8976 Wellington Road
Manassas, VA 20109

May 16, 2012

Mr. George Heitzman, P.E.
Division of Environmental Remediation
New York State Department of Environmental Conservation
625 Broadway, Floor 11
Albany, New York 12233-7014

RE: Former IBM Kingston Facility
Site #356002
Supplemental Remedial Investigation Report: SWMU T Former B003 Waste Oil Tank

Dear Mr. Heitzman:

The purpose of this letter is to transmit the referenced Supplemental Remedial Investigation Report. The investigation was conducted in accordance with the *Supplemental Remedial Investigation Work Plan: SWMU T Former B003 Waste Oil Tank,* as approved by NYSDEC on September 29, 2011.

Should you have any questions concerning the information provided in this report, please feel free to contact me at 703-257-2586.

Sincerely,

Michael Kominek
Corporate Environmental Affairs

cc: w/enclosure (1 hardcopy and 1 electronic copy)

Benjamin Conlon, Esq.	NYSDEC – Office of General Counsel (1 hard copy and 1 electronic copy)
Kristen Kulow	NYSDOH – Oneonta (1 hard copy and 1 electronic copy)
Wayne Mizerak	NYSDEC – Albany (electronic copy only)
Charlotte Bethoney	NYSDOH – Troy (electronic copy only)
Daniel Wieneke	TechCity Properties, Inc. (1 hard copy and 1 electronic copy)
Michael Teetsel	Environmental Resources Management (electronic copy only)

REPORT

SUPPLEMENTAL REMEDIAL INVESTIGATION REPORT

SOLID WASTE MANAGEMENT UNIT T: FORMER B003 WASTE OIL TANK

Former IBM Kingston Facility

Site #356002

Order on Consent Index No. D3-10023-6-11

Submitted To: New York State Department of Environmental Conservation
Bureau of Hazardous Waste and Radiation Management
625 Broadway
9th Floor
Albany, NY 12233-7250

Submitted By: International Business Machines Corporation
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Manassas, VA 20109

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1.0 INTRODUCTION AND BACKGROUND

1.1 Introduction

Golder Associates Inc. (Golder) has prepared this Supplemental Remedial Investigation Report (Report), on behalf of International Business Machines Corporation (IBM), for Solid Waste Management Unit (SWMU) T: Former Building B003 Waste Oil Tank (SWMU T) at the former IBM Kingston Facility (site) located at 300 Enterprise Drive, Kingston, Ulster County, New York (see Figure 1).

The SWMU T investigation described herein was completed in general accordance with the methods and procedures presented in the *Supplemental Remedial Investigation Work Plan: Solid Waste Management Unit T: Former B001 Waste Oil Tank* (Work Plan) submitted by IBM to the New York State Department of Environmental Conservation (NYSDEC) on September 2, 2011. Field investigation activities were conducted in general accordance with the methods and procedures presented in the associated *RCRA Facility Investigation Management Plans* (Golder, 2009). NYSDEC approved the Work Plan on September 27, 2011 as submitted.

1.2 Site Background

The site is located north of the City of Kingston in the Town of Ulster, Ulster County, New York and is bounded by John M. Clarke Drive and Route 9W to the east, Old Neighborhood Road and Route 209 to the north, Esopus Creek to the west, and Boices Lane to the south (see Figure 2). The approximately 258-acre property was first developed by IBM from farmland during the 1950s. The primary activities included the manufacturing of electric typewriters and the development, manufacture and testing of computer systems and related components and technologies. IBM ceased operations during the early-1990s and the property was subsequently subdivided into multiple parcels. In 1998, IBM sold the site to AG Properties of Kingston, LLC and Ulster Business Complex, LLC. The site is currently managed by TechCity Properties, Inc. (TechCity).

The portion of the site located east of Enterprise Drive is referred to as the East Campus and includes the majority of the buildings at the site, many of which are vacant. The portion located west of Enterprise Drive is referred to as the West Campus and includes former IBM Buildings B201, B202 and B203 (currently referred to as the Bank of America facility); a large parking area south and west of the Bank of America facility; and generally undeveloped land further to the southwest and north of the Bank of America facility.

The entire site was listed as a Class 4 Site (Site # 356002) in the Registry of Inactive Hazardous Waste Disposal Sites in New York State and was managed in compliance with the October 4, 1996 Hazardous Waste Management Permit #3-5154-00067/00090 6 NYCRR Part 373 (Permit) until the Administrative Order on Consent Index No. D3-10023-6-11 (Order) was signed with NYSDEC by IBM and TechCity on

July 8, 2011. The Order, which supersedes and replaces the former Permit, divides the site into ten Operable Units (OUs) as depicted in Figure 2.

Prior to the execution of the Order, IBM completed extensive RCRA Facility Investigations (RFIs) beginning in the 1990s through 2002 to delineate the occurrence and extent of volatile organic compounds (VOCs) in groundwater beneath the site. Corrective Measures implemented by IBM include the operation and maintenance of a perimeter control system that intercepts the groundwater plume. The perimeter control system consists of two stormwater sewer systems, an unsaturated portion of the Surficial Sand Unit that underlies the site, a utility trench barrier wall, and a groundwater collection system (see Figure 2). IBM currently performs groundwater quality monitoring to evaluate the effectiveness of the Corrective Measures.

1.3 SWMU T Background

SWMU T consists of a former 2,000-gallon waste cutting oil tank formerly located off of the northwest corner of Building B003 (see Figure 3). This steel tank was installed circa 1955 and was used for the collection of waste cutting oil generated by the electric typewriter division located in Building B003 from the mid-1950s through the early 1960s. Historic documents indicate that the invert of the tank was at 163.3 feet mean sea level (msl), approximately six feet below the water table. Waste cutting oil was conveyed to this tank via the fourth, or “spare”, Industrial Waste (IW) sewer line in Building B003 (GSC, 1997b). In 1982 the 2,000-gallon waste oil tank failed a pressure test, reportedly due to leaks at the fill neck. The tank was removed in 1982 and was reportedly in good condition.

The IW sewer lines were constructed in the mid-1950s of six to ten-inch vitreous clay pipe in three or four foot sections and consisted of four independent parallel subsystems. The four subsystems comprised a general rinse line (acid/alkali rinse), a chrome rinse line, a cyanide rinse line, and a spare line. The spare was used in Building B003 for the conveyance of waste cutting oil to the waste cutting oil tank. The IW lines range in elevation from approximately 177 feet msl in the southern portion of Building B003 to approximately 170 feet msl in the northern portion where they exit Building B003. From this point (i.e., north of Building B003), the IW lines range in elevation between approximately 170 feet msl and 167 feet msl.

Following a 1979 televiewer assessment of the three main lines, polyethylene sliplining was installed in the chrome and cyanide rinse lines. In 1980 the acid/alkali rinse line and the chrome and cyanide rinse lines were replaced by an overhead pipe-in-pipe system and use of the subsurface vitreous clay lines was reportedly terminated.

IBM conducted a subsurface investigation in the vicinity of SWMU T in 1996 that consisted of drilling four soil borings, two of which were completed as monitoring wells. Monitoring well MW-285S was installed

adjacent to the tank excavation and monitoring well MW-288S was installed northwest and downgradient of the tank location. Analytical results from saturated zone soil samples collected from the four borings indicated VOCs at concentrations above NYSDEC cleanup guidance values applicable at the time of the investigation. Groundwater sample analytical results indicated constituents detected at concentrations greater than New York State Groundwater Quality Standards (NYSGWQS). The VOC detections were considered to be a potential source of the North Parking Lot Area Plume and no additional assessment or investigation activities were recommended for SWMU T at that time (GSC, 1997b). VOCs are still present in groundwater in the vicinity of SWMU T, as indicated by recent detections above NYSGWQS in monitoring wells MW-285S, MW-288S, and MW-297S (GSC, 2011). VOC detections in this area may be associated with the North Parking Lot Area or Building B005 Area plumes (i.e., referenced hereafter as site-wide plume).

1.4 Project Objectives

The Order requires a supplemental investigation to evaluate the potential for a source of VOC impacts to groundwater in the vicinity of SWMU T. Pursuant to the Order, which continues the former RCRA permit requirements for Corrective Action, IBM undertook this supplemental investigation to better define the nature and extent of soil and groundwater impacts in the vicinity of SWMU T.

The primary objectives of the SWMU T investigation include:

- Evaluate whether soil and/or groundwater conditions in the immediate SWMU T area represent a source of VOC impacts to site groundwater
- Better define the nature and extent of VOC-impacted groundwater downgradient of SWMU T
- Obtain preliminary water quality, geologic, and hydrogeologic information to support an evaluation of potential additional Corrective Measures, if appropriate

To meet these objectives, IBM developed and implemented a dynamic investigation approach which included the collection and analysis of real-time data to allow for field adjustment of the number, location, and depth of samples based on investigation findings. As such, the scope and extent of the investigation described in the Work Plan was modified as necessary during the implementation of the investigation to achieve the project objectives.

Section 2.0 of this Report presents a summary of the field investigation activities and procedures. Section 3.0 provides an updated geologic conceptual model in the vicinity of SWMU T and the investigation results. Section 4.0 provides conclusions based on the data collected during the investigation.

2.0 INVESTIGATION ACTIVITIES AND PROCEDURES

Activities completed during this investigation include the following tasks. Locations are shown on Figure 3.

- Advancement of 16 membrane interface probes (MIPs) located near, upgradient and downgradient of the SWMU T area
- Advancement of six direct-push probes for geologic logging and/or soil sampling at locations adjacent to MIP locations to confirm the MIP results and between MIP probe locations to provide soil characterization data
- Collection of ten soil samples for analysis of VOCs, semi-volatile organic compounds (SVOCs), and Total Petroleum Hydrocarbon–Gasoline Range Organics (TPH-GRO) from selected depths at five boring locations
- Installation of 12 temporary groundwater monitoring wells at five soil boring locations
- Collection of groundwater samples for analysis of VOCs and SVOCs from the 12 temporary groundwater monitoring wells and analysis of TPH-GRO from 10 of the temporary groundwater monitoring wells
- Surveying of MIP, soil boring, and temporary monitoring well locations

At the request of NYSDEC, Golder performed an additional supplemental investigation of the IW lines located to the north of Buildings B001 and B003 contemporaneously with the SWMU T investigation. The purpose of this investigation was to evaluate the nature and extent of VOC impacts immediately downgradient of the IW line system associated with Building B001 and B003. This additional supplemental investigation included the following:

- Advancement of 13 MIPs located adjacent to and downgradient of the IW lines.
- Installation of five temporary groundwater monitoring wells at select locations with discrete depth intervals targeting the invert of the IW lines and the base of the Surficial Sand Unit.
- Collection of groundwater samples for analysis of VOCs from the five temporary groundwater monitoring wells.
- Surveying of MIP and temporary monitoring well locations.

Golder began the field investigation on October 3, 2011 and completed the scope of work on October 26, 2011. Environmental Probing Inc. (EPI) was retained to provide direct-push services and Peak Investigations, LLC (Peak) performed MIP services. Brinnier and Larios, P.C., provided New York licensed surveying services. Lancaster Laboratories, Inc. (Lancaster), a New York State Department of Health (NYSDOH) accredited laboratory, performed analytical services.

2.1 Membrane Interface Probe Investigation

IBM conducted the MIP investigation to further define the lithology and distribution of VOCs in the vicinity of SWMU T. The MIP is a direct-sensing tool that is advanced into the subsurface using direct-push

equipment (e.g., GeoProbe®). The MIP used during the field investigation included a halogen specific detector (XSD), a photo-ionization detector (PID), and an electric conductivity (EC) meter. The XSD detects the presence of total chlorinated VOCs in the vapor, sorbed, and dissolved-phases. The PID detects the presence of total aromatic hydrocarbon VOCs in the vapor, sorbed, and dissolved-phases. The EC measures soil conductivity with depth and is used to identify relative changes in lithology and/or other subsurface conditions, including soil moisture and grain size, that change subsurface conductivity.

EPI advanced a total of 29 MIPs, including 16 associated with the SWMU T investigation and 13 associated with the supplemental IW lines investigation, at the locations shown on Figure 3. Golder evaluated the data daily and modified subsequent probe locations and depths as appropriate based on the findings. Before positioning the direct-push equipment for subsurface advancement, EPI hand-augured each location to approximately 5 feet below ground surface (bgs) as an additional precaution to reduce the potential for hitting subsurface obstructions.

Peak conducted the MIP investigation in general accordance with American Society for Testing and Materials (ASTM) *Standard Practice for Direct Push Technology for Volatile Contaminant Logging with the Membrane Interface Probe* (MIP)–D7532-07 (ASTM, 2007) and Standard Operating Procedure (SOP-9), provided in the Quality Assurance Project Plan (QAPP)[1]. Prior to advancing the MIP, Peak conducted a response test to confirm the rate of response and accuracy of the XSD element. The response test was conducted utilizing a 2-part per million (ppm) trichloroethene (TCE) solution. Peak then calibrated the MIP to ground surface prior to advancing the probe into the subsurface. Some offset (i.e., less than 0.5 to 1.0 foot) from true ground surface was observed due to small errors in positioning the probe during ground-zero calibration. This offset was considered in targeting sample locations and data evaluation and interpretation.

At each probe location, EPI held the rate of penetration (ROP) constant at one foot per minute until the target terminal depth had been obtained. The MIP system utilized during this investigation is equipped with a heating unit capable of maintaining a temperature of 100 degrees Celsius in the saturated zone, ensuring volatilization of dissolved and/or sorbed compounds.

The boreholes typically collapsed upon removal of the probe to a depth of approximately 4 to 6 feet bgs. EPI grouted portions of the boreholes that did not collapse with cement-bentonite slurry in accordance with QAPP SOP-10. Borings advanced through asphalt or concrete areas were patched with the appropriate surface cover upon completion.

[1] The QAPP and associated SOPs are included as part of the *RCRA Facility Investigation Management Plans*.

EPI decontaminated the direct-push tools between borings in accordance with QAPP SOP-5. Table 1 presents a summary of the MIP nomenclature and locations. Appendix A includes MIP field forms and data plots.

2.2 Soil Borings and Soil Sampling

Golder used information collected during the MIP investigation to identify locations for the advancement of soil borings for use in correlating lithology to the EC results and for the collection of soil samples. EPI advanced a total of six soil borings associated with the SWMU T investigation at the locations shown on Figure 3. Golder collected multiple, depth-discrete samples from four soil boring locations for VOC and SVOC analyses and collected samples for TPH-GRO analysis from three of the four locations based on MIP results. EPI advanced the soil borings using a direct-push rig and a dual-tube continuous sampler for the collection of soil cores. Golder logged the cores for lithology and screened the soil using a PID.

Golder selected samples for laboratory analysis by targeting zones of high MIP XSD/PID response and specific lithologic horizons (i.e., Surficial Sand Unit, Transition Zone, and Varved Clay Unit). Encore® samplers were used to collect soil samples for VOC and TPH-GRO analyses. Lancaster analyzed the samples for VOCs using EPA Method 8260B, SVOCs using EPA Method 8270C, and TPH-GRO using EPA Method 8015B. Golder added TPH-GRO analysis to the proposed VOC and SVOC analyses requested for soil samples collected from the SWMU T area following the observation of a gasoline-like odor and sheen in soil cores recovered from ST-SB-04. Samples were submitted to the laboratory under chain-of-custody procedures in accordance with QAPP SOP-3.

Table 2 presents a summary of the soil samples collected and the analyses performed. Appendix B contains soil boring logs, including soil sample locations and depths. Appendix C contains soil sampling information. Analytical results are presented and discussed in Section 3.3.

2.3 Groundwater Sampling

Golder installed temporary wells for the collection of depth-discrete groundwater grab samples. Groundwater sampling locations and depths were selected based on the results of the MIP investigation and historic information regarding the elevation of the former SWMU T tank invert. Targeted areas included zones of high MIP XSD/PID response and areas of hydrogeologic interest.

The groundwater sampling and analysis program for the SWMU T investigation included collection of twelve groundwater samples collected from six temporary well locations. EPI installed the temporary wells using a GeoProbe® drill-rig. Lancaster analyzed two of the samples for VOCs and SVOCs. The remaining ten samples were analyzed for VOCs, SVOCs, and TPH-GRO. Golder requested TPH-GRO analysis in addition to the proposed groundwater VOC and SVOC analyses from the SWMU T area upon detecting a petroleum odor and observing a sheen in soil cores recovered from ST-SB-04.

The groundwater sampling and analysis program for the supplemental IW line investigation included five groundwater samples collected from three temporary well locations. EPI installed the temporary wells using a GeoProbe® drill-rig. Lancaster analyzed each of the samples for VOCs.

Temporary well installation and groundwater sampling was conducted in accordance with QAPP SOP-2. Temporary monitoring well construction information is included in Appendix B and temporary monitoring well locations are shown on Figure 3. A summary of groundwater sample locations, sample type, and analyses performed is presented in Table 3. Groundwater sampling field forms and chain-of-custody information are included in Appendix C. Analytical results are presented and discussed in Section 3.3.

2.4 Investigation-Derived Waste

IBM managed investigation-derived waste (IDW) in accordance with QAPP SOP-8 and New York State Solid and Hazardous Waste Regulations

3.0 INVESTIGATION RESULTS

The following sections present an updated interpretation of the site geologic and hydrogeologic conditions and additional delineation of the nature and extent of VOC-impacted groundwater within and downgradient of SWMU T.

3.1 Generalized Site Geology and Hydrogeology

The site is located within the Hudson-Mohawk Lowland Physiographic Province. The bedrock underlying the western portion of the site consists of siltstone and shale of the Middle Devonian Age Lower Hamilton Group. The eastern portion of the site is underlain by both the Lower Hamilton Group and the Lower Devonian Age Onondaga Limestone. The exact location and nature of the contact between these units is not known. The Lower Hamilton Group is described as a calcareous shale in boring logs completed during previous site investigations and forms a north-northwest trending bedrock high approximately coincident with Enterprise Drive downgradient of the site perimeter control system. A top of bedrock contour map, as interpreted by Groundwater Sciences Corporation (GSC, 2002) based on work performed in previous investigations, is presented as Figure 4.

Literature on regional geologic conditions indicate that a glacially-derived sand and gravel unit directly overlies the bedrock west of Enterprise Drive and a glacial till unit overlies the bedrock east of Enterprise Drive. These unconsolidated units are overlain by a varved silt and clay unit that is interpreted to be of lacustrine origin, with a thickness of zero feet in an area where it is absent proximate to the bedrock high, to over 180 feet in the central portion of East Campus as determined by previous site borings. The clay portion of the varved silt and clay unit serves as an aquitard throughout most the site, except in the vicinity of the bedrock high where it is not present.

A well sorted, fine to coarse-grained sand of lacustrine origin, with intermittent, thin, silty-clay zones, overlies the varved silt and clay (or bedrock where the varved silt and clay is absent in the vicinity of the bedrock high). This surficial sand unit ranges in thickness across the site from approximately 6 feet in the area of the bedrock ridge to greater than 30 feet in the central portion of the East Campus. A discontinuous transition zone of relatively fine-grained materials is present at the base of the surficial sand unit in some areas of the site (GSC, 1997).

Groundwater within the surficial sand unit overlying the varved silt and clay unit is unconfined. As illustrated in Figure 5, an east-west trending groundwater divide has been identified in previous investigations at the site underlying Buildings B001, B002, B003, B004 and B005S. Groundwater to the north of the divide flows west and northwest. Groundwater to the south of the divide flows west and southwest. Groundwater flow velocities range from approximately 0.8 feet per day (feet/day) to 2.0 feet/day.

3.2 SWMU T Area Geology and Hydrogeology

Information obtained during the this investigation, previous MIP and soil boring investigations, and from work completed by others (i.e., GSC, 1997a and 1997b) on the east side of Enterprise Drive in the vicinity of Buildings B001 and B003 was used to prepare a more detailed and updated interpretation of the geologic and hydrogeologic conditions in the SWMU T area.

Generalized descriptions of the near-surface lithologic units encountered during this investigation are as follows:

- **Surficial SAND Unit:** Consists of a light brown, fine to medium-grained sand containing variable amounts of finer-grained silt and clay. This unit extends to approximately 20 to 22 feet bgs in the SWMU T area and was typically saturated below a depth of approximately 6.5 to 7.0 feet bgs at the time of the investigation. Golder observed a thin silt and clay layer (typically, 1.5 feet thick or less) in this unit at depths ranging from approximately 10 to 12.5 feet bgs throughout the SWMU T area.
- **SILTY-SAND and CLAY Transition Unit:** Consists of variable amounts of reddish-brown to gray silt, sand, and clay. Typical appearance in a soil core is a silty-sand matrix containing thin lenses of silt and sandy clay. Golder encountered this unit in the majority of the borings advanced in the SWMU T area at approximately 20 to 22 feet bgs. In the SWMU T area, this unit which exhibits a greater percentage of dense silt and very fine sand than observed in other areas of the site, ranged in thickness from approximately two to six feet.
- **Varved CLAY Unit:** Consists of red-brown and gray, plastic, cohesive, wet clay with intermittent silt zones. Typical appearance in a soil core is clay with laminae of silt and sometimes very fine-grained sand. This unit was typically encountered at approximately 24 to 25 feet bgs in the SWMU T area, with greater or lesser depths of first occurrence in localized areas. In the SWMU T area, this unit exhibits a greater thickness of gray plastic clay with variable amounts of fine sand above the typical red-brown and gray clay observed in other areas of the site.

No depth to bedrock information is available for the portion of the site beneath the SWMU T investigation area (see Figure 4). Most MIP points and associated soil borings completed during the SWMU T investigation were advanced through the Surficial Sand Unit and the Transition Zone and into the upper 6 to 8 feet of the Varved Clay Unit. The base of the Varved Clay Unit/top of bedrock was not encountered.

Figures 6 and 7 illustrate the interpreted base of Surficial Sand Unit contours (i.e., top of the Transition Zone or top of Varved Clay Unit) on a site-wide basis and in the vicinity of the SWMU T Area, respectively. Geologic cross-sections are presented in Figures 8 and 9. Of note is the following:

- The Surficial Sand Unit in the vicinity of SWMU T contains a silt and clay layer between approximately 10 to 12.5 feet bgs (approximately 167 to 165 feet msl) that appears to be continuous across the investigation area and can be correlated in soil borings and identified in existing monitoring well boring logs in the investigation area.

- The Transition Zone in the SWMU T area comprises dense, stiff to very stiff silt and fine to very fine sand.
- The SWMU T area is located in the approximate center of a north-south trending "valley" where the depth to bedrock and Surficial Sand Unit thickness are greater than in others areas of the site (see Figures 4 and 6, respectively).

3.3 MIP XSD/PID and Analytical Sampling Results

The MIP XSD/PID data and the soil and groundwater analytical sampling results provide more detailed lateral and vertical delineation of the distribution of VOCs and a better understanding of the geochemical conditions in the vicinity of SWMU T. Golder compared soil and groundwater sample analytical results to applicable standards in NYSDEC 6NYCRR Part 375 Environmental Remediation Programs supplemented by *DEC Policy CP-51/Soil Cleanup Objectives* (SCOs) and 6NYCRR Part 703 New York State Groundwater Quality Standards (NYSGWQS) supplemented by *Technical and Operational Guidance Series 1.1.1 (TOGS) Ambient Water Quality Standards and Guidance Values and Groundwater Effluent Limitations,* respectively.

Golder validated laboratory analytical data following NYSDEC Analytical Services Protocol (ASP) Category B deliverables requirements and the *NYSDEC DER-10 Technical Guidance for Site Investigation and Remediation, Appendix B Guidance for the Development of Data Usability Summary Reports* (May, 2010), to identify data quality issues which could affect the use of the data for decision making purposes. A Data Usability Summary Report (DUSR) is included in Appendix D and Laboratory Data Sheets are included as Appendix E.

3.3.1 MIP Results

MIP XSD results from both the SWMU T and supplemental IW line investigations are summarized in Table 4A. MIP XSD response values (in micro-volts or µV) are also illustrated on cross-sections A-A' and B-B' in Figures 8 and 9, respectively. The maximum adjusted XSD values for the saturated Surficial Sand and the Transition Zone are presented in plan-view for each MIP probe on Figures 10 and 11, respectively.

Research has indicated that VOCs must be present at concentrations greater than or equal to approximately 200 micrograms per liter (µg/l) in groundwater to be reliably detected by the MIP XSD (Ravella et al, 2007). Golder's experience with the MIP equipment at the Kingston site indicates that the MIP XSD is capable of detecting total chlorinated VOC constituent concentrations in groundwater in the range of 50 µg/l to 100 µg/l. Similar results were obtained during this investigation. As such, relative MIP XSD responses of approximately 100,000 µV or less are considered low responses interpreted to be representative of either low or non-detect concentrations of VOCs.

MIP PID responses for the saturated Surficial Sand and the Transition Zone are presented in Table 4B. Based on a review of the SWMU T investigation data results, including a qualitative comparison of concentrations of aromatic hydrocarbon compounds reported at or near locations with relatively elevated MIP PID responses, Golder selected 100,000 µV as a representative threshold value for comparison of MIP PID results. As such, similar to the MIP XSD screening results, MIP PID responses below this threshold value are considered low responses interpreted to be representative of either low or non-detect concentrations of VOCs. Key observations from the collected MIP data include:

- The relative magnitude of MIP XSD detections correlate well with soil and groundwater sampling analytical results, confirming the MIP XSD data are a reliable screening tool for qualitatively identifying the relative difference in total VOC concentration in the subsurface. However, as recognized prior to initiating this investigation, low-level analytical detections of total VOCs (i.e., less than 50 µg/l) observed in groundwater analytical results were likely not detected using the MIP XSD.
- MIP XSD responses in the unsaturated portion of the Surficial Sand Unit are at or below 100,000 µV at all locations (see Table 4 and Figures 8 and 9).
- MIP XSD responses in the saturated portion of the Surficial Sand Unit were below 100,000 µV at MIP locations advanced in the immediate vicinity of the former SWMU T tank (i.e., ST-MIP-142, ST-MIP-143, ST-MIP-144, ST-MIP-145, ST-MIP-146 and ST-MIP-151) indicative of low or non-detect concentrations, as illustrated on Figure 10.
- The maximum MIP XSD response in the Transition Zone of approximately 190,000 µV observed at ST-MIP-158 is slightly elevated above the 100,000 µV significance threshold indicative of low or non-detect VOC concentrations (see Table 4 and Figures 8, 9, and 11).
- As illustrated on Figures 8, 9, and 10, the highest MIP XSD responses (i.e., greater than $5x10^5$ µV) were detected at boring locations advanced near and downgradient of the spare IW line (i.e., ST-MIP-153, ST-MIP-154, and ST-MIP-169), and at an elevation at or just above the observed silt and clay layer in the SWMU T area.
- The highest MIP PID responses (i.e., greater than $1x10^5$ µV) were detected at MIP locations ST-MIP-158, ST-MIP-159, ST-MIP-160 and ST-MIP-169 adjacent to, and downgradient of, the IW lines.
- The magnitude of MIP XSD/PID responses decrease rapidly below the silt and clay layer observed in the saturated portion of the Surficial Sand Unit.

3.3.2 Soil Sampling Results

Soil sampling analytical results for the SWMU T investigation are presented in Table 5 and summarized on Figure 12. Key observations include:

- VOCs were not detected above NYSDEC SCOs in the sample collected from the unsaturated Surficial Sand Unit.
- Total VOC concentrations of one milligram per kilogram (mg/kg) or below were detected in the five soil samples collected in the saturated Surficial Sand Unit at approximately 9 to 12 feet bgs from the five borings co-located with MIP probes advanced near, upgradient, and downgradient of the former SWMU T tank. Detections included compounds similar

to those detected in site groundwater, including: tetrachloroethene (PCE), TCE, 1,1,1-trichloroethane (1,1,1-TCA), 1,1-dichloroethane (DCA), and 1,1-dichloroethene (DCE). For a complete list of compounds detected in soil see Table 5.

- Concentrations of TPH-GRO detected in samples collected from approximately eight to ten feet bgs in soil borings ST-SB-04, ST-SB-05, and ST-SB-06 (i.e., coincident with the top of the silt and clay layer) are highest immediately adjacent to the spare IW line and decrease downgradient of the spare IW line.
- No SVOCs were detected above NYSDEC SCOs in the soil samples collected associated with the SWMU T area.
- TCE, detected at a concentration of 4 mg/kg in the soil sample collected from ST-SB-02 at 21.5 to 22.0 feet bgs in the Transition Zone, is the single compound which exceeds applicable NYSDEC SCOs (0.47 mg/kg). Soil boring ST-SB-02 is located upgradient of the SWMU T area.
- Analytical results reported for soil samples collected from soil borings located near and downgradient of the former SWMU T tank show no indication that soils in the former tank area are a source of VOC impacts to groundwater.

3.3.3 Groundwater Sampling Results

Groundwater analytical sample results for the SWMU T and supplemental IW line investigations are presented in Tables 6 and 7 and summarized on Figures 13 and 14. Key observations include:

- VOCs detected in groundwater samples at concentrations below NYSGWQS include 1,1,2-trichloroethane, 1,2-dichloro-1,1,2-trifluoroethane, and chloroform.
- SVOCs detected in groundwater samples at concentrations below NYSGWQS include 2,4-dimethylphenol, 2-methylnaphthalene, acenaphthene, anthracene, fluoranthene, fluorene, n-nitrosodiphenylamine, phenanthrene, and pyrene.
- VOCs (i.e., primarily 1,1,1-TCA, PCE, and TCE) were detected at concentrations at or above NYSGWQS in all groundwater samples collected during the SWMU T investigation.
- The highest VOC concentrations (including 1,1,1-TCA, PCE, TCE, 1,1-DCA, 1,1-DCE, 1,2-dichloroethene (1,2-DCE), and vinyl chloride) were detected in groundwater samples collected from temporary wells ST-TW-03-09, ST-TW-05-09, and ST-TW-07-09. These three wells are located immediately downgradient of the spare IW line and are screened at a depth of 9 to 11 feet bgs, just above the silt and clay layer encountered in the Surficial Sand Unit.
- Aromatic hydrocarbons detected in groundwater samples at concentrations above NYSGWQS include ethylbenzene, toluene, and total xylenes. The highest concentrations of these compounds were detected in samples collected from temporary monitoring wells ST-TW-03-09, ST-TW-04-18, ST-TW-05-09, and ST-TW-07-09, which are all located downgradient of the spare IW line. The highest TPH-GRO concentrations were also detected at these temporary well sample locations.
- SVOCs detected in groundwater samples at concentrations above NYSGWQS include bis(2-ethylhexyl)phthalate, chrysene, 2,6-dinitrotoluene, and naphthalene[2]. These detections were primarily in samples collected from temporary monitoring wells located downgradient of the spare IW line (ST-TW-03-09, ST-TW-04-18, ST-TW-05-09, ST-TW-07-09, and ST-TW-10-08).

[2] Detected concentrations of certain SVOCs may be due to turbidity levels (ranging from 128 to 869 nephelometric turbidity units [NTUs]) in groundwater grab samples collected from temporary wells in the SWMU T area.

Figure 14 presents radial plots of three chlorinated VOCs (1,1,1-TCA, TCE, and 1,2-DCE) and three aromatic hydrocarbons (toluene, ethylbenzene, and total xylenes) selected to illustrate the relative distribution of these compounds in the investigation area. Key observations drawn from these plots include:

- Groundwater upgradient of, and in the immediate vicinity of SWMU T is characterized by low concentrations of chlorinated VOCs (i.e. typically less than 100 ug/l) and generally non-detect concentrations of aromatic hydrocarbons. The dominant chlorinated VOC at these locations is TCE. These results are consistent with groundwater quality conditions within the site-wide plume that originates beneath Buildings B003 and B005.
- Groundwater immediately downgradient of the spare IW line is characterized by high concentrations (i.e. greater than 1,000 ug/l) of chlorinated VOCs, particularly 1,1,1-TCA, TCE, and 1,2-DCE, and detections of aromatic hydrocarbons. These results suggest a discrete source of chlorinated VOCs and aromatic hydrocarbons. Based on the horizontal and vertical distribution of the chlorinated VOCs and aromatic hydrocarbons in groundwater, these impacts are attributed to historic discharges from the spare IW line.
- The spatial distribution of detected constituents indicates that the former SWMU T waste oil tank area is not a source of VOC impacts to groundwater.

Overall, the SWMU T and supplemental IW lines groundwater analytical results correlate well with the MIP XSD/PID results and indicate that unlike other areas of the site where the highest groundwater impacts have been observed at the base of the Surficial Sand Unit or top of the Transition Zone, the highest dissolved-phase VOC concentrations in the SWMU T investigation area typically occur at or just above the fine-grained silt and clay layer observed in the Surficial Sand Unit. These findings indicate that this fine-grained layer limits the vertical migration of VOC impacts in the SWMU T area.

4.0 CONCLUSIONS

The MIP data, soil and groundwater analytical data, and lithologic information collected during the SWMU T and IW line investigations provide an improved lateral and vertical definition of the near-surface lithologic units and a better understanding of the nature and extent of VOC impacts in the vicinity of SWMU T and IW line areas.

Key findings from this investigation include:

- Collected data generally support previous interpretations that groundwater flow in the area of SWMU T is to the north-northwest.
- The Surficial Sand Unit in the vicinity of SWMU T contains a single continuous silt and clay layer between approximately 10 to 12.5 feet bgs (approximately 165.5 to 168 feet msl) that can be correlated between soil borings and existing monitoring wells in the investigation area.
- The Transition Zone in the SWMU T area is characterized by dense, very stiff silt and very fine sand.
- The SWMU T area is located in the approximate center of a north-south trending “valley” where the depth to bedrock and Surficial Sand Unit thickness are greater than in others areas of the site.
- MIP XSD responses in the unsaturated portion of the Surficial Sand Unit were below 100,000 µV at all MIP locations. These results are consistent with the one soil sample collected from the unsaturated Surficial Sand unit where no VOCs were detected above NYSDEC SCOs.
- The highest MIP XSD responses (i.e., greater than $5x10^5$ µV) were detected at boring locations advanced near and downgradient of the spare IW line at an elevation at or just above the observed silt and clay layer. The magnitude of MIP XSD responses decrease rapidly below the silt and clay layer observed in the saturated portion of the Surficial Sand Unit
- The highest MIP PID responses (i.e., greater than $1x10^5$ µV) were detected at MIP locations adjacent to, and downgradient of the IW lines.
- The single VOC concentration reported in soil in the SWMU T area exceeding NYSDEC SCOs was collected from a soil boring located in the Transition Unit upgradient of the former SWMU T tank. Analytical results reported for soil samples collected from soil borings located in proximity to and downgradient of the former SWMU T tank show no indication that soils in the former tank area are a source of VOC impacts to groundwater.
- Groundwater upgradient of, and in the immediate vicinity of SWMU T is characterized by low concentrations of chlorinated VOCs (i.e. typically less than 100 ug/l) and generally non-detect concentrations of aromatic hydrocarbons. These results are consistent with groundwater quality conditions within the site-wide plume that originates from beneath buildings B003 and B005.
- Groundwater immediately downgradient of the spare IW line is characterized by high concentrations (i.e. greater than 1,000 ug/L) of chlorinated VOCs and detections of aromatic hydrocarbons. These results suggest a discrete source of chlorinated VOCs and aromatic hydrocarbons.
- The highest dissolved-phase VOC concentrations in the SWMU-T area typically occur at or just above the fine-grained silt and clay layer observed in the Surficial Sand Unit.

These results indicate that this fine-grained layer limits the vertical migration of VOC impacts in the SWMU T area.

In summary, the results of this investigation indicate that the former SWMU T waste oil tank is not a source of VOC impacts to site soil or groundwater. Chlorinated VOCs detected in groundwater monitoring wells located immediately downgradient of the former SWMU T tank and upgradient of the spare IW line (i.e., ST-TW-08, 09, 10, 11, and 12), range from approximately 10 to 380 µg/L and are consistent with the site-wide plume originating beneath buildings B001 and B003. Two of these monitoring well locations, ST-TW-08 and ST-TW-12, were screened at intervals generally corresponding to the silt and clay layer observed in the investigation area.

Downgradient of the spare IW line chlorinated VOCs in groundwater increase by more than an order of magnitude (i.e., 83,000 µg/L in ST-TW-03). This monitoring well is located downgradient of the spare IW line and was screened at an interval generally corresponding to the silt and clay layer observed in the investigation area. Similar results were reported in groundwater samples collected from monitoring well locations ST-TW-05 and ST-TW-07, located downgradient of the spare IW line. Furthermore, concentrations of aromatic hydrocarbons detected in samples collected at these locations are significantly elevated compared to samples collected from locations upgradient of the spare IW line.

Groundwater immediately downgradient of the spare IW line is characterized by concentrations of chlorinated VOCs higher than typically detected in the site-wide plume and by detections of aromatic hydrocarbons, which are not typical of the site-wide plume. These findings suggest a discrete source for the chlorinated VOCs and aromatic hydrocarbons reported in samples collected downgradient of SWMU T.

Based on the horizontal and vertical distribution of the chlorinated VOCs and aromatic hydrocarbons in groundwater, these impacts are attributed to historic discharges from the spare 6-inch vitreous clay IW line that connected the former SWMU T waste oil tank to the IW line system in Building B003. Unlike other areas of the site where the highest groundwater impacts have been observed at the base of the Surficial Sand Unit or top of the Transition Zone, the highest dissolved-phase VOC concentrations in the SWMU T study area associated with a release from the spare IW line and typically occur at or just above the fine-grained silt and clay layer observed in the Surficial Sand Unit. Residual VOCs related to historic discharges from the spare IW line have likely been preferentially retained within the finer-grained silt and clay layer observed in the saturated Surficial Sand Unit in this area due to its relatively lower permeability.

The results of this investigation support the conclusion that soils in the vicinity of the former SWMU T waste oil tank are not a source of VOC impacts to groundwater. In addition, these results indicate that the fine-grained silt and clay layer observed in the saturated Surficial Sand Unit limits the vertical migration of

VOC impacts from the historical releases from the spare IW line and likely represents the source of elevated concentrations of chlorinated VOCs and aromatic hydrocarbons observed north and west of Building B003. As such, no further investigation is necessary to evaluate SWMU T. Golder recommends additional investigation of the spare IW line, where accessible. This investigation will be included in the overall evaluation of the site-wide industrial waste sewer line investigation (i.e., SWMU M).

5.0 RECOMMENDATIONS

Based on the results of this investigation, Golder recommends additional investigation in the vicinity of the spare 6-inch vitreous clay IW line located north of Building B003. The objectives of the proposed supplemental investigation of the spare IW line and SWMU M include the following:

- Assess the horizontal extent of the fine-grained silt and clay layer observed in the saturated Surficial Sand Unit to the north, east, and west of Building B003
- Evaluate the nature and extent of chlorinated VOC and aromatic hydrocarbon-impacted groundwater in the vicinity and downgradient of the spare IW line
- Obtain preliminary water quality, geologic, and hydrogeologic information to support an evaluation of potential additional Corrective Measures, if appropriate.

To achieve these objectives, Golder proposes to perform the following scope of work:

- Advance approximately 10 MIPs located upgradient and downgradient of the spare IW line
- Advance approximately eight direct-push probes for geologic logging and/or soil sampling at locations adjacent to MIP locations to confirm the MIP results and between MIP probe locations to provide soil characterization data
- Collect approximately six soil samples for analysis of VOCs and TPH-GRO from selected depths at three boring locations
- Collect up to 12 groundwater grab samples for analysis of VOCs and TPH-GRO from six locations
- Survey of MIP, soil boring, and temporary monitoring well locations

The supplemental investigation activities proposed herein represent a dynamic investigation approach which allows for field adjustment of the number, location, and depth of samples based on investigation findings. As such, the scope and extent of proposed investigation activities may be modified as necessary during the implementation of the investigation to achieve the project objectives. The scope of work for these investigation activities will be conducted in accordance with the appropriate SOPs presented in the QAPP.

6.0 REFERENCES

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TABLES

Table 1: Membrane Interface Probe and Soil Boring Summary

MIP Boring ID	Co-located Soil Boring	Survey Northing	Survey Easting	Elevation (feet)
SS-MIP-141		718444.21	591236.12	178.0001
ST-MIP-142	ST-SB-01	718397.6661	591603.8823	177.7371
ST-MIP-143		718418.3784	591618.8709	177.8384
ST-MIP-144	ST-SB-04	718417.0073	591600.3856	177.6637
ST-MIP-145	ST-SB-03	718376.9775	591599.4448	177.9100
ST-MIP-146		718376.9775	591607.4448	177.9126
ST-MIP-147	ST-SB-02	718334.0470	591600.7963	178.0996
ST-MIP-148		718361.9284	591568.9974	178.0417
ST-MIP-149		718400.6819	591562.4260	177.7586
ST-MIP-150		718387.9393	591522.1579	177.7274
ST-MIP-151		718396.0170	591583.3290	177.8900
ST-MIP-152		718438.6095	591516.1003	177.4311
ST-MIP-153	ST-SB-05	718446.6750	591574.1163	177.5370
ST-MIP-154		718452.4998	591624.1260	177.5973
ST-MIP-155		718455.5659	591667.1444	177.7302
ST-MIP-156		718493.7268	591626.9137	177.0323
ST-MIP-157		718531.2506	591562.3267	177.1247
ST-MIP-158		718516.6438	591522.2309	177.2073
ST-MIP-159		718588.7907	591523.2083	176.9378
SS-MIP-160		718550.1694	591400.0934	176.5626
SS-MIP-161		718554.4937	591271.5520	176.7837
ST-MIP-162		718554.8305	591688.0800	177.6362
ST-MIP-163		718545.9031	591794.5146	177.4236
SS-MIP-164		718498.8903	591396.9161	177.0972
ST-MIP-165		718487.8341	591667.6673	177.1870
SS-MIP-166		718487.0348	591283.6489	177.6205
SS-MIP-167		718438.8895	591400.1993	177.9166
ST-MIP-168		718489.5689	591786.5268	177.9854
ST-MIP-169		718442.2428	591793.5832	177.7178

Notes:
1) All surveyed coordinates listed are for the MIP location.

Table 2: Soil Sample Summary

Soil Boring ID	Co-located MIP Point ID	Sampled	Sample Date	Sample ID	Depth Interval (ft bgs)	Analysis
ST-SB-01	ST-MIP-142	NO	N/A	N/A	N/A	N/A
ST-SB-02	ST-MIP-147	YES	10/21/2011	ST-SB-02-11.5-12.0	11.5 - 12.0	VOCs & SVOCs
				ST-SB-02-21.5-22.0	21.5 - 22.0	
ST-SB-03	ST-MIP-142	YES	10/21/2011	ST-SB-03-4.5-5.0	4.5 - 5.0	VOCs & SVOCs
	ST-MIP-145			ST-SB-03-11.5-12.0	11.5 - 12.0	
	ST-MIP-146			ST-SB-03-21.5-22.0	21.5 - 22.0	
ST-SB-04	ST-MIP-144	YES	10/21/2011	ST-SB-04-9.5-10.0	9.5 - 10.0	VOCs, SVOCs, & TPH-GRO
				ST-SB-04-21.0-21.5	21.0 - 21.5	
ST-SB-05	ST-MIP-153	YES	10/24/2011	ST-SB-05-9.5-10.0	9.5 - 10.0	VOCs, SVOCs, & TPH-GRO
				ST-SB-05-19.5-20.0	19.5 - 20.0	
ST-SB-06	N/A	YES	10/24/2011	ST-SB-06-9.0-9.5	9.0 - 9.5	VOCs, SVOCs, & TPH-GRO

Notes:
1) ft bgs - feet below ground surface
2) VOCs - volatile organic compounds
3) SVOCs - semi-volatile organic compounds
4) TPH-GRO - Total Petroleum Hydrocarbons - Gasoline Range

Table 3: Groundwater Sample Summary

Soil Boring ID	Co-located MIP Point ID	Co-located Temp. Well ID	Sampled	Sample Date	Sample ID	Screened Interval (ft bgs)	Analysis
ST-SB-02	ST-MIP-147	ST-TW-01	YES	10/20/2011	ST-TW-01-15	15.0 - 17.0	VOCs & SVOCs
		ST-TW-02			ST-TW-02-20	20.0 - 22.0	
ST-SB-03	ST-MIP-142 ST-MIP-145 ST-MIP-146	ST-TW-08	YES	10/25/11	ST-TW-08-12	12.0 - 14.0	VOCs, SVOCs, & TPH-GRO
		ST-TW-09			ST-TW-09-20	20.0 - 22.0	
ST-SB-04	ST-MIP-144	ST-TW-10	YES	10/25/2011	ST-TW-10-08	8.0 - 10.0	VOCs, SVOCs, & TPH-GRO
		ST-TW-11			ST-TW-11-12	12.0 - 14.0	
		ST-TW-12			ST-TW-12-21	21.0 - 23.0	
ST-SB-05	ST-MIP-153	ST-TW-03	YES	10/25/2011	ST-TW-03-09	9.0 - 11.0	VOCs, SVOCs, & TPH-GRO
		ST-TW-04			ST-TW-04-18	18.0 - 20.0	
ST-SB-06	N/A	ST-TW-05	YES	10/25/2011	ST-TW-05-09	9.0 - 11.0	VOCs, SVOCs, & TPH-GRO
		ST-TW-06			ST-TW-06-18	18.0 - 20.0	
N/A	ST-MIP-154	ST-TW-07	YES	10/25/2011	ST-TW-07-09	9.0 - 11.0	VOCs, SVOCs, & TPH-GRO
N/A	SS-MIP-167	IWB1-TW-07	YES	10/26/2011	IWB1-TW-07-08	8.0 - 10.0	VOCs
N/A	SS-MIP-160	IWB1-TW-08	YES	10/26/2011	IWB1-TW-08-10	10.0 - 12.0	VOCs
		IWB1-TW-09			IWB1-W-09-16	16.0 - 18.0	
N/A	ST-MIP-162	IWB3-TW-01	YES	10/26/2011	IWB3-TW-01-10	10.0 - 12.0	VOCs
		IWB3-TW-02			IWB3-TW-02-20	20.0 - 22.0	

Notes:
1) Groundwater grab samples collected from temporary monitoring well locations.
2) VOCs- volatile organic compounds
3) SVOCs - semi-volatile organic compounds
4) TPH-GRO - Total Petroleum Hydrocarbons - Gasoline Range

Table 4A: MIP XSD[1] Results

MIP ID	Depth to Water[3] (ft-bgs)	Interpreted Depth to Silty-Sand and Clay Transition Unit[4] (ft-bgs)	Interpreted Depth to Silt/Clay Unit[4] (ft-bgs)	Background XSD Value	Maximum Adjusted[2] XSD			
					Unsaturated Surficial Sand Unit	Saturated Surficial Sand Unit	Silty-Sand and Clay Transition Unit	Varved Clay Unit
SS-MIP-141	8.0	14.8	22.4	15,000	4,816	3,061	23,661	82,257
ST-MIP-142	7.7	20.2	25.4	15,000	16,205	22,233	28,565	13,611
ST-MIP-143	7.8	19.8	25.0	15,000	14,603	47,258	75,564	20,173
ST-MIP-144	7.7	20.2	24.4	15,000	13,382	19,028	22,614	13,459
ST-MIP-145	8.0	21.0	26.4	15,000	10,254	24,598	17,273	11,246
ST-MIP-146	7.9	20.7	26.3	15,000	9,644	30,244	49,470	15,137
ST-MIP-147	8.1	22.1	27.2	15,000	11,246	113,636	64,424	14,603
ST-MIP-148	8.0	22.3	27.2	15,000	12,543	308,420	136,296	27,879
ST-MIP-149	7.8	22.5	26.9	15,000	8,118	43,824	50,004	25,895
ST-MIP-150	7.7	23.1	27.4	15,000	7,660	22,233	23,835	23,759
ST-MIP-151	8.0	21.6	26.3	15,000	6,668	33,753	15,747	5,295
ST-MIP-152	7.4	22.9	27.0	15,000	2,319	24,216	27,650	10,636
ST-MIP-153	7.5	22.5	26.8	15,000	22,614	621,769	55,498	48,631
ST-MIP-154	7.6	19.1	25.2	15,000	23,224	1,082,903	110,889	87,237
ST-MIP-155	7.7	18.3	25.7	15,000	28,260	166,738	65,035	23,759
ST-MIP-156	7.0	17.8	24.7	15,000	6,668	387,158	53,285	23,835
ST-MIP-157	7.1	23.0	25.1	15,000	4,684	171,468	47,944	66,713
ST-MIP-158	7.2	22.6	25.5	15,000	7,965	241,127	188,940	46,418
ST-MIP-159	6.9	22.0	24.3	15,000	8,347	104,175	112,567	90,289
SS-MIP-160	6.6	18.0	23.1	15,000	11,017	15,366	67,018	33,753
SS-MIP-161	6.8	14.5	21.1	15,000	11,856	5,295	77,395	3,693
ST-MIP-162	7.6	19.4	24.3	15,000	16,205	293,618	167,806	38,102
ST-MIP-163	7.4	18.7	22.1	15,000	6,058	128,666	51,836	9,567
SS-MIP-164	7.1	18.6	24.1	15,000	4,074	6,897	67,095	11,627
ST-MIP-165	7.2	17.7	24.9	15,000	5,600	213,126	136,677	51,607
SS-MIP-166	7.6	15.4	22.5	15,000	3,464	6,287	85,940	11,017
SS-MIP-167	7.9	20.6	25.7	15,000	5,219	96,698	72,893	7,202
ST-MIP-168	8.0	20.2	24.4	15,000	50,767	243,110	27,573	15,747
ST-MIP-169[5]	7.7	20.7	24.9	15,000	47,410	1,131,733	42,985	33,830

Notes:

1) XSD = Halogen Specific Detector, response measured in microvolts (µV).

2) MIP XSD data were adjusted by subtracting background values from actual instrument responses. Background values were determined based on MIP XSD response between 5 and 10-feet bgs (the 0 to 5-feet bgs interval was hand-augered by EPI). Adjusted XSD responses below 100,000 µV

3) Depth to water based on ground survey elevation and an assumed water table elevation of 170 ft-msl.

4) Interpreted depth to the silty-sand and clay unit based on EVS interpretation of MIP electrical conductance data and confirmatory boring soil types.

5) During the advancement of ST-MIP-169, MIP XSD responses were observed approaching one-million microvolts (µV). As such, the XSD response scale was attenuated from a one-time to a ten-time detection setting. Performing this instrument attenuation increased the recordable response maximum from

6) Color indicative of relative degree of MIPXSD response observed at each location (µV).

<	99,999
<	100,000
>	300,000
>	1,000,000
>	3,000,000
>	5,000,000

Table 4B: MIP PID[1] Results

MIP ID	Depth to Water[3] (ft bgs)	Interpreted Depth to Silty-Sand and Clay Transition Unit[4] (ft-bgs)	Interpreted Depth to Silt/Clay Unit[4] (ft-bgs)	Background PID Value	Maximum Adjusted[2] PID			
					Unsaturated Surficial Sand Unit	Saturated Surficial Sand Unit	Silty-Sand and Clay Transition Unit	Varved Clay Unit
SS-MIP-141	8.0	14.8	22.4	15,000	16,281	16,358	16,968	19,791
ST-MIP-142	7.7	20.2	25.4	15,000	10,788	12,085	13,001	12,161
ST-MIP-143	7.8	19.8	25.0	15,000	4,837	5,219	7,813	5,829
ST-MIP-144	7.7	20.2	24.4	15,000	5,524	6,134	10,330	6,439
ST-MIP-145	8.0	21.0	26.4	15,000	3,693	3,845	6,516	3,845
ST-MIP-146	7.9	20.7	26.3	15,000	4,608	5,371	8,041	5,142
ST-MIP-147	8.1	22.1	27.2	15,000	6,058	9,644	7,813	5,676
ST-MIP-148	8.0	22.3	27.2	15,000	4,456	4,990	5,753	4,608
ST-MIP-149	7.8	22.5	26.9	15,000	5,142	6,821	9,415	5,524
ST-MIP-150	7.7	23.1	27.4	15,000	6,592	40,162	13,993	10,941
ST-MIP-151	8.0	21.6	26.3	15,000	9,339	10,712	10,636	10,864
ST-MIP-152	7.4	22.9	27.0	15,000	14,603	20,554	16,434	14,221
ST-MIP-153	7.5	22.5	26.8	15,000	2,472	27,116	11,627	2,548
ST-MIP-154	7.6	19.1	25.2	15,000	3,082	4,913	4,913	3,693
ST-MIP-155	7.7	18.3	25.7	15,000	3,540	4,303	4,379	4,074
ST-MIP-156	7.0	17.8	24.7	15,000	3,693	6,134	5,600	4,303
ST-MIP-157	7.1	23.0	25.1	15,000	3,998	5,753	5,142	4,379
ST-MIP-158	7.2	22.6	25.5	15,000	2,548	169,942	38,560	21,927
ST-MIP-159	6.9	22.0	24.3	15,000	4,837	864,696	94,180	50,844
SS-MIP-160	6.6	18.0	23.1	15,000	10,483	159,413	108,829	50,004
SS-MIP-161	6.8	14.5	21.1	15,000	6,287	43,290	8,041	6,439
ST-MIP-162	7.6	19.4	24.3	15,000	6,439	17,197	9,491	10,025
ST-MIP-163	7.4	18.7	22.1	15,000	7,889	23,682	20,173	9,262
SS-MIP-164	7.1	18.6	24.1	15,000	5,981	10,712	11,856	10,407
ST-MIP-165	7.2	17.7	24.9	15,000	6,363	24,750	16,129	8,194
SS-MIP-166	7.6	15.4	22.5	15,000	10,864	12,696	8,804	8,194
SS-MIP-167	7.9	20.6	25.7	15,000	3,235	14,832	10,407	4,837
ST-MIP-168	8.0	20.2	24.4	15,000	6,592	14,298	6,058	5,753
ST-MIP-169	7.7	20.7	24.9	15,000	3,998	258,751	98,224	55,116

Notes:

1) PID = Photoionization Detector, response measured in microvolts (µV).

PID

response between 5 and 10-feet bgs (the 0 to 5-feet bgs interval was hand-augered by EPI). Adjusted PID responses below 100,000µV are not considered to be indicative of significant VOC impacts.

3) Depth to water based on ground survey elevation and an assumed water table elevation of 170 ft-msl.
4) Interpreted depth to the silty-sand and clay unit based on EVS interpretation of MIP electrical conductance data and confirmatory boring soil types.
5) Color indicative of relative degree of MIP PID response observed at each location (µV).

<	99,999
>	100,000
>	300,000
>	500,000
>	1,000,000
>	3,000,000

Table 5: Soil Analytical Results

Sample ID			ST-SB-02-11.5-12.0			ST-SB-02-11.5-12.0D			ST-SB-02-21.5-22.0			ST-SB-03-4.5-5.0			ST-SB-03-11.5-12.0			ST-SB-03-21.5-22.0			ST-SB-04-9.5-10.0			ST-SB-04-21.0-21.5			ST-SB-05-9.5-10.0			ST-SB-05-19.5-20.0			ST-SB-06-9.0-9.5			SS/ST-WC-SOIL		
Sample Date			10/21/2011			10/21/2011			10/21/2011			10/21/2011			10/21/2011			10/21/2011			10/21/2011			10/21/2011			10/24/2011			10/24/2011			10/24/2011			10/26/2011		
N=Normal, FD=Field Duplicate			N			FD			N			N			N			N			N			N			N			N			N			N		
Start Depth			11.5			11.5			21.5			4.5			11.5			21.5			9.5			21			9.5			19.5			9			NA		
End Depth			12			12			22			5			12			22			10			21.5			10			20			9.5			NA		
Parameter	**Std**	**Unit**	**Result**	**Qual**	**RL**	**Result**	**Qual**	**RL**	**Result**	**Qual**	**RL**	**Result**	**Qual**	**RL**	**Result**	**Qual**	**RL**	**Result**	**Qual**	**RL**	**Result**	**Qual**	**RL**	**Result**	**Qual**	**RL**	**Result**	**Qual**	**RL**	**Result**	**Qual**	**RL**	**Result**	**Qual**	**RL**	**Result**	**Qual**	**RL**	**Result**	**Qual**	**RL**
VOCs by EPA Method 8260B																																								
1,1,1,2-Tetrachloroethane	NS	mg/kg	0.002	U	0.002	0.001	U	0.001	0.001	U	0.001	0.001	U	0.001	0.001	U	0.001	0.001	U	0.001	0.054	U	0.054	0.001	U	0.001	0.055	U	0.055	0.001	U	0.001	0.001	U	0.001	0.001	U	0.001		
1,1,1-Trichloroethane	0.68	mg/kg	0.002	U	0.002	0.001	U	0.001	0.001	U	0.001	0.001	U	0.001	0.001	U	0.001	0.001	U	0.001	0.054	U	0.054	0.001	U	0.001	0.055	U	0.055	0.003	J	0.001	0.03		0.001	**1.3**		0.056		
1,1,2,2-Tetrachloroethane	35	mg/kg	0.002	U	0.002	0.001	U	0.001	0.001	U	0.001	0.001	U	0.001	0.001	U	0.001	0.001	U	0.001	0.054	U	0.054	0.001	U	0.001	0.055	U	0.055	0.001	U	0.001	0.001	U	0.001	0.001	U	0.001		
1,1,2-Trichloroethane	NS	mg/kg	0.002	U	0.002	0.001	U	0.001	0.001	U	0.001	0.001	U	0.001	0.001	U	0.001	0.001	U	0.001	0.054	U	0.054	0.001	U	0.001	0.055	U	0.055	0.001	U	0.001	0.001	U	0.001	0.009		0.001		
1,1-Dichloroethane	0.27	mg/kg	0.002	U	0.002	0.001	U	0.001	0.003	J	0.001	0.001	U	0.001	0.001	U	0.001	0.002	J	0.001	0.054	U	0.054	0.001	U	0.001	0.12	J	0.055	0.001	J	0.001	0.067		0.001	0.016		0.001		
1,1-Dichloroethene	0.33	mg/kg	0.002	U	0.002	0.001	U	0.001	0.004	J	0.001	0.001	U	0.001	0.001	U	0.001	0.001	J	0.001	0.054	U	0.054	0.001	U	0.001	0.055	U	0.055	0.001	U	0.001	0.001	U	0.001	0.003	J	0.001		
1,2,3-Trichloropropane	80	mg/kg	0.002	U	0.002	0.001	U	0.001	0.001	U	0.001	0.001	U	0.001	0.001	U	0.001	0.001	U	0.001	0.054	U	0.054	0.001	U	0.001	0.055	U	0.055	0.001	U	0.001	0.001	U	0.001	0.001	U	0.001		
1,2-Dichloro-1,1,2-trifluoroethane	NS	mg/kg	0.003	U	0.003	0.002	U	0.002	0.002	J	0.002	0.003	U	0.003	0.003	U	0.003	0.002	U	0.002	0.11	U	0.11	0.002	U	0.002	0.11	U	0.11	0.002	U	0.002	0.002	U	0.002	0.002	U	0.002		
1,2-Dichlorobenzene	1.1	mg/kg	0.002	U	0.002	0.001	U	0.001	0.001	U	0.001	0.001	U	0.001	0.001	U	0.001	0.001	U	0.001	0.054	U	0.054	0.001	U	0.001	0.055	U	0.055	0.001	U	0.001	0.001	U	0.001	0.001	U	0.001		
1,2-Dichloroethane	0.02	mg/kg	0.002	U	0.002	0.001	U	0.001	0.001	U	0.001	0.001	U	0.001	0.001	U	0.001	0.001	U	0.001	**0.054**	U	**0.054**	0.001	U	0.001	**0.055**	U	**0.055**	0.001	U	0.001	0.001	U	0.001	0.001	U	0.001		
1,2-Dichloroethene, Total	NS	mg/kg	0.029		0.002	0.028		0.001	0.008		0.001	0.001	U	0.001	0.014		0.001	0.005	J	0.001	0.054	U	0.054	0.001	J	0.001	0.055	U	0.055	0.001	U	0.001	0.29		0.001	0.004	J	0.001		
1,2-Dichloropropane	NS	mg/kg	0.002	U	0.002	0.001	U	0.001	0.001	U	0.001	0.001	U	0.001	0.001	U	0.001	0.001	U	0.001	0.054	U	0.054	0.001	U	0.001	0.055	U	0.055	0.001	U	0.001	0.001	U	0.001	0.001	U	0.001		
1,3-Dichlorobenzene	2.4	mg/kg	0.002	U	0.002	0.001	U	0.001	0.001	U	0.001	0.001	U	0.001	0.001	U	0.001	0.001	U	0.001	0.054	U	0.054	0.001	U	0.001	0.055	U	0.055	0.001	U	0.001	0.001	U	0.001	0.001	U	0.001		
1,4-Dichlorobenzene	1.8	mg/kg	0.002	U	0.002	0.001	U	0.001	0.001	U	0.001	0.001	U	0.001	0.001	U	0.001	0.001	U	0.001	0.054	U	0.054	0.001	U	0.001	0.055	U	0.055	0.001	U	0.001	0.001	U	0.001	0.001	U	0.001		
2-Chlorotoluene	NS	mg/kg	0.002	U	0.002	0.001	U	0.001	0.001	U	0.001	0.001	U	0.001	0.001	U	0.001	0.001	U	0.001	0.054	U	0.054	0.001	U	0.001	0.055	U	0.055	0.001	U	0.001	0.001	U	0.001	0.001	U	0.001		
4-Chlorotoluene	NS	mg/kg	0.002	U	0.002	0.001	U	0.001	0.001	U	0.001	0.001	U	0.001	0.001	U	0.001	0.001	U	0.001	0.054	U	0.054	0.001	U	0.001	0.055	U	0.055	0.001	U	0.001	0.001	U	0.001	0.001	U	0.001		
Benzene	0.06	mg/kg	0.0008	U	0.0008	0.0006	U	0.0006	0.0005	U	0.0005	0.0007	U	0.0007	0.0007	U	0.0007	0.0005	U	0.0005	0.027	U	0.027	0.0005	U	0.0005	0.027	U	0.027	0.0006	U	0.0006	0.0006	U	0.0006	0.0006	U	0.0006		
Benzyl Chloride	NS	mg/kg	0.002	U	0.002	0.001	U	0.001	0.001	U	0.001	0.001	U	0.001	0.001	U	0.001	0.001	U	0.001	0.054	U	0.054	0.001	U	0.001	0.055	U	0.055	0.001	U	0.001	0.001	U	0.001	0.001	U	0.001		
Bromobenzene	NS	mg/kg	0.002	U	0.002	0.001	U	0.001	0.001	U	0.001	0.001	U	0.001	0.001	U	0.001	0.001	U	0.001	0.054	U	0.054	0.001	U	0.001	0.055	U	0.055	0.001	U	0.001	0.001	U	0.001	0.001	U	0.001		
Bromodichloromethane	NS	mg/kg	0.002	U	0.002	0.001	U	0.001	0.001	U	0.001	0.001	U	0.001	0.001	U	0.001	0.001	U	0.001	0.054	U	0.054	0.001	U	0.001	0.055	U	0.055	0.001	U	0.001	0.001	U	0.001	0.001	U	0.001		
Bromoform	NS	mg/kg	0.002	U	0.002	0.001	U	0.001	0.001	U	0.001	0.001	U	0.001	0.001	U	0.001	0.001	U	0.001	0.054	U	0.054	0.001	U	0.001	0.055	U	0.055	0.001	U	0.001	0.001	U	0.001	0.001	U	0.001		
Bromomethane	NS	mg/kg	0.003	U	0.003	0.002	U	0.002	0.002	U	0.002	0.003	U	0.003	0.003	U	0.003	0.002	U	0.002	0.11	U	0.11	0.002	U	0.002	0.11	U	0.11	0.002	U	0.002	0.002	U	0.002	0.002	U	0.002		
Carbon Tetrachloride	0.76	mg/kg	0.002	U	0.002	0.001	U	0.001	0.001	U	0.001	0.001	U	0.001	0.001	U	0.001	0.001	U	0.001	0.054	U	0.054	0.001	U	0.001	0.055	U	0.055	0.001	U	0.001	0.001	U	0.001	0.001	U	0.001		
Chlorobenzene	1.1	mg/kg	0.002	U	0.002	0.001	U	0.001	0.001	U	0.001	0.001	U	0.001	0.001	U	0.001	0.001	U	0.001	0.054	U	0.054	0.001	U	0.001	0.055	U	0.055	0.001	U	0.001	0.001	U	0.001	0.001	U	0.001		
Chloroethane	NS	mg/kg	0.003	U	0.003	0.002	U	0.002	0.002	U	0.002	0.003	U	0.003	0.003	U	0.003	0.002	U	0.002	0.11	U	0.11	0.002	U	0.002	0.11	U	0.11	0.002	U	0.002	0.002	U	0.002	0.002	U	0.002		
Chloroform	0.37	mg/kg	0.002	U	0.002	0.001	U	0.001	0.001	U	0.001	0.001	U	0.001	0.001	U	0.001	0.001	U	0.001	0.054	U	0.054	0.001	U	0.001	0.055	U	0.055	0.001	U	0.001	0.001	U	0.001	0.001	U	0.001		
Chloromethane	NS	mg/kg	0.003	U	0.003	0.002	U	0.002	0.002	U	0.002	0.003	U	0.003	0.003	U	0.003	0.002	U	0.002	0.11	U	0.11	0.002	U	0.002	0.11	U	0.11	0.002	U	0.002	0.002	U	0.002	0.002	U	0.002		
cis-1,3-Dichloropropene	NS	mg/kg	0.002	U	0.002	0.001	U	0.001	0.001	U	0.001	0.001	U	0.001	0.001	U	0.001	0.001	U	0.001	0.054	U	0.054	0.001	U	0.001	0.055	U	0.055	0.001	U	0.001	0.001	U	0.001	0.001	U	0.001		
Dibromochloromethane	NS	mg/kg	0.002	U	0.002	0.001	U	0.001	0.001	U	0.001	0.001	U	0.001	0.001	U	0.001	0.001	U	0.001	0.054	U	0.054	0.001	U	0.001	0.055	U	0.055	0.001	U	0.001	0.001	U	0.001	0.001	U	0.001		
Dibromomethane	NS	mg/kg	0.002	U	0.002	0.001	U	0.001	0.001	U	0.001	0.001	U	0.001	0.001	U	0.001	0.001	U	0.001	0.054	U	0.054	0.001	U	0.001	0.055	U	0.055	0.001	U	0.001	0.001	U	0.001	0.001	U	0.001		
Dichlorodifluoromethane	NS	mg/kg	0.003	U	0.003	0.002	U	0.002	0.002	U	0.002	0.003	U	0.003	0.003	U	0.003	0.002	U	0.002	0.11	U	0.11	0.002	U	0.002	0.11	U	0.11	0.002	U	0.002	0.002	U	0.002	0.002	U	0.002		
Ethylbenzene	1	mg/kg	0.002	U	0.002	0.001	U	0.001	0.001	U	0.001	0.001	U	0.001	0.001	U	0.001	0.001	U	0.001	0.054	U	0.054	0.001	U	0.001	0.055	U	0.055	0.001	U	0.001	0.001	U	0.001	0.079		0.001		
Freon 113	100	mg/kg	0.003	U	0.003	0.002	U	0.002	0.002	U	0.002	0.003	U	0.003	0.003	U	0.003	0.002	U	0.002	0.11	U	0.11	0.002	U	0.002	0.11	U	0.11	0.002	U	0.002	0.002	U	0.002	0.002	U	0.002		
Methylene Chloride	0.05	mg/kg	0.003	U	0.003	0.002	U	0.002	0.002	U	0.002	0.003	U	0.003	0.003	U	0.003	0.002	U	0.002	**0.11**	U	**0.11**	0.002	U	0.002	**0.11**	U	**0.11**	0.002	U	0.002	0.008		0.002	0.011		0.002		
Tetrachloroethene	1.3	mg/kg	0.006	J	0.002	0.005	J	0.001	0.001	U	0.001	0.001	U	0.001	0.005	J	0.001	0.001	U	0.001	0.054	U	0.054	0.001	U	0.001	0.055	U	0.055	0.003	J	0.001	0.023		0.001	0.055		0.001		
Toluene	0.7	mg/kg	0.002	U	0.002	0.001	U	0.001	0.001	U	0.001	0.001	U	0.001	0.001	U	0.001	0.001	U	0.001	0.054	U	0.054	0.001	U	0.001	0.055	U	0.055	0.001	U	0.001	0.001	U	0.001	0.013		0.001		
trans-1,3-Dichloropropene	NS	mg/kg	0.002	U	0.002	0.001	U	0.001	0.001	U	0.001	0.001	U	0.001	0.001	U	0.001	0.001	U	0.001	0.054	U	0.054	0.001	U	0.001	0.055	U	0.055	0.001	U	0.001	0.001	U	0.001	0.001	U	0.001		
Trichloroethene	0.47	mg/kg	0.088		0.002	0.088		0.001	**4**		0.049	0.001	U	0.001	0.033		0.001	0.001	U	0.001	0.054	U	0.054	0.001	U	0.001	0.055	U	0.055	0.013		0.001	0.059		0.001	0.11		0.001		
Trichlorofluoromethane	NS	mg/kg	0.003	U	0.003	0.002	U	0.002	0.002	U	0.002	0.003	U	0.003	0.003	U	0.003	0.002	U	0.002	0.11	U	0.11	0.002	U	0.002	0.11	U	0.11	0.002	U	0.002	0.002	U	0.002	0.002	U	0.002		
Vinyl Chloride	0.02	mg/kg	0.002	U	0.002	0.001	U	0.001	0.001	U	0.001	0.001	U	0.001	0.001	U	0.001	0.001	U	0.001	**0.054**	U	**0.054**	0.001	U	0.001	**0.055**	U	**0.055**	0.001	U	0.001	0.001	U	0.001	0.001	U	0.001		
Xylenes, Total	0.26	mg/kg	0.002	U	0.002	0.001	U	0.001	0.001	U	0.001	0.001	U	0.001	0.001	U	0.001	0.001	U	0.001	0.054	U	0.054	0.001	U	0.001	0.055	U	0.055	0.003	J	0.001	0.001	U	0.001	**0.44**		0.001		
SVOCs by EPA Method 8270C																																								
2,4,5-Trichlorophenol	100	mg/kg	0.021	U	0.021	0.021	U	0.021	0.019	U	0.019	0.018	U	0.018	0.021	U	0.021	0.02	U	0.02	0.021	U	0.021	0.02	U	0.02	0.41	U	0.41	0.02	U	0.02	0.1	U	0.1	0.02	U	0.02		
2,4,6-Trichlorophenol	NS	mg/kg	0.021	U	0.021	0.021	U	0.021	0.019	U	0.019	0.018	U	0.018	0.021	U	0.021	0.02	U	0.02	0.021	U	0.021	0.02	U	0.02	0.41	U	0.41	0.02	U	0.02	0.1	U	0.1	0.02	U	0.02		
2,4-Dichlorophenol	100	mg/kg	0.021	U	0.021	0.021	U	0.021	0.019	U	0.019	0.018	U	0.018	0.021	U	0.021	0.02	U	0.02	0.021	U	0.021	0.02	U	0.02	0.41	U	0.41	0.02	U	0.02	0.1	U	0.1	0.02	U	0.02		
2,4-Dimethylphenol	NS	mg/kg	0.021	U	0.021	0.021	U	0.021	0.019	U	0.019	0.018	U	0.018	0.021	U	0.021	0.02	U	0.02	0.021	U	0.021	0.02	U	0.02	0.41	U	0.41	0.02	U	0.02	0.1	U	0.1	0.02	U	0.02		
2,4-Dinitrophenol	100	mg/kg	0.42	U	0.42	0.42	U	0.42	0.39	U	0.39	0.36	U	0.36	0.41	U	0.41	0.41	U	0.41	0.41	U	0.41	0.4	U	0.4	8.2	U	8.2	0.4	U	0.4	2.1	U	2.1	0.4	U	0.4		
2,4-Dinitrotoluene	NS	mg/kg	0.085	U	0.085	0.085	U	0.085	0.077	U	0.077	0.071	U	0.071	0.083	U	0.083	0.081	U	0.081	0.082	U	0.082	0.079	U	0.079	1.6	U	1.6	0.081	U	0.081	0.42	U	0.42	0.079	U	0.079		
2,6-Dinitrotoluene	NS	mg/kg	0.021	U	0.021	0.021	U	0.021	0.019	U	0.019	0.018	U	0.018	0.021	U	0.021	0.02	U	0.02	0.021	U	0.021	0.02	U	0.02	0.41	U	0.41	0.02	U	0.02	0.1	U	0.1	0.02	U	0.02		
2-Chloronaphthalene	NS	mg/kg	0.009	U	0.009	0.009	U	0.009	0.008	U	0.008	0.007	U	0.007	0.009	U	0.009	0.009	U	0.009	0.009	U	0.009	0.008	U	0.008	0.17	U	0.17	0.008	U	0.008	0.044	U	0.044	0.008	U	0.008		
2-Chlorophenol	100	mg/kg	0.021	U	0.021	0.021	U	0.021	0.019	U	0.019	0.018	U	0.018	0.021	U	0.021	0.02	U	0.02	0.021	U	0.021	0.02	U	0.02	0.41	U	0.41	0.02	U	0.02	0.1	U	0.1	0.02	U	0.02		
2-Methylnaphthalene	0.41	mg/kg	0.004	U	0.004	0.004	U	0.004	0.004	U	0.004	0.004	U	0.004	0.004	U	0.004	0.004	U	0.004	0.004	U	0.004	0.004	U	0.004	0.088	J	0.082	0.004	U	0.004	0.021	U	0.021	0.024		0.004		
2-Methylphenol	0.33	mg/kg	0.021	U	0.021	0.021	U	0.021	0.019	U	0.019	0.018	U	0.018	0.021	U	0.021	0.02	U	0.02	0.021	U	0.021	0.02	U	0.02	**0.41**	U	**0.41**	0.02	U	0.02	0.1	U	0.1	0.02	U	0.02		
2-Nitroaniline	NS	mg/kg	0.021	U	0.021	0.021	U	0.021	0.019	U	0.019	0.018	U	0.018	0.021	U	0.021	0.02	U	0.02	0.021	U	0.021	0.02	U	0.02	0.41	U	0.41	0.02	U	0.02	0.1	U	0.1	0.02	U	0.02		
2-Nitrophenol	NS	mg/kg	0.021	U	0.021	0.021	U	0.021	0.019	U	0.019	0.018	U	0.018	0.021	U	0.021	0.02	U	0.02	0.021	U	0.021	0.02	U	0.02	0.41	U	0.41	0.02	U	0.02	0.1	U	0.1	0.02	U	0.02		
3,3'-Dichlorobenzidine	NS	mg/kg	0.13	U	0.13	0.13	U	0.13	0.12	U	0.12	0.11	U	0.11	0.12	U	0.12	0.12	U	0.12	0.12	U	0.12	0.12	U	0.12	2.5	U	2.5	0.12	U	0.12	0.63	U	0.63	0.12	U	0.12		
3-Nitroaniline	NS	mg/kg	0.085	U	0.085	0.085	U	0.085	0.077	U	0.077	0.071	U	0.071	0.083	U	0.083	0.081	U	0.081	0.082	U	0.082	0.079	U	0.079	1.6	U	1.6	0.081	U	0.081	0.42	U	0.42	0.079	U	0.079		
4,6-Dinitro-2-methylphenol	NS	mg/kg	0.21	U	0.21	0.21	U	0.21	0.19	U	0.19	0.18	U	0.18	0.21	U	0.21	0.2	U	0.2	0.21	U	0.21	0.2	U	0.2	4.1	U	4.1	0.2	U	0.2	1	U	1	0.2	U	0.2		
4-Bromophenyl Phenyl Ether	NS	mg/kg	0.021	U	0.021	0.021	U	0.021	0.019	U	0.019	0.018	U	0.018	0.021	U	0.021	0.02	U	0.02	0.021	U	0.021	0.02	U	0.02	0.41	U	0.41	0.02	U	0.02	0.1	U	0.1	0.02	U	0.02		
4-Chloro-3-methylphenol	NS	mg/kg	0.021	U	0.021	0.021	U	0.021	0.019	U	0.019	0.018	U	0.018	0.021	U	0.021	0.02	U	0.02	0.021	U	0.021	0.02	U	0.02	0.41	U	0.41	0.02	U	0.02	0.1	U	0.1	0.02	U	0.02		
4-Chloroaniline	NS	mg/kg	0.021	U	0.021	0.021	U	0.021	0.019	U	0.019	0.018	U	0.018	0.021	U	0.021	0.02	U	0.02	0.021	U	0.021	0.02	U	0.02	0.41	U	0.41	0.02	U	0.02	0.1	U	0.1	0.02	U	0.02		
4-Chlorophenyl-phenylether	NS	mg/kg	0.021	U	0.021	0.021	U	0.021	0.019	U	0.019	0.018	U	0.018	0.021	U	0.021	0.02	U	0.02	0.021	U	0.021	0.02	U	0.02	0.41	U	0.41	0.02	U	0.02	0.1	U	0.1	0.02	U	0.02		
4-Methylphenol	0.33	mg/kg	0.021	U	0.021	0.021	U	0.021	0.019	U	0.019	0.018	U	0.018	0.021	U	0.021	0.02	U	0.02	0.021	U	0.021	0.02	U	0.02	**0.41**	U	**0.41**	0.02	U	0.02	0.1	U	0.1	0.02	U	0.02		
4-Nitroaniline	NS	mg/kg	0.085	U	0.085	0.085	U	0.085	0.077	U	0.077	0.071	U	0.071	0.083	U	0.083	0.081	U	0.081	0.082	U	0.082	0.079	U	0.079	1.6	U	1.6	0.081	U	0.081	0.42	U	0.42	0.079	U	0.079		

Table 5: Soil Analytical Results

Sample ID			ST-SB-02-11.5-12.0			ST-SB-02-11.5-12.0D			ST-SB-02-21.5-22.0			ST-SB-03-4.5-5.0			ST-SB-03-11.5-12.0			ST-SB-03-21.5-22.0			ST-SB-04-9.5-10.0			ST-SB-04-21.0-21.5			ST-SB-05-9.5-10.0			ST-SB-05-19.5-20.0			ST-SB-06-9.0-9.5			SS/ST-WC-SOIL		
Sample Date			10/21/2011			10/21/2011			10/21/2011			10/21/2011			10/21/2011			10/21/2011			10/21/2011			10/21/2011			10/24/2011			10/24/2011			10/24/2011			10/26/2011		
N=Normal, FD=Field Duplicate			N			FD			N			N			N			N			N			N			N			N			N			N		
Start Depth			11.5			11.5			21.5			4.5			11.5			21.5			9.5			21			9.5			19.5			9			NA		
End Depth			12			12			22			5			12			22			10			21.5			10			20			9.5			NA		
Parameter	**Std**	**Unit**	**Result**	**Qual**	**RL**	**Result**	**Qual**	**RL**	**Result**	**Qual**	**RL**	**Result**	**Qual**	**RL**	**Result**	**Qual**	**RL**	**Result**	**Qual**	**RL**	**Result**	**Qual**	**RL**	**Result**	**Qual**	**RL**	**Result**	**Qual**	**RL**	**Result**	**Qual**	**RL**	**Result**	**Qual**	**RL**	**Result**	**Qual**	**RL**	**Result**	**Qual**	**RL**
4-Nitrophenol	NS	mg/kg	0.21	U	0.21	0.21	U	0.21	0.19	U	0.19	0.18	U	0.18	0.21	U	0.21	0.2	U	0.2	0.21	U	0.21	0.2	U	0.2	4.1	U	4.1	0.2	U	0.2	1	U	1	0.2	U	0.2
Acenaphthene	20	mg/kg	0.004	U	0.004	0.004	U	0.004	0.004	U	0.004	0.004	U	0.004	0.004	U	0.004	0.004	U	0.004	0.004	U	0.004	0.004	U	0.004	0.082	U	0.082	0.004	U	0.004	0.021	U	0.021	0.004	U	0.004
Acenaphthylene	100	mg/kg	0.004	U	0.004	0.004	U	0.004	0.004	U	0.004	0.004	U	0.004	0.004	U	0.004	0.004	U	0.004	0.004	U	0.004	0.004	U	0.004	0.082	U	0.082	0.004	U	0.004	0.021	U	0.021	0.004	U	0.004
Acetophenone	NS	mg/kg	0.021	U	0.021	0.021	U	0.021	0.019	U	0.019	0.018	U	0.018	0.021	U	0.021	0.02	U	0.02	0.021	U	0.021	0.02	U	0.02	0.41	U	0.41	0.02	U	0.02	0.1	U	0.1	0.02	U	0.02
Anthracene	100	mg/kg	0.004	U	0.004	0.004	U	0.004	0.004	U	0.004	0.004	U	0.004	0.004	U	0.004	0.004	U	0.004	0.03		0.004	0.004	U	0.004	0.082	U	0.082	0.004	U	0.004	0.021	U	0.021	0.005	J	0.004
Atrazine	NS	mg/kg	0.042	U	0.042	0.042	U	0.042	0.039	U	0.039	0.036	U	0.036	0.041	U	0.041	0.041	U	0.041	0.041	U	0.041	0.04	U	0.04	0.82	U	0.82	0.04	U	0.04	0.21	U	0.21	0.04	U	0.04
Benzaldehyde	NS	mg/kg	0.085	U	0.085	0.085	U	0.085	0.077	U	0.077	0.071	U	0.071	0.083	U	0.083	0.081	U	0.081	0.082	U	0.082	0.079	U	0.079	1.6	U	1.6	0.081	U	0.081	0.42	U	0.42	0.079	U	0.079
Benzo[a]anthracene	1	mg/kg	0.004	U	0.004	0.004	U	0.004	0.004	U	0.004	0.004	U	0.004	0.004	U	0.004	0.004	U	0.004	0.004	U	0.004	0.004	U	0.004	0.082	U	0.082	0.004	U	0.004	0.021	U	0.021	0.005	J	0.004
Benzo[a]pyrene	1	mg/kg	0.004	U	0.004	0.004	U	0.004	0.004	U	0.004	0.004	U	0.004	0.004	U	0.004	0.004	U	0.004	0.004	U	0.004	0.004	U	0.004	0.082	U	0.082	0.004	U	0.004	0.021	U	0.021	0.004	U	0.004
Benzo[b]fluoranthene	1	mg/kg	0.004	U	0.004	0.004	U	0.004	0.004	U	0.004	0.004	U	0.004	0.004	U	0.004	0.004	U	0.004	0.004	U	0.004	0.004	U	0.004	0.082	U	0.082	0.004	U	0.004	0.021	U	0.021	0.004	U	0.004
Benzo[g,h,i]perylene	100	mg/kg	0.004	U	0.004	0.004	U	0.004	0.004	U	0.004	0.004	U	0.004	0.004	U	0.004	0.004	U	0.004	0.004	U	0.004	0.004	U	0.004	0.082	U	0.082	0.004	U	0.004	0.021	U	0.021	0.004	U	0.004
Benzo[k]fluoranthene	0.8	mg/kg	0.004	U	0.004	0.004	U	0.004	0.004	U	0.004	0.004	U	0.004	0.004	U	0.004	0.004	U	0.004	0.004	U	0.004	0.004	U	0.004	0.082	U	0.082	0.004	U	0.004	0.021	U	0.021	0.004	U	0.004
Biphenyl	NS	mg/kg	0.021	U	0.021	0.021	U	0.021	0.019	U	0.019	0.018	U	0.018	0.021	U	0.021	0.02	U	0.02	0.021	U	0.021	0.02	U	0.02	0.41	U	0.41	0.02	U	0.02	0.1	U	0.1	0.02	U	0.02
Bis(2-chloroethoxy)methane	NS	mg/kg	0.021	U	0.021	0.021	U	0.021	0.019	U	0.019	0.018	U	0.018	0.021	U	0.021	0.02	U	0.02	0.021	U	0.021	0.02	U	0.02	0.41	U	0.41	0.02	U	0.02	0.1	U	0.1	0.02	U	0.02
Bis(2-chloroethyl) Ether	NS	mg/kg	0.021	U	0.021	0.021	U	0.021	0.019	U	0.019	0.018	U	0.018	0.021	U	0.021	0.02	U	0.02	0.021	U	0.021	0.02	U	0.02	0.41	U	0.41	0.02	U	0.02	0.1	U	0.1	0.02	U	0.02
Bis(2-chloroisopropyl) Ether	NS	mg/kg	0.021	U	0.021	0.021	U	0.021	0.019	U	0.019	0.018	U	0.018	0.021	U	0.021	0.02	U	0.02	0.021	U	0.021	0.02	U	0.02	0.41	U	0.41	0.02	U	0.02	0.1	U	0.1	0.02	U	0.02
Bis(2-ethylhexyl) Phthalate	50	mg/kg	0.085	U	0.085	0.085	U	0.085	0.077	U	0.077	0.071	U	0.071	0.083	U	0.083	0.081	U	0.081	0.31		0.082	0.079	U	0.079	1.6	U	1.6	0.081	U	0.081	0.42	U	0.42	0.19	J	0.079
Butylbenzyl Phthalate	NS	mg/kg	0.085	U	0.085	0.085	U	0.085	0.077	U	0.077	0.071	U	0.071	0.083	U	0.083	0.081	U	0.081	0.082	U	0.082	0.079	U	0.079	1.6	U	1.6	0.081	U	0.081	0.42	U	0.42	0.079	U	0.079
Caprolactum	NS	mg/kg	0.042	U	0.042	0.042	U	0.042	0.039	U	0.039	0.036	U	0.036	0.041	U	0.041	0.041	U	0.041	0.041	U	0.041	0.04	U	0.04	0.82	U	0.82	0.04	U	0.04	0.21	U	0.21	0.04	U	0.04
Carbazole	NS	mg/kg	0.021	U	0.021	0.021	U	0.021	0.019	U	0.019	0.018	U	0.018	0.021	U	0.021	0.02	U	0.02	0.021	U	0.021	0.02	U	0.02	0.41	U	0.41	0.02	U	0.02	0.1	U	0.1	0.02	U	0.02
Chrysene	1	mg/kg	0.004	U	0.004	0.004	U	0.004	0.004	U	0.004	0.004	U	0.004	0.004	U	0.004	0.004	U	0.004	0.26		0.004	0.004	U	0.004	0.35	J	0.082	0.004	U	0.004	0.021	U	0.021	0.025		0.004
Dibenzo[a,h]anthracene	0.33	mg/kg	0.004	U	0.004	0.004	U	0.004	0.004	U	0.004	0.004	U	0.004	0.004	U	0.004	0.004	U	0.004	0.004	U	0.004	0.004	U	0.004	0.082	U	0.082	0.004	U	0.004	0.021	U	0.021	0.004	U	0.004
Dibenzofuran	6.2	mg/kg	0.021	U	0.021	0.021	U	0.021	0.019	U	0.019	0.018	U	0.018	0.021	U	0.021	0.02	U	0.02	0.021	U	0.021	0.02	U	0.02	0.41	U	0.41	0.02	U	0.02	0.1	U	0.1	0.02	U	0.02
Diethyl Phthalate	50	mg/kg	0.085	U	0.085	0.085	U	0.085	0.077	U	0.077	0.071	U	0.071	0.083	U	0.083	0.081	U	0.081	0.082	U	0.082	0.079	U	0.079	1.6	U	1.6	0.081	U	0.081	0.42	U	0.42	0.079	U	0.079
Dimethyl Phthalate	100	mg/kg	0.085	U	0.085	0.085	U	0.085	0.077	U	0.077	0.071	U	0.071	0.083	U	0.083	0.081	U	0.081	0.082	U	0.082	0.079	U	0.079	1.6	U	1.6	0.081	U	0.081	0.42	U	0.42	0.079	U	0.079
Di-n-Butyl Phthalate	100	mg/kg	0.085	U	0.085	0.085	U	0.085	0.077	U	0.077	0.071	U	0.071	0.083	U	0.083	0.081	U	0.081	0.082	U	0.082	0.079	U	0.079	1.6	U	1.6	0.081	U	0.081	0.42	U	0.42	0.079	U	0.079
Di-n-octyl Phthalate	100	mg/kg	0.085	U	0.085	0.085	U	0.085	0.077	U	0.077	0.071	U	0.071	0.083	U	0.083	0.081	U	0.081	0.082	U	0.082	0.079	U	0.079	1.6	U	1.6	0.081	U	0.081	0.42	U	0.42	0.079	U	0.079
Fluoranthene	100	mg/kg	0.004	U	0.004	0.004	U	0.004	0.004	U	0.004	0.004	U	0.004	0.004	U	0.004	0.004	U	0.004	0.077		0.004	0.004	U	0.004	0.082	U	0.082	0.004	U	0.004	0.021	U	0.021	0.007	J	0.004
Fluorene	30	mg/kg	0.004	U	0.004	0.004	U	0.004	0.004	U	0.004	0.004	U	0.004	0.004	U	0.004	0.004	U	0.004	0.004	U	0.004	0.004	U	0.004	0.082	U	0.082	0.004	U	0.004	0.021	U	0.021	0.007	J	0.004
Hexachlorobenzene	0.41	mg/kg	0.004	U	0.004	0.004	U	0.004	0.004	U	0.004	0.004	U	0.004	0.004	U	0.004	0.004	U	0.004	0.004	U	0.004	0.004	U	0.004	0.082	U	0.082	0.004	U	0.004	0.021	U	0.021	0.004	U	0.004
Hexachlorobutadiene	NS	mg/kg	0.021	U	0.021	0.021	U	0.021	0.019	U	0.019	0.018	U	0.018	0.021	U	0.021	0.02	U	0.02	0.021	U	0.021	0.02	U	0.02	0.41	U	0.41	0.02	U	0.02	0.1	U	0.1	0.02	U	0.02
Hexachlorocyclopentadiene	NS	mg/kg	0.21	U	0.21	0.21	U	0.21	0.19	U	0.19	0.18	U	0.18	0.21	U	0.21	0.2	U	0.2	0.21	U	0.21	0.2	U	0.2	4.1	U	4.1	0.2	U	0.2	1	U	1	0.2	U	0.2
Hexachloroethane	NS	mg/kg	0.042	U	0.042	0.042	U	0.042	0.039	U	0.039	0.036	U	0.036	0.041	U	0.041	0.041	U	0.041	0.041	U	0.041	0.04	U	0.04	0.82	U	0.82	0.04	U	0.04	0.21	U	0.21	0.04	U	0.04
Indeno[1,2,3-cd]pyrene	0.5	mg/kg	0.004	U	0.004	0.004	U	0.004	0.004	U	0.004	0.004	U	0.004	0.004	U	0.004	0.004	U	0.004	0.004	U	0.004	0.004	U	0.004	0.082	U	0.082	0.004	U	0.004	0.021	U	0.021	0.004	U	0.004
Isophorone	100	mg/kg	0.021	U	0.021	0.021	U	0.021	0.019	U	0.019	0.018	U	0.018	0.021	U	0.021	0.02	U	0.02	0.11		0.021	0.02	U	0.02	0.41	U	0.41	0.02	U	0.02	0.1	U	0.1	0.02	U	0.02
Naphthalene	12	mg/kg	0.004	U	0.004	0.004	U	0.004	0.004	U	0.004	0.004	U	0.004	0.004	U	0.004	0.004	U	0.004	0.004	U	0.004	0.004	U	0.004	0.11	J	0.082	0.007	J	0.004	0.12		0.021	0.15		0.004
Nitrobenzene	3.7	mg/kg	0.021	U	0.021	0.021	U	0.021	0.019	U	0.019	0.018	U	0.018	0.021	U	0.021	0.02	U	0.02	0.021	U	0.021	0.02	U	0.02	0.41	U	0.41	0.02	U	0.02	0.1	U	0.1	0.02	U	0.02
N-Nitroso-di-n-propylamine	NS	mg/kg	0.021	U	0.021	0.021	U	0.021	0.019	U	0.019	0.018	U	0.018	0.021	U	0.021	0.02	U	0.02	0.021	U	0.021	0.02	U	0.02	0.41	U	0.41	0.02	U	0.02	0.1	U	0.1	0.02	U	0.02
N-Nitrosodiphenylamine	NS	mg/kg	0.021	U	0.021	0.021	U	0.021	0.019	U	0.019	0.018	U	0.018	0.021	U	0.021	0.02	U	0.02	0.021	U	0.021	0.02	U	0.02	0.41	U	0.41	0.02	U	0.02	0.1	U	0.1	0.02	U	0.02
Pentachlorophenol	0.8	mg/kg	0.042	U	0.042	0.042	U	0.042	0.039	U	0.039	0.036	U	0.036	0.041	U	0.041	0.041	U	0.041	0.041	U	0.041	0.04	U	0.04	**0.82**	U	**0.82**	0.04	U	0.04	0.21	U	0.21	0.04	U	0.04
Phenanthrene	100	mg/kg	0.004	U	0.004	0.004	U	0.004	0.004	U	0.004	0.004	U	0.004	0.004	U	0.004	0.004	U	0.004	0.16		0.004	0.004	U	0.004	0.26	J	0.082	0.004	U	0.004	0.021	U	0.021	0.037		0.004
Phenol	0.33	mg/kg	0.021	U	0.021	0.021	U	0.021	0.019	U	0.019	0.018	U	0.018	0.021	U	0.021	0.02	U	0.02	0.021	U	0.021	0.02	U	0.02	**0.41**	U	**0.41**	0.02	U	0.02	0.1	U	0.1	0.02	U	0.02
Pyrene	100	mg/kg	0.004	U	0.004	0.004	U	0.004	0.004	U	0.004	0.004	U	0.004	0.004	U	0.004	0.004	U	0.004	0.11		0.004	0.004	U	0.004	0.21	J	0.082	0.004	U	0.004	0.021	U	0.021	0.01	J	0.004
TPH-GRO by EPA Method 8015B																																								
TPH C6-C10	NS	mg/kg	NA			NA			NA			NA			NA			NA			990		25	0.2	U	0.2	390	J	9.2	0.2	J	0.2	0.4	J	0.2	8.2		1

Notes:
1) RL - reporting limit
2) Qual - validated qualifiers
3) U - result not detected above reporting limit
4) J - result is estimated
5) mg/kg = micrograms per kilogram
6) NS - no standard available
7) VOCs - Volatile Organic Compounds
8) TPH-GRO - Total Petroleum Hydrocarbons - Gasoline Range
9) Std: Standard - 6 NYCRR 375, Table 375-6.8(a) Unrestricted Use Soil Cleanup Objectives supplemented by CP-51 Soil Cleanup Objectives (10/2010), Residential Criteria.

Table 6: Groundwater Sampling Results

Sample ID			ST-TW-01-15			ST-TW-02-20			ST-TW-02-20D			ST-TW-03-09			ST-TW-04-18			ST-TW-05-09			ST-TW-06-18			ST-TW-07-09			ST-TW-08-12			ST-TW-09-20			ST-TW-10-08			ST-TW-11-12			ST-TW-12-21			SS/ST-WC-Purge/Decon		
Sample Date			10/20/2011			10/20/2011			10/20/2011			10/25/2011			10/25/2011			10/25/2011			10/25/2011			10/25/2011			10/25/2011			10/25/2011			10/25/2011			10/25/2011			10/25/2011			10/26/2011		
N=Normal, FD=Field Duplicate			N			N			FD			N			N			N			N			N			N			N			N			N			N			N		
Parameter	Std	Unit	Result	Qual	RL	Result	Qual	RL	Result	Qual	RL	Result	Qual	RL	Result	Qual	RL	Result	Qual	RL	Result	Qual	RL	Result	Qual	RL	Result	Qual	RL	Result	Qual	RL	Result	Qual	RL	Result	Qual	RL	Result	Qual	RL	Result	Qual	RL
VOCs by EPA Method 8260B																																												
1,1,1,2-Tetrachloroethane	5	ug/L	0.5	U	0.5	0.5	U	0.5	0.5	U	0.5	20	U	20	0.5	U	0.5	10	U	10	0.1	U	0.1	20	U	20	0.1	U	0.1	0.1	U	0.1	0.1	U	0.1	0.1	U	0.1	0.1	U	0.1	50	U	50
1,1,1-Trichloroethane	5	ug/L	2.5	J	0.5	**6.8**		0.5	**8.4**		0.5	**27000**		200	**500**		5	**8400**		100	2.8		0.1	**15000**		200	0.3	J	0.1	0.1	U	0.1	0.9		0.1	1.2		0.1	**5.9**		0.1	**79000**		500
1,1,2,2-Tetrachloroethane	5	ug/L	0.5	U	0.5	0.5	U	0.5	0.5	U	0.5	20	U	20	0.5	U	0.5	10	U	10	0.1	U	0.1	20	U	20	0.1	U	0.1	0.1	U	0.1	0.1	U	0.1	0.1	U	0.1	0.1	U	0.1	50	U	50
1,1,2-Trichloroethane	1	ug/L	0.5	U	0.5	0.5	U	0.5	0.5	U	0.5	20	U	20	0.5	U	0.5	10	U	10	0.1	U	0.1	20	U	20	0.1	U	0.1	0.1	U	0.1	0.1	U	0.1	0.1	U	0.1	0.2	J	0.1	50	U	50
1,1-Dichloroethane	5	ug/L	3.1		0.5	3.8		0.5	3.9		0.5	**5100**		200	**15**		0.5	**1400**		10	**6.1**		0.1	**2000**		20	0.2	J	0.1	0.3	J	0.1	0.2	J	0.1	4.6		0.1	**8.4**		0.1	**1400**		50
1,1-Dichloroethene	5	ug/L	1.9	J	0.5	3.7		0.5	3.6		0.5	**440**		20	**5.3**		0.5	**280**		10	1.7		0.1	**340**		20	0.1	J	0.1	0.2	J	0.1	0.1	U	0.1	0.6		0.1	**6.7**		0.1	**1100**		50
1,2,3-Trichloropropane	0.04	ug/L	1.5	U	1.5	1.5	U	1.5	1.5	U	1.5	60	U	60	1.5	U	1.5	30	U	30	0.3	U	0.3	60	U	60	0.3	U	0.3	0.3	U	0.3	0.3	U	0.3	0.3	U	0.3	0.3	U	0.3	150	U	150
1,2-Dichloro-1,1,2-trifluoroethane	NS	ug/L	1	U	1	2.1	J	1	2	J	1	40	U	40	1	U	1	20	U	20	0.2	U	0.2	40	U	40	0.2	U	0.2	0.3	J	0.2	0.2	U	0.2	0.2	U	0.2	1.3		0.2	100	U	100
1,2-Dichlorobenzene	3	ug/L	0.5	U	0.5	0.5	U	0.5	0.5	U	0.5	20	U	20	0.5	U	0.5	10	U	10	0.1	U	0.1	20	U	20	0.1	U	0.1	0.1	U	0.1	0.1	U	0.1	0.1	U	0.1	0.1	U	0.1	50	U	50
1,2-Dichloroethane	0.6	ug/L	0.5	U	0.5	0.5	U	0.5	0.5	U	0.5	20	U	20	0.5	U	0.5	10	U	10	0.1	J	0.1	20	U	20	0.1	U	0.1	0.1	U	0.1	0.1	U	0.1	0.1	U	0.1	0.1	U	0.1	**72**	J	50
1,2-Dichloroethene, Total	5	ug/L	**23**		0.5	**9.9**		0.5	**9.8**		0.5	**26000**		200	**57**		0.5	**8000**		100	**26**		1	**14000**		200	4.1		0.1	1.2		0.1	**7.7**		0.1	**6.6**		0.1	**31**		2	**150**	J	50
1,2-Dichloropropane	1	ug/L	0.5	U	0.5	0.5	U	0.5	0.5	U	0.5	20	U	20	0.5	U	0.5	10	U	10	0.1	U	0.1	20	U	20	0.1	U	0.1	0.1	U	0.1	0.1	U	0.1	0.1	U	0.1	0.1	U	0.1	50	U	50
1,3-Dichlorobenzene	3	ug/L	0.5	U	0.5	0.5	U	0.5	0.5	U	0.5	20	U	20	0.5	U	0.5	10	U	10	0.1	U	0.1	20	U	20	0.1	U	0.1	0.1	U	0.1	0.1	U	0.1	0.1	U	0.1	0.1	U	0.1	50	U	50
1,4-Dichlorobenzene	3	ug/L	0.5	U	0.5	0.5	U	0.5	0.5	U	0.5	20	U	20	0.5	U	0.5	10	U	10	0.1	U	0.1	20	U	20	0.1	U	0.1	0.1	U	0.1	0.1	U	0.1	0.1	U	0.1	0.1	U	0.1	50	U	50
2-Chlorotoluene	5	ug/L	0.5	U	0.5	0.5	U	0.5	0.5	U	0.5	20	U	20	0.5	U	0.5	10	U	10	0.1	U	0.1	20	U	20	0.1	U	0.1	0.1	U	0.1	0.1	U	0.1	0.1	U	0.1	0.1	U	0.1	50	U	50
4-Chlorotoluene	5	ug/L	0.5	U	0.5	0.5	U	0.5	0.5	U	0.5	20	U	20	0.5	U	0.5	10	U	10	0.1	U	0.1	20	U	20	0.1	U	0.1	0.1	U	0.1	0.1	U	0.1	0.1	U	0.1	0.1	U	0.1	50	U	50
Benzene	1	ug/L	0.5	U	0.5	0.5	U	0.5	0.5	U	0.5	20	U	20	0.5	U	0.5	10	U	10	0.1	U	0.1	20	U	20	0.1	U	0.1	0.1	U	0.1	0.1	U	0.1	0.1	U	0.1	0.1	U	0.1	50	U	50
Benzyl Chloride	NS	ug/L	0.5	U	0.5	0.5	U	0.5	0.5	U	0.5	20	U	20	0.5	U	0.5	10	U	10	0.1	U	0.1	20	U	20	0.1	U	0.1	0.1	U	0.1	0.1	U	0.1	0.1	U	0.1	0.1	U	0.1	50	U	50
Bromobenzene	5	ug/L	0.5	U	0.5	0.5	U	0.5	0.5	U	0.5	20	U	20	0.5	U	0.5	10	U	10	0.1	U	0.1	20	U	20	0.1	U	0.1	0.1	U	0.1	0.1	U	0.1	0.1	U	0.1	0.1	U	0.1	50	U	50
Bromodichloromethane	50*	ug/L	0.5	U	0.5	0.5	U	0.5	0.5	U	0.5	20	U	20	0.5	U	0.5	10	U	10	0.1	U	0.1	20	U	20	0.1	U	0.1	0.1	U	0.1	0.1	U	0.1	0.1	U	0.1	0.1	U	0.1	50	U	50
Bromoform	50*	ug/L	0.5	U	0.5	0.5	U	0.5	0.5	U	0.5	20	U	20	0.5	U	0.5	10	U	10	0.1	U	0.1	20	U	20	0.1	U	0.1	0.1	U	0.1	0.1	U	0.1	0.1	U	0.1	0.1	U	0.1	50	U	50
Bromomethane	5	ug/L	0.5	U	0.5	0.5	U	0.5	0.5	U	0.5	20	U	20	0.5	U	0.5	10	U	10	0.1	U	0.1	20	U	20	0.1	U	0.1	0.1	U	0.1	0.1	U	0.1	0.1	U	0.1	0.1	U	0.1	50	U	50
Carbon Tetrachloride	5	ug/L	0.5	U	0.5	0.5	U	0.5	0.5	U	0.5	20	U	20	0.5	U	0.5	10	U	10	0.1	U	0.1	20	U	20	0.1	U	0.1	0.1	U	0.1	0.1	U	0.1	0.1	U	0.1	0.1	U	0.1	50	U	50
Chlorobenzene	5	ug/L	0.5	U	0.5	0.5	U	0.5	0.5	U	0.5	20	U	20	0.5	U	0.5	10	U	10	0.1	U	0.1	20	U	20	0.1	U	0.1	0.1	U	0.1	0.1	U	0.1	0.1	U	0.1	0.1	U	0.1	50	U	50
Chloroethane	5	ug/L	0.5	U	0.5	0.5	U	0.5	0.5	U	0.5	20	U	20	0.5	U	0.5	10	U	10	0.1	U	0.1	20	U	20	0.1	U	0.1	0.1	U	0.1	0.1	U	0.1	0.1	U	0.1	0.1	U	0.1	50	U	50
Chloroform	7	ug/L	0.5	U	0.5	0.5	U	0.5	0.5	U	0.5	20	U	20	0.5	U	0.5	10	U	10	0.5		0.1	20	U	20	0.1	U	0.1	0.1	U	0.1	0.1	U	0.1	0.1	U	0.1	0.6		0.1	50	U	50
Chloromethane	NS	ug/L	1	U	1	1	U	1	1	U	1	40	U	40	1	U	1	20	U	20	0.2	U	0.2	40	U	40	0.2	U	0.2	0.2	U	0.2	0.2	U	0.2	0.2	U	0.2	0.2	U	0.2	100	U	100
cis-1,3-Dichloropropene	0.4	ug/L	0.5	U	0.5	0.5	U	0.5	0.5	U	0.5	20	U	20	0.5	U	0.5	10	U	10	0.1	U	0.1	20	U	20	0.1	U	0.1	0.1	U	0.1	0.1	U	0.1	0.1	U	0.1	0.1	U	0.1	50	U	50
Dibromochloromethane	50*	ug/L	0.5	U	0.5	0.5	U	0.5	0.5	U	0.5	20	U	20	0.5	U	0.5	10	U	10	0.1	U	0.1	20	U	20	0.1	U	0.1	0.1	U	0.1	0.1	U	0.1	0.1	U	0.1	0.1	U	0.1	50	U	50
Dibromomethane	5	ug/L	0.5	U	0.5	0.5	U	0.5	0.5	U	0.5	20	U	20	0.5	U	0.5	10	U	10	0.1	U	0.1	20	U	20	0.1	U	0.1	0.1	U	0.1	0.1	U	0.1	0.1	U	0.1	0.1	U	0.1	50	U	50
Dichlorodifluoromethane	5	ug/L	0.5	U	0.5	0.5	U	0.5	0.5	U	0.5	20	U	20	0.5	U	0.5	10	U	10	0.1	U	0.1	20	U	20	0.1	U	0.1	0.1	U	0.1	0.1	U	0.1	0.1	U	0.1	0.1	U	0.1	50	U	50
Ethylbenzene	5	ug/L	0.5	U	0.5	0.5	U	0.5	0.5	U	0.5	**530**		20	**28**		0.5	**880**		10	0.1	U	0.1	**66**	J	20	0.1	U	0.1	0.1	U	0.1	0.1	U	0.1	0.1	U	0.1	0.1	U	0.1	50	U	50
Freon 113	5	ug/L	**6.8**		1	**5.3**		1	**5.3**		1	**46**	J	40	1.6	J	1	**85**		20	0.6		0.2	40	U	40	0.2	U	0.2	0.4	J	0.2	0.2	U	0.2	0.2	U	0.2	**7.4**		0.2	100	U	100
Methylene Chloride	5	ug/L	1	U	1	1	U	1	1	U	1	40	U	40	1	U	1	20	U	20	0.2	U	0.2	40	U	40	0.2	U	0.2	0.2	U	0.2	0.2	U	0.2	0.2	U	0.2	0.2	U	0.2	100	U	100
Tetrachloroethene	5	ug/L	**17**		0.5	1	J	0.5	1	J	0.5	**310**		20	**21**		0.5	**200**		10	**16**		0.1	**330**		20	3.1		0.1	0.1	U	0.1	0.2	J	0.1	4.3		0.1	**11**		0.1	50	U	50
Toluene	5	ug/L	0.5	U	0.5	0.5	U	0.5	0.5	U	0.5	**1000**		20	**22**		0.5	**580**		10	0.1	U	0.1	**110**		20	0.1	U	0.1	0.1	U	0.1	0.1	U	0.1	0.1	U	0.1	0.1	J	0.1	50	U	50
trans-1,3-Dichloropropene	0.4	ug/L	0.5	U	0.5	0.5	U	0.5	0.5	U	0.5	20	U	20	0.5	U	0.5	10	U	10	0.1	U	0.1	20	U	20	0.1	U	0.1	0.1	U	0.1	0.1	U	0.1	0.1	U	0.1	0.1	U	0.1	50	U	50
Trichloroethene	5	ug/L	**320**		5	**350**		5	**350**		5	**17000**		200	**390**		5	**4400**		100	**110**		1	**14000**		200	**19**		0.5	**19**		0.1	0.3	J	0.1	**92**		1	**200**		2	**230**	J	50
Trichlorofluoromethane	5	ug/L	0.5	U	0.5	0.5	U	0.5	0.5	U	0.5	20	U	20	0.5	U	0.5	10	U	10	0.1	U	0.1	20	U	20	0.1	U	0.1	0.1	U	0.1	0.1	U	0.1	0.1	U	0.1	0.1	U	0.1	50	U	50
Vinyl Chloride	2	ug/L	0.5	U	0.5	0.5	U	0.5	0.5	U	0.5	**3700**		20	**2.6**		0.5	**2000**		10	0.1	J	0.1	**1900**		20	0.1	U	0.1	0.1	U	0.1	0.4	J	0.1	0.3	J	0.1	0.1	J	0.1	50	U	50
Xylenes, Total	5	ug/L	0.5	U	0.5	0.5	U	0.5	0.5	U	0.5	**2600**		20	**140**		0.5	**4300**		10	0.1	U	0.1	**480**		20	0.1	U	0.1	0.1	U	0.1	0.2	J	0.1	0.2	J	0.1	0.1	J	0.1	50	U	50
SVOCs by EPA Method 8270C																																												
2,4,5-Trichlorophenol	NS	ug/L	0.5	U	0.5	0.5	U	0.5	0.5	U	0.5	0.9	J	0.5	0.5	U	0.5	0.7	J	0.5	0.5	U	0.5	0.5	U	0.5	0.5	U	0.5	0.5	U	0.5	0.5	U	0.5	0.5	U	0.5	0.5	U	0.5	0.5	U	0.5
2,4,6-Trichlorophenol	NS	ug/L	0.5	U	0.5	0.5	U	0.5	0.5	U	0.5	0.5	U	0.5	0.5	U	0.5	0.5	U	0.5	0.5	U	0.5	0.5	U	0.5	0.5	U	0.5	0.5	U	0.5	0.5	U	0.5	0.5	U	0.5	0.5	U	0.5	0.5	U	0.5
2,4-Dichlorophenol	5	ug/L	0.5	U	0.5	0.5	U	0.5	0.5	U	0.5	0.5	U	0.5	0.5	U	0.5	0.5	U	0.5	0.5	U	0.5	0.5	U	0.5	0.5	U	0.5	0.5	U	0.5	0.5	U	0.5	0.5	U	0.5	0.5	U	0.5	0.5	U	0.5
2,4-Dimethylphenol	50	ug/L	0.5	U	0.5	0.5	U	0.5	0.5	U	0.5	2		0.5	0.5	U	0.5	2		0.5	0.5	U	0.5	0.5	U	0.5	0.5	U	0.5	0.5	U	0.5	0.5	U	0.5	0.5	U	0.5	0.5	U	0.5	0.5	U	0.5
2,4-Dinitrophenol	10	ug/L	10	U	10	10	U	10	10	U	10	10	U	10	10	U	10	10	U	10	10	U	10	10	U	10	10	U	10	10	U	10	10	U	10	10	U	10	10	U	10	10	U	10
2,4-Dinitrotoluene	5	ug/L	1	U	1	1	U	1	1	U	1	1	U	1	1	U	1	1	U	1	1	U	1	1	U	1	1	U	1	1	U	1	1	U	1	1	U	1	1	U	1	1	UJ	1
2,6-Dinitrotoluene	5	ug/L	0.5	U	0.5	0.5	U	0.5	0.5	U	0.5	0.5	U	0.5	0.7	J	0.5	0.5	U	0.5	0.5	U	0.5	**63**		0.5	0.5	U	0.5	0.5	U	0.5	0.5	U	0.5	0.5	U	0.5	0.5	U	0.5	0.5	U	0.5
2-Chloronaphthalene	10	ug/L	0.4	U	0.4	0.4	U	0.4	0.4	U	0.4	0.4	U	0.4	0.4	U	0.4	0.4	U	0.4	0.4	U	0.4	0.4	U	0.4	0.4	U	0.4	0.4	U	0.4	0.4	U	0.4	0.4	U	0.4	0.4	U	0.4	0.4	U	0.4
2-Chlorophenol	1	ug/L	0.5	U	0.5	0.5	U	0.5	0.5	U	0.5	0.5	U	0.5	0.5	U	0.5	0.5	U	0.5	0.5	U	0.5	0.5	U	0.5	0.5	U	0.5	0.5	U	0.5	0.5	U	0.5	0.5	U	0.5	0.5	U	0.5	0.5	U	0.5
2-Methylnaphthalene	42	ug/L	0.1	U	0.1	0.1	U	0.1	0.1	U	0.1	5		0.1	0.4	J	0.1	6		0.1	0.1	U	0.1	2		0.1	0.1	U	0.1	0.1	U	0.1	0.6		0.1	0.1	U	0.1	0.1	U	0.1	0.1	J	0.1
2-Methylphenol	NS	ug/L	0.5	U	0.5	0.5	U	0.5	0.5	U	0.5	0.5	U	0.5	0.5	U	0.5	0.5	U	0.5	0.5	U	0.5	0.5	U	0.5	0.5	U	0.5	0.5	U	0.5	0.5	U	0.5	0.5	U	0.5	0.5	U	0.5	0.5	U	0.5
2-Nitroaniline	5	ug/L	0.5	U	0.5	0.5	U	0.5	0.5	U	0.5	0.5	U	0.5	0.5	U	0.5	0.5	U	0.5	0.5	U	0.5	0.5	U	0.5	0.5	U	0.5	0.5	U	0.5	0.5	U	0.5	0.5	U	0.5	0.5	U	0.5	0.5	U	0.5
2-Nitrophenol	NS	ug/L	0.5	U	0.5	0.5	U	0.5	0.5	U	0.5	0.5	U	0.5	0.5	U	0.5	0.5	U	0.5	0.5	U	0.5	0.5	U	0.5	0.5	U	0.5	0.5	U	0.5	0.5	U	0.5	0.5	U	0.5	0.5	U	0.5	0.5	U	0.5
3,3'-Dichlorobenzidine	5	ug/L	2	U	2	2	U	2	2	U	2	2	U	2	2	U	2	2	U	2	2	U	2	2	U	2	2	U	2	2	U	2	2	U	2	2	U	2	2	U	2	2	U	2
3-Nitroaniline	5	ug/L	0.5	U	0.5	0.5	U	0.5	0.5	U	0.5	0.5	U	0.5	0.5	U	0.5	0.5	U	0.5	0.5	U	0.5	0.5	U	0.5	0.5	U	0.5	0.5	U	0.5	0.5	U	0.5	0.5	U	0.5	0.5	U	0.5	0.5	U	0.5
4,6-Dinitro-2-methylphenol	NS	ug/L	5	U	5	5	U	5	5	U	5	5	U	5	5	U	5	5	U	5	5	U	5	5	U	5	5	U	5	5	U	5	5	U	5	5	U	5	5	U	5	5	U	5
4-Bromophenyl Phenyl Ether	NS	ug/L	0.5	U	0.5	0.5	U	0.5	0.5	U	0.5	0.5	U	0.5	0.5	U	0.5	0.5	U	0.5	0.5	U	0.5	0.5	U	0.5	0.5	U	0.5	0.5	U	0.5	0.5	U	0.5	0.5	U	0.5	0.5	U	0.5	0.5	U	0.5
4-Chloro-3-methylphenol	NS	ug/L	0.5	U	0.5	0.5	U	0.5	0.5	U	0.5	0.5	U	0.5	0.5	U	0.5	0.5	U	0.5	0.5	U	0.5	0.5	U	0.5	0.5	U	0.5	0.5	U	0.5	0.5	U	0.5	0.5	U	0.5	0.5	U	0.5	0.5	U	0.5
4-Chloroaniline	5	ug/L	0.5	U	0.5	0.5	U	0.5	0.5	U	0.5	0.5	U	0.5	0.5	U	0.5	0.5	U	0.5	0.5	U	0.5	0.5	U	0.5	0.5	U	0.5	0.5	U	0.5	0.5	U	0.5	0.5	U	0.5	0.5	U	0.5	0.5	U	0.5
4-Chlorophenyl-phenylether	NS	ug/L	0.5	U	0.5	0.5	U	0.5	0.5	U	0.5	0.5	U	0.5	0.5	U	0.5	0.5	U	0.5	0.5	U	0.5	0.5	U	0.5	0.5	U	0.5	0.5	U	0.5	0.5	U	0.5	0.5	U	0.5	0.5	U	0.5	0.5	U	0.5
4-Methylphenol	NS	ug/L	0.5	U	0.5	0.5	U	0.5	0.5	U	0.5	52		0.5	0.5	U	0.5	15		0.5	0.5	U	0.5	22		0.5	0.5	U	0.5	0.5	U	0.5	0.5	U	0.5	0.5	U	0.5	0.5	U	0.5	0.5	U	0.5
4-Nitroaniline	5	ug/L	0.5	U	0.5	0.5	U	0.5	0.5	U	0.5	0.5	U	0.5	0.5	U	0.5	0.5	U	0.5	0.5	U	0.5	0.5	U	0.5	0.5	U	0.5	0.5	U	0.5	0.5	U	0.5	0.5	U	0.5	0.5	U	0.5	0.5	U	0.5

Table 6: Groundwater Sampling Results

Sample ID			ST-TW-01-15			ST-TW-02-20			ST-TW-02-20D			ST-TW-03-09			ST-TW-04-18			ST-TW-05-09			ST-TW-06-18			ST-TW-07-09			ST-TW-08-12			ST-TW-09-20			ST-TW-10-08			ST-TW-11-12			ST-TW-12-21			SS/ST-WC-Purge/Decon		
Sample Date			10/20/2011			10/20/2011			10/20/2011			10/25/2011			10/25/2011			10/25/2011			10/25/2011			10/25/2011			10/25/2011			10/25/2011			10/25/2011			10/25/2011			10/25/2011			10/26/2011		
N=Normal, FD=Field Duplicate			N			N			FD			N			N			N			N			N			N			N			N			N			N			N		
Parameter	**Std**	**Unit**	**Result**	**Qual**	**RL**	**Result**	**Qual**	**RL**	**Result**	**Qual**	**RL**	**Result**	**Qual**	**RL**	**Result**	**Qual**	**RL**	**Result**	**Qual**	**RL**	**Result**	**Qual**	**RL**	**Result**	**Qual**	**RL**	**Result**	**Qual**	**RL**	**Result**	**Qual**	**RL**	**Result**	**Qual**	**RL**	**Result**	**Qual**	**RL**	**Result**	**Qual**	**RL**	**Result**	**Qual**	**RL**
4-Nitrophenol	NS	ug/L	10	U	10	10	U	10	10	U	10	10	U	10	10	U	10	10	U	10	10	U	10	10	U	10	10	U	10	10	U	10	10	U	10	10	U	10	10	U	10	10	U	10
Acenaphthene	20	ug/L	0.1	U	0.1	0.1	U	0.1	0.1	U	0.1	0.1	U	0.1	0.1	U	0.1	0.1	U	0.1	0.1	U	0.1	0.1	U	0.1	0.1	U	0.1	0.1	U	0.1	0.1	U	0.1	0.1	U	0.1	0.1	U	0.1	0.2	J	0.1
Acenaphthylene	NS	ug/L	0.1	U	0.1	0.1	U	0.1	0.1	U	0.1	0.1	U	0.1	0.1	U	0.1	0.1	U	0.1	0.1	U	0.1	0.1	U	0.1	0.1	U	0.1	0.1	U	0.1	0.1	U	0.1	0.1	U	0.1	0.1	U	0.1	0.1	U	0.1
Acetophenone	NS	ug/L	0.5	U	0.5	0.5	U	0.5	0.5	U	0.5	0.5	U	0.5	0.5	U	0.5	0.5	U	0.5	0.5	U	0.5	0.5	U	0.5	0.5	U	0.5	0.5	U	0.5	0.5	U	0.5	0.5	U	0.5	0.5	U	0.5	0.5	U	0.5
Anthracene	50	ug/L	0.1	U	0.1	0.1	U	0.1	0.1	U	0.1	0.2	J	0.1	0.1	U	0.1	0.1	U	0.1	0.1	U	0.1	0.1	U	0.1	0.1	U	0.1	0.1	U	0.1	0.1	U	0.1	0.1	U	0.1	0.1	U	0.1	0.1	U	0.1
Atrazine	7.5	ug/L	2	U	2	2	U	2	2	U	2	2	UJ	2	2	UJ	2	2	UJ	2	2	UJ	2	2	UJ	2	2	UJ	2	2	UJ	2	2	UJ	2	2	UJ	2	2	UJ	2	2	UJ	2
Benzaldehyde	NS	ug/L	1	U	1	1	U	1	1	U	1	1	UJ	1	1	UJ	1	1	UJ	1	1	UJ	1	1	UJ	1	1	UJ	1	1	UJ	1	1	UJ	1	1	UJ	1	1	UJ	1	1	UJ	1
Benzo[a]anthracene	0.002	ug/L	0.1	U	0.1	0.1	U	0.1	0.1	U	0.1	0.1	U	0.1	0.1	U	0.1	0.1	U	0.1	0.1	U	0.1	0.1	U	0.1	0.1	U	0.1	0.1	U	0.1	0.1	U	0.1	0.1	U	0.1	0.1	U	0.1	0.1	U	0.1
Benzo[a]pyrene	ND	ug/L	0.1	U	0.1	0.1	U	0.1	0.1	U	0.1	0.1	U	0.1	0.1	U	0.1	0.1	U	0.1	0.1	U	0.1	0.1	U	0.1	0.1	U	0.1	0.1	U	0.1	0.1	U	0.1	0.1	U	0.1	0.1	U	0.1	0.1	U	0.1
Benzo[b]fluoranthene	0.002	ug/L	0.1	U	0.1	0.1	U	0.1	0.1	U	0.1	0.1	U	0.1	0.1	U	0.1	0.1	U	0.1	0.1	U	0.1	0.1	U	0.1	0.1	U	0.1	0.1	U	0.1	0.1	U	0.1	0.1	U	0.1	0.1	U	0.1	0.1	U	0.1
Benzo[g,h,i]perylene	NS	ug/L	0.1	U	0.1	0.1	U	0.1	0.1	U	0.1	0.1	U	0.1	0.1	U	0.1	0.1	U	0.1	0.1	U	0.1	0.1	U	0.1	0.1	U	0.1	0.1	U	0.1	0.1	U	0.1	0.1	U	0.1	0.1	U	0.1	0.1	U	0.1
Benzo[k]fluoranthene	0.002	ug/L	0.1	U	0.1	0.1	U	0.1	0.1	U	0.1	0.1	U	0.1	0.1	U	0.1	0.1	U	0.1	0.1	U	0.1	0.1	U	0.1	0.1	U	0.1	0.1	U	0.1	0.1	U	0.1	0.1	U	0.1	0.1	U	0.1	0.1	U	0.1
Biphenyl	NS	ug/L	0.5	U	0.5	0.5	U	0.5	0.5	U	0.5	0.9	J	0.5	0.5	U	0.5	0.7	J	0.5	0.5	U	0.5	0.5	U	0.5	0.5	U	0.5	0.5	U	0.5	0.5	U	0.5	0.5	U	0.5	0.5	U	0.5	0.5	U	0.5
Bis(2-chloroethoxy)methane	5	ug/L	0.5	U	0.5	0.5	U	0.5	0.5	U	0.5	0.5	U	0.5	0.5	U	0.5	0.5	U	0.5	0.5	U	0.5	0.5	U	0.5	0.5	U	0.5	0.5	U	0.5	0.5	U	0.5	0.5	U	0.5	0.5	U	0.5	0.5	U	0.5
Bis(2-chloroethyl) Ether	1	ug/L	0.5	U	0.5	0.5	U	0.5	0.5	U	0.5	0.5	U	0.5	0.5	U	0.5	0.5	U	0.5	0.5	U	0.5	0.5	U	0.5	0.5	U	0.5	0.5	U	0.5	0.5	U	0.5	0.5	U	0.5	0.5	U	0.5	0.5	U	0.5
Bis(2-chloroisopropyl) Ether	NS	ug/L	0.5	U	0.5	0.5	U	0.5	0.5	U	0.5	0.5	U	0.5	0.5	U	0.5	0.5	U	0.5	0.5	U	0.5	0.5	U	0.5	0.5	U	0.5	0.5	U	0.5	0.5	U	0.5	0.5	U	0.5	0.5	U	0.5	0.5	U	0.5
Bis(2-ethylhexyl) Phthalate	5	ug/L	2	U	2	2	U	2	2	U	2	2	U	2	2	U	2	2	U	2	2	U	2	2	U	2	**6**		2	2	U	2	2	U	2	2	U	2	2	U	2	2	U	2	**24**		2
Butylbenzyl Phthalate	50	ug/L	2	U	2	2	U	2	2	U	2	2	U	2	2	U	2	2	U	2	2	U	2	2	U	2	2	U	2	2	U	2	2	U	2	2	U	2	2	U	2	2	U	2	2	U	2
Caprolactum	NS	ug/L	5	U	5	5	U	5	5	U	5	5	U	5	5	U	5	5	U	5	5	U	5	5	U	5	5	U	5	5	U	5	5	U	5	5	U	5	5	U	5	5	U	5	5	U	5
Carbazole	NS	ug/L	0.5	U	0.5	0.5	U	0.5	0.5	U	0.5	0.5	U	0.5	0.5	U	0.5	0.5	U	0.5	0.5	U	0.5	0.5	U	0.5	0.5	U	0.5	0.5	U	0.5	0.5	U	0.5	0.5	U	0.5	0.5	U	0.5	0.5	U	0.5	0.5	U	0.5
Chrysene	0.002	ug/L	0.1	U	0.1	0.1	U	0.1	0.1	U	0.1	**1**		0.1	**0.2**	J	0.1	0.1	U	0.1	0.1	U	0.1	0.1	U	0.1	**2**		0.1	0.1	U	0.1	0.1	U	0.1	0.1	U	0.1	**0.3**	J	0.1	0.1	U	0.1	0.1	U	0.1
Dibenzo[a,h]anthracene	NS	ug/L	0.1	U	0.1	0.1	U	0.1	0.1	U	0.1	0.1	U	0.1	0.1	U	0.1	0.1	U	0.1	0.1	U	0.1	0.1	U	0.1	0.1	U	0.1	0.1	U	0.1	0.1	U	0.1	0.1	U	0.1	0.1	U	0.1	0.1	U	0.1	0.1	U	0.1
Dibenzofuran	NS	ug/L	0.5	U	0.5	0.5	U	0.5	0.5	U	0.5	0.5	U	0.5	0.5	U	0.5	0.5	U	0.5	0.5	U	0.5	0.5	U	0.5	0.5	U	0.5	0.5	U	0.5	0.5	U	0.5	0.5	U	0.5	0.5	U	0.5	0.5	U	0.5	0.5	U	0.5
Diethyl Phthalate	50	ug/L	2	U	2	2	U	2	2	U	2	2	U	2	2	U	2	2	U	2	2	U	2	2	U	2	2	U	2	2	U	2	2	U	2	2	U	2	2	U	2	2	U	2	2	U	2
Dimethyl Phthalate	50	ug/L	2	U	2	2	U	2	2	U	2	2	U	2	2	U	2	2	U	2	2	U	2	2	U	2	2	U	2	2	U	2	2	U	2	2	U	2	2	U	2	2	U	2	2	U	2
Di-n-Butyl Phthalate	50	ug/L	2	U	2	2	U	2	2	U	2	2	U	2	2	U	2	2	U	2	2	U	2	2	U	2	2	U	2	2	U	2	2	U	2	2	U	2	2	U	2	2	U	2	2	U	2
Di-n-octyl Phthalate	NS	ug/L	2	U	2	2	U	2	2	U	2	2	U	2	2	U	2	2	U	2	2	U	2	2	U	2	2	U	2	2	U	2	2	U	2	2	U	2	2	U	2	2	U	2	2	U	2
Fluoranthene	50	ug/L	0.1	U	0.1	0.1	U	0.1	0.1	U	0.1	0.4	J	0.1	0.1	J	0.1	0.1	U	0.1	0.1	U	0.1	0.1	U	0.1	0.3	J	0.1	0.1	U	0.1	0.1	U	0.1	0.1	J	0.1	0.1	U	0.1	0.1	U	0.1	0.2	J	0.1
Fluorene	50	ug/L	0.1	U	0.1	0.1	U	0.1	0.1	U	0.1	0.9		0.1	0.2	J	0.1	1		0.1	0.1	U	0.1	0.1	U	0.1	0.5		0.1	0.1	U	0.1	0.1	U	0.1	0.2	J	0.1	0.1	U	0.1	0.1	U	0.1	0.1	J	0.1
Hexachlorobenzene	0.04	ug/L	0.1	U	0.1	0.1	U	0.1	0.1	U	0.1	0.1	U	0.1	0.1	U	0.1	0.1	U	0.1	0.1	U	0.1	0.1	U	0.1	0.1	U	0.1	0.1	U	0.1	0.1	U	0.1	0.1	U	0.1	0.1	U	0.1	0.1	U	0.1	0.1	U	0.1
Hexachlorobutadiene	0.5	ug/L	0.5	U	0.5	0.5	U	0.5	0.5	U	0.5	0.5	U	0.5	0.5	U	0.5	0.5	U	0.5	0.5	U	0.5	0.5	U	0.5	0.5	U	0.5	0.5	U	0.5	0.5	U	0.5	0.5	U	0.5	0.5	U	0.5	0.5	U	0.5	0.5	U	0.5
Hexachlorocyclopentadiene	5	ug/L	5	U	5	5	U	5	5	U	5	5	U	5	5	U	5	5	U	5	5	U	5	5	U	5	5	U	5	5	U	5	5	U	5	5	U	5	5	U	5	5	U	5	5	U	5
Hexachloroethane	5	ug/L	1	U	1	1	U	1	1	U	1	1	U	1	1	U	1	1	U	1	1	U	1	1	U	1	1	U	1	1	U	1	1	U	1	1	U	1	1	U	1	1	U	1	1	U	1
Indeno[1,2,3-cd]pyrene	0.002	ug/L	0.1	U	0.1	0.1	U	0.1	0.1	U	0.1	0.1	U	0.1	0.1	U	0.1	0.1	U	0.1	0.1	U	0.1	0.1	U	0.1	0.1	U	0.1	0.1	U	0.1	0.1	U	0.1	0.1	U	0.1	0.1	U	0.1	0.1	U	0.1	0.1	U	0.1
Isophorone	50	ug/L	0.5	U	0.5	0.5	U	0.5	0.5	U	0.5	0.5	U	0.5	0.5	U	0.5	0.5	U	0.5	0.5	U	0.5	0.5	U	0.5	0.5	U	0.5	0.5	U	0.5	0.5	U	0.5	0.5	U	0.5	0.5	U	0.5	0.5	U	0.5	0.5	U	0.5
Naphthalene	10	ug/L	0.1	U	0.1	0.1	U	0.1	0.1	U	0.1	**54**		0.1	2		0.1	**88**		0.1	0.1	U	0.1	0.1	U	0.1	**42**		0.1	0.1	U	0.1	0.1	J	0.1	0.1	U	0.1	0.1	U	0.1	0.1	U	0.1	0.8		0.1
Nitrobenzene	0.4	ug/L	0.5	U	0.5	0.5	U	0.5	0.5	U	0.5	0.5	U	0.5	0.5	U	0.5	0.5	U	0.5	0.5	U	0.5	0.5	U	0.5	0.5	U	0.5	0.5	U	0.5	0.5	U	0.5	0.5	U	0.5	0.5	U	0.5	0.5	U	0.5	0.5	U	0.5
N-Nitroso-di-n-propylamine	NS	ug/L	0.5	U	0.5	0.5	U	0.5	0.5	U	0.5	0.5	U	0.5	0.5	U	0.5	0.5	U	0.5	0.5	U	0.5	0.5	U	0.5	0.5	U	0.5	0.5	U	0.5	0.5	U	0.5	0.5	U	0.5	0.5	U	0.5	0.5	U	0.5	0.5	U	0.5
N-Nitrosodiphenylamine	50	ug/L	0.5	U	0.5	0.5	U	0.5	0.5	U	0.5	8		0.5	0.5	U	0.5	5		0.5	0.5	U	0.5	0.5	U	0.5	4		0.5	0.5	U	0.5	0.5	U	0.5	0.5	U	0.5	0.5	U	0.5	0.5	U	0.5	0.5	U	0.5
Pentachlorophenol	1	ug/L	1	U	1	1	U	1	1	U	1	1	U	1	1	U	1	1	U	1	1	U	1	1	U	1	1	U	1	1	U	1	1	U	1	1	U	1	1	U	1	1	U	1	1	U	1
Phenanthrene	50	ug/L	0.1	U	0.1	0.1	U	0.1	0.1	U	0.1	3		0.1	0.5		0.1	0.8		0.1	0.1	U	0.1	0.1	U	0.1	1		0.1	0.1	U	0.1	0.1	U	0.1	0.7		0.1	0.1	J	0.1	0.1	U	0.1	0.4	J	0.1
Phenol	1	ug/L	0.5	U	0.5	0.5	U	0.5	0.5	U	0.5	0.5	U	0.5	0.5	U	0.5	0.5	U	0.5	0.5	U	0.5	0.5	U	0.5	0.5	U	0.5	0.5	U	0.5	0.5	U	0.5	0.5	U	0.5	0.5	U	0.5	0.5	U	0.5	0.5	U	0.5
Pyrene	50	ug/L	0.1	U	0.1	0.1	U	0.1	0.1	U	0.1	0.6		0.1	0.1	J	0.1	0.1	U	0.1	0.1	U	0.1	0.1	U	0.1	0.8		0.1	0.1	U	0.1	0.1	U	0.1	0.2	J	0.1	0.1	U	0.1	0.1	U	0.1	0.2	J	0.1
TPH-GRO by EPA Method 8015B																																													
TPH as C6-C10	NS	ug/L	NA			NA			NA			33000		500	960		50	19000		500	65		50	18000		250	50	U	50	48	J	50	330		50	73		50	110		50	24000		250

Notes:

1) **BOLD** - Result exceeds applicable standard
2) RL - Reporting limit
3) Qual - Validated Qualifiers
4) NS: No Standard
5) ND: A non-detectable concentration by the approved analytical methods referenced in 6 NYCRR 700.3
6) U: Result not detected above reporting limit
7) J: Result is estimated.
8) ug/L = micrograms per liter
9) Std: 6 NYCRR 703.6 Groundwater Effluent Limitations for Discharges to Class GA Water, and as supplemented by NYSDEC TOGS 1.1.1 (6/1998)
10) * : Represents a Guidance value provided for a substance in NYSDEC TOGS 1.1.1 (6/1998) where no standard value has been promulgated and placed into regulation.

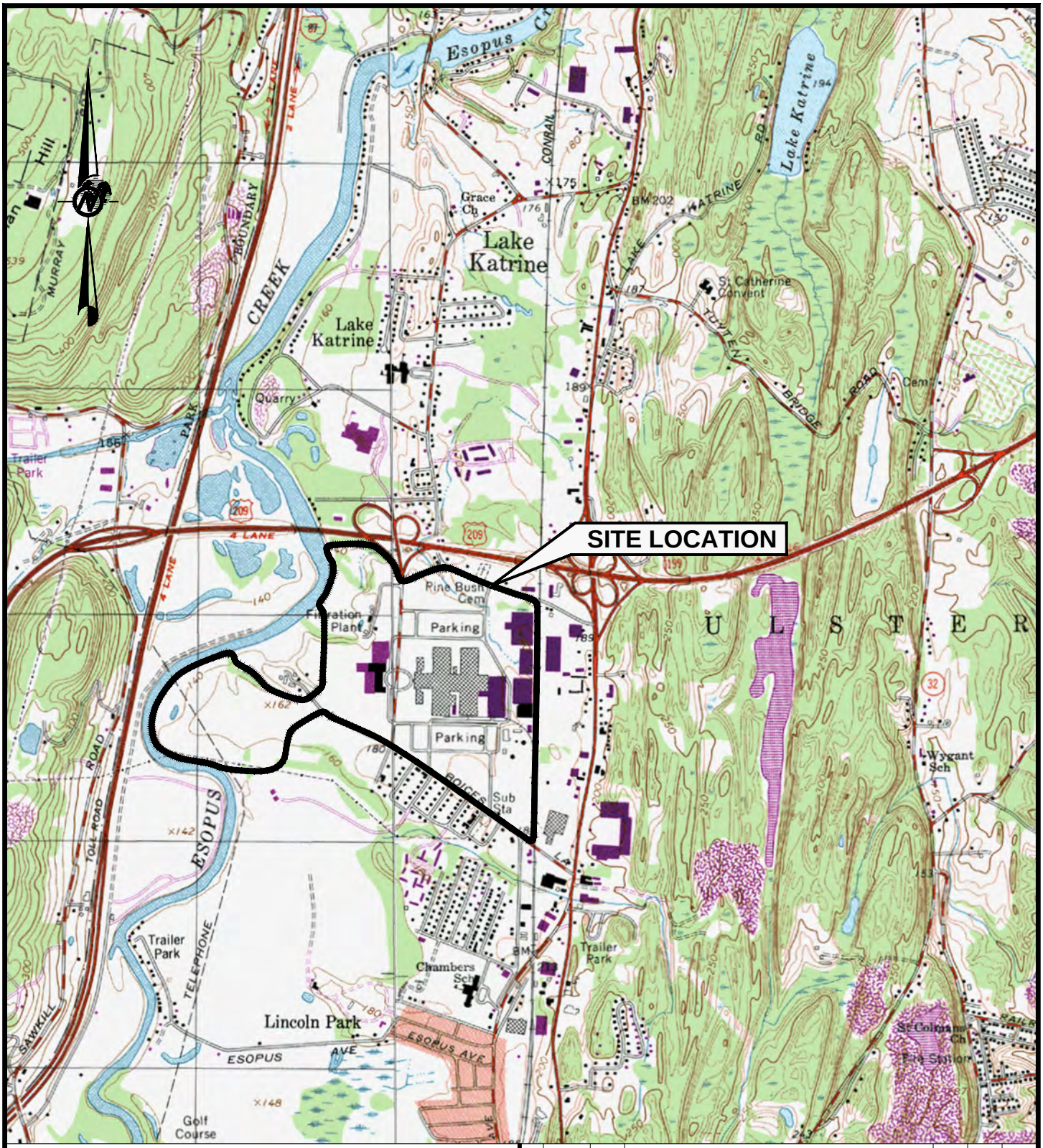
Table 7: Groundwater Sampling Results - Supplemental IW Lines Investigation

Sample ID			IWB1-TW-07-08			IWB1-TW-08-10			IWB1-TW-09-16			IWB3-TW-01-10			IWB3-TW-02-20		
Sample Date			10/26/2011			10/26/2011			10/26/2011			10/26/2011			10/26/2011		
N=Normal, FD=Field Duplicate			N			N			N			N			N		
Parameter	**Std**	**Unit**	**Result**	**Qual**	**RL**	**Result**	**Qual**	**RL**	**Result**	**Qual**	**RL**	**Result**	**Qual**	**RL**	**Result**	**Qual**	**RL**
VOCs by EPA Method 8260B																	
1,1,1,2-Tetrachloroethane	5	ug/L	0.1	U	0.1	0.1	U	0.1	0.2	U	0.2	0.2	U	0.2	0.5	U	0.5
1,1,1-Trichloroethane	5	ug/L	0.2	J	0.1	0.4	J	0.1	2.5		0.2	**29**		0.2	**620**		5
1,1,2,2-Tetrachloroethane	5	ug/L	0.1	U	0.1	0.1	U	0.1	0.2	U	0.2	0.2	U	0.2	0.5	U	0.5
1,1,2-Trichloroethane	1	ug/L	0.1	U	0.1	0.1	U	0.1	0.5	J	0.2	0.2	U	0.2	0.5	U	0.5
1,1-Dichloroethane	5	ug/L	0.5		0.1	1		0.1	**13**		0.2	4.7		0.2	**230**		5
1,1-Dichloroethene	5	ug/L	0.5	J	0.1	1		0.1	**16**		0.2	1.9		0.2	**54**		0.5
1,2,3-Trichloropropane	0.04	ug/L	0.3	U	0.3	0.3	U	0.3	0.6	U	0.6	0.6	U	0.6	1.5	U	1.5
1,2-Dichloro-1,1,2-trifluoroethane	NS	ug/L	0.2	U	0.2	0.2	U	0.2	0.7	J	0.4	0.4	U	0.4	2.9		1
1,2-Dichlorobenzene	3	ug/L	0.1	U	0.1	0.1	U	0.1	0.2	U	0.2	0.2	U	0.2	0.5	U	0.5
1,2-Dichloroethane	0.6	ug/L	0.1	U	0.1	0.1	U	0.1	0.2	U	0.2	0.2	U	0.2	**33**		0.5
1,2-Dichloroethene, Total	5	ug/L	0.7		0.1	1.6		0.1	**5.8**		0.2	**40**		0.2	**300**		5
1,2-Dichloropropane	1	ug/L	0.1	U	0.1	0.1	U	0.1	0.2	U	0.2	0.2	U	0.2	0.5	U	0.5
1,3-Dichlorobenzene	3	ug/L	0.1	U	0.1	0.1	U	0.1	0.2	U	0.2	0.2	U	0.2	0.5	U	0.5
1,4-Dichlorobenzene	3	ug/L	0.1	U	0.1	0.1	U	0.1	0.2	U	0.2	0.2	U	0.2	0.5	U	0.5
2-Chlorotoluene	5	ug/L	0.1	U	0.1	0.1	U	0.1	0.2	U	0.2	0.2	U	0.2	0.5	U	0.5
4-Chlorotoluene	5	ug/L	0.1	U	0.1	0.1	U	0.1	0.2	U	0.2	0.2	U	0.2	0.5	U	0.5
Benzene	1	ug/L	0.1	U	0.1	0.1	U	0.1	0.2	U	0.2	0.2	U	0.2	0.5	U	0.5
Benzyl Chloride	NS	ug/L	0.1	U	0.1	0.1	U	0.1	0.2	U	0.2	0.2	U	0.2	0.5	U	0.5
Bromobenzene	5	ug/L	0.1	U	0.1	0.1	U	0.1	0.2	U	0.2	0.2	U	0.2	0.5	U	0.5
Bromodichloromethane	50*	ug/L	0.1	U	0.1	0.1	U	0.1	0.2	U	0.2	0.2	U	0.2	0.5	U	0.5
Bromoform	50*	ug/L	0.1	U	0.1	0.1	U	0.1	0.2	U	0.2	0.2	U	0.2	0.5	U	0.5
Bromomethane	5	ug/L	0.1	U	0.1	0.1	U	0.1	0.2	U	0.2	0.2	U	0.2	0.5	U	0.5
Carbon Tetrachloride	5	ug/L	0.1	U	0.1	0.1	U	0.1	0.2	U	0.2	0.2	U	0.2	0.5	U	0.5
Chlorobenzene	5	ug/L	0.1	U	0.1	0.1	U	0.1	0.2	U	0.2	0.2	U	0.2	0.5	U	0.5
Chloroethane	5	ug/L	0.1	U	0.1	0.1	U	0.1	0.2	U	0.2	0.2	U	0.2	0.5	U	0.5
Chloroform	7	ug/L	1.2		0.1	0.1	U	0.1	1	J	0.2	0.2	U	0.2	0.5	J	0.5
Chloromethane	NS	ug/L	0.2	U	0.2	0.2	U	0.2	0.4	U	0.4	0.4	U	0.4	1	U	1
cis-1,3-Dichloropropene	0.4	ug/L	0.1	U	0.1	0.1	U	0.1	0.2	U	0.2	0.2	U	0.2	0.5	U	0.5
Dibromochloromethane	50*	ug/L	0.1	U	0.1	0.1	U	0.1	0.2	U	0.2	0.2	U	0.2	0.5	U	0.5
Dibromomethane	5	ug/L	0.1	U	0.1	0.1	U	0.1	0.2	U	0.2	0.2	U	0.2	0.5	U	0.5
Dichlorodifluoromethane	5	ug/L	0.1	U	0.1	0.1	U	0.1	0.2	U	0.2	0.2	U	0.2	0.5	U	0.5
Ethylbenzene	5	ug/L	0.1	U	0.1	0.1	U	0.1	0.2	U	0.2	0.2	U	0.2	0.5	U	0.5
Freon 113	5	ug/L	0.2	U	0.2	0.3	J	0.2	2.4		0.4	0.4	U	0.4	2.5	J	1
Methylene Chloride	5	ug/L	0.2	U	0.2	0.2	U	0.2	1	U	1	1	U	1	2.5	U	2.5
Tetrachloroethene	5	ug/L	0.4	J	0.1	1.2		0.1	4.6		0.2	**10**		0.2	**25**		0.5
Toluene	5	ug/L	0.1	U	0.1	0.1	J	0.1	0.2	U	0.2	0.2	U	0.2	0.5	U	0.5
trans-1,3-Dichloropropene	0.4	ug/L	0.1	U	0.1	0.1	U	0.1	0.2	U	0.2	0.2	U	0.2	0.5	U	0.5
Trichloroethene	5	ug/L	**8.2**		0.1	**24**		1	**190**		2	**290**		2	**580**		5
Trichlorofluoromethane	5	ug/L	0.1	U	0.1	0.1	U	0.1	0.2	U	0.2	0.2	U	0.2	0.5	U	0.5
Vinyl Chloride	2	ug/L	0.1	U	0.1	0.1	U	0.1	0.2	U	0.2	0.2	U	0.2	**11**		0.5
Xylenes, Total	5	ug/L	0.1	U	0.1	0.1	U	0.1	0.2	U	0.2	0.2	U	0.2	0.5	U	0.5

Notes:

1) **BOLD** - Result exceeds applicable standard
2) RL - Reporting limit
3) Qual - Validated Qualifiers
4) NS: No Standard
5) ND: A non-detectable concentration by the approved analytical methods referenced in 6 NYCRR 700.3
6) U: Result not detected above reporting limit
7) J: Result is estimated.
8) ug/L = micrograms per liter
9) * : Represents a Guidance value provided for a substance in NYSDEC TOGS 1.1.1 (6/1998) where no standard value has been promulgated and placed into regulation.
10) Std: 6 NYCRR 703.6 Groundwater Effluent Limitations for Discharges to Class GA Water, and as supplemented by NYSDEC TOGS 1.1.1 (6/1998)

FIGURES



2000 0 2000

SCALE FEET

REFERENCE

1.) BASE MAP TAKEN FROM USGS 7.5 MINUTE SERIES QUADRANGLES OF KINGSTON EAST, NY, DATED 1963, PHOTOREVISED 1980, AND KINGSTON WEST, NY, DATED 1997.

REV	DATE	DES	REVISION DESCRIPTION	CADD	CHK	RVW

PROJECT

FORMER IBM FACILITY
KINGSTON, NEW YORK

TITLE

SITE LOCATION MAP

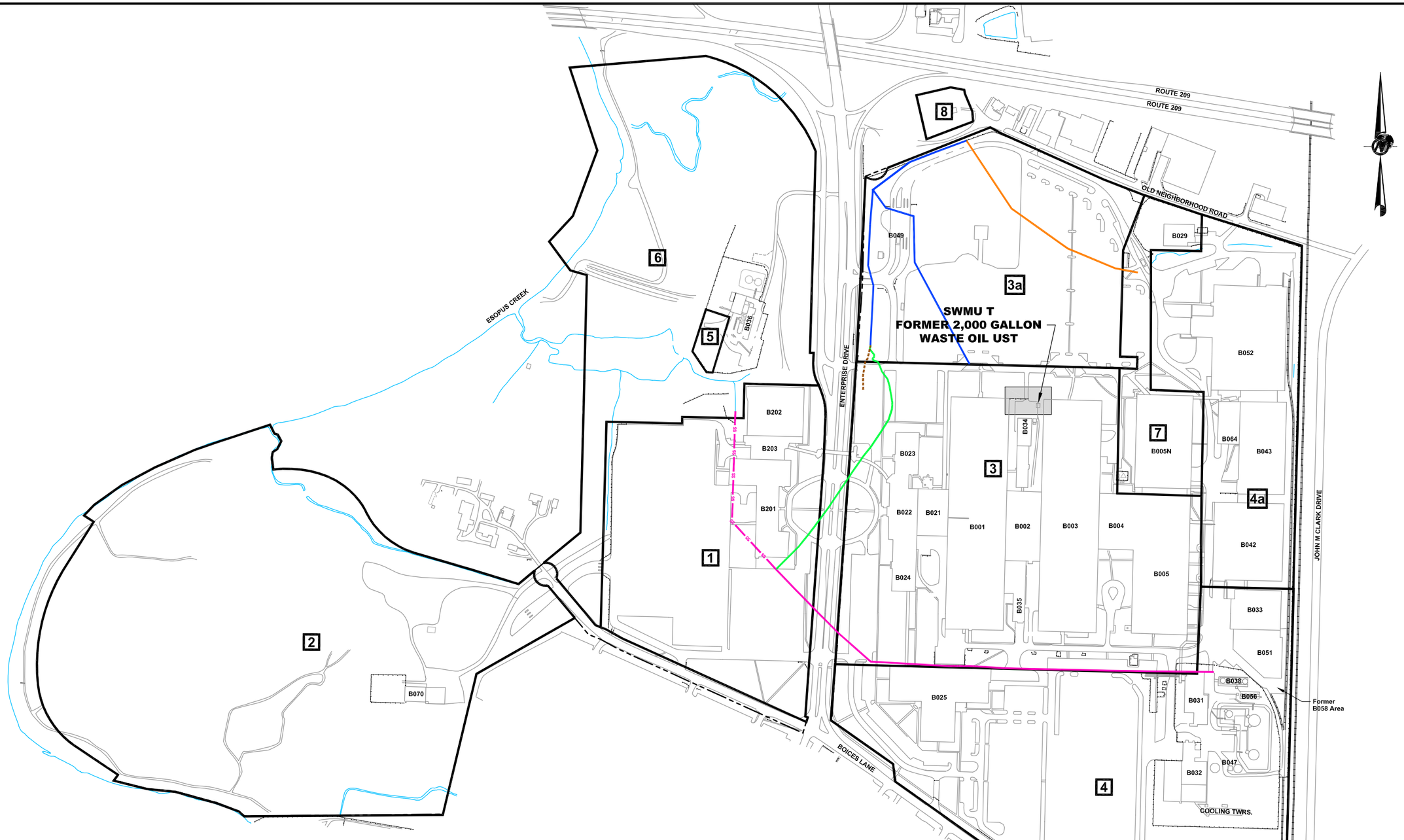
NJ Authorization #24GA28029100

Golder Associates
Newark, New Jersey

PROJECT No.		083-87071	FILE No.	083870710001
DESIGN	DPG	04/05/12	SCALE AS SHOWN	REV. 0
CADD	RG	04/05/12		
CHECK	CDH	04/05/12		
REVIEW	APTM	04/05/12		

FIGURE 1

Drawing file: 083870710001.DWG Apr 05, 2012 - 1:50pm



LEGEND

- PROPERTY/PARCEL BOUNDARY
- RIVER/STREAM
- 42–INCH DIAMETER SEWER SYSTEM (SITE PERIMETER CONTROL SYSTEM)
- UNSATURATED SURFICIAL SAND UNIT (SITE PERIMETER CONTROL SYSTEM)
- GROUNDWATER COLLECTION SYSTEM (SITE PERIMETER CONTROL SYSTEM)
- 60–INCH DIAMETER SEWER SYSTEM (SITE PERIMETER CONTROL SYSTEM)
- UTILITY TRENCH BARRIER WALL
- SS — SS — SS — STORM SEWER LINE
- B003 — BUILDING NUMBER
- 1 — OPERABLE UNIT (OU)
- SWMU T INVESTIGATION AREA

REFERENCES

1.) BASE MAP TAKEN FROM DIGITAL CAD FILE 3002–108–I3.DWG, DRAWING NUMBER 93002–108–I3 ENTITLED "LOCATION MAP," DATED MARCH 5, 2009, PROVIDED BY GROUNDWATER SCIENCES CORPORATION.

2.) OPERABLE UNIT BOUNDARIES DIGITIZED FROM A HARDCOPY FILE ENTITLED "Operable Unit Composite MAP_2011–0830.pdf," PREPARED BY BRINNIER & LARIOS, P.C.

3.) FORMER 2,000 GALLON WASTE OIL UST DIGITIZED FROM A HARDCOPY FILE ENTITLED "FORMER WASTE OIL UST SWMU," DATED FEBRUARY 26, 1997, PREPARED BY GROUNDWATER SCIENCES CORPORATION.

200 0 200 400
SCALE FEET

NJ Authorization #24GA28039100

Golder Associates
Newark, New Jersey

REV	DATE	DES	REVISION DESCRIPTION	CADD	CHK	RVW

PROJECT
FORMER IBM FACILITY
KINGSTON, NEW YORK

TITLE
OPERABLE UNITS AND INVESTIGATION AREA (SWMU T)

PROJECT No.		083–87071
FILE No.		08387071Q002
REV. 0	SCALE	AS SHOWN
DESIGN	DPG	04/05/12
CADD	RG	04/05/12
CHECK	CDH	04/05/12
REVIEW	APTM	04/05/12

FIGURE 2

Drawing File: 08387071Q002.dwg | Layout: 11x17_08-2006 | Modified: 04/05/12 1:53pm | Plotted: 04/05/12 1:54pm | Plotted by: rgrams

LEGEND

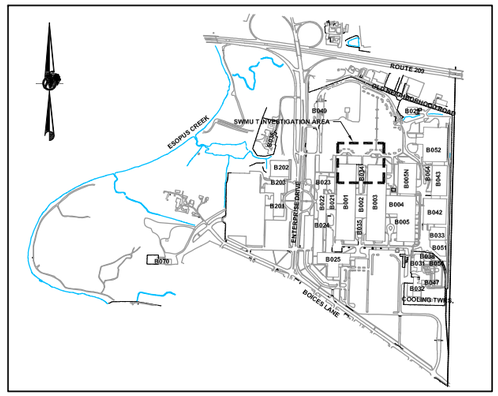
- PROPERTY/PARCEL BOUNDARY
- B005 — BUILDING NUMBER
- INACTIVE SUBSURFACE INDUSTRIAL WASTE LINES
- 6-INCH VITREOUS CLAY FOURTH OR "SPARE" IW LINE
- APPROXIMATE LOCATION OF FORMER SWMU T WASTE OIL TANK
- EXISTING MONITORING WELL
- SWMU T MIP LOCATION
- SWMU T SOIL BORING/TEMPORARY WELL LOCATION
- OCTOBER 2011 SUPPLEMENTAL IW LINES INVESTIGATION MIP LOCATION
- OCTOBER 2011 SUPPLEMENTAL IW LINES INVESTIGATION TEMPORARY WELL LOCATION
- AREA IS INACCESSIBLE DUE TO LOW CEILINGS AND REMAINING OFFICE INFRASTRUCTURE

REFERENCES

1.) BASE MAP TAKEN FROM DIGITAL CAD FILE SITEMAP.DWG, DRAWING NUMBER 93002-SITEMAP/2 ENTITLED "SITE MAP," DATED MAY 9, 2005, PROVIDED BY GROUNDWATER SCIENCES CORPORATION.

2.) INACTIVE SUBSURFACE INDUSTRIAL WASTE LINES AND 6-INCH VITREOUS CLAY FOURTH OR "SPARE" IW LINE TAKEN FROM DIGITAL FILE 3002-108-I3.DWG, ENTITLED "LOCATION MAP," DATED MARCH 5, 2009, PREPARED BY GROUNDWATER SCIENCES CORPORATION.

3.) FORMER 2,000 GALLON WASTE OIL UST DIGITIZED FROM A HARDCOPY FILE ENTITLED "FORMER WASTE OIL UST SWMU," DATED FEBRUARY 26, 1997, PREPARED BY GROUNDWATER SCIENCES CORPORATION.



KEY MAP

SCALE 25 0 25 50 FEET

REV	DATE	DES	REVISION DESCRIPTION	CADD	CHK	RVW

PROJECT

FORMER IBM FACILITY
KINGSTON, NEW YORK

TITLE

MEMBRANE INTERFACE PROBE, SOIL BORING AND TEMPORARY WELL LOCATIONS (SWMU T)

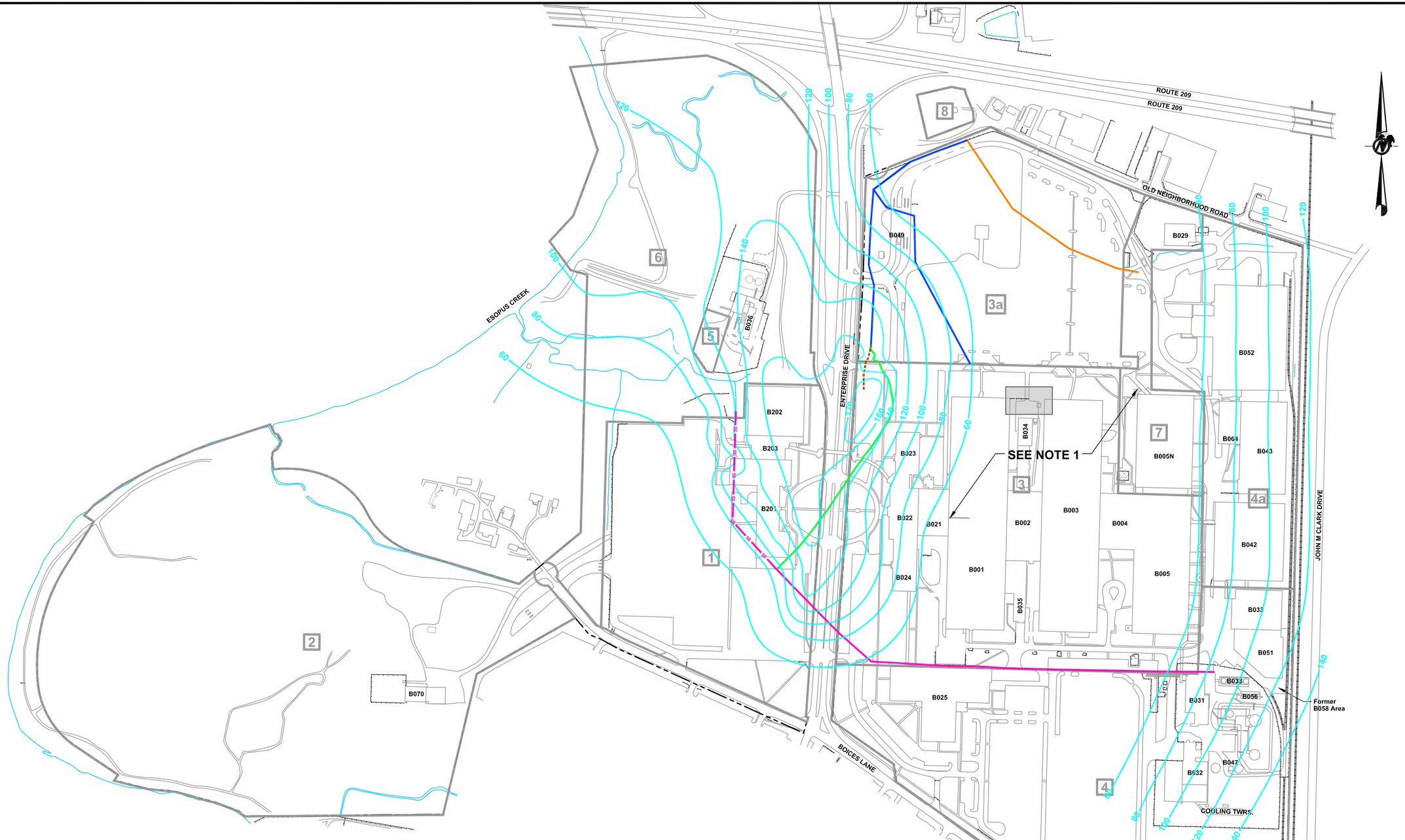
NJ Authorization #24GA2802900

Golder Associates
Newark, New Jersey

PROJECT No.	083-87071		FILE No.	08387071Q005	
DESIGN	DPG	04/05/12	SCALE	AS SHOWN	REV. 0
CADD	RG	04/05/12			
CHECK	CDH	04/05/12			
REVIEW	APTM	04/05/12			

FIGURE 3

Drawing file: 08387071Q005.DWG Apr 05, 2012 - 1:45pm



LEGEND

- PROPERTY/PARCEL BOUNDARY
- RIVER/STREAM
- 42-INCH DIAMETER SEWER SYSTEM (SITE PERIMETER CONTROL SYSTEM)
- UNSATURATED SURFICIAL SAND UNIT (SITE PERIMETER CONTROL SYSTEM)
- GROUNDWATER COLLECTION SYSTEM (SITE PERIMETER CONTROL SYSTEM)
- 60-INCH DIAMETER SEWER SYSTEM (SITE PERIMETER CONTROL SYSTEM)
- UTILITY TRENCH BARRIER WALL
- SS — SS — SS — STORM SEWER LINE
- B003 — BUILDING NUMBER
- 160 — INTERPRETED TOP OF BEDROCK ELEVATION CONTOUR (FT. MSL) (SEE NOTE 1)
- 1 — OPERABLE UNIT (OU)
- SWMU T INVESTIGATION AREA

NOTE

1.) NO DEPTH TO BEDROCK DATA AVAILABLE IN THIS AREA.

REFERENCES

1.) BASE MAP TAKEN FROM DIGITAL CAD FILE 3002-108-I3.DWG, DRAWING NUMBER 93002-108-I3 ENTITLED "LOCATION MAP," DATED MARCH 5, 2009, PROVIDED BY GROUNDWATER SCIENCES CORPORATION.

2.) OPERABLE UNIT BOUNDARIES DIGITIZED FROM A HARDCOPY FILE ENTITLED "Operable Unit Composite MAP_2011-0830.pdf," PREPARED BY BRINNIER & LARIOS, P.C.

3.) TOP OF BEDROCK CONTOURS FROM DIGITAL FILE 93002-005-C2_TopBR.dxf, ENTITLED "TOP OF BEDROCK CONTOUR MAP," DATED FEBRUARY 22, 2002, PROVIDED BY GROUNDWATER SCIENCES CORPORATION.

3.) FORMER 2,000 GALLON WASTE OIL UST DIGITIZED FROM A HARDCOPY FILE ENTITLED "FORMER WASTE OIL UST SWMU," DATED FEBRUARY 26, 1997, PREPARED BY GROUNDWATER SCIENCES CORPORATION.

200 0 200 400
SCALE FEET

NJ Authorization #24GA28039100

Golder Associates
Newark, New Jersey

REV	DATE	DES	REVISION DESCRIPTION	CADD	CHK	RVW

PROJECT

FORMER IBM FACILITY
KINGSTON, NEW YORK

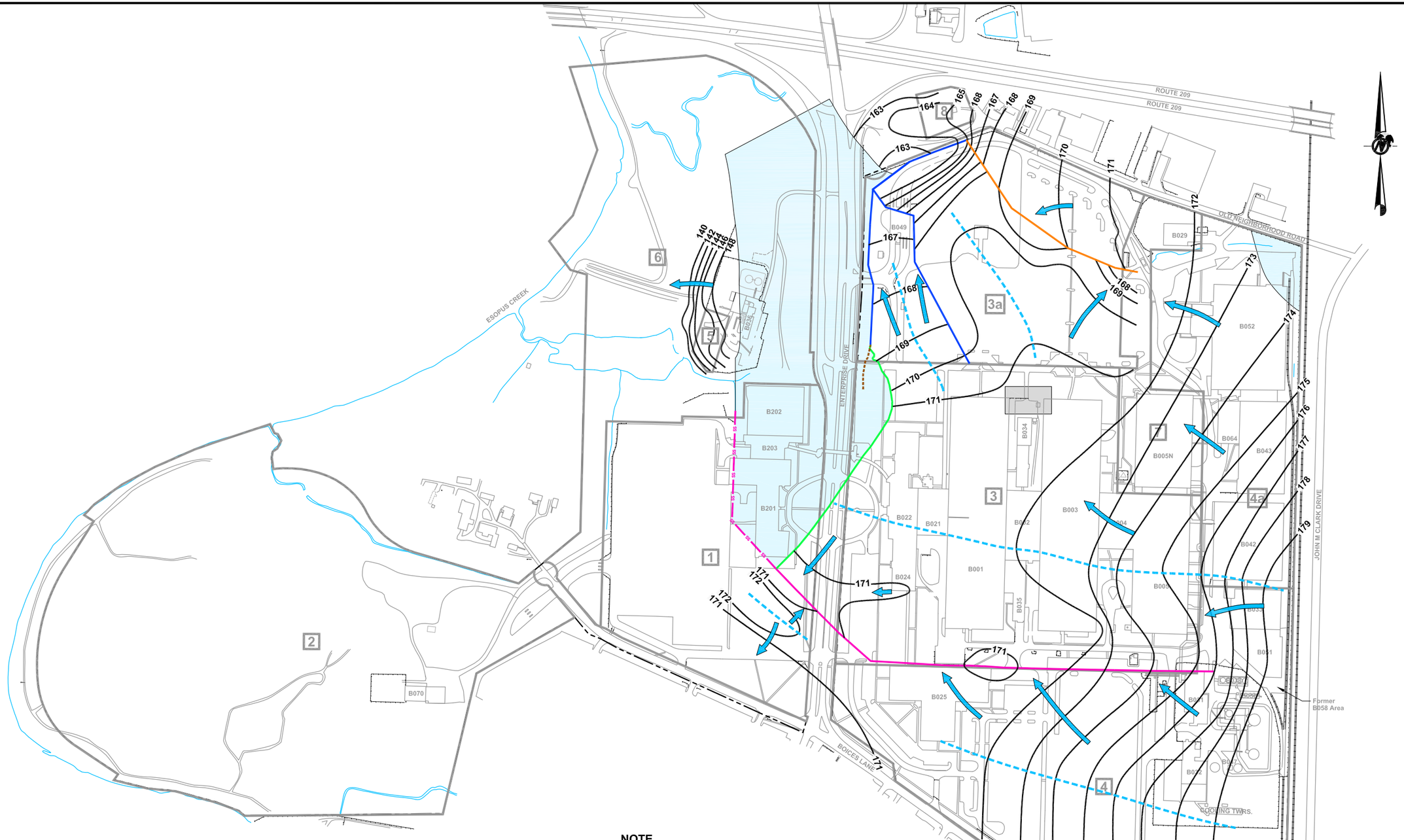
TITLE

INTERPRETED TOP OF BEDROCK CONTOUR MAP

PROJECT No.	083-87071		
FILE No.	083870710006		
REV. 0	SCALE	AS SHOWN	
DESIGN	DPG	04/05/12	
CADD	RG	04/05/12	
CHECK	CDH	04/05/12	
REVIEW	APTM	04/05/12	

FIGURE 4

Drawing File: 083870710006.dwg | Layout: 11x17-08-2006 | Modified: 04/05/12 1:55pm | Plotted: 04/05/12 1:55pm | Plotted by: rgrams



LEGEND

- PROPERTY/PARCEL BOUNDARY
- RIVER/STREAM
- 42-INCH DIAMETER SEWER SYSTEM (SITE PERIMETER CONTROL SYSTEM)
- UNSATURATED SURFICIAL SAND UNIT (SITE PERIMETER CONTROL SYSTEM)
- GROUNDWATER COLLECTION SYSTEM (SITE PERIMETER CONTROL SYSTEM)
- 60-INCH DIAMETER SEWER SYSTEM (SITE PERIMETER CONTROL SYSTEM)
- UTILITY TRENCH BARRIER WALL
- SS STORM SEWER LINE
- B003 BUILDING NUMBER
- 160 INTERPRETED ELEVATION OF THE GROUNDWATER TABLE SURFACE (FT. MSL) (SEE REFERENCE 4)
- INTERPRETED GROUNDWATER FLOW DIRECTION IN SURFICIAL SAND
- INTERPRETED EXTENT OF UNSATURATED PORTION OF THE SURFICIAL SAND (SEE NOTE 1)
- SWMU T INVESTIGATION AREA
- INFERRED GROUNDWATER DIVIDE
- 1 OPERABLE UNIT (OU)

NOTE

1.) THE INTERPRETED EXTENT OF THE UNSATURATED SURFICIAL SAND HAS BEEN UPDATED TO REFLECT INFORMATION COLLECTED THROUGH THE SWMU T INVESTIGATION.

REFERENCES

1.) BASE MAP TAKEN FROM DIGITAL CAD FILE 3002-108-I3.DWG, DRAWING NUMBER 93002-108-I3 ENTITLED "LOCATION MAP," DATED MARCH 5, 2009, PROVIDED BY GROUNDWATER SCIENCES CORPORATION.

2.) OPERABLE UNIT BOUNDARIES DIGITIZED FROM A HARDCOPY FILE ENTITLED "Operable Unit Composite MAP_2011-0830.pdf," PREPARED BY BRINNIER & LARIOS, P.C.

3.) PERENIALLY SATURATED SHALLOW SAND ABSENT, STORM SEWER LINE AND INTERPRETED PORTION OF UNSATURATED SURFICIAL SAND UNIT FROM DIGITAL FILE 93002-109-T2_GWE2008-12.dxf, ENTITLED "SURFICIAL SAND AQUIFER GROUNDWATER ELEVATION CONTOUR MAP," DECEMBER 2, 2008 (FOURTH QUARTER 2008), PROVIDED BY GROUNDWATER SCIENCES CORPORATION.

4.) GROUNDWATER CONTOURS, GROUNDWATER FLOW DIRECTION AND GROUNDWATER DIVIDE DIGITIZED FROM A HARDCOPY FILE ENTITLED "SURFICIAL SAND AQUIFER GROUNDWATER ELEVATION CONTOUR MAP, MAY 6, 2011 (SECOND QUARTER 2011)," FIGURE 3-2, DATED SEPTEMBER 6, 2011, PROVIDED BY GROUNDWATER SCIENCES CORPORATION.

5.) FORMER 2,000 GALLON WASTE OIL UST DIGITIZED FROM A HARDCOPY FILE ENTITLED "FORMER WASTE OIL UST SWMU," DATED FEBRUARY 26, 1997, PREPARED BY GROUNDWATER SCIENCES CORPORATION.

SCALE 200 0 200 400 FEET

NJ Authorization #24GA28039100

Golder Associates
Newark, New Jersey

REV	DATE	DES	REVISION DESCRIPTION	CADD	CHK	RVW

PROJECT
FORMER IBM FACILITY
KINGSTON, NEW YORK

TITLE
INTERPRETED GROUNDWATER TABLE ELEVATION CONTOUR MAP

PROJECT No.		083-87071	
FILE No.		08387071Q007	
REV. 0	SCALE	AS SHOWN	
DESIGN	DPG	04/05/12	
CADD	RG	04/05/12	
CHECK	CDH	04/05/12	
REVIEW	APTM	04/05/12	

FIGURE 5

Drawing File: 08387071Q007.dwg | Layout: 11x17_08-2006 | Modified: 01/09/12 3:09pm | Plotted: 04/05/12 1:08pm | Plotted by: rgrams

NJ Authorization #24GA28029100

Golder Associates
Newark, New Jersey

REV	DATE	DES	REVISION DESCRIPTION	CADD	CHK	RVW

PROJECT

FORMER IBM FACILITY
KINGSTON, NEW YORK

TITLE

INTERPRETED BASE OF SURFICIAL SAND CONTOUR MAP

PROJECT No.		083-87071
FILE No.		083870710010
REV. 0	SCALE	AS SHOWN
DESIGN	DPG	04/05/12
CADD	RG	04/05/12
CHECK	CDH	04/05/12
REVIEW	APTM	04/05/12

FIGURE 6

LEGEND

- PROPERTY/PARCEL BOUNDARY
- RIVER/STREAM
- 42-INCH DIAMETER SEWER SYSTEM (SITE PERIMETER CONTROL SYSTEM)
- UNSATURATED SURFICIAL SAND UNIT (SITE PERIMETER CONTROL SYSTEM)
- GROUNDWATER COLLECTION SYSTEM (SITE PERIMETER CONTROL SYSTEM)
- 60-INCH DIAMETER SEWER SYSTEM (SITE PERIMETER CONTROL SYSTEM)
- UTILITY TRENCH BARRIER WALL
- SS — SS — SS — STORM SEWER LINE
- 160 — BASE OF SURFICIAL SAND CONTOUR (FT. MSL)
- B003 — BUILDING NUMBER
- 1 — OPERABLE UNIT (OU)
- SWMU T INVESTIGATION AREA

REFERENCES

1.) BASE MAP TAKEN FROM DIGITAL CAD FILE 3002-108-I3.DWG, DRAWING NUMBER 93002-108-I3 ENTITLED "LOCATION MAP," DATED MARCH 5, 2009, PROVIDED BY GROUNDWATER SCIENCES CORPORATION.

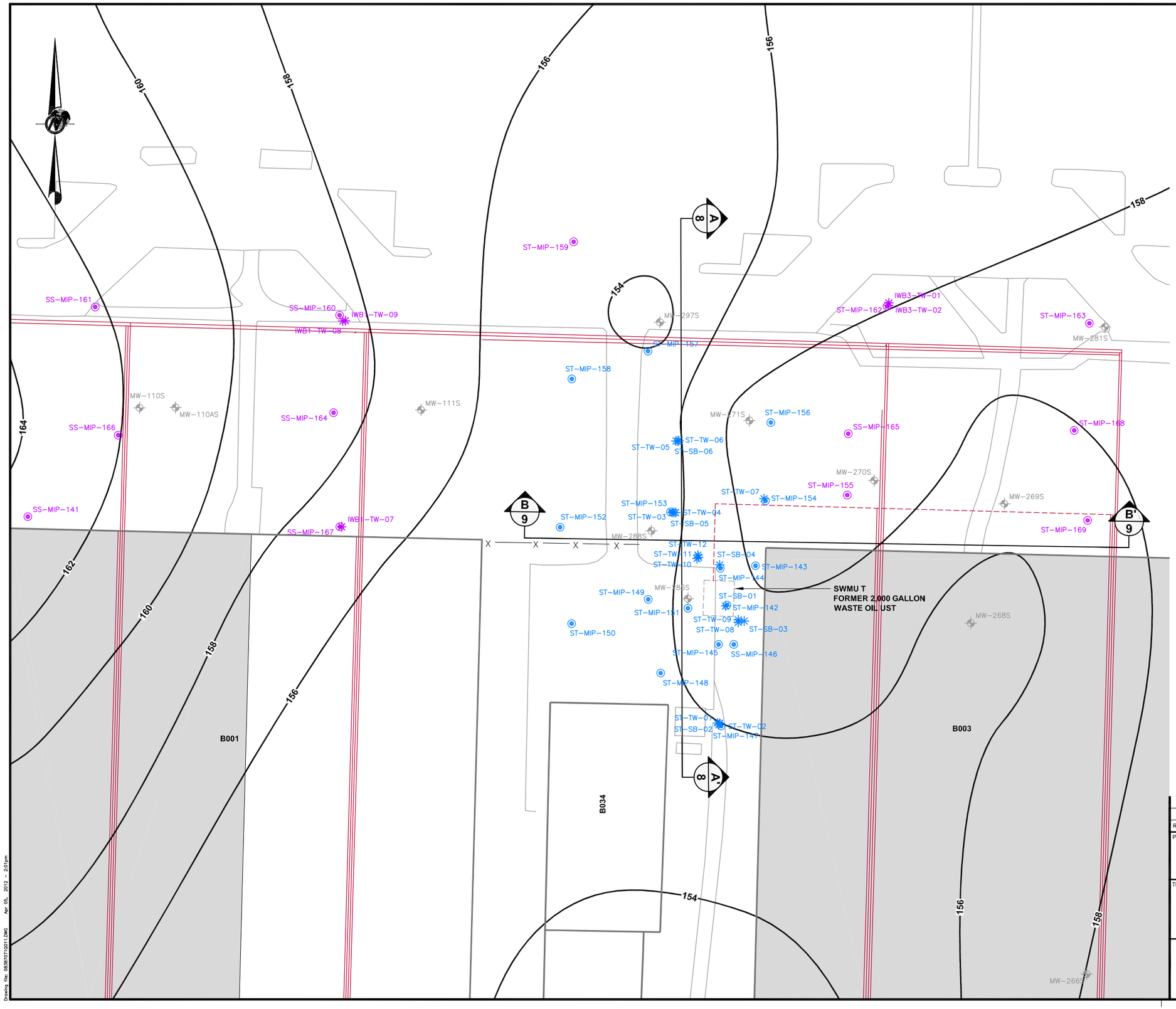
2.) OPERABLE UNIT BOUNDARIES DIGITIZED FROM A HARDCOPY FILE ENTITLED "Operable Unit Composite MAP_2011-0830.pdf," PREPARED BY BRINNIER & LARIOS, P.C.

3.) FORMER 2,000 GALLON WASTE OIL UST DIGITIZED FROM A HARDCOPY FILE ENTITLED "FORMER WASTE OIL UST SWMU," DATED FEBRUARY 26, 1997, PREPARED BY GROUNDWATER SCIENCES CORPORATION.

200 0 200 400
SCALE FEET

Former B058 Area

Drawing File: 083870710010.dwg | Layout: 11x17-08-2006 | Modified: 04/05/12 2:00pm | Plotted: 04/05/12 2:00pm | Plotted by: rgrams



LEGEND

- PROPERTY/PARCEL BOUNDARY
- B005 — BUILDING NUMBER
- INACTIVE SUBSURFACE INDUSTRIAL WASTE LINES
- 6-INCH VITREOUS CLAY FOURTH OR "SPARE" IW LINE
- APPROXIMATE LOCATION OF FORMER SWMU T WASTE OIL TANK
- 160 — BASE OF SURFICIAL SAND CONTOUR (FT. MSL)
- EXISTING MONITORING WELL
- SWMU T MIP LOCATION
- SWMU T SOIL BORING/TEMPORARY WELL LOCATION
- OCTOBER 2011 SUPPLEMENTAL IW LINES INVESTIGATION MIP LOCATION
- OCTOBER 2011 SUPPLEMENTAL IW LINES INVESTIGATION TEMPORARY WELL LOCATION
- AREA IS INACCESSIBLE DUE TO LOW CEILINGS AND REMAINING OFFICE INFRASTRUCTURE
- A / 8 — CROSS SECTION DESIGNATION; FIGURE No. WHERE CROSS SECTION IS PRESENTED

REFERENCES

1.) BASE MAP TAKEN FROM DIGITAL CAD FILE SITEMAP.DWG, DRAWING NUMBER 93002-SITEMAP/2 ENTITLED "SITE MAP," DATED MAY 9, 2005, PROVIDED BY GROUNDWATER SCIENCES CORPORATION.

2.) INACTIVE SUBSURFACE INDUSTRIAL WASTE LINES AND 6-INCH VITREOUS CLAY FOURTH OR "SPARE" IW LINE TAKEN FROM DIGITAL FILE 3002-108-I3.DWG, ENTITLED "LOCATION MAP," DATED MARCH 5, 2009, PREPARED BY GROUNDWATER SCIENCES CORPORATION.

3.) FORMER 2,000 GALLON WASTE OIL UST DIGITIZED FROM A HARDCOPY FILE ENTITLED "FORMER WASTE OIL UST SWMU," DATED FEBRUARY 26, 1997, PREPARED BY GROUNDWATER SCIENCES CORPORATION.

25 0 25 50
SCALE FEET

REV	DATE	DES	REVISION DESCRIPTION	CADD	CHK	RVW

PROJECT

FORMER IBM FACILITY
KINGSTON, NEW YORK

TITLE

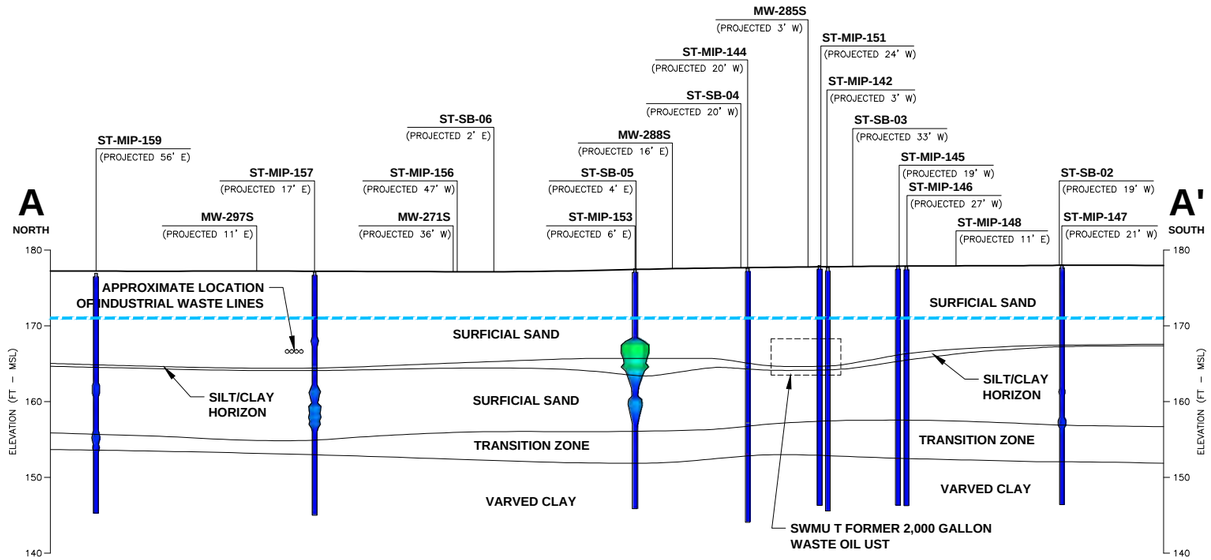
INTERPRETED BASE OF SURFICIAL SAND ELEVATION CONTOUR MAP SWMU T AREA

NJ Authorization #24GA28029100
Golder Associates
Newark, New Jersey

PROJECT No.	083-87071		FILE No.	08387071Q011	
DESIGN	DPG	04/05/12	SCALE	AS SHOWN	REV. 0
CADD	RG	04/05/12			
CHECK	CDH	04/05/12			
REVIEW	APTM	04/05/12			

FIGURE 7

Drawing file: 08387071Q011.DWG Apr 05, 2012 - 2:01pm



A/8 CROSS SECTION A-A'

LEGEND

XSD RESPONSES

10,000,000 uV
3,000,000 uV
1,000,000 uV
300,000 uV
100,000 uV

MW-297S — WELL/BORING/MIP DESIGNATION
(PROJECTED 11' E) — PROJECTED DISTANCE

APPROXIMATE ELEVATION OF OBSERVED GROUNDWATER TABLE DURING SWMU T INVESTIGATION

FIGURE NARRATIVE

THIS CROSS SECTION PRESENTS GOLDER'S INTERPRETATION OF THE SOIL STRATIGRAPHY BASED ON SOIL BORING LOG DESCRIPTIONS AND MIP DATA COLLECTED IN THE INVESTIGATION AREA. PROFESSIONAL JUDGMENT HAS BEEN USED TO DEVELOP THE CROSS SECTION. ACTUAL CONDITIONS WILL VARY FROM THOSE ILLUSTRATED. OTHER INTERPRETATIONS ARE POSSIBLE.

COLOR FLOOD AND DIAMETER OF THE DISCS SHOWN ON THE CROSS SECTION ARE INDICATIVE OF MIP XSD RESPONSES OBSERVED AT EACH LOCATION. DARK BLUE INDICATES MIP XSD RESPONSE BELOW 100,000 uV.

NOTES

1.) CROSS SECTION AND MIP BORING PROFILES GENERATED BY EVS/MVS VERSION 9.22 RELEASED BY C TECH CORPORATION (2009) AND INTERPRETED BY GOLDER.

2.) SOME MIP PROBE AND SOIL BORING LOCATIONS ARE PROJECTED OFF-SECTION.

3.) THE SIZE OF BORINGS AND WELLS SHOWN ARE EXAGGERATED.

4.) SEE FIGURE 7 FOR CROSS SECTION LOCATIONS.

20 0 20 40
HORIZONTAL SCALE FEET

10 0 10 20
VERTICAL SCALE FEET

VERTICAL EXAGGERATION X2

REV	DATE	DES	REVISION DESCRIPTION	CADD	CHK	RVW

PROJECT

FORMER IBM FACILITY
KINGSTON, NEW YORK

TITLE

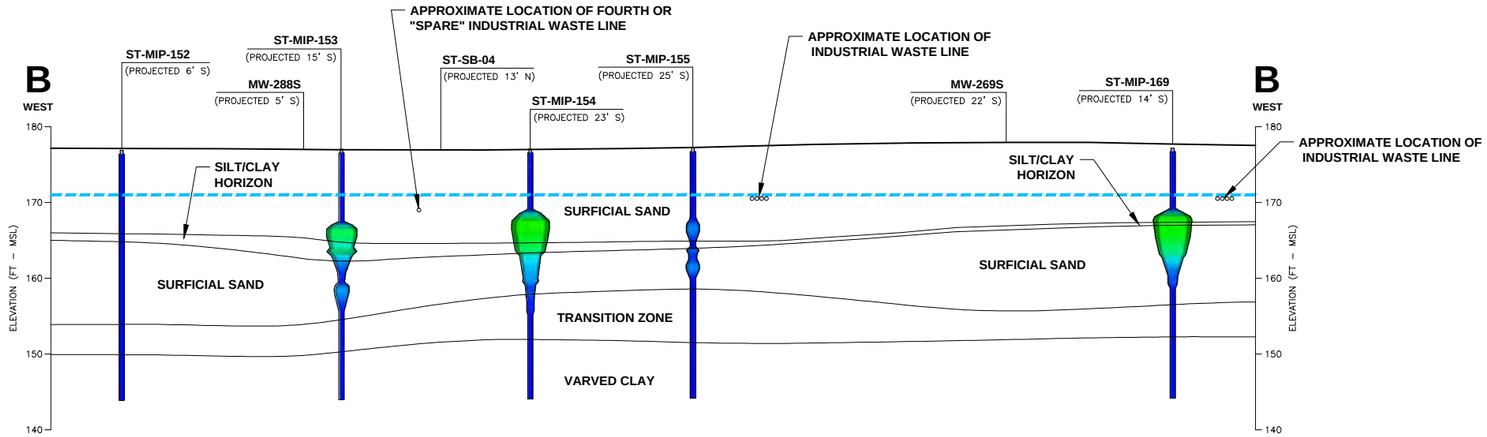
INTERPRETED GEOLOGIC CROSS SECTION A-A'

NJ Authorization #24GA28029100
Golder Associates
Newark, New Jersey

PROJECT No.	083-87071		FILE No.	083870710012	
DESIGN	DPG	04/05/12	SCALE	AS SHOWN	REV. 0
CADD	RG	04/05/12			
CHECK	CDH	04/05/12			
REVIEW	APTM	04/05/12			

FIGURE 8

Drawing File: 083870710012.DWG Apr 05, 2012 - 2:26pm



B/9 CROSS SECTION B-B'

LEGEND

XSD RESPONSES

10,000,000 uV
3,000,000 uV
1,000,000 uV
300,000 uV
100,000 uV

MW-297S — WELL/BORING/MIP DESIGNATION
(PROJECTED 11' E) — PROJECTED DISTANCE

APPROXIMATE ELEVATION OF OBSERVED GROUNDWATER TABLE DURING SWMU T INVESTIGATION

FIGURE NARRATIVE

THIS CROSS SECTION PRESENTS GOLDER'S INTERPRETATION OF THE SOIL STRATIGRAPHY BASED ON SOIL BORING LOG DESCRIPTIONS AND MIP DATA COLLECTED IN THE INVESTIGATION AREA. PROFESSIONAL JUDGMENT HAS BEEN USED TO DEVELOP THE CROSS SECTION. ACTUAL CONDITIONS WILL VARY FROM THOSE ILLUSTRATED. OTHER INTERPRETATIONS ARE POSSIBLE.

COLOR FLOOD AND DIAMETER OF THE DISCS SHOWN ON THE CROSS SECTION ARE INDICATIVE OF MIP XSD RESPONSES OBSERVED AT EACH LOCATION. DARK BLUE INDICATES MIP XSD RESPONSE BELOW 100,000 uV.

NOTES

1.) CROSS SECTION AND MIP BORING PROFILES GENERATED BY EVS/MVS VERSION 9.22 RELEASED BY C TECH CORPORATION (2009) AND INTERPRETED BY GOLDER.

2.) SOME MIP PROBE AND SOIL BORING LOCATIONS ARE PROJECTED OFF-SECTION.

3.) THE SIZE OF BORINGS AND WELLS SHOWN ARE EXAGGERATED.

4.) SEE FIGURE 7 FOR CROSS SECTION LOCATIONS.

20 0 20 40
HORIZONTAL SCALE FEET

10 0 10 20
VERTICAL SCALE FEET

VERTICAL EXAGGERATION X2

REV	DATE	DES	REVISION DESCRIPTION	CADD	CHK	RVW

PROJECT

FORMER IBM FACILITY
KINGSTON, NEW YORK

TITLE

INTERPRETED GEOLOGIC CROSS SECTION B-B'

NJ Authorization #24GA28029100
Golder Associates
Newark, New Jersey

PROJECT No.		083-87071	FILE No.		083870710015
DESIGN	DPG	04/05/12	SCALE	AS SHOWN	REV. 0
CADD	RG	04/05/12			
CHECK	CDH	04/05/12			
REVIEW	APTM	04/05/12			

FIGURE 9

Drawing file: 083870710015.DWG Apr 05, 2012 - 2:08pm

LEGEND

- PROPERTY/PARCEL BOUNDARY
- B005 — BUILDING NUMBER
- INACTIVE SUBSURFACE INDUSTRIAL WASTE LINES
- 6-INCH VITREOUS CLAY FOURTH OR "SPARE" IW LINE
- APPROXIMATE LOCATION OF FORMER SWMU T WASTE OIL TANK
- EXISTING MONITORING WELL
- SWMU T MIP LOCATION
- OCTOBER 2011 SUPPLEMENTAL IW LINES INVESTIGATION MIP LOCATION
- AREA IS INACCESSIBLE DUE TO LOW CEILINGS AND REMAINING OFFICE INFRASTRUCTURE

XSD RESPONSES

10,000,000 uV
3,000,000 uV
1,000,000 uV
300,000 uV
100,000 uV

ST-MIP-159
SS-MIP-161
SS-MIP-160
MW-297S
ST-MIP-162
ST-MIP-163
MW-281S
ST-MIP-157
ST-MIP-158
MW-110S
MW-110AS
SS-MIP-166
SS-MIP-164
MW-111S
MW-271S
ST-MIP-156
SS-MIP-165
ST-MIP-168
MW-270S
ST-MIP-155
ST-MIP-154
ST-MIP-153
MW-269S
ST-MIP-167
SS-MIP-141
SS-MIP-167
ST-MIP-152
MW-288S
ST-MIP-143
ST-MIP-144
ST-MIP-149
MW-285S
ST-MIP-142
ST-MIP-151
SWMU T
FORMER 2,000 GALLON
WASTE OIL UST
MW-268S
ST-MIP-150
ST-MIP-145
SS-MIP-146
ST-MIP-148
ST-MIP-147
B001
B034
B003
MW-266S

FIGURE NARRATIVE

COLOR AND DIAMETER OF DISC INDICATIVE OF THE MAGNITUDE OF MIP XSD RESPONSE OBSERVED AT EACH LOCATION.

REFERENCES

1.) BASE MAP TAKEN FROM DIGITAL CAD FILE SITEMAP.DWG, DRAWING NUMBER 93002-SITEMAP/2 ENTITLED "SITE MAP," DATED MAY 9, 2005, PROVIDED BY GROUNDWATER SCIENCES CORPORATION.

2.) INACTIVE SUBSURFACE INDUSTRIAL WASTE LINES AND 6-INCH VITREOUS CLAY FOURTH OR "SPARE" IW LINE TAKEN FROM DIGITAL FILE 3002-108-I3.DWG, ENTITLED "LOCATION MAP," DATED MARCH 5, 2009, PREPARED BY GROUNDWATER SCIENCES CORPORATION.

3.) FORMER 2,000 GALLON WASTE OIL UST DIGITIZED FROM A HARDCOPY FILE ENTITLED "FORMER WASTE OIL UST SWMU," DATED FEBRUARY 26, 1997, PREPARED BY GROUNDWATER SCIENCES CORPORATION.

25 0 25 50
SCALE FEET

REV	DATE	DES	REVISION DESCRIPTION	CADD	CHK	RVW

PROJECT

FORMER IBM FACILITY
KINGSTON, NEW YORK

TITLE

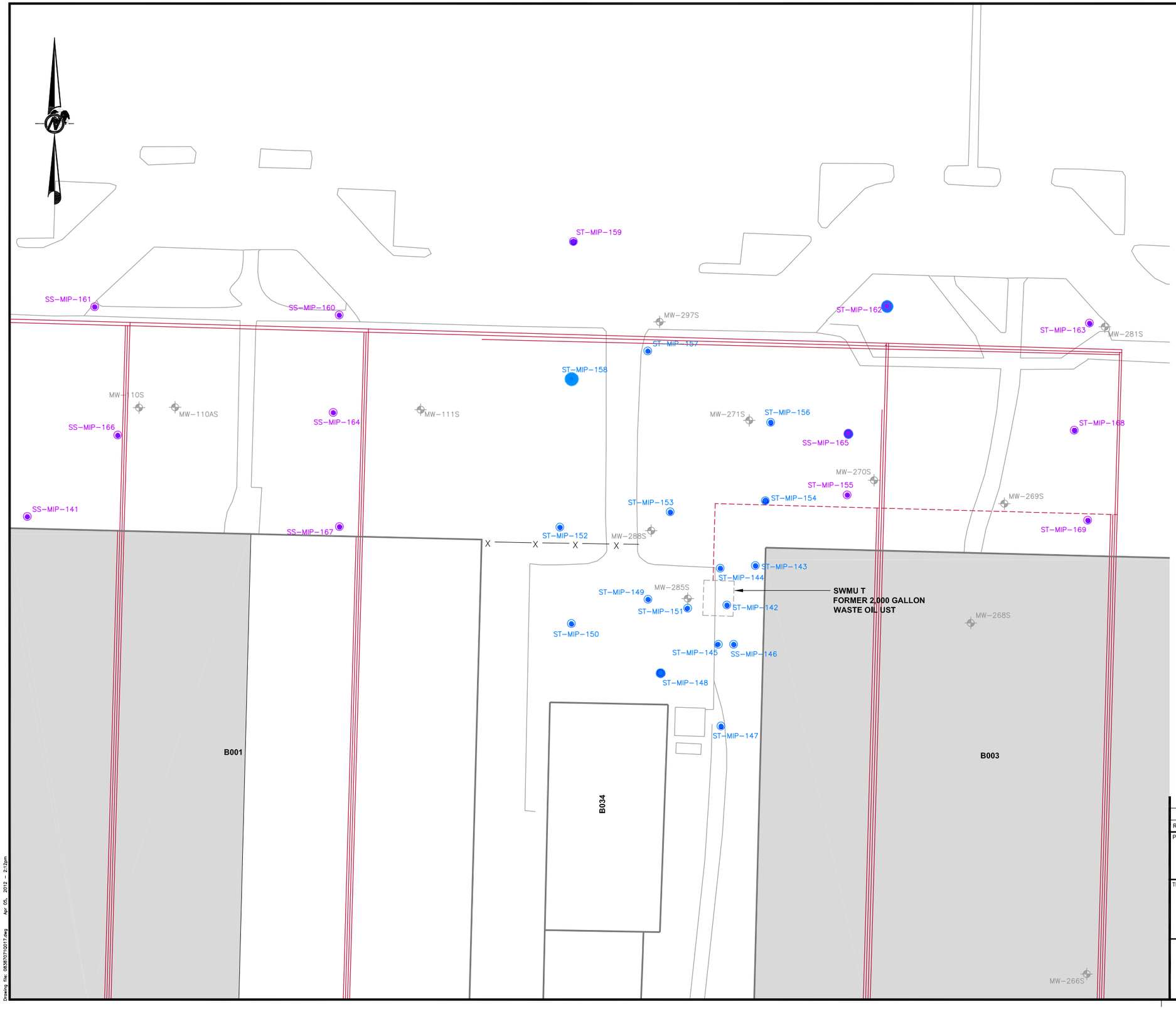
MAXIMUM MIP XSD RESULTS - SURFICIAL SAND UNIT

NJ Authorization #24GA28029100
Golder Associates
Newark, New Jersey

PROJECT No.		083-87071	FILE No.		08387071Q016
DESIGN	DPG	04/05/12	SCALE	AS SHOWN	REV. 0
CADD	RG	04/05/12			
CHECK	CDH	04/05/12			
REVIEW	APTM	04/05/12			

FIGURE 10

Drawing file: 08387071Q016.dwg Apr. 05, 2012 - 2:10pm



LEGEND

- PROPERTY/PARCEL BOUNDARY
- B005 — BUILDING NUMBER
- INACTIVE SUBSURFACE INDUSTRIAL WASTE LINES
- 6-INCH VITREOUS CLAY FOURTH OR "SPARE" IW LINE
- APPROXIMATE LOCATION OF FORMER SWMU T WASTE OIL TANK
- EXISTING MONITORING WELL
- SWMU T MIP LOCATION
- OCTOBER 2011 SUPPLEMENTAL IW LINES INVESTIGATION MIP LOCATION
- AREA IS INACCESSIBLE DUE TO LOW CEILINGS AND REMAINING OFFICE INFRASTRUCTURE

XSD RESPONSES

10,000,000 uV
3,000,000 uV
1,000,000 uV
300,000 uV
100,000 uV

FIGURE NARRATIVE

COLOR AND DIAMETER OF DISC INDICATIVE OF THE MAGNITUDE OF MIP XSD RESPONSE OBSERVED AT EACH LOCATION.

REFERENCES

1.) BASE MAP TAKEN FROM DIGITAL CAD FILE SITEMAP.DWG, DRAWING NUMBER 9.3002-SITEMAP/2 ENTITLED "SITE MAP," DATED MAY 9, 2005, PROVIDED BY GROUNDWATER SCIENCES CORPORATION.

2.) INACTIVE SUBSURFACE INDUSTRIAL WASTE LINES AND 6-INCH VITREOUS CLAY FOURTH OR "SPARE" IW LINE TAKEN FROM DIGITAL FILE 3002-108-I3.DWG, ENTITLED "LOCATION MAP," DATED MARCH 5, 2009, PREPARED BY GROUNDWATER SCIENCES CORPORATION.

3.) FORMER 2,000 GALLON WASTE OIL UST DIGITIZED FROM A HARDCOPY FILE ENTITLED "FORMER WASTE OIL UST SWMU," DATED FEBRUARY 26, 1997, PREPARED BY GROUNDWATER SCIENCES CORPORATION.

25 0 25 50
SCALE FEET

REV	DATE	DES	REVISION DESCRIPTION	CADD	CHK	RVW

PROJECT

FORMER IBM FACILITY
KINGSTON, NEW YORK

TITLE

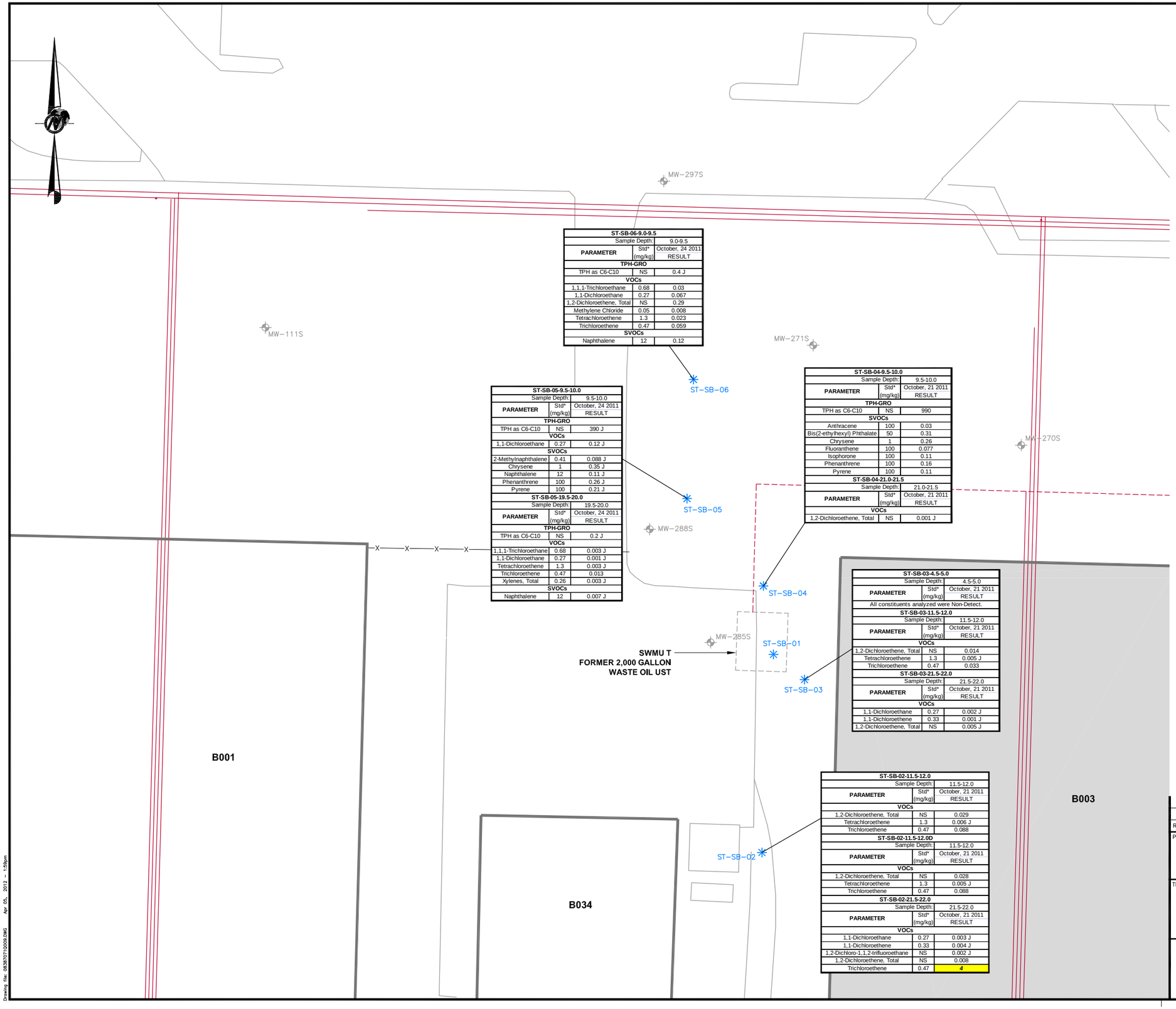
MAXIMUM MIP XSD RESULTS - TRANSITION ZONE

NJ Authorization #24GA28029100
Golder Associates
Newark, New Jersey

PROJECT No.		083-87071	FILE No.		08387071Q017
DESIGN	DPG	04/05/12	SCALE	AS SHOWN	REV. 0
CADD	RG	04/05/12			
CHECK	CDH	04/05/12			
REVIEW	APTM	04/05/12			

FIGURE 11

Drawing file: 08387071Q017.dwg Apr 05, 2012 - 2:12pm



ST-SB-06-9.0-9.5		
Sample Depth:		9.0-9.5
PARAMETER	Std* (mg/kg)	October, 24 2011 RESULT
TPH-GRO		
TPH as C6-C10	NS	0.4 J
VOCs		
1,1,1-Trichloroethane	0.68	0.03
1,1-Dichloroethane	0.27	0.067
1,2-Dichloroethene, Total	NS	0.29
Methylene Chloride	0.05	0.008
Tetrachloroethene	1.3	0.023
Trichloroethene	0.47	0.059
SVOCs		
Naphthalene	12	0.12

ST-SB-05-9.5-10.0		
Sample Depth:		9.5-10.0
PARAMETER	Std* (mg/kg)	October, 24 2011 RESULT
TPH-GRO		
TPH as C6-C10	NS	390 J
VOCs		
1,1-Dichloroethane	0.27	0.12 J
SVOCs		
2-Methylnaphthalene	0.41	0.088 J
Chrysene	1	0.35 J
Naphthalene	12	0.11 J
Phenanthrene	100	0.26 J
Pyrene	100	0.21 J
ST-SB-05-19.5-20.0		
Sample Depth:		19.5-20.0
PARAMETER	Std* (mg/kg)	October, 24 2011 RESULT
TPH-GRO		
TPH as C6-C10	NS	0.2 J
VOCs		
1,1,1-Trichloroethane	0.68	0.003 J
1,1-Dichloroethane	0.27	0.001 J
Tetrachloroethene	1.3	0.003 J
Trichloroethene	0.47	0.013
Xylenes, Total	0.26	0.003 J
SVOCs		
Naphthalene	12	0.007 J

ST-SB-04-9.5-10.0		
Sample Depth:		9.5-10.0
PARAMETER	Std* (mg/kg)	October, 21 2011 RESULT
TPH-GRO		
TPH as C6-C10	NS	990
SVOCs		
Anthracene	100	0.03
Bis(2-ethylhexyl) Phthalate	50	0.31
Chrysene	1	0.26
Fluoranthene	100	0.077
Isophorone	100	0.11
Phenanthrene	100	0.16
Pyrene	100	0.11
ST-SB-04-21.0-21.5		
Sample Depth:		21.0-21.5
PARAMETER	Std* (mg/kg)	October, 21 2011 RESULT
VOCs		
1,2-Dichloroethene, Total	NS	0.001 J

ST-SB-03-4.5-5.0		
Sample Depth:		4.5-5.0
PARAMETER	Std* (mg/kg)	October, 21 2011 RESULT
All constituents analyzed were Non-Detect.		
ST-SB-03-11.5-12.0		
Sample Depth:		11.5-12.0
PARAMETER	Std* (mg/kg)	October, 21 2011 RESULT
VOCs		
1,2-Dichloroethene, Total	NS	0.014
Tetrachloroethene	1.3	0.005 J
Trichloroethene	0.47	0.033
ST-SB-03-21.5-22.0		
Sample Depth:		21.5-22.0
PARAMETER	Std* (mg/kg)	October, 21 2011 RESULT
VOCs		
1,1-Dichloroethane	0.27	0.002 J
1,1-Dichloroethene	0.33	0.001 J
1,2-Dichloroethene, Total	NS	0.005 J

ST-SB-02-11.5-12.0		
Sample Depth:		11.5-12.0
PARAMETER	Std* (mg/kg)	October, 21 2011 RESULT
VOCs		
1,2-Dichloroethene, Total	NS	0.029
Tetrachloroethene	1.3	0.006 J
Trichloroethene	0.47	0.088
ST-SB-02-11.5-12.0D		
Sample Depth:		11.5-12.0
PARAMETER	Std* (mg/kg)	October, 21 2011 RESULT
VOCs		
1,2-Dichloroethene, Total	NS	0.028
Tetrachloroethene	1.3	0.005 J
Trichloroethene	0.47	0.088
ST-SB-02-21.5-22.0		
Sample Depth:		21.5-22.0
PARAMETER	Std* (mg/kg)	October, 21 2011 RESULT
VOCs		
1,1-Dichloroethane	0.27	0.003 J
1,1-Dichloroethene	0.33	0.004 J
1,2-Dichloro-1,1,2-trifluoroethane	NS	0.002 J
1,2-Dichloroethene, Total	NS	0.008
Trichloroethene	0.47	*4*

LEGEND

- PROPERTY/PARCEL BOUNDARY
- B005 — BUILDING NUMBER
- INACTIVE SUBSURFACE INDUSTRIAL WASTE LINES
- 6-INCH VITREOUS CLAY FOURTH OR "SPARE" IW LINE
- APPROXIMATE LOCATION OF FORMER SWMU T WASTE OIL TANK
- EXISTING MONITORING WELL
- SWMU T SOIL BORING LOCATION
- AREA IS INACCESSIBLE DUE TO LOW CEILINGS AND REMAINING OFFICE INFRASTRUCTURE

NOTES

1.) ONLY DETECTED RESULTS ARE INCLUDED.

2.) EXCEEDANCES ARE BOLDED/HIGHLIGHTED/ITALICIED.

3.) mg/kg = MILLIGRAMS PER KILOGRAM.

4.) NS = STANDARD NOT AVAILABLE.

5.) Std* = 6 NYCRR 375 TABLE 375-6(a) UNRESTRICTED USE SOIL CLEANUP OBJECTIVES SUPPLEMENTED BY CP-51 SOIL CLEANUP OBJECTIVES, RESIDENTIAL CRITERIA.

REFERENCES

1.) BASE MAP TAKEN FROM DIGITAL CAD FILE SITEMAP.DWG, DRAWING NUMBER 93002-SITEMAP/2 ENTITLED "SITE MAP," DATED MAY 9, 2005, PROVIDED BY GROUNDWATER SCIENCES CORPORATION.

2.) INACTIVE SUBSURFACE INDUSTRIAL WASTE LINES AND 6-INCH VITREOUS CLAY FOURTH OR "SPARE" IW LINE TAKEN FROM DIGITAL FILE 3002-108-I3.DWG, ENTITLED "LOCATION MAP," DATED MARCH 5, 2009, PREPARED BY GROUNDWATER SCIENCES CORPORATION.

3.) FORMER 2,000 GALLON WASTE OIL UST DIGITIZED FROM A HARDCOPY FILE ENTITLED "FORMER WASTE OIL UST SWMU," DATED FEBRUARY 26, 1997, PREPARED BY GROUNDWATER SCIENCES CORPORATION.

15 0 15 30
SCALE FEET

REV	DATE	DES	REVISION DESCRIPTION	CADD	CHK	RVW

PROJECT

FORMER IBM FACILITY
KINGSTON, NEW YORK

TITLE

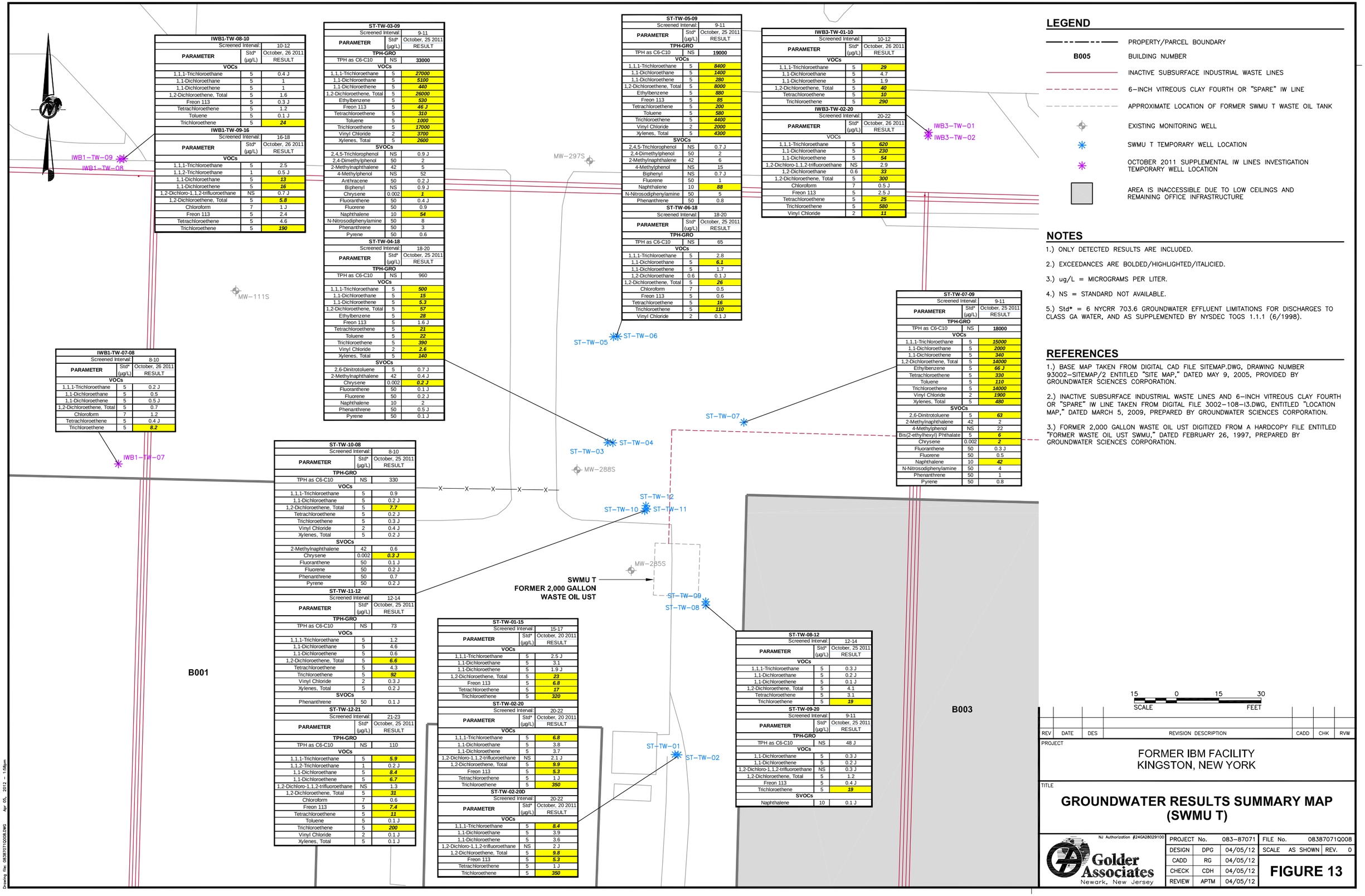
SOIL RESULTS SUMMARY MAP (SWMU T)

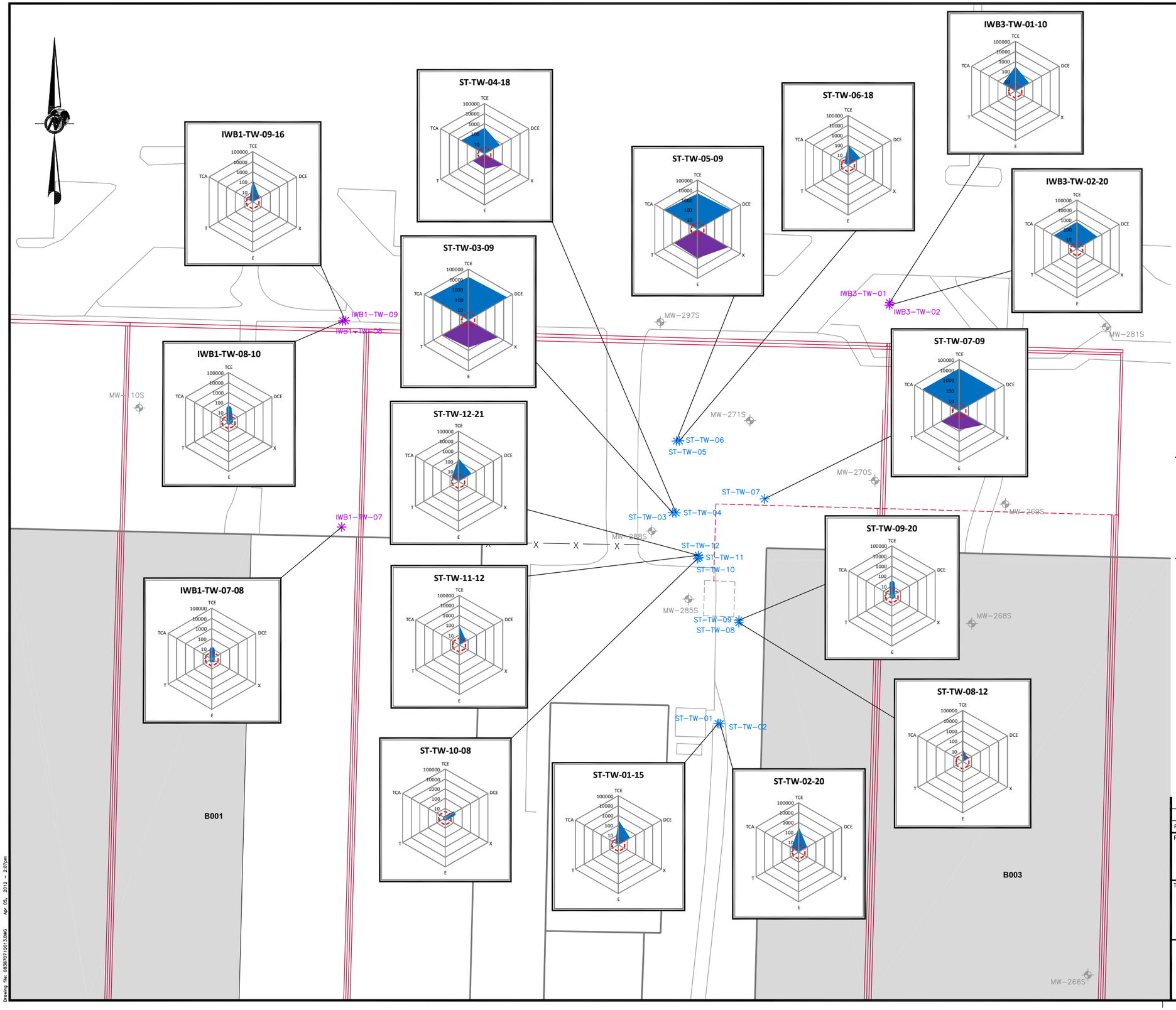
NJ Authorization #24GA28029100
Golder Associates
Newark, New Jersey

PROJECT No.		083-87071	FILE No.		08387071Q009
DESIGN	DPG	04/05/12	SCALE	AS SHOWN	REV. 0
CADD	RG	04/05/12			
CHECK	CDH	04/05/12			
REVIEW	APTM	04/05/12			

FIGURE 12

Drawing File: 08387071Q009.DWG Apr 05, 2012 - 1:49pm


IWB1-TW-08-10
Screened Interval: 10-12
PARAMETER | Std* (µg/L) | October, 26 2011 RESULT
VOCs
1,1,1-Trichloroethane | 5 | 0.4 J
1,1-Dichloroethane | 5 | 1
1,1-Dichloroethene | 5 | 1
1,2-Dichloroethene, Total | 5 | 1.6
Freon 113 | 5 | 0.3 J
Tetrachloroethene | 5 | 1.2
Toluene | 5 | 0.1 J
Trichloroethene | 5 | 24
IWB1-TW-09-16
Screened Interval: 16-18
PARAMETER | Std* (µg/L) | October, 26 2011 RESULT
VOCs
1,1,1-Trichloroethane | 5 | 2.5
1,1,2-Trichloroethane | 1 | 0.5 J
1,1-Dichloroethane | 5 | 13
1,1-Dichloroethene | 5 | 16
1,2-Dichloro-1,1,2-trifluoroethane | NS | 0.7 J
1,2-Dichloroethene, Total | 5 | 5.8
Chloroform | 7 | 1 J
Freon 113 | 5 | 2.4
Tetrachloroethene | 5 | 4.6
Trichloroethene | 5 | 190
IWB1-TW-09
IWB1-TW-08
MW-111S
IWB1-TW-07-08
Screened Interval: 8-10
PARAMETER | Std* (µg/L) | October, 26 2011 RESULT
VOCs
1,1,1-Trichloroethane | 5 | 0.2 J
1,1-Dichloroethane | 5 | 0.5
1,1-Dichloroethene | 5 | 0.5 J
1,2-Dichloroethene, Total | 5 | 0.7
Chloroform | 7 | 1.2
Tetrachloroethene | 5 | 0.4 J
Trichloroethene | 5 | 8.2
IWB1-TW-07
ST-TW-03-09
Screened Interval: 9-11
PARAMETER | Std* (µg/L) | October, 25 2011 RESULT
TPH-GRO
TPH as C6-C10 | NS | 33000
VOCs
1,1,1-Trichloroethane | 5 | 27000
1,1-Dichloroethane | 5 | 5100
1,1-Dichloroethene | 5 | 440
1,2-Dichloroethene, Total | 5 | 26000
Ethylbenzene | 5 | 530
Freon 113 | 5 | 46 J
Tetrachloroethene | 5 | 310
Toluene | 5 | 1000
Trichloroethene | 5 | 17000
Vinyl Chloride | 2 | 3700
Xylenes, Total | 5 | 2600
SVOCs
2,4,5-Trichlorophenol | NS | 0.9 J
2,4-Dimethylphenol | 50 | 2
2-Methylnaphthalene | 42 | 5
4-Methylphenol | NS | 52
Anthracene | 50 | 0.2 J
Biphenyl | NS | 0.9 J
Chrysene | 0.002 | 1
Fluoranthene | 50 | 0.4 J
Fluorene | 50 | 0.9
Naphthalene | 10 | 54
N-Nitrosodiphenylamine | 50 | 8
Phenanthrene | 50 | 3
Pyrene | 50 | 0.6
ST-TW-04-18
Screened Interval: 18-20
PARAMETER | Std* (µg/L) | October, 25 2011 RESULT
TPH-GRO
TPH as C6-C10 | NS | 960
VOCs
1,1,1-Trichloroethane | 5 | 500
1,1-Dichloroethane | 5 | 15
1,1-Dichloroethene | 5 | 5.3
1,2-Dichloroethene, Total | 5 | 57
Ethylbenzene | 5 | 28
Freon 113 | 5 | 1.6 J
Tetrachloroethene | 5 | 21
Toluene | 5 | 22
Trichloroethene | 5 | 390
Vinyl Chloride | 2 | 2.6
Xylenes, Total | 5 | 140
SVOCs
2,6-Dinitrotoluene | 5 | 0.7 J
2-Methylnaphthalene | 42 | 0.4 J
Chrysene | 0.002 | 0.2 J
Fluoranthene | 50 | 0.1 J
Fluorene | 50 | 0.2 J
Naphthalene | 10 | 2
Phenanthrene | 50 | 0.5 J
Pyrene | 50 | 0.1 J
ST-TW-10-08
Screened Interval: 8-10
PARAMETER | Std* (µg/L) | October, 25 2011 RESULT
TPH-GRO
TPH as C6-C10 | NS | 330
VOCs
1,1,1-Trichloroethane | 5 | 0.9
1,1-Dichloroethane | 5 | 0.2 J
1,2-Dichloroethene, Total | 5 | 7.7
Tetrachloroethene | 5 | 0.2 J
Trichloroethene | 5 | 0.3 J
Vinyl Chloride | 2 | 0.4 J
Xylenes, Total | 5 | 0.2 J
SVOCs
2-Methylnaphthalene | 42 | 0.6
Chrysene | 0.002 | 0.3 J
Fluoranthene | 50 | 0.1 J
Fluorene | 50 | 0.2 J
Phenanthrene | 50 | 0.7
Pyrene | 50 | 0.2 J
ST-TW-11-12
Screened Interval: 12-14
PARAMETER | Std* (µg/L) | October, 25 2011 RESULT
TPH-GRO
TPH as C6-C10 | NS | 73
VOCs
1,1,1-Trichloroethane | 5 | 1.2
1,1-Dichloroethane | 5 | 4.6
1,1-Dichloroethene | 5 | 0.6
1,2-Dichloroethene, Total | 5 | 6.6
Tetrachloroethene | 5 | 4.3
Trichloroethene | 5 | 92
Vinyl Chloride | 2 | 0.3 J
Xylenes, Total | 5 | 0.2 J
SVOCs
Phenanthrene | 50 | 0.1 J
ST-TW-12-21
Screened Interval: 21-23
PARAMETER | Std* (µg/L) | October, 25 2011 RESULT
TPH-GRO
TPH as C6-C10 | NS | 110
VOCs
1,1,1-Trichloroethane | 5 | 5.9
1,1,2-Trichloroethane | 1 | 0.2 J
1,1-Dichloroethane | 5 | 8.4
1,1-Dichloroethene | 5 | 6.7
1,2-Dichloro-1,1,2-trifluoroethane | NS | 1.3
1,2-Dichloroethene, Total | 5 | 31
Chloroform | 7 | 0.6
Freon 113 | 5 | 7.4
Tetrachloroethene | 5 | 11
Toluene | 5 | 0.1 J
Trichloroethene | 5 | 200
Vinyl Chloride | 2 | 0.1 J
Xylenes, Total | 5 | 0.1 J
ST-TW-05-09
Screened Interval: 9-11
PARAMETER | Std* (µg/L) | October, 25 2011 RESULT
TPH-GRO
TPH as C6-C10 | NS | 19000
VOCs
1,1,1-Trichloroethane | 5 | 8400
1,1-Dichloroethane | 5 | 1400
1,1-Dichloroethene | 5 | 280
1,2-Dichloroethene, Total | 5 | 8000
Ethylbenzene | 5 | 880
Freon 113 | 5 | 85
Tetrachloroethene | 5 | 200
Toluene | 5 | 580
Trichloroethene | 5 | 4400
Vinyl Chloride | 2 | 2000
Xylenes, Total | 5 | 4300
SVOCs
2,4,5-Trichlorophenol | NS | 0.7 J
2,4-Dimethylphenol | 50 | 2
2-Methylnaphthalene | 42 | 6
4-Methylphenol | NS | 15
Biphenyl | NS | 0.7 J
Fluorene | 50 | 1
Naphthalene | 10 | 88
N-Nitrosodiphenylamine | 50 | 5
Phenanthrene | 50 | 0.8
ST-TW-06-18
Screened Interval: 18-20
PARAMETER | Std* (µg/L) | October, 25 2011 RESULT
TPH-GRO
TPH as C6-C10 | NS | 65
VOCs
1,1,1-Trichloroethane | 5 | 2.8
1,1-Dichloroethane | 5 | 6.1
1,1-Dichloroethene | 5 | 1.7
1,2-Dichloroethene | 0.6 | 0.1 J
1,2-Dichloroethene, Total | 5 | 26
Chloroform | 7 | 0.5
Freon 113 | 5 | 0.6
Tetrachloroethene | 5 | 16
Trichloroethene | 5 | 110
Vinyl Chloride | 2 | 0.1 J
MW-297S
ST-TW-05
ST-TW-06
IWB3-TW-01-10
Screened Interval: 10-12
PARAMETER | Std* (µg/L) | October, 26 2011 RESULT
VOCs
1,1,1-Trichloroethane | 5 | 29
1,1-Dichloroethane | 5 | 4.7
1,1-Dichloroethene | 5 | 1.9
1,2-Dichloroethene, Total | 5 | 40
Tetrachloroethene | 5 | 10
Trichloroethene | 5 | 290
IWB3-TW-02-20
Screened Interval: 20-22
PARAMETER | Std* (µg/L) | October, 26 2011 RESULT
VOCs
1,1,1-Trichloroethane | 5 | 620
1,1-Dichloroethane | 5 | 230
1,1-Dichloroethene | 5 | 54
1,2-Dichloro-1,1,2-trifluoroethane | NS | 2.9
1,2-Dichloroethene | 0.6 | 33
1,2-Dichloroethene, Total | 5 | 300
Chloroform | 7 | 0.5 J
Freon 113 | 5 | 2.5 J
Tetrachloroethene | 5 | 25
Trichloroethene | 5 | 580
Vinyl Chloride | 2 | 11
IWB3-TW-01
IWB3-TW-02
ST-TW-07-09
Screened Interval: 9-11
PARAMETER | Std* (µg/L) | October, 25 2011 RESULT
TPH-GRO
TPH as C6-C10 | NS | 18000
VOCs
1,1,1-Trichloroethane | 5 | 15000
1,1-Dichloroethane | 5 | 2000
1,1-Dichloroethene | 5 | 340
1,2-Dichloroethene, Total | 5 | 14000
Ethylbenzene | 5 | 66 J
Tetrachloroethene | 5 | 330
Toluene | 5 | 110
Trichloroethene | 5 | 14000
Vinyl Chloride | 2 | 1900
Xylenes, Total | 5 | 480
SVOCs
2,6-Dinitrotoluene | 5 | 63
2-Methylnaphthalene | 42 | 2
4-Methylphenol | NS | 22
Bis(2-ethylhexyl) Phthalate | 5 | 6
Chrysene | 0.002 | 2
Fluoranthene | 50 | 0.3 J
Fluorene | 50 | 0.5
Naphthalene | 10 | 42
N-Nitrosodiphenylamine | 50 | 4
Phenanthrene | 50 | 1
Pyrene | 50 | 0.8
ST-TW-07
ST-TW-04
ST-TW-03
MW-288S
ST-TW-12
ST-TW-10
ST-TW-11
MW-285S
SWMU T
FORMER 2,000 GALLON
WASTE OIL UST
ST-TW-09
ST-TW-08
ST-TW-08-12
Screened Interval: 12-14
PARAMETER | Std* (µg/L) | October, 25 2011 RESULT
VOCs
1,1,1-Trichloroethane | 5 | 0.3 J
1,1-Dichloroethane | 5 | 0.2 J
1,1-Dichloroethene | 5 | 0.1 J
1,2-Dichloroethene, Total | 5 | 4.1
Tetrachloroethene | 5 | 3.1
Trichloroethene | 5 | 19
ST-TW-09-20
Screened Interval: 9-11
PARAMETER | Std* (µg/L) | October, 25 2011 RESULT
TPH-GRO
TPH as C6-C10 | NS | 48 J
VOCs
1,1-Dichloroethane | 5 | 0.3 J
1,1-Dichloroethene | 5 | 0.2 J
1,2-Dichloro-1,1,2-trifluoroethane | NS | 0.3 J
1,2-Dichloroethene, Total | 5 | 1.2
Freon 113 | 5 | 0.4 J
Trichloroethene | 5 | 19
SVOCs
Naphthalene | 10 | 0.1 J
ST-TW-01-15
Screened Interval: 15-17
PARAMETER | Std* (µg/L) | October, 20 2011 RESULT
VOCs
1,1,1-Trichloroethane | 5 | 2.5 J
1,1-Dichloroethane | 5 | 3.1
1,1-Dichloroethene | 5 | 1.9 J
1,2-Dichloroethene, Total | 5 | 23
Freon 113 | 5 | 6.8
Tetrachloroethene | 5 | 17
Trichloroethene | 5 | 320
ST-TW-02-20
Screened Interval: 20-22
PARAMETER | Std* (µg/L) | October, 20 2011 RESULT
VOCs
1,1,1-Trichloroethane | 5 | 6.8
1,1-Dichloroethane | 5 | 3.8
1,1-Dichloroethene | 5 | 3.7
1,2-Dichloro-1,1,2-trifluoroethane | NS | 2.1 J
1,2-Dichloroethene, Total | 5 | 9.9
Freon 113 | 5 | 5.3
Tetrachloroethene | 5 | 1 J
Trichloroethene | 5 | 350
ST-TW-02-20D
Screened Interval: 20-22
PARAMETER | Std* (µg/L) | October, 20 2011 RESULT
VOCs
1,1,1-Trichloroethane | 5 | 8.4
1,1-Dichloroethane | 5 | 3.9
1,1-Dichloroethene | 5 | 3.6
1,2-Dichloro-1,1,2-trifluoroethane | NS | 2 J
1,2-Dichloroethene, Total | 5 | 9.8
Freon 113 | 5 | 5.3
Tetrachloroethene | 5 | 1 J
Trichloroethene | 5 | 350
ST-TW-01
ST-TW-02
B001
B003
LEGEND
PROPERTY/PARCEL BOUNDARY
B005
BUILDING NUMBER
INACTIVE SUBSURFACE INDUSTRIAL WASTE LINES
6-INCH VITREOUS CLAY FOURTH OR "SPARE" IW LINE
APPROXIMATE LOCATION OF FORMER SWMU T WASTE OIL TANK
EXISTING MONITORING WELL
SWMU T TEMPORARY WELL LOCATION
OCTOBER 2011 SUPPLEMENTAL IW LINES INVESTIGATION TEMPORARY WELL LOCATION
AREA IS INACCESSIBLE DUE TO LOW CEILINGS AND REMAINING OFFICE INFRASTRUCTURE
NOTES
1.) ONLY DETECTED RESULTS ARE INCLUDED.
2.) EXCEEDANCES ARE BOLDED/HIGHLIGHTED/ITALICIED.
3.) ug/L = MICROGRAMS PER LITER.
4.) NS = STANDARD NOT AVAILABLE.
5.) Std* = 6 NYCRR 703.6 GROUNDWATER EFFLUENT LIMITATIONS FOR DISCHARGES TO CLASS GA WATER, AND AS SUPPLEMENTED BY NYSDEC TOGS 1.1.1 (6/1998).
REFERENCES
1.) BASE MAP TAKEN FROM DIGITAL CAD FILE SITEMAP.DWG, DRAWING NUMBER 93002-SITEMAP/2 ENTITLED "SITE MAP," DATED MAY 9, 2005, PROVIDED BY GROUNDWATER SCIENCES CORPORATION.
2.) INACTIVE SUBSURFACE INDUSTRIAL WASTE LINES AND 6-INCH VITREOUS CLAY FOURTH OR "SPARE" IW LINE TAKEN FROM DIGITAL FILE 3002-108-I3.DWG, ENTITLED "LOCATION MAP," DATED MARCH 5, 2009, PREPARED BY GROUNDWATER SCIENCES CORPORATION.
3.) FORMER 2,000 GALLON WASTE OIL UST DIGITIZED FROM A HARDCOPY FILE ENTITLED "FORMER WASTE OIL UST SWMU," DATED FEBRUARY 26, 1997, PREPARED BY GROUNDWATER SCIENCES CORPORATION.
15 0 15 30
SCALE FEET
REV | DATE | DES | REVISION DESCRIPTION | CADD | CHK | RVW
PROJECT
FORMER IBM FACILITY
KINGSTON, NEW YORK
TITLE
GROUNDWATER RESULTS SUMMARY MAP
(SWMU T)
NJ Authorization #24GA28029100
Golder Associates
Newark, New Jersey
PROJECT No. 083-87071
FILE No. 08387071Q008
DESIGN DPG 04/05/12
SCALE AS SHOWN REV. 0
CADD RG 04/05/12
CHECK CDH 04/05/12
REVIEW APTM 04/05/12
FIGURE 13
Drawing file: 08387071Q008.DWG Apr 05, 2012 - 1:48pm



LEGEND

- PROPERTY/PARCEL BOUNDARY
- B005 — BUILDING NUMBER
- INACTIVE SUBSURFACE INDUSTRIAL WASTE LINES
- 6-INCH VITREOUS CLAY FOURTH OR "SPARE" IW LINE
- APPROXIMATE LOCATION OF FORMER SWMU T WASTE OIL TANK
- EXISTING MONITORING WELL
- SWMU T TEMPORARY WELL LOCATION
- OCTOBER 2011 SUPPLEMENTAL IW LINES INVESTIGATION TEMPORARY WELL LOCATION
- AREA IS INACCESSIBLE DUE TO LOW CEILINGS AND REMAINING OFFICE INFRASTRUCTURE

FIGURE NARRATIVE

THIS FIGURE PRESENTS RADIAL PLOTS OF SELECT VOC COMPOUNDS CHOSEN TO ILLUSTRATE THE RELATIVE DISTRIBUTION OF DISSOLVED-PHASE CONCENTRATIONS OF CHLORINATED SOLVENTS (1,1,1-TRICHLOROETHENE, TRICHLOROETHYLENE, AND 1,2-DICHLOROETHENE) AND AROMATIC HYDROCARBONS (TOLUENE, ETHYLBENZENE, AND XYLENES) IN GROUNDWATER. COMPOUND CONCENTRATIONS, IN ug/L, ARE PLOTTED ON A LOGARITHMIC SCALE. THE RED DASHED LINE REPRESENTS THE APPLICABLE NYSGWQS FOR EACH COMPOUND. THIS FIGURE DISPLAYS CONCENTRATIONS REPORTED ABOVE 1 ug/L.

REFERENCES

1.) BASE MAP TAKEN FROM DIGITAL CAD FILE SITEMAP.DWG, DRAWING NUMBER 93002-SITEMAP/2 ENTITLED "SITE MAP," DATED MAY 9, 2005, PROVIDED BY GROUNDWATER SCIENCES CORPORATION.

2.) INACTIVE SUBSURFACE INDUSTRIAL WASTE LINES AND 6-INCH VITREOUS CLAY FOURTH OR "SPARE" IW LINE TAKEN FROM DIGITAL FILE 3002-108-I3.DWG, ENTITLED "LOCATION MAP," DATED MARCH 5, 2009, PREPARED BY GROUNDWATER SCIENCES CORPORATION.

3.) FORMER 2,000 GALLON WASTE OIL UST DIGITIZED FROM A HARDCOPY FILE ENTITLED "FORMER WASTE OIL UST SWMU," DATED FEBRUARY 26, 1997, PREPARED BY GROUNDWATER SCIENCES CORPORATION.

25 0 25 50
SCALE FEET

REV	DATE	DES	REVISION DESCRIPTION	CADD	CHK	RVW

PROJECT

FORMER IBM FACILITY
KINGSTON, NEW YORK

TITLE

DISSOLVED PHASE CONSTITUENT COMPOUND COMPARISON (CHLORINATED SOLVENTS VS AROMATIC HYDROCARBONS)

NJ Authorization #24GA28029100
Golder Associates
Newark, New Jersey

PROJECT No.	083-87071		FILE No.	08387071Q013	
DESIGN	DPG	04/05/12	SCALE	AS SHOWN	REV. 0
CADD	RG	04/05/12			
CHECK	CDH	04/05/12			
REVIEW	APTM	04/05/12			

FIGURE 14

Drawing file: 08387071Q013.DWG Apr 05, 2012 - 2:07pm

APPENDIX A
MEMBRANE INTERFACE PROBE INFORMATION

MIP FIELD INFORMATION FORM

Golder Associates

SITE DESCRIPTION

Project Name: IBM/Kingston

Project Number: 083-87071

Location: Kingston, NY

WEATHER CONDITIONS

Temperature: 76°F

Wind: LIGHT

Precipitation: DRY

BORING DESCRIPTION

MIP Boring ID: SS-MIP-141

Date: 10/10/2011 Start Time: 1510

Date: 10/10/2011 End Time: 1558

MIP Contractor: PEAK

MIP Operator: T. ARMSTRONG

INSTRUMENT INFORMATION

Detectors Used: PID/XSD/EC

Probe Type: MP4510 MP6510 MP6520

Probe S/N:

LOGGING INFORMATION

MIP File Name: MIP-0141

Pre-Log Response Test File Name: MIP-0141

Response Test Compound: TCE Concentration: 2 PPM

Trip Time (seconds): 71 SEC

Final Depth of Penetration: 33.45

Post Log Response Test File Name: MIP-0142

Response Test Compound: TCE Concentration: 2PPM

Trip Time (seconds): 74 SEC

OBSERVATIONS

BASE: 58,000 MAX: 100,000 ~100,000 XSD AT 22 FT

ATTN: [illegible]

Adopted from ASTM D 7352-07

MIP FIELD INFORMATION FORM

Golder Associates

SITE DESCRIPTION

Project Name: IBM/Kingston

Project Number: 083-87071

Location: Kingston, NY

WEATHER CONDITIONS

Temperature: 59°F

Wind: LIGHT

Precipitation: NONE

BORING DESCRIPTION

MIP Boring ID: ST-MIP-0142

Date: 10/11/11 Start Time: 0855

Date: 10/11/11 End Time: 0945

MIP Contractor: PEARL

MIP Operator: T. ARMSTRONG

INSTRUMENT INFORMATION

Detectors Used: PID/XSD/EC

Probe Type: MP4510 MP6510 (MP6520)

Probe S/N:

LOGGING INFORMATION

MIP File Name: MIP-0142

Pre-Log Response Test File Name: ~~TCE~~ MIP-0142

Response Test Compound: TCE Concentration: 2PPM

Trip Time (seconds): 74sec

Final Depth of Penetration: 33.5

Post Log Response Test File Name: MIP-0143

Response Test Compound: TCE Concentration: 2PPM

Trip Time (seconds): 74sec

OBSERVATIONS

BASE: 25,000 MAX: 65,000 ~20,000 XSD AT APPROX 20FT-22FT

DIXATIN

DPG

Adopted from ASTM D 7352-07

MIP FIELD INFORMATION FORM

Golder Associates

SITE DESCRIPTION

Project Name: IBM/Kingston

Project Number: 083-87071

Location: Kingston, NY

WEATHER CONDITIONS

Temperature: 63°F

Wind: LIGHT

Precipitation: NONE

BORING DESCRIPTION

MIP Boring ID: ST-MIP-143

Date: 10/11/11 Start Time: 1020

Date: 10/11/11 End Time: 1106

MIP Contractor: PEAK

MIP Operator: T. ARMSTRONG

INSTRUMENT INFORMATION

Detectors Used: PID/XSD/EC

Probe Type: MP4510 MP6510 (MP6520)

Probe S/N:

LOGGING INFORMATION

MIP File Name: MIP-0143

Pre-Log Response Test File Name: MIP-0143

Response Test Compound: TCE Concentration: 2PPM

Trip Time (seconds): 74 sec

Final Depth of Penetration: 33.50 FT

Post Log Response Test File Name: MIP-0144

Response Test Compound: TCE Concentration: 2PPM

Trip Time (seconds): 74 sec

OBSERVATIONS

BKG: 27,000 MAX: 76,000 ~30,000 XSD AT 12 FT, ~85,000 XSD AT 22 FT

ALKALINITY

Adopted from ASTM D 7352-07

MIP FIELD INFORMATION FORM

Golder Associates

SITE DESCRIPTION

Project Name: IBM/Kingston

Project Number: 083-87071

Location: Kingston, NY

WEATHER CONDITIONS

Temperature: 76° F

Wind: LIGHT

Precipitation: NONE

BORING DESCRIPTION

MIP Boring ID: ST-MIP-144

Date: 10/11/2011 Start Time: 1150

Date: 10/11/2011 End Time: 1233

MIP Contractor: PEAK

MIP Operator: ~~P.I.D/XSD/EC~~ T. ARMSTRONG

INSTRUMENT INFORMATION

Detectors Used: P.I.D/XSD/EC

Probe Type: MP4510 MP6510 (MP6520)

Probe S/N:

LOGGING INFORMATION

MIP File Name: MIP-0144

Pre-Log Response Test File Name: MIP-0144

Response Test Compound: TCE Concentration: 2 PPM

Trip Time (seconds): 74sec

Final Depth of Penetration: 35.0

Post Log Response Test File Name: MIP-0145

Response Test Compound: TCE Concentration: 2PPM

Trip Time (seconds): 74sec

OBSERVATIONS

BASE: 28,000 MAX: 61,000

★1x ATTN★

DPL

Adopted from ASTM D 7352-07

MIP FIELD INFORMATION FORM

Golder Associates

SITE DESCRIPTION

Project Name: IBM/Kingston

Project Number: 083-87071

Location: Kingston, NY

WEATHER CONDITIONS

Temperature: 79°F

Wind: LIGHT

Precipitation: NONE

BORING DESCRIPTION

MIP Boring ID: ST-MIP-145

Date: 10/11/11 Start Time: 1317

Date: 10/11/11 End Time: 1400

MIP Contractor: PEAK

MIP Operator: T. ARMSTRONG

INSTRUMENT INFORMATION

Detectors Used: PID/XSD/EC

Probe Type: MP4510 MP6510 (MP6520)

Probe S/N:

LOGGING INFORMATION

MIP File Name: MIP-0145

Pre-Log Response Test File Name: MIP-0145

Response Test Compound: TCE Concentration: 2PPM

Trip Time (seconds): 74sec

Final Depth of Penetration: 33.95

Post Log Response Test File Name: MIP-0146

Response Test Compound: TCE Concentration: 2PPM

Trip Time (seconds): 71sec

OBSERVATIONS

BASE: 25,000 MAX: 67,000

#1 + ATTN #

DPG

Adopted from ASTM D 7352-07

MIP FIELD INFORMATION FORM

Golder Associates

SITE DESCRIPTION

Project Name: IBM/Kingston

Project Number: 083-87071

Location: Kingston, NY

WEATHER CONDITIONS

Temperature: 76°F

Wind: LIGHT

Precipitation: NONE

BORING DESCRIPTION

MIP Boring ID: ST-MIP-146

Date: 10/11/11 Start Time: 1444

Date: 10/11/11 End Time: 1516

MIP Contractor: PEAK

MIP Operator: T. ARMSTRONG

INSTRUMENT INFORMATION

Detectors Used: PID/XSD/EC

Probe Type: MP4510 MP6510 MP6520

Probe S/N:

LOGGING INFORMATION

MIP File Name: MIP-0146

Pre-Log Response Test File Name: MIP-0146

Response Test Compound: TCE Concentration: 2PPM

Trip Time (seconds): 71 sec

Final Depth of Penetration: 33.05

Post Log Response Test File Name: MIP-0147

Response Test Compound: TCE Concentration: 2PPM

Trip Time (seconds): 71 sec

OBSERVATIONS

BASE: 23,000 MAX: 73,000 ~50,000 BOAT ~21 FT

SLIGHTLY

SPG

Adopted from ASTM D 7352-07

MIP FIELD INFORMATION FORM

Golder Associates

SITE DESCRIPTION

Project Name: IBM/Kingston

Project Number: 083-87071

Location: Kingston, NY

WEATHER CONDITIONS

Temperature: 80°F

Wind: LIGHT

Precipitation: NONE

BORING DESCRIPTION

MIP Boring ID: ST-MIP-147

Date: 10/11/11 Start Time: 1550

Date: 10/11/11 End Time: 1625

MIP Contractor: PEAK

MIP Operator: T. ARMSTRONG

INSTRUMENT INFORMATION

Detectors Used: PID/XSD/EC

Probe Type: MP4510 MP6510 MP650a

Probe S/N:

LOGGING INFORMATION

MIP File Name: MIP-0147

Pre-Log Response Test File Name: MIP.0147

Response Test Compound: TCE Concentration: 2PPM

Trip Time (seconds): 71sec

Final Depth of Penetration: 33.30

Post Log Response Test File Name: MIP-0148

Response Test Compound: TCE Concentration: 2PPM

Trip Time (seconds): 71sec

OBSERVATIONS

BASE: 29,000 MAP: 70,000 2100,000 XSD AT APPROX 18 FT AND ~130,000 AT ~ 21 FT

FIXATIVE

DPG

Adopted from ASTM D 7352-07

MIP FIELD INFORMATION FORM

Golder Associates

SITE DESCRIPTION

Project Name: IBM/Kingston

Project Number: 083-87071

Location: Kingston, NY

WEATHER CONDITIONS

Temperature: 59°F

Wind: LIGHT

Precipitation: NONE

BORING DESCRIPTION

MIP Boring ID: ST-MIP-14B

Date: 10/12/11 Start Time: 0745

Date: 10/12/11 End Time: 0833

MIP Contractor: PEAK

MIP Operator: T. ARMSTRONG

INSTRUMENT INFORMATION

Detectors Used: PID/XSD/EC

Probe Type: MP4510 MP6510 MP6520

Probe S/N:

LOGGING INFORMATION

MIP File Name: MIP-014B

Pre-Log Response Test File Name: MIP-014B

Response Test Compound: TCE Concentration: 2PPM

Trip Time (seconds): 7 sec

Final Depth of Penetration: 33.15

Post Log Response Test File Name: MIP-014A

Response Test Compound: TCE Concentration:

Trip Time (seconds): 73 sec

OBSERVATIONS

BASE: 27,000 MAX: 64,000 ~350,000 AT 22-23 FT

DPG

FIXATION

Adopted from ASTM D 7352-07

MIP FIELD INFORMATION FORM

Golder Associates

SITE DESCRIPTION

Project Name: IBM/Kingston

Project Number: 083-87071

Location: Kingston, NY

WEATHER CONDITIONS

Temperature: 59°F

Wind: LIGHT

Precipitation: NONE

BORING DESCRIPTION

MIP Boring ID: ST-MIP-149

Date: 10/12/11 Start Time: 0911

Date: 10/12/11 End Time: 0947

MIP Contractor: PEAK

MIP Operator: T. ARMSTRONG

INSTRUMENT INFORMATION

Detectors Used: PID/XSD/EC

Probe Type: MP4510 MP6510 MP6520

Probe S/N:

LOGGING INFORMATION

MIP File Name: MIP-0149

Pre-Log Response Test File Name: MIP-0149

Response Test Compound: TCE Concentration: 2PPM

Trip Time (seconds): 73sec

Final Depth of Penetration: 33.15

Post Log Response Test File Name: MIP-0150

Response Test Compound: TCE Concentration: 2ppm

Trip Time (seconds): 74sec

OBSERVATIONS

BASE: 22,000 NAE: 68,000 ~40,000 XSD AT 21FT, ~55,000 XSD AT 25FT

IN ATN

DRG

Adopted from ASTM D 7352-07

MIP FIELD INFORMATION FORM

Golder Associates

SITE DESCRIPTION

Project Name: IBM/Kingston

Project Number: 083-87071

Location: Kingston, NY

WEATHER CONDITIONS

Temperature: 60°F

Wind: LIGHT

Precipitation: NONE

BORING DESCRIPTION

MIP Boring ID: ST-MIP-150

Date: 10/12/11 Start Time: 1031

Date: 10/12/11 End Time: 1118

MIP Contractor: PEAK

MIP Operator: T. ARMSTRONG

INSTRUMENT INFORMATION

Detectors Used: PID/XSD/EC

Probe Type: MP4510 MP6510 MP6520

Probe S/N:

LOGGING INFORMATION

MIP File Name: MIP-0150

Pre-Log Response Test File Name: MIP-0150

Response Test Compound: TCE Concentration: 2PPM

Trip Time (seconds): Floee

Final Depth of Penetration: 33.05

Post Log Response Test File Name: MIP-0151

Response Test Compound: TCE Concentration: 2ppm

Trip Time (seconds): 73sec

OBSERVATIONS

BASE: 19,000 MAX: 51,000

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DPG

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MIP FIELD INFORMATION FORM

Golder Associates

SITE DESCRIPTION

Project Name: IBM/Kingston

Project Number: 083-87071

Location: Kingston, NY

WEATHER CONDITIONS

Temperature: 60°F

Wind: LIGHT

Precipitation: NONE

BORING DESCRIPTION

MIP Boring ID: ST-MIP-151

Date: 10/12/11 Start Time: 1210

Date: 10/12/11 End Time: 1252

MIP Contractor: PEAK

MIP Operator: T. ARMSTRONG

INSTRUMENT INFORMATION

Detectors Used: PID/XSD/EC

Probe Type: MP4510 MP6510 MP6520

Probe S/N:

LOGGING INFORMATION

MIP File Name: MIP-015

Pre-Log Response Test File Name: MIP-015

Response Test Compound: TCE Concentration: 2PPM

Trip Time (seconds): 73sec

Final Depth of Penetration: 33.15

Post Log Response Test File Name: MIP-0152

Response Test Compound: TCE Concentration: 2PPM

Trip Time (seconds): 72 sec

OBSERVATIONS

BASE: 20,000 MAX: 54,000

ALATM

DPG

Adopted from ASTM D 7352-07

MIP FIELD INFORMATION FORM

Golder Associates

SITE DESCRIPTION

Project Name: IBM/Kingston

Project Number: 083-87071

Location: Kingston, NY

WEATHER CONDITIONS

Temperature: 58°F

Wind: LIGHT

Precipitation: NONE

BORING DESCRIPTION

MIP Boring ID: ST-MIP-152

Date: 10/12/11 Start Time: 1345

Date: 10/12/11 End Time: 1420

MIP Contractor: PEAK

MIP Operator: T. ARMSTRONG

INSTRUMENT INFORMATION

Detectors Used: PID/XSD/EC

Probe Type: MP4510 MP6510 (MP6520)

Probe S/N:

LOGGING INFORMATION

MIP File Name: MIP-0152

Pre-Log Response Test File Name: MIP-0152

Response Test Compound: TCE Concentration: 2PPM

Trip Time (seconds): 72sec

Final Depth of Penetration: 33.10

Post Log Response Test File Name: MIP0153

Response Test Compound: TCE Concentration: 2PPM

Trip Time (seconds): 70sec

OBSERVATIONS

BASE: 17,000 MAX: 55,000

~~BIOTIN~~ DPG

Adopted from ASTM D 7352-07

MIP FIELD INFORMATION FORM

Golder Associates

SITE DESCRIPTION

Project Name: IBM/Kingston

Project Number: 083-87071

Location: Kingston, NY

WEATHER CONDITIONS

Temperature: 55°

Wind: LIGHT

Precipitation: LIGHT RAIN

BORING DESCRIPTION

MIP Boring ID: ST-MIP-153

Date: 10/13/11 Start Time: 0755

Date: 10/13/11 End Time: 0835

MIP Contractor: PEAK

MIP Operator: T. ARMSTRONG

INSTRUMENT INFORMATION

Detectors Used: PID/XSD/EC

Probe Type: MP4510 MP6510 MP6520

Probe S/N:

LOGGING INFORMATION

MIP File Name: MIP-0153

Pre-Log Response Test File Name: MIP-0153

Response Test Compound: TCE Concentration: 2PPM

Trip Time (seconds): 70 sec

Final Depth of Penetration: 33.10

Post Log Response Test File Name: MIP-0154

Response Test Compound: TCE Concentration: 2PPM

Trip Time (seconds): 72 sec

OBSERVATIONS

BASE: 19,000 MAX: 4,000,000 ~600,000 ~DD AT ~11FT

DPG

★ INITIAL ★

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MIP FIELD INFORMATION FORM

Golder Associates

SITE DESCRIPTION

Project Name: IBM/Kingston

Project Number: 083-87071

Location: Kingston, NY

WEATHER CONDITIONS

Temperature: 55°F

Wind: LIGHT

Precipitation: LIGHT RAIN

BORING DESCRIPTION

MIP Boring ID: ST-MIP-154

Date: 10/13/11 Start Time: 0910

Date: 10/13/11 End Time: 0948

MIP Contractor: PEAK

MIP Operator: T. ARMSTRONG

INSTRUMENT INFORMATION

Detectors Used: PID/XSD/EC

Probe Type: MP4510 MP6510 MP6520

Probe S/N:

LOGGING INFORMATION

MIP File Name: MIP-0154

Pre-Log Response Test File Name: MIP-0154

Response Test Compound: TCE Concentration: 2PPM

Trip Time (seconds): 72 sec

Final Depth of Penetration: 33.10

Post Log Response Test File Name: MIP0155

Response Test Compound: TCE Concentration: 2PPM

Trip Time (seconds): 72sec

OBSERVATIONS

BASE- 35,000 MAX: 74,000 ~1,000,000 XSD PEAK AT 10 FT

DAG

#10 ATTN#

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MIP FIELD INFORMATION FORM

Golder Associates

SITE DESCRIPTION

Project Name: IBM/Kingston

Project Number: 083-87071

Location: Kingston, NY

WEATHER CONDITIONS

Temperature: 57°F

Wind: LIGHT

Precipitation: LIGHT RAIN

BORING DESCRIPTION

MIP Boring ID: ST-MIP-155

Date: 10/13/11 Start Time: 1057

Date: 10/13/11 End Time: 1115

MIP Contractor: PEAK

MIP Operator: T. ARMSTRONG

INSTRUMENT INFORMATION

Detectors Used: PID/XSD/EC

Probe Type: MP4510 MP6510 MP6520

Probe S/N:

LOGGING INFORMATION

MIP File Name: MIP-0155

Pre-Log Response Test File Name: MIP-0155

Response Test Compound: TCE Concentration: 2PPM

Trip Time (seconds): 72sec

Final Depth of Penetration: 33.25

Post Log Response Test File Name: MIP-0156

Response Test Compound: TCE Concentration: 2PPM

Trip Time (seconds): 72sec

OBSERVATIONS

BASE: 36,012, MAP: 71,000 ~160,000 XSD AT 11 FT

MPC

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MIP FIELD INFORMATION FORM

Golder Associates

SITE DESCRIPTION

Project Name: IBM/Kingston

Project Number: 083-87071

Location: Kingston, NY

WEATHER CONDITIONS

Temperature: 58°F

Wind: LIGHT

Precipitation: LIGHT RAIN

BORING DESCRIPTION

MIP Boring ID: ST-MIP-156

Date: 10/13/11 Start Time: 1220

Date: 10/13/11 End Time: 1255

MIP Contractor: PEAK

MIP Operator: T. ARMSTRONG

INSTRUMENT INFORMATION

Detectors Used: PID/XSD/EC

Probe Type: MP4510 MP6510 MP6520

Probe S/N:

LOGGING INFORMATION

MIP File Name: MIP-0156

Pre-Log Response Test File Name: MIP-0156

Response Test Compound: TCE Concentration: 2PPM

Trip Time (seconds): 72sec

Final Depth of Penetration: 33.10

Post Log Response Test File Name: MIP-0157

Response Test Compound: TCE Concentration: 2PPM

Trip Time (seconds): 75

OBSERVATIONS

BASE: 29,000 MAX: 37,000 ~400,000 AT 13FT

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MIP FIELD INFORMATION FORM

Golder Associates

SITE DESCRIPTION

Project Name: IBM/Kingston

Project Number: 083-87071

Location: Kingston, NY

WEATHER CONDITIONS

Temperature: 61° F

Wind: LIGHT

Precipitation: NONE

BORING DESCRIPTION

MIP Boring ID: ST-MIP-157

Date: 10/13/11 Start Time: 1338

Date: 10/13/11 End Time: 1425

MIP Contractor: GEAK

MIP Operator: T. ARMSTRONG

INSTRUMENT INFORMATION

Detectors Used: PID/XSD/EC

Probe Type: MP4510 MP6510 MP6520

Probe S/N:

LOGGING INFORMATION

MIP File Name: MIP-0157

Pre-Log Response Test File Name: MIP-0157

Response Test Compound: TCE Concentration: 2PPM

Trip Time (seconds): 75 sec

Final Depth of Penetration: 33.55

Post Log Response Test File Name: MIP-0158

Response Test Compound: TCE Concentration: 2PPM

Trip Time (seconds):

OBSERVATIONS

BASE: 21,000 MAX: 34,000 @100,000 XSD AT ~9-10 FT, MULTIPLE ~150,000 XSD PEAKS BETWEEN 16-22 FT

SIXATIN

SPG

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MIP FIELD INFORMATION FORM

Golder Associates

SITE DESCRIPTION

Project Name: IBM/Kingston

Project Number: 083-87071

Location: Kingston, NY

WEATHER CONDITIONS

Temperature: 60° F

Wind: LIGHT

Precipitation: NONE

BORING DESCRIPTION

MIP Boring ID: ST-MIP-158

Date: 10/13/11 Start Time: 1458

Date: 10/13/11 End Time: 1542

MIP Contractor: PEAK

MIP Operator: T. ARMSTRONG

INSTRUMENT INFORMATION

Detectors Used: PID/XSD/EC

Probe Type: MP4510 MP6510 (MP6520)

Probe S/N:

LOGGING INFORMATION

MIP File Name: MIP-0158

Pre-Log Response Test File Name: MIP-0158

Response Test Compound: TCE Concentration: 2PPM

Trip Time (seconds): 71 sec

Final Depth of Penetration: ~~TEE~~ 33.00

Post Log Response Test File Name: MIP-0159

Response Test Compound: TCE Concentration: 2PPM

Trip Time (seconds): 72 sec

OBSERVATIONS

BASE: 29,000 MAX: 44,000 2200,000 XSD AT 15 FT

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MIP FIELD INFORMATION FORM

Golder Associates

SITE DESCRIPTION

Project Name: IBM/Kingston

Project Number: 083-87071

Location: Kingston, NY

WEATHER CONDITIONS

Temperature: 62°F

Wind: LIGHT

Precipitation: NONE

BORING DESCRIPTION

MIP Boring ID: ST-MIP-159

Date: 10/13/11 Start Time: 1620

Date: 10/13/11 End Time: 1658

MIP Contractor: PEAK

MIP Operator: T. ARMSTRONG

INSTRUMENT INFORMATION

Detectors Used: PID/XSD/EC

Probe Type: MP4510 MP6510 MP6520

Probe S/N:

LOGGING INFORMATION

MIP File Name: MIP-0159

Pre-Log Response Test File Name: MIP-0159

Response Test Compound: TCE Concentration: 2PPM

Trip Time (seconds): 72sec

Final Depth of Penetration: 33.05

Post Log Response Test File Name: MIP-0160

Response Test Compound: TCE Concentration: 2PPM

Trip Time (seconds): 68sec

OBSERVATIONS

BASE: 19,000 MAX: 30,000 ~70,000 XSD AT 9-10 FT, ~110,000 XSD AT ~16 FT

SIX ATTN

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MIP FIELD INFORMATION FORM

Golder Associates

SITE DESCRIPTION

Project Name: IBM/Kingston

Project Number: 083-87071

Location: Kingston, NY

WEATHER CONDITIONS

Temperature: 60°F

Wind: LIGHT

Precipitation: LIGHT RAIN

BORING DESCRIPTION

MIP Boring ID: SSMIP-16D

Date: 10/14/11 Start Time: 0804

Date: 10/14/11 End Time: 0855

MIP Contractor: PEAK

MIP Operator: T. ARMSTRONG

INSTRUMENT INFORMATION

Detectors Used: PID/XSD/EC

Probe Type: MP4510 MP6510 MP6520

Probe S/N:

LOGGING INFORMATION

MIP File Name: MIP-0160

Pre-Log Response Test File Name: MIP-0160

Response Test Compound: TCE Concentration: 2PPM

Trip Time (seconds): 68 sec

Final Depth of Penetration: 33.50

Post Log Response Test File Name: MIP-0161

Response Test Compound: TCE Concentration: 2PPM

Trip Time (seconds): 70 sec

OBSERVATIONS

BASE: 26,000 MAX: 49,000 ~80,000 XSD AT ~22FT

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MIP FIELD INFORMATION FORM

Golder Associates

SITE DESCRIPTION

Project Name: IBM/Kingston

Project Number: 083-87071

Location: Kingston, NY

WEATHER CONDITIONS

Temperature: 69°F

Wind: LIGHT

Precipitation: LIGHT RAIN

BORING DESCRIPTION

MIP Boring ID: SS-MIP-161

Date: 10/14/11 Start Time: 0927

Date: 10/14/11 End Time: 1021

MIP Contractor: PEAK

MIP Operator: T. ARMSTRONG

INSTRUMENT INFORMATION

Detectors Used: PID/XSD/EC

Probe Type: MP4510 MP6510 (MP6520)

Probe S/N:

LOGGING INFORMATION

MIP File Name: MIP-0161

Pre-Log Response Test File Name: MIP-0161

Response Test Compound: TCE Concentration: 2PPM

Trip Time (seconds): 70 sec

Final Depth of Penetration: 33.40

Post Log Response Test File Name: MIP-0162

Response Test Compound: TCE Concentration: 2PPM

Trip Time (seconds): 71 sec

OBSERVATIONS

BASE: 21,000 MAX: 61,000 100,000 XSD AT 16 FT

DPG

IX ATTN

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MIP FIELD INFORMATION FORM

Golder Associates

SITE DESCRIPTION

Project Name: IBM/Kingston

Project Number: 083-87071

Location: Kingston, NY

WEATHER CONDITIONS

Temperature: 69°F

Wind: LIGHT

Precipitation: LIGHT DRIZZLE

BORING DESCRIPTION

MIP Boring ID: ST-MIP-162

Date: 10/14/11 Start Time: 1100

Date: 10/14/11 End Time: 1155

MIP Contractor: PEAK

MIP Operator: T. ARMSTRONG

INSTRUMENT INFORMATION

Detectors Used: PID/XSD/EC

Probe Type: MP4510 MP6510 MP6520

Probe S/N:

LOGGING INFORMATION

MIP File Name: MIP-0162

Pre-Log Response Test File Name: MIP-0162

Response Test Compound: TCE Concentration: 2PPM

Trip Time (seconds): 71 sec

Final Depth of Penetration: 33.40

Post Log Response Test File Name: MIP-0163

Response Test Compound: TCE Concentration: 2PPM

Trip Time (seconds): 72 sec

OBSERVATIONS

BASE: 15,000 MAX: 62,000 ~300,000 XSD AT 18-20 FT

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MIP FIELD INFORMATION FORM

Golder Associates

SITE DESCRIPTION

Project Name: IBM/Kingston

Project Number: 083-87071

Location: Kingston, NY

WEATHER CONDITIONS

Temperature: 69°F

Wind: LIGHT

Precipitation: NONE

BORING DESCRIPTION

MIP Boring ID: ST-MIP-163

Date: 10/14/11 Start Time: 1240

Date: 10/14/11 End Time: 1330

MIP Contractor: PEAK

MIP Operator: T. ARMSTRONG

INSTRUMENT INFORMATION

Detectors Used: PID/XSD/ECD

Probe Type: MP4510 MP6510 MP6520

Probe S/N:

LOGGING INFORMATION

MIP File Name: MIP-0163

Pre-Log Response Test File Name: MIP-0163

Response Test Compound: TCE Concentration: 2PPM

Trip Time (seconds): 33.457 sec

Final Depth of Penetration: 33.45

Post Log Response Test File Name: MIP-0164

Response Test Compound: TCE Concentration:

Trip Time (seconds): 70 sec

OBSERVATIONS

BASE: 25,000 MAP: 45,000 ~150,000 XSD AT 15 FT

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MIP FIELD INFORMATION FORM

Golder Associates

SITE DESCRIPTION

Project Name: IBM/Kingston

Project Number: 083-87071

Location: Kingston, NY

WEATHER CONDITIONS

Temperature: 50°F

Wind: LIGHT

Precipitation: NONE

BORING DESCRIPTION

MIP Boring ID: SS-MIP-164 ~~0164~~

Date: 10/18/11 Start Time: 0948

Date: 10/18/11 End Time: 1032

MIP Contractor: PEAK

MIP Operator: T. ARMSTRONG

INSTRUMENT INFORMATION

Detectors Used: PID/XSD/EC

Probe Type: MP4510 MP6510 MP6520

Probe S/N:

LOGGING INFORMATION

MIP File Name: MIP-0164

Pre-Log Response Test File Name: MIP-0164

Response Test Compound: TCE Concentration: 2PPM

Trip Time (seconds): 70 sec

Final Depth of Penetration: 33.45

Post Log Response Test File Name: MIP-0165

Response Test Compound: TCE Concentration: 2PPM

Trip Time (seconds): 70 sec

OBSERVATIONS

BASE: 20,000 MAP: 64,000 200,000 XSD AT ~21.5 FT

PG

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MIP FIELD INFORMATION FORM

Golder Associates

SITE DESCRIPTION

Project Name: IBM/Kingston

Project Number: 083-87071

Location: Kingston, NY

WEATHER CONDITIONS

Temperature: 60 °F

Wind: LIGHT

Precipitation: NONE

BORING DESCRIPTION

MIP Boring ID: ST-MIP-165

Date: 10/18/11 Start Time: 1105

Date: 10/18/11 End Time: 1145

MIP Contractor: PEAK

MIP Operator: T. ARMSTRONG

INSTRUMENT INFORMATION

Detectors Used: PID/XSD/EC

Probe Type: MP4510 MP6510 MP6520

Probe S/N:

LOGGING INFORMATION

MIP File Name: MIP-0165

Pre-Log Response Test File Name: MIP0165

Response Test Compound: TCE Concentration: 2PPM

Trip Time (seconds): 70sec

Final Depth of Penetration: 33.65

Post Log Response Test File Name: MIP-0166

Response Test Compound: TCE Concentration: 2PPM

Trip Time (seconds): 71sec

OBSERVATIONS

BASE: 19,000 MAX: 66,000 ~220,000 XSD AT 12FT

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DPG

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MIP FIELD INFORMATION FORM

Golder Associates

SITE DESCRIPTION

Project Name: IBM/Kingston

Project Number: 083-87071

Location: Kingston, NY

WEATHER CONDITIONS

Temperature: 66°

Wind: LIGHT

Precipitation: NONE

BORING DESCRIPTION

MIP Boring ID: SS-MIP-166

Date: 10/18/11 Start Time: 1320

Date: 10/18/11 End Time: 1348

MIP Contractor: PEAK

MIP Operator: T. ARMSTRONG

INSTRUMENT INFORMATION

Detectors Used: PID/XSD/EC

Probe Type: MP4510 MP6510 MP6520

Probe S/N:

LOGGING INFORMATION

MIP File Name: MIP-0166

Pre-Log Response Test File Name: MIP-0166

Response Test Compound: TCE Concentration: 2PPM

Trip Time (seconds): 7 sec

Final Depth of Penetration: 33.50

Post Log Response Test File Name: MIP-0167

Response Test Compound: TCE Concentration: 2PPM

Trip Time (seconds): 7 sec

OBSERVATIONS

BASE: 17,000 MAX: 66,000 200,000 XSD AT 18FT BGS

DPG

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MIP FIELD INFORMATION FORM

Golder Associates

SITE DESCRIPTION

Project Name: IBM/Kingston

Project Number: 083-87071

Location: Kingston, NY

WEATHER CONDITIONS

Temperature: 62°F

Wind: 4GMT

Precipitation: NONE

BORING DESCRIPTION

MIP Boring ID: SS-MIP-167

Date: 10/18/11 Start Time: 1428

Date: 10/18/11 End Time: 1505

MIP Contractor: PEAK

MIP Operator: T. ARMSTRONG

INSTRUMENT INFORMATION

Detectors Used: PID/XSD/EC

Probe Type: MP4510 MP6510 MP652a

Probe S/N:

LOGGING INFORMATION

MIP File Name: MIP-0167

Pre-Log Response Test File Name: MIP-0167

Response Test Compound: TCE Concentration: 2PPM

Trip Time (seconds): 71sec

Final Depth of Penetration: 33.4a

Post Log Response Test File Name: MIP-0168

Response Test Compound: TCE Concentration: 2PPM

Trip Time (seconds): 71sec

OBSERVATIONS

BASE: 19,000 MAP: 76,000 ~110,000 XSD AT ~21

PG

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MIP FIELD INFORMATION FORM

Golder Associates

SITE DESCRIPTION

Project Name: IBM/Kingston

Project Number: 083-87071

Location: Kingston, NY

WEATHER CONDITIONS

Temperature: 62°F

Wind: LIGHT

Precipitation: NONE

BORING DESCRIPTION

MIP Boring ID: ~~ST~~ ST-MIP-16B

Date: 10/18/11 Start Time: 1536

Date: 10/18/11 End Time: 1617

MIP Contractor: PEAK

MIP Operator: T. ARMSTRONG

INSTRUMENT INFORMATION

Detectors Used: PID/XSD/EC

Probe Type: MP4510 MP6510 MP6530

Probe S/N:

LOGGING INFORMATION

MIP File Name: MIP-016B

Pre-Log Response Test File Name: MIP-016B

Response Test Compound: TCE Concentration: 2PPM

Trip Time (seconds): 71 sec

Final Depth of Penetration: 33.60

Post Log Response Test File Name: MIP-016B

Response Test Compound: TCE Concentration: 2PPM

Trip Time (seconds): 70 sec

OBSERVATIONS

BASE: 19,000 MAX: 75,000 ~250,000 XSD AT ~12 FT

DPG

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MIP FIELD INFORMATION FORM

Golder Associates

SITE DESCRIPTION

Project Name: IBM/Kingston

Project Number: 083-87071

Location: Kingston, NY

WEATHER CONDITIONS

Temperature: 52°F

Wind: LIGHT

Precipitation: LIGHT RAIN

BORING DESCRIPTION

MIP Boring ID: ST-MIP-169

Date: 10/19/11 Start Time: 0755

Date: 10/19/11 End Time: 0850

MIP Contractor: PEAK

MIP Operator: T. ARMSTRONG

INSTRUMENT INFORMATION

Detectors Used: PID/XSD/EC

Probe Type: MP4510 MP6510 MP6520

Probe S/N:

LOGGING INFORMATION

MIP File Name: MIP-0169

Pre-Log Response Test File Name: MIP-0169

Response Test Compound: TCE Concentration: 2 PPM

Trip Time (seconds): 7 sec

Final Depth of Penetration: 38.35

Post Log Response Test File Name:

Response Test Compound: Concentration:

Trip Time (seconds):

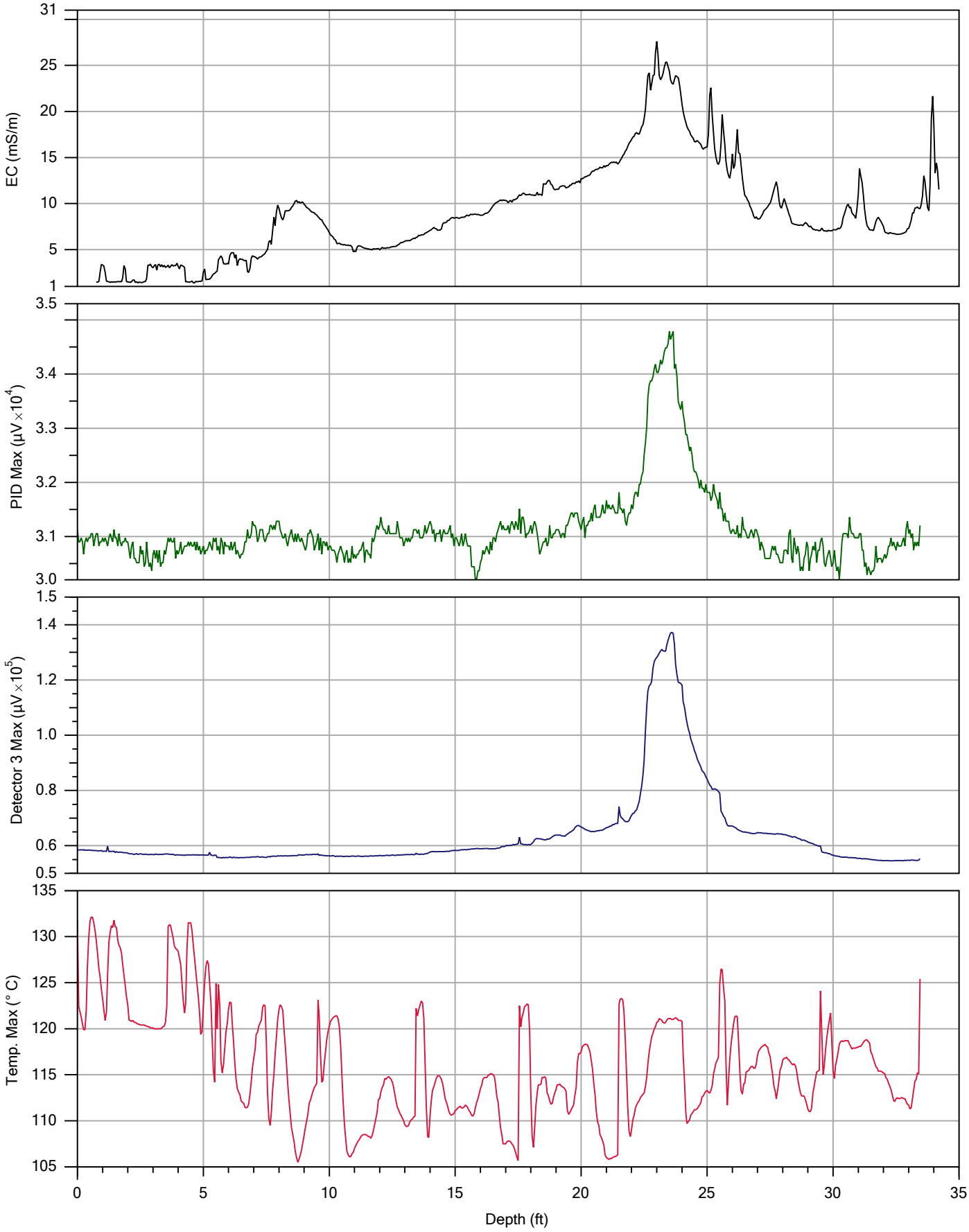
OBSERVATIONS

BASE: 20,000 MAX: 50,000 ~1,000,000 XSD AT ~8FT; DISTINCT CHEMICAL (SOLVENT-LIKE) ODOR ON MIP RODS WHEN REMOVED.

DPE

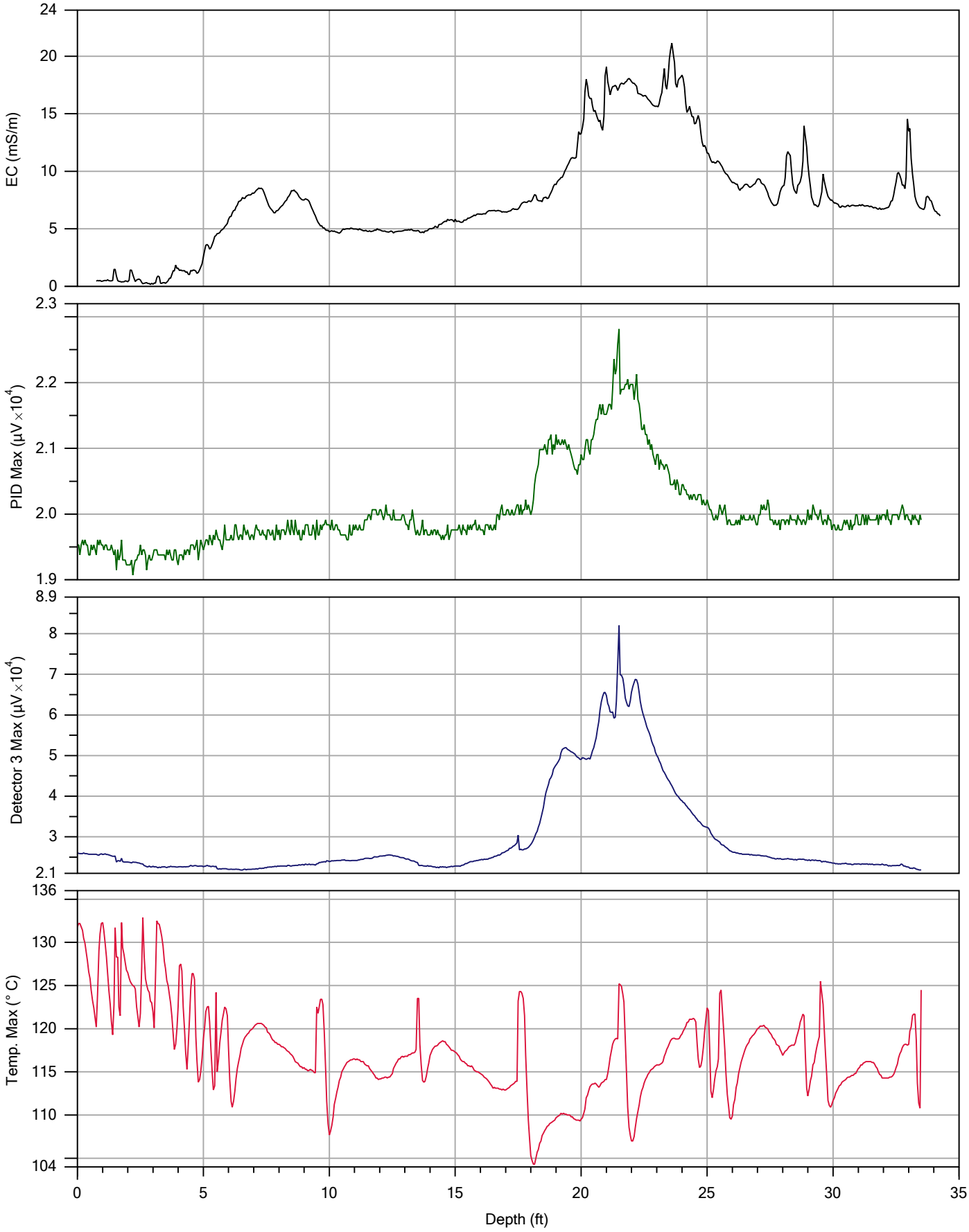
1X ATM TO 10X ATM AT 28-10 FT

Adopted from ASTM D 7352-07



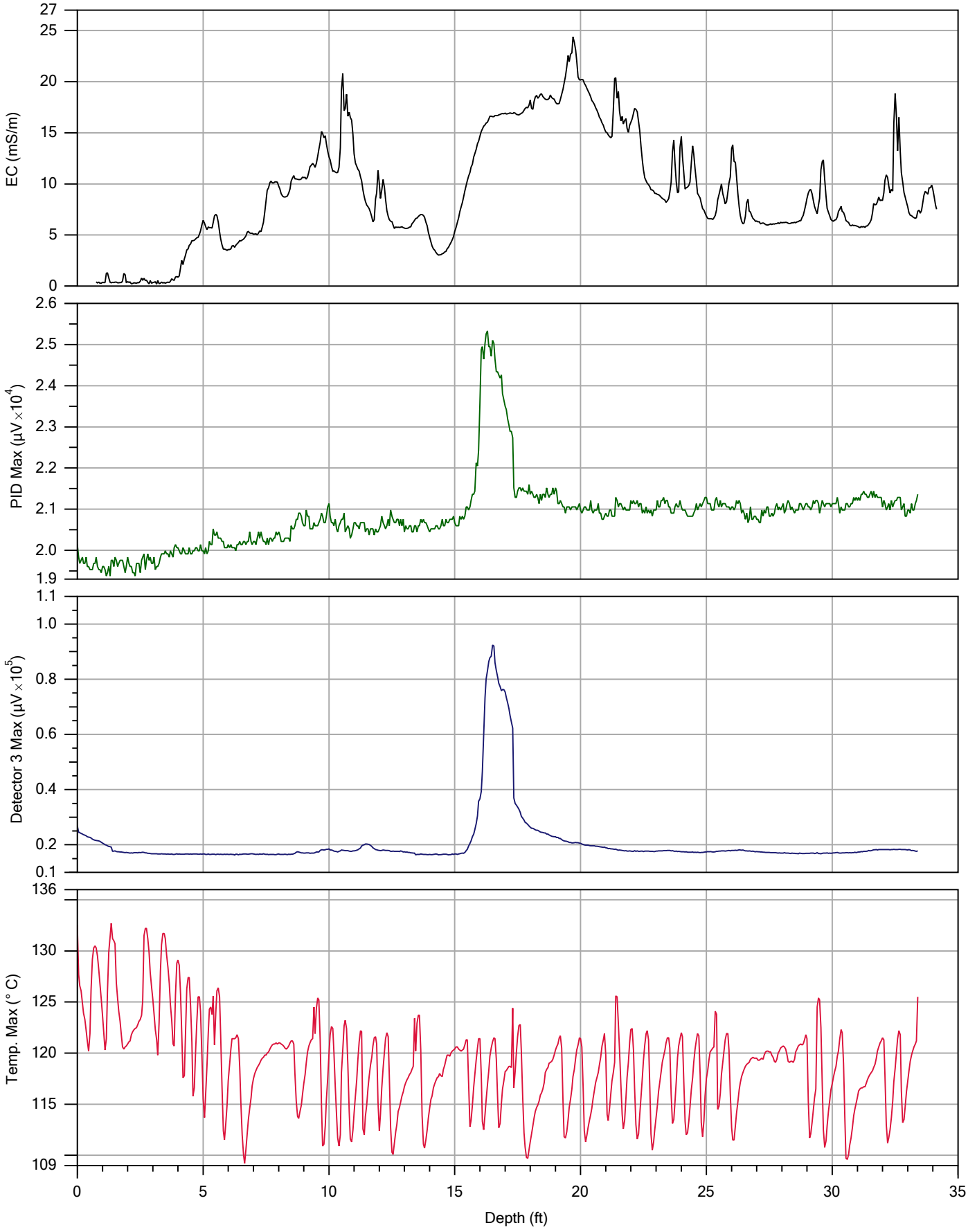
Golder Associates

		File: MIP0141.MIP
Company: Golder Associates	Operator: T. Armstrong, Peak Inv.	Date: 10/10/2011
Project ID: 083-87071.02	Client: IBM	Location: 41° 58′ 18″ N, 73° 59′ 51″ W



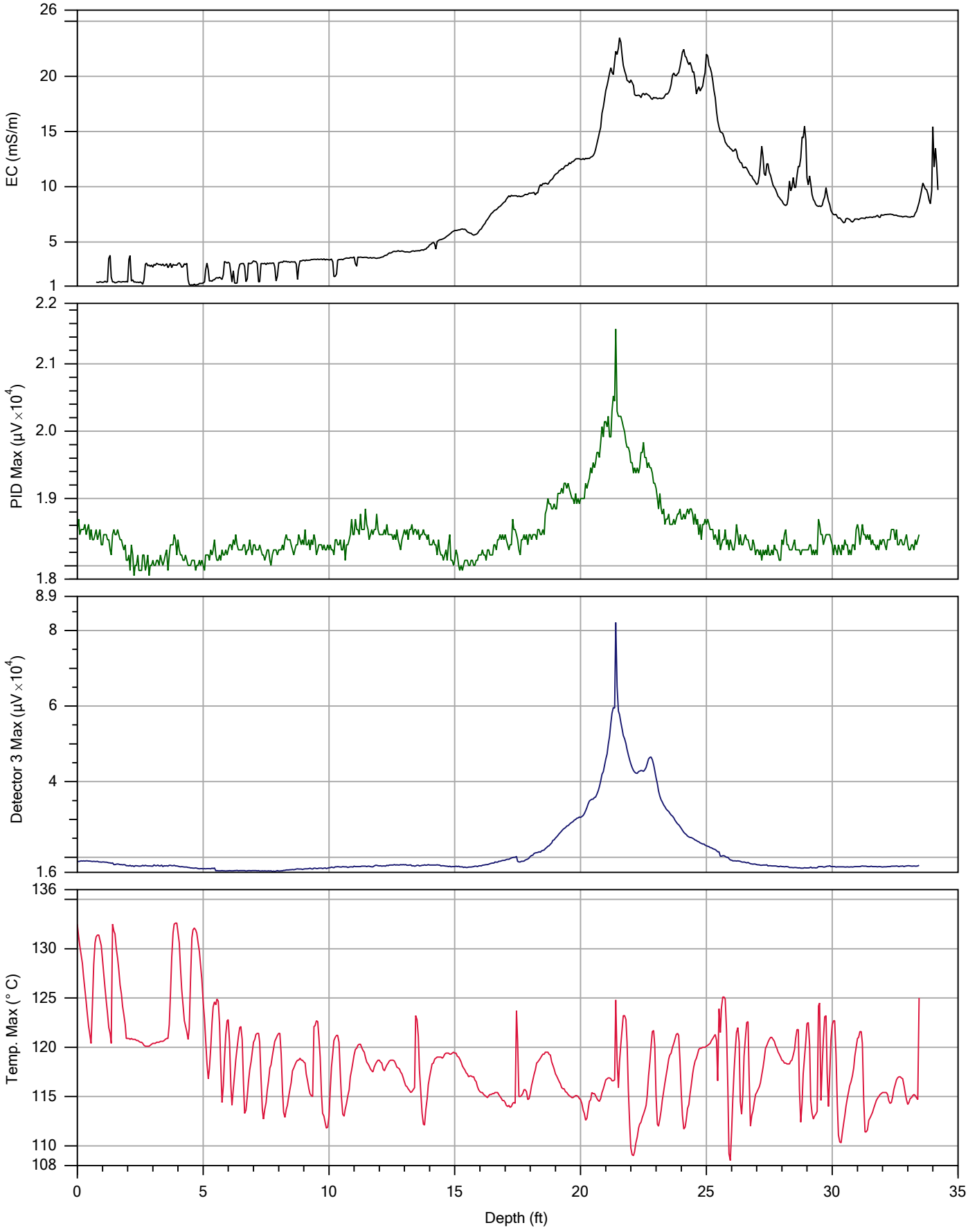
Golder Associates

		File: MIP0160.MIP
Company: Golder Associates	Operator: T. Armstrong, Peak Inv.	Date: 10/14/2011
Project ID: 083-87071.02	Client: IBM	Location: 41° 58′ 19″ N, 73° 59′ 49″ W



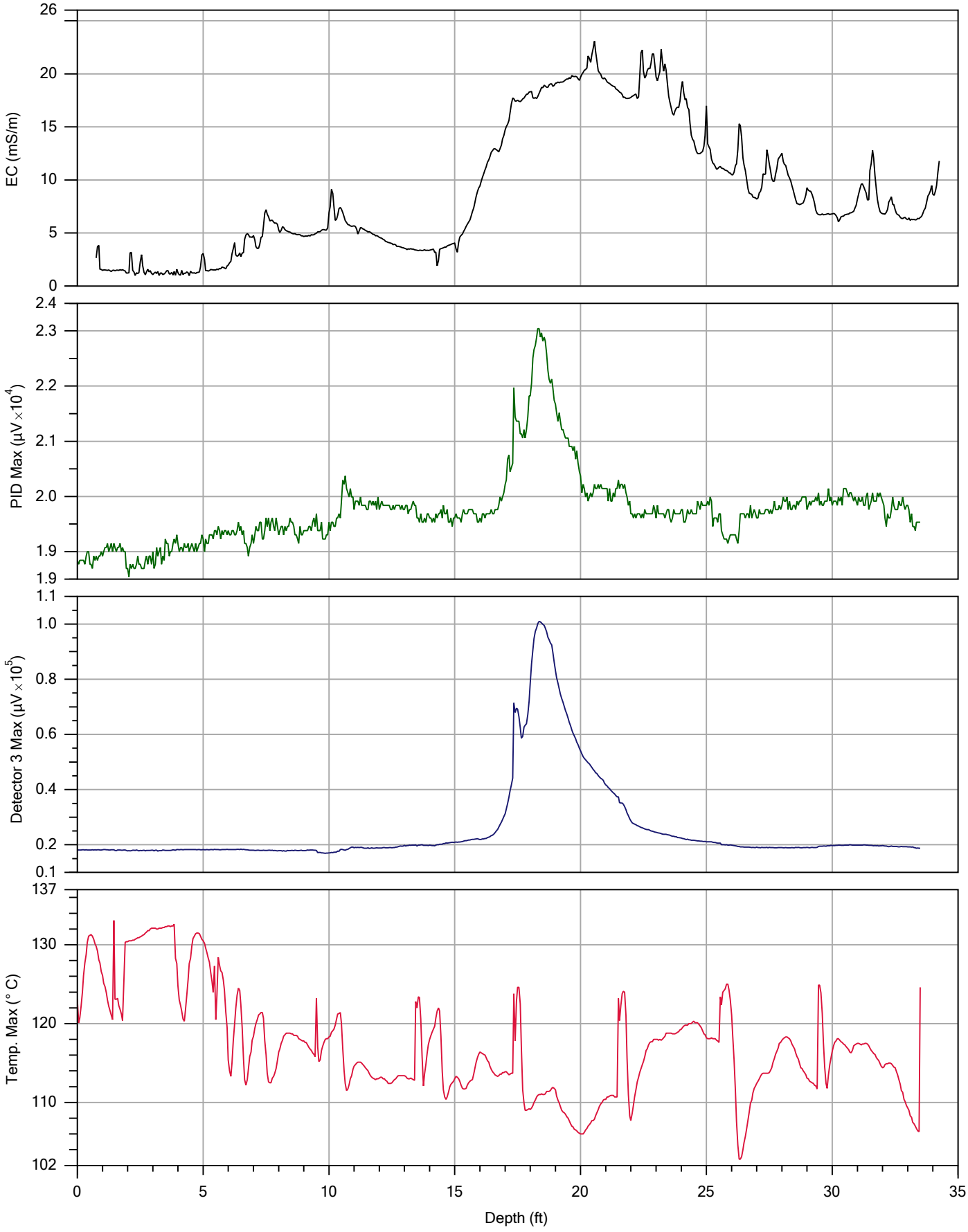
Golder Associates

		File: MIP0161.MIP
Company: Golder Associates	Operator: T. Armstrong, Peak Inv.	Date: 10/14/2011
Project ID: 083-87071.02	Client: IBM	Location: 41° 58′ 19″ N, 73° 59′ 50″ W



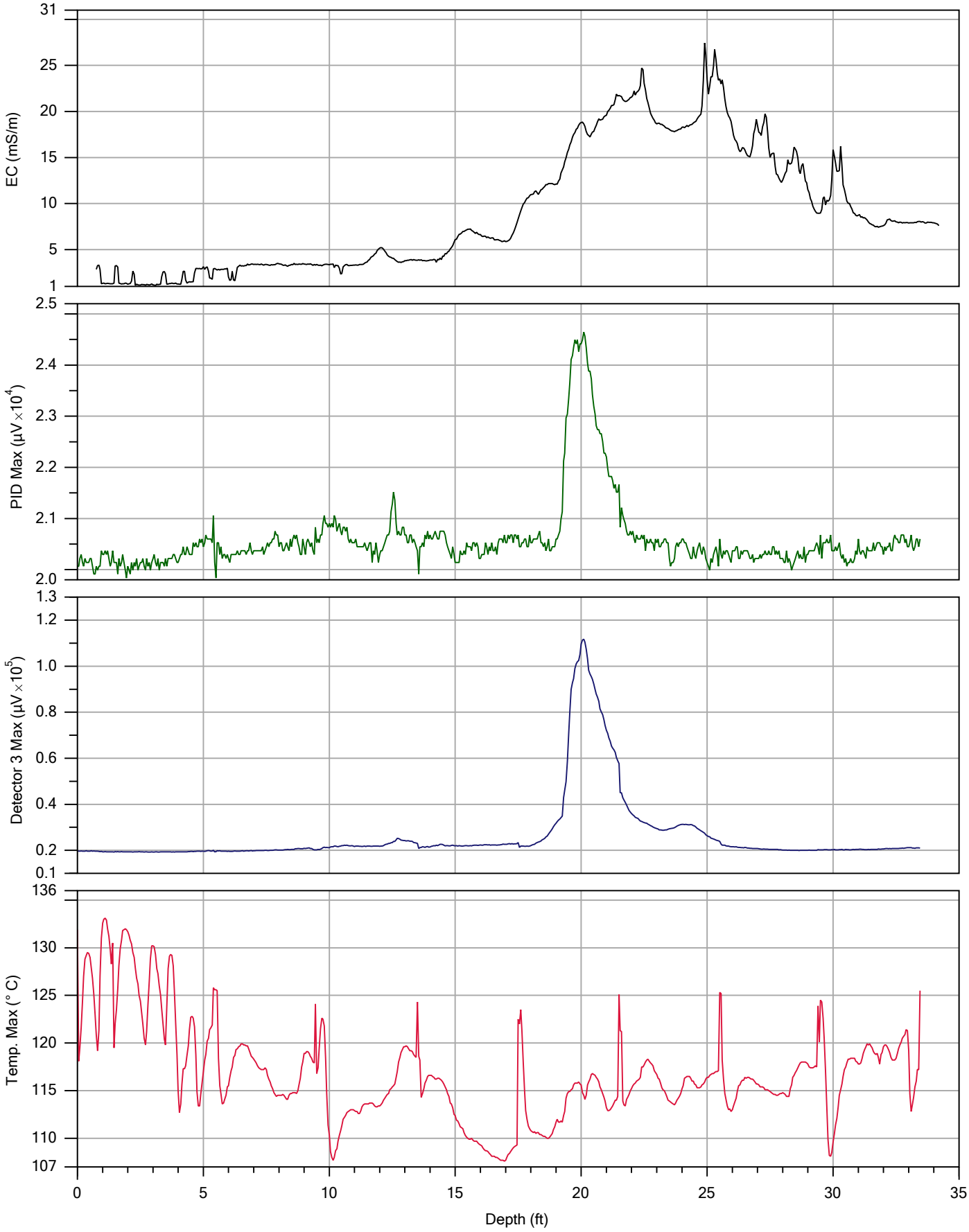
Golder Associates

		File: MIP0164.MIP
Company: Golder Associates	Operator: T. Armstrong, Peak Inv.	Date: 10/18/2011
Project ID: 083-87071.02	Client: IBM	Location: 41° 58′ 18″ N, 73° 59′ 49″ W



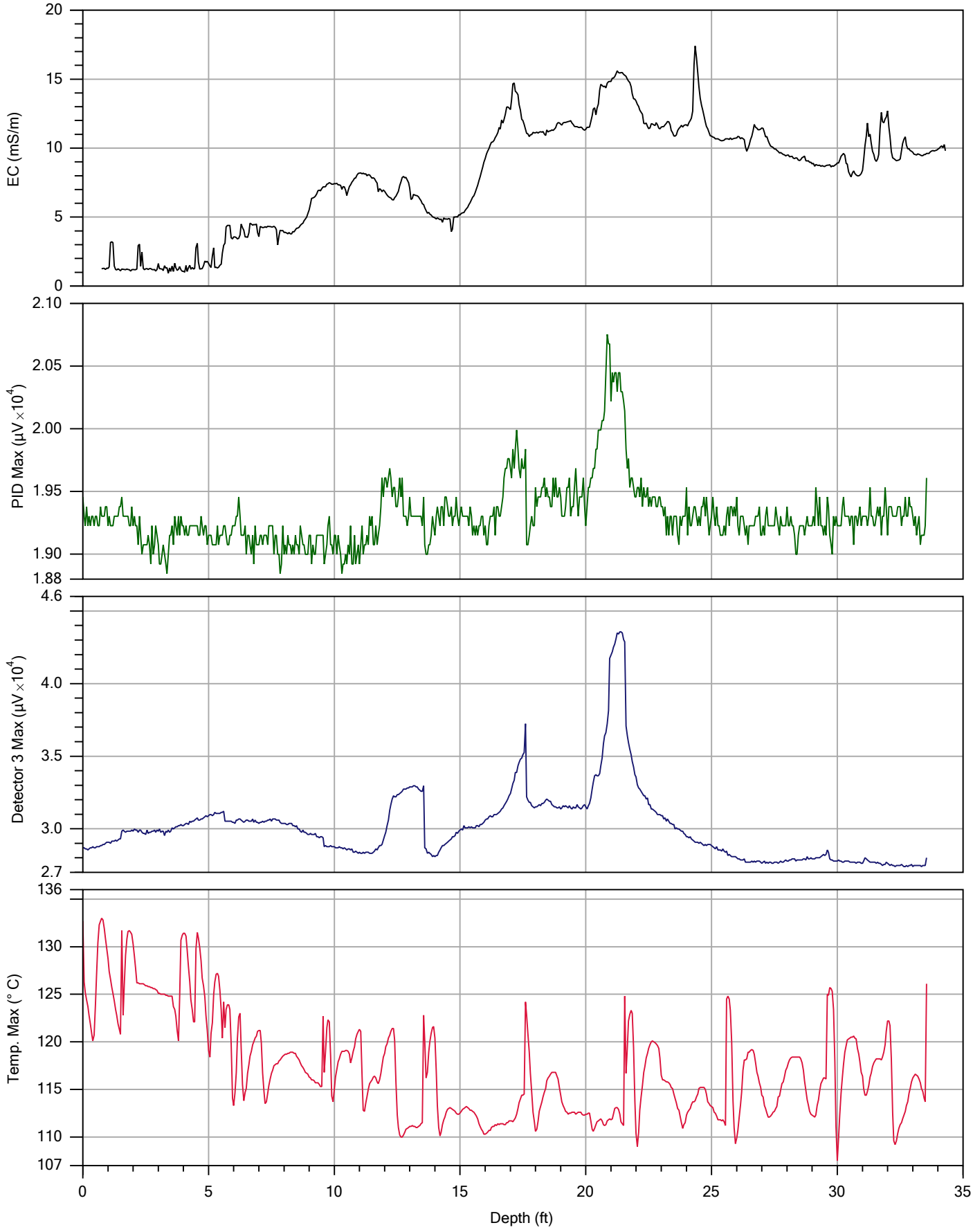
Golder Associates

		File: MIP0166.MIP
Company: Golder Associates	Operator: T. Armstrong, Peak Inv.	Date: 10/18/2011
Project ID: 083-87071.02	Client: IBM	Location: 41° 58′ 18″ N, 73° 59′ 50″ W



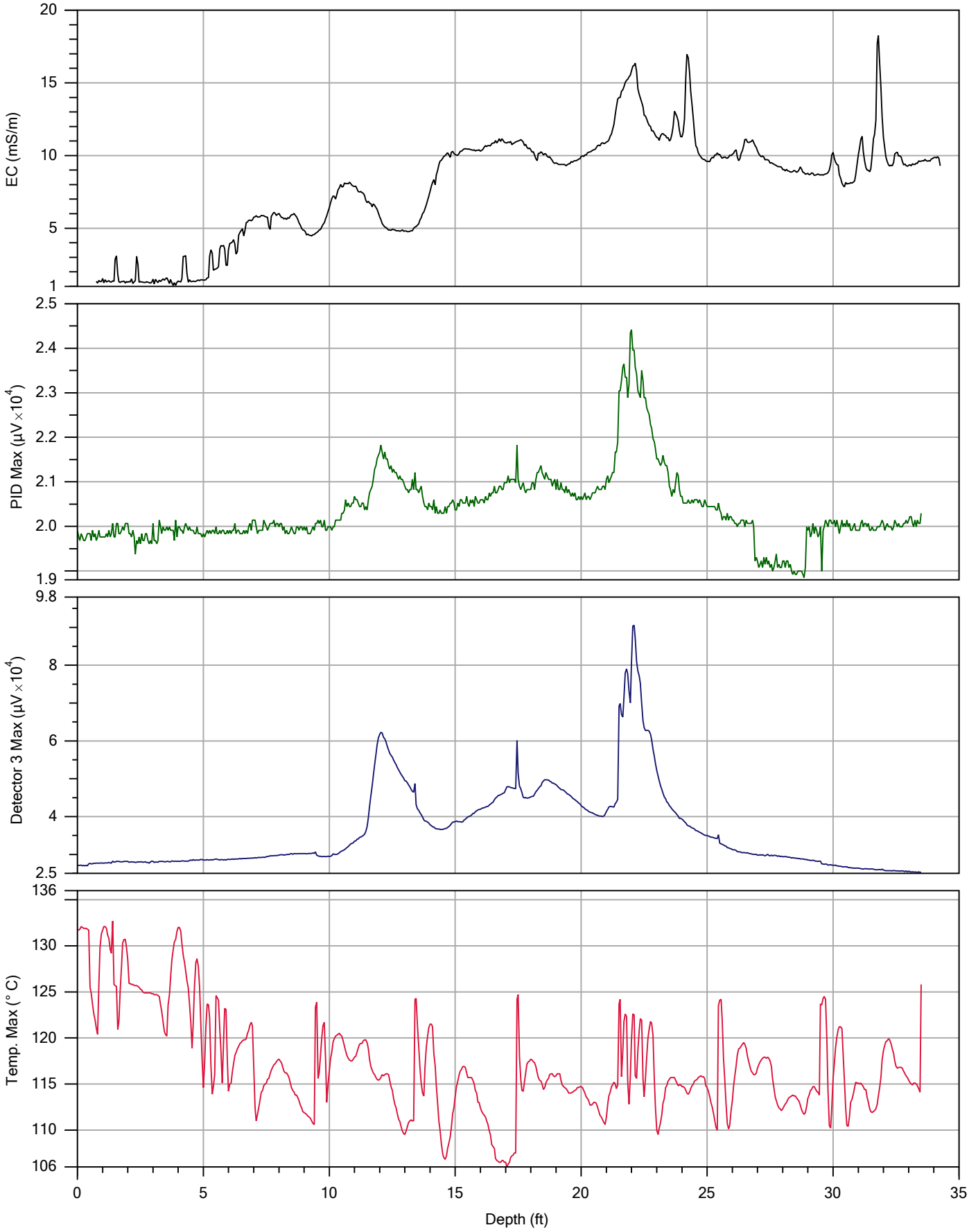
Golder Associates

		File: MIP0167.MIP
Company: Golder Associates	Operator: T. Armstrong, Peak Inv.	Date: 10/18/2011
Project ID: 083-87071.02	Client: IBM	Location: 41° 58′ 18″ N, 73° 59′ 49″ W



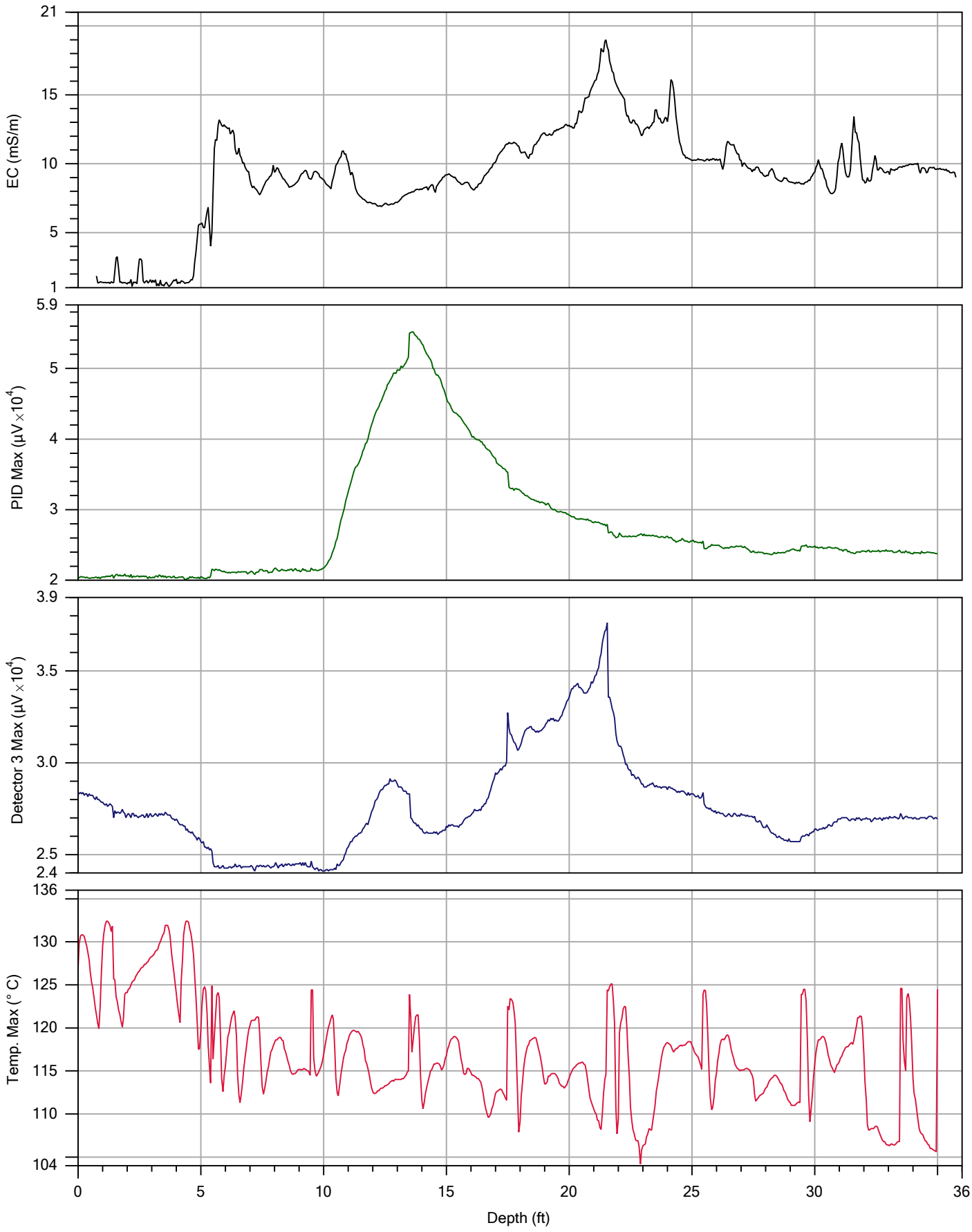
Golder Associates

		File: MIP0142.MIP
Company: Golder Associates	Operator: T. Armstrong, Peak Inv.	Date: 10/11/2011
Project ID: 083-87071.02	Client: IBM	Location: 41° 58′ 17″ N, 73° 59′ 46″ W



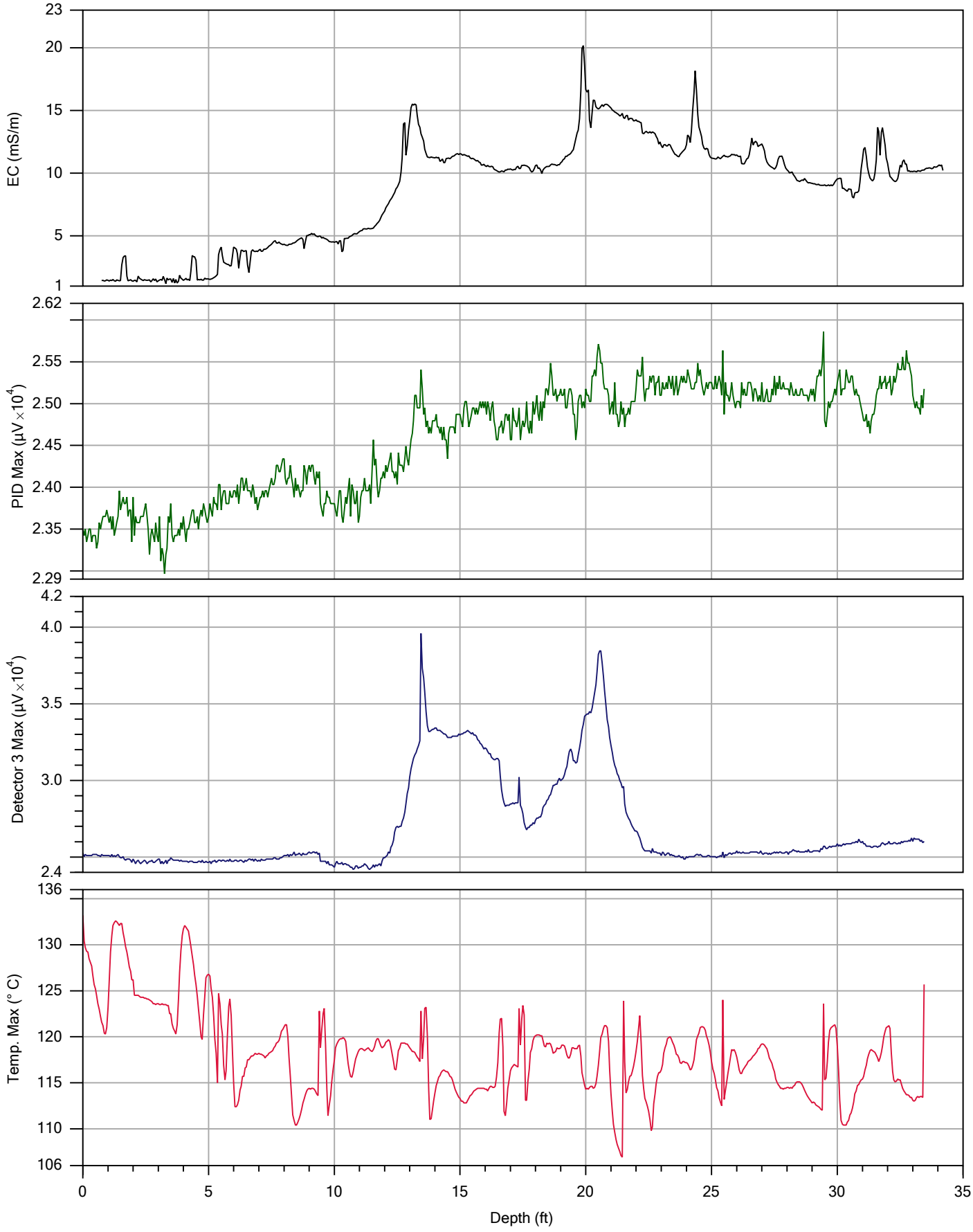
Golder Associates

		File: MIP0143.MIP
Company: Golder Associates	Operator: T. Armstrong, Peak Inv.	Date: 10/11/2011
Project ID: 083-87071.02	Client: IBM	Location: 41° 58′ 17″ N, 73° 59′ 46″ W



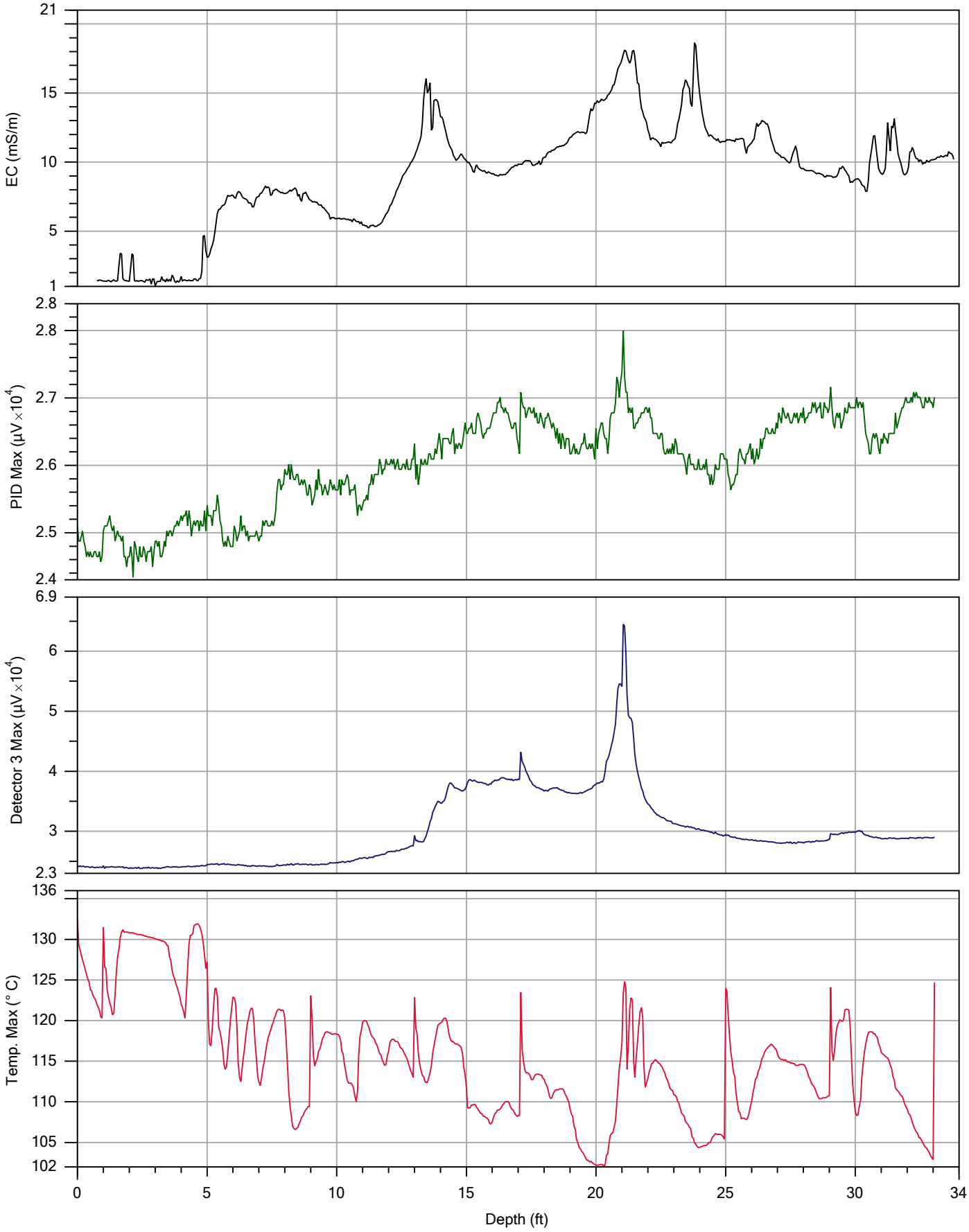
Golder Associates

		File: MIP0144.MIP
Company: Golder Associates	Operator: T. Armstrong, Peak Inv.	Date: 10/11/2011
Project ID: 083-87071.02	Client: IBM	Location: 41° 58′ 17″ N, 73° 59′ 47″ W



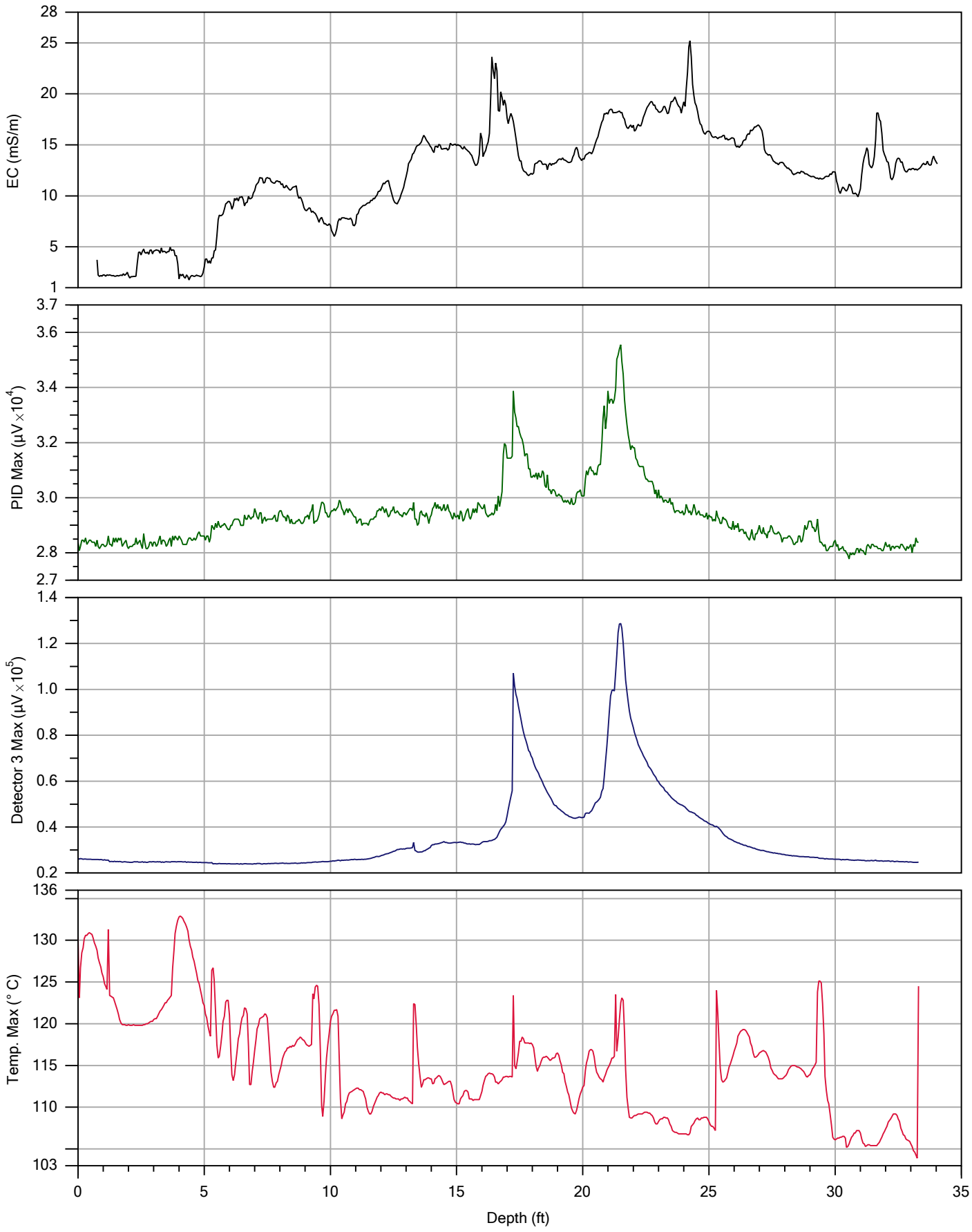
Golder Associates

			File: MIP0145.MIP
Company: Golder Associates		Operator: T. Armstrong, Peak Inv.	Date: 10/11/2011
Project ID: 083-87071.02		Client: IBM	Location: 41° 58′ 17″ N, 73° 59′ 47″ W



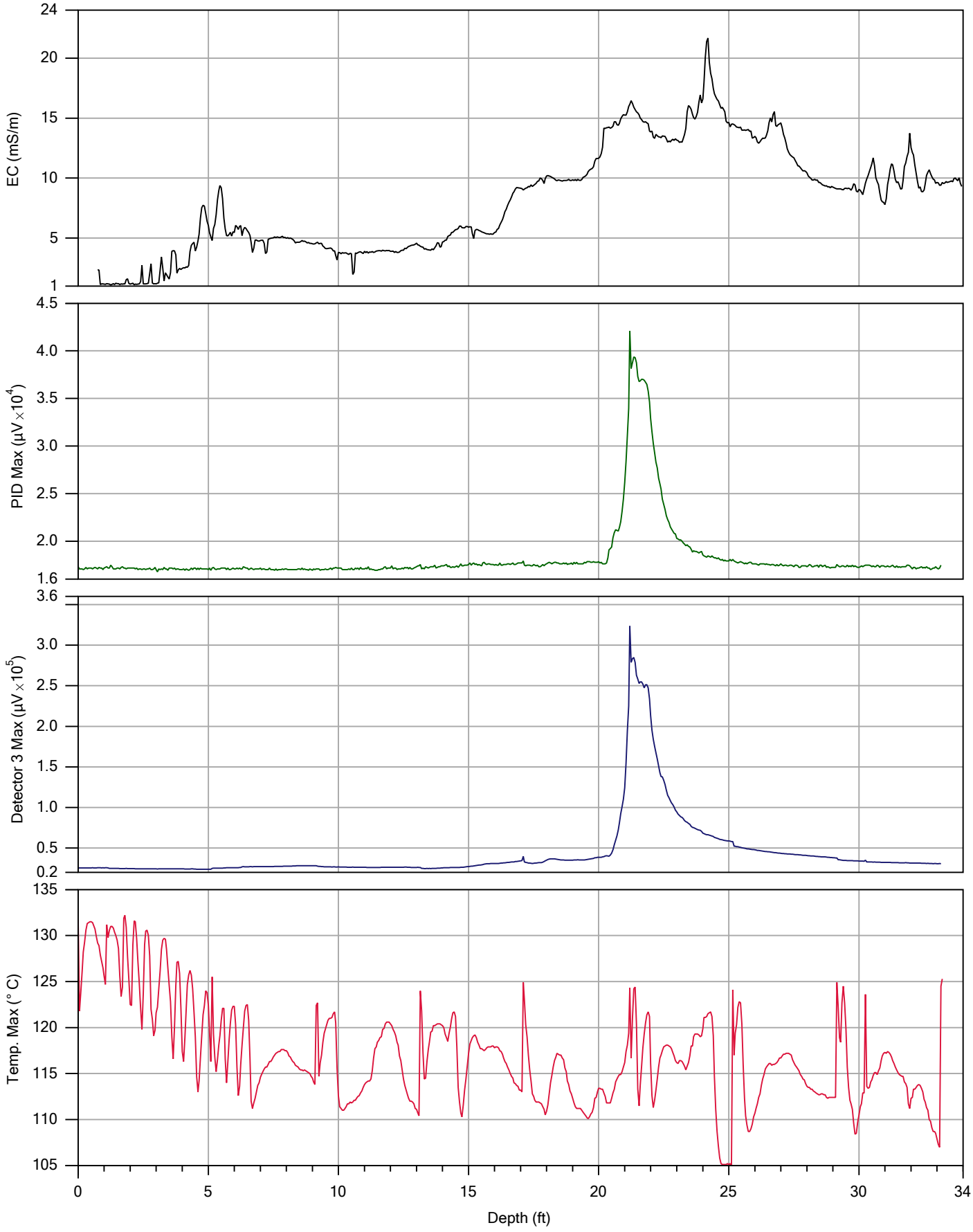
Golder Associates

		File: MIP0146.MIP
Company: Golder Associates	Operator: T. Armstrong, Peak Inv.	Date: 10/11/2011
Project ID: 083-87071.02	Client: IBM	Location: 41° 58′ 17″ N, 73° 59′ 46″ W



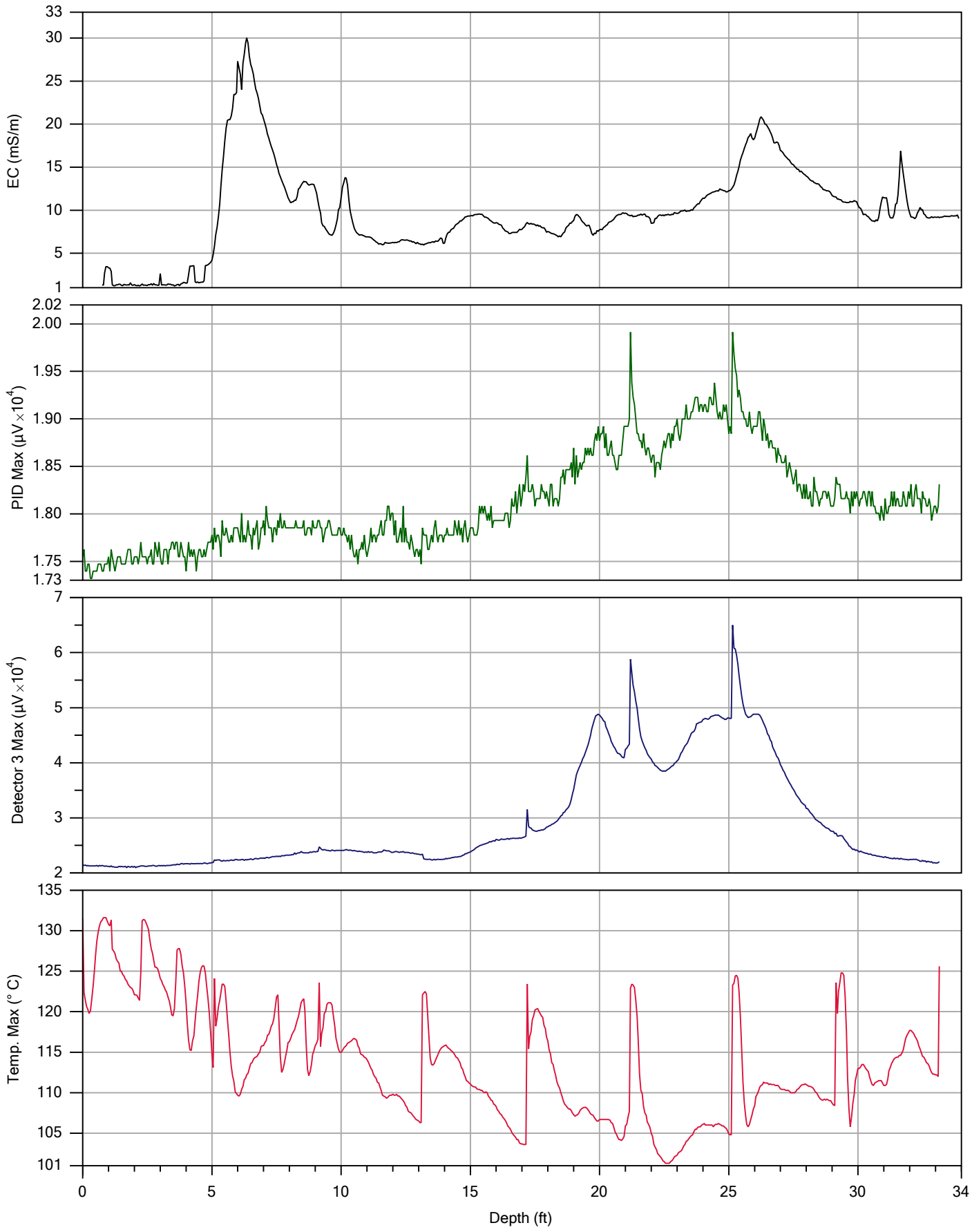
Golder Associates

		File: MIP0147.MIP
Company: Golder Associates	Operator: T. Armstrong, Peak Inv.	Date: 10/11/2011
Project ID: 083-87071.02	Client: IBM	Location: 41° 58′ 17″ N, 73° 59′ 46″ W



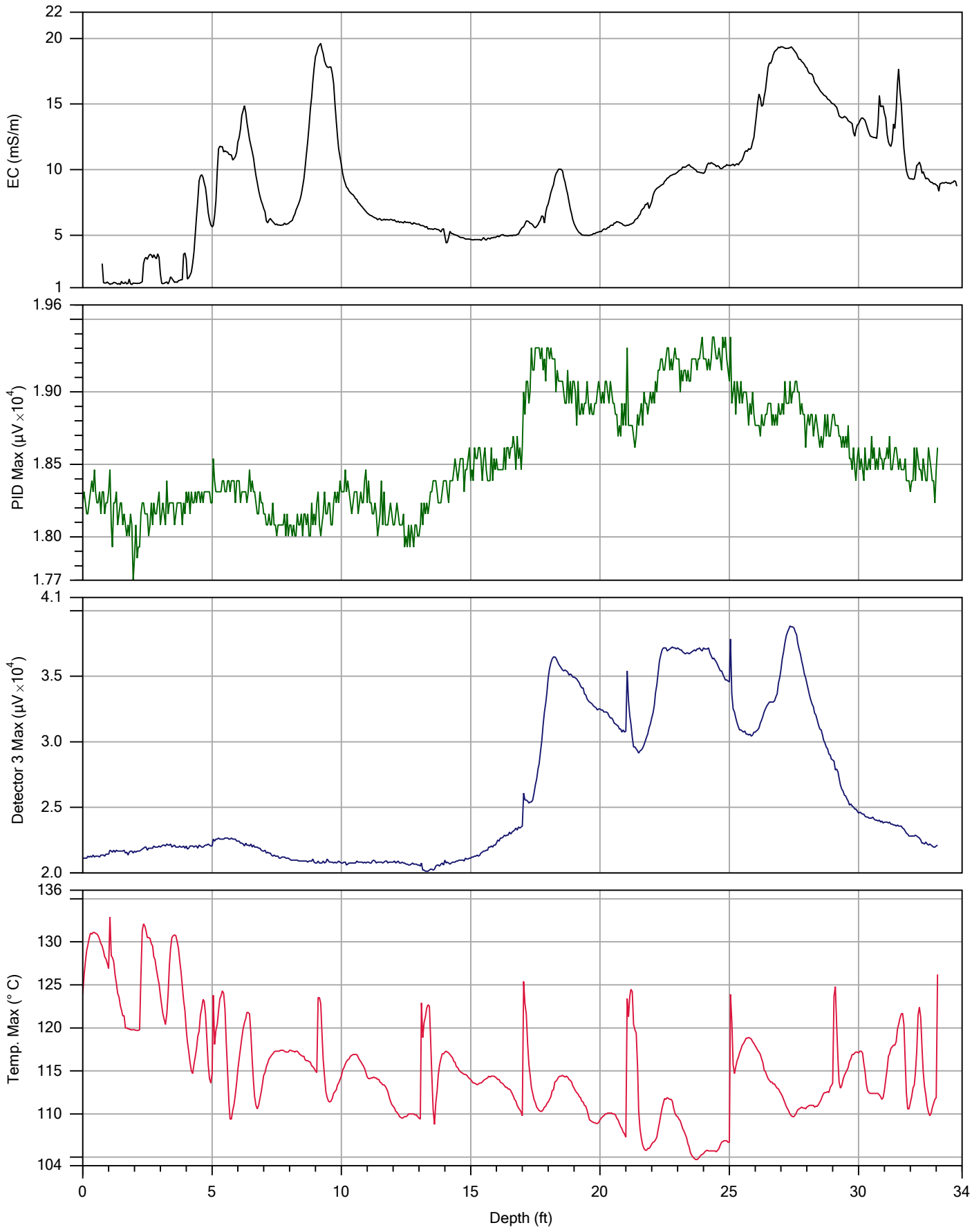
Golder Associates

		File: MIP0148.MIP
Company: Golder Associates	Operator: T. Armstrong, Peak Inv.	Date: 10/12/2011
Project ID: 083-87071.02	Client: IBM	Location: 41° 58′ 17″ N, 73° 59′ 46″ W



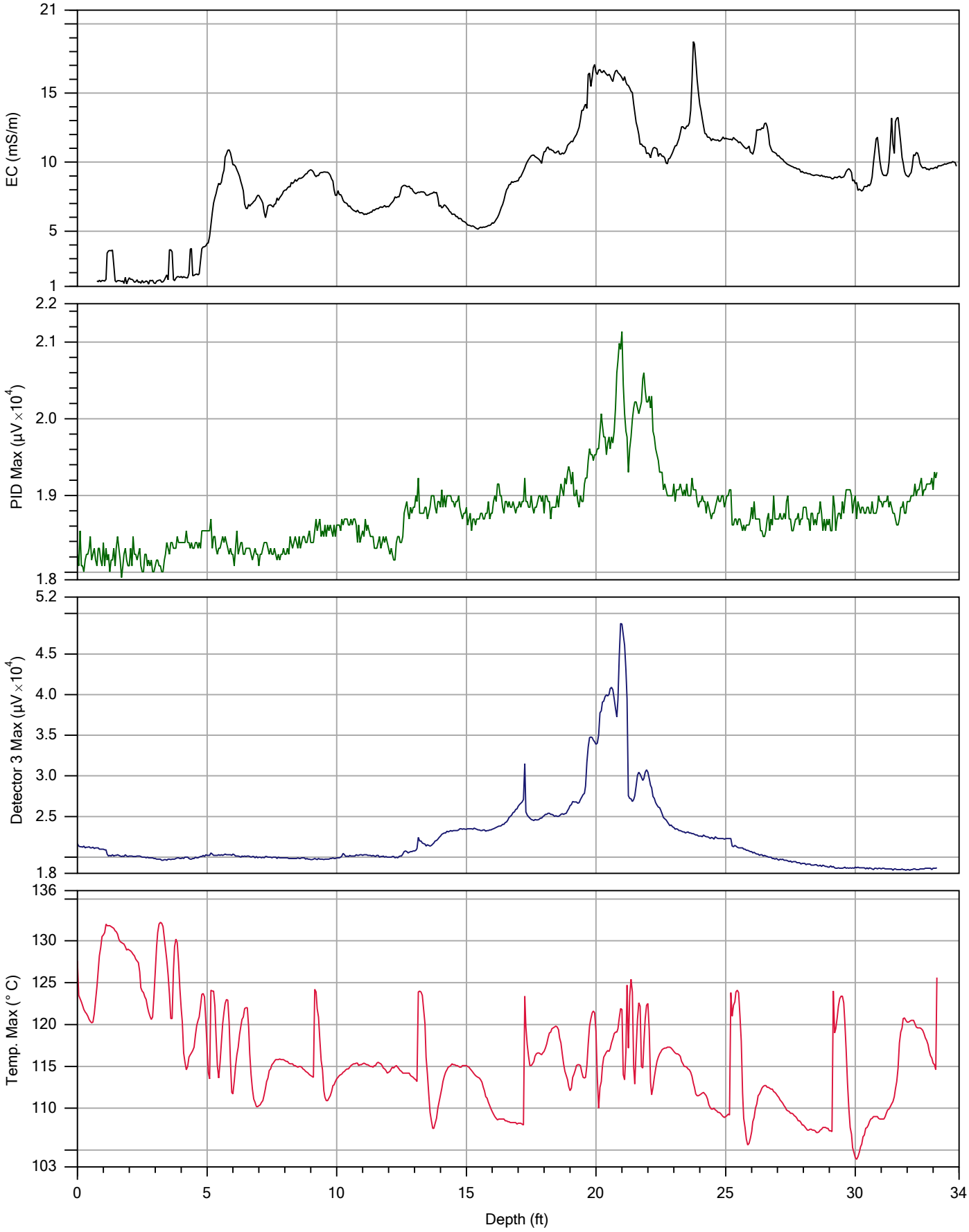
Golder Associates

		File: MIP0149.MIP
Company: Golder Associates	Operator: T. Armstrong, Peak Inv.	Date: 10/12/2011
Project ID: 083-87071.02	Client: IBM	Location: 41° 58′ 17″ N, 73° 59′ 46″ W



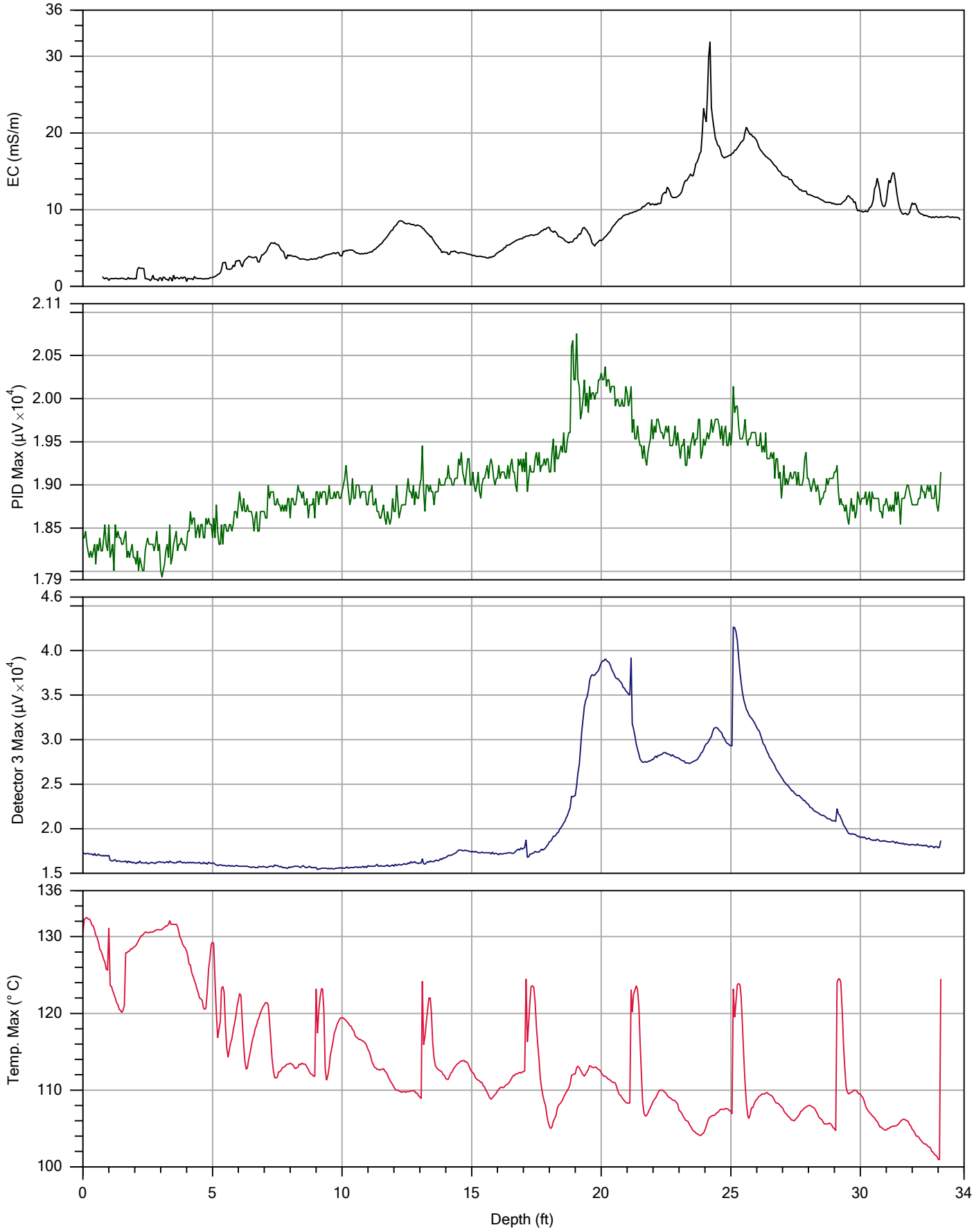
Golder Associates

		File: MIP0150.MIP
Company: Golder Associates	Operator: T. Armstrong, Peak Inv.	Date: 10/12/2011
Project ID: 083-87071.02	Client: IBM	Location: 41° 58′ 17″ N, 73° 59′ 47″ W



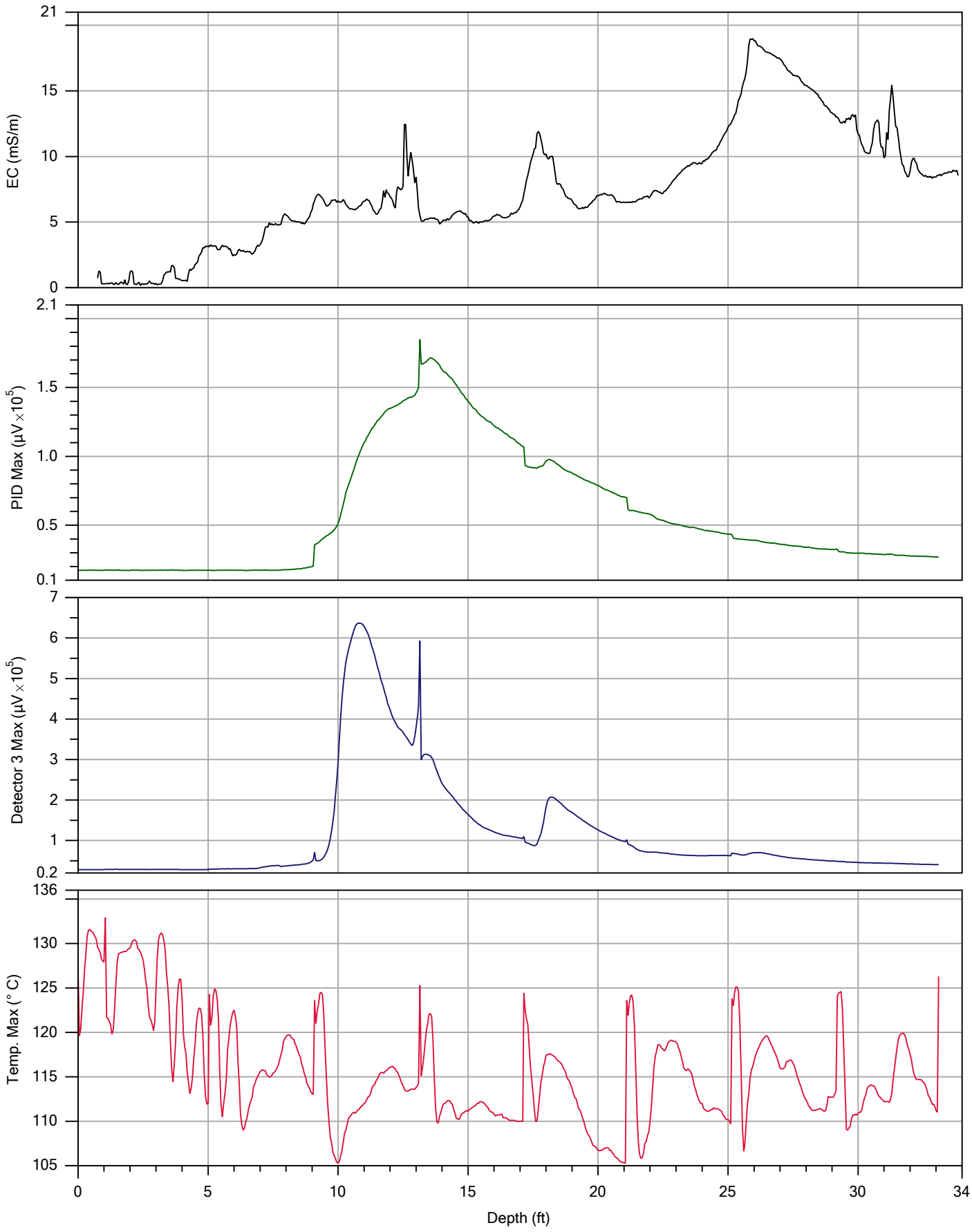
Golder Associates

			File: MIP0151.MIP
Company: Golder Associates		Operator: T. Armstrong, Peak Inv.	Date: 10/12/2011
Project ID: 083-87071.02		Client: IBM	Location: 41° 58′ 17″ N, 73° 59′ 46″ W



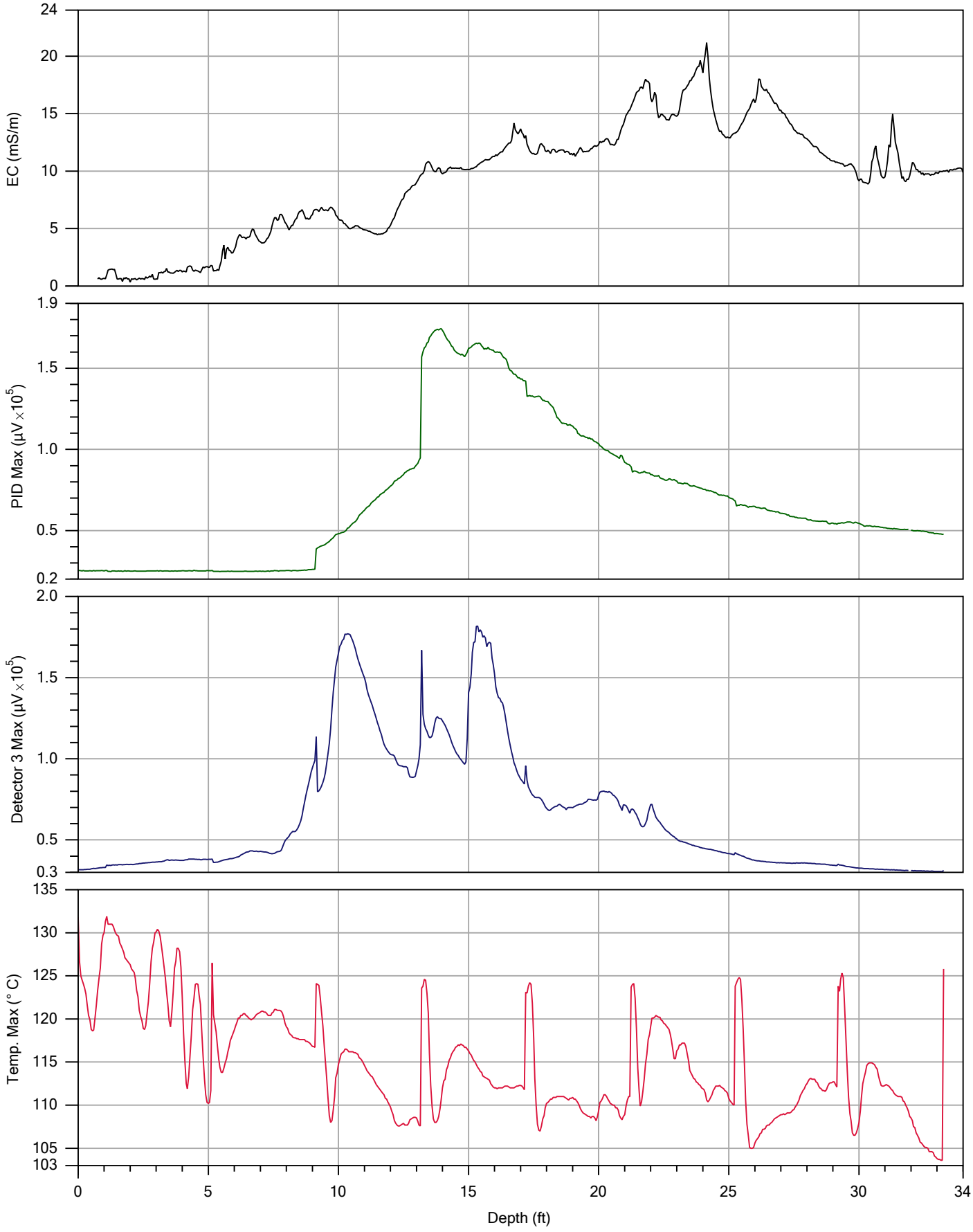
Golder Associates

		File: MIP0152.MIP
Company: Golder Associates	Operator: T. Armstrong, Peak Inv.	Date: 10/12/2011
Project ID: 083-87071.02	Client: IBM	Location: 41° 58′ 18″ N, 73° 59′ 47″ W



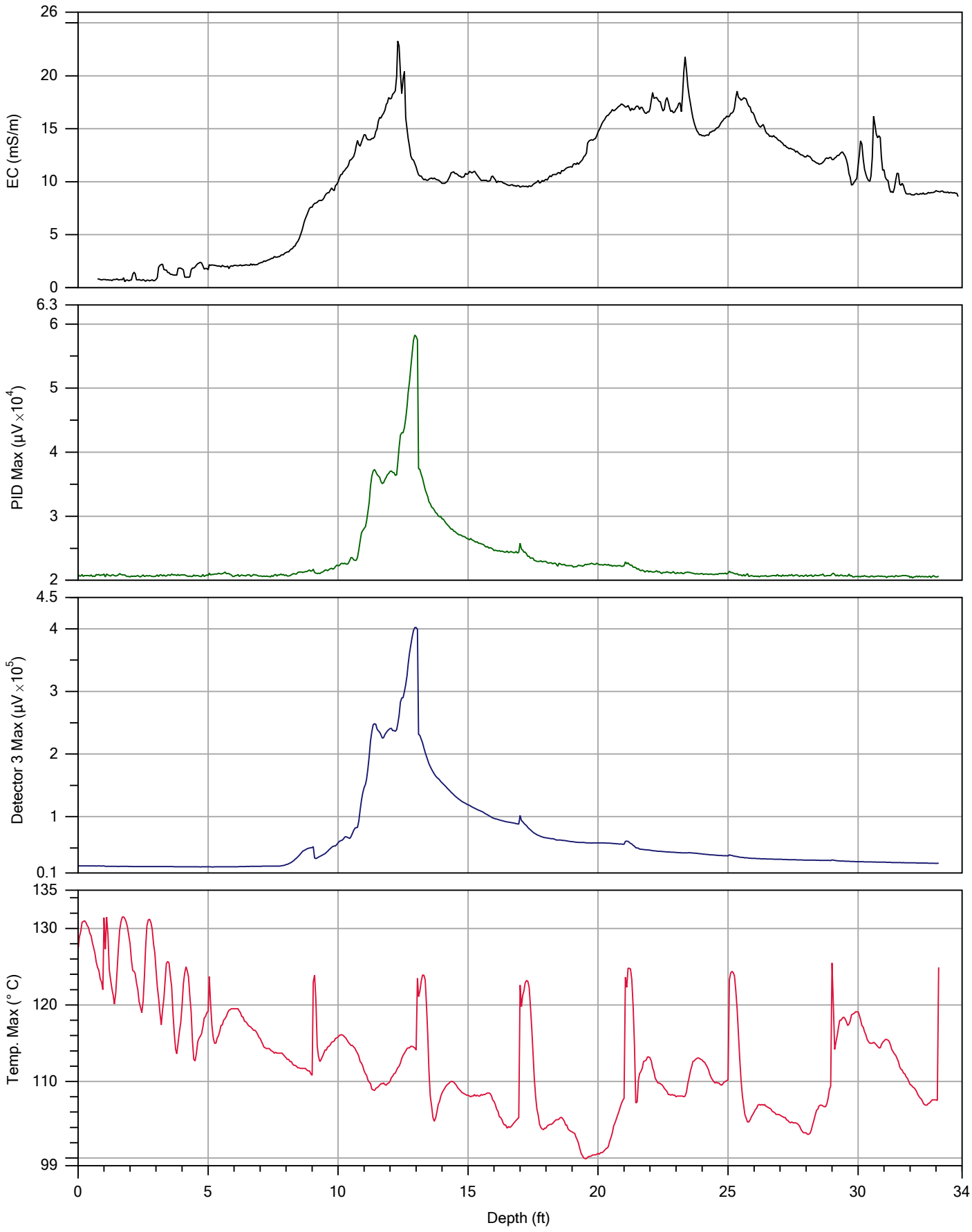
Golder Associates

		File: MIP0153.MIP
Company: Golder Associates	Operator: T. Armstrong, Peak Inv.	Date: 10/13/2011
Project ID: 083-87071.02	Client: IBM	Location: 41° 58′ 18″ N, 73° 59′ 47″ W



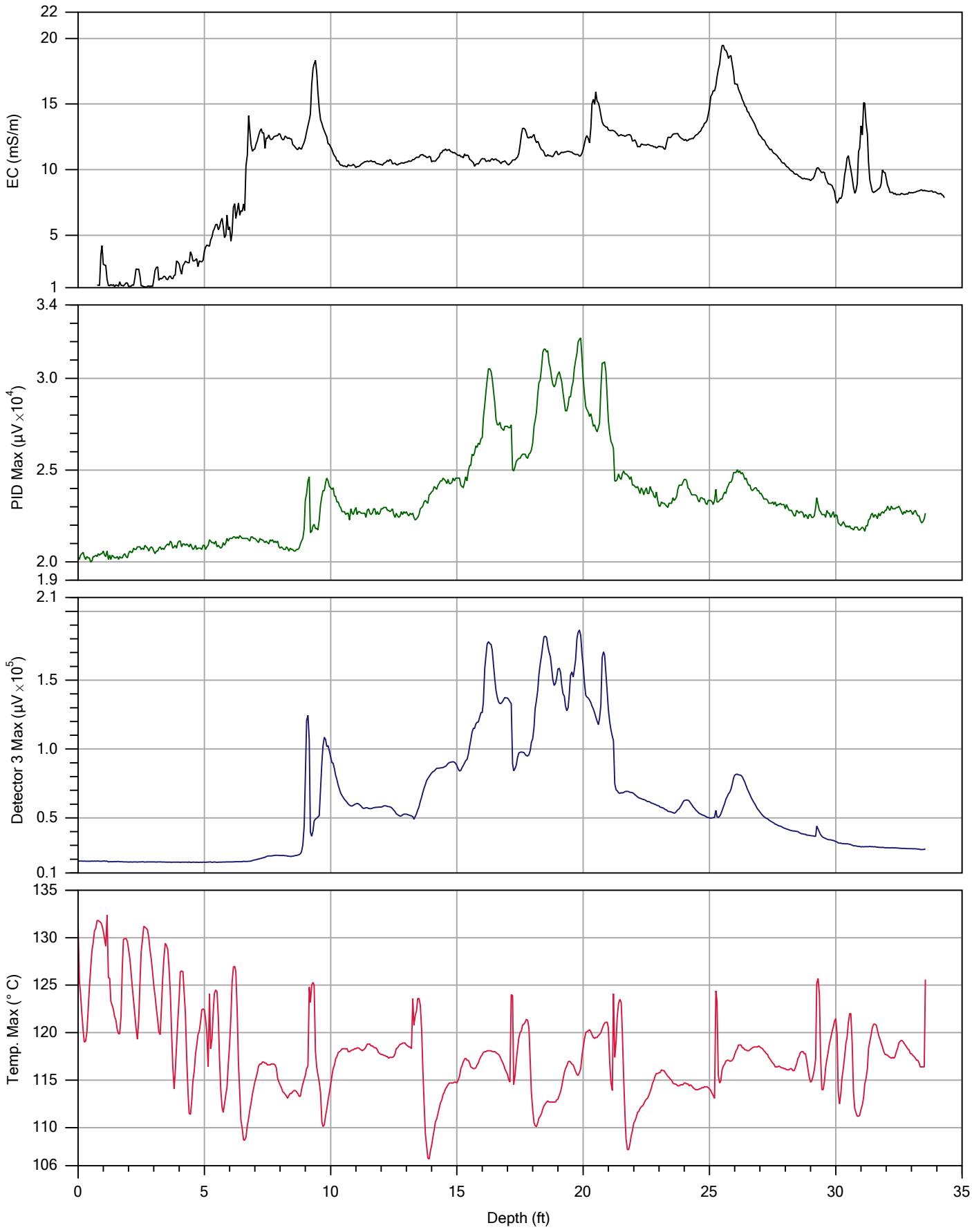
Golder Associates

			File: MIP0155.MIP
Company: Golder Associates		Operator: T. Armstrong, Peak Inv.	Date: 10/13/2011
Project ID: 083-87071.02		Client: IBM	Location: 41° 58′ 18″ N, 73° 59′ 45″ W



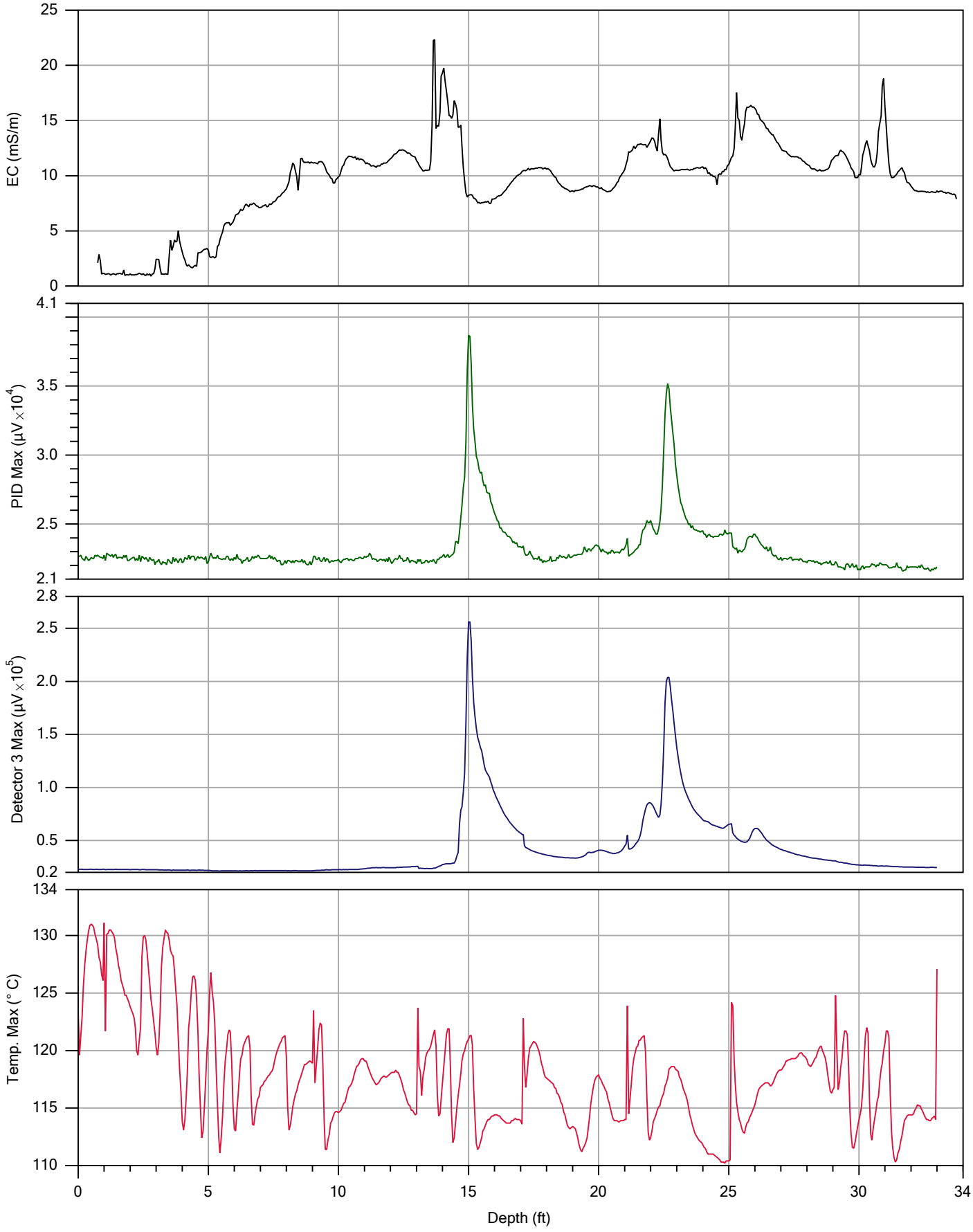
Golder Associates

		File: MIP0156.MIP
Company: Golder Associates	Operator: T. Armstrong, Peak Inv.	Date: 10/13/2011
Project ID: 083-87071.02	Client: IBM	Location: 41° 58′ 18″ N, 73° 59′ 45″ W



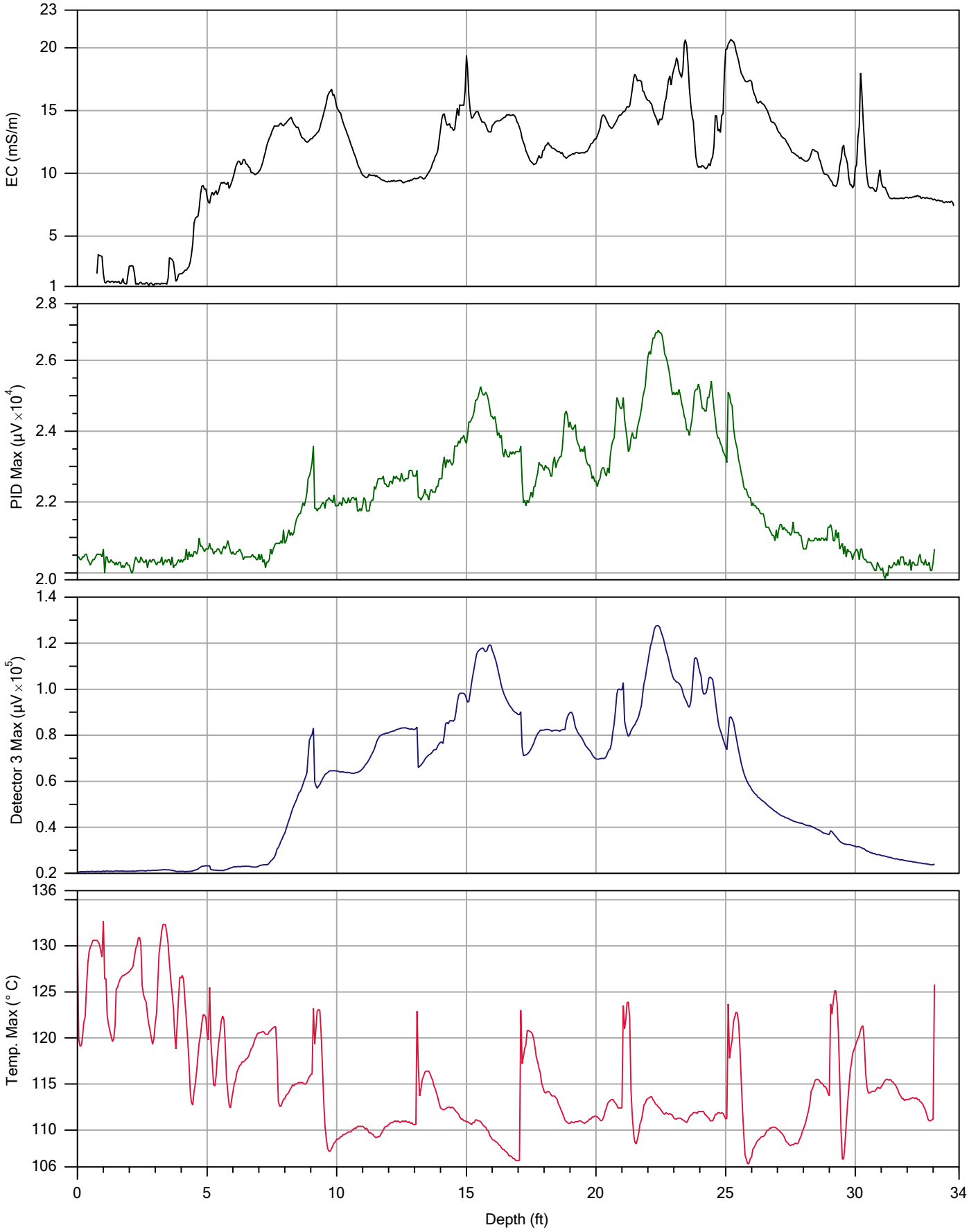
Golder Associates

		File: MIP0157.MIP
Company: Golder Associates	Operator: T. Armstrong, Peak Inv.	Date: 10/13/2011
Project ID: 083-87071.02	Client: IBM	Location: 41° 58′ 18″ N, 73° 59′ 46″ W



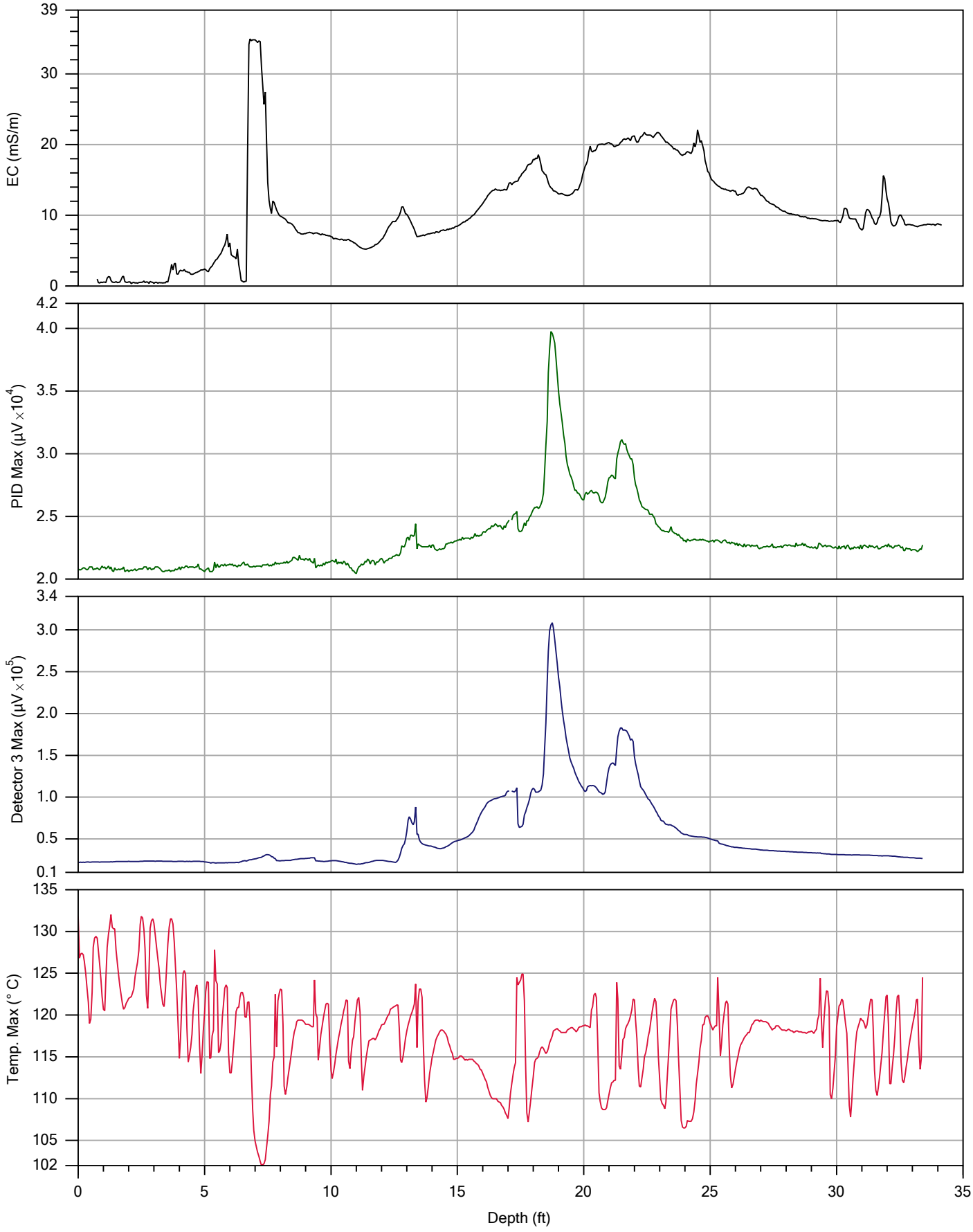
Golder Associates

		File: MIP0158.MIP
Company: Golder Associates	Operator: T. Armstrong, Peak Inv.	Date: 10/13/2011
Project ID: 083-87071.02	Client: IBM	Location: 41° 58′ 18″ N, 73° 59′ 47″ W



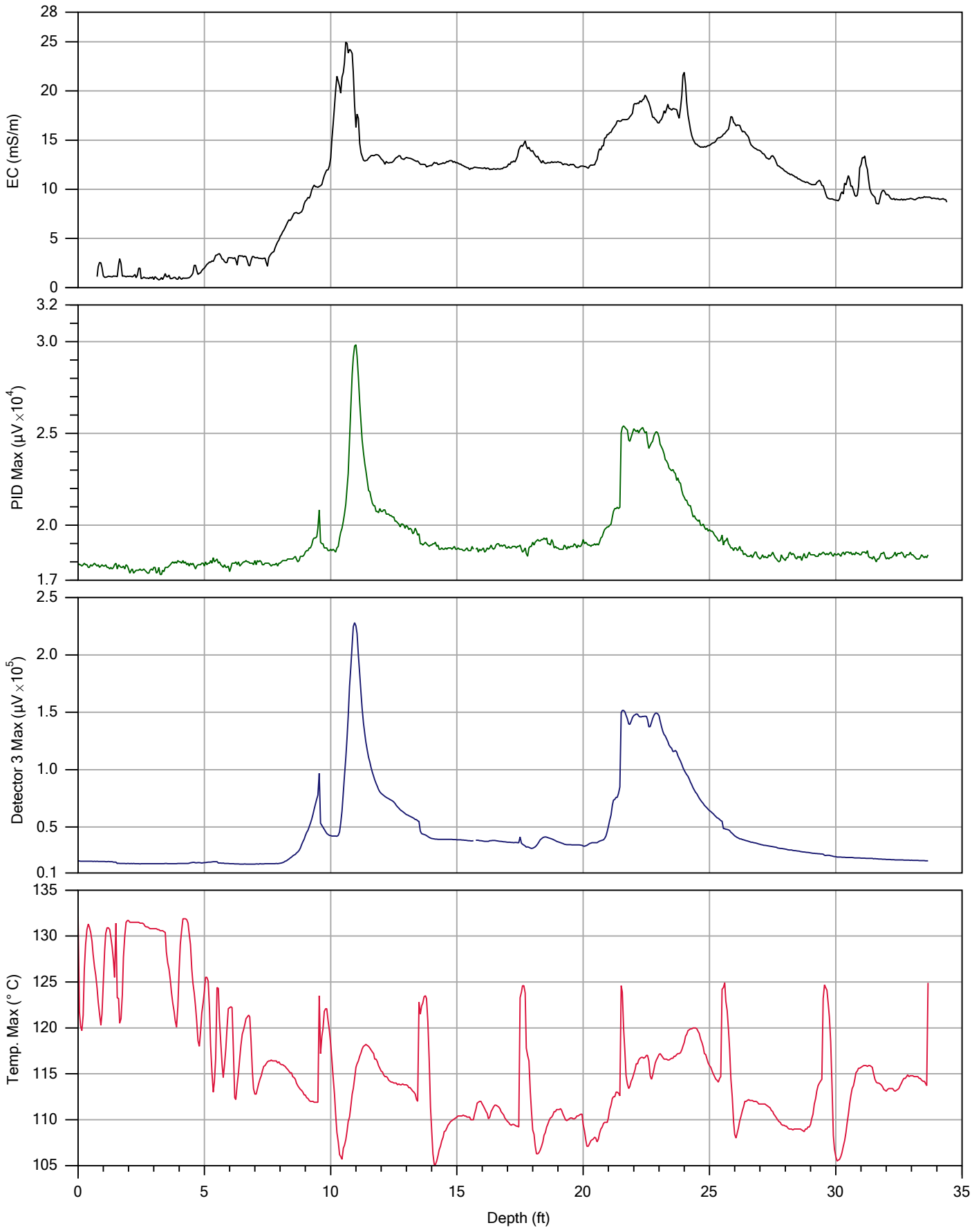
Golder Associates

		File: MIP0159.MIP
Company: Golder Associates	Operator: T. Armstrong, Peak Inv.	Date: 10/13/2011
Project ID: 083-87071.02	Client: IBM	Location: 41° 58′ 19″ N, 73° 59′ 47″ W



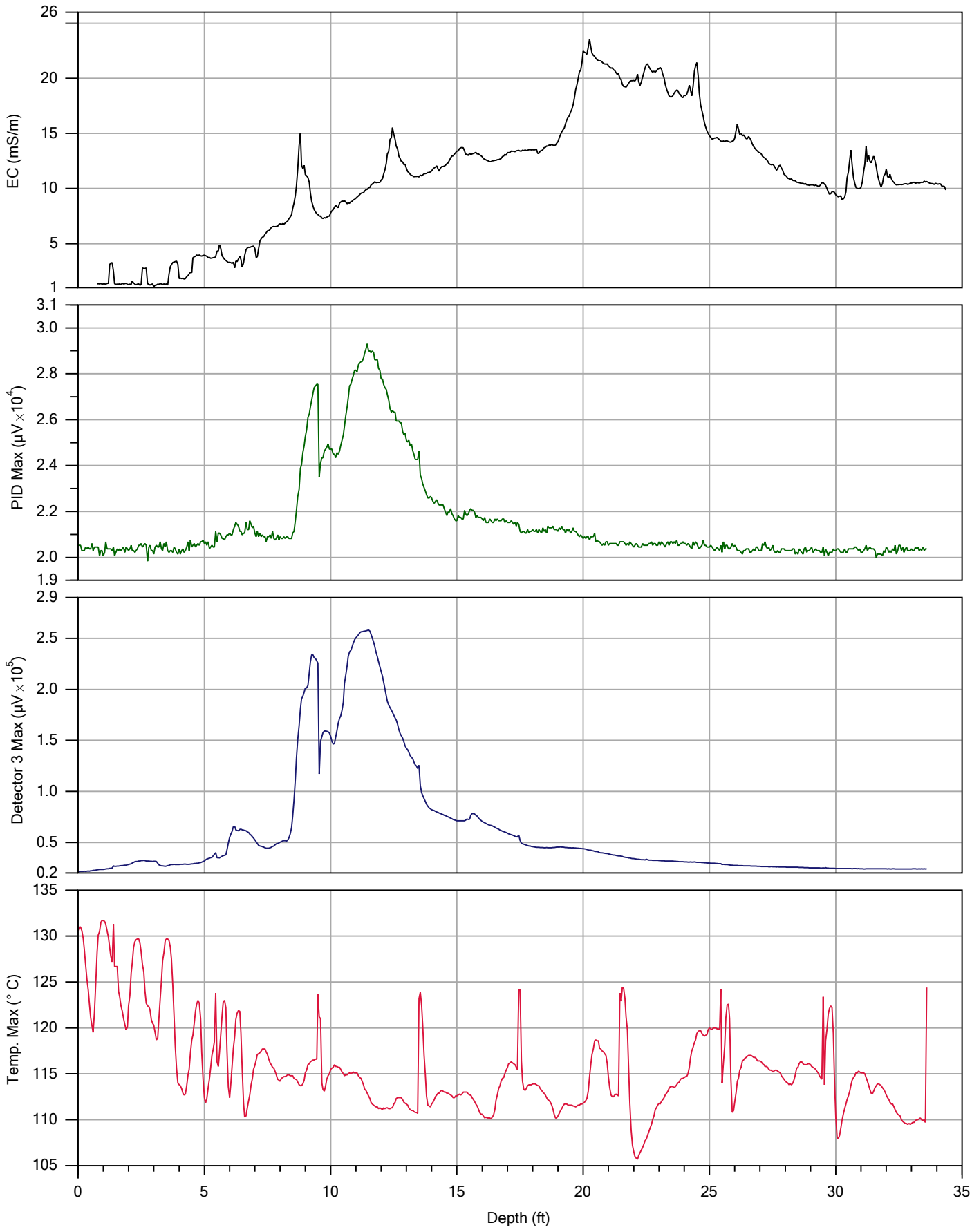
Golder Associates

		File: MIP0162.MIP
Company: Golder Associates	Operator: T. Armstrong, Peak Inv.	Date: 10/14/2011
Project ID: 083-87071.02	Client: IBM	Location: 41° 58′ 19″ N, 73° 59′ 45″ W



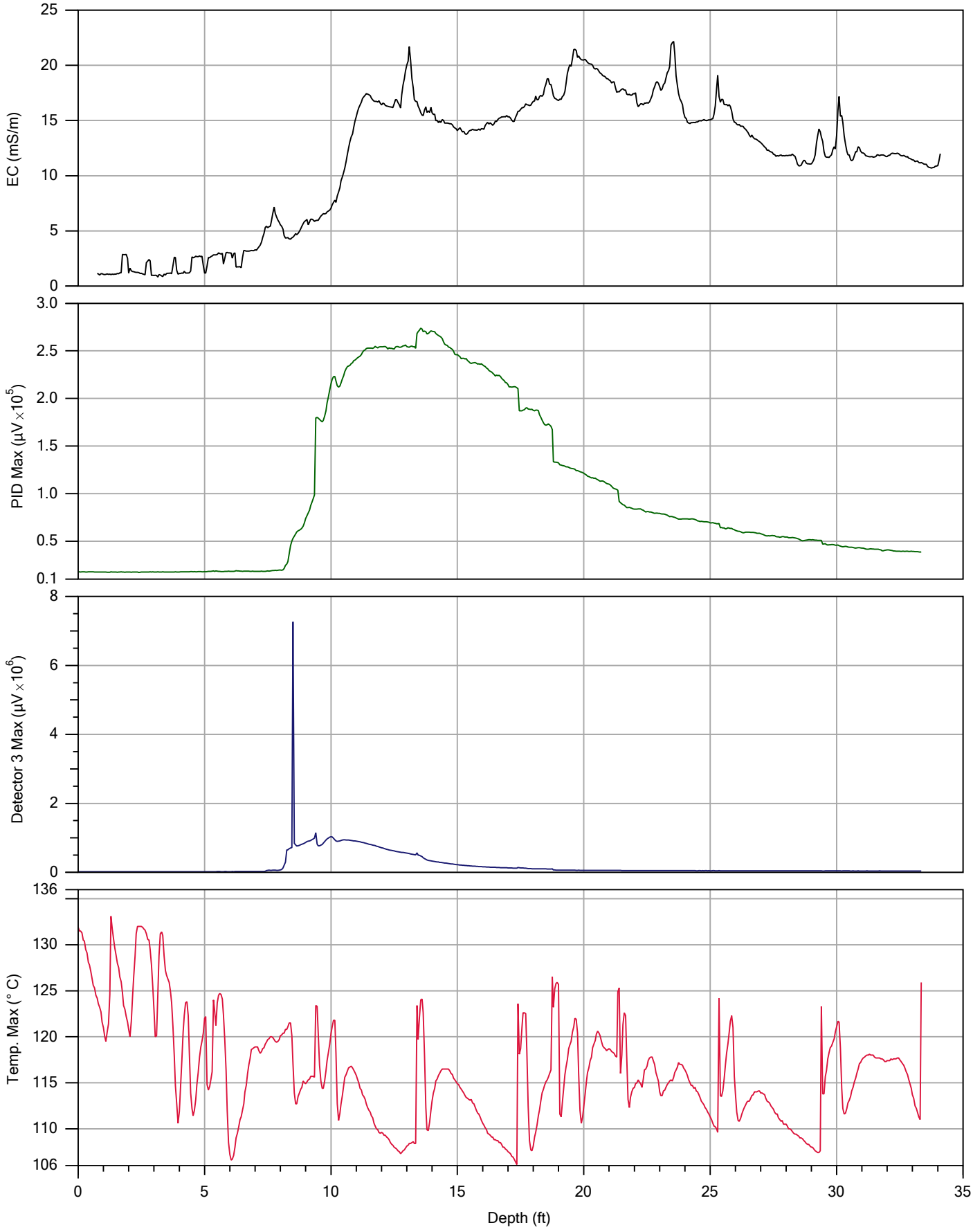
Golder Associates

			File: MIP0165.MIP
Company: Golder Associates		Operator: T. Armstrong, Peak Inv.	Date: 10/18/2011
Project ID: 083-87071.02		Client: IBM	Location: 41° 58′ 18″ N, 73° 59′ 45″ W



Golder Associates

		File: MIP0168.MIP
Company: Golder Associates	Operator: T. Armstrong, Peak Inv.	Date: 10/18/2011
Project ID: 083-87071.02	Client: IBM	Location: 41° 58′ 18″ N, 73° 59′ 43″ W



Golder Associates

		File: MIP0169.MIP
Company: Golder Associates	Operator: T. Armstrong, Peak Inv.	Date: 10/19/2011
Project ID: 083-87071.02	Client: IBM	Location: 41° 58′ 18″ N, 73° 59′ 43″ W

APPENDIX B
SOIL BORING AND TEMPORARY WELL LOGS

RECORD OF BOREHOLE ST-SB-01

SHEET 1 of 1

PROJECT NO.: 083-87071
PROJECT: Former IBM - Kingston
LOCATION: SWMU T
DRILL METHOD: Direct Push
DRILL RIG: 6600

DATE STARTED: 10/11/11
DATE FINISHED: 10/11/11
DRILLED DEPTH (FT): 25
WEATHER: Overcast
TEMPERATURE (F): 59 F

DATUM: New York State Plane
NORTHING: 718397.2275
EASTING: 591603.1667
G. SURFACE EL.: 177.8 feet
INCLINATION:

SAMPLER:
SAMPLER HAMMER:
CASING SIZE:
CASING HAMMER:
ROCK CORE:

DEPTH (feet)	ELEVATION (feet)	SOIL PROFILE: DESCRIPTION	USCS	GRAPHIC LOG	ELEV. / DEPTH (feet)	SAMPLES: NUMBER	TYPE	PID (ppm)	REC / ATT	COMMENTS
0		0.0 - 0.5 Dark brown, SILTY fine SAND, grass and root material, dry, no odor (SM)	SM		177.3 0.5					
		0.5 - 5.0 Brown, fine SAND, dry to moist at 5.0 ft bgs, no odor (SP)	SP			1	HA	0.0	5.0/5.0	
	175				172.8					
5		5.0 - 9.0 Brown, fine SAND, wet at 6.0 ft bgs, no odor (SP)	SP		5.0	2	MACRO CORE	0.0	4.0/5.0	
	170				168.8					
		9.0 - 9.3 Light brown, SILTY fine SAND, wet, no odor (SM)	SM SP		167.8					
10		9.3 - 10.0 Brown, gray, and black, fine to medium SAND, wet, no odor (SP)	SP		10.0					
		10.0 - 12.8 Brown, fine SAND, wet, no odor (SP)			165.1	3	MACRO CORE	0.0	4.0/5.0	
	165	12.8 - 13.3 Light brown, SILTY fine SAND, wet, no odor (SM)	SM		164.6 13.3					
		13.3 - 15.0 Brown, fine SAND, wet, no odor (SP)	SP		162.8					
15		15.0 - 20.0 Brown, fine SAND, wet, no odor (SP) (HEAVE/FLOWING SANDS)			15.0	4	MACRO CORE	0.0	2.5/5.0	
	160				157.8					
20		20.0 - 25.0 NO RECOVERY, macrocore liner bound in rods. Gray clay and sandy clay recovered from sampler shoe.			20.0	5	MACRO CORE	0.0	0.0/5.0	
	155				152.8					
25		Boring completed at 25.0 feet								
	150									
30										
	145									
35										
	140									
40										

LOG SCALE: 1 in = 5 ft
DRILLING COMPANY: Env. Probing Inc
DRILLER: W. Atkinson

GA INSPECTOR: D.Gorman
CHECKED BY: CDH
DATE: 11/28/11

Golder Associates

AA GEOTECH LOG IBM-KINGSTON ADDITIONAL INVESTIGATIONS.GPJ GOLDER NJ-PA 05-24-06.GDT 12/7/11

RECORD OF BOREHOLE ST-SB-02

SHEET 1 of 1

PROJECT NO.: 083-87071
PROJECT: Former IBM - Kingston
LOCATION: SWMU T
DRILL METHOD: Direct Push
DRILL RIG: 6600

DATE STARTED: 10/21/11
DATE FINISHED: 10/21/11
DRILLED DEPTH (FT): 23
WEATHER: Clear
TEMPERATURE (F): 50 F

DATUM: New York State Plane
NORTHING: 718334.7347
EASTING: 591599.5318
G. SURFACE EL.: 178.0 feet
INCLINATION:

SAMPLER:
SAMPLER HAMMER:
CASING SIZE:
CASING HAMMER:
ROCK CORE:

DEPTH (feet)	ELEVATION (feet)	SOIL PROFILE DESCRIPTION	USCS	GRAPHIC LOG	ELEV. / DEPTH (feet)	SAMPLES NUMBER	TYPE	PID (ppm)	REC / ATT	COMMENTS
0	175	0.0 - 3.5 Brown, fine SAND, some silt, fine gravel, grass, and root material, dry, no odor (SM)	SM		174.5	1	HA	0.0	5.0 / 5.0	
		3.5 - 5.0 Brown, fine SAND, dry, no odor (SP)	SP		3.5 173.0					
5	170	5.0 - 8.0 Brown, gray, and orange-brown, mottled, very fine to fine SAND, moist at 6.5 ft bgs, no odor (SP)	SP		5.0 170.0	2	MACRO CORE	0.0	4.0 / 5.0	
		8.0 - 9.0 Gray-brown, very fine SAND, trace to little silt, wet, no odor (SP-SM)	SP-SM		8.0 169.0					
			SP		9.0 168.1					
10	165	9.0 - 9.9 Brown, fine SAND, wet, with 2-inches of orange SILT at base, no odor (SP)	ML		167.5	3	MACRO CORE	0.0	3.0 / 5.0	Sample collected from ST-SB-02 for VOCs and SVOCs from 11.5 to 12.0 ft bgs, sample ID: ST-SB-02-11.5-12.0
		9.9 - 10.5 Orange and gray, SILT, wet, no odor (ML)			10.5					
		10.5 - 15.0 Gray, very fine SAND, with 3-inches of gray SILT at 10.5 ft bgs and 1-inch of orange SILT at 11.0 ft bgs, wet, no odor (SP)	SP		163.0					Sample collected from ST-TW-01 for VOCs and SVOCs from 15.0 to 17.0 ft bgs, sample ID: ST-TW-01-15
15	160	15.0 - 20.0 NO RECOVERY			15.0 158.0	4	MACRO CORE	0.0	0.0 / 5.0	Sample collected from ST-SB-02 for VOCs and SVOCs from 21.5 to 22.0 ft bgs, sample ID: ST-SB-02-21.5-22.0
20	155	20.0 - 22.0 Brown, fine SAND, wet, no odor (SP)	SP		20.0 156.0	5	MACRO CORE	0.0	3.0 / 3.0	Sample collected from ST-TW-02 for VOCs and SVOCs from 20.0 to 22.0 ft bgs, sample ID: ST-TW-02-20
		22.0 - 23.0 Gray, SILT, trace to little very fine sand, soft, wet, pliable, no odor (ML)	ML		22.0 155.0					
		Boring completed at 23.0 feet								
25	150									
30	145									
35	140									
40										

LOG SCALE: 1 in = 5 ft
DRILLING COMPANY: Env. Probing Inc
DRILLER: W. Atkinson

GA INSPECTOR: D.Gorman
CHECKED BY: CDH
DATE: 11/28/11

Golder Associates

AA GEOTECH LOG IBM-KINGSTON ADDITIONAL INVESTIGATIONS.GPJ GOLDER NJ-PA 05-24-06.GDT 12/7/11

RECORD OF BOREHOLE ST-SB-03

SHEET 1 of 1

PROJECT NO.: 083-87071
PROJECT: Former IBM - Kingston
LOCATION: SWMU T
DRILL METHOD: Direct Push
DRILL RIG: 6600

DATE STARTED: 10/21/11
DATE FINISHED: 10/21/11
DRILLED DEPTH (FT): 35
WEATHER: Clear
TEMPERATURE (F): 50 F

DATUM: New York State Plane
NORTHING: 718389.2752
EASTING: 591612.9525
G. SURFACE EL.: 177.9 feet
INCLINATION:

SAMPLER:
SAMPLER HAMMER:
CASING SIZE:
CASING HAMMER:
ROCK CORE:

DEPTH (feet)	ELEVATION (feet)	DESCRIPTION	USCS	GRAPHIC LOG	ELEV. / DEPTH (feet)	NUMBER	TYPE	PID (ppm)	REC / ATT	COMMENTS
0		0.0 - 1.0 Dark brown, SILTY fine SAND, grass and root material, moist, no odor (SM)	SM		176.9					
		1.0 - 5.0 Brown, very fine to fine SAND, dry, no odor (SP)	SP		1.0 172.9	1	HA	0.0	5.0/5.0	Sample collected from ST-SB-03 for VOCs and SVOCs from 4.5 to 5.0 ft bgs, sample ID: ST-SB-03-4.5-5.0
5	175	5.0 - 10.0 Gray-brown, fine SAND, mottled orange oxidation staining at 9.0 ft bgs, wet at 7.0 ft bgs, no odor (SP)	SP		5.0 167.9	2	MACRO CORE	0.0	4.0/5.0	
10	170	10.0 - 12.0 Light orange-brown, SILT, some very fine sand, wet, no odor (ML)	ML		10.0 165.9	3	MACRO CORE	0.0	4.0/5.0	Sample collected from ST-SB-03 for VOCs and SVOCs from 11.5 to 12.0 ft bgs, sample ID: ST-SB-03-11.5-12.0
		12.0 - 15.0 Gray-brown, very fine SAND, wet, no odor (SP)	SP		12.0 162.9					Sample collected from ST-TW-08 for VOCs, SVOCs, and TPH-GRO from 12.0 to 14.0 ft bgs, sample ID: ST-TW-08-12
15	165	15.0 - 17.0 Brown, fine SAND, wet, no odor (SP)	SP		15.0 160.9	4	MACRO CORE	0.0	4.5/5.0	
		17.0 - 17.3 Light brown, SILT, wet, no odor (ML)	ML		17.3					
	160	17.3 - 20.0 Gray-brown, fine SAND, wet, no odor (SP)	SP		157.9					
20		20.0 - 22.0 Gray, very fine SANDY SILT, hard, wet, no odor (ML)	ML		20.0 155.9	5	MACRO CORE	0.0	3.0/3.0	Sample collected from ST-SB-03 for VOCs and SVOCs from 21.5 to 22.0 ft bgs, sample ID: ST-SB-03-21.5-22.0 Sample collected from ST-TW-09 for VOCs, SVOCs, and TPH-GRO from 20.0 to 22.0 ft bgs, sample ID: ST-TW-09-20
	155	22.0 - 26.0 Gray, very fine SAND and SILT, wet, no odor (SM)	SM		22.0 151.9	6	MACRO CORE	0.0	3.0/3.0	
25		26.0 - 30.0 Gray, CLAY, soft, wet, pliable, no odor (CL)	CL		26.0 147.9	7	MACRO CORE	0.0	4.0/4.0	
30	150	30.0 - 34.5 Gray, CLAY, soft, wet, pliable, no odor (CL) (interpreted)	CL		30.0 143.4	8	MACRO CORE	0.0	5.0/5.0	
	145	34.5 - 35.0 Gray, CLAY, soft, wet, pliable, no odor (CL)	CL		142.9					
35		Boring completed at 35.0 feet								
	140									
40										

LOG SCALE: 1 in = 5 ft
DRILLING COMPANY: Env. Probing Inc
DRILLER: W. Atkinson

GA INSPECTOR: D.Gorman
CHECKED BY: CDH
DATE: 11/28/11

Golder Associates

AA GEOTECH LOG IBM-KINGSTON ADDITIONAL INVESTIGATIONS.GPJ GOLDER NJ-PA 05-24-06.GDT 12/7/11

RECORD OF BOREHOLE ST-SB-04

SHEET 1 of 1

PROJECT NO.: 083-87071
PROJECT: Former IBM - Kingston
LOCATION: SWMU T
DRILL METHOD: Direct Push
DRILL RIG: 6600

DATE STARTED: 10/21/11
DATE FINISHED: 10/21/11
DRILLED DEPTH (FT): 25
WEATHER: Clear
TEMPERATURE (F): 50 F

DATUM: New York State Plane
NORTHING: 718418.8117
EASTING: 591599.999
G. SURFACE EL.: 177.6 feet
INCLINATION:

SAMPLER:
SAMPLER HAMMER:
CASING SIZE:
CASING HAMMER:
ROCK CORE:

DEPTH (feet)	ELEVATION (feet)	SOIL PROFILE DESCRIPTION	USCS	GRAPHIC LOG	ELEV. / DEPTH (feet)	SAMPLES NUMBER	TYPE	PID (ppm)	REC / ATT	COMMENTS
0		0.0 - 1.0 Dark brown, SILTY fine SAND, moist, no odor (SM)	SM		176.6					
		1.0 - 5.0 Brown, fine SAND, dry, no odor (SP)	SP		1.0 172.6	1	HA	0.0	5.0/5.0	
5		5.0 - 8.0 Brown, fine SAND, moist at 6.0 ft bgs, no odor (SP)	SP		5.0 169.6	2	MACRO CORE	90.5	3.0/5.0	
		8.0 - 10.0 Gray, fine SAND, wet, strong TPH odor, sheen (SP)	SP		8.0 167.6					Sample collected from ST-SB-04 for VOCs, SVOCs, and TPH-GRO from 9.5 to 10.0 ft bgs, sample ID: ST-SB-04-9.5-10.0
10		10.0 - 12.0 Red-brown, fine SAND, wet, no odor (SP)	SP		10.0 165.6					Sample collected from ST-TW-10 for VOCs, SVOCs, and TPH-GRO from 8.0 to 10.0 ft bgs, sample ID: ST-TW-10-08
		12.0 - 13.0 Light brown, SILT, little very fine sand, soft, wet, no odor (ML)	ML		12.0 164.6	3	MACRO CORE	0.0	5.0/5.0	
		13.0 - 15.0 Gray-brown, fine SAND, wet, orange oxidation staining at 13.0 to 13.5 ft bgs, no odor (SP)	SP		13.0 162.6					Sample collected from ST-TW-11 for VOCs, SVOCs, and TPH-GRO from 12.0 to 14.0 ft bgs, sample ID: ST-TW-11-12
15		15.0 - 20.0 Brown, fine SAND, wet, no odor (SP)	SP		15.0 157.6	4	MACRO CORE	0.0	5.0/5.0	
20		20.0 - 23.0 Gray, very fine SAND and SILT, hard, wet, no odor (SM)	SM		20.0 154.6	5	MACRO CORE	0.0	3.0/3.0	Sample collected from ST-SB-04 fro VOCs, SVOCs, and TPH-GRO from 21.0 to 21.5 ft bgs, sample ID: ST-SB-04-21.0-21.5
		23.0 - 24.0 Gray, very fine SAND and SILT, hard, wet, no odor (SM)	SM		23.0 153.6	6	MACRO CORE	0.0	2.0/2.0	Sample collected from ST-TW-12 for VOCs, SVOCs, and TPH-GRO from 21.0 to 23.0 ft bgs, sample ID: ST-TW-12-21
		24.0 - 25.0 Gray, CLAY, soft, wet, pliable, no odor (CL)	CL		24.0 152.6					
25		Boring completed at 25.0 feet								
30										
35										
40										

LOG SCALE: 1 in = 5 ft
DRILLING COMPANY: Env. Probing Inc
DRILLER: W. Atkinson

GA INSPECTOR: D.Gorman
CHECKED BY: CDH
DATE: 11/28/11

Golder Associates

AA GEOTECH LOG IBM-KINGSTON ADDITIONAL INVESTIGATIONS.GPJ GOLDER NJ-PA 05-24-06.GDT 12/7/11

RECORD OF BOREHOLE ST-SB-05

SHEET 1 of 1

PROJECT NO.: 083-87071
PROJECT: Former IBM - Kingston
LOCATION: SWMU T
DRILL METHOD: Direct Push
DRILL RIG: 7820

DATE STARTED: 10/24/11
DATE FINISHED: 10/24/11
DRILLED DEPTH (FT): 25
WEATHER: Overcast
TEMPERATURE (F): 43 F

DATUM: New York State Plane
NORTHING: 718446.3809
EASTING: 591575.9005
G. SURFACE EL.: 177.5 feet
INCLINATION:

SAMPLER:
SAMPLER HAMMER:
CASING SIZE:
CASING HAMMER:
ROCK CORE:

DEPTH (feet)	ELEVATION (feet)	SOIL PROFILE DESCRIPTION	USCS	GRAPHIC LOG	ELEV. / DEPTH (feet)	SAMPLES NUMBER	TYPE	PID (ppm)	REC / ATT	COMMENTS
0		0.0 - 1.0 Dark brown, SILTY fine SAND, grass and root material, moist, no odor (SM)	SM		176.5					
		1.0 - 5.0 Brown, fine SAND, dry, no odor (SP)	SP		1.0 172.5	1	HA	0.0	5.0/5.0	
5	175	5.0 - 9.0 Brown, fine SAND, wet at 7.0 ft bgs, slight TPH odor (SP)	SP		5.0 168.5	2	MACRO CORE	250	4.0/5.0	
		9.0 - 10.0 Gray, fine SAND, wet, strong TPH odor, sheen	SP		9.0 167.5					Sample collected from ST-SB-05 for VOCs, SVOCs, and TPH-GRO from 9.5 to 10.0 ft bgs, sample ID: ST-SB-05-9.5-10.0
10		10.0 - 12.5 Gray, fine SAND, wet, slight TPH odor (SP)	SP		10.0 165.0	3	MACRO CORE	21.0	4.0/5.0	Sample collected from ST-TW-03 VOCs, SVOCs, and TPH-GRO from 9.0 to 11.0 ft bgs, sample ID: ST-TW-03-09
	165	12.5 - 13.3 Gray-brown, SILT and very fine SAND, wet, TPH odor (ML)	ML		164.2					
		13.3 - 14.5 Gray, CLAY, soft, wet, pliable, TPH odor (CL)	CL		13.3 163.0					
15		14.5 - 15.0 Orange-brown, SILT, soft, wet, TPH odor (ML)	ML		162.5					
		15.0 - 19.0 Brown, fine SAND, wet, no odor (SP)	SP		15.0 158.5	4	MACRO CORE	0.0	4.0/5.0	
	160	19.0 - 20.0 Light brown, fine SAND and SILT, wet, TPH odor (SM)	SM		19.0 157.5					Sample collected from ST-SB-05 for VOCs, SVOCs, and TPH-GRO from 19.5 to 20.0 ft bgs, sample ID: ST-SB-05-19.5-20.0 Sample collected from ST-TW-04 VOCs, SVOCs, and TPH-GRO from 18.0 to 20.0 ft bgs, sample ID: ST-TW-04-18
20		20.0 - 25.0 Brown, fine SAND, wet, no odor (SP) (HEAVE/FLOWING SANDS)			20.0 152.5	5	MACRO CORE	0.0	4.5/5.0	
25	155	Boring completed at 25.0 feet								
	150									
30										
	145									
35										
	140									
40										

LOG SCALE: 1 in = 5 ft
DRILLING COMPANY: Env. Probing Inc
DRILLER: J. Brass

GA INSPECTOR: D.Gorman
CHECKED BY: CDH
DATE: 11/28/11

Golder Associates

AA GEOTECH LOG IBM-KINGSTON ADDITIONAL INVESTIGATIONS.GPJ GOLDER NJ-PA 05-24-06.GDT 12/7/11

RECORD OF BOREHOLE ST-SB-06

SHEET 1 of 1

PROJECT NO.: 083-87071
PROJECT: Former IBM - Kingston
LOCATION: SWMU T
DRILL METHOD: Direct Push
DRILL RIG: 7820

DATE STARTED: 10/24/11
DATE FINISHED: 10/24/11
DRILLED DEPTH (FT): 25
WEATHER: Overcast
TEMPERATURE (F): 43 F

DATUM: New York State Plane
NORTHING: 718483.9473
EASTING: 591577.9488
G. SURFACE EL.: 177.1 feet
INCLINATION:

SAMPLER:
SAMPLER HAMMER:
CASING SIZE:
CASING HAMMER:
ROCK CORE:

DEPTH (feet)	ELEVATION (feet)	DESCRIPTION	USCS	GRAPHIC LOG	ELEV. / DEPTH (feet)	NUMBER	TYPE	PID (ppm)	REC / ATT	COMMENTS
0		0.0 - 1.0 Dark brown, SILTY fine SAND, grass and root material, moist, no odor (SM)	SM		176.1					
	175	1.0 - 5.0 Brown, fine SAND, dry, no odor (SP)	SP		1.0 172.1	1	HA	0.0	5.0/5.0	
5		5.0 - 10.0 Brown, fine SAND, moist at 6.5 ft bgs, wet at 7.0 ft bgs, no odor (SP)	SP		5.0 167.1	2	MACRO CORE	0.0	4.0/5.0	Sample collected from ST-SB-06 for VOCs, SVOCs, and TPH-GRO from 9.0 to 9.5 ft bgs, sample ID: ST-SB-05-9.0-9.5
10	170	10.0 - 12.5 Brown, fine SAND, wet, no odor (SP)	SP		10.0 164.6	3	MACRO CORE	0.0	3.5/5.0	Sample collected from ST-TW-05 VOCs, SVOCs, and TPH-GRO from 9.0 to 11.0 ft bgs, sample ID: ST-TW-05-09
	165	12.5 - 12.8 Gray, CLAY, soft, wet, pliable, no odor (CL)	CL							
		12.8 - 13.0 Orange-brown, very fine SAND and SILT, wet, no odor (ML)	ML		13.0 163.1					
		13.0 - 14.0 Gray, fine SAND, wet, no odor (SP)	SP		14.0 162.1					
15		14.0 - 15.0 Orange-brown, very fine SAND, little to some silt, wet, no odor (SM)	SM		15.0					
	160	15.0 - 20.0 Brown, fine SAND, little silt, wet, no odor (SP-SM)	SP-SM		157.1	4	MACRO CORE	0.0	4.5/5.0	Sample collected from ST-TW-06 VOCs, SVOCs, and TPH-GRO from 18.0 to 20.0 ft bgs, sample ID: ST-TW-06-18
20		20.0 - 25.0 NO RECOVERY			20.0					
	155				152.1	5	MACRO CORE	0.0	0.0/5.0	
25		Boring completed at 25.0 feet								
	150									
30										
	145									
35										
	140									
40										

LOG SCALE: 1 in = 5 ft
DRILLING COMPANY: Env. Probing Inc
DRILLER: J. Brass

GA INSPECTOR: D.Gorman
CHECKED BY: CDH
DATE: 11/28/11

Golder Associates

AA GEOTECH LOG IBM-KINGSTON ADDITIONAL INVESTIGATIONS.GPJ GOLDER NJ-PA 05-24-06.GDT 12/7/11

APPENDIX C

SOIL, GROUNDWATER, AND STORMWATER SEWER SAMPLING INFORMATION

Table C-1: Field Parameters

Sample ID Sample Date		ST-TW-01-15 10/20/2011	ST-TW-02-20 10/20/2011	ST-TW-03-09 10/25/2011	ST-TW-04-18 10/25/2011	ST-TW-05-09 10/25/2011	ST-TW-06-18 10/25/2011	ST-TW-07-09 10/25/2011	ST-TW-08-12 10/25/2011	ST-TW-09-20 10/25/2011
Parameter	**Unit of Measure**									
Temperature	° C	14.59	13.73	NM	11.93	13.58	11.85	12.61	14.16	12.83
Specific Conductivity	mS/cm	0.553	0.630	NM	0.296	0.361	0.251	0.441	0.214	0.591
D.O.	mg/L	2.22	1.62	NM	2.88	1.99	6.96	12.66	18.79	21.44
ORP	mV	51.5	-18.5	NM	91.7	-15.7	38.3	-98.3	-1.2	-97.3
pH	s.u.	6.33	6.67	NM	6.88	6.95	6.77	6.72	6.88	7.24
Turbidity	NTU	50.2	80.7	NM	869	128	1210	202	273	2000+
DTW	feet	NA	NA	NA	NA	NA	NA	NA	NA	NA

Sample ID Sample Date		ST-TW-10-08 10/25/2011	ST-TW-11-12 10/25/2011	ST-TW-12-21 10/25/2011	IWB1-TW-07-08 10/26/2011	IWB1-TW-08-10 10/26/2011	IWB1-TW-09-16 10/26/2011	IWB3-TW-01-10 10/26/2011	IWB3-TW-02-20 10/26/2011
Parameter	**Unit of Measure**								
Temperature	° C	NM	15.25	13.83	13.35	13.26	12.23	14.26	12.61
Specific Conductivity	mS/cm	NM	0.231	0.529	0.09	0.195	0.265	0.326	0.733
D.O.	mg/L	NM	4.95	8.49	17.27	13.96	11.5	6.31	2.81
ORP	mV	NM	-65.4	42.5	-120.4	-231.1	-209.3	NM	-262.4
pH	s.u.	NM	6.74	8.07	6.08	7.04	6.14	6.29	6.43
Turbidity	NTU	NM	228.0	255.00	14.9	91.7	239	11.7	241
DTW	feet	NA	NA	NA	NA	NA	NA	NA	NA

Notes

1) Values are the final reading when stabilization had occurred except.
2) DO - Dissolved Oxygen
3) ORP - Oxidation reduction potential
4) ^{o}C - Degrees Celsius
5) mS/cm - MilliSiemens per centimeter
6) NTU - Nephelometric Turbidity Units
7) mg/l - Milligrams per liter
8) S.U. - Standard Units
9) NM - Not Measured due to strong solvent odor/sheen in purge water.

GOLDER ASSOCIATES
SAMPLE COLLECTION INFORMATION FORM

GAI Project Name:	IBM-KINGSTON	Project Number:	083-87071
Sample ID:	IWB1-TW-07-08	Sample Source:	GW
Golder Personnel Present:	D. GORMAN		

PURGING INFORMATION (IF APPLICABLE)

Purge Date:	10/26/2011	Time (24 hr):	0930-0950	Elapsed Hrs/Mins.:	20 MINS
Purging Device:	C	Dedicated?:	Y		
Casing Vol (Gal.):		Tubing Vol. (L)		Vol Purged (L)	
Material:					

(A) Air-Lift Pump; (B) Bladder Pump, (C) Peristaltic Pump; (D) Scoop / Shovel; (E) Bailer; (F) Foot Valve; (G) Other.

SAMPLE COLLECTION INFORMATION

Sampling Date:	10/26/2011	Time (24 hr):	0955	Matrix:	Aq
Sampling Device	C	Dedicated?:	Y	Filtered?:	N
Material:	Poly / Silicone			Sample Type:	GRAB
Analytical Parameters:					

(A) Air-Lift Pump; (B) Bladder Pump, (C) Peristaltic Pump; (D) Scoop / Shovel; (E) Bailer; (F) Foot Valve; (G) Other.

WELL INFORMATION (IF APPLICABLE)

Reference Point:		Land Elevation (ft):	NA	
Ref. Elevation (ft):	NA	Historical Well Depth (ft):		Common casing vol. factors
Depth to Water (ft):		Sounded Well Depth (ft):		1.5 = 0.09, 2.0 = 0.163, 4.0 = 1.96
Screen Interval:		Stickup (ft):	NA	0.25 = .003, 0.5 = 0.01, 1.0 = 0.041
Pump Intake:	NA	Well Diameter (in):		Casing Vol.= 0.163 * r^2
GW Elevation (ft):		Tubing Diameter (in)		

FINAL FIELD MEASUREMENTS

PLEASE CHECK UNITS VS. METER!!!

Parameter	Units (proposed) actual	Result	Parameter	Units (proposed) actual	Result
Temperature	(°C)	13.35	pH	(S.U.)	6.08
Spec Cond	(mS/cm)	0.090	ORP	(mV)	120.4
Dissolved Oxygen	(mg/L)	17.27	Turbidity	(NTU)	14.9
Flow Rate	(mL/min)	140	Drawdown	(Ft)	
Other:			Other:		

When applicable, field stabilization data are recorded on the back of this form

COMMENTS / CALCULATIONS

Weather: 46°F, LIGHT RAIN

Sample Description: CLEAR, ODOR

Sampler Signature: [signature]

Date: 10/26/2011

GOLDER ASSOCIATES
SAMPLE COLLECTION INFORMATION FORM

GAI Project Name:	IBM-KINGSTON		
Sample ID:	IWB1-TW-08-12	Project Number:	083-87071
Golder Personnel Present:	D. GORMAN	Sample Source:	GW

PURGING INFORMATION (IF APPLICABLE)

Purge Date:	10/26/2011	Time (24 hr):	1005 - 1025	Elapsed Hrs/Mins.:	20 MIN
Purging Device:	C	Dedicated?:	Y		
Casing Vol (Gal.):		Tubing Vol. (L)		Vol Purged (L)	
Material:					

(A) Air-Lift Pump; (B) Bladder Pump, (C) Peristaltic Pump; (D) Scoop / Shovel; (E) Bailer; (F) Foot Valve; (G) Other.

SAMPLE COLLECTION INFORMATION

Sampling Date:	10/26/2011	Time (24 hr):	1030	Matrix:	Aq
Sampling Device	C	Dedicated?:	Y	Filtered?:	N
Material:	Poly / Silicone			Sample Type:	GRAB

(A) Air-Lift Pump; (B) Bladder Pump, (C) Peristaltic Pump; (D) Scoop / Shovel; (E) Bailer; (F) Foot Valve; (G) Other.

Analytical Parameters:	

WELL INFORMATION (IF APPLICABLE)

Reference Point:		Land Elevation (ft):	NA	
Ref. Elevation (ft):	NA	Historical Well Depth (ft):		Common casing vol. factors
Depth to Water (ft):		Sounded Well Depth (ft):		1.5 = 0.09, 2.0 = 0.163, 4.0 = 1.96
Screen Interval:		Stickup (ft):	NA	0.25 = .003, 0.5 = 0.01, 1.0 = 0.041
Pump Intake:	NA	Well Diameter (in):		Casing Vol.= 0.163 * r^2
GW Elevation (ft):		Tubing Diameter (in)		

FINAL FIELD MEASUREMENTS

PLEASE CHECK UNITS VS. METER!!!

Parameter	Units (proposed) actual	Result	Parameter	Units (proposed) actual	Result
Temperature	(°C)	13.26	pH	(S.U.)	7.04
Spec Cond	(mS/cm)	0.195	ORP	(mV)	-231.1
Dissolved Oxygen	(mg/L)	13.96	Turbidity	(NTU)	91.7
Flow Rate	(mL/min)	150	Drawdown	(Ft)	
her:			Other:		

hen applicable, field stabilization data are recorded on the back of this form

COMMENTS / CALCULATIONS

Weather: 46°F, LIGHT RAIN

mple Description: CLEAR, NO ODOR

pler Signature: [signature]

Date: 10/26/2011

GOLDER ASSOCIATES
SAMPLE COLLECTION INFORMATION FORM

GAI Project Name:	IBM-KINGSTON	Project Number:	083-87071
Sample ID:	IWBI-TW-09-16	Sample Source:	GW
Golder Personnel Present:	D. GORMAN		

PURGING INFORMATION (IF APPLICABLE)

Purge Date:	10/26/2011	Time (24 hr):	1045-1105	Elapsed Hrs/Mins.:	20MIN
Purging Device:	C	Dedicated?:	Y		
Casing Vol (Gal.):		Tubing Vol. (L)		Vol Purged (L)	
Material:					

(A) Air-Lift Pump; (B) Bladder Pump, (C) Peristaltic Pump; (D) Scoop / Shovel; (E) Bailer; (F) Foot Valve; (G) Other.

SAMPLE COLLECTION INFORMATION

Sampling Date:	10/26/2011	Time (24 hr):	1110	Matrix:	Aq
Sampling Device	C	Dedicated?:	Y	Filtered?:	N
Material:	Poly / Silicone			Sample Type:	GRAB

(A) Air-Lift Pump; (B) Bladder Pump, (C) Peristaltic Pump; (D) Scoop / Shovel; (E) Bailer; (F) Foot Valve; (G) Other.

Analytical Parameters:	

WELL INFORMATION (IF APPLICABLE)

Reference Point:		Land Elevation (ft):	NA	
Ref. Elevation (ft):	NA	Historical Well Depth (ft):		Common casing vol. factors
Depth to Water (ft):		Sounded Well Depth (ft):		1.5 = 0.09, 2.0 = 0.163, 4.0 = 1.96
Screen Interval:		Stickup (ft):	NA	0.25 = .003, 0.5 = 0.01, 1.0 = 0.041
Pump Intake:	NA	Well Diameter (in):		Casing Vol.= 0.163 * r^2
GW Elevation (ft):		Tubing Diameter (in)		

FINAL FIELD MEASUREMENTS

PLEASE CHECK UNITS VS. METER!!!

Parameter	Units (proposed) actual	Result	Parameter	Units (proposed) actual	Result
Temperature	(°C)	12.23	pH	(S.U.)	6.14
Spec Cond	(mS/cm)	0.265	ORP	(mV)	-209.3
Dissolved Oxygen	(mg/L)	11.50	Turbidity	(NTU)	239
Flow Rate	(mL/min)	150	Drawdown	(Ft)	
her:			Other:		

hen applicable, field stabilization data are recorded on the back of this form

COMMENTS / CALCULATIONS

Weather: 46°F, LIGHT RAIN

mple Description: CLEAR, NO ODOR

pler Signature: [signature] Date: 10/26/2011

GOLDER ASSOCIATES
SAMPLE COLLECTION INFORMATION FORM

GAI Project Name:	IBM-KINGSTON	Project Number:	083-87071
Sample ID:	IWB 3-TW-21-10	Sample Source:	GW
Golder Personnel Present:	D. GORMAN		

PURGING INFORMATION (IF APPLICABLE)

Purge Date:	10/26/2011	Time (24 hr):	1120-1145	Elapsed Hrs/Mins.:	25 MINS
Purging Device:	C	Dedicated?:	Y		
Casing Vol (Gal.):		Tubing Vol. (L)		Vol Purged (L)	
Material:					

(A) Air-Lift Pump; (B) Bladder Pump, (C) Peristaltic Pump; (D) Scoop / Shovel; (E) Bailer; (F) Foot Valve; (G) Other.

SAMPLE COLLECTION INFORMATION

Sampling Date:	10/26/2011	Time (24 hr):	1150	Matrix:	Aq
Sampling Device	C	Dedicated?:	Y	Filtered?:	N
Material:	Poly / Silicone			Sample Type:	GRAB

(A) Air-Lift Pump; (B) Bladder Pump, (C) Peristaltic Pump; (D) Scoop / Shovel; (E) Bailer; (F) Foot Valve; (G) Other.

Analytical Parameters:	

WELL INFORMATION (IF APPLICABLE)

Reference Point:		Land Elevation (ft):	NA	
Ref. Elevation (ft):	NA	Historical Well Depth (ft):		Common casing vol. factors
Depth to Water (ft):		Sounded Well Depth (ft):		1.5 = 0.09, 2.0 = 0.163, 4.0 = 1.96
Screen Interval:		Stickup (ft):	NA	0.25 = .003, 0.5 = 0.01, 1.0 = 0.041
Pump Intake:	NA	Well Diameter (in):		Casing Vol.= 0.163 * r^2
GW Elevation (ft):		Tubing Diameter (in)		

FINAL FIELD MEASUREMENTS

PLEASE CHECK UNITS VS. METER!!!

Parameter	Units (proposed) actual	Result	Parameter	Units (proposed) actual	Result
Temperature	(°C)	14.26	pH	(S.U.)	6.29
Spec Cond	(mS/cm)	0.326	ORP	(mV)	
Dissolved Oxygen	(mg/L)	6.31	Turbidity	(NTU)	11.7
Flow Rate	(mL/min)	150	Drawdown	(Ft)	
her:			Other:		

hen applicable, field stabilization data are recorded on the back of this form

COMMENTS / CALCULATIONS

Weather: 48°F Light RAIN

mple Description:

pler Signature: Date: 10/26/2011

GOLDER ASSOCIATES
SAMPLE COLLECTION INFORMATION FORM

GAI Project Name:	IBM-KINGSTON	Project Number:	083-87071
Sample ID:	IWB3-TW-02-20	Sample Source:	GW
Golder Personnel Present:			

PURGING INFORMATION (IF APPLICABLE)

Purge Date:	10/26/2011	Time (24 hr):	1200-1220	Elapsed Hrs/Mins.:	20 MINS
Purging Device:	C	Dedicated?:	Y		
Casing Vol (Gal.):		Tubing Vol. (L)		Vol Purged (L)	
Material:					

(A) Air-Lift Pump; (B) Bladder Pump, (C) Peristaltic Pump; (D) Scoop / Shovel; (E) Bailer; (F) Foot Valve; (G) Other.

SAMPLE COLLECTION INFORMATION

Sampling Date:	10/26/2011	Time (24 hr):	1225	Matrix:	Aq
Sampling Device	C	Dedicated?:	Y	Filtered?:	N
Material:	Poly / Silicone			Sample Type:	GRAB

(A) Air-Lift Pump; (B) Bladder Pump, (C) Peristaltic Pump; (D) Scoop / Shovel; (E) Bailer; (F) Foot Valve; (G) Other.

Analytical Parameters:	

WELL INFORMATION (IF APPLICABLE)

Reference Point:		Land Elevation (ft):	NA	
Ref. Elevation (ft):	NA	Historical Well Depth (ft):		Common casing vol. factors
Depth to Water (ft):		Sounded Well Depth (ft):		1.5 = 0.09, 2.0 = 0.163, 4.0 = 1.96
Screen Interval:		Stickup (ft):	NA	0.25 = .003, 0.5 = 0.01, 1.0 = 0.041
Pump Intake:	NA	Well Diameter (in):		Casing Vol.= 0.163 * r^2
GW Elevation (ft):		Tubing Diameter (in)		

FINAL FIELD MEASUREMENTS

PLEASE CHECK UNITS VS. METER!!!

Parameter	Units (proposed) actual	Result	Parameter	Units (proposed) actual	Result
Temperature	(°C)	12.61	pH	(S.U.)	6.43
Spec Cond	(mS/cm)	0.733	ORP	(mV)	-262.4
Dissolved Oxygen	(mg/L)	2.81	Turbidity	(NTU)	.241
Flow Rate	(mL/min)	150	Drawdown	(Ft)	
her:			Other:		

hen applicable, field stabilization data are recorded on the back of this form

COMMENTS / CALCULATIONS

Weather: 48°F, LIGHT RAIN

mple Description:

pler Signature: [signature]

Date: 10/26/2011

GOLDER ASSOCIATES
SAMPLE COLLECTION INFORMATION FORM

GAI Project Name:	IBM-KINGSTON	Project Number:	083-87071
Sample ID:	ST-TW-01-15	Sample Source:	GW
Golder Personnel Present:	DGORMAN		

PURGING INFORMATION (IF APPLICABLE)

Purge Date:	10/20/2014	Time (24 hr):	1442-1520	Elapsed Hrs/Mins.:	IBMIW
Purging Device:	C	Dedicated?:	Y		
Casing Vol (Gal.):		Tubing Vol. (L)		Vol Purged (L)	
Material:					

(A) Air-Lift Pump; (B) Bladder Pump, (C) Peristaltic Pump; (D) Scoop / Shovel; (E) Bailer; (F) Foot Valve; (G) Other.

SAMPLE COLLECTION INFORMATION

Sampling Date:	10/20/2014	Time (24 hr):	1505	Matrix:	Aq
Sampling Device	C	Dedicated?:	Y	Filtered?:	N
Material:	Poly / Silicone			Sample Type:	GRAB

(A) Air-Lift Pump; (B) Bladder Pump, (C) Peristaltic Pump; (D) Scoop / Shovel; (E) Bailer; (F) Foot Valve; (G) Other.

Analytical Parameters:	

WELL INFORMATION (IF APPLICABLE)

Reference Point:		Land Elevation (ft):	NA	
Ref. Elevation (ft):	NA	Historical Well Depth (ft):		Common casing vol. factors
Depth to Water (ft):		Sounded Well Depth (ft):		1.5 = 0.09, 2.0 = 0.163, 4.0 = 1.96
Screen Interval:		Stickup (ft):	NA	0.25 = .003, 0.5 = 0.01, 1.0 = 0.041
Pump Intake:	NA	Well Diameter (in):		Casing Vol.= $0.163 * r^2$
GW Elevation (ft):		Tubing Diameter (in)		

FINAL FIELD MEASUREMENTS

PLEASE CHECK UNITS VS. METER!!!

Parameter	Units (proposed) actual	Result	Parameter	Units (proposed) actual	Result
Temperature	(°C)	14.59	pH	(S.U.)	6.33
Spec Cond	(mS/cm)	0.553	ORP	(mV)	61.5
Dissolved Oxygen	(mg/L)	2.22	Turbidity	(NTU)	50.2
Flow Rate	(mL/min)	200 mL/min	Drawdown	(Ft)	~
Other:			Other:		

When applicable, field stabilization data are recorded on the back of this form

COMMENTS / CALCULATIONS

Weather: 64°F, SUNNY

Sample Description: CLEAR, NO ODOR

TAKE MS/MSD VOLUME FOR VOCs & SVOCs

Sampler Signature: [signature] Date: 10/20/2014

GOLDER ASSOCIATES
SAMPLE COLLECTION INFORMATION FORM

GAI Project Name:	IBM - KINGSTON	Project Number:	083-87071
Sample ID:	ST-TW-02-20	Sample Source:	GW
Golder Personnel Present:	D. GORMAN		

PURGING INFORMATION (IF APPLICABLE)

Purge Date:	10/20/2011	Time (24 hr):	1525-1545	Elapsed Hrs/Mins.:	20 MIN
Purging Device:	C	Dedicated?:	Y		
Casing Vol (Gal.):		Tubing Vol. (L)		Vol Purged (L)	
Material:					

(A) Air-Lift Pump; (B) Bladder Pump, (C) Peristaltic Pump; (D) Scoop / Shovel; (E) Bailer; (F) Foot Valve; (G) Other.

SAMPLE COLLECTION INFORMATION

Sampling Date:	10/20/2011	Time (24 hr):	1550	Matrix:	Aq
Sampling Device	C	Dedicated?:	Y	Filtered?:	N
Material:	Poly / Silicone			Sample Type:	GRAB

(A) Air-Lift Pump; (B) Bladder Pump, (C) Peristaltic Pump; (D) Scoop / Shovel; (E) Bailer; (F) Foot Valve; (G) Other.

Analytical Parameters:	

WELL INFORMATION (IF APPLICABLE)

Reference Point:		Land Elevation (ft):	NA	
Ref. Elevation (ft):	NA	Historical Well Depth (ft):		Common casing vol. factors
Depth to Water (ft):		Sounded Well Depth (ft):		1.5 = 0.09, 2.0 = 0.163, 4.0 = 1.96
Screen Interval:		Stickup (ft):	NA	0.25 = .003, 0.5 = 0.01, 1.0 = 0.041
Pump Intake:	NA	Well Diameter (in):		Casing Vol.= $0.163 * r^2$
GW Elevation (ft):		Tubing Diameter (in)		

FINAL FIELD MEASUREMENTS

PLEASE CHECK UNITS VS. METER!!!

Parameter	Units (proposed) actual	Result	Parameter	Units (proposed) actual	Result
Temperature	(°C)	13.73	pH	(S.U.)	6.67
Spec Cond	(mS/cm)	0.630	ORP	(mV)	-18.5
Dissolved Oxygen	(mg/L)	1.62	Turbidity	(NTU)	80.7
Flow Rate	(mL/min)	200 mL/min	Drawdown	(Ft)	
Other:			Other:		

When applicable, field stabilization data are recorded on the back of this form

COMMENTS / CALCULATIONS

Weather: 60°F, SUNNY, WINDY

Sample Description: CLEAR, NO ODOR, SLIGHT GRAY TINT
TAKE DUPLICATE FOR VOCs & SVOCs

Sampler Signature: [signature]

Date: 10/20/2011

GOLDER ASSOCIATES
SAMPLE COLLECTION INFORMATION FORM

GAI Project Name:	IBM-KINGSTON	Project Number:	083-87021
Sample ID:	~~DUP~~ ST-TW-03-09	Sample Source:	GW
Golder Personnel Present:	D. GERMAN		

PURGING INFORMATION (IF APPLICABLE)

Purge Date:	10/25/2011	Time (24 hr):	0729-0750	Elapsed Hrs/Mins.:	21 MIN
Purging Device:	C	Dedicated?:	Y		
Casing Vol (Gal.):		Tubing Vol. (L)		Vol Purged (L)	
Material:					

(A) Air-Lift Pump; (B) Bladder Pump, (C) Peristaltic Pump; (D) Scoop / Shovel; (E) Bailer; (F) Foot Valve; (G) Other.

SAMPLE COLLECTION INFORMATION

Sampling Date:	10/25/2011	Time (24 hr):	0755	Matrix:	Aq
Sampling Device	C	Dedicated?:	Y	Filtered?:	N
Material:	Poly / Silicone			Sample Type:	GRAB

(A) Air-Lift Pump; (B) Bladder Pump, (C) Peristaltic Pump; (D) Scoop / Shovel; (E) Bailer; (F) Foot Valve; (G) Other.

Analytical Parameters:	

WELL INFORMATION (IF APPLICABLE)

Reference Point:		Land Elevation (ft):	NA	
Ref. Elevation (ft):	NA	Historical Well Depth (ft):		Common casing vol. factors
Depth to Water (ft):		Sounded Well Depth (ft):		1.5 = 0.09, 2.0 = 0.163, 4.0 = 1.96
Screen Interval:		Stickup (ft):	NA	0.25 = .003, 0.5 = 0.01, 1.0 = 0.041
Pump Intake:	NA	Well Diameter (in):		Casing Vol.= $0.163 * r^2$
GW Elevation (ft):		Tubing Diameter (in)		

FINAL FIELD MEASUREMENTS

PLEASE CHECK UNITS VS. METER!!!

Parameter	Units (proposed) actual	Result	Parameter	Units (proposed) actual	Result
Temperature	(°C)		pH	(S.U.)	
Spec Cond	(mS/cm)		ORP	(mV)	
Dissolved Oxygen	(mg/L)		Turbidity	(NTU)	
Flow Rate	(mL/min)	75 mL/MIN	Drawdown	(Ft)	
Other:			Other:		

When applicable, field stabilization data are recorded on the back of this form

COMMENTS / CALCULATIONS

Weather: 45° F, LIGHT WIND

Sample Description: INITIALLY TURBID, LIGHT BROWN, STRONG TPH ODOR, SHEEN
CLEARS UP, STRONG ODOR AND SHEEN
NO PARAMETERS DUE TO SHEEN

Sampler Signature: [signature]

Date: 10/25/2011

GOLDER ASSOCIATES
SAMPLE COLLECTION INFORMATION FORM

GAI Project Name:	IBM-KINGSTON	Project Number:	083-87071
Sample ID:	ST-TW-04-18	Sample Source:	GW
Golder Personnel Present:	D. GORMAN		

PURGING INFORMATION (IF APPLICABLE)

Purge Date:	10/25/2011	Time (24 hr):	0810-0830	Elapsed Hrs/Mins.:	20 MIN
Purging Device:	C	Dedicated?:	Y		
Casing Vol (Gal.):		Tubing Vol. (L)		Vol Purged (L)	
Material:					

(A) Air-Lift Pump; (B) Bladder Pump, (C) Peristaltic Pump; (D) Scoop / Shovel; (E) Bailer; (F) Foot Valve; (G) Other.

SAMPLE COLLECTION INFORMATION

Sampling Date:	10/25/2011	Time (24 hr):	0835	Matrix:	Aq
Sampling Device	C	Dedicated?:	Y	Filtered?:	N
Material:	Poly / Silicone			Sample Type:	GRAB

(A) Air-Lift Pump; (B) Bladder Pump, (C) Peristaltic Pump; (D) Scoop / Shovel; (E) Bailer; (F) Foot Valve; (G) Other.

Analytical Parameters:	

WELL INFORMATION (IF APPLICABLE)

Reference Point:		Land Elevation (ft):	NA	
Ref. Elevation (ft):	NA	Historical Well Depth (ft):		Common casing vol. factors
Depth to Water (ft):		Sounded Well Depth (ft):		1.5 = 0.09, 2.0 = 0.163, 4.0 = 1.96
Screen Interval:		Stickup (ft):	NA	0.25 = .003, 0.5 = 0.01, 1.0 = 0.041
Pump Intake:	NA	Well Diameter (in):		Casing Vol.= $0.163 * r^2$
GW Elevation (ft):		Tubing Diameter (in)		

FINAL FIELD MEASUREMENTS

PLEASE CHECK UNITS VS. METER!!!

Parameter	Units (proposed) actual	Result	Parameter	Units (proposed) actual	Result
Temperature	(°C)	11.93	pH	(S.U.)	6.88
Spec Cond	(mS/cm)	0.296	ORP	(mV)	91.7
Dissolved Oxygen	(mg/L)	2.88	Turbidity	(NTU)	869
Flow Rate	(mL/min)	150 ML/MIN	Drawdown	(Ft)	—
Other:			Other:		

When applicable, field stabilization data are recorded on the back of this form

COMMENTS / CALCULATIONS

Weather: 45°F, LIGHT WIND

Sample Description: CLEAR, NO ODOR INITIALLY THEN SLTS UP, LT BROWN AS PURGE

Sampler Signature: D. Gorman Date: 10/25/2011

GOLDER ASSOCIATES
SAMPLE COLLECTION INFORMATION FORM

GAI Project Name:	IRM-KINGSTON	Project Number:	093-87071
Sample ID:	ST-TW-05-09	Sample Source:	GW
Golder Personnel Present:	D. GOODMAN		

PURGING INFORMATION (IF APPLICABLE)

Purge Date:	10/25/2011	Time (24 hr):	0855 - 0915	Elapsed Hrs/Mins.:	20 MIN
Purging Device:	C	Dedicated?:	Y		
Casing Vol (Gal.):		Tubing Vol. (L)		Vol Purged (L)	
Material:					

(A) Air-Lift Pump; (B) Bladder Pump, (C) Peristaltic Pump; (D) Scoop / Shovel; (E) Bailer; (F) Foot Valve; (G) Other.

SAMPLE COLLECTION INFORMATION

Sampling Date:	10/25/2011	Time (24 hr):	0920	Matrix:	Aq
Sampling Device	C	Dedicated?:	Y	Filtered?:	N
Material:	Poly / Silicone			Sample Type:	GRAB

(A) Air-Lift Pump; (B) Bladder Pump, (C) Peristaltic Pump; (D) Scoop / Shovel; (E) Bailer; (F) Foot Valve; (G) Other.

Analytical Parameters:	

WELL INFORMATION (IF APPLICABLE)

Reference Point:		Land Elevation (ft):	NA	
Ref. Elevation (ft):	NA	Historical Well Depth (ft):		Common casing vol. factors
Depth to Water (ft):		Sounded Well Depth (ft):		1.5 = 0.09, 2.0 = 0.163, 4.0 = 1.96
Screen Interval:		Stickup (ft):	NA	0.25 = .003, 0.5 = 0.01, 1.0 = 0.041
Pump Intake:	NA	Well Diameter (in):		Casing Vol.= 0.163 * r^2
GW Elevation (ft):		Tubing Diameter (in)		

FINAL FIELD MEASUREMENTS

PLEASE CHECK UNITS VS. METER!!!

Parameter	Units (proposed) actual	Result	Parameter	Units (proposed) actual	Result
Temperature	(°C)	13.58	pH	(S.U.)	6.95
Spec Cond	(mS/cm)	0.361	ORP	(mV)	-15.7
Dissolved Oxygen	(mg/L)	1.99	Turbidity	(NTU)	.128
Flow Rate	(mL/min)	150	Drawdown	(Ft)	
her:			Other:		

hen applicable, field stabilization data are recorded on the back of this form

COMMENTS / CALCULATIONS

Weather: 45° F, WIND1

mple Description: Clear, No odor

pler Signature: [signature] Date: 10/25/2011

GOLDER ASSOCIATES
SAMPLE COLLECTION INFORMATION FORM

GAI Project Name:	IBM-KINGSTON	Project Number:	083-87071
Sample ID:	SP-TW-06-18	Sample Source:	GW
Golder Personnel Present:	D. GORMAN		

PURGING INFORMATION (IF APPLICABLE)

Purge Date:	10 12/2011	Time (24 hr):	0947-1007	Elapsed Hrs/Mins.:	20MIN
Purging Device:	C	Dedicated?:	Y		
Casing Vol (Gal.):		Tubing Vol. (L)		Vol Purged (L)	
Material:					

(A) Air-Lift Pump; (B) Bladder Pump, (C) Peristaltic Pump; (D) Scoop / Shovel; (E) Bailer; (F) Foot Valve; (G) Other.

SAMPLE COLLECTION INFORMATION

Sampling Date:	10 12/2011	Time (24 hr):	1010	Matrix:	Aq
Sampling Device	C	Dedicated?:	Y	Filtered?:	N
Material:	Poly / Silicone			Sample Type:	GRAB

(A) Air-Lift Pump; (B) Bladder Pump, (C) Peristaltic Pump; (D) Scoop / Shovel; (E) Bailer; (F) Foot Valve; (G) Other.

Analytical Parameters:	

WELL INFORMATION (IF APPLICABLE)

Reference Point:		Land Elevation (ft):	NA	
Ref. Elevation (ft):	NA	Historical Well Depth (ft):		Common casing vol. factors
Depth to Water (ft):		Sounded Well Depth (ft):		1.5 = 0.09, 2.0 = 0.163, 4.0 = 1.96
Screen Interval:		Stickup (ft):	NA	0.25 = .003, 0.5 = 0.01, 1.0 = 0.041
Pump Intake:	NA	Well Diameter (in):		Casing Vol.= 0.163 * r^2
GW Elevation (ft):		Tubing Diameter (in)		

FINAL FIELD MEASUREMENTS

PLEASE CHECK UNITS VS. METER!!!

Parameter	Units (proposed) actual	Result	Parameter	Units (proposed) actual	Result
Temperature	(°C)	11.85	pH	(S.U.)	6.77
Spec Cond	(mS/cm)	0.251	ORP	(mV)	38.3
Dissolved Oxygen	(mg/L)	6.96	Turbidity	(NTU)	1219
Flow Rate	(mL/min)	150	Drawdown	(Ft)	
her:			Other:		

hen applicable, field stabilization data are recorded on the back of this form

COMMENTS / CALCULATIONS

Weather: 47°F, clear

mple Description: Light Brown, Turbid

pler Signature: [signature] Date: 10/25/2011

GOLDER ASSOCIATES
SAMPLE COLLECTION INFORMATION FORM

GAI Project Name:	IBM-KINGSTON	Project Number:	083-87071
Sample ID:	ST-TW-07-09	Sample Source:	GW
Golder Personnel Present:	D. GORMAN		

PURGING INFORMATION (IF APPLICABLE)

Purge Date:	10 12 2011	Time (24 hr):	1030 1050	Elapsed Hrs/Mins.:	20 MIN
Purging Device:	C	Dedicated?:	Y		
Casing Vol (Gal.):		Tubing Vol. (L)		Vol Purged (L)	
Material:					

(A) Air-Lift Pump; (B) Bladder Pump, (C) Peristaltic Pump; (D) Scoop / Shovel; (E) Bailer; (F) Foot Valve; (G) Other.

SAMPLE COLLECTION INFORMATION

Sampling Date:	10 18 2011	Time (24 hr):	1955	Matrix:	Aq
Sampling Device	C	Dedicated?:	Y	Filtered?:	N
Material:	Poly / Silicone			Sample Type:	GRAB

(A) Air-Lift Pump; (B) Bladder Pump, (C) Peristaltic Pump; (D) Scoop / Shovel; (E) Bailer; (F) Foot Valve; (G) Other.

Analytical Parameters:	

WELL INFORMATION (IF APPLICABLE)

Reference Point:		Land Elevation (ft):	NA	
Ref. Elevation (ft):	NA	Historical Well Depth (ft):		Common casing vol. factors
Depth to Water (ft):		Sounded Well Depth (ft):		1.5 = 0.09, 2.0 = 0.163, 4.0 = 1.96
Screen Interval:		Stickup (ft):	NA	0.25 = .003, 0.5 = 0.01, 1.0 = 0.041
Pump Intake:	NA	Well Diameter (in):		Casing Vol.= 0.163 * r^2
GW Elevation (ft):		Tubing Diameter (in)		

FINAL FIELD MEASUREMENTS

PLEASE CHECK UNITS VS. METER!!!

Parameter	Units (proposed) actual	Result	Parameter	Units (proposed) actual	Result
Temperature	(°C)	12.61	pH	(S.U.)	6.72
Spec Cond	(mS/cm)	0.441	ORP	(mV)	-96.3
Dissolved Oxygen	(mg/L)	12.66	Turbidity	(NTU)	.202
Flow Rate	(mL/min)	100	Drawdown	(Ft)	
her:			Other:		

hen applicable, field stabilization data are recorded on the back of this form

COMMENTS / CALCULATIONS

Weather: 50°F, clear

mple Description: STRONG TPH ODOR, SHEEN, LT BROWN

pler Signature: [signature]

Date: 10/25/2011

GOLDER ASSOCIATES
SAMPLE COLLECTION INFORMATION FORM

GAI Project Name:	IBM-KINGSTON	Project Number:	083-87071
Sample ID:	SF-TW-08-12	Sample Source:	GW
Golder Personnel Present:	D. GORMAN		

PURGING INFORMATION (IF APPLICABLE)

Purge Date:	10 12/2011	Time (24 hr):	1140-1200	Elapsed Hrs/Mins.:	20 MIN
Purging Device:	C	Dedicated?:	Y		
Casing Vol (Gal.):		Tubing Vol. (L)		Vol Purged (L)	
Material:					

(A) Air-Lift Pump; (B) Bladder Pump, (C) Peristaltic Pump; (D) Scoop / Shovel; (E) Bailer; (F) Foot Valve; (G) Other.

SAMPLE COLLECTION INFORMATION

Sampling Date:	10 12/2011	Time (24 hr):	1205	Matrix:	Aq
Sampling Device	C	Dedicated?:	Y	Filtered?:	N
Material:	Poly / Silicone			Sample Type:	GRAB
Analytical Parameters:					

(A) Air-Lift Pump; (B) Bladder Pump, (C) Peristaltic Pump; (D) Scoop / Shovel; (E) Bailer; (F) Foot Valve; (G) Other.

WELL INFORMATION (IF APPLICABLE)

Reference Point:		Land Elevation (ft):	NA	
Ref. Elevation (ft):	NA	Historical Well Depth (ft):		Common casing vol. factors
Depth to Water (ft):		Sounded Well Depth (ft):		1.5 = 0.09, 2.0 = 0.163, 4.0 = 1.96
Screen Interval:		Stickup (ft):	NA	0.25 = .003, 0.5 = 0.01, 1.0 = 0.041
Pump Intake:	NA	Well Diameter (in):		Casing Vol.= 0.163 * r^2
GW Elevation (ft):		Tubing Diameter (in)		

FINAL FIELD MEASUREMENTS

PLEASE CHECK UNITS VS. METER!!!

Parameter	Units (proposed) actual	Result	Parameter	Units (proposed) actual	Result
Temperature	(°C)	14.16	pH	(S.U.)	6.86
Spec Cond	(mS/cm)	0.214	ORP	(mV)	-1.2
Dissolved Oxygen	(mg/L)	16.79	Turbidity	(NTU)	273
Flow Rate	(mL/min)	180	Drawdown	(Ft)	
her:			Other:		

hen applicable, field stabilization data are recorded on the back of this form

COMMENTS / CALCULATIONS

Weather: 50°F, Clear

mple Description: Clear, No odor

pler Signature: Date: 10/25/2011

GOLDER ASSOCIATES
SAMPLE COLLECTION INFORMATION FORM

GAI Project Name:	IBM-KINGSTON	Project Number:	083-87071
Sample ID:	SS-TW-04-20	Sample Source:	GW
Golder Personnel Present:	D.GORMAN		

PURGING INFORMATION (IF APPLICABLE)

Purge Date:	10 25 2011	Time (24 hr):	1220-1240	Elapsed Hrs/Mins.:	20 MINS
Purging Device:	C	Dedicated?:	Y		
Casing Vol (Gal.):		Tubing Vol. (L)		Vol Purged (L)	
Material:					

(A) Air-Lift Pump; (B) Bladder Pump, (C) Peristaltic Pump; (D) Scoop / Shovel; (E) Bailer; (F) Foot Valve; (G) Other.

SAMPLE COLLECTION INFORMATION

Sampling Date:	10 25 2011	Time (24 hr):	1245	Matrix:	Aq
Sampling Device	C	Dedicated?:	Y	Filtered?:	N
Material:	Poly / Silicone			Sample Type:	GRAB

(A) Air-Lift Pump; (B) Bladder Pump, (C) Peristaltic Pump; (D) Scoop / Shovel; (E) Bailer; (F) Foot Valve; (G) Other.

Analytical Parameters:	

WELL INFORMATION (IF APPLICABLE)

Reference Point:		Land Elevation (ft):	NA	
Ref. Elevation (ft):	NA	Historical Well Depth (ft):		Common casing vol. factors
Depth to Water (ft):		Sounded Well Depth (ft):		1.5 = 0.09, 2.0 = 0.163, 4.0 = 1.96
Screen Interval:		Stickup (ft):	NA	0.25 = .003, 0.5 = 0.01, 1.0 = 0.041
Pump Intake:	NA	Well Diameter (in):		Casing Vol.= 0.163 * r^2
GW Elevation (ft):		Tubing Diameter (in)		

FINAL FIELD MEASUREMENTS

PLEASE CHECK UNITS VS. METER!!!

Parameter	Units (proposed) actual	Result	Parameter	Units (proposed) actual	Result
Temperature	(°C)	12.83	pH	(S.U.)	7.24
Spec Cond	(mS/cm)	0.591	ORP	(mV)	-97.3
Dissolved Oxygen	(mg/L)	21.44	Turbidity	(NTU)	95.5 ⇒ 200
Flow Rate	(mL/min)	150 ⇒ 50	Drawdown	(Ft)	
her:			Other:		

hen applicable, field stabilization data are recorded on the back of this form

COMMENTS / CALCULATIONS

Weather: 50°F clear

mple Description: CLEAR NO ODOR THAN BECOMES GRAY, VERY SILTY

pler Signature: [signature] Date: 10/25/2011

GOLDER ASSOCIATES
SAMPLE COLLECTION INFORMATION FORM

GAI Project Name:	IBM-KINGSTON	Project Number:	083-87071
Sample ID:	SE-TW-10-08	Sample Source:	GW
Golder Personnel Present:	D. GORMAN		

PURGING INFORMATION (IF APPLICABLE)

Purge Date:	10/25/2011	Time (24 hr):		Elapsed Hrs/Mins.:	
Purging Device:	C	Dedicated?:	Y		
Casing Vol (Gal.):		Tubing Vol. (L)		Vol Purged (L)	
Material:					

(A) Air-Lift Pump; (B) Bladder Pump, (C) Peristaltic Pump; (D) Scoop / Shovel; (E) Bailer; (F) Foot Valve; (G) Other.

SAMPLE COLLECTION INFORMATION

Sampling Date:	10/25/2011	Time (24 hr):		Matrix:	Aq
Sampling Device	C	Dedicated?:	Y	Filtered?:	N
Material:	Poly / Silicone			Sample Type:	GRAB
(A) Air-Lift Pump; (B) Bladder Pump, (C) Peristaltic Pump; (D) Scoop / Shovel; (E) Bailer; (F) Foot Valve; (G) Other.					
Analytical Parameters:					

WELL INFORMATION (IF APPLICABLE)

Reference Point:		Land Elevation (ft):	NA	
Ref. Elevation (ft):	NA	Historical Well Depth (ft):		Common casing vol. factors
Depth to Water (ft):		Sounded Well Depth (ft):		1.5 = 0.09, 2.0 = 0.163, 4.0 = 1.96
Screen Interval:		Stickup (ft):	NA	0.25 = .003, 0.5 = 0.01, 1.0 = 0.041
Pump Intake:	NA	Well Diameter (in):		Casing Vol.= 0.163 * r^2
GW Elevation (ft):		Tubing Diameter (in)		

FINAL FIELD MEASUREMENTS

PLEASE CHECK UNITS VS. METER!!!

Parameter	Units (proposed) actual	Result	Parameter	Units (proposed) actual	Result
Temperature	(°C)	N/A	pH	(S.U.)	N/A
Spec Cond	(mS/cm)	N/A	ORP	(mV)	N/A
Dissolved Oxygen	(mg/L)	N/A	Turbidity	(NTU)	N/A
Flow Rate	(mL/min)	150	Drawdown	(Ft)	N/A
her:			Other:		

hen applicable, field stabilization data are recorded on the back of this form

COMMENTS / CALCULATIONS

Weather: 50°F, clear

mple Description: Clear Strong TPH ODOR SHEEN ON PURGE WATER; NO PARAMETERS COLLECTED DUE TO SHEEN

pler Signature: [signature]

Date: 10/25/2011

GOLDER ASSOCIATES
SAMPLE COLLECTION INFORMATION FORM

GAI Project Name:	IBM-KINGSTON	Project Number:	083-87071
Sample ID:	ST-TW-11-12	Sample Source:	GW
Golder Personnel Present:	R. GORMAN		

PURGING INFORMATION (IF APPLICABLE)

Purge Date:	10/25/2011	Time (24 hr):	1335-1405	Elapsed Hrs/Mins.:	30 MIN
Purging Device:	C	Dedicated?:	Y		
Casing Vol (Gal.):		Tubing Vol. (L)		Vol Purged (L)	
Material:					

(A) Air-Lift Pump; (B) Bladder Pump, (C) Peristaltic Pump; (D) Scoop / Shovel; (E) Bailer; (F) Foot Valve; (G) Other.

SAMPLE COLLECTION INFORMATION

Sampling Date:	10/25/2011	Time (24 hr):	1410	Matrix:	Aq
Sampling Device	C	Dedicated?:	Y	Filtered?:	N
Material:	Poly / Silicone			Sample Type:	GRAB

(A) Air-Lift Pump; (B) Bladder Pump, (C) Peristaltic Pump; (D) Scoop / Shovel; (E) Bailer; (F) Foot Valve; (G) Other.

Analytical Parameters:	

WELL INFORMATION (IF APPLICABLE)

Reference Point:		Land Elevation (ft):	NA	
Ref. Elevation (ft):	NA	Historical Well Depth (ft):		Common casing vol. factors
Depth to Water (ft):		Sounded Well Depth (ft):		1.5 = 0.09, 2.0 = 0.163, 4.0 = 1.96
Screen Interval:		Stickup (ft):	NA	0.25 = .003, 0.5 = 0.01, 1.0 = 0.041
Pump Intake:	NA	Well Diameter (in):		Casing Vol.= $0.163 * r^2$
GW Elevation (ft):		Tubing Diameter (in)		

FINAL FIELD MEASUREMENTS

PLEASE CHECK UNITS VS. METER!!!

Parameter	Units (proposed) actual	Result	Parameter	Units (proposed) actual	Result
Temperature	(°C)	15.25	pH	(S.U.)	6.74
Spec Cond	(mS/cm)	0.231	ORP	(mV)	-65.4
Dissolved Oxygen	(mg/L)	4.95	Turbidity	(NTU)	228
Flow Rate	(mL/min)	150	Drawdown	(Ft)	
her:			Other:		

ben applicable, field stabilization data are recorded on the back of this form

COMMENTS / CALCULATIONS

Weather: 50°F CLEAR

mple Description: GRAY, SLIGHTLY TURBID, NO ODOR

pler Signature: R. Gorman Date: 10/25/2011

GOLDER ASSOCIATES

SAMPLE COLLECTION INFORMATION FORM

GAI Project Name:	IBM-KINGSTON	Project Number:	083-87071
Sample ID:	ST-TW-12-21	Sample Source:	GW
Golder Personnel Present:	D. GORMAN		

PURGING INFORMATION (IF APPLICABLE)

Purge Date:	10/25/2011	Time (24 hr):	1445-1510	Elapsed Hrs/Mins.:	25
Purging Device:	C	Dedicated?:	Y		
Casing Vol (Gal.):		Tubing Vol. (L)		Vol Purged (L)	
Material:					

(A) Air-Lift Pump; (B) Bladder Pump, (C) Peristaltic Pump; (D) Scoop / Shovel; (E) Bailer; (F) Foot Valve; (G) Other.

SAMPLE COLLECTION INFORMATION

Sampling Date:	10/25/2011	Time (24 hr):	1515	Matrix:	Aq
Sampling Device	C	Dedicated?:	Y	Filtered?:	N
Material:	Poly / Silicone			Sample Type:	GRAB

(A) Air-Lift Pump; (B) Bladder Pump, (C) Peristaltic Pump; (D) Scoop / Shovel; (E) Bailer; (F) Foot Valve; (G) Other.

Analytical Parameters:	

WELL INFORMATION (IF APPLICABLE)

Reference Point:		Land Elevation (ft):	NA	
Ref. Elevation (ft):	NA	Historical Well Depth (ft):		Common casing vol. factors
Depth to Water (ft):		Sounded Well Depth (ft):		1.5 = 0.09, 2.0 = 0.163, 4.0 = 1.96
Screen Interval:		Stickup (ft):	NA	0.25 = .003, 0.5 = 0.01, 1.0 = 0.041
Pump Intake:	NA	Well Diameter (in):		Casing Vol.= 0.163 * r^2
GW Elevation (ft):		Tubing Diameter (in)		

FINAL FIELD MEASUREMENTS

PLEASE CHECK UNITS VS. METER!!!

Parameter	Units (proposed) actual	Result	Parameter	Units (proposed) actual	Result
Temperature	(°C)	13.83	pH	(S.U.)	8.07
Spec Cond	(mS/cm)	0.529	ORP	(mV)	42.5
Dissolved Oxygen	(mg/L)	8.49	Turbidity	(NTU)	.255
Flow Rate	(mL/min)	200	Drawdown	(Ft)	
her:			Other:		

hen applicable, field stabilization data are recorded on the back of this form

COMMENTS / CALCULATIONS

Weather: 50°F CLEAR

mple Description: CLEAR, NO ODOR

pler Signature: [signature]

Date: 10/25/2011

IBM Chain of Custody

Lancaster Laboratories

For Lancaster Laboratories use only
Acct. #: 12694 Group #: 1272738 Sample #: 6446865-76

COC # 01312

Please print. Instructions on reverse side correspond with circled numbers.

(1)
Client: IBM Acct. #:
Project Name/#: KINGSTON
Project Name/# (cont.) 083-87071
Sampler: D. GORMAN Project State: NY
P.O.#: IBM PM: M. KOMINEK
Check one: ☐ Routine Lab GW ☐ Routine GTF O&M
☐ Non-Routine Investigation ☐ Non-Routine Upgrades/Installs
OU: (Endicott Non-Routine only)

For Lab Use Only
FSC:
SCR #:

Preservation Codes
H=HCl T=Thiosulfate
N=HNO_3 B=NaOH
S=H_2SO_4 O=Other

(6) Temperature of samples upon receipt (if requested)

(2) Sample Identification	Date Collected	Time Collected	(3) Grab	Composite	Matrix (4) Soil	Water (☐ Potable ☐ NPDES Check if Applicable)	Other	Total # of Containers	(5) Analyses Requested / Preservation Codes: VOCs	SVOCs	TPH-GRO	Remarks/SSOW
ST-SB-02-11.5-12.0	10/21/2011	0750	X		X			4	X	X		
ST-SB-02-11.5-12.0D		0753	X		X			4	X	X		
ST-SB-02-21.5-22.0		0810	X		X			4	X	X		
ST-SB-03-4.5-5.0		0916	X		X			4	X	X		
ST-SB-03-4.5-5.0MS		0920	X		X			4	X	X		
ST-SB-03-4.5-5.0MSD		0923	X		X			4	X	X		
ST-SB-03-11.5-12.0		0930	X		X			4	X	X		
ST-SB-03-21.5-22.0		0955	X		X			4	X	X		
ST-SB-04-9.5-10.0		1135	X		X			5	X	X	X	
ST-SB-04-21.0-21.5	10/21/2011	1155	X		X			5	X	X	X	

(7)
Turnaround Time Requested (TAT) (please check): ☒ Normal ☐ Rush
(Rush TAT is subject to Lancaster Laboratories approval and surcharge.)
Date results are needed:
Rush results requested by (please check): ☐ Phone ☒ E-mail
Phone #: E-mail: CLUCAS@GOLDER.COM

(8)
Data Package Options (please check if required)
☐ Type I (Validation/NJ Reg) ☐ TX TRRP-13
☐ Type II (Reduced NJ) ☐ MA MCP
☐ Type VI (Raw Data Only) ☐ CT RCP
☐ NY ASP A
☐ NY ASP B

SDG Complete? ☒ Yes ☐ No

Site-specific QC (MS/MSD/Dup)? ☐ Yes ☐ No
(If yes, indicate QC sample and submit triplicate volume.)

(9)

Relinquished by:	Date	Time	Received by:	Date	Time
	10/21/2011	1450			
Relinquished by:	Date	Time	Received by:	Date	Time
Relinquished by:	Date	Time	Received by:	Date	Time
Relinquished by:	Date	Time	Received by:	Date	Time
				10/22/11	0930

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IBM Chain of Custody

Lancaster Laboratories

For Lancaster Laboratories use only
Acct. #: 12694 Group #: 1272738 Sample #: 6446865-76

COC # 01311

Please print. Instructions on reverse side correspond with circled numbers.

(1)
Client: IBM Acct. #:
Project Name/#: KINGSTON
Project Name/# (cont.) 893-87071
Sampler: D. GORMAN Project State: NY
P.O.#: IBM PM: M. KOMINEK
Check one: ☐ Routine Lab GW ☐ Routine GTF O&M
☐ Non-Routine Investigation ☐ Non-Routine Upgrades/Installs
OU: (Endicott Non-Routine only)

For Lab Use Only
FSC:
SCR #:

(2) Sample Identification	Date Collected	Time Collected	(3) Grab	Composite	Matrix: Soil	Water (Potable ☐ NPDES ☐ Check if Applicable)	Other	(4) Total # of Containers	(5) Analyses Requested / Preservation Codes: VOCs (H)	SVOCs (T)	TPH-GRO (H)	Remarks/SSOW	(6) Temperature of samples upon receipt (if requested)
ST-SB-Q4FB	10/21/2011	1220	X				X	8	X	X	X		
TB-11260	—	—	—				X	1	X				

Preservation Codes
H=HCl T=Thiosulfate
N=HNO_3 B=NaOH
S=H_2SO_4 O=Other

(7)
Turnaround Time Requested (TAT) (please check): ☑ Normal ☐ Rush
(Rush TAT is subject to Lancaster Laboratories approval and surcharge.)
Date results are needed:
Rush results requested by (please check): ☐ Phone ☑ E-mail
Phone #: E-mail: CLWGASDGOLDER.COM

(8)
Data Package Options (please check if required)
☐ Type I (Validation/NJ Reg) ☐ TX TRRP-13
☐ Type III (Reduced NJ) ☐ MA MCP
☐ Type VI (Raw Data Only) ☐ CT RCP
☐ NY ASP A
☐ NY ASP B
Site-specific QC (MS/MSD/Dup)? ☐ Yes ☐ No
(if yes, indicate QC sample and submit triplicate volume.)

SDG Complete? ☐ Yes ☑ No

(9)

Relinquished by:	Date	Time	Received by:	Date	Time
	10/24/2011	1950			
Relinquished by:	Date	Time	Received by:	Date	Time
Relinquished by:	Date	Time	Received by:	Date	Time
Relinquished by:	Date	Time	Received by:	10/25/11	0930

IBM Chain of Custody

Lancaster Laboratories

For Lancaster Laboratories use only
Acct. #: 12694 Group #: 1272978 Sample #: 6448264-67

COC # 01310

Please print. Instructions on reverse side correspond with circled numbers.

(1) Client: IBM Acct. #:
Project Name/#: KINGSTON
Project Name/# (cont.) 083-87071
Sampler: D.GORMAN Project State: NY
P.O.#: IBM PM: M.KONIECK
Check one: ☐ Routine Lab GW ☐ Routine GTF O&M
☐ Non-Routine Investigation ☐ Non-Routine Upgrades/Installs
OU: (Endicott Non-Routine only)

For Lab Use Only
FSC:
SCR #:

Preservation Codes
H=HCl T=Thiosulfate
N=HNO_3 B=NaOH
S=H_2SO_4 O=Other

(2) Sample Identification	Date Collected	Time Collected	(3) Grab	Composite	(4) Matrix: Soil	Water (Potable / NPDES)	Other LAB OF	Total # of Containers	(5) Analyses Requested: VOCs	SVOCs	TPH-GRO	Remarks/SSOW	(6) Temperature of samples upon receipt (if requested)
ST-SB-05-9.5-10.0	10/24/2011	1040	X		X			5	X	X	X		
ST-SB-05-19.5-20.0	10/24/2011	1050	X		X			5	X	X	X		
ST-SB-06-9.0-9.5	10/24/2011	1230	X		X			5	X	X	X		
TB-11260							X	1	X				

(7) **Turnaround Time Requested** (TAT) (please check): ☒ Normal ☐ Rush
(Rush TAT is subject to Lancaster Laboratories approval and surcharge.)
Date results are needed:
Rush results requested by (please check): ☐ Phone ☒ E-mail
Phone #: E-mail: CLUCAS@GOLDER.com

(8) **Data Package Options** (please check if required)
☐ Type I (Validation/NJ Reg) ☐ TX TRRP-13
☐ Type III (Reduced NJ) ☐ MA MCP
☐ Type VI (Raw Data Only) ☐ CT RCP
☐ NY ASP A
☐ NY ASP B

SDG Complete? ☒ Yes ☐ No

Site-specific QC (MS/MSD/Dup)? ☐ Yes ☐ No
(If yes, indicate QC sample and submit triplicate volume.)

(9)

Relinquished by:	Date	Time	Received by:	Date	Time
[signature]	10/24/2011	1600	[signature]		
Relinquished by:	Date	Time	Received by:	Date	Time
Relinquished by:	Date	Time	Received by:	Date	Time
Relinquished by:	Date	Time	Received by:	Date	Time
			[signature]	10/25/11	930

IBM Chain of Custody

Lancaster Laboratories

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Acct. #: 12694 Group #: 272643 Sample #: 6446129-34

COC # 01305

Please print. Instructions on reverse side correspond with circled numbers.

(1)
Client: IBM Acct. #:
Project Name/#: KINGSTON
Project Name/# (cont.) QB3-B7071
Sampler: D. GORMAN Project State: NY
P.O.#: IBM PM: M. KOMINEK
Check one: ☐ Routine Lab GW ☐ Routine GTF O&M
☐ Non-Routine Investigation ☐ Non-Routine Upgrades/Installs
OU: (Endicott Non-Routine only)

For Lab Use Only
FSC:
SCR #:

Preservation Codes
H=HCl T=Thiosulfate
N=HNO_3 B=NaOH
S=H_2SO_4 O=Other

(2) Sample Identification	Date Collected	Time Collected	(3) Grab	Composite	Matrix: Soil	Water (Potable / NPDES)	Other LAB DUP	(4) Total # of Containers	(5) Analyses Requested / Preservation Codes: H	VOCs	SVOCs							Remarks/SSOW	(6) Temperature of samples upon receipt (if requested)
ST-TW-01-15	10/20/2011	1505	X			X		4		X	X								
ST-TW-01-15MS		1510	X			X		4		X	X								
ST-TW-01-15MSD		1515	X			X		4		X	X								
ST-TW-02-20		1550	X			X		4		X	X								
ST-TW-02-20D	10/20/2011	1550	X			X		4		X	X								
TB-11260	—	—	—				X	1		X									

(7)
Turnaround Time Requested (TAT) (please check): ☒ Normal ☐ Rush
(Rush TAT is subject to Lancaster Laboratories approval and surcharge.)
Date results are needed:
Rush results requested by (please check): ☐ Phone ☒ E-mail
Phone #: E-mail: CLUCAS@GOLDER.COM

(8)
Data Package Options (please check if required)
☐ Type I (Validation/NJ Reg) ☐ TX TRRP-13
☐ Type III (Reduced NJ) ☐ MA MCP
☐ Type VI (Raw Data Only) ☐ CT RCP
☐ NY ASP A
☐ NY ASP B

SDG Complete? ☐ Yes ☒ No

Site-specific QC (MS/MSD/Dup)? ☐ Yes ☐ No
(If yes, indicate QC sample and submit triplicate volume.)

(9)

Relinquished by:	Date	Time	Received by:	Date	Time
	10/20/2011	1700			
Relinquished by:	Date	Time	Received by:	Date	Time
Relinquished by:	Date	Time	Received by:	Date	Time
Relinquished by:	Date	Time	Received by:	10/21/11	915

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Acct. #: 12694 Group #: 1273306 Sample #: GH50628-39

COC # 01309 PAGE 1 OF 2

Please print. Instructions on reverse side correspond with circled numbers.

(1)
Client: IBM Acct. #:
Project Name/#: KINGSTON
Project Name/# (cont.) 083-87071
Sampler: D. GORMAN Project State: NY
P.O.#: IBM PM: M. KOMINEK
Check one: ☐ Routine Lab GW ☐ Routine GTF O&M ☐ Non-Routine Investigation ☐ Non-Routine Upgrades/Installs
OU: (Endicott Non-Routine only)

For Lab Use Only
FSC:
SCR #:

(2) Sample Identification	Date Collected	Time Collected	(3) Grab	Composite	Matrix: Soil	Water (Potable / NPDES)	Other LAB DI	(4) Total # of Containers	(5) Analyses Requested / Preservation Codes: H	T	H							Remarks/SSOW	(6) Temperature of samples upon receipt (if requested)
									VOCs	SVOCs	TPH-GRO								
ST-TW-03-09	10/25/2011	0755	X			X		8	X	X	X								
ST-TW-04-10		0835	X			X		8	X	X	X								
ST-TW-05-09		0920	X			X		8	X	X	X								
ST-TW-06-10		1060	X			X		8	X	X	X								
ST-TW-07-09		1055	X			X		8	X	X	X								
ST-TW-08-12		1205	X			X		8	X	X	X								
ST-TW-09-20		1245	X			X		8	X	X	X							7 BOTTLES TO TAL *LIMITED VOLUME! ONLY 1L SVOC*	
ST-TW-10-08		1325	X			X		8	X	X	X								
ST-TW-11-12		1410	X			X		8	X	X	X								
ST-TW-12FB	10/25/2011	1420	X				X	8	X	X	X								

(7)
Turnaround Time Requested (TAT) (please check): ☑ Normal ☐ Rush
(Rush TAT is subject to Lancaster Laboratories approval and surcharge.)
Date results are needed:
Rush results requested by (please check): ☐ Phone ☑ E-mail
Phone #: E-mail: CLUCAS@GOLDER.COM

(8)
Data Package Options (please check if required)
☐ Type I (Validation/NJ Reg) ☐ TX TRRP-13
☐ Type III (Reduced NJ) ☐ MA MCP
☐ Type VI (Raw Data Only) ☐ CT RCP
☐ NY ASP A
☐ NY ASP B

SDG Complete? ☑ Yes ☐ No

Site-specific QC (MS/MSD/Dup)? ☐ Yes ☐ No
(If yes, indicate QC sample and submit triplicate volume.)

(9)

Relinquished by:	Date	Time	Received by:	Date	Time
	10/25/11	1630			
Relinquished by:	Date	Time	Received by:	Date	Time
Relinquished by:	Date	Time	Received by:	Date	Time
Relinquished by:	Date	Time	Received by:	10/26/11	900

IBM Chain of Custody

Lancaster Laboratories

For Lancaster Laboratories use only
Acct. #: 12694 Group #: 1273306 Sample #: 64506628-39

COC # 01353

Please print. Instructions on reverse side correspond with circled numbers.

(1)
Client: IBM Acct. #:
Project Name/#: KINGSTON
Project Name/# (cont.) 083-8707
Sampler: D. GORMAN Project State: NY
P.O.#: IBM PM: McKOMINEK
Check one: ☐ Routine Lab GW ☐ Routine GTF O&M
☐ Non-Routine Investigation ☐ Non-Routine Upgrades/Installs
OU: (Endicott Non-Routine only)

(2) (3) (4) (5) Analyses Requested / Preservation Codes

Sample Identification	Date Collected	Time Collected	(3) Grab	(3) Composite	Matrix: Soil	Matrix: Water (Potable ☐ NPDES ☐ Check if Applicable)	Matrix: Other LAB QT	(4) Total # of Containers	(5) VOCs	(5) SVOCs	(5) TPH-GRO	Remarks/SSOW
ST-TW-12-21	10/25/11	1515	X			X		8	X	X	X	
TB-11256	—	—	—				X	1	X			

Preservation Codes: H=HCl T=Thiosulfate N=HNO_3 B=NaOH S=H_2SO_4 O=Other

For Lab Use Only
FSC:
SCR #:

(6) Temperature of samples upon receipt (if requested)

(7) **Turnaround Time Requested** (TAT) (please check): ☐ Normal ☐ Rush
(Rush TAT is subject to Lancaster Laboratories approval and surcharge.)
Date results are needed:
Rush results requested by (please check): ☐ Phone ☐ E-mail
Phone #: E-mail: CLUCAS@GOLDER.COM

(8) **Data Package Options** (please check if required)
☐ Type I (Validation/NJ Reg) ☐ TX TRRP-13
☐ Type III (Reduced NJ) ☐ MA MCP
☐ Type VI (Raw Data Only) ☐ CT RCP
☐ NY ASP A
☐ NY ASP B

SDG Complete? ☐ Yes ☐ No

Site-specific QC (MS/MSD/Dup)? ☐ Yes ☐ No
(If yes, indicate QC sample and submit triplicate volume.)

Relinquished by:	Date	Time	Received by:	Date	Time
	10/25/11	1630			
Relinquished by:	Date	Time	Received by:	Date	Time
Relinquished by:	Date	Time	Received by:	Date	Time
Relinquished by:	Date	Time	Received by:	10/26/11	900

(9)

IBM Chain of Custody

Lancaster Laboratories

For Lancaster Laboratories use only
Acct. #: 12694 Group #: 1273433 Sample #: 645512-18

COC # 01359

Please print. Instructions on reverse side correspond with circled numbers.

(1)
Client: IBM Acct. #:
Project Name/#: KINGSTON
Project Name/# (cont.) 083-8707/
Sampler: D. GORMAN Project State: NY
P.O.#: IBM PM: M. KOMINEK
Check one: ☐ Routine Lab GW ☐ Routine GTF O&M
☐ Non-Routine Investigation ☐ Non-Routine Upgrades/Installs
OU: (Endicott Non-Routine only)

(2) (3) (4) (5)

Sample Identification	Date Collected	Time Collected	(3) Grab	(3) Composite	(4) Matrix: Soil	(4) Matrix: Water (☐ Potable ☐ NPDES Check if Applicable)	(4) Matrix: Other (LABDH)	(4) Total # of Containers	(5) Analyses Requested / Preservation Codes: H	Remarks/SSOW
IWB1-TW-07-08	10/26/2011	0955	X			X		3	X	
IWB1-TW-08-10		1030	X			X		3	X	
IWB1-TW-09-16		1110	X			X		3	X	
IWB3-TW-01-10		1150	X			X		3	X	
IWB3-TW-02-20	10/26/2011	1225	X			X		3	X	
TB-11256		—	X				X	1	X	
IWB3-TW-02FB	10/26/2011	1240	X				X	3	X	

(6) Preservation Codes: H=HCl T=Thiosulfate N=HNO_3 B=NaOH S=H_2SO_4 O=Other

For Lab Use Only
FSC:
SCR #:

Temperature of samples upon receipt (if requested)

(7) **Turnaround Time Requested** (TAT) (please check): ☒ Normal ☐ Rush
(Rush TAT is subject to Lancaster Laboratories approval and surcharge.)
Date results are needed:
Rush results requested by (please check): ☐ Phone ☒ E-mail
Phone #: E-mail: CLUCAS@GOLDER.com

(8) **Data Package Options** (please check if required)
☐ Type I (Validation/NJ Reg) ☐ TX TRRP-13
☐ Type III (Reduced NJ) ☐ MA MCP
☐ Type VI (Raw Data Only) ☐ CT RCP
☐ NY ASP A
☐ NY ASP B

SDG Complete? ☒ Yes ☐ No

Site-specific QC (MS/MSD/Dup)? ☐ Yes ☐ No
(If yes, indicate QC sample and submit triplicate volume.)

(9)

	Date	Time	Received by:	Date	Time
Relinquished by:	10/26/2011	1400			
Relinquished by:					
Relinquished by:					
Relinquished by:			Received by:	10/27/11	0925

Lancaster Laboratories, Inc., 2425 New Holland Pike, Lancaster, PA 17601 (717) 656-2300 Fax: (717) 656-6766
Copies: White and yellow should accompany samples to Lancaster Laboratories. The pink copy should be retained by the client.

Issued by Dept. 40 Management 6187.01

APPENDIX D
DATA USABILITY SUMMARY REPORT

DATA USABILITY SUMMARY REPORT (DUSR)

This report presents the findings of the data quality assessment performed on the analyses of environmental samples collected between October 20, 2011 and October 26, 2011 at the Former IBM Kingston Facility, located at 300 Enterprise Drive, in Kingston, New York (Site). The chemical data were reviewed to verify:

- Data package completeness following New York State Department of Environmental Conservation (NYSDEC) Analytical Services Protocol (ASP) Category B deliverables;
- Sample holding time and method compliance;
- Data summary sheets are supported by raw data; and,
- Quality control (QC) parameters, which could affect the use of the data for decision making purposes, are within required specifications.

Ten (10) grab soil samples and seventeen (17) grab water samples were collected from the Site. Additionally, two (2) field duplicates, five (5) trip blanks, three (3) field blanks, and two (2) matrix spike/matrix spike duplicates were collected for quality control (QC) purposes. Lancaster Laboratories of Lancaster, PA analyzed the samples utilizing one or more of the following method guidelines:

- Volatile Organic Compounds (VOCs) by USEPA SW-846[1] Method 8260B Volatile Organic Compounds by Gas Chromatography/Mass Spectrometry (GC/MS), Revision 2, December 1996;
- Semivolatile Organic Compounds (SVOCs) by USEPA SW-846 Method 8270C Semivolatile Organic Compounds by GC/MS, Revision 3, December 1996; and
- Total Petroleum Hydrocarbons as Gasoline Range Organics (TPH-GRO) by USEPA SW-846 Method 8015B Total Petroleum Hydrocarbons (TPH) as Gasoline and Diesel, Revision 2, December 1996.

Information regarding the sample point identifications, analytical parameters, QC samples, sampling dates and contract laboratory sample delivery group (SDG) designations are summarized in Table 1.

[1] USEPA, 1996, Test methods for evaluating solid waste, physical/chemical methods (SW-846): 3rd edition, Environmental Protection Agency, National Center for Environmental Publications, Cincinnati, Ohio, accessed at URL http://www.epa.gov/epaoswer/hazwaste/test/sw846.htm

The data were evaluated following guidelines provided by the NYSDEC DER-10 Technical Guidance for Site Investigation and Remediation, Appendix 2B *Guidance for Data Deliverables and the Development of Data Usability Summary Reports*, May, 2010 and utilizing the guidance provided by USEPA Region II Standard Operating Procedure (SOP) HW-24, Revision 2 (Validating Volatile Organic Compounds by GC/MS) as applicable to SW-846 Method 8260B, USEPA Region II SOP HW-22, Revision 3 (Validating Semivolatile Organic compounds by GC/MS) as applicable to SW-846 Method 8270C, and USEPA Region II SOP HW-2, Revision 13 (Validation of Metals for the Contract Laboratory Program (CLP) based on SOW ILM05.3) as applicable to SW-846 Method 8015B. Where there was a conflict between the NYSDEC guidelines and the analytical methodology, method-specific criteria or professional judgment were used.

The data were evaluated for sample preservation and holding times, method and field blanks, surrogate spikes, laboratory control samples (LCS), MS/MSDs, and field duplicate precision. The following definitions provide a brief explanation of the qualifiers which may have been assigned to data during the data validation process.

J The analyte is present; however, the reported value may not be accurate or precise.

UJ The analyte was not detected above the reported sample quantitation limit. However, the reported quantitation limit is approximate.

U The analyte was not detected above the reported sample quantitation limit.

The data generated as part of this sampling event met the QC criteria established in the respective USEPA and NYSDEC guidelines, except as noted below:

- Select results for atrazine, benzaldehyde, and 1,2-dichloro-1,1,2-trifluoroethane were qualified as estimated (J/UJ) because the LCS recovery was outside of quality control (QC) criteria.
- Select results for methylene chloride were reported at the quantitation limit (QL) and qualified as non-detect (U) due to field blank contamination.
- Select results for TPH-GRO were qualified as estimated (J) because the surrogate recovery was greater than QC criteria.

Table 2 summarizes all qualifications applied to the data, with applicable qualifier codes.

Several samples were analyzed at dilution in order to bring target analyte concentrations within the calibrated range of the analytical instruments. The detection limits of these samples are considered elevated since undiluted results were not provided.

Based on the data validations and data quality assessment, the analytical data for samples collected at the Site were determined to be acceptable for their intended use. The overall data completeness (i.e. the ratio of the amount of valid data obtained to the amount expected) was 100%, which exceeds the completeness goal (90%) identified in Section 4.3.4 of the RFI Management Plans.

Table D-1: Sampling and Analysis Summary

Lab SDG	Field ID	Matrix	Sample Date	VOCs	SVOCs	TPH GRO C6-C10	MS/MSD
Primary Field Samples							
1272643	ST-TW-01-15 Grab Water	GW	10/20/2011	x	x		x
1272643	ST-TW-02-20 Grab Water	GW	10/20/2011	x	x		
1272738	ST-SB-02-11.5-12.0 Grab Soil	GS	10/21/2011	x	x		
1272738	ST-SB-02-21.5-22.0 Grab Soil	GS	10/21/2011	x	x		
1272738	ST-SB-03-11.5-12.0 Grab Soil	GS	10/21/2011	x	x		
1272738	ST-SB-03-21.5-22.0 Grab Soil	GS	10/21/2011	x	x		
1272738	ST-SB-03-4.5-5.0 Grab Soil	GS	10/21/2011	x	x		x
1272738	ST-SB-04-21.0-21.5 Grab Soil	GS	10/21/2011	x	x		
1272738	ST-SB-04-9.5-10.0 Grab Soil	GS	10/21/2011	x	x		
1272978	ST-SB-05-19.5-20 Grab Soil	GS	10/24/2011	x	x	x	
1272978	ST-SB-05-9.5-10 Grab Soil	GS	10/24/2011	x	x	x	
1272978	ST-SB-06-9.0-9.5 Grab Soil	GS	10/24/2011	x	x	x	
1273306	ST-TW-03-09 Grab Water	GW	10/25/2011	x	x	x	
1273306	ST-TW-04-18 Grab Water	GW	10/25/2011	x	x	x	
1273306	ST-TW-05-09 Grab Water	GW	10/25/2011	x	x	x	
1273306	ST-TW-06-18 Grab Water	GW	10/25/2011	x	x	x	
1273306	ST-TW-07-09 Grab Water	GW	10/25/2011	x	x	x	
1273306	ST-TW-08-12 Grab Water	GW	10/25/2011	x	x	x	
1273306	ST-TW-09-20 Grab Water	GW	10/25/2011	x	x	x	
1273306	ST-TW-10-08 Grab Water	GW	10/25/2011	x	x	x	
1273306	ST-TW-11-12 Grab Water	GW	10/25/2011	x	x	x	
1273306	ST-TW-12-21 Grab Water	GW	10/25/2011	x	x	x	
1273433	IWB1-TW-07-08 Grab Water	GW	10/26/2011	x			
1273433	IWB1-TW-08-10 Grab Water	GW	10/26/2011	x			
1273433	IWB1-TW-09-16 Grab Water	GW	10/26/2011	x			
1273433	IWB3-TW-01-10 Grab Water	GW	10/26/2011	x			
1273433	IWB3-TW-02-20 Grab Water	GW	10/26/2011	x			

Lab SDG	Field ID	Matrix	Sample Date	VOCs	SVOCs	TPH GRO C6-C10	MS/MSD
Field Duplicates							
1272643	ST-TW-02-20D Grab Water	GW	10/20/2011	x	x		
1272738	ST-SB-02-11.5-12.0D Grab Soil	GS	10/21/2011	x	x		
Trip Blanks							
1272643	TB-11260	TB	10/20/2011	x			
1272738	TB11260 Water	TB	10/21/2011	x			
1272978	TB-11260 Water	TB	10/24/2011	x			
1273306	TB-11256	TB	10/25/2011	x			
1273433	TB-11256	TB	10/26/2011	x			
Field/Rinsate Blanks							
1272738	ST-SB-04FB Grab Water	GW	10/21/2011	x	x		
1273306	ST-TW-12FB Grab Water	GW	10/25/2011	x	x	x	
1273433	IWB3-TW-02FB Grab Water	GW	10/26/2011	x			

Notes:
1) CS = Composite Soil
2) CW = Composite Water
3) GS = Grab Soil
4) GW = Grab Water
5) SDG = Sample Delivery Group
6) SVOCs = Semivolatile Organic Compounds
7) TB = Trip Blank
8) TPH GRO = Total Petroleum Hydrocarbons, Gasoline Range Organics
9) VOCs = Volatile Organic Compounds

Table D-2: Data Qualifier Summary

SDG	Sample ID	Analyte	New Result	New RL	New MDL	QUAL	Comments
127433	IWB1-TW-09-16 Grab Water	Methylene Chloride	1	-	1	U	Field blank contamination
127433	IWB3-TW-01-10 Grab Water	Methylene Chloride	1	-	1	U	Field blank contamination
127433	IWB3-TW-02-20 Grab Water	Methylene Chloride	2.5	-	2.5	U	Field blank contamination
1272643	ST-TW-02-20D Grab Water	1,2-Dichloro-1,1,2-trifluoroethane	-	-	-	J	LCS recovery greater than QC criteria
1272978	ST-SB-05-19.5-20 Grab Soil	TPH-GRO	-	-	-	J	Surrogate recovery greater than QC criteria
1272978	ST-SB-05-9.5-10 Grab Soil	TPH-GRO	-	-	-	J	Surrogate recovery greater than QC criteria
1272978	ST-SB-06-9.0-9.5 Grab Soil	TPH-GRO	-	-	-	J	Surrogate recovery greater than QC criteria
1273306	ST-TW-03-09 Grab Water	Atrazine	-	-	-	UJ	LCS recovery below QC criteria
1273306	ST-TW-04-18 Grab Water	Atrazine	-	-	-	UJ	LCS recovery below QC criteria
1273306	ST-TW-05-09 Grab Water	Atrazine	-	-	-	UJ	LCS recovery below QC criteria
1273306	ST-TW-06-18 Grab Water	Atrazine	-	-	-	UJ	LCS recovery below QC criteria
1273306	ST-TW-07-09 Grab Water	Atrazine	-	-	-	UJ	LCS recovery below QC criteria
1273306	ST-TW-08-12 Grab Water	Atrazine	-	-	-	UJ	LCS recovery below QC criteria
1273306	ST-TW-09-20 Grab Water	Atrazine	-	-	-	UJ	LCS recovery below QC criteria
1273306	ST-TW-10-08 Grab Water	Atrazine	-	-	-	UJ	LCS recovery below QC criteria
1273306	ST-TW-11-12 Grab Water	Atrazine	-	-	-	UJ	LCS recovery below QC criteria
1273306	ST-TW-12-21 Grab Water	Atrazine	-	-	-	UJ	LCS recovery below QC criteria
1273306	ST-TW-03-09 Grab Water	Benzaldehyde	-	-	-	UJ	LCS recovery below QC criteria
1273306	ST-TW-04-18 Grab Water	Benzaldehyde	-	-	-	UJ	LCS recovery below QC criteria
1273306	ST-TW-05-09 Grab Water	Benzaldehyde	-	-	-	UJ	LCS recovery below QC criteria
1273306	ST-TW-06-18 Grab Water	Benzaldehyde	-	-	-	UJ	LCS recovery below QC criteria
1273306	ST-TW-07-09 Grab Water	Benzaldehyde	-	-	-	UJ	LCS recovery below QC criteria
1273306	ST-TW-08-12 Grab Water	Benzaldehyde	-	-	-	UJ	LCS recovery below QC criteria
1273306	ST-TW-09-20 Grab Water	Benzaldehyde	-	-	-	UJ	LCS recovery below QC criteria
1273306	ST-TW-10-08 Grab Water	Benzaldehyde	-	-	-	UJ	LCS recovery below QC criteria
1273306	ST-TW-11-12 Grab Water	Benzaldehyde	-	-	-	UJ	LCS recovery below QC criteria
1273306	ST-TW-12-21 Grab Water	Benzaldehyde	-	-	-	UJ	LCS recovery below QC criteria

Notes:
1) LCS = Laboratory Control Sample
2) QC = Quality Control
3) SDG = Sample Delivery Group
4) RL = Reporting Limit
5) MDL = Method Detection Limit
6) QUAL = Interpreted Qualifer
7) J = Estimated result
8) U = Not detected above quantitation limit
9) UJ = Not detected above quantitation limit; estimated result