltic pumps; however, 10 dual-head pumps were installed. The basis for this change was a reduction in cost without sacrificing system performance.

Manifolded Tubing

The original specification included each pump discharging extracted fluid into a piece of tubing all the way to a manifold prior to the carbon treatment vessel; however, each vault was equipped with a manifold to receive extracted fluid from all four pump heads in the vault. This change was an additional cost savings related to the oil/water separator.

Pump Tubing Size

The original specification included 3/8" ID tubing to be used for all pump down well extraction and pump discharge fluid transfer operations; however, 1/4" ID x 3/8" OD tubing was installed (upstream of manifolded tubing). The basis for this change was that the pumps were rated to effectively move fluid through the smaller diameter tubing without sacrificing performance.

4.3 Problems Encountered During Installation

One problem was encountered during system installation activities related to In-Situ Chemical Oxidation System. Surface water was entering the Extraction Well Pump Vaults. This problem was remedied by installation of a sump pump in Vault #2, which is connected to Vault #1 via the protective PVC pipe network which houses the extraction tubing and electrical wire. A pump was also installed in Vault #5, which is connected to Vaults #3 and #4.

A Sewer Discharge Permit was obtained from the North Chautauqua Lake Sewer District for the purpose of receiving the surface water collected in the Vaults. Attachment 5 presents a copy of the Controlled Release Discharge Permit and the Laboratory Analytical Results submitted with the permit application.

4.4 Problems Encountered During Operation

There were several minor problems encountered during the initial operational phase as indicated below.

Silting of Wells and Oil water Separator

Subsequent to sustained groundwater extraction, it was found that the extraction tubes were clogging with silt. This also caused a significant amount of silt to accumulate in the oil/water separator. After the tubes and oil/water separator were cleaned and the wells de-silted, this issue did not reoccur.

Pump Gear Failure

Numerous extraction pumps have had the internal phenolic drive gear fail, caused by the use of the stiffer Gore Tube, which is required for TCE compatibility. The problem has been solved by using Gore Tube with a slightly thinner wall thickness which puts less stress on the pump. It should be noted that the internal phenolic drive gears are a wear part and will likely need to be replaced in the future; however, not at the frequency experienced upon system start-up.

Injection Well IW-14 & IW-15 Backup

Subsequent to sustained groundwater extraction, after a period of about a month and a half, Potassium Permanganate staining was observed emanating from the IW-14 and IW-15 manway. It appeared that the Bentonite seal had failed along the injection well PVC pipe; therefore, hydraulic cement was used to further seal the interior of the wells. These wells appear to be working effectively at this time.

4.5 Operational Performance

The ISCO IRM commenced on May 1, 2008. As of August 1, 2008, approximately 54,000-gallons of TCE-impacted water has been extracted, carbon treated and re-injected. Additionally, a total of 4,125-gallons of 3% Potassium permanganate solution have been injected into the IWs. The extraction and injection pumps have been operating acceptably. The following data tables are included in Attachment 4: 1) "System Flow Information"; 2) "Extraction Well Operation"; 3) "Injection Well Operation"; and 4) "Potassium Permanganate Information".

Contaminant Mass Removal

The groundwater extraction and carbon treatment portion of this ISCO is effectively removing a substantial amount of contaminant mass, as indicated by laboratory analytical results of the groundwater sampled at the pre-carbon sampling location, which have revealed TCE concentrations ranging from 585 ppm to 940 ppm. Additionally, spent carbon analyzed for waste management purposes was found to contain 245,000 ppm TCE. Based on this concentration, each drum of spent carbon is estimated to contain at least 50 pounds of TCE (assuming 25% of the weight of the wetted carbon in the drum when sampled). Therefore an estimated 250 pounds of TCE having been extracted and recovered through groundwater extraction and carbon filtration as of August 1, 2008. Laboratory analytical results for the pre, mid and post-carbon water samples and the spent carbon referenced above can be found in the appropriate Monthly Progress Reports submitted for the site.

Groundwater Sample Laboratory Analytical Results

A quarterly groundwater sampling event was performed at the site on July 15, 2008 to assess the effectiveness of the remedial activities. The static groundwater table in each well was gauged using an interface probe prior to sampling. Single use polyethylene bailers were then used to purge the wells of at least three well volumes. The method of manual purging was utilized in an effort to maintain consistency with the sampling event performed as part of the site investigation. During purging, measurements of Temperature, Dissolved Oxygen, pH and Oxidation/Reduction Potential were recorded intermittently to determine if any correlation can be made between the measured parameters and the ISCO activities. It should be noted that an instrument malfunction prevented recording this data for two of the wells sampled.

The groundwater sample laboratory analytical results indicated that TCE concentrations decreased in all the wells sampled when compared to the results obtained during the May 2006 site investigation. Well SB18, which is located in the original source area (septic tank location), exhibited TCE concentration of 1,230 µg/l, which is significantly lower than the May 2006 concentration of 151,000 µg/l. Given the observed results, it appears that the ISCO IRM is effectively working towards meeting the RAOs for the site. Attachment 6 presents all data related to the groundwater sampling event, including the following: 1) Groundwater Gauging Data; 2) Groundwater Contour Map; 3) Field Measurements; 4) Laboratory Analytical Results; and 5) Historical Contaminant Concentration Tables.

Hydraulic Control of the Site

HEI compared the Bulk Discharge of the contaminated zone to the total volume of groundwater extracted every day to.verify the hydraulic control of the site. These calculations (Attachment 6) revealed an estimated Bulk Discharge of 111.6 gallons per day, while the average pumping rate of the system is approximately 720 gallons per day, indicating more than adequate extraction volume.

HEI also calculated the estimated Capture Zone for each extraction well based on the average observed extraction rate using calculations presented by Michael McKillip in an article entitled "A Brief Primer of Useful Calculations for Assessing and Cleaning Up a Groundwater Contamination Site" (Refer to the paper and calculations for the site in Attachment 7). These calculations revealed that the estimated capture zone for each well is 23.6 feet across, or 11.8 feet from the well in each direction perpendicular to groundwater flow.

Although this method of calculation assumes a "confined aquifer", HEI suggests this method is still useful to provide support that capture is occurring at the subject site given the overlap of capture zones for each well is 100% or greater. It should be noted that the extraction well spacing is 7.5 feet apart for wells near the kick-out area (EW14) and 11.5 feet apart for the wells toward either end of the extraction configuration (EW1 & EW-20).

In that regard, based on these calculations, the ISCO IRM appears to be effectively working toward meeting the RAOs for the site.

4.6 Waste Disposal Information

There has been no spent carbon removed from site for disposal or other management to date. When an adequate volume of spent carbon is collected, a waste pick-up will be scheduled. HEI anticipates that spent carbon will be regenerated at the Siemens Water Technologies Facility located in Darlington, Pennsylvania.

5.0 SUB-FLOOR VAPOR EXTRACTION SYSTEM IRM

5.1 Summary

The Sub-Floor Vapor Extraction System IRM was designed to meet the RAOs of OU-4, and consists of six 6"-diameter extraction points installed at strategic locations within the interior of the portions of southern warehouse and adjacent manufacturing areas of the facility (Figure 3). At each vapor extraction point location, a 3" diameter, Schedule 40 PVC pipe is installed beneath the concrete floor of the facility which extends through the roof of the building for exterior venting. The extraction end of each point is installed through a 6" diameter hole cored through the concrete floor and is seated into a small volume of 2" diameter clean stone to protect the opening of the pipe and allow adequate vapor flow. Each corehole is sealed around the PVC pipe risers with quick-set cement. Each riser is secured to the inside beams or other structures at several locations all the way to the ceiling, and exits the roof with at least two feet extending above the roof line to allow adequate drafting. The roof is sealed appropriately to prevent leakage. A total of four, 125 CFM draft-induced blowers are connected to the vapor extraction piping to facilitate active extraction. Two of the blowers are connected to individual extraction points including Vapor Extraction Point #1 (VEP-1) and VEP-6. There are two other blowers, each of which is connected to two extraction points, with VEP-2 and VEP-3 is connected to one blower and VEP-4 and VEP-5 is to one blower.

5.2 Changes from Initial Specifications

The were no changes from the initially proposed Sub-Floor Vapor Extraction System IRM.

5.3 Problems Encountered During Installation

The were no noteworthy problems encountered during installation of the Sub-Floor Vapor Extraction System.

5.4 Problems Encountered During Operation

There have been no noteworthy problems encountered during operation of the Sub-Floor Vapor Extraction System to date.

5.5 Operational Performance

The Sub-Floor Vapor Extraction System installation was completed on January 11, 2007 and the system has been operating continuously since that date, with the exception during power outages.

The volatile organic compound concentration of the discharge stacks for each of the four blowers was measured on June 4, 2008. The following VOCs readings were obtained for each corresponding Vapor Extraction Point: 1) 0.0 ppm for VEP-1; 2) 5.2 ppm for VEP-2 and VEP-3; 3) 2.2 ppm for VEP-4 and VEP-5; and 4) 4.7 ppm for VEP-6.

5.6 Waste Disposal Information

There is no waste disposal anticipated for the Sub-Floor Vapor Extraction System IRM.

6.0 CONCLUSION

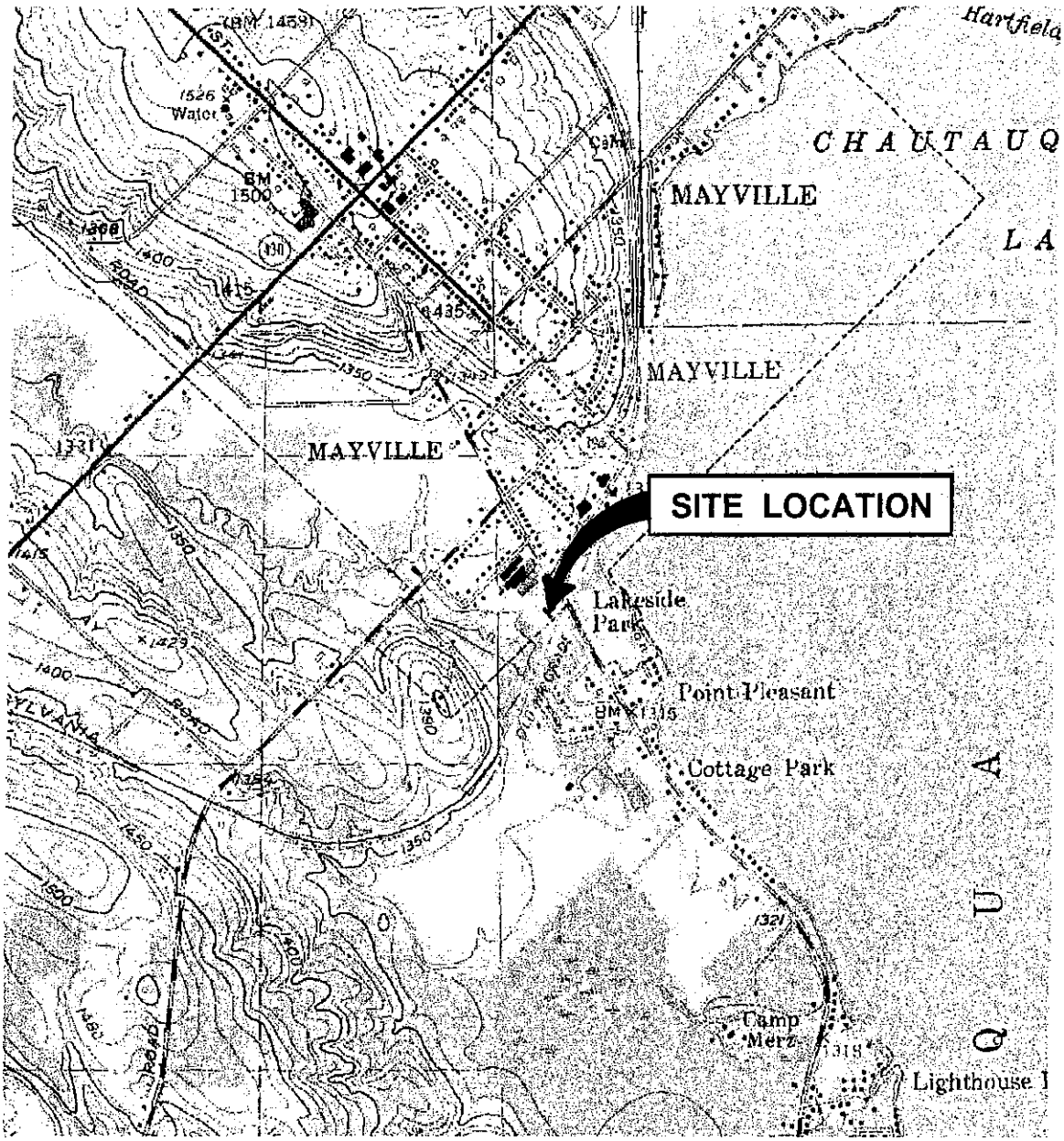
Based on the information presented above regarding the observed operation of the ISCO IRM, HEI suggests that these remedial activities are the most appropriate approach to pursue meeting the RAOs for all OUs identified at the site. A summary of the observations and data which supports continuation of the current IRM activities as the final remedy are presented below.

Observable Remedial Effectiveness of IRM from May through July 2008

- A total of 66 gallons of free phase TCE (DNAPL) has been recovered from the on-site extraction wells.
- Approximately 54,000 gallons of TCE impacted groundwater have been extracted and carbon treated, removing an estimated 250 pounds of TCE.
- A total of 4,125 gallons of 3% Potassium permanganate solution (1,000 pounds of solid Potassium permanganate) has been injected to the subsurface for the purpose of oxidizing TCE.
- The laboratory analytical results from the groundwater samples collected on July 15, 2008 revealed a substantial reduction of the TCE concentrations when compared to the May 12, 2006 sampling event.
- The July 15, 2008 gauging event revealed no free phase product in any of the extraction wells that had previously exhibited product.

Attachment 1

Figures



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HAZARD EVALUATIONS, INC.

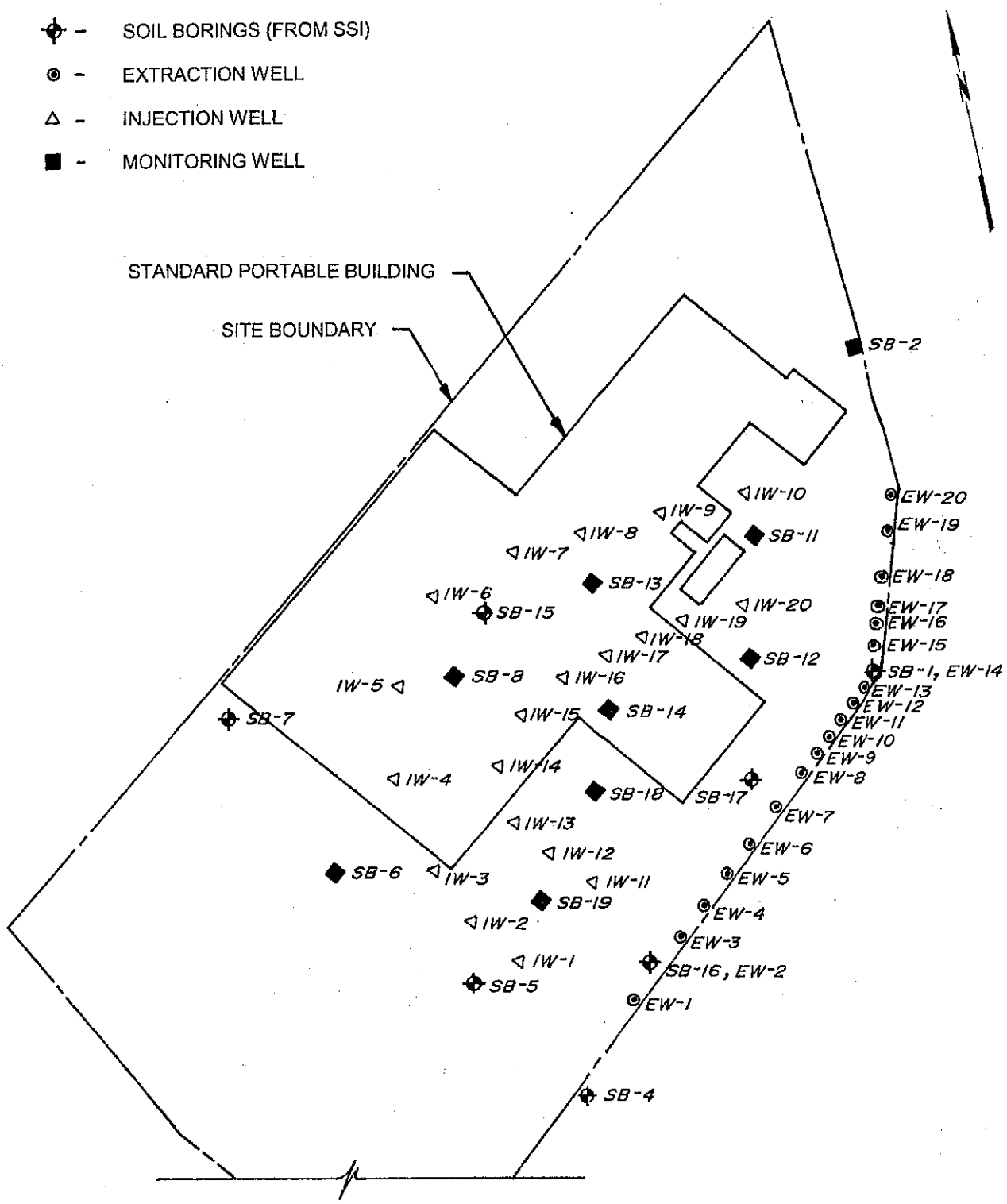
Phase I/II Audits - Site Investigations - Facility Inspections

LOCATION PLAN

JO LYN ENTERPRISES, LTD.

MAYVILLE, NEW YORK

DRAWN BY: DLW	SCALE: NOT TO SCALE	PROJECT: 24505
CHECKED BY: SAO	DATE: 8/08	DRAWING NO: 1



HAZARD EVALUATIONS, INC.

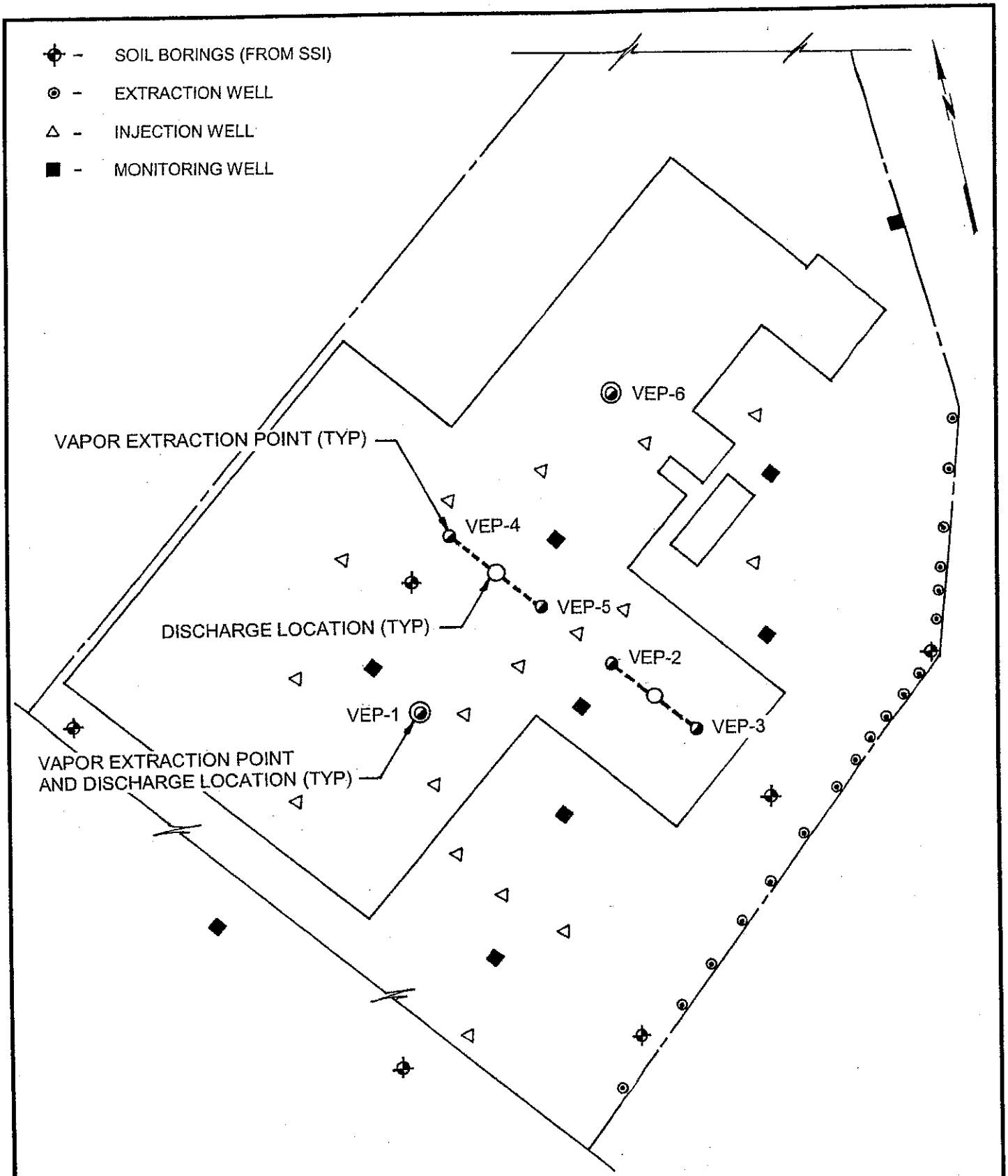
Phase I/II Audits - Site Investigations - Facility Inspections

SITE PLAN

JO LYN ENTERPRISES, LTD.

MAYVILLE, NEW YORK

DRAWN BY: DLW	SCALE: NOT TO SCALE	PROJECT: 24505
CHECKED BY: SAO	DATE: 8/08	DRAWING NO: 2



HAZARD EVALUATIONS, INC.

Phase I/II Audits - Site Investigations - Facility Inspections

SUB-FLOOR VAPOR EXTRACTION SYSTEM

JO LYN ENTERPRISES, LTD.

MAYVILLE, NEW YORK

DRAWN BY: DLW	SCALE: NOT TO SCALE	PROJECT: 24505
CHECKED BY: SAO	DATE: 8/08	DRAWING NO: 3

Attachment 2

Well Construction Details

Hazard Evaluations, Inc.	Subsurface Log	Hole No.: EW-1 Sheet 1 of 1	Date started: 7/23/07 Date Finished: 7/23/07

Client: Jo Lyn Enterprises

Location: Mayville, NY

Method of Investigation: Advance 3.25" hollow-stem tubes to depth of boring. Set 1-inch well at total depth of boring.

Project No.: 24502
Project Manager: Scott Overhoff

Drilling Co.: Trec Environmental
Driller: Jim and Chris
Drill Rig: Geoprobe DT-66

Weather:

Depth (ft.)	Sample No.	Sample Depth (ft.)	Blows /6"	"N"	Recovery (ft.)	Sample Description	Field Analytical Readings	Well Details	Groundwater and Other Observations
						Top of Screen 2'			
5									
10									
15						Bottom of Screen 16'			
						Sand: 16' - 1.5'			
						Bentonite: 1.5' - 0.5'			
20						Fill			
25									
30									

Sample Types:
S=Split Spoon: _____ T= Shelby Tube: _____
R= Rock Core: _____ O = _____
N = ASTM D1586

Backfill Well Key
Cement, Native Fill, Sand, Bentonite

Hazard Evaluations, Inc.	Subsurface Log	Hole No.: EW-3 Sheet 1 of 1	Date started: 7/23/07 Date Finished: 7/23/07

Client: Jo Lyn Enterprises

Location: Mayville, NY

Method of Investigation: Advance 3.25" hollow-stem tubes to depth of boring. Set 1-inch well at total depth of boring.

Project No.: 24502
Project Manager: Scott Overhoff

Drilling Co.: Trec Environmental
Driller: Jim and Chris
Drill Rig: Geoprobe DT-66

Weather:

Depth (ft.)	Sample No.	Sample Depth (ft.)	Blows /6"	"N"	Recovery (ft.)	Sample Description	Field Analytical Readings	Well Details	Groundwater and Other Observations
						Top of Screen 2'			
5									
10									
15						Bottom of Screen 16'			
						Sand: 16' - 1.5'			
						Bentonite: 1.5' - 0.5'			
20						Fill			
25									
30									

Sample Types:
S=Split Spoon: _____ T= Shelby Tube: _____
R= Rock Core: _____ O = _____
N = ASTM D1586

Backfill Well Key
Cement
Native Fill
Sand
Bentonite

Hazard Evaluations, Inc.	Subsurface Log	Hole No.: EW-4 Sheet 1 of 1	Date started: 7/24/07 Date Finished: 7/24/07; 8:30 AM

Client: Jo Lyn Enterprises

Location: Mayville, NY

Method of Investigation: Advance 3.25" hollow-stem tubes to depth of boring. Set 1-inch well at total depth of boring.

Project No.: 24502
Project Manager: Scott Overhoff

Drilling Co.: Trec Environmental
Driller: Jim and Chris
Drill Rig: Geoprobe DT-66

Weather:

Depth (ft.)	Sample No.	Sample Depth (ft.)	Blows /6"	"N"	Recovery (ft.)	Sample Description	Field Analytical Readings	Well Details	Groundwater and Other Observations
						Top of Screen 1.5'			
5									
10									
15						Bottom of Screen 15.5'			
						Sand: 15.5' - 1.0'			
						Bentonite: 1.0' - 0.5'			
20						Fill			
						Note: Very hard layer 2' - 3'.			
25									
30									

Sample Types:
S=Split Spoon: _____ T= Shelby Tube: _____
R= Rock Core: _____ O = _____
N = ASTM D1586

Backfill Well Key
Cement
Native Fill
Sand
Bentonite

Hazard Evaluations, Inc.	Subsurface Log	Hole No.: EW-5 Sheet 1 of 1	Date started: 7/24/07 Date Finished: 7/24/07; 10:00 AM

Client: Jo Lyn Enterprises

Location: Mayville, NY

Method of Investigation: Advance 4.25" hollow-stem tubes to depth of boring (8" Borehole). Set 1-inch well at total depth of boring.

Project No.: 24502
Project Manager: Scott Overhoff

Drilling Co.: Trec Environmental
Driller: Jim and Chris
Drill Rig: Geoprobe DT-66

Weather:

Depth (ft.)	Sample No.	Sample Depth (ft.)	Blows /6"	"N"	Recovery (ft.)	Sample Description	Field Analytical Readings	Well Details	Groundwater and Other Observations
						Top of Screen 1.8'			TCE odor noted.
5									
10									
15						Bottom of Screen 14.8'			
						Sand: 14.8' - 1.0'			
						Bentonite: 1.0' - 0.5'			
20						Fill			
						Note: Clay verified at 15' via auger cuttings.			
25									
30									

Sample Types:
S=Split Spoon: _____ T= Shelby Tube: _____
R= Rock Core: _____ O = _____
N = ASTM D1586

Backfill Well Key
Cement, Native Fill, Sand, Bentonite

Hazard Evaluations, Inc.	Subsurface Log	Hole No.: EW-6 Sheet 1 of 1	Date started: 7/24/07 Date Finished: 7/24/07; 11:30 AM

Client: Jo Lyn Enterprises

Location: Mayville, NY

Method of Investigation: Advance 4.25" hollow-stem tubes to depth of boring (8" Borehole). Set 1-inch well at total depth of boring.

Project No.: 24502
Project Manager: Scott Overhoff

Drilling Co.: Trec Environmental
Driller: Jim and Chris
Drill Rig: Geoprobe DT-66

Weather:

Depth (ft.)	Sample No.	Sample Depth (ft.)	Blows /6"	"N"	Recovery (ft.)	Sample Description	Field Analytical Readings	Well Details	Groundwater and Other Observations
						Top of Screen 1.5'			
5									
10									
15						Bottom of Screen 14.5'			
						Sand: 15' - 1.5'			
						Bentonite: 1.5' - 0.5'			
						Fill			
20									
25									
30									

Sample Types:
S=Split Spoon: _____ T= Shelby Tube: _____
R= Rock Core: _____ O = _____
N = ASTM D1586

Backfill Well Key
Cement
Native Fill
Sand
Bentonite

Hazard Evaluations, Inc.	Subsurface Log	Hole No.: EW-7 Sheet 1 of 1	Date started: 7/24/07 Date Finished: 7/24/07; 1:20 PM

Client: Jo Lyn Enterprises

Location: Mayville, NY

Method of Investigation: Advance 4.25" hollow-stem tubes to depth of boring (8" Borehole). Set 1-inch well at total depth of boring.

Project No.: 24502
Project Manager: Scott Overhoff

Drilling Co.: Trec Environmental
Driller: Jim and Chris
Drill Rig: Geoprobe DT-66

Weather:

Depth (ft.)	Sample No.	Sample Depth (ft.)	Blows /6"	"N"	Recovery (ft.)	Sample Description	Field Analytical Readings	Well Details	Groundwater and Other Observations
						Top of Screen 2.0'			
5									
10									
15						Bottom of Screen 15'			
						Sand: 15' - 1.5'			
						Bentonite: 1.5' - 1.0'			
						Fill			
20									
25									
30									

Sample Types:
S=Split Spoon: _____ T= Shelby Tube: _____
R= Rock Core: _____ O = _____
N = ASTM D1586

Backfill Well Key
Cement, Native Fill, Sand, Bentonite

Hazard Evaluations, Inc.	Subsurface Log	Hole No.: EW-8 Sheet 1 of 1	Date started: 7/24/07 Date Finished: 7/24/07

Client: Jo Lyn Enterprises

Location: Mayville, NY

Method of Investigation: Advance 4.25" hollow-stem tubes to depth of boring (8" Borehole). Set 1-inch well at total depth of boring.

Project No.: 24502
Project Manager: Scott Overhoff

Drilling Co.: Trec Environmental
Driller: Jim and Chris
Drill Rig: Geoprobe DT-66

Weather:

Depth (ft.)	Sample No.	Sample Depth (ft.)	Blows /6"	"N"	Recovery (ft.)	Sample Description	Field Analytical Readings	Well Details	Groundwater and Other Observations
						Top of PVC Screen 2'			
5						Bottom of PVC Screen 5' Top of Stainless Steel Screen 5'			
10									
15						Bottom of Stainless Steel Screen 15'			
						Sand: 15' - 1.5'			
						Bentonite: 1.5' - 0.5'			
						Fill			
20									
25									
30									

Sample Types:
S=Split Spoon: _____ T= Shelby Tube: _____
R= Rock Core: _____ O = _____
N = ASTM D1586

Backfill Well Key
Cement, Native Fill, Sand, Bentonite

Hazard Evaluations, Inc.	Subsurface Log	Hole No.: EW-9 Sheet 1 of 1	Date started: 7/24/07 Date Finished: 7/24/07; 4:50 PM

Client: Jo Lyn Enterprises

Location: Mayville, NY

Method of Investigation: Advance 4.25" hollow-stem tubes to depth of boring (8" Borehole). Set 1-inch well at total depth of boring.

Project No.: 24502
Project Manager: Scott Overhoff

Drilling Co.: Trec Environmental
Driller: Jim and Chris
Drill Rig: Geoprobe DT-66

Weather:

Depth (ft.)	Sample No.	Sample Depth (ft.)	Blows /6"	"N"	Recovery (ft.)	Sample Description	Field Analytical Readings	Well Details	Groundwater and Other Observations
						Top of PVC Screen 1'-8"			
						Bottom of PVC Screen 4'-8"			
5						Top of Stainless Steel Screen 4'-8"			
10									
						Bottom of Screen 14'-8"			
15						Sand: 15' - 1.5'			
						Bentonite: 1.5' - 1.0'			
						Fill			
20									
25									
30									

Sample Types:
S=Split Spoon: _____ T= Shelby Tube: _____
R= Rock Core: _____ O = _____
N = ASTM D1586

Backfill Well Key
Cement
Native Fill
Sand
Bentonite

Hazard Evaluations, Inc.	Subsurface Log	Hole No.: EW-10 Sheet 1 of 1	Date started: 7/24/07 Date Finished: 7/24/07; 5:50 PM
Client: Jo Lyn Enterprises Location: Mayville, NY	Method of Investigation: Advance 4.25" hollow-stem tubes to depth of boring (8" Borehole). Set 1-inch well at total depth of boring.		
Project No.: 24502 Project Manager: Scott Overhoff	Drilling Co.: Trec Environmental Driller: Jim and Chris Drill Rig: Geoprobe DT-66		Weather:

Depth (ft.)	Sample No.	Sample Depth (ft.)	Blows /6"	"N"	Recovery (ft.)	Sample Description	Field Analytical Readings	Well Details	Groundwater and Other Observations
						Top of PVC Screen 2'			
5						Bottom of PVC Screen 5' Top of Stainless Steel Screen 5'			
10									
15						Bottom of Stainless Steel Screen 15'			
						Sand: 15' - 1.5' Bentonite: 1.5' - 1.0' Fill			
20									
25									
30									

Sample Types:
S=Split Spoon: _____ T= Shelby Tube: _____
R= Rock Core: _____ O = _____
N = ASTM D1586

Backfill Well Key
Cement | Native Fill
Sand | Bentonite

Hazard Evaluations, Inc.	Subsurface Log	Hole No.: EW-11 Sheet 1 of 1	Date started: 7/24/07 Date Finished: 7/24/07; 7:00 PM

Client: Jo Lyn Enterprises

Location: Mayville, NY

Method of Investigation: Advance 4.25" hollow-stem tubes to depth of boring (8" Borehole). Set 1-inch well at total depth of boring.

Project No.: 24502
Project Manager: Scott Overhoff

Drilling Co.: Trec Environmental
Driller: Jim and Chris
Drill Rig: Geoprobe DT-66

Weather:

Depth (ft.)	Sample No.	Sample Depth (ft.)	Blows /6"	"N"	Recovery (ft.)	Sample Description	Field Analytical Readings	Well Details	Groundwater and Other Observations
						Top of PVC Screen 2'			
5						Bottom of PVC Screen 5' Top of Stainless Steel Screen 5'			
10									
15						Bottom of Stainless Steel Screen 15'			
						Sand: 15' - 1.5' Bentonite: 1.5' - 1.0' Fill			
20									
25									
30									

Sample Types:
S=Split Spoon: _____ T= Shelby Tube: _____
R= Rock Core: _____ O = _____
N = ASTM D1586

Backfill Well Key
Cement
Native Fill
Sand
Bentonite

Hazard Evaluations, Inc.	Subsurface Log	Hole No.: EW-12 Sheet 1 of 1	Date started: 7/25/07 Date Finished: 7/25/07; 8:54 AM

Client: Jo Lyn Enterprises

Location: Mayville, NY

Method of Investigation: Advance 4.25" hollow-stem tubes to depth of boring (8" Borehole). Set 1-inch well at total depth of boring.

Project No.: 24502
Project Manager: Scott Overhoff

Drilling Co.: Trec Environmental
Driller: Jim and Chris
Drill Rig: Geoprobe DT-66

Weather:

Depth (ft.)	Sample No.	Sample Depth (ft.)	Blows /6"	"N"	Recovery (ft.)	Sample Description	Field Analytical Readings	Well Details	Groundwater and Other Observations
						Top of PVC Screen 1.5'			
						Bottom of PVC Screen 4.5' Top of Stainless Steel Screen 4.5'			
5									
10									
						Bottom of Screen 14.5'			
15						Sand: 14.5' - 1.5' Bentonite: 1.5' - 1.0' Fill			
20									
25									
30									

Sample Types:
S=Split Spoon: _____ T= Shelby Tube: _____
R= Rock Core: _____ O = _____
N = ASTM D1586

Backfill Well Key
Cement, Native Fill, Sand, Bentonite

Hazard Evaluations, Inc.	Subsurface Log	Hole No.: EW-13 Sheet 1 of 1	Date started: 7/25/07 Date Finished: 7/25/07

Client: Jo Lyn Enterprises

Location: Mayville, NY

Method of Investigation: Advance 4.25" hollow-stem tubes to depth of boring (8" Borehole). Set 1-inch well at total depth of boring.

Project No.: 24502
Project Manager: Scott Overhoff

Drilling Co.: Trec Environmental
Driller: Jim and Chris
Drill Rig: Geoprobe DT-66

Weather:

Depth (ft.)	Sample No.	Sample Depth (ft.)	Blows /6"	"N"	Recovery (ft.)	Sample Description	Field Analytical Readings	Well Details	Groundwater and Other Observations
						Top of PVC Screen 2'			
						Bottom of PVC Screen 5'			
5						Top of Stainless Steel Screen 5'			
10									
						Bottom of Stainless Steel Screen 15'			
15						Sand: 15' - 1.5'			
						Bentonite: 1.5' - 0.5'			
						Fill			
20									
25									
30									

Sample Types:
S=Split Spoon: _____ T= Shelby Tube: _____
R= Rock Core: _____ O = _____
N = ASTM D1586

Backfill Well Key
Cement
Native Fill
Sand
Bentonite

Hazard Evaluations, Inc.	Subsurface Log	Hole No.: EW-15 Sheet 1 of 1	Date started: 7/25/07 Date Finished: 7/25/07; 11:54 AM

Client: Jo Lyn Enterprises

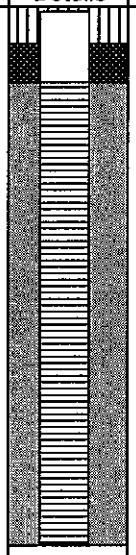
Location: Mayville, NY

Method of Investigation: Advance 4.25" hollow-stem tubes to depth of boring (8" Borehole). Set 1-inch well at total depth of boring.

Project No.: 24502
Project Manager: Scott Overhoff

Drilling Co.: Trec Environmental
Driller: Jim and Chris
Drill Rig: Geoprobe DT-66

Weather:

Depth (ft.)	Sample No.	Sample Depth (ft.)	Blows /6"	"N"	Recovery (ft.)	Sample Description	Field Analytical Readings	Well Details	Groundwater and Other Observations
						Top of PVC Screen 2'			
5						Bottom of PVC Screen 5' Top of Stainless Steel Screen 5'			
10									
15						Bottom of Stainless Steel Screen 15'			
						Sand: 15' - 2' Bentonite: 2' - 1' Fill			
20									
25									
30									

Sample Types:
S = Split Spoon: _____ T = Shelby Tube: _____
R = Rock Core: _____ O = _____
N = ASTM D1586

Backfill Well Key
Cement
Native Fill
Sand
Bentonite

Hazard Evaluations, Inc.	Subsurface Log	Hole No.: EW-16 Sheet 1 of 1	Date started: 7/25/07 Date Finished: 7/25/07

Client: Jo Lyn Enterprises

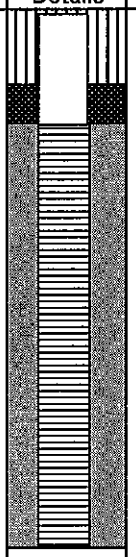
Location: Mayville, NY

Method of Investigation: Advance 4.25" hollow-stem tubes to depth of boring (8" Borehole). Set 1-inch well at total depth of boring.

Project No.: 24502
Project Manager: Scott Overhoff

Drilling Co.: Trec Environmental
Driller: Jim and Chris
Drill Rig: Geoprobe DT-66

Weather:

Depth (ft.)	Sample No.	Sample Depth (ft.)	Blows /6"	"N"	Recovery (ft.)	Sample Description	Field Analytical Readings	Well Details	Groundwater and Other Observations
						Top of PVC Screen 3'			
5						Bottom of PVC Screen 5' Top of Stainless Steel Screen 5'			
10									
15						Bottom of Stainless Steel Screen 15'			
						Sand: 15' - 3' Bentonite: 3' - 2' Fill			
20									
25									
30									

Sample Types:
S = Split Spoon: _____ T = Shelby Tube: _____
R = Rock Core: _____ O = _____
N = ASTM D1586

Backfill Well Key
Cement
Native Fill
Sand
Bentonite

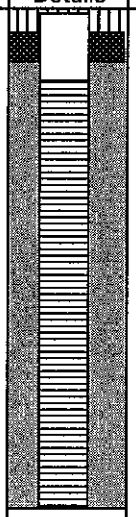
Hazard Evaluations, Inc.	Subsurface Log	Hole No.: EW-17 Sheet 1 of 1	Date started: 7/25/07 Date Finished: 7/25/07
Client: Jo Lyn Enterprises Location: Mayville, NY	Method of Investigation: Advance 4.25" hollow-stem tubes to depth of boring (8" Borehole). Set 1-inch well at total depth of boring.		
Project No.: 24502 Project Manager: Scott Overhoff	Drilling Co.: Trec Environmental Driller: Jim and Chris Drill Rig: Geoprobe DT-66		Weather:

Depth (ft.)	Sample No.	Sample Depth (ft.)	Blows /6"	"N"	Recovery (ft.)	Sample Description	Field Analytical Readings	Well Details	Groundwater and Other Observations
						Top of PVC Screen 3'-3"			
						Bottom of PVC Screen 4.5'			
5						Top of Stainless Steel Screen 4.5'			
10									
						Bottom of Stainless Steel Screen 14.5'			
15						Sand: 14.5' - 3'-3"			
						Bentonite: 3'-3" - 2'			
20						Fill			
25									
30									

Sample Types:
S = Split Spoon: _____ T = Shelby Tube: _____
R = Rock Core: _____ O = _____
N = ASTM D1586

Backfill Well Key
Cement
Sand
Native Fill
Bentonite

Hazard Evaluations, Inc.	Subsurface Log	Hole No.: EW-18 Sheet 1 of 1	Date started: 7/25/07 Date Finished: 7/25/07; 4:00 PM
Client: Jo Lyn Enterprises Location: Mayville, NY	Method of Investigation: Advance 3.25" hollow-stem tubes to depth of boring. Set 1-inch well at total depth of boring.		
Project No.: 24502 Project Manager: Scott Overhoff	Drilling Co.: Trec Environmental Driller: Jim and Chris Drill Rig: Geoprobe DT-66		Weather:

Depth (ft.)	Sample No.	Sample Depth (ft.)	Blows /6"	"N"	Recovery (ft.)	Sample Description	Field Analytical Readings	Well Details	Groundwater and Other Observations
						Top of PVC Screen 2'			
5						Good Sand Pack 2' - 10'			
10						Running Sand 10' - 14'			
						Bottom of Stainless Steel Screen 14'			
15						Sand: 10' - 1.5' Bentonite: 1.5' - 0.5' Fill			
20						Note: Took 3 trys.			
25									
30									

Sample Types:
S = Split Spoon: _____ T = Shelby Tube: _____
R = Rock Core: _____ O = _____
N = ASTM D1586

Backfill Well Key
Cement
Native Fill
Sand
Bentonite

Hazard Evaluations, Inc.	Subsurface Log	Hole No.: EW-19 Sheet 1 of 1	Date started: 7/25/07 Date Finished: 7/25/07; 4:25 PM
Client: Jo Lyn Enterprises Location: Mayville, NY	Method of Investigation: Advance 3.25" hollow-stem tubes to depth of boring. Set 1-inch well at total depth of boring.		
Project No.: 24502 Project Manager: Scott Overhoff	Drilling Co.: Trec Environmental Driller: Jim and Chris Drill Rig: Geoprobe DT-66		Weather:

Depth (ft.)	Sample No.	Sample Depth (ft.)	Blows /6"	"N"	Recovery (ft.)	Sample Description	Field Analytical Readings	Well Details	Groundwater and Other Observations
						Top of PVC Screen 3'			
5									
10									
						Bottom of PVC Screen 14.5'			
15						Cave In: 14.5' - 13'			
						Sand: 13' - 1.5'			
20						Bentonite: 1.5' - 0.5'			
						Fill			
25									
30									

Sample Types:
S = Split Spoon: _____ T = Shelby Tube: _____
R = Rock Core: _____ O = _____
N = ASTM D1586

Backfill Well Key
Cement
Native Fill
Sand
Bentonite

Hazard Evaluations, Inc.	Subsurface Log	Hole No.: EW-20 Sheet 1 of 1	Date started: 7/25/07 Date Finished: 7/25/07; 5:00 PM
Client: Jo Lyn Enterprises Location: Mayville, NY	Method of Investigation: Advance 3.25" hollow-stem tubes to depth of boring. Set 1-inch well at total depth of boring.		
Project No.: 24502 Project Manager: Scott Overhoff	Drilling Co.: Trec Environmental Driller: Jim and Chris Drill Rig: Geoprobe DT-66		Weather:

Depth (ft.)	Sample No.	Sample Depth (ft.)	Blows /6"	"N"	Recovery (ft.)	Sample Description	Field Analytical Readings	Well Details	Groundwater and Other Observations
						Top of Screen 2.5'			
5									
10									
						Bottom of Screen 14'			
15						Sand: 14' - 2' Bentonite: 2' - 1' Fill			
20									
25									
30									

Sample Types:
S = Split Spoon: _____ T = Shelby Tube: _____
R = Rock Core: _____ O = _____
N = ASTM D1586

Backfill Well Key
Cement
Native Fill
Sand
Bentonite

Hazard Evaluations, Inc.	Subsurface Log	Hole No.: IW-1 Sheet 1 of 1	Date started: 7/23/07 Date Finished: 7/23/07
Client: Jo Lyn Enterprises Location: Mayville, NY	Method of Investigation: Advance 3.25" hollow-stem tubes to depth of boring. Set 1-inch well at total depth of boring.		
Project No.: 24502 Project Manager: Scott Overhoff	Drilling Co.: Trec Environmental Driller: Jim and Chris Drill Rig: Geoprobe DT-66		Weather:

Depth (ft.)	Sample No.	Sample Depth (ft.)	Blows /6"	"N"	Recovery (ft.)	Sample Description	Field Analytical Readings	Well Details	Groundwater and Other Observations
						Top of Screen 2'			
5									
10									
15						Bottom of Screen 16'			
						Sand: 16' - 1.7'			
						Bentonite:1.7' - 0.5'			
20						Fill			
						Verified Clay 15' w/sample (12'-16')			
25									
30									

Sample Types:
S=Split Spoon: _____ T= Shelby Tube: _____
R= Rock Core: _____ O = _____
N = ASTM D1586

Backfill Well Key
Cement
Native Fill
Sand
Bentonite

Hazard Evaluations, Inc.	Subsurface Log	Hole No.: IW-2 Sheet 1 of 1	Date started: 7/23/07 Date Finished: 7/23/07

Client: Jo Lyn Enterprises

Location: Mayville, NY

Method of Investigation: Advance 3.25" hollow-stem tubes to depth of boring. Set 1-inch well at total depth of boring.

Project No.: 24502
Project Manager: Scott Overhoff

Drilling Co.: Trec Environmental
Driller: Jim and Chris
Drill Rig: Geoprobe DT-66

Weather:

Depth (ft.)	Sample No.	Sample Depth (ft.)	Blows /6"	"N"	Recovery (ft.)	Sample Description	Field Analytical Readings	Well Details	Groundwater and Other Observations
						Top of Screen 2'			
5									
10									
15						Bottom of Screen 16'			
						Sand: 16' - 1.7'			
						Bentonite: 1.7' - 0.7'			
20						Fill			
25									
30									

Sample Types:
S=Split Spoon: _____ T= Shelby Tube: _____
R= Rock Core: _____ O = _____
N = ASTM D1586

Backfill Well Key
Cement
Native Fill
Sand
Bentonite

Hazard Evaluations, Inc.	Subsurface Log	Hole No.: IW-3 Sheet 1 of 1	Date started: 7/23/07 Date Finished: 7/23/07; 11:46 AM

Client: Jo Lyn Enterprises

Location: Mayville, NY

Method of Investigation: Advance 3.25" hollow-stem tubes to depth of boring. Set 1-inch well at total depth of boring.

Project No.: 24502
Project Manager: Scott Overhoff

Drilling Co.: Trec Environmental
Driller: Jim and Chris
Drill Rig: Geoprobe DT-66

Weather:

Depth (ft.)	Sample No.	Sample Depth (ft.)	Blows /6"	"N"	Recovery (ft.)	Sample Description	Field Analytical Readings	Well Details	Groundwater and Other Observations
						Top of Screen 2'			
5									
10									
15						Bottom of Screen 16'			
						Sand: 16' - 1.5'			
						Bentonite: 1.5' - 1.0'			
20						Fill			
25									
30									

Sample Types:
S=Split Spoon: _____ T= Shelby Tube: _____
R= Rock Core: _____ O = _____
N = ASTM D1586

Backfill Well Key
Cement
Native Fill
Sand
Bentonite

Hazard Evaluations, Inc.	Subsurface Log	Hole No.: IW-4 Sheet 1 of 1	Date started: 7/23/07 Date Finished: 7/23/07; 2:00 PM

Client: Jo Lyn Enterprises

Location: Mayville, NY

Method of Investigation: Advance 3.25" hollow-stem tubes to depth of boring. Set 1-inch well at total depth of boring.

Project No.: 24502
Project Manager: Scott Overhoff

Drilling Co.: Trec Environmental
Driller: Jim and Chris
Drill Rig: Geoprobe DT-66

Weather:

Depth (ft.)	Sample No.	Sample Depth (ft.)	Blows /6"	"N"	Recovery (ft.)	Sample Description	Field Analytical Readings	Well Details	Groundwater and Other Observations
5						Top of Screen 2'			
10									
15						Bottom of Screen 16'			
20						Sand: 16' - 1.5' Bentonite: 1.5' - 0.5' Fill Note: Had to set well 2 times. First exhibited pull-up, due to bridge.			
25									
30									

Sample Types:
S=Split Spoon: _____
R= Rock Core: _____
T= Shelby Tube: _____
O = _____
N = ASTM D1586

Backfill Well Key
Cement
Native Fill
Sand
Bentonite

Hazard Evaluations, Inc.	Subsurface Log	Hole No.: IW-5 Sheet 1 of 1	Date started: 7/23/07 Date Finished: 7/23/07; 2:40 PM

Client: Jo Lyn Enterprises

Location: Mayville, NY

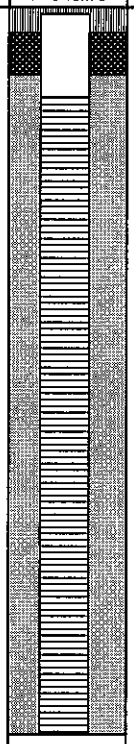
Method of Investigation: Advance 3.25" hollow-stem tubes to depth of boring. Set 1-inch well at total depth of boring.

Project No.: 24502
Project Manager: Scott Overhoff

Drilling Co.: Trec Environmental
Driller: Jim and Chris
Drill Rig: Geoprobe DT-66

Weather:

Depth (ft.)	Sample No.	Sample Depth (ft.)	Blows /6"	"N"	Recovery (ft.)	Sample Description	Field Analytical Readings	Well Details	Groundwater and Other Observations
						Top of Screen 2'			
5									
10									
15						Bottom of Screen 16'			
						Sand: 16' - 1.5'			
						Bentonite: 1.5' - 0.5'			
20						Fill			
25									
30									



Sample Types:
S=Split Spoon: _____ T= Shelby Tube: _____
R= Rock Core: _____ O = _____
N = ASTM D1586

Backfill Well Key
Cement
Native Fill
Sand
Bentonite

Hazard Evaluations, Inc.	Subsurface Log	Hole No.: IW-6 Sheet 1 of 1	Date started: 7/24/07 Date Finished: 7/24/07; 11:00 AM

Client: Jo Lyn Enterprises

Location: Mayville, NY

Method of Investigation: Advance 3.25" hollow-stem tubes to depth of boring. Set 1-inch well at total depth of boring.

Project No.: 24502
Project Manager: Scott Overhoff

Drilling Co.: Trec Environmental
Driller: Paul
Drill Rig: Geoprobe 55 LT

Weather:

Depth (ft.)	Sample No.	Sample Depth (ft.)	Blows /6"	"N"	Recovery (ft.)	Sample Description	Field Analytical Readings	Well Details	Groundwater and Other Observations
						Top of Screen 2'			
5									
10									
						Bottom of Screen 14'			
15						Sand: 14' - 1.5' Bentonite: 1.5' - 0.5' Fill Note: Second attempt at IW-6.			
20									
25									
30									

Sample Types:
S=Split Spoon: _____ T= Shelby Tube: _____
R= Rock Core: _____ O = _____
N = ASTM D1586

Backfill Well Key
Cement, Native Fill, Sand, Bentonite

Hazard Evaluations, Inc.	Subsurface Log	Hole No.: IW-7 Sheet 1 of 1	Date started: 7/24/07 Date Finished: 7/24/07

Client: Jo Lyn Enterprises

Location: Mayville, NY

Method of Investigation: Advance 2.25" hollow-stem tubes to depth of boring. Set 1-inch well at total depth of boring.

Project No.: 24502
Project Manager: Scott Overhoff

Drilling Co.: Trec Environmental
Driller: Paul
Drill Rig: Geoprobe 54 LT

Weather:

Depth (ft.)	Sample No.	Sample Depth (ft.)	Blows /6"	"N"	Recovery (ft.)	Sample Description	Field Analytical Readings	Well Details	Groundwater and Other Observations
5						Top of Screen 2'			
10						Bottom of Screen 14'			
15						Sand: 14' - 1.5' Bentonite: 1.5' - 0.5' Fill Note: Use 2.25" tubes with expandable points. Place sand after tubes withdrawn.			
20									
25									
30									

Sample Types:
S=Split Spoon: _____ T= Shelby Tube: _____
R= Rock Core: _____ O = _____
N = ASTM D1586

Backfill Well Key
Cement
Native Fill
Sand
Bentonite

Hazard Evaluations, Inc.	Subsurface Log	Hole No.: IW-8 Sheet 1 of 1	Date started: 7/24/07 Date Finished: 7/24/07

Client: Jo Lyn Enterprises

Location: Mayville, NY

Method of Investigation: Advance 2.25" hollow-stem tubes to depth of boring. Set 1-inch well at total depth of boring.

Project No.: 24502
Project Manager: Scott Overhoff

Drilling Co.: Trec Environmental
Driller: Paul
Drill Rig: Geoprobe 54 LT

Weather:

Depth (ft.)	Sample No.	Sample Depth (ft.)	Blows /6"	"N"	Recovery (ft.)	Sample Description	Field Analytical Readings	Well Details	Groundwater and Other Observations
						Top of Screen 2'			
5									
10									
						Bottom of Screen 14'			
15						Sand: 14' - 1.5' Bentonite: 1.5' - 0.5' Fill Note: Use 2.25" tubes with expandable points. Place sand after tubes withdrawn.			
20									
25									
30									

Sample Types:
S=Split Spoon: _____ T= Shelby Tube: _____
R= Rock Core: _____ O = _____
N = ASTM D1586

Backfill Well Key
Cement
Native Fill
Sand
Bentonite

Hazard Evaluations, Inc.	Subsurface Log	Hole No.: IW-9 Sheet 1 of 1	Date started: 7/24/07 Date Finished: 7/24/07

Client: Jo Lyn Enterprises

Location: Mayville, NY

Method of Investigation: Advance 2.25" hollow-stem tubes to depth of boring. Set 1-inch well at total depth of boring.

Project No.: 24502
Project Manager: Scott Overhoff

Drilling Co.: Trec Environmental
Driller: Paul
Drill Rig: Geoprobe 54 LT

Weather:

Depth (ft.)	Sample No.	Sample Depth (ft.)	Blows /6"	"N"	Recovery (ft.)	Sample Description	Field Analytical Readings	Well Details	Groundwater and Other Observations
5						Top of Screen 2'			
10						Bottom of Screen 14'			
15						Sand: 14' - 1.5' Bentonite: 1.5' - 0.5' Fill Note: Use 2.25" tubes with expandable points. Place sand after tubes withdrawn.			
20									
25									
30									

Sample Types:
S=Split Spoon: _____ T= Shelby Tube: _____
R= Rock Core: _____ O = _____
N = ASTM D1586

Backfill Well Key
Cement
Native Fill
Sand
Bentonite

Hazard Evaluations, Inc.	Subsurface Log	Hole No.: IW-10 Sheet 1 of 1	Date started: 7/23/07 Date Finished: 7/23/07; 5:45 PM
Client: Jo Lyn Enterprises Location: Mayville, NY	Method of Investigation: Advance 3.25" hollow-stem tubes to depth of boring. Set 1-inch well at total depth of boring.		
Project No.: 24502 Project Manager: Scott Overhoff	Drilling Co.: Trec Environmental Driller: Jim and Chris Drill Rig: Geoprobe DT-66		Weather:

Depth (ft.)	Sample No.	Sample Depth (ft.)	Blows /6"	"N"	Recovery (ft.)	Sample Description	Field Analytical Readings	Well Details	Groundwater and Other Observations
						Top of Screen 2'			
5									
10									
15						Bottom of Screen 16'			
						Sand: 16' - 1.5'			
						Bentonite: 1.5' - 0.5'			
20						Fill			
25									
30									

Sample Types:
S=Split Spoon: _____ T= Shelby Tube: _____
R= Rock Core: _____ O = _____
N = ASTM D1586

Backfill Well Key
Cement
Native Fill
Sand
Bentonite

Hazard Evaluations, Inc.	Subsurface Log	Hole No.: IW-11 Sheet 1 of 1	Date started: 7/23/07 Date Finished: 7/23/07; 1:30 PM

Client: Jo Lyn Enterprises

Location: Mayville, NY

Method of Investigation: Advance 3.25" hollow-stem tubes to depth of boring. Set 1-inch well at total depth of boring.

Project No.: 24502
Project Manager: Scott Overhoff

Drilling Co.: Trec Environmental
Driller: Jim and Chris
Drill Rig: Geoprobe DT-66

Weather:

Depth (ft.)	Sample No.	Sample Depth (ft.)	Blows /6"	"N"	Recovery (ft.)	Sample Description	Field Analytical Readings	Well Details	Groundwater and Other Observations
						Top of Screen 2'			
5									
10									
15						Bottom of Screen 16'			
						Sand: 16' - 1.5'			
						Bentonite: 1.5' - 0.5'			
20						Fill			
25									
30									

Sample Types:
S=Split Spoon: _____ T= Shelby Tube: _____
R= Rock Core: _____ O = _____
N = ASTM D1586

Backfill Well Key
Cement
Native Fill
Sand
Bentonite

Hazard Evaluations, Inc.	Subsurface Log	Hole No.: IW-12 Sheet 1 of 1	Date started: 7/23/07 Date Finished: 7/23/07; 1:00 PM

Client: Jo Lyn Enterprises

Location: Mayville, NY

Method of Investigation: Advance 3.25" hollow-stem tubes to depth of boring. Set 1-inch well at total depth of boring.

Project No.: 24502
Project Manager: Scott Overhoff

Drilling Co.: Trec Environmental
Driller: Jim and Chris
Drill Rig: Geoprobe DT-66

Weather:

Depth (ft.)	Sample No.	Sample Depth (ft.)	Blows /6"	"N"	Recovery (ft.)	Sample Description	Field Analytical Readings	Well Details	Groundwater and Other Observations
						Top of Screen 2'			
5									
10									
15						Bottom of Screen 16'			
						Sand: 16' - 13' (Some cave-in and bridging in this interval)			
						Sand: 13' - 1.7'			
20						Bentonite: 1.7' - 0.7'			
						Fill			
25									
30									

Sample Types:
S=Split Spoon: _____ T= Shelby Tube: _____
R= Rock Core: _____ O = _____
N = ASTM D1586

Backfill Well Key
Cement
Native Fill
Sand
Bentonite

Hazard Evaluations, Inc.	Subsurface Log	Hole No.: IW-13 Sheet 1 of 1	Date started: 7/23/07 Date Finished: 7/23/07; 12:20 PM

Client: Jo Lyn Enterprises

Location: Mayville, NY

Method of Investigation: Advance 3.25" hollow-stem tubes to depth of boring. Set 1-inch well at total depth of boring.

Project No.: 24502
Project Manager: Scott Overhoff

Drilling Co.: Trec Environmental
Driller: Jim and Chris
Drill Rig: Geoprobe DT-66

Weather:

Depth (ft.)	Sample No.	Sample Depth (ft.)	Blows /6"	"N"	Recovery (ft.)	Sample Description	Field Analytical Readings	Well Details	Groundwater and Other Observations
						Top of Screen 2'			
5									
10									
15						Bottom of Screen 16'			
						Sand: 16' - 1.7'			
						Bentonite: 1.7' - 0.5'			
20						Fill			
25									
30									

Sample Types:
S=Split Spoon: _____ T= Shelby Tube: _____
R= Rock Core: _____ O = _____
N = ASTM D1586

Backfill Well Key
Cement, Native Fill, Sand, Bentonite

Hazard Evaluations, Inc.	Subsurface Log	Hole No.: IW-14 Sheet 1 of 1	Date started: 7/23/07 Date Finished: 7/23/07

Client: Jo Lyn Enterprises

Location: Mayville, NY

Method of Investigation: Advance 3.25" hollow-stem tubes to depth of boring. Set 1-inch well at total depth of boring.

Project No.: 24502
Project Manager: Scott Overhoff

Drilling Co.: Trec Environmental
Driller: Jim and Chris
Drill Rig: Geoprobe DT-66

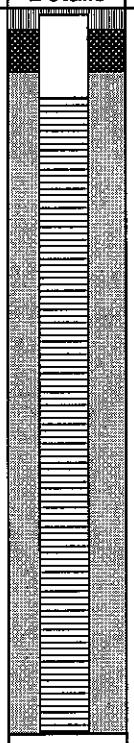
Weather:

Depth (ft.)	Sample No.	Sample Depth (ft.)	Blows /6"	"N"	Recovery (ft.)	Sample Description	Field Analytical Readings	Well Details	Groundwater and Other Observations
						Top of Screen 2'			
5									
10									
15						Bottom of Screen 16'			
						Sand: 16' - 1.5'			
						Bentonite: 1.5' - 0.5'			
20						Fill			
25									
30									

Sample Types:
S=Split Spoon: _____ T= Shelby Tube: _____
R= Rock Core: _____ O = _____
N = ASTM D1586

Backfill Well Key
Cement, Native Fill, Sand, Bentonite

Hazard Evaluations, Inc.	Subsurface Log	Hole No.: IW-15 Sheet 1 of 1	Date started: 7/23/07 Date Finished: 7/23/07; 3:30 PM
Client: Jo Lyn Enterprises Location: Mayville, NY	Method of Investigation: Advance 3.25" hollow-stem tubes to depth of boring. Set 1-inch well at total depth of boring.		
Project No.: 24502 Project Manager: Scott Overhoff	Drilling Co.: Trec Environmental Driller: Jim and Chris Drill Rig: Geoprobe DT-66		Weather:

Depth (ft.)	Sample No.	Sample Depth (ft.)	Blows /6"	"N"	Recovery (ft.)	Sample Description	Field Analytical Readings	Well Details	Groundwater and Other Observations
						Top of Screen 2'			
5									
10									
15						Bottom of Screen 16'			
						Sand: 16' - 1.5'			
						Bentonite: 1.5' - 0.5'			
20						Fill			
25									
30									

Sample Types:
S=Split Spoon: _____ T= Shelby Tube: _____
R= Rock Core: _____ O = _____
N = ASTM D1586

Backfill Well Key
Cement | Native Fill
Sand | Bentonite

Hazard Evaluations, Inc.	Subsurface Log	Hole No.: IW-16 Sheet 1 of 1	Date started: 7/24/07 Date Finished: 7/24/07

Client: Jo Lyn Enterprises

Location: Mayville, NY

Method of Investigation: Advance 2.25" hollow-stem tubes to depth of boring. Set 1-inch well at total depth of boring.

Project No.: 24502
Project Manager: Scott Overhoff

Drilling Co.: Trec Environmental
Driller: Paul
Drill Rig: Geoprobe 54 LT

Weather:

Depth (ft.)	Sample No.	Sample Depth (ft.)	Blows /6"	"N"	Recovery (ft.)	Sample Description	Field Analytical Readings	Well Details	Groundwater and Other Observations
						Top of Screen 2'			
5									
10									
						Bottom of Screen 14'			
15						Sand: 14' - 1.5' Bentonite: 1.5' - 0.5' Fill Note: Use 2.25" tubes with expandable points. Place sand after tubes withdrawn.			
20									
25									
30									

Sample Types:
S=Split Spoon: _____ T= Shelby Tube: _____
R= Rock Core: _____ O = _____
N = ASTM D1586

Backfill Well Key
Cement, Native Fill, Sand, Bentonite

Hazard Evaluations, Inc.	Subsurface Log	Hole No.: IW-17 Sheet 1 of 1	Date started: 7/24/07 Date Finished: 7/24/07

Client: Jo Lyn Enterprises

Location: Mayville, NY

Method of Investigation: Advance 2.25" hollow-stem tubes to depth of boring. Set 1-inch well at total depth of boring.

Project No.: 24502
Project Manager: Scott Overhoff

Drilling Co.: Trec Environmental
Driller: Paul
Drill Rig: Geoprobe 54 LT

Weather:

Depth (ft.)	Sample No.	Sample Depth (ft.)	Blows /6"	"N"	Recovery (ft.)	Sample Description	Field Analytical Readings	Well Details	Groundwater and Other Observations
						Top of Screen 2'			
5									
10									
						Bottom of Screen 14'			
15						Sand: 14' - 1.5' Bentonite: 1.5' - 0.5' Fill Note: Use 2.25" tubes with expandable points. Place sand after tubes withdrawn.			
20									
25									
30									

Sample Types:
S=Split Spoon: _____ T= Shelby Tube: _____
R= Rock Core: _____ O = _____
N = ASTM D1586

Backfill Well Key
Cement
Native Fill
Sand
Bentonite

Hazard Evaluations, Inc.	Subsurface Log	Hole No.: IW-18 Sheet 1 of 1	Date started: 7/24/07 Date Finished: 7/24/07

Client: Jo Lyn Enterprises

Location: Mayville, NY

Method of Investigation: Advance 2.25" hollow-stem tubes to depth of boring. Set 1-inch well at total depth of boring.

Project No.: 24502
Project Manager: Scott Overhoff

Drilling Co.: Trec Environmental
Driller: Paul
Drill Rig: Geoprobe 54 LT

Weather:

Depth (ft.)	Sample No.	Sample Depth (ft.)	Blows /6"	"N"	Recovery (ft.)	Sample Description	Field Analytical Readings	Well Details	Groundwater and Other Observations
						Top of Screen 2'			
5									
10									
						Bottom of Screen 14'			
15						Sand: 14' - 1.5' Bentonite: 1.5' - 0.5' Fill Note: Use 2.25" tubes with expandable points. Place sand after tubes withdrawn.			
20									
25									
30									

Sample Types:
S=Split Spoon: _____ T= Shelby Tube: _____
R= Rock Core: _____ O = _____
N = ASTM D1586

Backfill Well Key
Cement, Native Fill, Sand, Bentonite

Hazard Evaluations, Inc.	Subsurface Log	Hole No.: IW-19 Sheet 1 of 1	Date started: 7/23/07 Date Finished: 7/23/07; 5:00 PM

Client: Jo Lyn Enterprises

Location: Mayville, NY

Method of Investigation: Advance 3.25" hollow-stem tubes to depth of boring. Set 1-inch well at total depth of boring.

Project No.: 24502
Project Manager: Scott Overhoff

Drilling Co.: Trec Environmental
Driller: Jim & Chris
Drill Rig: Geoprobe DT-66

Weather:

Depth (ft.)	Sample No.	Sample Depth (ft.)	Blows /6"	"N"	Recovery (ft.)	Sample Description	Field Analytical Readings	Well Details	Groundwater and Other Observations
						Top of Screen 2'			
5						Native Sand Bridge occurred 8' - 6'.			
10									
15						Bottom of Screen 16'			
20						Sand: 16' - 8' 6' - 1.5' Bentonite: 1.5' - 0.5' Fill Note: Verified Clay from 15' - 16' in a 14' - 16' macro core sample.			
25									
30									

Sample Types:
S=Split Spoon: _____ T= Shelby Tube: _____
R= Rock Core: _____ O = _____
N = ASTM D1586

Backfill Well Key
Cement, Native Fill, Sand, Bentonite

Hazard Evaluations, Inc.	Subsurface Log	Hole No.: IW-20 Sheet 1 of 1	Date started: 7/23/07 Date Finished: 7/23/07

Client: Jo Lyn Enterprises

Location: Mayville, NY

Method of Investigation: Advance 3.25" hollow-stem tubes to depth of boring. Set 1-inch well at total depth of boring.

Project No.: 24502
Project Manager: Scott Overhoff

Drilling Co.: Trec Environmental
Driller: Jim and Chris
Drill Rig: Geoprobe DT-66

Weather:

Depth (ft.)	Sample No.	Sample Depth (ft.)	Blows /6"	"N"	Recovery (ft.)	Sample Description	Field Analytical Readings	Well Details	Groundwater and Other Observations
5						Top of Screen 2'			
10									
15						Bottom of Screen 16'			
20						Sand: 16' - 1.5' Bentonite: 1.5' - 0.5' Fill			
25									
30									

Sample Types:
S=Split Spoon: _____ T= Shelby Tube: _____
R= Rock Core: _____ O = _____
N = ASTM D1586

Backfill Well Key
Cement
Native Fill
Sand
Bentonite

Attachment 3

USEPA Underground Injection Well Authorization

UNITED STATES ENVIRONMENTAL PROTECTION AGENCY
REGION 2
290 BROADWAY
NEW YORK, NY 10007-1866

APR 25 2008

CERTIFIED MAIL - RETURN RECEIPT REQUESTED
Article Number: 7007 0710 0002 7536 2966

Julianne Baraniewicz
Jo Lyn Enterprises, Ltd (d/b/a Standard Potable)
13 West Lake Ave.
Mayville, NY 14757

Re: Underground Injection Control (UIC) Program Regulation
Jo Lyn Enterprises, Ltd (d/b/a Standard Potable) (UICID: 08NY01319004)
13 West Lake Ave.
Mayville, NY 14757
Chautauqua County
Authorization to Inject

Dear Ms. Baraniewicz:

This letter serves to inform you that the U.S. Environmental Protection Agency is in receipt of inventory information addressing a well authorized by rule located at the above-referenced facility in accordance with 40 Code of Federal Regulations (CFR) §144.26. The operation of the following Underground Injection Control well is authorized by rule, pursuant to 40 CFR §144.24:

To inject potassium permanganate into a series of 20 injection wells installed at this site.

Should any conditions change in the operation of the well listed above (such as injectate composition, closure of the well, injection of cooling water greater than 98 degrees Fahrenheit, construction of additional wells, etc.) you are required to notify this office within five (5) days. Any accidental spills into a well should be reported within twenty-four (24) hours after the event. Change in operation information should be addressed to:

Dennis J. McChesney, Ph.D, MBA, Chief
Ground Water Compliance Section, 20th Floor
United States Environmental Protection Agency
290 Broadway
New York, NY 10007-1866
Attn: Norma Ortega

Should you own or operate other facilities using underground injection wells, please use the enclosed inventory form (EPA Form 7520-16) and instructions, copy for multiple facilities, and submit them to the address listed above. These documents can also be found on the internet at:

http://www.epa.gov/safewater/uic/pdfs/7520-16.pdf
http://www.epa.gov/region02/water/compliance/supplemental_instructions_inventory.pdf
http://www.epa.gov/region02/water/compliance/wellclasstypetable_inventoryc_form

Failure to respond to this letter truthfully and accurately within the time provided may subject you to sanctions authorized by federal law. Please also note that all information submitted by you may be used in an administrative, civil judicial, or criminal action. In addition, making a knowing submission of materially false information to the U.S. Government may be a criminal offense.

Should you have any questions, please contact Norma Ortega of my staff at (212) 637-4234 or ortega.norma@epa.gov.

Sincerely,

Dennis J. McChesney, Ph.D, MBA, Chief
Ground Water Compliance Section

cc: Gerry Palumbo
NYSDEC, Region 9
270 Michigan Avenue
Buffalo, NY 14203-2999

Mark Stow
Chautauqua County Health Dept.
Health & Social Services
Mayville, NY 14747

C. Mark Hanna, CHMM
Hazard Evaluations, Inc.
3836 Buffalo Road
Orchard Park, NY 14127

Attachment 4

Tables

TRICHLOROETHENE PRODUCT INFORMATION

STANDARD PORTABLE, INC.
ISCO REMEDIATION SYSTEM

	Product Tank				Product Drum Management			Product Recovery
Date	(a) Total Inches of Fluid in Product Tank	(b) Inches of Water (Top Layer)	(c) Inches of Product in Tank	(d) Volume of Product in Tank	(e) Volume of Product Transferred to Drums	(f) Drums of Product Currently on Site	(g) Drums of Product Removed from Site to Date	(h) Gallons of Product Recovered to Date
5/2/08	0.5	NA	0.5	2.4	0	0	0	2.4
5/12/08	4.5	2.0	2.5	11.9	0	0	0	11.9
5/16/08	5.0	2.0	3.0	14.3	0	0	0	14.3
5/21/08	6.0	2.5	3.5	16.6	0	0	0	16.6
5/28/08	7.0	3.0	4.0	19.0	0	0	0	19.0
6/4/08	NM	NM	NM	19.0 (est.)	25	1 (25 Gal)	0	44.0
6/10/08	11.0	4.0	7.0	33.3	0	1 (25 Gal)	0	58.3
6/17/08	11.25	4.0	7.25	34.4	0	1 (25 Gal)	0	59.4
6/24/08	11.5	4.0	7.5	35.6	0	1 (25 Gal)	0	60.6
6/27/08	11.75	4.0	7.75	36.8	0	1 (25 Gal)	0	61.8
7/1/08	12.0	4.0	8.0	38	0	1 (25 Gal)	0	63

Notes:

1) (a) = Measure inches of fluid in tank using tank stick and record to nearest one-half inch.
2) (b) = Use interface probe to estimate water thickness on product.
3) (c) = Subtract (b) from (a) and record in inches to nearest one-half inch.
4) (d) = Calculate the volume of product in the tank by multiplying the inches of product (c) by 4.75 gallons per inch. Record in gallons.
5) (e) = If product is transferred to drums, record a second line for that date (after tank data prior to the transfer is recorded) which indicates the amounts transferred and the tank fluid measurements after the transfer.
6) (f) = Record number of full drums of recovered product stored on the site both before and after a transfer (if one occurs).
7) (g) = Keep a running total of the number of drums removed from site for disposal to date.
8) (h) = Calculate the volume of product recovered from the site to date by adding volume of product currently in tank (d), volume of product in the drums currently stored on the site (f), and the volume of product removed from the site in drums to date (f). Note: Assume 55-gallons of product per drum.
9) NM= Not measured

TRICHLOROETHENE PRODUCT INFORMATION – (cont'd.)

STANDARD PORTABLE, INC.
ISCO REMEDIATION SYSTEM

	Product Tank				Product Drum Management			Product Recovery
Date	(a) Total Inches of Fluid in Product Tank	(b) Inches of Water (Top Layer)	(c) Inches of Product in Tank	(d) Volume of Product in Tank	(e) Volume of Product Transferred to Drums	(f) Drums of Product Currently on Site	(g) Drums of Product Removed from Site to Date	(h) Gallons of Product Recovered to Date
7/8/08	12.1	4	8.1	38.48	0	1 (25 Gal)	0	63.48
7/15/08	12.25	4	8.25	39.19	0	1 (25 Gal)	0	64.19
7/23/08	12.35	4	8.35	39.66	0	1 (25 Gal)	0	64.66
7/31/08	12.55	4	8.55	40.61	0	1 (25 Gal)	0	65.61

Notes:

1) (a) = Measure inches of fluid in tank using tank stick and record to nearest one-half inch.
2) (b) = Use interface probe to estimate water thickness on product.
3) (c) = Subtract (b) from (a) and record in inches to nearest one-half inch.
4) (d) = Calculate the volume of product in the tank by multiplying the inches of product (c) by 4.75 gallons per inch. Record in gallons.
5) (e) = If product is transferred to drums, record a second line for that date (after tank data prior to the transfer is recorded) which indicates the amounts transferred and the tank fluid measurements after the transfer.
6) (f) = Record number of full drums of recovered product stored on the site both before and after a transfer (if one occurs).
7) (g) = Keep a running total of the number of drums removed from site for disposal to date.
8) (h) = Calculate the volume of product recovered from the site to date by adding volume of product currently in tank (d), volume of product in the drums currently stored on the site (f), and the volume of product removed from the site in drums to date (f). Note: Assume 55-gallons of product per drum.
9) NM= Not measured

SYSTEM FLOW INFORMATION

STANDARD PORTABLE, INC.
ISCO REMEDIATION SYSTEM

Date	(a) Time	(b) Totalizer	(c) Gallons pumped since last reading	(d) Hours passed since last reading	(e) Gallons per hour since last reading	(f) Number of EW's Operating	(g) Estimated gallons per hour for each EW Operating
5/1/08	3:00 pm	209	N/A	N/A	N/A	18	N/A
5/2/08	9:00 am	735	526	18 hours	29.22	16	1.83
5/5/08	8:00 am	2,047.35	1,312.35	71 hours	18.48	16	1.16
5/6/08	7:30 am	2,557.48	510.13	23 hrs 30 mins	21.71	16	1.36
5/6/08	2:30 pm	2,706.26	148.78	7 hours	21.25	16	1.33
5/7/08	7:30 am	3,062.24	355.98	17 hours	20.94	16	1.31
5/8/08	7:30 am	3,515.36	453.12	24 hours	18.88	16	1.18
5/8/08	4:00 pm	3,656.23	140.87	8 hrs 30 mins	16.57	16	1.04
5/9/08	7:00 am	3,914.41	258.18	15 hours	17.21	16	1.08
5/9/08	3:30 pm	4,052.60	148.19	8 hrs 30 mins	17.43	16	1.09
5/12/08	2:45 pm	5,144.40	1,091.8	71 hrs 15 mins	15.32	11	1.39
5/13/08	7:20 am	5,311.71	167.31	16 hrs 35 mins	10.09	16	0.63
5/13/08	2:00 pm	5,342.71	31	6 hrs 40 mins	4.65	16	0.29
5/14/08	10:00 am	5,342.71	0	20 hours	0	0	0.00
5/14/08	2:30 pm	5,452.82	110.11	4 hrs 30 mins	24.47	12	2.04

Notes:

1) (a) = Record exact time and specify am/pm.
2) (b) = Total gallons listed for Total #1 on the GPI Totalizer.
3) (c) = Subtract the previous Totalizer reading (b) from the current and record result in gallons.
4) (d) = Subtract the previous Time recording (a) from the current and record result in hours.
5) (e) = Divide (c) by (d) and record.
6) (f) = Record the number of Extraction Wells which are supposed to be operating (i.e. not known to be inoperational).
7) (g) = Divide (e) by (f) and record.

System Monitoring Considerations:

Monitoring the trends for (g) is a good indicator of Extraction Well and/or pump malfunctions given the pumps are designed to maintain very consistent flow rates. If flow drops sharply, the most likely cause is either catastrophic tubing or pump failures. If flow starts to gradually decrease, it is likely that the tubing is simply wearing out (stretching) and the pumping efficiency is decreasing.

SYSTEM FLOW INFORMATION - (cont'd.)

STANDARD PORTABLE, INC.
ISCO REMEDIATION SYSTEM

Date	(a) Time	(b) Totalizer	(c) Gallons pumped since last reading	(d) Hours passed since last reading	(e) Gallons per hour since last reading	(f) Number of EW's Operating	(g) Estimated gallons per hour for each EW Operating
5/15/08	7:20 am	5,798.91	346.09	17 hrs 50 mins	19.41	12	1.62
5/15/08	2:30 pm	5,942.91	144	7 hrs 10 mins	20.11	12	1.68
5/16/08	3:00 pm	6,439.58	496.67	24 hrs 30 mins	20.27	12	1.69
5/19/08	7:20 am	8,241.64	1802.06	65 hrs 20 mins	27.58	20	1.38
5/19/08	3:00 pm	8,443.80	202.16	8 hrs 40 mins	23.32	20	1.17
5/20/08	7:30 am	8,848.18	404.38	16 hrs 30 mins	24.51	20	1.23
5/20/08	2:30 pm	9,019.56	171.38	8 hours	21.42	20	1.07
5/21/08	12:45 pm	9,583.40	563.84	22 hrs 15 mins	25.34	13	1.95
5/22/08	7:30 am	10,110.8	527.4	18 hrs 45 mins	28.13	18	1.56
5/22/08	2:40 pm	10,281.8	171	7 hrs 10 mins	23.85	18	1.33
5/23/08	7:30 am	10,680.6	398.8	16 hrs 50 mins	23.70	18	1.32
5/23/08	2:00 pm	10,843.5	162.90	7 hours 30 mins	21.72	18	1.21
5/24/08	9:00 am	11,269.4	425.90	19 hours	22.42	15	1.49
5/27/08	7:30 am	12,491.9	1222.50	70 hrs 30 mins	17.34	15	1.16
5/27/08	2:40 pm	12,614.9	123	7 hrs 10 mins	17.15	15	1.14

Notes:

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System Monitoring Considerations:

Monitoring the trends for (g) is a good indicator of Extraction Well and/or pump malfunctions given the pumps are designed to maintain very consistent flow rates. If flow drops sharply, the most likely cause is either catastrophic tubing or pump failures. If flow starts to gradually decrease, it is likely that the tubing is simply wearing out (stretching) and the pumping efficiency is decreasing.

SYSTEM FLOW INFORMATION - (cont'd.)

STANDARD PORTABLE, INC.
ISCO REMEDIATION SYSTEM

Date	(a) Time	(b) Totalizer	(c) Gallons pumped since last reading	(d) Hours passed since last reading	(e) Gallons per hour since last reading	(f) Number of EW's Operating	(g) Estimated gallons per hour for each EW Operating
5/28/08	1:00 pm	13,052.0	437.1	22 hrs 20 mins	19.57	20	0.98
5/29/08	7:15 am	13,638.6	586.6	18 hrs 15 mins	32.14	20	1.61
5/29/08	2:00 pm	13,824.9	186.3	6 hrs 45 mins	27.6	20	1.38
5/30/08	9:00 am	14,410.6	585.7	19 hours	30.83	20	1.54
6/2/08	7:20 am	16,453.3	2042.7	70 hrs 20 mins	29.04	20	1.45
6/2/08	2:30 pm	16,650.9	197.6	6 hrs 50 mins	28.93	20	1.45
6/3/08	7:20 am	17,119.9	469.0	16 hrs 50 mins	27.87	20	1.39
6/3/08	2:45 pm	17,334.0	214.1	7 hrs 25 mins	28.87	20	1.44
6/4/08	7:00 am	17,780.0	446.0	15 hrs 45 mins	28.32	17	1.67
6/4/08	3:00 pm	17,845.0	N/A	8 hours	N/A	N/A	N/A
6/5/08	7:20 am	18,373.8	528.8	16 hrs 20 mins	32.38	20	1.62
6/5/08	2:30 pm	18,593.4	219.6	7 hrs 10 mins	30.63	20	1.53
6/9/08	7:15 am	21,231.6	2638.2	88 hrs 45 mins	31.96	20	1.60

Notes:

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Monitoring the trends for (g) is a good indicator of Extraction Well and/or pump malfunctions given the pumps are designed to maintain very consistent flow rates. If flow drops sharply, the most likely cause is either catastrophic tubing or pump failures. If flow starts to gradually decrease, it is likely that the tubing is simply wearing out (stretching) and the pumping efficiency is decreasing.

SYSTEM FLOW INFORMATION - (cont'd.)

STANDARD PORTABLE, INC.
ISCO REMEDIATION SYSTEM

Date	(a) Time	(b) Totalizer	(c) Gallons pumped since last reading	(d) Hours passed since last reading	(e) Gallons per hour since last reading	(f) Number of EW's Operating	(g) Estimated gallons per hour for each EW Operating
6/9/08	2:25 pm	21,431.2	199.6	7 hrs 10 mins	27.84	20	1.39
6/10/08	7:30 am	21,881.0	449.8	17 hrs 5 mins	26.35	16	1.65
6/10/08	12:10 pm	22,022.2	141.2	4 hrs 40 mins	30.23	20	1.51
6/10/08	2:40 pm	22,109.6	87.4	2 hrs 30 mins	34.96	20	1.75
6/11/08	7:15 am	22,617.7	508.1	16 hrs 35 mins	30.65	20	1.53
6/11/08	2:40 pm	22,820.9	203.2	7 hrs 25 mins	27.39	20	1.37
6/12/08	7:15 am	23,330.5	509.6	16 hrs 35 mins	30.74	20	1.54
6/12/08	2:45 pm	23,547.0	216.5	7 hrs 30 mins	28.87	20	1.44
6/13/08	8:30 am	24,089.6	542.6	17 hrs 45 mins	30.57	20	1.53
6/13/08	2:20 pm	24,227.6	138.0	5 hrs 50 mins	23.67	17	1.39
6/16/08	7:20 am	25,991.6	1764.0	65 hours	27.14	17	1.60
6/16/08	3:30 pm	26,197.9	206.3	8 hrs 10 mins	25.25	17	1.49
6/17/08	7:30 am	26,622.0	424.1	16 hours	26.51	17	1.56

Notes:

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Monitoring the trends for (g) is a good indicator of Extraction Well and/or pump malfunctions given the pumps are designed to maintain very consistent flow rates. If flow drops sharply, the most likely cause is either catastrophic tubing or pump failures. If flow starts to gradually decrease, it is likely that the tubing is simply wearing out (stretching) and the pumping efficiency is decreasing.

SYSTEM FLOW INFORMATION - (cont'd.)

STANDARD PORTABLE, INC.
ISCO REMEDIATION SYSTEM

Date	(a) Time	(b) Totalizer	(c) Gallons pumped since last reading	(d) Hours passed since last reading	(e) Gallons per hour since last reading	(f) Number of EW's Operating	(g) Estimated gallons per hour for each EW Operating
6/17/08	11:15 am	26,731.9	109.9	3 hrs 45 mins	29.31	20	1.47
6/18/08	7:40 am	27,363.9	632.0	20 hrs 15 mins	31.20	20	1.56
6/18/08	2:35 pm	27,584.8	220.9	6 hrs 55 mins	31.94	20	1.60
6/19/08	7:00 am	28,085.7	500.9	16 hrs 25 mins	30.51	20	1.53
6/19/08	9:31 am	28,168.0	82.3	2 hrs 31 mins	32.70	18	1.82
6/19/08	2:50 pm	28,317.9	149.9	5 hrs 19 mins	28.18	18	1.57
6/20/08	7:05 am	28,806.1	488.2	16 hrs 15 mins	30.04	18	1.67
6/20/08	2:30 pm	29,033.1	227.0	7 hrs 25 mins	30.59	18	1.70
6/23/08	7:20 am	30,921.8	1888.7	64 hrs 50 mins	29.13	18	1.62
6/23/08	2:30 pm	31,120.6	198.8	6 hrs 50 mins	29.11	18	1.62
6/24/08	7:20 am	31,576.7	456.1	16 hrs 50 mins	27.10	16	1.69
6/24/08	12:05 pm	31,725.2	148.5	4 hrs 45 mins	31.26	18	1.74
6/24/08	3:45 pm	31,836.2	111.0	3 hrs 40 mins	30.25	18	1.68

Notes:

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SYSTEM FLOW INFORMATION - (cont'd.)

STANDARD PORTABLE, INC.
ISCO REMEDIATION SYSTEM

Date	(a) Time	(b) Totalizer	(c) Gallons pumped since last reading	(d) Hours passed since last reading	(e) Gallons per hour since last reading	(f) Number of EW's Operating	(g) Estimated gallons per hour for each EW Operating
6/25/08	7:10 am	32,320.1	483.9	15 hrs 25 mins	31.38	18	1.74
6/25/08	4:15 pm	32,596.5	276.4	9 hrs 10 mins	30.44	18	1.69
6/26/08	7:25 am	33,083.3	486.8	15 hrs 10 mins	32.09	18	1.78
6/27/08	7:09 am	33,802.9	719.6	23 hrs 44 mins	30.32	18	1.68
6/27/08	10:32 am	33,865.2	62.30	NA	NA	NA	NA
6/27/08	2:50 pm	34,025.2	160.0	4 hrs 18 mins	37.21	20	1.86
6/30/08	7:20 am	36,036.2	2011.0	64 hrs 10 mins	31.34	20	1.57
6/30/08	2:30 pm	36,245.7	209.5	7 hrs 10 mins	29.22	20	1.46
7/1/08	7:20 am	36,772.2	526.5	16 hrs 50 mins	31.28	20	1.56
7/1/08	3:03 pm	36,980.4	208.2	7 hrs 43 mins	26.97	20	1.35
7/2/08	7:40 am	37,541.0	560.6	16 hrs 37 mins	33.73	20	1.67
7/2/08	3:00 pm	37,761.3	220.3	7 hrs 20 mins	30.05	20	1.50
7/3/08	7:10 am	38,302.6	541.3	16 hours	33.83	20	1.69

Notes:

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SYSTEM FLOW INFORMATION - (cont'd.)

STANDARD PORTABLE, INC.
ISCO REMEDIATION SYSTEM

Date	(a) Time	(b) Totalizer	(c) Gallons pumped since last reading	(d) Hours passed since last reading	(e) Gallons per hour since last reading	(f) Number of EW's Operating	(g) Estimated gallons per hour for each EW Operating
7/7/08	10:28 am	40,788.5	2485.9	99 hrs 18 mins	25.03	16	1.56
7/8/08	7:00 am	41,273.5	485.0	20 hrs 32 mins	23.62	16	1.47
7/8/08	10:38 am	41,376.0	102.5	3 hrs 38 mins	28.24	20	1.41
7/8/08	3:30 pm	41,509.4	133.4	4 hrs 52 mins	27.39	20	1.37
7/9/08	7:00 am	41,988.5	479.1	15 hrs 30 mins	30.91	20	1.55
7/9/08	3:00 pm	42,245.0	256.5	8 hours	32.06	20	1.60
7/10/08	7:00am	42,770.7	525.7	16 hours	32.86	20	1.64
7/10/08	3:30 pm	43,032.5	261.8	8 hrs 30 mins	30.80	20	1.54
7/11/08	7:00 am	43,535.0	502.5	15 hrs 30 mins	32.42	20	1.62
7/11/08	2:30 pm	43,774.9	239.9	7 hrs 30 mins	31.99	20	1.60
7/14/08	7:00 am	45,854.5	2079.6	64 hrs 30 mins	32.24	20	1.61
7/15/08	7:00 am	46,622.7	768.2	12 hours	64.02	18	3.56
7/16/08	7:00 am	47,331.9	709.2	12 hours	59.10	18	3.28

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SYSTEM FLOW INFORMATION - (cont'd.)

STANDARD PORTABLE, INC.
ISCO REMEDIATION SYSTEM

Date	(a) Time	(b) Totalizer	(c) Gallons pumped since last reading	(d) Hours passed since last reading	(e) Gallons per hour since last reading	(f) Number of EW's Operating	(g) Estimated gallons per hour for each EW Operating
7/16/08	3:30 pm	47,552.3	220.4	8 hrs 30 mins	25.92	18	1.44
7/17/08	6:50 am	48,037.7	485.4	15 hrs 20 mins	31.66	18	1.76
7/17/08	3:45 pm	48,276.9	239.2	8 hrs 20 mins	26.82	18	1.49
7/18/08	9:30 am	48,796.1	519.2	17 hrs 45 mins	29.25	18	1.63
7/20/08	NA	49,659	862.9	NA	NA	NA	NA
7/23/08	1:56 pm	49,786	127	124 hrs 26 mins	1.02	20	0.05
7/24/08	7:45 am	50,361	575	17 hrs 41 mins	32.52	20	1.63
7/24/08	2:35 pm	50,580	219	6 hrs 50 mins	32.06	20	1.60
7/25/08	7:00 am	51,001	421	15 hrs 25 mins	27.30	20	1.37
7/25/08	2:20 pm	51,184	183	7hrs 20 mins	24.97	20	1.25
7/28/08	7:15 am	51,901	717	88 hrs 55 mins	8.06	20	0.40
7/29/08	9:54 am	51,967	66	NA	NA	NA	NA
7/29/08	3:05 pm	52,112	145	5 hrs 11 mins	27.99	20	1.40

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SYSTEM FLOW INFORMATION - (cont'd.)

STANDARD PORTABLE, INC.
ISCO REMEDIATION SYSTEM

Date	(a) Time	(b) Totalizer	(c) Gallons pumped since last reading	(d) Hours passed since last reading	(e) Gallons per hour since last reading	(f) Number of EW's Operating	(g) Estimated gallons per hour for each EW Operating
7/30/08	7:15 am	52,566	454	16 hrs 10 mins	28.08	20	1.40
7/30/08	2:45 pm	52,771	205	7 hrs 30 mins	27.33	20	1.37
7/31/08	7:12 am	53,220	449	16 hrs 27 mins	27.29	16	1.71
7/31/08	2:35 pm	53,396	176	NA	NA	NA	NA
8/1/08	9:10 am	54,051	655	18 hrs 35 mins	35.25	20	1.76

Notes:

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EXTRACTION WELL OPERATION

STANDARD PORTABLE, INC.
ISCO REMEDIATION SYSTEM

Date	EW's NOT Operating Upon Arrival																				EW's NOT Operating Upon Departure																			
	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
5/1/08	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X									X	X										
5/2/08							X	X	X	X																	X	X	X	X										
5/12/08							X	X	X	X	X	X	X	X	X	X									X	X	X	X												
5/14/08	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X					X	X	X	X					X	X	X	X				
5/16/08					X	X	X	X					X	X	X	X	X																							
5/21/08											X	X	X	X	X	X					X	X																		
5/24/08	X	X					X										X	X			X	X					X	X									X	X		
5/28/08	X	X					X										X	X																						
6/4/08								X	X	X				X																										
6/10/08									X	X			X	X																										

Notes:

1) Place an "X" at Extraction Well if NOT operating, otherwise, leave BLANK.
2) Provide any necessary explanation in the section below. Identify the date for each entry. Include information such as tube failure, pump failure, silt problems, etc.

Additional Information:

5/1/08 – Official system start-up. EW-9 + 10 needs a pump installed

5/2/08 – EW 7 + 8 pump gears stripped, need new gears. EW 9 + 10 pump still not running as new pump not received

5/12/08 – EW 7 + 8 and EW 9 + 10 pumps off (See 5/2 entry). Gears for EW 11 + 12 and EW 13 + 14 pump broke. Gore tube broke in EW 15 + 16

5/14/08 – System shut down on 5/13/08 due to poor flow. Poor flow due to stretched Santoprene. Replaced. Waiting on new gore tube.

5/16/08 – EW 5, 6, 7, 8, 13, 14, 15, 16 pumps off (See 5/14 entry)/ Santoprene in EW 17 stretched. New gore tube in. All pumps operating

5/21/08 – EW 11, 12, 13, 14, 15 + 16 (3 pumps) gears broke. Replaced on 2 pumps. Left EW 1 + 2 without pump.

5/24/08 – EW 1 + 2 without pump. Gore tube failed on EW 7, shut off pump. Gears shipped on EW 17 + 18. Waiting on gears.

5/28/08 – Same not operating as 5/24/08 entry, Gears and tubing replaced, all operating.

6/4/08 – EW 9 Santoprene failure. EW 10 + 11 pump gears failed. EW 14 Gore failure. Replaced Santoprene in EW 18, Gore in EW 13 + 14, Santoprene in EW 7 + 8, and Santoprene in EW 1, 2, 3, + 4. Gore tube exhibits some wear in EW 10.

6/10/08 – EW 9 + 10 pump main drive gear stripped (2 teeth missing). EW 13+14 pump electric problem – removed pump and replaced with spare. EW 7+8 Santoprene fatigue – replaced with new tube

EXTRACTION WELL OPERATION - (cont'd.)

STANDARD PORTABLE, INC.
ISCO REMEDIATION SYSTEM

Date	EW's NOT Operating Upon Arrival																				EW's NOT Operating Upon Departure																			
	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
6/17/08									X	X		X																												
6/19/08																													X	X										
6/24/08									X	X				X	X	X													X	X										
6/27/08									X	X																														
7/1/08									X	X																														
7/3/08																					X	X	X	X																
7/8/08																																								
7/15/08														X																										
7/23/08													X	X																										
7/31/08					X	X	X	X																																

Notes:

1) Place an "X" at Extraction Well if NOT operating, otherwise, leave BLANK.
2) Provide any necessary explanation in the section below. Identify the date for each entry. Include information such as tube failure, pump failure, silt problems, etc.

Additional Information:

6/17/08 - EW 7 + 8 operating, but Santoprene tube seeping. Changed tube. EW 9 + 10 pump gear shipped, replaced. Note: some cracks noted in Gore tube. EW 12 rollers in head broke. Replaced

6/19/08 – Shut down EW9 + 10 pump given the Gore tube exhibiting severe stress cracking.

6/24/08 – EW 9 + 10 pump off due to Gore tube cracked. EW 7 + 8 Santoprene stretched, replaced. EW 15 + 16 pump gear broke, Replaced. EW 14 – Rollers wore out – occlustion too large, no vacuum.

6/27/08 – EW 9 +10 off upon arrival. Gore tube installed and working on departure.

7/1/08 – Gears broke on EW 9 + 10 pump. Changed and started. EW 7 + 8 Santoprene stretched. Replaced.

7/3/08 – Had to shut off 4 injection wells, therefore to balance flow, shut off EW 1+2 and EW 3+4 pumps. Standard Portable employee Performed by simply shutting off breaker with HEI instruction.

7/8/08 – All OK

7/15/08 – EW14 not maintaining vacuum. Possible vacuum leak in gore tube. Many stress cracks in EW14. Left EW 13+14 pump off

7/23/08 – New tube in pumps as indicated on site inspection form.

7/31/08 – EW 5+6 pump replaced with spare. EW 7+8 gears stripped – replaced. EW1 tube leak – replaced

INJECTION WELL OPERATION

STANDARD PORTABLE, INC.
ISCO REMEDIATION SYSTEM

Date	IW's NOT Operating Upon Arrival																			
	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
5/1/08																				
5/2/08																				
5/12/08																				
5/14/08																				
5/16/08																				
5/21/08																				
5/24/08																				
5/28/08																				
6/4/08																				
6/10/08							X				X		X							

Date	IW's NOT Operating Upon Departure																			
	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
5/1/08																				
5/2/08																				
5/12/08																				
5/14/08																				
5/16/08																				
5/21/08																				
5/24/08																				
5/28/08																				
6/4/08																				
6/10/08							X				X		X							

Notes:

1) Place an "X" at Injection Well if NOT operating, otherwise, leave BLANK.
2) Provide any necessary explanation in the section below. Identify the date for each entry. Include information such as tube failure, pump failure, etc.

Additional Information:

6/10/08 - After $KMNO_4$ added, I could tell IW 7, 11 + 13 were not pumping so I changed tube on IW 7 + 8 pump. After started with new tube, still no pumping in IW-7. Maybe the pump head not allowing enough occlusion. Same with IW 11 + 12. After tube changed IW-11 still not working. Will NOT change IW-13 until diagnose issue.

INJECTION WELL OPERATION - (cont'd)

STANDARD PORTABLE, INC.
ISCO REMEDIATION SYSTEM

Date	IW's NOT Operating Upon Arrival																				IW's NOT Operating Upon Departure																			
	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
6/17/08							X			X	X		X																											
6/19/08																																								
6/24/08																																								
6/27/08																																			X					
7/1/08															X																				X					
7/3/08															X																			X	X	X	X				
7/8/08													X	X	X	X																				X	X				
7/15/08															X	X																				X	X				
7/23/08															X	X																			X	X	X				
7/31/08														X	X	X																			X	X	X				

Notes:

1) Place an "X" at Injection Well if NOT operating, otherwise, leave BLANK.
2) Provide any necessary explanation in the section below. Identify the date for each entry. Include information such as tube failure, pump failure, etc.

Additional Information:

6/17/08 - Changed tube in IW7 and IW13. Fixed Occlusion by placing 2 pieces of duct tape on inside of pump housing. All worked after that.

6/19/08 - Observed that KMNO4 staining was present on concrete near IW15. Backed up through the tubing piping possibly due to an elevated water table and a lower effective injection capacity of this well. Cleaned up KMNO4 and epoxied the tube piping in well casing.

6/27/08 – shut down IW15 by disconnecting tubing due to leaking on floor near IW15

7/1/08 – Liquid reappeared on the floor by IW15, possibly due to rain. Cleaned up.

7/3/08 – Phone report by Standard Portable indicates more fluid on floor by IW15. Possible mislabeled tube, therefore had them turn off IW 13, 14, 15 + 16 by turning off breaker. Will check tubes and clean next site visit.

7/8/08 – Tried to repair IW15. No silt present. Put cement in bottom of manway. Still leaked. Replaced IW17+18 pump which was only Intermittently working. IW15 left off-line.

7/15/08 – IW15+16 pump not working. Fan moving but rollers not turning – gear stripped. IW15 resealed with hydraulic cement.

7/23/08 – IW15+16 pump out for repair. IW13 not producing vacuum even after tube change. Switched IW13 line to the IW14 pump head, working good. IW14 left off because of possible leaking in Road box.

7/31/08 – See entry – IW14, 15, 16, still off.

POTASSIUM PERMANGANATE INFORMATION

STANDARD PORTABLE, INC.
ISCO REMEDIATION SYSTEM

Date	(a) Batch Number Prepared	(b) Pounds KMNO4 Crystals added to 275-Gallons Water	(c) Cumulative Pounds of KNMO4 added to date	(d) Average Flow from OW Separator to Injection Tank	(e) Approximate KMNO4 Flow into Injection Tank	(f) Resulting Estimated KMNO4 Injection Concentration
5/12/08	Batch #1	70	70	2.0 GPM	0.9 GPM	0.9%
5/13/08	"	NA	NA	"	"	"
5/16/08	Batch #2	70	140	2.0 GPM	0.9 GPM	0.9%
5/21/08	Batch #3	70	210	2.0 GPM	0.9 GPM	0.9%
5/24/08	Batch #4	70	280	2.0 GPM	0.9 GPM	0.9%
5/28/08	Batch #5	50	330	2.0 GPM	0.9 GPM	<0.9%
6/4/08	Batch #6	70	400	2.0 GPM	0.9 GPM	0.9%
6/10/08	Batch #7	70	470	2.0 GPM	0.9 GPM	0.9%
6/17/08	Batch #8	70	540	2.0 GPM	0.9 GPM	0.9%
6/19/08	Batch #9	70	610	2.0 GPM	0.9 GPM	0.9%
6/24/08	Batch #10	50	660	2.0 GPM	0.9 GPM	0.9%

Notes:

1) (a) = Indicate the Batch number in sequential order (i.e. Batch #1, Batch #2, etc.).
2) (b) = The estimated amount added should be 70 pounds per new batch. This is about 14 scoops filled to just above the handle ridge in the scoop (about 5 pounds of crystals). This equals an approximate 3% KMNO4 concentration solution (70# KMNO4 ÷ 2,296# Water).
3) (c) = Add all entries in column (b) and record.
4) (d) = Estimate the average flow from the O/W Separator to the injection tank and record in GPM (read flow rate on GPI Totalizer). Note that for each cycle, the flow starts higher and ends lower apparently due to head pressure in OW separator decreasing as water is removed.
5) (e) = Measure the flow of the KMNO4 into the injection tank. This will need to be done with clean water in the tank given the KMNO4 clouds the flow meter. The flow rate of KMNO4 should be between 0.7 to 1.3 GPM.
6) (f) = Calculate estimated KMNO4 concentration as injected using the following formula (assuming a 3% batch concentration):

Estimated KMNO4 % Concentration (as injected) = [[(e) x 0.03] ÷ [(d) + (e)]] x 100

POTASSIUM PERMANGANATE INFORMATION – (cont'd)

STANDARD PORTABLE, INC.
ISCO REMEDIATION SYSTEM

Date	(a) Batch Number Prepared	(b) Pounds KMNO4 Crystals added to 275-Gallons Water	(c) Cumulative Pounds of KNMO4 added to date	(d) Average Flow from OW Separator to Injection Tank	(e) Approximate KMNO4 Flow into Injection Tank	(f) Resulting Estimated KMNO4 Injection Concentration
6/27/08	Batch #11	70	730	2.0	0.9	0.9%
7/1/08	Batch #12	70	800	2.0	0.9	0.9%
7/8/08	Batch #13	70	870	2.0	0.9	0.9%
7/15/08	Batch #14	70	940	2.0	0.9	0.9%
7/23/08	Batch #15	50	990	2.0	0.9	0.9%
7/31/08	Batch #16	70	1060	2.0	0.5	0.6%

Notes:

1) (a) = Indicate the Batch number in sequential order (i.e. Batch #1, Batch #2, etc.).
2) (b) = The estimated amount added should be 70 pounds per new batch. This is about 14 scoops filled to just above the handle ridge in the scoop (about 5 pounds of crystals). This equals an approximate 3% KMNO4 concentration solution (70# KMNO4 ÷ 2,296# Water).
3) (c) = Add all entries in column (b) and record.
4) (d) = Estimate the average flow from the O/W Separator to the injection tank and record in GPM (read flow rate on GPI Totalizer). Note that for each cycle, the flow starts higher and ends lower apparently due to head pressure in OW separator decreasing as water is removed.
5) (e) = Measure the flow of the KMNO4 into the injection tank. This will need to be done with clean water in the tank given the KMNO4 clouds the flow meter. The flow rate of KMNO4 should be between 0.7 to 1.3 GPM.
6) (f) = Calculate estimated KMNO4 concentration as injected using the following formula (assuming a 3% batch concentration):

Estimated KMNO4 % Concentration (as injected) = [[(e) x 0.03] ÷ [(d) + (e)]] x 100

Attachment 5

North Chautauqua Lake Sewer District
Controlled Release Discharge Permit

North Chautauqua Lake Sewer District

P.O. Box 167, Mayville, New York 14757-0167, Phone: (716) 753-7787, Fax (716) 753-7796

Controlled Release Discharge Permit

Permit No; 001/2008
Date Issued: 4/11/08
Expiration Date: 4/10/09

In accordance with the provisions of Local Law 6-94
of the County of Chautauqua, State of New York

Hazard Evaluations
Scott Overhoff, Project Manager
3836 N. Buffalo Rd.
Orchard Park, NY 14127

And

Jo Lyn Enterprises
21 Valley St.
PO Box 147
Mayville, NY 14757
262.15.2.10

is hereby authorize to discharge surface water
collected from ground water remediation pump pits located in the
parking area on property owned by Jo Lyn Enterprises

Into the sewer system of the
North Chautauqua Lake Sewer District
1 Clark St.
Mayville, NY 14757

In accordance with the conditions set forth in this permit.
Non-compliance with any term or condition of this permit shall constitute
a violation of the District's sewer use ordinance.

Thomas J. Carlson
Director

Scott Overhoff
Hazard Evaluations

Julie Baraniewicz
Jo Lyn Enterprise

82 ck 3911 50.00

Terms & Conditions of Compliance
for
Discharge Permit 001/2008

1. Permit will be reviewed and renewed on a yearly basis
2. Hazard Evaluations will maintain system. District will be notified of any changes in environmental contractor.
3. District personnel reserve the right to inspect system for compliance to permit terms & conditions.
4. $50.00 permit fee must be paid for each permit or renewal.
5. Sampling of discharge to be done at renewal of permit or when District Director deems necessary.
6. This permit may be modified, suspended or revoked in whole or in part during its term for violation of any terms or conditions of the permit or of Local Law 6-94.
7. This permit is issued to a specific user for a specific operation. It may not be reassigned, transferred or sold to a new user or different premise or a new or changed operation without the approval of the District.
8. The purpose of this permit is to treat suspected surface water collected in shallow pump pits located in the parking area of Jo Lyn Enterprise. The treatment of this water would alleviate any concern of discharge to the environment.

PARADIGM
ENVIRONMENTAL SERVICES, INC.

Analytical Report Cover Page

For Lab Project # 08-1191

The reported results relate only to the samples as they have been received by the laboratory.

Any noncompliant QC parameters having impact on the data are flagged or documented on the final report.

All soil or solid samples have been reported on a dry weight basis, unless qualified "reported as received".

The Chain of Custody provides additional information, including compliance with sample condition requirements upon receipt. Sample condition requirements are defined under the 2003 NELAC Standard, sections 5.5.8.3.1 and 5.5.8.3.2.

NYSDOH ELAP does not certify for all parameters. Paradigm Environmental Services or the indicated subcontracted laboratory does hold certification for all analytes where certification is offered by ELAP unless otherwise specified.

Data qualifiers are used, when necessary, to provide additional information about the data. This information may be communicated as a flag or as text at the bottom of the report. Please refer to the following list of frequently used data flags and their meaning:

"ND" = analyzed for but not detected.
"E" = Result has been estimated, calibration limit exceeded.
"D" = Duplicate results outside QC limits. May indicate a non-homogenous matrix.
"M" = Matrix spike recoveries outside QC limits. Matrix bias indicated.
"B" = Method blank contained trace levels of analyte. Refer to included method blank report.

This report contains a total of 4 pages.

179 Lake Avenue · Rochester, NY 14608 · (585) 647-2530 · Fax (585) 647-3311 · ELAP ID# 10958

PARADIGM
ENVIRONMENTAL SERVICES, INC.

179 Lake Avenue Rochester, New York 14608 (585) 647-2530 FAX (585) 647-3311

LABORATORY REPORT OF ANALYSIS

Client: HEI

Client Job Site: JoLyn

Client Job No.: 24502

Lab Project No.: 08-1191

Sample Type: Water
Analytical Method: SM 5310C
Date Sampled: 4/7/2008
Date Received: 4/8/2008
Date Analyzed: 4/9/2008

Lab Sample ID.	Sample Location/Field ID	Total Organic Carbon (mg/l)
4373	Manhole Water	3.3

ELAP ID No. 10709

Comments:

Approved By Technical Director: _____
Bruce Hoogesteger

PARADIGM
ENVIRONMENTAL SERVICES, INC. 179 Lake Avenue Rochester, New York 14608 (585) 647 - 2530 FAX (585) 647 - 3311

Volatile Analysis Report for Non-potable Water

Client: HEI

Client Job Site: JoLyn
Client Job Number: 24502
Field Location: Manhole Water
Field ID Number: N/A
Sample Type: Water

Lab Project Number: 08-1191
Lab Sample Number: 4373

Date Sampled: 04/07/2008
Date Received: 04/08/2008
Date Analyzed: 04/09/2008

Halocarbons	Results in ug / L
Bromodichloromethane	ND< 5.00
Bromomethane	ND< 5.00
Bromoform	ND< 12.5
Carbon Tetrachloride	ND< 5.00
Chloroethane	ND< 5.00
Chloromethane	ND< 5.00
2-Chloroethyl vinyl Ether	ND< 25.0
Chloroform	ND< 5.00
Dibromochloromethane	ND< 5.00
1,1-Dichloroethane	ND< 5.00
1,2-Dichloroethane	ND< 5.00
1,1-Dichloroethene	ND< 5.00
cis-1,2-Dichloroethene	88.4
trans-1,2-Dichloroethene	ND< 5.00
1,2-Dichloropropane	ND< 5.00
cis-1,3-Dichloropropene	ND< 5.00
trans-1,3-Dichloropropene	ND< 5.00
Methylene chloride	ND< 12.5
1,1,2,2-Tetrachloroethane	ND< 5.00
Tetrachloroethene	ND< 5.00
1,1,1-Trichloroethane	ND< 5.00
1,1,2-Trichloroethane	ND< 5.00
Trichloroethene	319
Trichlorofluoromethane	ND< 5.00
Vinyl chloride	ND< 5.00

Aromatics	Results in ug / L
Benzene	ND< 1.75
Chlorobenzene	ND< 5.00
Ethylbenzene	ND< 5.00
Toluene	ND< 5.00
m,p-Xylene	ND< 5.00
o-Xylene	ND< 5.00
Styrene	ND< 12.5
1,2-Dichlorobenzene	ND< 5.00
1,3-Dichlorobenzene	ND< 5.00
1,4-Dichlorobenzene	ND< 5.00

Ketones	Results in ug / L
Acetone	ND< 25.0
2-Butanone	ND< 25.0
2-Hexanone	ND< 12.5
4-Methyl-2-pentanone	ND< 12.5

Miscellaneous	Results in ug / L
Carbon disulfide	ND< 12.5
Vinyl acetate	ND< 12.5

ELAP Number 10958 Method: EPA 8260B Data File: V55654.D

Comments: ND denotes Non Detect
ug / L = microgram per Liter

Signature:
Bruce Hoogesteger: Technical Director

CHAIN OF CUSTODY

PARADIGM ENVIRONMENTAL SERVICES, INC.

179 Lake Avenue
Rochester, NY 14608
(585) 647-2530 • (800) 724-1997
FAX: (585) 647-3311

JoLyn per SH 4/8/08 ET

REPORT TO:

COMPANY: HEI
ADDRESS: 3836 N. Buffalo St.
CITY: Orchard Park STATE: NY ZIP: 14127
PHONE: FAX:
ATTN: Scott Overhoff
COMMENTS:

INVOICE TO:

COMPANY: "
ADDRESS:
CITY: STATE: ZIP:
PHONE: FAX:
ATTN:

LAB PROJECT #: 08-1191
CLIENT PROJECT #: 24502

TURNAROUND TIME: (WORKING DAYS)
Results 4/10 by noon
STD OTHER
1 2 3 5
QUOTE #:
3 day TAT per SH 4/8/08 ET

PROJECT NAME/SITE NAME: JoLyn

REQUESTED ANALYSIS

EAH 4/9

	DATE	TIME	COMPOSITE	GRAB	SAMPLE LOCATION/FIELD ID	MATRIX	NUMBER CONTAINERS	8260 TCL	TOC									REMARKS	PARADIGM LAB SAMPLE NUMBER
1	4/7/08			X	Manhole Water	W	3	X	X										4 3 7 3
2																			
3																			
4																			
5																			
6																			
7																			
8																			
9																			
10																			

LAB USE ONLY BELOW THIS LINE

Not enough for TOC - Jen directly to subcontract by JTM

Sample Condition: Per NELAC/ELAP 210/241/242/243/244

Receipt Parameter	NELAC Compliance		
Container Type:	Y	X	N
Comments:			
Preservation:	Y	X	N
Comments:			
Holding Time:	Y	X	N
Comments:			
Temperature:	Y		N X
Comments: 12°C iced			

Sampled By: Scott Overhoff — Date/Time: 4/3/08
Relinquished By: Scott Overhoff — Date/Time: 4/7/08
Received By: John Hoff — Date/Time: 4/7/08
Received @ Lab By: Elizabeth A. Honch — Date/Time: 4/8/08 1055

Total Cost:

P.I.F.

Attachment 6

July 15, 2008
Quarterly Groundwater Monitoring Information

GROUNDWATER ELEVATION DATA

STANDARD PORTABLE, INC.
ISCO REMEDIATION SYSTEM

DATE: July 15, 2008 **PERSONNEL:** P. Bojczuk

Well	Reference Elevation	Depth to Water	Depth to Product	Depth to Bottom*	Product Thickness	Groundwater Elevation
Monitoring Wells						
SB-2	97.60	4.07	-	8.49 MS	-	93.53
SB-6	101.25	4.38	-	10.97 LS	-	96.87
SB-8	99.18	2.45	-	12.45 MS	-	96.73
SB-11	98.27	2.47	-	13.05 LS	-	95.80
SB-12	97.98	2.27	-	9.16 LS	-	95.71
SB-13	99.86	2.72	-	8.42 LS	-	97.14
SB-14	99.56	2.69	-	10.25 LS	-	96.87
SB-18	99.19	2.50	-	10.97 LS	-	96.69
SB-19	99.68	2.92	-	13.24 MS	-	96.76
Extraction Wells						
EW-1	98.40	7.97	-	15.10	-	90.43
EW-2 (SB-16)	98.28	5.55	-	7.55	-	92.73
EW-3	98.10	7.45	-	12.56	-	90.65
EW-4	98.19	13.91	-	14.16	-	84.28
EW-5	98.16	7.40	-	14.65	-	90.76
EW-6	98.07	8.44	-	13.30	-	89.63
EW-7	97.96	9.33	-	14.08	-	88.63
EW-8	97.87	9.03	-	14.06	-	88.84
EW-9	97.86	9.45	-	13.26	-	88.41
EW-10	97.70	14.15	-	14.15	-	83.55
EW-11	97.66	10.15	-	14.18	-	87.51
EW-12	97.70	10.35	-	13.50	-	87.35
EW-13	97.67	10.05	-	14.37	-	87.62
EW-14 (SB-1)	97.66	8.59	-	10.20	-	89.07
EW-15	97.58	14.52	-	14.60	-	83.06
EW-16	97.69	10.79	-	14.43	-	86.90
EW-17	97.46	10.18	-	13.75	-	87.28
EW-18	97.50	10.02	-	13.30	-	87.48
EW-19	97.40	9.18	-	13.43	-	88.22
EW-20	97.56	9.50	-	13.05	-	88.06

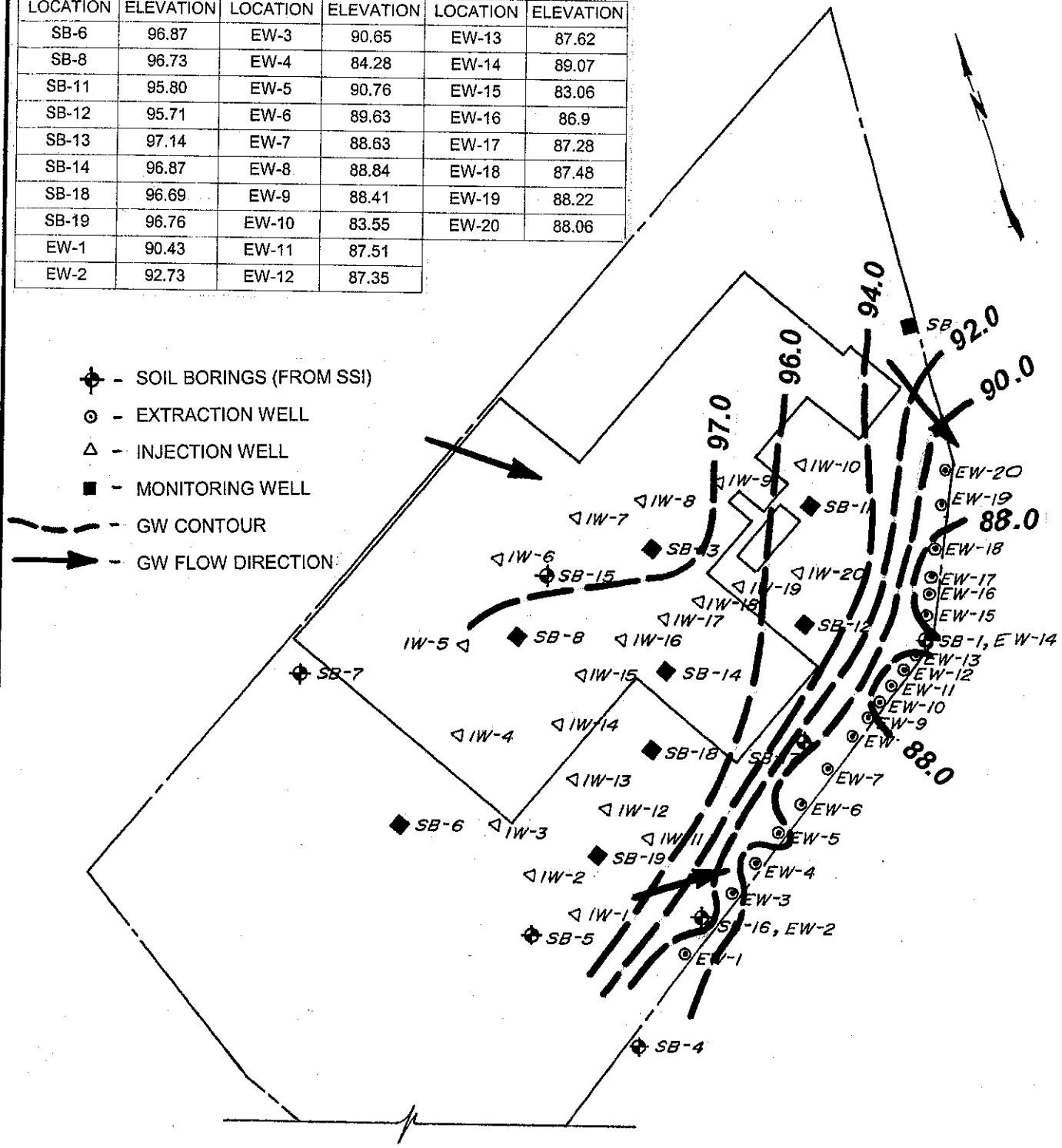
Notes:

* = Note the presence of silt (if present) and include details regarding silt removal in the space below.
NG = Not Gauged; NM = Not Measured; NA = Not Applicable; " – " = No Product Present

LS= Limited Silt
MS=Moderate Silt

GROUNDWATER ELEVATIONS

LOCATION	ELEVATION	LOCATION	ELEVATION	LOCATION	ELEVATION
SB-6	96.87	EW-3	90.65	EW-13	87.62
SB-8	96.73	EW-4	84.28	EW-14	89.07
SB-11	95.80	EW-5	90.76	EW-15	83.06
SB-12	95.71	EW-6	89.63	EW-16	86.9
SB-13	97.14	EW-7	88.63	EW-17	87.28
SB-14	96.87	EW-8	88.84	EW-18	87.48
SB-18	96.69	EW-9	88.41	EW-19	88.22
SB-19	96.76	EW-10	83.55	EW-20	88.06
EW-1	90.43	EW-11	87.51		
EW-2	92.73	EW-12	87.35		



HAZARD EVALUATIONS, INC.

Phase I/II Audits - Site Investigations - Facility Inspections

GROUNDWATER CONTOUR MAP; JULY 15, 2008

JO LYN ENTERPRISES, LTD.

MAYVILLE, NEW YORK

DRAWN BY: DLW	SCALE: NOT TO SCALE	PROJECT: 2450 5
CHECKED BY: SAO	DATE: 8/08	DRAWING NO: 1

SB2.RPT

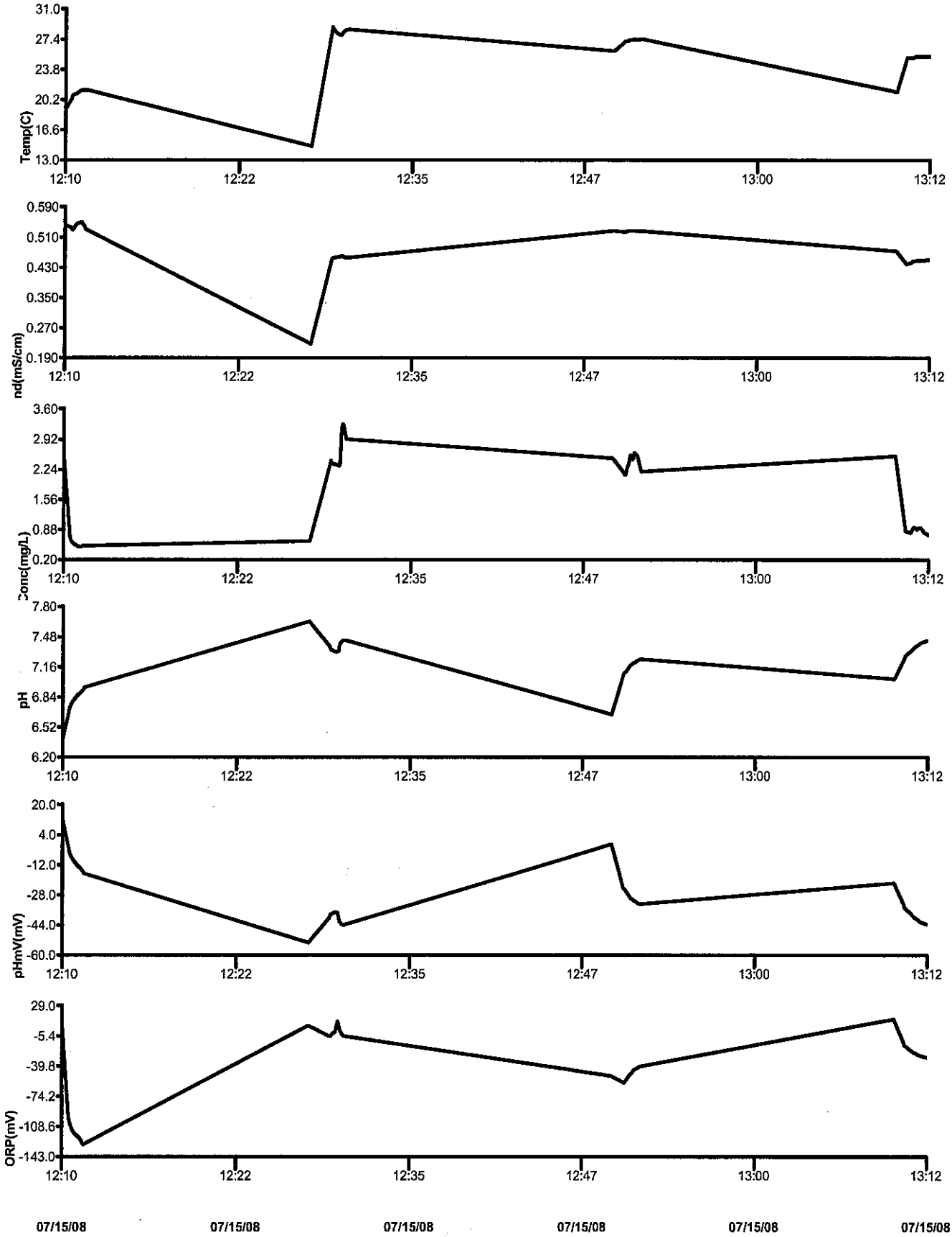
SB2ABCD.DAT

-- Statistical Report --

From 07/15/08 12:10 to 07/15/08 13:12
Number of samples: 313

Parameter	Min	Max	Mean	Std
Temp (C)	14.76	28.79	25.51	2.61
SpCond (mS/cm)	0.231	0.549	0.488	0.043
DO Conc (mg/L)	0.51	3.24	1.58	0.90
pH ()	6.39	7.64	7.21	0.22
pHmV (mV)	-52.8	12.7	-30.9	11.8
ORP (mV)	-128	14	-44	40

SB2ABCD.DAT


Temp(C)
31.0
27.4
23.8
20.2
16.6
13.0
nd(mS/cm)
0.590
0.510
0.430
0.350
0.270
0.190
Conc(mg/L)
3.60
2.92
2.24
1.56
0.88
0.20
pH
7.80
7.48
7.16
6.84
6.52
6.20
pHmV(mV)
20.0
4.0
-12.0
-28.0
-44.0
-60.0
ORP(mV)
29.0
-5.4
-39.8
-74.2
-108.6
-143.0
12:10
12:22
12:35
12:47
13:00
13:12
07/15/08
DateTime(M/D/Y)

SB6ABCDE.RPT

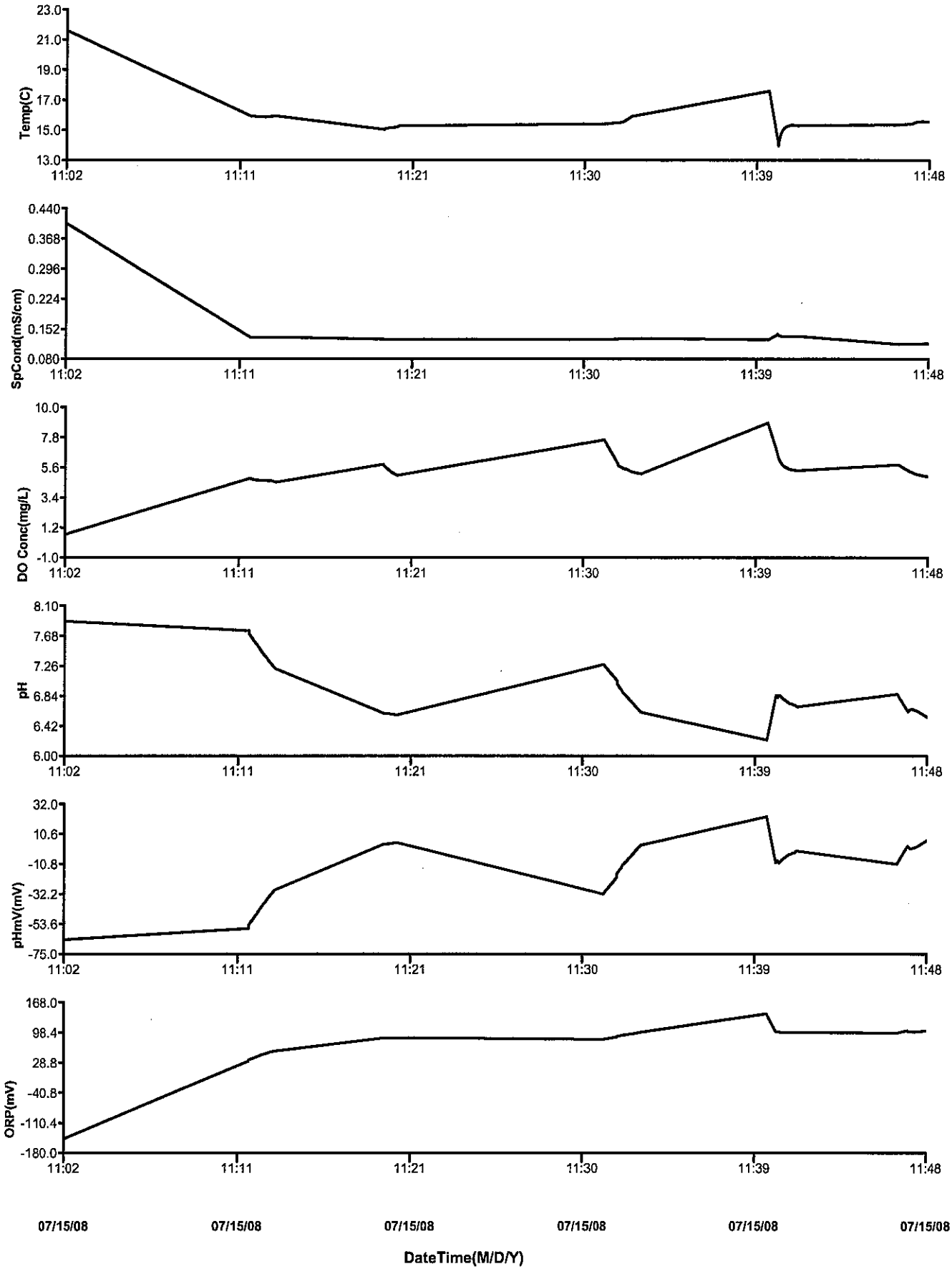
SB6ABCDE.DAT

-- Statistical Report --

From 07/15/08 11:02 to 07/15/08 11:48
Number of samples: 332

Parameter	Min	Max	Mean	Std
Temp (C)	13.87	21.54	15.48	0.51
SpCond (mS/cm)	0.113	0.403	0.126	0.016
DO Conc (mg/L)	0.61	8.77	5.16	0.53
pH ()	6.21	7.87	6.86	0.35
pHmV (mV)	-65.6	22.3	-12.2	18.2
ORP (mV)	-151	139	81	25

SB6ABCDE.DAT



SB8ABCD.RPT

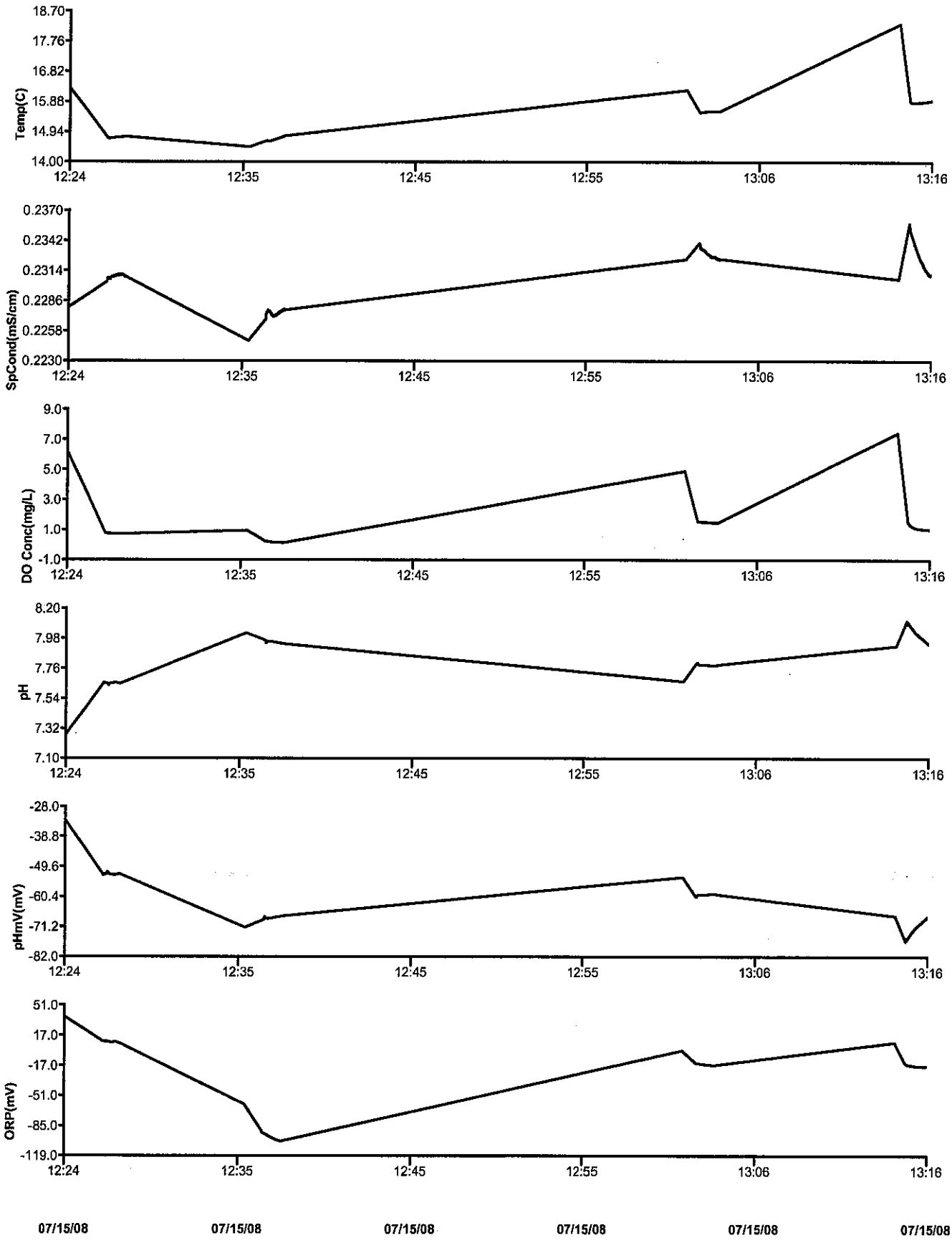
SB8ABCD.DAT

-- Statistical Report --

From 07/15/08 12:24 to 07/15/08 13:16
Number of samples: 294

Parameter	Min	Max	Mean	Std
Temp (C)	14.43	18.27	15.25	0.55
SpCond (mS/cm)	0.225	0.236	0.231	0.002
DO Conc (mg/L)	0.06	7.35	0.90	0.74
pH ()	7.26	8.10	7.85	0.15
pHmV (mV)	-76.8	-33.1	-63.6	7.7
ORP (mV)	-104	37	-31	40

SB8ABCD.DAT


Temp(C)
18.70
17.76
16.82
15.88
14.94
14.00
SpCond(mS/cm)
0.2370
0.2342
0.2314
0.2286
0.2258
0.2230
DO Conc(mg/L)
9.0
7.0
5.0
3.0
1.0
-1.0
pH
8.20
7.98
7.76
7.54
7.32
7.10
pHmV(mV)
-28.0
-38.8
-49.6
-60.4
-71.2
-82.0
ORP(mV)
51.0
17.0
-17.0
-51.0
-85.0
-119.0
12:24
12:35
12:45
12:55
13:06
13:16
07/15/08
DateTime(M/D/Y)

SB12ABC.RPT

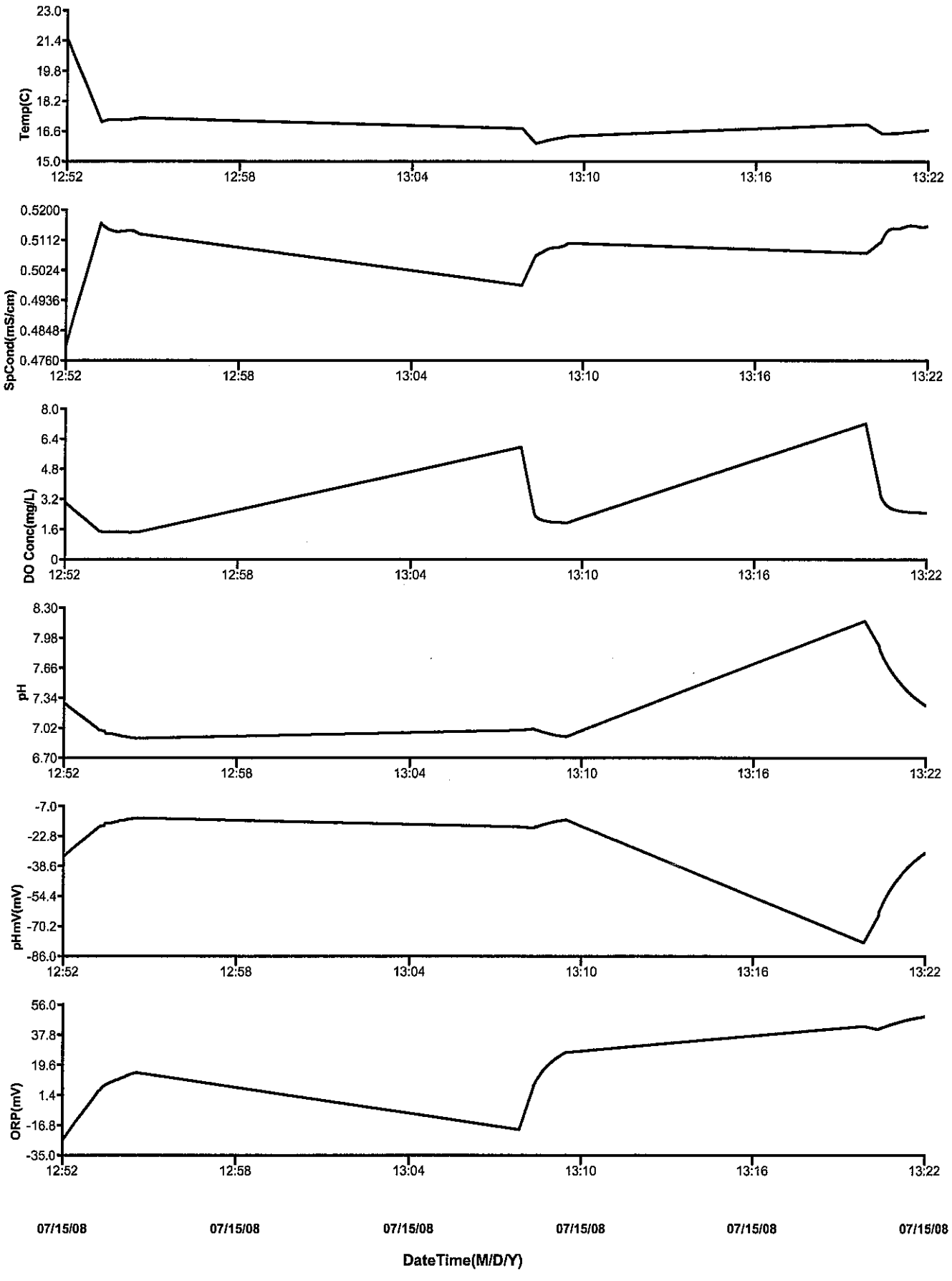
SB12ABC.DAT

-- Statistical Report --

From 07/15/08 12:52 to 07/15/08 13:22
Number of samples: 255

Parameter	Min	Max	Mean	Std
Temp (C)	15.89	21.52	16.62	0.52
SpCond (mS/cm)	0.480	0.516	0.512	0.004
DO Conc (mg/L)	1.38	7.16	2.08	0.66
pH ()	6.90	8.14	7.16	0.29
pHmV (mV)	-79.4	-13.9	-27.7	15.3
ORP (mV)	-27	48	26	17

SB12ABC.DAT

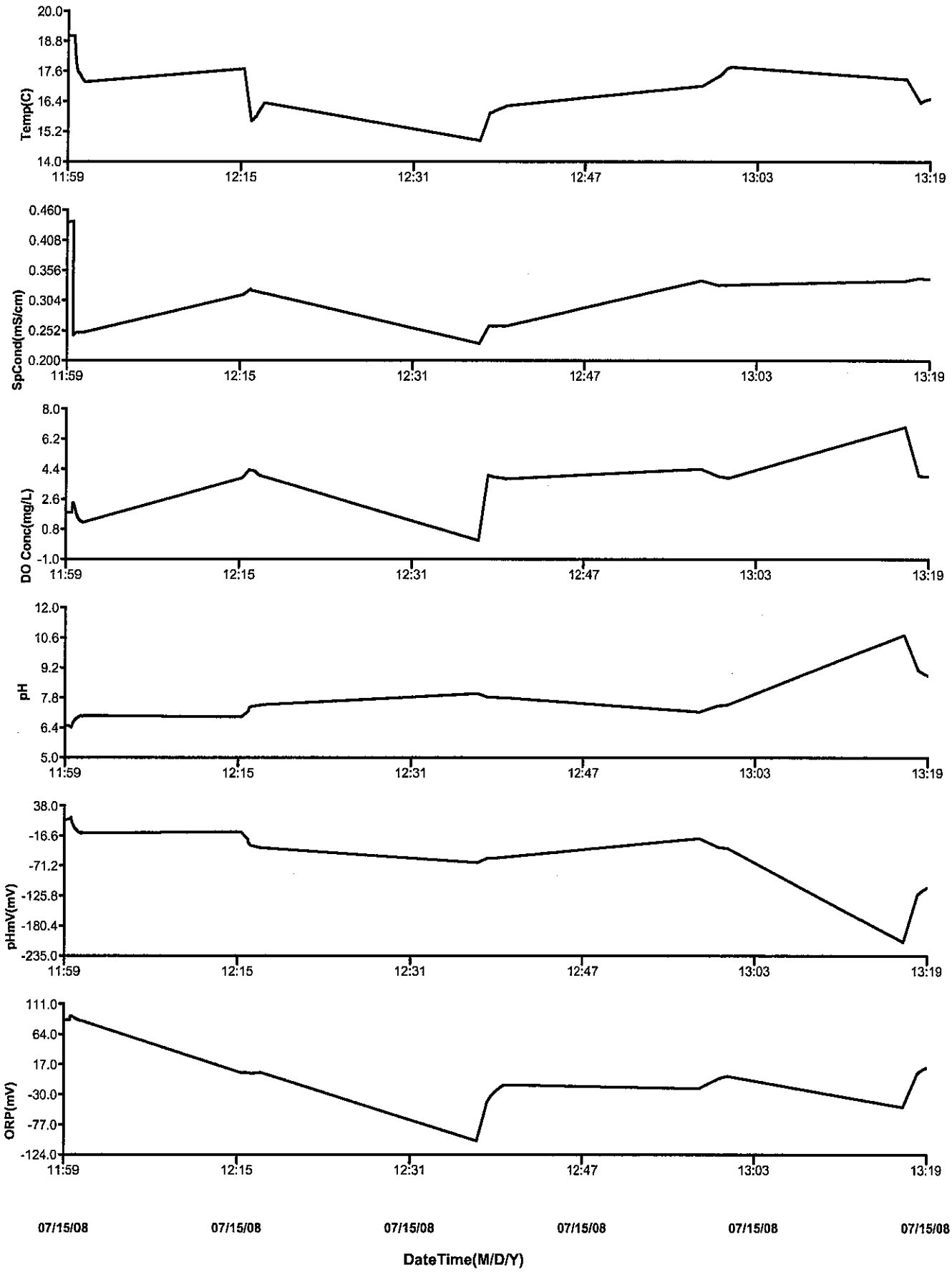

Temp(C)
23.0
21.4
19.8
18.2
16.6
15.0
SpCond(mS/cm)
0.5200
0.5112
0.5024
0.4936
0.4848
0.4760
DO Conc(mg/L)
8.0
6.4
4.8
3.2
1.6
0
pH
8.30
7.98
7.66
7.34
7.02
6.70
pHmV(mV)
-7.0
-22.8
-38.6
-54.4
-70.2
-86.0
ORP(mV)
56.0
37.8
19.6
1.4
-16.8
-35.0
12:52
12:58
13:04
13:10
13:16
13:22
07/15/08
07/15/08
07/15/08
07/15/08
07/15/08
07/15/08
DateTime(M/D/Y)

SB13A-E.DAT
-- Statistical Report --

From 07/15/08 11:59 to 07/15/08 13:19
Number of samples: 360

Parameter	Min	Max	Mean	Std
Temp (C)	14.79	18.97	16.60	0.77
SpCond (mS/cm)	0.228	0.438	0.295	0.039
DO Conc (mg/L)	0.06	6.85	3.53	0.93
pH ()	6.36	10.66	7.63	0.68
pHmV (mV)	-211.6	14.7	-52.4	35.8
ORP (mV)	-104	91	6	39

SB13A-E.DAT


Temp(C)
20.0
18.8
17.6
16.4
15.2
14.0
SpCond(mS/cm)
0.460
0.408
0.356
0.304
0.252
0.200
DO Conc(mg/L)
8.0
6.2
4.4
2.6
0.8
-1.0
pH
12.0
10.6
9.2
7.8
6.4
5.0
pHmV(mV)
38.0
-16.6
-71.2
-125.8
-180.4
-235.0
ORP(mV)
111.0
64.0
17.0
-30.0
-77.0
-124.0
11:59
12:15
12:31
12:47
13:03
13:19
07/15/08
DateTime(M/D/Y)

SB18ABC.RPT

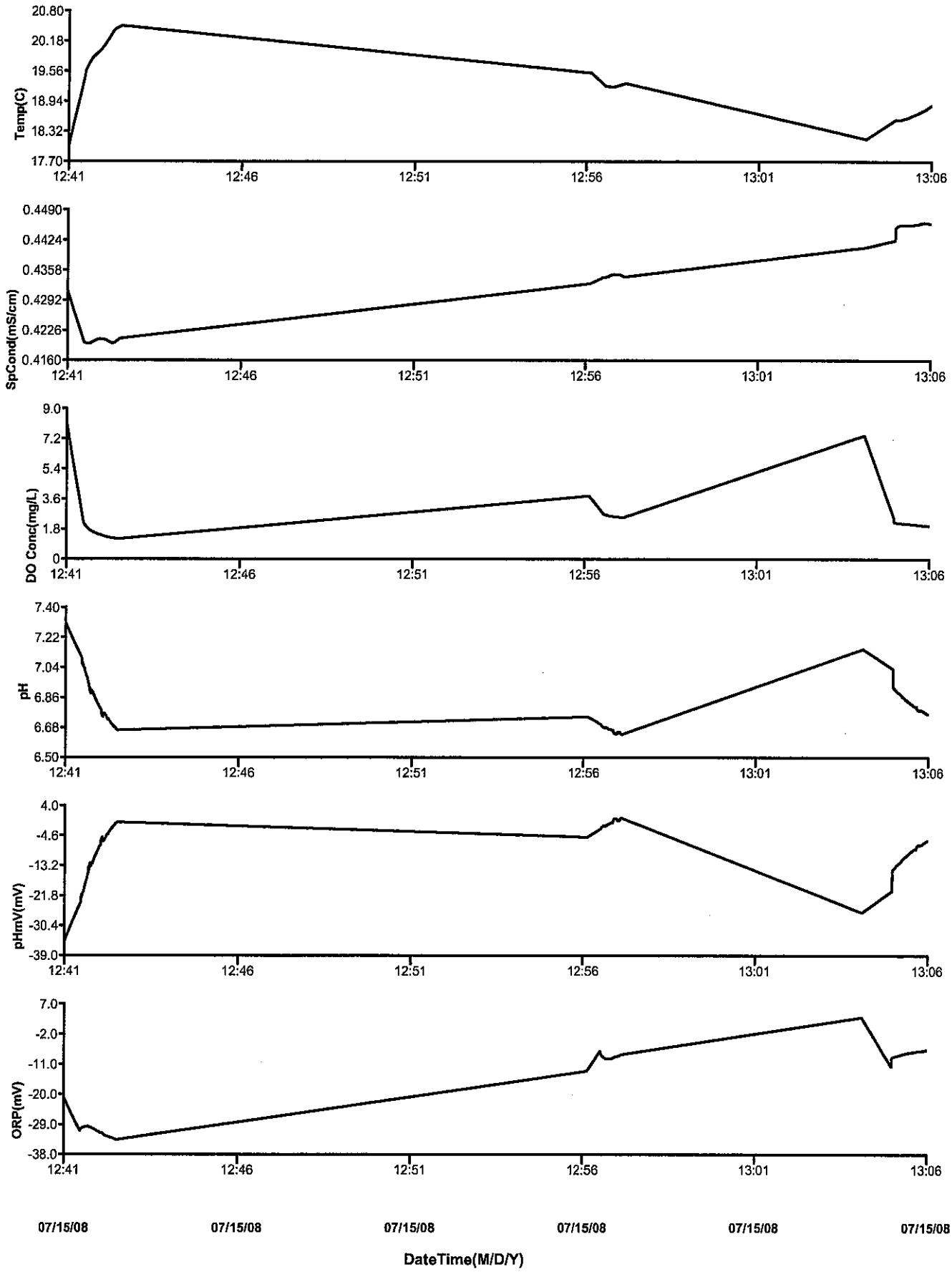
SB18ABC.DAT

-- Statistical Report --

From 07/15/08 12:41 to 07/15/08 13:06
Number of samples: 172

Parameter	Min	Max	Mean	Std
Temp (C)	17.96	20.47	19.32	0.66
SpCond (mS/cm)	0.419	0.446	0.433	0.011
DO Conc (mg/L)	1.14	8.19	2.00	0.79
pH ()	6.63	7.30	6.79	0.12
pHmV (mV)	-35.3	0.1	-8.2	6.2
ORP (mV)	-34	3	-17	11

SB18ABC.DAT


Temp(C)
20.80
20.18
19.56
18.94
18.32
17.70
SpCond(mS/cm)
0.4490
0.4424
0.4358
0.4292
0.4226
0.4160
DO Conc(mg/L)
9.0
7.2
5.4
3.6
1.8
0
pH
7.40
7.22
7.04
6.86
6.68
6.50
pHmV(mV)
4.0
-4.6
-13.2
-21.8
-30.4
-39.0
ORP(mV)
7.0
-2.0
-11.0
-20.0
-29.0
-38.0
12:41
12:46
12:51
12:56
13:01
13:06
07/15/08
DateTime(M/D/Y)

SB19A-E.RPT

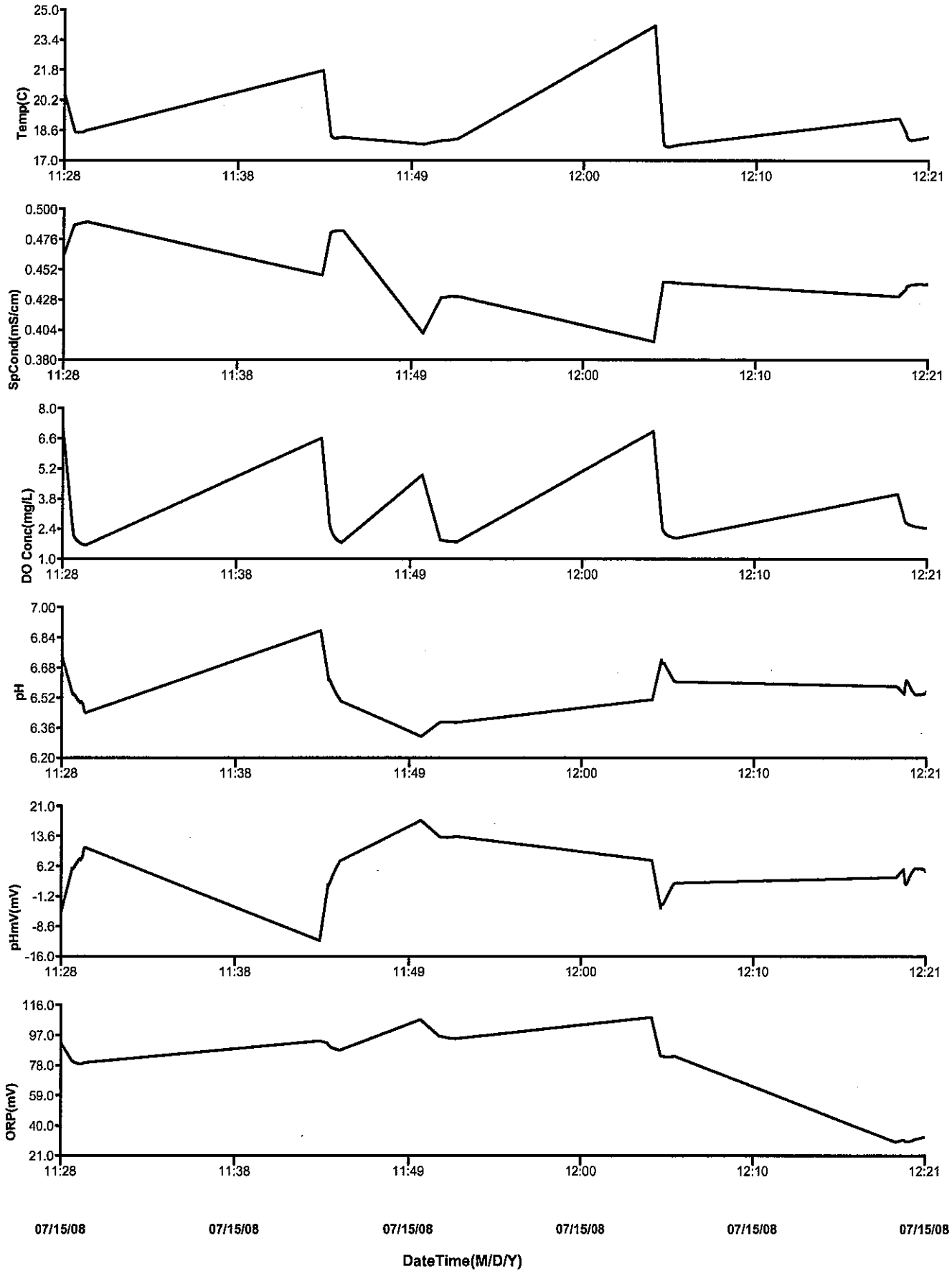
SB19A-E.DAT

-- Statistical Report --

From 07/15/08 11:28 to 07/15/08 12:21
Number of samples: 300

Parameter	Min	Max	Mean	Std
Temp (C)	17.67	24.08	18.13	0.49
SpCond (mS/cm)	0.393	0.489	0.451	0.023
DO Conc (mg/L)	1.59	7.28	2.13	0.61
pH ()	6.31	6.87	6.53	0.09
pHmV (mV)	-12.4	17.1	5.6	5.0
ORP (mV)	29	107	71	26

SB19A-E.DAT


Temp(C)
25.0
23.4
21.8
20.2
18.6
17.0
SpCond(mS/cm)
0.500
0.476
0.452
0.428
0.404
0.380
DO Conc(mg/L)
8.0
6.6
5.2
3.8
2.4
1.0
pH
7.00
6.84
6.68
6.52
6.36
6.20
pHmV(mV)
21.0
13.6
6.2
-1.2
-8.6
-16.0
ORP(mV)
116.0
97.0
78.0
59.0
40.0
21.0
11:28
11:38
11:49
12:00
12:10
12:21
07/15/08
DateTime(M/D/Y)

PARADIGM
ENVIRONMENTAL SERVICES, INC.

Analytical Report Cover Page

Hazard Evaluations

For Lab Project # 08-2490
Issued July 23, 2008
This report contains a total of 11 pages

The reported results relate only to the samples as they have been received by the laboratory.

Any noncompliant QC parameters having impact on the data are flagged or documented on the final report.

All soil or solid samples have been reported on a dry weight basis, unless qualified "reported as received".

The Chain of Custody provides additional information, including compliance with sample condition requirements upon receipt. Sample condition requirements are defined under the 2003 NELAC Standard, sections 5.5.8.3.1 and 5.5.8.3.2.

NYSDOH ELAP does not certify for all parameters. Paradigm Environmental Services or the indicated subcontracted laboratory does hold certification for all analytes where certification is offered by ELAP unless otherwise specified.

Data qualifiers are used, when necessary, to provide additional information about the data. This information may be communicated as a flag or as text at the bottom of the report. Please refer to the following list of frequently used data flags and their meaning:

"ND" = analyzed for but not detected.
"E" = Result has been estimated, calibration limit exceeded.
"D" = Duplicate results outside QC limits. May indicate a non-homogenous matrix.
"M" = Matrix spike recoveries outside QC limits. Matrix bias indicated.
"B" = Method blank contained trace levels of analyte. Refer to included method blank report.

PARADIGM ENVIRONMENTAL SERVICES, INC. 3 Lake Avenue Rochester, New York 14608 (585) 647 - 2530 FAX (585) 647 - 3311

Volatile Analysis Report for Non-potable Water

Client: Hazard Evaluations Inc

Client Job Site: JoLynn

Client Job Number: 24504
Field Location: SB-2
Field ID Number: N/A
Sample Type: Water

Lab Project Number: 08-2490
Lab Sample Number: 8412

Date Sampled: 07/15/2008
Date Received: 07/17/2008
Date Analyzed: 07/21/2008

Compounds	Results in ug / L
cis-1,2-Dichloroethene	ND< 2.00
Methylene chloride	ND< 5.00
1,1,2,2-Tetrachloroethane	ND< 2.00
Tetrachloroethene	ND< 2.00
1,1,2-Trichloroethane	ND< 2.00
Trichloroethene	ND< 2.00
Vinyl chloride	ND< 2.00
Ethylbenzene	ND< 2.00
Toluene	ND< 2.00
m,p-Xylene	ND< 2.00
o-Xylene	ND< 2.00

ELAP Number 10958 Method: EPA 624 Data File: V58227.D

Comments: ND denotes Non Detect
ug / L = microgram per Liter

Signature: _____
Bruce Hoogestegar, Technical Director

PARADIGM
ENVIRONMENTAL SERVICES, INC. 3 Lake Avenue Rochester, New York 14608 (585) 647 - 2530 FAX (585) 647 - 3311

Volatile Analysis Report for Non-potable Water

Client: Hazard Evaluations Inc

Client Job Site: JoLynn
Client Job Number: 24504
Field Location: SB-6
Field ID Number: N/A
Sample Type: Water

Lab Project Number: 08-2490
Lab Sample Number: 8413

Date Sampled: 07/15/2008
Date Received: 07/17/2008
Date Analyzed: 07/21/2008

Compounds	Results in ug / L
cis-1,2-Dichloroethene	ND< 2.00
Methylene chloride	ND< 5.00
1,1,2,2-Tetrachloroethane	ND< 2.00
Tetrachloroethene	ND< 2.00
1,1,2-Trichloroethane	ND< 2.00
Trichloroethene	ND< 2.00
Vinyl chloride	ND< 2.00
Ethylbenzene	ND< 2.00
Toluene	ND< 2.00
m,p-Xylene	ND< 2.00
o-Xylene	ND< 2.00

ELAP Number 10958 Method: EPA 624 Data File: V58230.D

Comments: ND denotes Non Detect
ug / L = microgram per Liter

Signature: _____
Bruce Hoogesteger, Technical Director

PARADIGM
ENVIRONMENTAL SERVICES, INC. 3 Lake Avenue Rochester, New York 14608 (585) 647 - 2530 FAX (585) 647 - 3311

Volatile Analysis Report for Non-potable Water

Client: Hazard Evaluations Inc

Client Job Site: JoLynn
Client Job Number: 24504
Field Location: SB-8
Field ID Number: N/A
Sample Type: Water

Lab Project Number: 08-2490
Lab Sample Number: 8414

Date Sampled: 07/15/2008
Date Received: 07/17/2008
Date Analyzed: 07/21/2008

Compounds	Results in ug / L
cis-1,2-Dichloroethene	564
Methylene chloride	ND< 50.0
1,1,2,2-Tetrachloroethane	ND< 20.0
Tetrachloroethene	ND< 20.0
1,1,2-Trichloroethane	ND< 20.0
Trichloroethene	690
Vinyl chloride	ND< 20.0
Ethylbenzene	ND< 20.0
Toluene	ND< 20.0
m,p-Xylene	ND< 20.0
o-Xylene	ND< 20.0

ELAP Number 10958 Method: EPA 624 Data File: V58231.D

Comments: ND denotes Non Detect
ug / L = microgram per Liter

Signature: _____
Bruce Hoogesteger: Technical Director

PARADIGM
ENVIRONMENTAL SERVICES, INC. 3 Lake Avenue Rochester, New York 14608 (585) 647 - 2530 FAX (585) 647 - 3311

Volatile Analysis Report for Non-potable Water

Client: Hazard Evaluations Inc

Client Job Site: JoLynn
Client Job Number: 24504
Field Location: SB-11
Field ID Number: N/A
Sample Type: Water

Lab Project Number: 08-2490
Lab Sample Number: 8415

Date Sampled: 07/15/2008
Date Received: 07/17/2008
Date Analyzed: 07/21/2008

Compounds	Results in ug / L
cis-1,2-Dichloroethene	191
Methylene chloride	ND< 5.00
1,1,2,2-Tetrachloroethane	ND< 2.00
Tetrachloroethene	ND< 2.00
1,1,2-Trichloroethane	ND< 2.00
Trichloroethene	15.9
Vinyl chloride	8.55
Ethylbenzene	ND< 2.00
Toluene	ND< 2.00
m,p-Xylene	ND< 2.00
o-Xylene	ND< 2.00

ELAP Number 10958 Method: EPA 624 Data File: V58232.D

Comments: ND denotes Non Detect
ug / L = microgram per Liter

Signature: _____
Bruce Hoogesteger: Technical Director

PARADIGM ENVIRONMENTAL SERVICES, INC. 3 Lake Avenue Rochester, New York 14608 (585) 647 - 2530 FAX (585) 647 - 3311

Volatile Analysis Report for Non-potable Water

Client: Hazard Evaluations Inc

Client Job Site: JoLynn
Client Job Number: 24504
Field Location: SB-12
Field ID Number: N/A
Sample Type: Water

Lab Project Number: 08-2490
Lab Sample Number: 8416

Date Sampled: 07/15/2008
Date Received: 07/17/2008
Date Analyzed: 07/23/2008

Compounds	Results in ug / L
cis-1,2-Dichloroethene	2,430
Methylene chloride	ND< 500
1,1,2,2-Tetrachloroethane	ND< 200
Tetrachloroethene	ND< 200
1,1,2-Trichloroethane	ND< 200
Trichloroethene	11,900
Vinyl chloride	ND< 200
Ethylbenzene	ND< 200
Toluene	ND< 200
m,p-Xylene	ND< 200
o-Xylene	ND< 200

ELAP Number 10958 Method: EPA 624 Data File: V58289.D

Comments: ND denotes Non Detect
ug / L = microgram per Liter

Signature: _____
Bruce Hoogesteger: Technical Director

PARADIGM
ENVIRONMENTAL SERVICES, INC. 9 Lake Avenue Rochester, New York 14608 (585) 647 - 2530 FAX (585) 647 - 3311

Volatile Analysis Report for Non-potable Water

Client: Hazard Evaluations Inc

Client Job Site: JoLynn
Client Job Number: 24504
Field Location: SB-13
Field ID Number: N/A
Sample Type: Water

Lab Project Number: 08-2490
Lab Sample Number: 8417

Date Sampled: 07/15/2008
Date Received: 07/17/2008
Date Analyzed: 07/21/2008

Compounds	Results in ug / L
cis-1,2-Dichloroethene	26.2
Methylene chloride	ND< 5.00
1,1,2,2-Tetrachloroethane	ND< 2.00
Tetrachloroethene	2.99
1,1,2-Trichloroethane	ND< 2.00
Trichloroethene	202
Vinyl chloride	ND< 2.00
Ethylbenzene	ND< 2.00
Toluene	ND< 2.00
m,p-Xylene	ND< 2.00
o-Xylene	ND< 2.00

ELAP Number 10958 Method: EPA 624 Data File: V58234.D

Comments: ND denotes Non Detect
ug / L = microgram per Liter

Signature: _____
Bruce Hoogesteger: Technical Director

PARADIGM
ENVIRONMENTAL SERVICES, INC. 3 Lake Avenue Rochester, New York 14608 (585) 647 - 2530 FAX (585) 647 - 3311

Volatile Analysis Report for Non-potable Water

Client: Hazard Evaluations Inc

Client Job Site: JoLynn
Client Job Number: 24504
Field Location: SB-14
Field ID Number: N/A
Sample Type: Water

Lab Project Number: 08-2490
Lab Sample Number: 8418

Date Sampled: 07/15/2008
Date Received: 07/17/2008
Date Analyzed: 07/23/2008

Compounds	Results in ug / L
cis-1,2-Dichloroethene	178
Methylene chloride	ND< 50.0
1,1,2,2-Tetrachloroethane	ND< 20.0
Tetrachloroethene	ND< 20.0
1,1,2-Trichloroethane	ND< 20.0
Trichloroethene	2,140
Vinyl chloride	ND< 20.0
Ethylbenzene	ND< 20.0
Toluene	ND< 20.0
m,p-Xylene	ND< 20.0
o-Xylene	ND< 20.0

ELAP Number 10958 Method: EPA 624 Data File: V58290.D

Comments: ND denotes Non Detect
ug / L = microgram per Liter

Signature: _____
Bruce Hoogesteger: Technical Director

PARADIGM ENVIRONMENTAL SERVICES, INC. 3 Lake Avenue Rochester, New York 14608 (585) 647 - 2530 FAX (585) 647 - 3311

Volatile Analysis Report for Non-potable Water

Client: Hazard Evaluations Inc

Client Job Site: JoLynn
Client Job Number: 24504
Field Location: SB-18
Field ID Number: N/A
Sample Type: Water

Lab Project Number: 08-2490
Lab Sample Number: 8419

Date Sampled: 07/15/2008
Date Received: 07/17/2008
Date Analyzed: 07/23/2008

Compounds	Results in ug / L
cis-1,2-Dichloroethene	2,360
Methylene chloride	ND< 50.0
1,1,2,2-Tetrachloroethane	ND< 20.0
Tetrachloroethene	ND< 20.0
1,1,2-Trichloroethane	ND< 20.0
Trichloroethene	1,230
Vinyl chloride	375
Ethylbenzene	ND< 20.0
Toluene	ND< 20.0
m,p-Xylene	ND< 20.0
o-Xylene	ND< 20.0

ELAP Number 10958 Method: EPA 624 Data File: V58291.D

Comments: ND denotes Non Detect
ug / L = microgram per Liter

Signature: _____
Bruce Hoogesteger: Technical Director

PARADIGM
ENVIRONMENTAL SERVICES, INC. 3 Lake Avenue Rochester, New York 14608 (585) 647 - 2530 FAX (585) 647 - 3311

Volatile Analysis Report for Non-potable Water

Client: Hazard Evaluations Inc

Client Job Site: JoLynn
Client Job Number: 24504
Field Location: SB-19
Field ID Number: N/A
Sample Type: Water

Lab Project Number: 08-2490
Lab Sample Number: 8420

Date Sampled: 07/15/2008
Date Received: 07/17/2008
Date Analyzed: 07/21/2008

Compounds	Results in ug / L
cis-1,2-Dichloroethene	6.70
Methylene chloride	ND< 5.00
1,1,2,2-Tetrachloroethane	ND< 2.00
Tetrachloroethene	ND< 2.00
1,1,2-Trichloroethane	ND< 2.00
Trichloroethene	66.4
Vinyl chloride	ND< 2.00
Ethylbenzene	ND< 2.00
Toluene	ND< 2.00
m,p-Xylene	ND< 2.00
o-Xylene	ND< 2.00

ELAP Number 10958 Method: EPA 624 Data File: V58237.D

Comments: ND denotes Non Detect
ug / L = microgram per Liter

Signature: _____
Bruce Hoogesteger: Technical Director

PARADIGM ENVIRONMENTAL SERVICES, INC.

179 Lake Avenue
Rochester, NY 14608
(585) 647-2530 • (800) 724-1997
FAX: (585) 647-3311

CHAIN OF CUSTODY

REPORT TO:	INVOICE TO:	
COMPANY: Harland Evaluations, Inc.	COMPANY:	LAB PROJECT #: 08-2490 / CLIENT PROJECT #: 24504
ADDRESS: 3836 N. Buffalo Rd.	ADDRESS:	
CITY: Orchard Park STATE: NY ZIP: 14127	CITY: STATE: ZIP:	TURNAROUND TIME: (WORKING DAYS) STD [ ] 1 [ ] 2 [ ] 3 [X] 5 OTHER [ ]
PHONE: FAX:	PHONE: FAX:	
PROJECT NAME/SITE NAME: Jo Lyn	ATTN: Scott Overhoff	ATTN:
	COMMENTS:	QUOTE #: HE042806

REQUESTED ANALYSIS: 8260 Special

	DATE	TIME	COMPOSITE	GRAB	SAMPLE LOCATION/FIELD ID	MATRIX	NUMBER CONTAINERS	REMARKS	PARADIGM LAB SAMPLE NUMBER
1	7/15/08			X	SB-2	GW	2		84120
2					SB-6				84121
3					SB-8				84122
4					SB-11				84123
5					SB-12				84124
6					SB-13				84125
7					SB-14				84126
8					SB-18				84127
9					SB-19				84128
10									

LAB USE ONLY BELOW THIS LINE

Sample Condition: Per NELAC/ELAP 210/241/242/243/244

Receipt Parameter	NELAC Compliance	
Container Type: Comments:	Y [X]	N [ ]
Preservation: Comments:	Y [X]	N [ ]
Holding Time: Comments:	Y [X]	N [ ]
Temperature: 14°C iced Comments:	Y [ ]	N [X]

Sampled By: Scott Overhoff 7/16/08 Date/Time

Relinquished By: [signature] 7/16/08 Date/Time

Received By: James A. Steiner 7/16/08 4:20 PM Date/Time

Received @ Lab By: Emily McLeod 7/17/08 1010 Date/Time

Total Cost:

P.I.F.

STANDARD PORTABLE, INC.
ISCO REMEDIATION SYSTEM

TRICHLOROETHYLENE
Historical Groundwater Concentrations

Date	SB2	SB6	SB8	SB11	SB12	SB13	SB14	SB18	SB19
May 12, 2006	14.6	NS	773	77.7	NS	552	NS	151,000	86.6
July 23, 2008	ND	ND	690	15.9	11,900	202	2,140	1,230	66.4

Notes: 1) NS = Not Sampled
2) ND = Parameter not detected.
3) All results expressed in µg/l
4) Analytical method used is USEPA Method 8260
5) NYS Water Quality Standard = 5 µg/l (Shaded result exceeds Groundwater Standard).

STANDARD PORTABLE, INC.
ISCO REMEDIATION SYSTEM

CIS-1,2-DICHLOROETHENE
Historical Groundwater Concentrations

Date	SB2	SB6	SB8	SB11	SB12	SB13	SB14	SB18	SB19
May 12, 2006	ND	NS	396	164	NS	33.4	NS	10,500	ND
July 23, 2008	ND	ND	564	191	2,430	26.2	178	2,360	6.70

Notes: 1) NS = Not Sampled
2) ND = Parameter not detected.
3) All results expressed in µg/l
4) Analytical method used is USEPA Method 8260
5) NYS Water Quality Standard = 5 µg/l (Shaded result exceeds Groundwater Standard).

STANDARD PORTABLE, INC.
ISCO REMEDIATION SYSTEM

TETRACHLOROETHENE
Historical Groundwater Concentrations

Date	SB2	SB6	SB8	SB11	SB12	SB13	SB14	SB18	SB19
May 12, 2006	ND	NS	ND	7.08	NS	3.86	NS	540	4.07
July 23, 2008	ND	ND	ND	ND	ND	2.99	ND	ND	ND

Notes: 1) NS = Not Sampled
2) ND = Parameter not detected.
3) All results expressed in µg/l
4) Analytical method used is USEPA Method 8260
5) NYS Water Quality Standard = 5 µg/l (Shaded result exceeds Groundwater Standard).

STANDARD PORTABLE, INC.
ISCO REMEDIATION SYSTEM

1,1,2-TRICHLOROETHANE
Historical Groundwater Concentrations

Date	SB2	SB6	SB8	SB11	SB12	SB13	SB14	SB18	SB19
May 12, 2006	ND	NS	ND	ND	NS	ND	NS	1,550	ND
July 23, 2008	ND	ND	ND	ND	ND	ND	ND	ND	ND

Notes: 1) NS = Not Sampled
2) ND = Parameter not detected.
3) All results expressed in µg/l
4) Analytical method used is USEPA Method 8260
5) NYS Water Quality Standard = **1 µg/l** (Shaded result exceeds Groundwater Standard).

STANDARD PORTABLE, INC.
ISCO REMEDIATION SYSTEM

VINYL CHLORIDE
Historical Groundwater Concentrations

Date	SB2	SB6	SB8	SB11	SB12	SB13	SB14	SB18	SB19
May 12, 2006	ND	NS	21.0	6.69	NS	ND	NS	335	ND
July 23, 2008	ND	ND	ND	8.55	ND	ND	ND	375	ND

Notes: 1) NS = Not Sampled
2) ND = Parameter not detected.
3) All results expressed in µg/l
4) Analytical method used is USEPA Method 8260
5) NYS Water Quality Standard = **2 µg/l** (Shaded result exceeds Groundwater Standard).

Attachment 7

Site Hydraulic Control Calculations

Standard Portable, Inc.
Bulk Discharge Calculation

Hydraulic Gradient

Use wells: SB15 (96.78)
SB2 (93.42)
Difference = 3.36 ft.

Distance between SB2 and SB15 is 139.6 ft.

Therefore 3.36 ft. ÷ 139.6 ft. = 0.024 ft/ft
= 0.024 Hydraulic Gradient

For Hydraulic Conductivity use Fetter Pg. 80

Silty Sands, Fine Sands = 1.0×10^{-4} cm/sec
Convert to ft/sec
1 cm = 0.0328 ft.

1.0×10^{-4} cm/sec x 0.0325 ft/ 1 cm = 3.28×10^{-6} ft/sec Hydraulic Conductivity

Darcy Velocity or Specific Discharge

q [L/T] = Darcy Velocity
k [L/T] = Hydraulic Conductivity
i [Unitless] = Hydraulic Gradient

$q = Ki$
$q = (0.025) \times (3028 \times 10^{-6}$ ft/sec)
$q = 7.9 \times 10^{-8}$ ft/sec

Bulk Discharge

Q [L^3/T] = Bulk Discharge
A [L^2] = Cross Sectional Area
q = Darcy Velocity

$Q = qA$
Area = 182.1 ft. x 12 ft. deep saturation
= 2,185.2 ft^2

$Q = qA$
$Q = 7.9 \times 10^{-8}$ ft/sec x 2,185.2 ft^2
$= 1.73 \times 10^{-4}$ ft^3/sec
$= 1.73 \times 10^{-4}$ ft^3/sec x 60 sec/mm x 60 min/hr x 24 hr/day
= 14.9 ft^3/day

Convert to Gallons = 14.9 ft^3/day x 7.48 Gal/ft^3
= 111.57 Gallons/Day

Average Pumping Rate (approximate) = 720 Gallons/Day

Standard Portable, Inc.
Capture Zone Estimates

Hydraulic Gradient

Use wells: SB15 (96.78)
SB2 (93.42)
Difference = 3.36 ft.

Distance between SB2 and SB15 is 139.6 ft.

Therefore 3.36 ft. ÷ 139.6 ft. = 0.024 ft/ft

= 0.024 Hydraulic Gradient

For Hydraulic Conductivity use Fetter Pg. 80

Silty Sands, Fine Sands = 1.0×10^{-4} cm/sec
Convert to ft/sec
1 cm = 0.0328 ft.

1.0×10^{-4} cm/sec x 0.0325 ft/ 1 cm = 3.28×10^{-6} ft/sec Hydraulic Conductivity

Darcy Velocity or Specific Discharge

q [L/T] = Darcy Velocity
k [L/T] = Hydraulic Conductivity
i [Unitless] = Hydraulic Gradient

$q = Ki$
$q = (0.025) \times (3028 \times 10^{-6}$ ft/sec)
$q = 7.9 \times 10^{-8}$ ft/sec

Bulk Discharge

Q [L^3/T] = Bulk Discharge
A [L^2] = Cross Sectional Area
q = Darcy Velocity

$Q = qA$
Area = 182.1 ft. x 12 ft. deep saturation
= 2,185.2 ft^2

$Q = qA$
$Q = 7.9 \times 10^{-8}$ ft/sec x 2,185.2 ft^2
$= 1.73 \times 10^{-4}$ ft^3/sec
$= 1.73 \times 10^{-4}$ ft^3/sec x 60 sec/mm x 60 min/hr x 24 hr/day
= 14.9 ft^3/day

Convert to Gallons = 14.9 ft^3/day x 7.48 Gal/ft^3

= 111.57 Gallons/Day

For Capture Zone

Q = Well Pumping Rate So Far = 28.56 GPD or = 3.8 ft^3/day
i = Prepump Hydraulic Gradient = 0.024 ft/ft
b = Aquifier Thickness = 12 ft
K = Avg. Hydraulic Conductivity = 0.28 ft/day

$$Ymax = \frac{-Q}{2 * K * b * i}$$

$$= \frac{-3.8}{2 * 0.28 * 12 * 0.024}$$

$$= \frac{-3.8}{0.161}$$

= 23.6 or 11.8 ft. from well in each direction perpendicular to GW Flow

Stagnation Point = X

$$X = \frac{-Q}{2 * \Pi * K * b * i}$$

$$= \frac{-3.8}{\Pi * 0.161}$$

$$= \frac{-3.8}{0.506}$$

= - 7.5 ft.

A Brief Primer of Useful Calculations for Assessing and Cleaning Up a Groundwater Contamination Site

By Michael McKillip

Direction and Magnitude of Hydraulic Gradient. The ubiquitous **Darcy's Law** is expressed in a myriad of forms and notations. The two simplest forms are:

$$\vec{q} = K\vec{i} \qquad \textbf{Equation 1}$$

q [L/T] = the Darcy velocity, or the specific discharge
K [L/T] = hydraulic conductivity
i [unitless] = hydraulic gradient

$$Q = KiA \qquad \textbf{Equation 2}$$

Q [L^3/T] = bulk discharge
A [L^2] = cross-sectional area

Remember to divide the Darcy velocity by the soil porosity to get the seepage velocity (sometimes called the interstitial velocity). While the use of the term "groundwater velocity" is common, it should be avoided as some authors use it to mean the Darcy velocity and some to mean the seepage velocity. Darcy's Law is simple to apply and can yield a reasonable estimate in a wide range of applications.

The hydraulic gradient can be estimated from three head readings using a graphical approach. The points cannot be co-linear. Three sets of readings (3 x 3), at least one month apart, should be used as a minimum to determine the gradient. This minimizes the risk of poor data and checks for unsteady conditions.

1. Draw a scale map with three points for which water table elevations are known.
2. Draw a line between the well with the *highest* head and the well with the *lowest* head. Mark that line with some evenly spaced sub-division tick marks and then locate the point on that line where the head is equal to the head of the third (*intermediate*) well. (see Figure 1 below)
3. Draw a line between that point and the location of the intermediate well. Since this line connects two points of equal head it is by definition an equipotential line.
4. The direction of groundwater flow is perpendicular to an equipotential, so draw a line perpendicular from this line towards the location of the well with lowest head. The direction of this line is the direction of flow. (see Figure 1)
5. Use the Pythagorean theorem to calculate the length of this perpendicular. The difference in head between the intermediate well and the lowest well is Δh. The length of the perpendicular line is Δx and the hydraulic gradient , of course, is $\Delta h/\Delta x$.

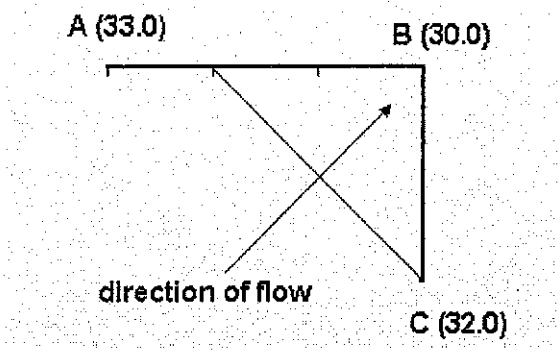


Figure 1: Graphical determination of the hydraulic gradient using three wells.

Simple Guidelines For The Sizing And Placement Of Pumping Wells. Pumping wells are often also referred to as *production wells*, *extraction wells*, and *treatment wells*. The following guidelines are based on the usual assumptions of homogeneous, isotropic media, vertically well-mixed contamination, uniform aquifer bottom elevations, and fully penetrating wells, (i.e., screened over the full aquifer thickness).

To control the migration of a plume (sometimes called a concentration plume or contaminant plume), the minimum total pumping rate should be the amount of water passing through the plume's maximum cross-sectional area, which is the maximum plume width times the aquifer saturated thickness. The needed pumping rate can be determined using Darcy's Law. Note that the pumping will increase the gradient, so the minimum is really somewhat larger than the pre-pumping discharge rate.

A method to estimate a well's capture zone follows. For multiple wells, superposition can be applied.

$$x = \frac{-y}{\tan\left(\frac{2 \cdot \pi \cdot K \cdot b \cdot i \cdot y}{Q}\right)} \qquad \textbf{Equation 3}$$

x, y = Cartesian coordinates where the origin is at the well
K = average hydraulic conductivity [L/T]
b = aquifer thickness [L]
i = prepumping hydraulic gradient [unitless]
Q = well pumping rate [L^3/T]

The distance to the downgradient stagnation point is given by:

$$x_o = \frac{-Q}{2 \cdot \pi \cdot K \cdot b \cdot i} \qquad \textbf{Equation 4}$$

The maximum half-width of the capture zone (as x approaches infinity) is given by:

$$y_{max} = \frac{-Q}{2 \cdot K \cdot b \cdot i} \qquad \textbf{Equation 5}$$

Example: Given the following aquifer parameters:

Q	Ft^3/day	20000
b	Ft	100
K	Ft/day	1000
i	ft/ft	0.005

Then x_0 is 6.4 ft, and y_{max} is 20 ft. The edge of the capture zone is plotted in Figure 2.

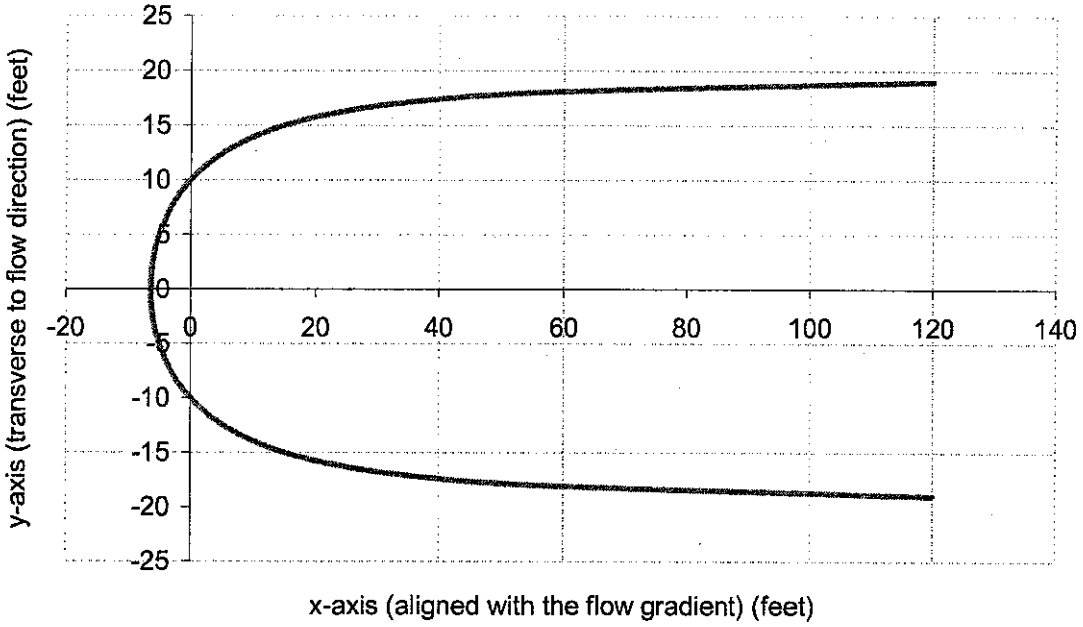


Figure 2: Capture zone plot. The pumping well is at the origin. The hydraulic gradient slopes from right to left. The down gradient stagnation point is at the vertex with the x-axis.

Javandel and Tsang (1986) determined the optimal transverse spacing of identical wells, as shown in Table 1. Note that the pumping rate, Q_n, is for the individual well. This spacing prevents contamination "slipping" between the wells.

Number of extraction wells	Optimal transverse distance between adjacent wells	Maximum width of the capture zone at the line of the wells
1	----	0.5 Q_n/(Kbi)
2	0.32 Q_n/(Kbi)	1.0 Q_n/(Kbi)
3	0.40 Q_n/(Kbi)	1.5 Q_n/(Kbi)
4	0.38 Q_n/(Kbi)	2.0 Q_n/(Kbi)

Table 1: Characteristic distances of a capture zone for treatment wells. Modified from Javandel, I. and Tsang, C. *Groundwater*, 24(5), 616-625, 1986.