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REMEDIAL INVESTIGATION REPORT
FOR THE
CAMP GEORGETOWN SITE
GEORGETOWN, NEW YORK

NYSDEC Site No.: 7-27-010

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Submitted to:

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1.0 INTRODUCTION

1.1 Background

Camp Georgetown (the Site) is a large complex of New York State Department of Environmental Conservation (NYSDEC) crew headquarters and a New York State Department of Correctional Services (NYSDCS) active incarceration facility. The incarceration facility is operated by the NYSDCS but is located on property managed by the NYSDEC. The inmates at Camp Georgetown formerly operated a sawmill and wood treatment facility. Wood treatment operations were conducted from approximately 1970 until 1991. The wood treatment plant was operated from approximately 1970 to 1983 as a dip tank process using the chemical biocide pentachlorophenol (PCP). From 1983 until 1991 the treatment plant was operated using a chromated copper arsenate process.

A review of state owned lands formerly used for wood treatment was initiated by the Division of Operations in the summer of 1997. In October 1997 the Division of Operations recommended that the NYSDEC perform an environmental investigation at the Camp Georgetown site (the Site). As a result of that request, the NYSDEC Division of Remediation initiated a preliminary site investigation. This preliminary investigative work identified PCP and dioxin as the two primary contaminants of concern (COCs) in soil and groundwater. Petroleum related compounds and metals were also detected at the Site. Based on these findings, the NYSDEC concluded that the Site should be added to the State's Registry of Inactive Hazardous Waste Disposal Sites. In December of 1999, the Site was listed on the Registry as a Class 2 Site, meaning that it represents a significant threat to public health and/or the environment.

Shaw Environmental & Infrastructure Engineering of New York, P.C. (Shaw, formerly IT Corporation) prepared a *Remedial Investigation and Feasibility Study (RI/FS) Work Plan* (dated September 20, 2001) and conducted the associated field activities from October 2001 through January 2002. An additional round of field work was completed in November 2002. This remedial investigation was required to collect sufficient data to further characterize site conditions, determine the lateral and vertical distribution of the COCs, to accurately evaluate the potential risk to human health and/or the environment, and to determine the potential need for remedial action.

1.2 Objectives

The objective of this *Remedial Investigation (RI) Report* is to present a detailed synopsis of the tasks that were used to complete the remedial investigation at the Site, and to present the results from those investigations. In addition, the results from the human health Qualitative Exposure Assessment and the Step I and Step IIA Fish and Wildlife Impact Analysis (FWIA) are presented. Conclusions and Recommendations are presented based on the results of both the preliminary investigation and this remedial investigation.

1.3 Site Location

The Site is located in the Town of Georgetown, Madison County, New York (**Figure 1**). The incarceration facility is operated by the NYSDCS but is located on property managed by the NYSDEC. The NYSDCS occupies the property north of Crumb Hill Road and the NYSDEC occupies the property south of Crumb Hill Road. The area of investigation covers an area of approximately 6.6 acres located south of Crumb Hill Road (**Figure 2)**. This study area is bordered on the northeast by Crumb Hill Road, on the south by private property, and west by State Reforestation Land. The specific areas of concern include the former wood treatment plant, former aboveground storage tanks (ASTs, two-2,000 gallon tanks) location (storage of PCP treatment solution), and former outdoor staging areas for treated lumber.

A mature and eroded plateau that is dissected by a series of valleys several hundred feet deep typifies the area around the Site. This plateau has a rolling, rugged appearance. Approximately 45 percent of Madison County is classified as commercial forest that is comprised primarily of white and red pine, oak, elm, ash, red maple, maple, beech, birch, and aspen. Wildlife is a valuable resource in the county. Average temperatures in Madison County range from 18 to 63 degrees Fahrenheit. The county receives an average of 37.84 inches of rain and 110.3 inches of snow. Surface water from the Site drains into Mann Brook, which flows into the Otselic River and eventually the Susquehanna River. No State Wetlands exist within a one-mile radius of the Site. In addition to State Reforestation Land, the area surrounding the Site is rural, used for residential and agricultural purposes. Potable water is provided in the region by wells, which are often screened in bedrock.

1.4 Summary of Preliminary Investigation Report

In May of 1998 the NYSDEC finalized a work plan for the preliminary investigation of the Site. The Preliminary Investigation (PI) was planned in response to reports of PCP use as part of the wood treatment operation that was historically conducted at the Site. The objective of the PI was to determine whether hazardous waste was disposed at the Site and to evaluate the extent of that contamination, if existing. The PI was initiated in May 1998; the final *Preliminary Investigation Report* (PIR) was issued by the NYSDEC in May 1999. Data generated from the PIR is included in the appropriate **Tables** and **Figures** for comparison and discussion purposes.

1.5 Contaminants of Concern

Based on the NYSDEC's review of the treatment process at the plant and the results from the PI, the COCs for this investigation included:

- PCP
- Fuel Oil
- Dioxins and Furans
- Chromium
- Copper
- Arsenic

The PCP solutions used in the wood preserving process were prepared by dissolving technical grade PCP in fuel oil to produce a solution that was 4 to 8 percent PCP. Technical grade PCP contained 85-90 percent PCP; 2 to 6 percent higher molecular weight chlorophenols; 4 to 8 percent 2,3,4,6-tetrachlorophenol; and about 0.1 percent tetrachlorodibenzo-p-dioxins (dioxins) and tetrachlorodibenzofurans (furans). PCP is slightly soluble in water (8 mg per 100 mL) and adheres strongly to soils (based on organic content, pH, and soil type).

Discarded, unused formulations of PCP are regulated as an acute hazardous waste (F027 waste) under the Resource Conservation and Recovery Act (RCRA). Waste waters, process residue, preservative drippings, and spent formulations from the wood preserving processes are listed as F032 waste while bottom sediment sludges from the treatment of the waste waters are listed as K001 waste.

Dioxins and Furans are compounds that form as byproducts during the production of certain chlorophenolic chemicals. The dioxin congener of most concern (2,3,7,8-tetrachlorodibenzo-p-dioxin (TCDD)) has not been found in PCP produced in the United States. Dioxins and furans also display a very low solubility in water. The compounds adsorb strongly to organic matter and are persistent under ambient environmental conditions. They migrate primarily through the movement of particulate matter (ex: dust generated by earth moving activities or sediments carried by water) and are also transported by the migration of organic solvents and carrier oils. Since the primary source of dioxins and furans at wood preserving sites is discharged PCP, these compounds can be expected to occur in areas where PCP was used or where PCP wastes were disposed.

The terms dioxin and furan refer to two classes of organic compounds. Dioxins and furans are found in technical grade PCP, and therefore could be expected to be present in areas that contain PCP. The polychlorinated dibenzo-p-dioxin (PCDD) molecule is composed of two benzene rings held together by two oxygen bridges. Chlorine atoms may be substituted for hydrogen at any of the eight positions on the benzene rings. The number and positions of the chlorine atoms determine the toxicity of the molecule. There are 75 possible configurations of dioxin, called congeners. Different configurations with the same number of substituted chlorine atoms are referred to as isomers. The most toxic dioxin congener is 2,3,7,8 tetrachlorinated dibenzo-p-dioxin (2,3,7,8-TCDD). Dioxin congeners with fewer than four substituted chlorine atoms are generally less toxic than the other, more highly substituted congeners.

Furans are structurally identical to dioxins except that only one oxygen bridge connects the two benzene rings. There are 135 possible furan congeners. Similar to dioxins, the most toxic furan is 2,3,7,8 tetrachlorinated dibenzofuran (2,3,7,8-TCDF).

Because 2,3,7,8-TCDD is the most toxic form of dioxin, the USEPA has established factors that equate the toxicity for other dioxin congeners and furans to that of 2,3,7,8-TCDD. Therefore, concentrations of dioxin and furan results will be discussed as the 2,3,7,8-TCDD equivalence, rather than reporting each individual congener.

Fuel oils are mixtures of aliphatic and aromatic petroleum hydrocarbons and include several polycyclic aromatic hydrocarbons (PAHs) and BTEX (benzene, toluene, ethylbenzene, and xylene) related compounds. Fuel oil No. 2 is typically used as a home heating oil or as an industrial heating oil. At this Site, fuel oil No. 2 was used as a carrier for wood preserving compounds. Fuel oil is a colorless to brown liquid that is less dense than water.

Chromated copper arsenate is a water based wood preservative. Wood treated with chromated copper arsenate can be recognized by its green tint. The chromated copper arsenate solution used at the Site was reportedly comprised of 23.75% chromic acid, 17% arsenic pentoxide, 9.25% cupric oxide, and 50% water based upon information provided to Shaw.

1.6 Report Organization

This Remedial Investigation Report is organized into five sections as described below:

- **Section 1.0 Introduction**. Includes a summary of the project background, a statement of the project objectives, a description of the site location, a summary of previous investigations, and describes the report organization.
- **Section 2.0 Scope of Work**. Includes a description of the scope and methodologies of the field investigation tasks completed, and describes the general parameters used when completing the human health and fish and wildlife exposure assessments.
- **Section 3.0 Investigation Results**. Presents a summary of the sites physical characteristics and a description of the nature and extent of impacts based on field and laboratory results from the remedial investigation activities.
- **Section 4.0 Conclusions and Recommendations**. Includes a summary of the conclusions and recommendations developed based upon the data collected.
- **Section 5.0 References**. Provides a listing of references used when developing the remedial investigation report.

2.0 SCOPE OF WORK

2.1 Field Investigation

A description of field activities preformed at the Site is presented in the following sections. All site activities were conducted in compliance with the *Remedial Investigation Work Plan*, the *Site Health and Safety Plan* (HASP), *Field Sampling Plan* (FSP), and *Quality Assurance Project Plan* (QAPP). Any deviations from approved plans are noted in the text.

2.1.1 Surface Soil Investigation

Surface soil samples were collected from a total of 54 locations across the Site:

- SS-1 through SS-9 were collected from the drip pad area outside the treatment building.
- SS-10 through SS-12 were collected from the footer drain seep near MW-11.
- SS-13 through SS-16 were collected from the area of the log piles outside the peeler building.
- SS-17 was collected from the drainage ditch along Ridge Road.
- SS-18 through SS-24 were collected south of Ridge Road.
- SS-25 through SS-42 were collected along the hillside on the southwest portion of the Site.
- SS-43 through SS-48 were collected along the eastern boundary of the Site.
- SS-49 through SS-52 were collected from the shooting range area.

The sampling locations were selected with the NYSDEC and were located in areas of suspected impacts. Samples were collected from approximately 0 to 2 inches below ground surface (bgs) with a decontaminated stainless steel trowel. All surface soil samples were analyzed for semivolatile organic compounds (SVOCs). Additionally, 39 of the surface soil samples were submitted for analysis of dioxins and 39 samples were submitted for analysis of metals. Ten (10) background samples for metals analysis were collected from the 0 to 1 foot bgs interval using a backhoe to scrape the surface. The background sample locations were selected by a NYSDEC representative from areas where former treatment operations did not appear to have existed. All soil samples were placed in sample jars supplied by the contract laboratory. A summary of the laboratory analytical methods and quantity of samples analyzed is provided in **Table 1**. All surface soil sample locations including background sampling locations are shown on **Figure 2**.

2.1.2 Sediment Sampling

At least six (6) sediment samples were proposed to be collected in Mann Brook. However, due to the lack of significant sedimentation only four (4) sediment samples were able to be collected. One sample was collected from an overland drainage swale (SED-1), Sample SED-2 was collected from the stream bed. Sample Sed-Up was collected upstream near the Ridge Road bridge and Sample Sed-Down was collected near the unnamed tributary. Sediments were collected with decontaminated trowels and packed directly into sample jars supplied by the laboratory. Sediment samples were analyzed for SVOCs, dioxin, and total organic carbon (TOC). **Table 1** summarizes laboratory analytical methods. Sediment sample locations are included on **Figure 3**.

2.1.3 Seep Sampling

According to the PIR, several seeps were located south (downgradient) of the treatment building. Due to dry conditions at the time of the field investigation, only one seep could be located. Two soil samples were collected from this seep.

Attempts were made to identify additional seeps on site during additional field activities. While no other seeps were located, surface soil samples were collected from potential seep locations along the hillside located on the western portion of the Site. Samples were collected from 0 to 2 inches bgs using a decontaminated stainless steel trowel and shipped in laboratory supplied sample jars. **Table 1** summarizes laboratory analytical methods. Approximate seep locations are illustrated on **Figure 2**.

2.1.4 Test Pit Excavation and Sampling

Based on anecdotal information of possible buried debris, a subcontractor was retained to perform a ground penetrating radar (GPR) survey. The GPR survey was used to choose locations for the test pitting activities in the northwest and southern portions of the Site. The survey was conducted in two areas (GPR 1 and GPR 2) as shown on **Figure 2**. No buried drums were detected/located by the survey. Buried concrete with rebar, believed to be associated with demolition of the drip pad, was found at GPR-1 and GPR 2.

A total of 24 test pits were excavated at the Site using a tracked backhoe. Test pit locations are shown on **Figure 2.** Test pits TP-1 through TP-4 were installed along the western boundary of the Site. Test pit TP-4 was excavated in the area of the swale on the north end of the property which drains into Mann Brook. Test pits TP-5 through TP-10 and TP-19, TP-21 and TP-24 were installed in the southern portion of the Site. Test pit TP-8 is a shallow trench located at the southern end of GPR Survey Area 2. This location was selected based on the NYSDEC's review of aerial photos. Test pits TP-13 through TP-16 and TP-20 were excavated throughout the area associated with the former treatment building and ASTs to delineate the extent of soil contamination identified during the PI. Test pit TP-11 was installed east of the Post Peeler building and TP-12 was installed east of Drying Shed #2. At the request of the NYSDEC, TP-17 and TP-18 were installed away from the main site in the vicinity of Mann Brook to investigate a shale pit and alleged disposal area. Test pits TP-22 and TP-23 were installed north of the NYSDEC office building. Test pit dimensions were generally the width of the backhoe bucket (approximately 2.5 feet) and approximately 15 feet long. Each test pit was excavated to a zone of observed contamination, groundwater, or the limits of the backhoe, whichever came first.

The Field Geologist prepared test pit logs that described the subsurface conditions at each location. During excavation, soils were continuously screened for volatile organic compounds (VOCs) using a calibrated photoionization detector (PID) equipped with a 10.6 eV lamp. A copy of these logs are included in **Appendix A**.

All test pits were backfilled with the excavated soils in a reverse manner (i.e., last out, first in). The backhoe was manually cleaned of all foreign material above the test pit. The backhoe bucket was steam cleaned between each test pit over the decontamination pad.

2.1.5 Soil Boring Installation and Sampling

A total of 20 soil borings were installed at the Site during the remedial investigation; 11 of these borings were converted into monitoring wells. Boring locations are shown on **Figure 2**. The area surrounding several of the downgradient monitoring wells was heavily vegetated and a backhoe was used to clear access to each of these drilling locations. The areas were regraded following drilling activities to control erosion.

The soil borings were advanced using water rotary drilling techniques. Split spoon soil samples were continuously collected during boring installation. A Field Geologist recorded soil descriptions, including any visual and/or olfactory evidence of contamination that was present. Additionally, a portion of each soil sample was split for a headspace analysis of VOC using a calibrated PID. At the request of the NYSDEC, samples from the 2 to 4 foot interval from each boring were sent to the laboratory for analysis of SVOCs and for dioxin in MW-9 through MW-17. In the remainder of the borings, samples were sent for laboratory analysis from any interval with visual and/or olfactory evidence of contamination or from the interval directly above the water table. Borings were advanced to 8 feet below the apparent water table elevation, or to a depth approved by the onsite DEC representative. **Table 1** summarizes laboratory analytical methods. All down hole drilling equipment was decontaminated between borings as specified in the FSP and QAPP. Drill cuttings and water used during drilling procedures was drummed and staged for disposal by a licensed disposal firm.

2.1.6 Monitoring Well Installation

Monitoring wells were installed in the 11 soil borings as shown on **Figure 2**. Monitoring wells were constructed of 2-inch diameter, schedule 40 polyvinyl chloride (PVC) casing and 2-inch diameter, 0.010-inch slotted, schedule 40 PVC well screen. Monitoring wells were constructed such that the well screen intersected the water table. The annulus was backfilled with No. 0 Morie sand and extended 2 feet above the top of the well screen. The remaining annulus was backfilled with a cement bentonite grout to within 3 feet of the ground surface, then backfilled to grade with neat cement or concrete. The monitoring wells were completed with a 4-inch diameter, above ground, steel protective casing. Weep holes were drilled at the base of the protective casing to drain any water that becomes entrained between the inner and outer casing. A concrete pad, approximately 2 feet by 2 feet, was constructed at the base of the protective casing to secure it in place. Flush mount road boxes were required for MW-9 and MW-10 due to their locations in driveways. Monitoring well MW-9 is in front of an access gate, and MW-10 is located in the NYSDEC office parking lot. Monitoring well construction details are included on the drill logs (**Appendix A**).

2.1.6.1 Monitoring Well Development

After installation and prior to the latest groundwater sampling event, the monitoring wells were developed to remove sediments from the well screen and sand pack. Development was accomplished using either disposable polyethylene bailers or a dedicated submersible pump with polyethylene tubing. The monitoring wells were developed no sooner than 48 hours after construction. Consistent with the requirements of the FSP, efforts were made to develop each monitoring well until pH, conductivity, and temperature had stabilized and until the water had a turbidity of less than 50 NTUs. Each monitoring well was gauged prior to development. Recharge rates were recorded for each well prior to development. Development logs are included as **Appendix B**. All development water was containerized in a 500-gallon polyethylene tank staged at the former rinse pad pending off site disposal. Specific methods for sample collection as detailed in the project specific QAPP and FSP were followed.

2.1.7 Groundwater Sample Collection

Prior to sampling, the water level in each monitoring well was gauged to provide information on hydraulic gradients and groundwater flow at the Site, as well as to provide information on the presence or absence of immiscible liquids. Measurements of water levels were obtained using an electronic water-level interface probe (IP). Specific procedures for data collection as detailed in the project specific QAPP and FSP were followed. Groundwater sample collection logs are presented as **Appendix C**.

2.1.7.1 Monitoring Well Sampling

Groundwater samples were collected from the on-site monitoring wells during three separate sampling events. The first sampling event occurred in 1999 during the NYSDEC's PI, when groundwater samples collected from the original eight monitoring wells (MW-1 through MW-8). Shaw completed a second groundwater sampling event for monitoring wells (MW-1 through MW-17) in 2001 following the installation of nine additional monitoring wells (MW-9 through MW-17). Subsequent to the installation of MW-18 and MW-19, Shaw completed a third groundwater sampling event in 2002 for MW-1 through MW-19.

During each groundwater sampling event, monitoring wells were purged of a minimum of three well volumes using a well-dedicated submersible pump with polyethylene tubing prior to sample collection. Groundwater samples were collected from the well-dedicated pump and polyethylene tubing using procedures consistent with the requirements of the site specific QAPP and FSP. **Table 1** summarizes the laboratory methods used to analyze the water samples.

2.1.7.2 Water Supply Well

The remedial investigation work plan identified one water supply well at the Site that was proposed for sampling. The water supply well was not sampled during the RI as it has been sampled by the (NYSDOH) frequently in the past. According to the NYSDOH, no site specific analytes were detected in the supply well.

2.1.8 Biota Sampling

At the request of the NYSDEC biota samples were collected from Mann Brook. The purpose of the sampling program was to determine the concentrations of dioxins in fish tissue and ultimately the probability of adverse impacts to wildlife and humans.

A total of eleven fish were collected upstream of Station #1 according to the NYSDEC Fish Sampling Plan for Camp Georgetown. Seven of the 11 samples were Brook Trout, two (2) were White suckers, one (1) was Creek Chub, and the remaining sample was Black-nose-Dace. Eleven (11) samples were also collected downstream of Station 2, seven (7) of which were Brook Trout, one (1) Creek Chub, one (1) White Sucker, one (1) Black-nose Dace, and one (1) Sculpin. The location of the biota sampling is depicted on **Figure 3**.

Where possible, for trout measuring less than 6 inches in length, the entire fish was submitted for analysis; for trout measuring greater than 6 inches in length only the filet was submitted for analysis. In order to obtain 60 grams of sample, several trout were collected and homogenized. The trout collection logs are included as **Appendix D**.

2.1.9 Mapping and Surveying

Following completion of the field investigation activities, a licensed surveyor was contracted to expand the existing site map to include the new sampling locations and site topography. The survey shows all pertinent site features including monitoring wells, site buildings, roads, test pit locations, surface sample locations, topography, and utilities. Additionally, the elevation of the top of casing for all newly installed monitoring wells was collected. This survey information has been used to produce the figures included in this RI.

2.2 Exposure Assessments

2.2.1 Qualitative Exposure Assessment

A Qualitative Exposure Assessment to determine the current and potential future exposure pathways associated with baseline (i.e. current or unremediated) site conditions was performed by a Shaw representative. A field survey to collect site specific information was conducted on January 23, 2002. The Qualitative Exposure Assessment report was written as a stand-alone report and is included in **Appendix E**. The report is summarized in **Section 3.3**.

2.2.2 Fish and Wildlife Impact Assessment

A Step I and Step IIA Fish and Wildlife Impact Assessment (FWIA) was conducted to identify resource areas and associated fish and wildlife at and within the vicinity of the Site, and potential site-related impacts to those resources. A site walk-over and area drive-by were conducted on January 23, 2002 to collect the required site information. This FWIA report was written as a stand-alone report and is included in **Appendix F**.

As described in the NYSDEC's document titled *Fish and Wildlife Impact Analysis for Inactive Hazardous Waste Sites*, the Step I analysis (Site Description) consists of the following sections:

- Site Maps (including topographic, cover type, and drainage maps)
- Description of the Fish and Wildlife Resources

- Description of the Fish and Wildlife Resource Value
- Identification of Applicable Fish and Wildlife Regulatory Criteria

The primary objectives of the Step I was to identify the wildlife resources that presently exist and that existed before contaminant introduction.

The Step II analysis (Contaminant-Specific Impact Assessment) consists of:

- Pathway Analysis

The primary objective of the Step II was to determine the impacts of the site-related contaminants on the wildlife resources. The pathway analysis identifies resources, COCs, sources of contaminants, and determines if any potential pathways of contaminant migration exist.

2.3 Aerial Photograph Review

At the request of the NYSDEC, an aerial photograph review was conducted and three (3) photos taken in 1968, 1977 and 1999 were purchased and submitted to the NYSDEC to become a part of the NYSDEC project file. An aerial photo taken in 1968 showed the Site being developed only on the north side of Crumb Road with few buildings. An aerial photo taken in 1977 showed additional buildings and rows of timbers on the south side of Crumb Road with no noticeable changes to the north while the 1999 photo showed only cleared open areas and buildings to the south. No evidence of stressed or dead vegetation could be identified nor could the location of any equipment used for wood treatment processes. The review of aerial photos was inconclusive as it did not show any evidence of any disposal activities.

2.4 Data Validation

An independent data validator, Environmental Quality Assurance, Inc., was subcontracted to review the data and compile a Data Usability Summary Report (DUSR). The DUSR is included as **Appendix G**.

3.0 INVESTIGATION RESULTS

The results from the RI are presented in the following sections. A description of the Site's physical characteristics, the nature and extent of chemical impacts, and the results from the exposure assessments are provided.

3.1 Physical Characteristics

3.1.1 Regional Geology

As summarized in the NYSDEC, ("*Preliminary Investigation Report, Camp Georgetown*"), May 1999, the southern half of Madison County is located on a plateau known as the Appalachian Uplands. The plateau is mature and eroded, and is dissected by a series of valleys that are several hundred feet deep. The major valleys on the plateau have a north south orientation. Large, rounded bedrock hills and ridges characterize the high plateau in the extreme southern part of the county near the location of Camp Georgetown. The nearly level hilltops are at a similar elevation, reflecting the nearly horizontal character of the underlying bedrock. The plateau uplands have a rugged, rolling appearance because of stream dissection and deepening of the valleys by glacial scour. The rounded shoulders of the hills and the steep lower valley sides also are indications of glacial modification.

Regional bedrock consists of Upper Devonian Formations which include the Tully Limestone, Ithaca Siltstone and Sandstone, and Geneseo Shales. The bedrock lies nearly flat, except that it has a slight regional dip to the south of about 50 feet per mile. (US Department of Agriculture, Soil Conservation Service, Madison County, New York, March 1981).

3.1.2 Site Geology

The overburden geology was investigated during the test pit and monitoring well investigations. The top foot of overburden consists of weathered, broken gray shale (i.e., soil and unconsolidated rock fragments) that size range in size from gravel to boulders mixed with grey silt and sand or brown sandy topsoil. This overburden is considered to be non-native fill material most likely originating from a shale quarry located northwest of the Site. Underlying the fill material is glacial lodgment till consisting of a silty till with thin sand lenses overlying a clay till with thin sand lenses. Both till layers are very dense and vary in color across the Site from grey, tan and brown. Glacial till was observed to a depth of approximately 46 feet bgs (which is the maximum depth of drilling during monitoring well installation during PI activities). The till is very dense as evidenced by high blow counts and difficult drilling conditions. Observations during drilling confirm that the upper 15 feet of the till unit contains numerous thin lenses of more permeable sands and fine gravel that may or may not be interconnected.

According to the PIR, a drinking water well was installed in 1991 north of Crumb Hill Road near the Department of Correctional Services softball field. The well was drilled to a total depth of 400 feet and bedrock was encountered at 220 feet bgs. Stratigraphy was not logged during installation of this well. **Figure 4** depicts geologic cross sections of the Site.

3.1.3 Regional Hydrogeology

The Camp Georgetown property is located approximately 4 miles from the Otselic River, which is the closest regional discharge zone for Mann Brook. Regionally, groundwater would be anticipated to flow toward the Otselic River. Shallow groundwater in the area of the Site is typically found in coarser-grained glacially-derived sediments or as perched water overlying deposits of fine-grained sediments of lower permeability.

3.1.4 Site Specific Hydrogeology

Depth to groundwater across the Site ranged between 2 to 5 feet bgs during the groundwater sampling events. Gauging data indicates that groundwater flow appears to be in a southwesterly direction, generally following topography and eventually discharging into Mann Brook.

Recharge of the water table is likely provided by precipitation infiltrating areas of the Site. Shallow groundwater accumulates in the more permeable sandy lenses found within the till and then likely disperses slowly into the regional groundwater flow regime. Groundwater recovery rates witnessed during well development and purging activities indicated that the hydraulic conductivity for the till unit appeared to be very low.

3.2 Nature and Extent of Contamination

This section presents the analytical results from the surface, sediment, seep, and subsurface soils, biota samples and groundwater samples collected at the Site. For screening and discussion purposes only, these results are compared to published New York State standards and/or screening criteria.

Soil criteria from the NYSDEC's *Division Technical and Administrative Guidance Memorandum: Determination of Soil Cleanup Objectives and Cleanup Levels HWR 4046* (TAGM 4046) was used for comparison of the soil SVOC analytical results. TAGM 4046 and site background levels was used for analytical comparison of metals. TAGM 4046 does not include soil cleanup objectives for dioxins and furans. Therefore, for the purposes of this report, and to be consistent with the PIR for the Site, 1 ppb 2,3,7,8-TCDD equivalence has been used as the soil screening level. The NYSDEC, however, has used 1 ppb 2,3,7,8-TCDD equivalence as a remediation goal at other hazardous waste sites.

For COCs that are either VOC or SVOC, TAGM 4046 was used for screening soils. The soil cleanup objective listed in TAGM 4046 for PCP is 1 ppm for protection of groundwater. Consistent with the *Preliminary Investigation Report* prepared for this Site, this value has been adopted as a groundwater protection screening level for soil.

To determine whether the groundwater contains contamination at levels of concern, data from the investigation were compared to The *Division of Water Technical and Operational Guidance Series 1.1.1* (TOGS 1.1.1). The groundwater standard for total phenolic compounds listed in TOGS 1.1.1 is 1.0 ppb. Here again, to be consistent with the PIR, and because PCP is the only phenolic compound detected in the groundwater at the Site, a groundwater screening level of 1.0 ppb (ug/l) has been used.

6NYCRR Part 700-705 lists a groundwater standard of 0.0007 ng/l (parts per trillion) for 2,3,7,8-TCDD. This value has been adopted as the groundwater screening level, with the other forms of dioxins and furans normalized to 2,3,7,8-TCDD using the USEPA's toxicity equivalence factors (TEFs).

The NYSDEC TAGM 4046 was used for screening sediments. This document offers guidelines to calculate site specific guidance values for PCP and dioxin based on total organic carbon results.

The 2,3,7,8-TCDD fish concentration data was compared to risk calculations which evaluate possible effects on wildlife through the consumption of fish contained in the NYSDEC's *Division of Fish, Wildlife and Marine Resources Technical Guidance for Screening Contaminated Sediments* which is based on *The Niagara River Biota Contamination Project: Fish Flesh Criteria for Piscivorous Wildlife*, A.J. Newell et al., July 1987, NYSDEC Technical Report 87-3. The criteria listed are 3.0 pg/g (ppt).

3.2.1 Surface Soil Results

A total of 88 surface soil samples were collected during the PI and RI and sent to the contract laboratory for analysis of SVOCs, metals and dioxins. A summary of the analytical results from the PI and RI is presented in **Table 2** and **Figure 5**.

Seventy-four (74) surface soil samples out of 88 were analyzed for PCP only (PI immunoassay results) or total SVOCs. Pentachlorophenol was the only SVOC detected above a TAGM 4046 guidance value (1.0 ppm) in all surface soil samples sent for laboratory analysis. The PCP guidance value was exceeded in surface soil sample locations GSS-1, GSS-17, GSS-20, GSS-21, GSS-22 (immunoassay results from the PI), SS-5, SS-7 and SS-8. The concentrations ranged from 1 ppm in GSS-21 to 130 ppm in GSS-17. GSS-1 is located southwest of the former treatment building, GSS-17 is located from the exit of a footer drain from the former treatment building, GSS-12 through GSS-22 are located east of the former treatment plant in a grid adjacent to the former AST location. SS-5, SS-7 and SS-8 were collected from the drip pad area.

PCP was also detected (estimated values) in several additional surface soil samples in the drip pad area, the former AST area, and the area southwest of the former treatment building at levels well below the TAGM 4046 guidance value. PCP was not detected in any of the other surface soils collected from across the Site. One potential explanation for the relatively low concentrations of PCP in surface soils is that PCP will readily breakdown by photochemical processes when exposed to the ultraviolet radiation in sunlight.

The highest concentrations of total SVOCs (5,048 ppb) were observed in surface soil sample SS-19. This sample was collected from an apparent drainage area southwest of the former Post Peeler building.

A total of 40 of the 88 surface soil samples that were collected from "on site" locations were sent to the laboratory for analysis of metals. Additionally, 10 samples were collected from "background" areas (areas selected by the NYSDEC where former treatment operations did not appear to have existed). For discussion purposes, the results from the "on site" samples were compared to the average value for each metal from the background samples or to the TAGM 4046 guidance value (metal guidance value). Results from the "on site" samples that exceeded the metal guidance value are shaded on **Table 2**. When the data was evaluated by this method, all 40 surface soil samples exceeded at least one guidance value. Calcium and zinc were the analytes that most frequently exceeded the guidance values. Surface soil samples SS-10 and SS-11 (collected from the eastern portion of the Site) contained the greatest number of metal analytes above their respective guidance value (14 of the 23 metals reported by the analysis at each location). Of the three metals of concern (chromium, copper, arsenic), 1 out of

40 surface soil samples across the Site exhibited chromium concentrations above background levels; 2 out of 40 surface soil samples analyzed for metals showed copper at concentrations above background; and 27 out of 40 soil samples analyzed for metals possessed arsenic above the average background concentrations. Four (4) surface soil samples were collected from the shooting range area and sent for laboratory analysis of lead only. All four samples exceeded background averages for lead.

In addition, 39 of the 88 surface soil samples were also sent for analysis of dioxins. Dioxins and furans were detected at low concentrations in all the samples; only two (2) samples (SS-5 and SS-8) contained 2,3,7,8-TCDD equivalence above the 1.0 ppb guidance value. Exhibiting PCP concentrations of 1.09 ppb and 1.16 ppb, respectively, these samples were collected from the former drip pad area.

3.2.2 Seep Soil Results

Two (2) soil samples (SEEP-1 and SEEP-2) were collected from a seep that was located south (downgradient) of the former treatment building. Both samples were sent for analysis of SVOCs and dioxins. The analytical results are summarized in **Table 2** and shown on **Figure 5**.

Pentachlorophenol was detected above the 1.0 ppb TAGM 4046 guidance value in SEEP-1. No PCP was detected in SEEP-2.

The two seep samples were also analyzed for dioxins. These results are also included in **Table 2**. SEEP-1 possessed a 2,3,7,8-TCDD equivalence of 3.29 ppb, while sample SEEP-2 possessed a 2,3,7,8-TCDD equivalence of 2.18 ppb. Both of these values were above the site screening level of 1.0 ppb.

3.2.3 Sediment Results

Four (4) sediment samples (SED-1, SED-2, SED-Up and SED-Down) were collected from Mann Brook and sent for analysis of SVOCs and dioxins. The analytical results are summarized in **Table 3** and shown on **Figure 3**.

No SVOCs (including PCP) were detected in any of the four sediment samples collected above the NYSDEC *"Technical Guidance for Screening Contaminated Sediments*" guidance document.

Several dioxin and furan congeners were detected in each sample, however, the total 2,3,7,8-TCDD equivalence concentrations were well below the location specific benchmark.

3.2.4 Subsurface Soil Results

3.2.4.1 Soil Boring Results

A total of sixty-eight (68) soil samples were collected from 34 soil borings across the Site during the PI and RI.

Sixty-eight (68) samples were analyzed for SVOCs, 34 of 68 samples were analyzed for dioxins, and 11 of 68 samples were analyzed for metals. The results of the laboratory analysis are included on **Table 4** and **Figure 6**.

Pentachlorophenol was detected in GB-1, GB-2, GB-5 through GB-10, GB-12 and GB-13B above the 1.0 ppm TAGM 4046 guidance value. These borings are located under the former treatment building and are based on immunoassay results from the PI. The samples were collected from 1-6 feet bgs. PCP was also detected in GSB02-1 (2-4’ bgs), GSB02–3 (2-4’, 6-8’ and 8-10’ bgs), GSB02-4 (6-8’ bgs) and GSB02-8 (1-2’ and 7-8’ bgs) above the 1.0 ppm TAGM 4046 guidance value. These soil borings were installed in the area immediately surrounding the former treatment plant, including the former drip pad area, and former AST area.

Dioxins were analyzed in 34 out of the 68 samples collected. While several cogeners were detected across the Site only GSB02-1 (2-4’ bgs) exhibited a 2,3,7,8-TCDD equivalence concentration (2.4951 ppb) higher than the 1.0 ppb screening level. GSB02-1 is located in the former drip pad area and the dioxin concentration is consistent with elevated PCP concentrations associated with that area.

Samples collected from GB-1 through GB-11 were also analyzed for metals. Results from the samples were compared to the average value for each metal from “background” samples or to the TAGM 4046 guidance value. Of the three metals of concern, One (1) out of 11 borings exceeded the metal guidance value for chromium. Two (2) exceeded the metal guidance value for copper, and seven (7) exceeded the metal guidance value for arsenic. All eleven borings are located under the former treatment building.

3.2.4.2 Test Pit Results

Forty-seven (47) samples were collected from test pits installed during the PI and the RI. These results are summarized on **Table 5** and **Figure 6**.

Fill material was present in several test pits and appeared to be wide spread across the Site. This is consistent with reports of shale derived from the western portion of the Site being used as a fill material.

Pentachlorophenol was detected above the 1.0 ppm TAGM 4046 guidance value in GTP-1, GTP-4, GTP-5, GTP-11, GTP-13, GTP-16 and GTP-17. Test pits GTP-1, GTP-4 and GTP-5 are located near the former treatment building, GTP-11 and GTP-13 are located southwest of the former treatment plant within a grid of surface soil samples collected during the PI. GTP-16 and GTP-17 are located west of Drying Shed #1. These samples were collected during the PI and are based on immunoassay results.

While several SVOCs were detected in samples collected from the test pits during the RI, none exceeded TAGM 4046 guidance values (including PCP).

Dioxins were analyzed in 20 of the 47 samples collected. Several congeners were detected across the Site and ranged from below detection limits (BDL) to 0.12243 ppb in TP-19NE wall; however, no sample exceeded the 2,3,7,8-TCDD equivalence concentration.

Eight (8) out of 47 test pit samples were analyzed for metals. The concentrations were compared to the established background average. The three metals of concern are directly from the CCA process used on site. Copper and chromium were not detected above the metal guidance values in any of the 8 analyzed samples. Arsenic was detected slightly above the guidance value in TP-24 which is located on the southeast portion of the Site, near MW-12.

Excavated soils observed in TP-8 had a pale brown to purple discoloration, with some concrete fill material at 2 feet bgs. The concrete is similar to that found in TP-4 and according to NYSDEC operations staff, it is the remnants of the former drip pad. Samples were taken from this depth and sent for laboratory analysis. Test pit TP-16, located on the northwest side of the treatment facility, had a 4 inch layer of gray-brown discoloration at 1.5 feet bgs. The source of this discoloration could not be determined.

3.2.5 Groundwater

As described in **Section 2.1.7** groundwater samples were collected from three separate sampling events. The following sections describe the results.

PI Groundwater Results

Samples were collected from MW-1 through MW-8 and were analyzed for SVOCs, VOCs, pesticides/PCBs, metals and dioxins during the groundwater sampling event conducted during the PI in 1998. The PI groundwater results are summarized on **Table 6** and **Figure 7**.

No pesticides or PCBs were detected in any of the groundwater samples.

Estimated concentrations of xylene and ethylbenzene below TOGS 1.1.1 guidance values were observed in MW-7.

Pentachlorophenol was detected in MW-2, MW-3, MW-4, MW-5 and MW-7 above the 1.0 ppb TOGS 1.1.1 guidance value during the PI sampling event.

Dioxins were detected above the 0.0007 ppt 2,3,7,8-TCDD equivalence guidance value in all wells (except MW-7) during the PI sampling event.

Chromium was the only metal related to wood treatment activities detected above TOGS 1.1.1 guidance values. Chromium concentrations above guidance values were detected in MW-2 through MW-5. Copper was detected in every well, however, it didn't exceed the 0.2 ppb guidance value in any sample analyzed. Arsenic was detected at concentrations below guidance values in MW-6.

RI Groundwater Results 2001

A second round of groundwater samples were collected in December 2001. The wells (MW-1 through MW-8) that were installed during the PI were analyzed for fuel oil, SVOCs and dioxins. Newly installed wells (MW9 through MW-17) were analyzed for pesticides/PCBs, VOCs and SVOCs. Dioxins were not analyzed in this groundwater sampling event. The analytical results from the 2001 sampling event are summarized on **Table 7** and **Figure 7**.

Fuel components, including diesel fuel, was not detected in any of the eight previously installed monitoring wells that were sampled.

Groundwater from all 17 monitoring wells were sampled and sent for analysis of dissolved SVOCs. Several SVOC analytes, including benzoic acid (1 sample) phthalates (5 samples), PCP (5 samples) and 2,6-dinitrotoluene (1 sample) were detected. Benzoic acid and phthalates are believed to be laboratory artifacts.

PCP was detected above NYSDEC TOGS 1.1.1 guidance values for water in MW-4 (85 ppb), MW-5 (44 ppb), MW-6 (920 ppb), MW-7 (160 ppb) and MW-11 (540 ppb).

TOGS 1.1.1 lists a groundwater guidance value for 2,3,7,8-TCDD as $7x10^{-7}$ ppb or 0.0007 ppt. This had been adopted as the groundwater screening level, with the concentrations of other forms of dioxins and furans normalized to 2,3,7,8-TCDD using the toxicity equivalence factors (TEFs).

Concentrations of dioxins were found in five of the wells sampled (MW-4 through MW-8). However only three wells, MW-4 (0.020725 ppt), MW-6 (0.001184 ppt) and MW-7 (1.6694 ppt) exhibited a 2,3,7,8-TCDD equivalence concentration over the 0.0007 ppt TOGS 1.1.1 guidance value. These wells are located radially around the former drip pad area and were known to have dioxins from previous investigations. All water dioxin results are reported in parts per trillion (ppt). Concentrations ranged from 0.000009 ppt (MW-5) to 1.6694 ppt (MW-7).

The PCB aroclor 1254 was found in three of the nine wells sampled. Concentrations of Aroclor 1254 in MW-9 (15 ppb), MW-12 (1.7 ppb), and MW-15 (2.7 ppb) were above NYSDEC TOGS 1.1.1 guidance values. Aroclor 1254 concentrations were randomly distributed across the Site; MW-9 is north and upgradient, MW-12 is located downgradient to the southeast, and MW-15 is downgradient to the southwest. PCBs are not known to be a site-related contaminant of concern. No pesticides were detected in any of the monitoring wells sampled.

Estimated concentrations of acetone were detected in MW-13 (8.5 ppb), MW-16 (8.2 ppb), and MW-17 (4.8 ppb) respectively. The presence of acetone was at a level lower than the guidance value of 50 ppb and is suspected to be a laboratory artifact.

A groundwater contour map was created from the information collected during the 2001 sampling event and is included as **Figure 8**.

RI Groundwater Results 2002

A third round of groundwater samples were collected in November 2002. The results of this sampling event are summarized on **Table 8** and **Figure 7**. Unfiltered samples were collected from 19 wells for analysis of SVOCs, fuel oil, dioxins and pesticides/PCBs. Six (6) of the 19 wells were filtered and analyzed for the same parameters in an attempt to determine if high turbidity in groundwater was a contributing factor in elevated concentrations of contaminants. Groundwater from MW-5, MW-9, MW-12, MW-15, MW-18 and MW-19 was filtered via a 0.45 micron in-line filter.

No PCBs were detected in any of the monitoring wells. Bis(2-ethylhexyl)phthalate was detected above the TOGS 1.1.1 0.6 ppb guidance value in all samples collected except MW-15 (filtered). Bis(2-ethylhexyl)phthalate is believed to be a laboratory artifact.

Pentachlorophenol was detected above the 1.0 ppb TOGS 1.1.1 guidance value in MW-2, MW-3, MW-4, MW-5, MW-5 filtered, MW-6, MW-7 and MW-11. Concentrations ranged from 1 ppb (MW-2 and MW-3) to 370 ppb (MW-11).

Fuel oil components were detected in MW-4, MW-6 and MW-7.

Groundwater samples collected from MW-4, MW-7 and MW-8 exhibited 2.3.7,8-TCDD equivalence concentrations above the 0.0007 ppt TOGS 1.1.1 guidance value. Concentrations ranged from 0.00087987 ppb in MW-8 to 0.0214887 in MW-4 ppb. A groundwater contour map was created from information collected during the 2002 sampling event and is included as **Figure 9**.

3.2.6 Biota Sampling Results

A total of 22 fish samples were collected from various locations within Mann Brook located west and downgradient of the Site as depicted on **Figure 3**. Fish samples were collected by electroshock sampling methods as described in **Section 2.1.8** and were submitted for laboratory analysis of dioxins. The results are summarized in **Table 9**.

Eleven of the fish samples were collected upstream of the Site (US-1 through US-11). The other eleven samples were collected downstream (DS-1 through DS-11) of the Site.

2,3,7,8-TCDD equivalence concentrations are reported as wet weight concentrations and ranged from BDL to 0.784 ppt. No samples collected exceeded the appointed guidance value. A copy of the biota analytical, their length and weights are summarized in **Appendix H**.

3.3 Exposure Assessments

3.3.1 Qualitative Human Health Exposure Assessment

A qualitative human health exposure assessment was performed for the Site to determine potential exposure pathways associated with current site conditions in the absence of remediation. The qualitative exposure assessment resulted in the creation of site-specific exposure profiles, which provided the narrative description of the mechanisms by which exposure to contaminants may occur at the Site. Chemical, physical, and toxicological parameters for the chemicals of potential concern were also identified and taken into account when developing the exposure profiles.

The complete exposure assessment report is included as **Appendix E**. The following sections present a brief summary of the pertinent results from the report.

3.3.1.1 Exposure Setting

The area of concern occupies approximately 6.6 acres, and included the former pole treatment plant, former AST location, and former outdoor staging areas. The surrounding area is rural, generally consisting of farmland and undeveloped forest.

3.3.1.2 Identification of Exposure Pathways

The exposure pathway is the route that the chemical may take from its source of the material to the receptor of concern. An exposure pathway has five elements:

- contaminant source
- contaminant release and transport mechanisms
- point of exposure
- route of exposure
- potential receptor

Sources of Contamination

Contamination sources exist at the Site and are associated with historical releases and surficial spills of wood treatment products (PCP, CCA, and fuel oil) to soil.

Fate and Transport

Contaminant release and transport mechanisms carry contaminants from the source to points where individuals may be exposed. Chemical migration between media such as soil and groundwater is influenced by the chemical's characteristics such as water solubility or molecular size or shape, in addition to the chemical and physical characteristics particular to a site's media. Information about the fate and transport of the source chemicals is summarized below.

Pentachlorophenol and Dioxin

Pentachlorophenol is a moderately acidic substance, and thus its fate is strongly influenced by pH. At a neutral pH it is almost completely found in the ionized form, the pentachlorophenate anion, which is much more mobile than PCP (ATSDR, 2000). PCP has a low water solubility and a strong tendency to adsorb onto soil or sediment particles in the environment. Adsorption to soils and sediments is dependent on pH and organic content. Adsorption at a given pH increases with increasing organic content of soil or sediment. No adsorption occurs at pH values above 6.8 (ATSDR, 2000; Howard, 1991). It is expected that soils in this area are acidic (less than 7.0) based on soil type (no pH data is available) and soils are low in organic content, (TOC is 7.06% in SED-2), therefore some adsorption is likely to occur, but it may be limited.

The ionized form of pentachlorophenol may be rapidly photolyzed by sunlight; PCP may also undergo biodegradation by microorganisms, animals, and plants, although degradation is generally slow (Howard, 1991). Given that at expected pH conditions a portion of PCP will be present in the ionized form, photolysis may be an important degradation pathway at this Site in shallow soils.

PCP has an octanol-water partition coefficient (Kow) of 100,000 (Howard, 1991), which indicates that it is lipid-soluble and therefore has a tendency to bioaccumulate in organisms. Bioaccumulation is largely pH-dependent, with considerable variation among species. Bioconcentration factors (BCFs) for PCP in aquatic organisms are generally under 1,000, but some studies have reported BCFs up to 10,000. BCFs, however, for earthworms in soil were 3.4-13 (ATSDR, 2000). Significant biomagnification of PCP in either terrestrial or aquatic food chains, however, has not been demonstrated (ATSDR, 2000).

Pentachlorophenol products often contain chlorophenols, dioxins, and furans. Once released to the environment, these compounds are persistent and generally adsorb to soil or sediment particles due to their low water solubilities. Adsorption is generally the predominate fate process affecting these chemicals, with the potential for adsorption related to the organic carbon content. CDDs and CDFs may undergo degradation through biological action or by photolysis, with a half-life ranging from weeks to months. Photolysis and hydrolysis are generally not significant processes, however, as these compounds persist in the adsorbed phase (USEPA, 2002).

Due to their high adsorption rate, CDDs are not expected to leach from soil, although some leaching of disassociated forms of the compound may occur, especially at lower pHs (USEPA, 2002). Since pH of site soils are not known but are not expected to be highly acidic, leaching of CDDs and CDFs is unlikely. Migration of CDD-contaminated soil may occur through erosion and surface runoff. Upon reaching surface waters, additional adsorption may occur due to the typically higher levels of organic matter content of sediments as compared to surface soils (ATSDR 2000). Volatilization from either subsurface soil or water is not expected to be a major transport pathway, although it may occur from surface soils (ATSDR, 2000). As with PCP and other lipophilic pesticides, CDDs and CDFs tend to bioaccumulate in exposed organisms, with BCFs for aquatic organisms ranging from 5,000 to 10,000 (Montgomery, 1996). Uptake from soil by plants can occur, although it is limited by the strong adsorption of these compounds to soils. BCFs in plants have been measured to be 0.0002, with most accumulation occurring in the roots with little translocated to the foliage (ATSDR, 2000). Terrestrial organisms may accumulate CDDs and CDFs as a result of direct ingestion and contact with soils.

At the Site, PCP is expected to be adsorbed to soil organic matter content, although limited leaching may occur due to the expected pH (slightly acidic) and low organic matter content in site soils (TOC is 7.06% in SED-2). Some photolysis of PCP from surface soils can be expected. Uptake of PCP from soil by plants or terrestrial organisms may occur, but biomagnification is not expected. CDDs and CDFs are expected to be strongly sorbed to soil, as well as persistent. Leaching of these compounds is likely to be limited. Accumulation of these compounds in plants as a result of root uptake is unlikely to be significant.

Fuel Oil

At the Site, PCP was mixed with No. 2 fuel oil for wood treatment application. Fuel oils are mixtures of numerous aliphatic and aromatic hydrocarbons. Individual components of fuel oil include n-alkanes, branched alkanes, benzene and alkylbenzenes, naphthalenes, and PAHs (ATSDR, 2000). Primary constituents identified in soil and/or groundwater at the Site are PAHs. Soil adsorption, volatilization to air, and leaching potential depend on a PAH's individual chemical characteristics; however, as a class of compounds, they are generally insoluble in water, with a strong tendency to bind to soil or sediment particles. Some of the lighter-weight PAHs (such as naphthalene, acenaphthene, and phenanthrene) may volatilize from soil or groundwater into the air. Degradation may occur through photolysis, oxidation, biological action, and other mechanisms. Microbial degradation appears to be a major degradation pathway in soil (ATSDR, 2000).

As nonpolar, organic compounds, PAHs may be accumulated in aquatic organisms from water, soil, sediments, and food. BCFs vary among PAHs and receptor species, but in general, bioconcentration is greater for the higher molecular weight compounds than for the lower molecular weight compounds (ATSDR, 2000). BCFs for accumulation of PAHs by plants from soil are low, with values of 0.001 to 0.18 reported for total PAHs (ATSDR, 2000). Accumulation of PAHs from soil by terrestrial organisms is also limited, with BCF values for voles of 12 reported for phenanthrene and 31 for acenapthene.

At this Site, PAHs, the primary fuel oil constituents of interest, are expected to be adsorbed to soil, with limited potential for leaching. Microbial degradation may occur, with other degradation processes less important in soil. Uptake of PAHs from soil by terrestrial organisms or plants may occur, but bioconcentration is expected to be limited.

Chromated Copper Arsenate

CCA is a preservative that was used at Camp Georgetown and was reportedly comprised of 23.75% chronic acid, 17% arsenic pentoxide, 9.25% copric oxide and 50% water.

CCA is not a volatile substance; however, as it is water-based, it readily enters the soil. Metals such as arsenic, copper, and chromium are known to be persistent and mobile in soil and water, and leaching is a significant migration pathway, especially in acid conditions. These metals, however, tend to bind to soil and/or sediment particles in an insoluble form; therefore, any leaching usually results in transportation over only short distances in soil (ATSDR, 2000). Soil analytical results show that most metals concentrations at the Site are within the normal range of background levels, with the exception of arsenic, chromium, copper, lead, and zinc. Elevated concentrations of these metals are generally limited to the former treatment areas.

A fraction of the more soluble forms of metals in the environment may be taken up by plants and animals (ATSDR, 2000; Howard, 1991). Terrestrial plants may bioaccumulate metals through root uptake or by absorption of airborne metals which may be deposited on the leaves. None of these metals have shown the potential for significant biomagnification through the food chain (ATSDR, 2000).

Points of Exposure

Analytical results from samples collected across the Site indicate that contaminants have been identified in surficial soil in both paved/covered and unpaved areas. The highest soil concentrations of dioxins and metals were found in samples collected by the former treatment building; however, there is evidence of site-wide surficial impact. Additionally, contaminants have also been detected in groundwater.

Exposure Routes and Potential Receptors

Camp Georgetown is currently maintained as an NYSDEC maintenance facility and as a NYSDCS correctional facility. Inmates at Camp Georgetown occasionally visit the wood shed area to work on projects. There are currently no deed restrictions on the property that would restrict future land use. Therefore, the following receptors have been identified for the Site under current and reasonable foreseeable future land use scenarios:

- Adult inmates and staff at Camp Georgetown;
- Construction workers performing excavation activities;
- NYSDEC maintenance and/or operations activities

Based on the nature of the chemicals of potential concern, the types of media impacted at the Site, and land use scenarios, the following exposure routes were identified:

- Direct contact with exposed surficial soil. Exposure routes include incidental ingestion of, dermal contact with, and inhalation of volatile or particulate-bound contaminants.
- Direct contact with groundwater used as a future drinking water source. Routes of exposure include ingestion, dermal contact, and inhalation of volatiles. Currently, groundwater in the impacted areas is not used as a drinking water source. Several drinking water wells are located north of Crumb Hill road, and one well is on Ridge Road; each is upgradient of the Site. Past analyses have not demonstrated any site-associated impact in these wells.

3.3.1.3 Conclusions

Complete exposure pathways have been identified for potential current and future human receptors based on exposure to contaminated soil and groundwater.
Under current conditions, prison inmates, NYSDEC and NYSDCS staff may visit impacted areas of the Site, although infrequently.

Potential site exposures are unlikely to pose a significant risk to human health under current use given the limited potential for exposure and the relatively small size of the areas where concentrations exceed standards. In addition, the soil standards are based on long-term exposure on a frequent basis. Actual exposures at this Site are very infrequent, and not likely to occur over an extended period of time. Site concentrations may pose a significant risk in the future if site use were to change, resulting in increased exposure to the area of concern.

3.3.2 Fish and Wildlife Impact Assessment

A Step I and Step IIA Fish and Wildlife Impact Analysis was prepared by a Shaw Environmental Scientist/Risk Assessor to determine if potential impacts to fish and wildlife resources exist at the Site from the former wood treatment operations. The FWIA consisted of the following steps:

- **Step I**: Site Description
- **Step IIA**: Pathway Analysis

The complete FWIA report is included as **Appendix F**. The following sections present a brief summary of the pertinent results of the report.

3.3.2.1 Site Description

Several streams and wetland areas were identified as significant resource areas within a 2-mile radius from the Site, including:

- Mann Brook and associated tributaries
- Muller Brook
- Bucks Brook
- Ashbell Brook
- A freshwater wetland (approximately 2 miles from the Site)

The topography of the Site tends towards the southwest and southeast, with surface runoff from precipitation and seeps discharging to Mann Brook. Mann Brook converges with the Otselic River approximately 3 miles southeast from the Site.

3.3.2.2 Fish and Wildlife Resources

A site reconnaissance to observe habitat conditions and collect information on the species anticipated to be present was conducted on January 23, 2002. Approximately 1.5 feet of snow cover existed and most flora were dormant or under snow. Dormant flora noted included goldenrod, Queen Ann's Lace, briars, quaking aspen, honey locust, and yellow birch. Upland Forest consisting of mixed evergreen and deciduous species covered most of the general area. The Site contained extensive red pine plantings. Hawks, crows, a small nest indicative of a small songbird, and coyote tracks were also observed. The major subsystems associated with the Site and surrounding area included:

- Terrestrial Cultural
- Open Upland
- Forested Upland
- Riverine

3.3.2.3 Environmental Impacts

Chemical analyses have indicated that impacts exist across the Site as a result of past practices. As vegetation at the Site was dormant and covered with snow at the time of the site visit, it was difficult to determine whether signs of physical stress existed. Vegetative growth in undisturbed or revegetated areas appeared to be varied and dense, and the presence of wildlife species representative of various trophic levels indicated that overall community structure is likely complete. However, it was uncertain whether population-level effects were present due to surficial soil and stream impacts.

3.3.2.4 Value of Resources

Overall, the area provides significant foraging, resting, roosting, and breeding cover for wildlife. The chemical impacts detected at the Site are most likely not a limiting factor to overall community structure. The lack of species observed during the site visit was likely due to the winter conditions and the presence of humans rather than chemical impacts.
The area itself may provide the opportunity for outdoor recreational uses such as hunting, fishing, and wildlife observation.

3.3.2.5 Contaminant-Specific Impact Assessment

Site conditions indicate that: 1) various species of fish and wildlife are likely to be present at the Site; 2) compounds that are mobile, persistent, or have the potential to bioaccumulate have been documented on the Site; and 3) these compounds exist at or near the surface of soil, and have the potential to be taken up by plants and animals. Therefore, the following pathways of chemical movement and exposure to fish and wildlife were considered possible:

- Dermal contact with chemicals present in the surface soil, groundwater (at seep areas), and sediments
- Ingestion of chemicals in surface soil, groundwater and food sources
- Direct uptake of chemicals in soil or groundwater by terrestrial and aquatic plants

3.3.2.6 Conclusions

Given the nature of the chemicals present at the Site (i.e., dioxins, phenols, PAHs, and heavy metals) and the distribution of impact, complete exposure pathways were identified for terrestrial and aquatic receptors. Based on visual field observations, there was no overt evidence of stressed vegetation, and community structure does not appear to be impaired. However, due to the limited observations that could be made during the initial site visit, it was inconclusive at that time whether significant ecological impact existed due to site-associated releases to the environment. Additional observation of terrestrial vegetation and wildlife conducted during subsequent sampling events provided no evidence of stressed vegetation, suggesting no significant ecological impact existence to the surrounding environment due to site associated releases.

Analytical results from the fish collected suggest minimal site influence to aquatic life in close proximity to the Site. Evidence is given by the distribution of detectable concentrations of 2,3,7,8-TCDD viewed in fish collected up-gradient of the Site.

4.0 CONCLUSIONS AND RECOMMENDATIONS

4.1 Conclusions

Background

- The PIR determined that additional soil and groundwater investigations were required across the Site.
- This RI further delineate the horizontal and aerial extent of impacts to soil and groundwater across the Site.

Site Geology

- At certain locations across the Site, the top 1-foot of overburden is considered to be fill material, most likely originating from a shale quarry located northwest of the Site.
- Underlying the fill material is glacial lodgment till consisting of a silty and clayey till with thin sand lenses.

Site Hydrogeology

- Depth to groundwater ranges from 1 to 5 feet bgs across the Site.
- Recharge of the water table is likely provided by precipitation infiltrating areas of the Site.
- Groundwater appears to flow in a southwesterly direction across the Site and eventually discharges into the Mann Brook.

Nature and Extent of Contamination

Surface Soil

- A total of 88 surface soil samples were collected during the PI and RI (1998 through 2002) for analysis of SVOCs, dioxins, and metals.
- PCP was detected above the TAGM 4046 guidance value (1 ppm) in samples collected from the former drip pad area at GSS-1, GSS-17, GSS-20, GSS-21, GSS-22, SS-5, SS-7 and SS-8.
- Dioxins were detected above the 1 ppb 2,3,7,8-TCDD equivalence screening level in soil samples SS-5 and SS-8 collected from the former drip pad area.

- Calcium and zinc were the metals that most frequently exceeded their associated guidance values.

Seep Soils

- PCP was detected above the 1.0 ppm TAGM 4046 guidance value in Seep-1 located down-gradient of the former drip pad area, former AST location, and former wood treatment building areas.
- Dioxins were detected above the 1.0 ppb 2,3,7,8-TCDD equivalence screening value in both Seep-1 and Seep-2 also located downgradient of the former drip pad area, former AST location, and former wood treatment building areas.

Mann Brook Sediments

- No PCP or dioxin was detected above guidance values in any of the (4) sediment samples collected at locations upgradient and downgradient from the Mann Brook.

Based on the analytical of surface soil, seep, and sediment samples collected during the PI and the RI, activities at the former treatment building and the surrounding areas have contributed to impacts observed in shallow soil across the Site. Areas of impact are apparently limited to the former drip pad area, the grid southwest of the former treatment building and the area of the seep sample locations. These surficial areas are isolated from one another. The extent of impact is depicted on **Figure 5**. The distribution of impacts to shallow soil can be attributed to the dispersed surface drainage patterns observed at the Site and runoff entering the overburden at multiple locations.

Soil Borings

- A total of 68 soil samples were collected from soil borings during the PI and the RI.
- Soil boring samples were analyzed for SVOCs, dioxins, and metals.
- PCP was detected in soil samples (GB-1, GB-2, GB-5 through GB-10, GB-12, GB-13B, GSB02-1, and GSB02-3) collected from the former treatment building area of the Site, soil samples (GSB02-3 and GSB02-8) collected from the former AST location, and in the drip pad area south of the former AST location (GSB02-4).
- The 2,3,7,8-TCDD equivalence screening value of 1 ppb was exceeded in the area of the former treatment building at the GSB02-1 location.
- Eleven (11) borings (GB-1 through GB-11) were analyzed for metals. GB-2 (former treatment building area) exceeded the guidance value for chromium. GB-5 and GB-10 (former treatment building area) exceeded the guidance value for copper. Seven (7) out of 11 of the borings collected in the area of the former treatment building (GB-1, GB-2, GB-4, GB-5, GB-6, GB-7, and GB-9) exceeded the guidance value for arsenic.

Test Pits

- A total of 48 soil samples were collected from test pits during the PI and the RI.
- PCP was detected above the 1.0 ppm TAGM 4046 guidance value in the former drip pad (GTP-1, GTP-5, GTP-11, GTP-13, GTP-16 and GTP-17) and former AST location area (GTP-4).
- None of the test pits sampled during the PI or the RI exceeded the 2,3,7,8-TCDD equivalence screening value.
- Copper and chromium were not detected in any of the nine (9) test pit (GTP-6, GTP-11, TP-18, TP-19, TP-20, TP-21, TP-22, TP-23, and TP-24) samples sent for metals analysis. Arsenic was detected slightly above the guidance value in TP-24 located southeast of the access road to the Site.

Analytical of subsurface soil indicate that wood treatment practices have contributed to soil impacts across the Site. The results of the subsurface sampling indicate that significant impacts exist under the former treatment building to approximately 6 feet bgs, the former drip pad area to approximately 4 feet bgs, the former AST area to approximately 10 feet bgs, the area west of Drying Shed #1 to approximately 6 feet bgs and the area southwest of the former treatment building to approximately 5 feet bgs. The extent of impacts to soil is depicted on **Figure 6**.

Groundwater

- Three separate groundwater-sampling events were conducted at the Site (PI, 2001, and 2002).

PI Groundwater Results

- No pesticides or PCBs were detected in the wells sampled during the PI (MW-1, MW-2, MW-2D, MW-3 through MW-8).
- Monitoring wells located downgradient of the former treatment building, former AST location, and former drip pad areas (MW-2, MW-3, MW-4, MW-5 and MW-7) exhibited PCP concentrations above the 1.0 ppb TOGS 1.1.1 guidance value.
- Dioxins were detected above the 2,3,7,8-TCDD equivalence concentration (0.0007 ppt) in all the monitoring wells located downgradient of the former treatment building, former AST location, and the former drip pad area with the exception of monitoring well MW-7. MW-7 is located upgradient of the other six wells sampled during this monitoring event.
- Chromium was the only metal related to wood treatment activities detected above the TOGS 1.1.1 guidance value in monitoring wells MW-2 through MW-5. These four wells are located downgradient of the former treatment building, former AST location, and the former drip pad area.

RI Groundwater Results 2001

- No fuel oil components were detected in any of the eight monitoring wells sampled (MW-1 through MW-8).
- PCP was detected above TOGS 1.1.1 guidance values in five out of 17 monitoring wells. Four of the five monitoring wells are located downgradient of the former treatment building, former AST location, and former drip pad areas (MW-4, MW-5, MW-6, MW-7) and the fifth well MW-11 is located southeast of the runoff drain that originates near the treatment building and the former AST area.
- Dioxins were detected above TOGS 1.1.1 in MW-4 MW-6, and MW-7. These wells are located downgradient of the former drip pad area.
- PCB's were detected above TOGS 1.1.1 guidance values in MW-9, MW-12 and MW-15. These wells are located in separate areas from one another and a fair, radial, distance from the former treatment building, former AST location, and former drip pad areas.
- No pesticides were detected in any of the monitoring wells sampled.

RI Groundwater Results 2002

- Unfiltered metal samples were collected from nineteen (19) wells. The remaining six samples were filtered via a 0.45-micron in line filter.
- PCP was detected above the 1.0 ppb TOGS 1.1.1 guidance value down-gradient of the former treatment building, former AST location, and drip pad areas in MW-2, MW-3, MW-4, MW-5, MW-5 filtered, MW-6, MW-7 and near the runoff drain in MW-11.
- Fuel oil components were detected in monitoring wells MW-4, MW-6 and MW-7 which are located downgradient of the former treatment building, former AST location, and former dip pad areas.
- Dioxins were detected above the 0.0007 ppt 2,3,7,8-TCDD equivalence guidance value in the down-gradient area in MW-4, MW-7 and MW-8.
- No PCBs were detected in any of the monitoring wells.

Results from the three sampling events indicate that historic treatment processes completed at the Site have contributed to groundwater impacts observed at and in areas downgradient of the Site. Analytical results exhibit a decrease in the concentration of PCP and dioxins over time. Filtering of the samples did not conclusively determine a correlation between turbidity and elevated contaminate concentrations. The wells with the highest dissolved impacts are located downgradient of the former treatment building, former drip pad, and former AST locations (e.g., the documented adsorbed source areas). The distribution of groundwater impacts observed at the Site and in the areas downgradient of the Site corresponds with the apparent groundwater migration in the region.

Biota Sampling Results

- Concentrations of dioxins in fish collected from upgradient and downgradient locations relative to the Site were well below the appointed guidance value.

Qualitative Exposure Assessment

- Contamination sources to the environment exist at the Site and are associated with historical releases and surficial spills of wood treatment products to soil.
- Contaminants of concern include PCP, fuel oil, chromium, copper and arsenic.
- Points of exposure include surficial soil and groundwater.
- Three exposure routes were identified under current land use conditions
    - Direct contact with exposed surficial soil including ingestion, inhalation or dermal contact with contaminant
    - Direct contact with groundwater used as a future drinking source including ingestion, inhalation of volatiles and dermal contact
    - Ingestion of fish or game species.

Fish and Wildlife Impact Analysis

- Five streams and wetlands were identified in a two mile radius from the Site
- The major subsystems associated with the site and surrounding area include:
    - Terrestrial Cultural
    - Open Upland
    - Forested Upland
    - Riverine
- Pathways of chemical exposure to fish and wildlife are possible including:
    - Dermal contact with chemicals present in surface soil, groundwater (at seep areas) and sediments
    - Ingestion of chemicals in surface soil, groundwater, sediment and food sources
    - Direct uptake of chemicals in soil or groundwater by terrestrial and aquatic plants.

4.2 Recommendations

- A feasibility study should be completed for further remedial action at this site.

5.0 REFERENCES

- *Preliminary Investigation Report*; Volume 1 of 2, Camp Georgetown, New York State Department of Environmental Conservation, Division of Environmental Remediation; May 1999.
- US Department of Agriculture; Soil Conservation Service, Madison County, New York; March 1981.
- Division Technical and Administrative Guidance Memorandum; Determination of Soil Cleanup Objectives and Cleanup Levels HWR 4046, New York State Department of Environmental Conservation; January 1994.
- Division of Water Technical and Operational Guidance Series (1.1.1); Ambient Water Quality Standards and Guidance Values and Groundwater Effluent Limitations, New York State Department of Environmental Conservation; June 1998.
- Division of Fish, Wildlife and Marine Resources; Technical Guidance for Screening Contaminated Sediments; New York State Department of Environmental Conservation; January 1999.
- Qualitative Human Health Exposure Assessment for the Camp Georgetown Site; IT Corporation; March 2002.
- Fish and Wildlife Impact Analysis, Step I and Step IIA; Camp Georgetown; IT Corporation, March 2002.

TABLES

Table 1
Sample and Analytical Method Summary
Camp Georgetown

Surface Soil Samples			
Location	SVOC	Dioxins	Metals
Analytical Method	8270	8290/8280	TAL
SS-1	1	1	1
SS-2	1	1	0
SS-3	1	1	1
SS-4	1	1	1
SS-5	1	1	0
SS-6	1	1	1
SS-7	1	1	0
SS-8	1	1	0
SS-9	1	1	1
SS-10	1	0	1
SS-11	1	0	1
SS-12	1	1	0
SS-13	1	1	0
SS-14	1	0	1
SS-15	1	1	0
SS-16	1	0	1
SS-17	1	1	1
SS-18	1	1	1
SS-19	1	0	1
SS-20	1	1	0
SS-21	1	0	0
SS-22	1	0	1
SS-23	1	0	1
SS-24	1	0	1
BGM-1	0	0	1
BGM-2	0	0	1
BGM-3	0	0	1
BGM-4	0	0	1
BGM-5	0	0	1
BGM-6	0	1	1
BGM-7	0	1	1
BGM-8	0	1	1
BGM-9	0	1	1
BGM-10	0	1	1

Surface Soil Samples			
Location	SVOC	Dioxins	Metals
Analytical Method	8270	8290/8280	TAL
SS-25	1	1	1
SS-26	1	1	0
SS-27	1	1	1
SS-28	1	1	1
SS-29	1	1	0
SS-30	1	1	1
SS-31	1	1	0
SS-32	1	1	0
SS-33	1	1	1
SS-34	1	1	1
SS-35	1	1	1
SS-36	1	1	0
SS-37	1	1	0
SS-38	1	1	1
SS-39	1	1	0
SS-40	1	1	1
SS-41	1	1	1
SS-42	1	1	1
SS-43	1	1	1
SS-44	1	1	0
SS-45	1	1	0
SS-46	1	1	1
SS-47	1	1	1
SS-48	1	1	1
SS-49	0	0	1*
SS-50	0	0	1*
SS-51	0	0	1*
SS-52	0	0	1*
Seep-1	1	1	0
Seep-2	1	1	0

* Lead analysis only

Sediment Soil Samples			
Location	SVOC	Dioxins	TOC
Analytical Methods	8270	8290/8280	
SED - UP	0	1	1
SED - Down	0	1	1
SED - 1	1	1	1
SED - 2	1	1	1

Table 1
Sample and Analytical Method Summary
Camp Georgetown

Groundwater Existing Wells 2001			
Location	Fuel Oil	SVOC	Dioxins
Analytical Methods	310-34	8270	8290/8280
MW-1	1	1	1
MW-2	1	1	1
MW-3	1	1	1
MW-4	1	1	1
MW-5	1	1	1
MW-6	1	1	1
MW-7	1	1	1
MW-8	1	1	1

New Wells 2001			
Location	VOC	SVOC	PEST/PCB
Analytical Methods	8260	8270	8080
MW-9	1	1	1
MW-10	1	1	1
MW-11	1	1	1
MW-12	1	1	1
MW-13	1	1	1
MW-14	1	1	1
MW-15	1	1	1
MW-16	1	1	1
MW-17	1	1	1

Groundwater Existing Wells 2002				
Analytical Methods	Fuel Oil	SVOC	Dioxins	PCB
	310-34	8270	8290/8280	8082
Location				
MW-1	1	1	1	0
MW-2	1	1	1	0
MW-3	1	1	1	0
MW-4	1	1	1	0
MW-5	1	1	1	0
MW-5F	1	1	1	0
MW-6	1	1	1	0
MW-7	1	1	1	0
MW-8	1	1	1	0
MW-9	1	1	1	1
MW-9F	1	1	1	1
MW-10	1	1	1	0
MW-11	1	1	1	0
MW-12	1	1	1	1
MW-12F	1	1	1	1
MW-13	1	1	1	0
MW-14	1	1	1	0
MW-15	1	1	1	1
MW-15F	1	1	1	1
MW-16	1	1	1	0
MW-17	1	1	1	0
MW-18	1	1	1	1
MW-18F	1	1	1	1
MW-19	1	1	1	1
MW-19F	1	1	1	1

Table 1
Sample and Analytical Method Summary
Camp Georgetown

Monitoring Well/Soil Boring Soil Samples		
Location	SVOC	Dioxins
Analytical Method	8270	8290/8280
MW-9	7	1
MW-10	3	2
MW-11	1	1
MW-12	1	1
MW-13	1	1
MW-14	7	1
MW-15	1	1
MW-16	7	1
MW-17	7	1
MW-18	1	1
MW-19	1	1
GBSB02-1	3	3
GBSB02-2	1	1
GBSB02-3	3	3
GBSB02-4	2	2
GBSB02-5	1	1
GBSB02-6	2	2
GBSB02-7	2	2
GBSB02-8	2	2
GBSB02-9	1	1

Biota Samples	
Analytical Method	Dioxins
	8290/8280
Location	
DS-1	1
DS-2	1
DS-3	1
DS-4	1
DS-5	1
DS-6	1
DS-7	1
DS-8	1
DS-9	1
DS-10	1
DS-11	1
US-1	1
US-2	1
US-3	1
US-4	1
US-5	1
US-6	1
US-7	1
US-8	1
US-9	1
US-10	1
US-11	1

Test Pits				
Analytical Method	SVOC	Dioxins	Metals	PCB
	8270	8290/8280	TAL	8080
Location				
TP-1	1	1	0	0
TP-2	1	1	0	0
TP-3	1	1	0	0
TP-4	1	1	0	0
TP-5	1	0	0	0
TP-6	1	0	0	0
TP-7	1	0	0	0
TP-8	1	1	0	0
TP-9	1	1	0	0
TP-10	1	1	0	0
TP-11	1	1	0	0
TP-12	1	0	0	0
TP-13	1	1	0	0
TP-14	1	1	0	0
TP-15	1	0	0	0
TP-16	1	1	0	0
TP-17	1	1	0	0
TP-18	0	1	1	0
TP-19	2	2	2	2
TP-20	1	1	1	1
TP-21	1	1	1	1
TP-22	1	1	1	1
TP-23	1	1	1	1
TP-24	1	1	1	1

Table 2
Surface Soil Analytical Results
Camp Georgetown

Analyte	TAGM (4046)	GSS-1	GSS-2	GSS-3	GSS-4	GSS-5	GSS-6	GSS-7	GSS-8	GSS-9	GSS-10	GSS-11	GSS-12	GSS-13	GSS-14	GSS-15
SVOCs (mg/kg)																
Anthracene	50	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Benzo{a}anthracene	0.224	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Benzo{b}fluoranthene	1.1	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Benzo{k}fluoranthene	1.1	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Benzo{g,h,i}perylene	50	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Benzo (a) Pyrene	0.061	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Benzoic Acid	2.7	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Bis (2-Ethylhexyl) Phthalate	50	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Chrysene	0.4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Dimethyl Phthlate	2	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Diethyl Phthalate	7.1	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Di-n-butyl Phthalate	8.1	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Di-n-octyl Phthalte	120	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Fluoranthene	50	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Indeno (1,2,3) pyrene	3.2	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Pentachlorophenol	1	**2.53***	ND	ND	ND	ND	ND	**0.2***	**0.24***	ND	ND	ND	**0.1***	ND	ND	ND
Phenanthrene	50	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Pyrene	50	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Total SVOC		**2.53***	ND	ND	ND	ND	ND	**0.2***	**0.24***	ND	ND	ND	**0.1***	ND	ND	ND
Metals (mg/kg)	**TAGM (4046) or SiteBackground Average**	**GSS-1**	**GSS-2**	**GSS-3**	**GSS-4**	**GSS-5**	**GSS-6**	**GSS-7**	**GSS-8**	**GSS-9**	**GSS-10**	**GSS-11**	**GSS-12**	**GSS-13**	**GSS-14**	**GSS-15**
Aluminum	NV or **14340**	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Antimony	NV or **0.487**	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Arsenic	7.5 or **8.2**	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Barium	**300** or 38.49	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Berillium	0.16 or **0.427**	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Cadmium	**10** or 0.029	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Calcium	NV or **309.96**	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Chromium	**50** or 16.58	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Cobalt	**30** or 8.31	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Copper	**25** or 11.83	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Iron	2000 or **25770**	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Lead	**400** or 12.58	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Magnesium	NV or **2893**	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Manganese	NV or **319.3**	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Nickel	13 or **17.77**	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Potassium	NV or **714.8**	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Selenium	**2** or 1.322	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Silver	NV or **ND**	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Mercury	**0.1** or 0.082375	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Sodium	NV or **41.52222**	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Thallium	NV or **ND**	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Vanadium	**150** or 20.15	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Zinc	20 or **51.96**	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Dioxins (ug/kg)	**TEFs**	**GSS-1**	**GSS-2**	**GSS-3**	**GSS-4**	**GSS-5**	**GSS-6**	**GSS-7**	**GSS-8**	**GSS-9**	**GSS-10**	**GSS-11**	**GSS-12**	**GSS-13**	**GSS-14**	**GSS-15**
Total TCDF	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Total PeCDF	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
TotalHxCDF	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Total HpCDF	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Total TCDD	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Total PeCDD	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Total HxCDD	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Total HpCDD	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
2,3,7,8-TCDD	1	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
1,2,3,7,8-PeCDD	0.5	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
1,2,3,4,7,8-HxCDD	0.1	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
1,2,3,6,7,8-HxCDD	0.1	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
1,2,3,7,8,9-HxCDD	0.1	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
1,2,3,4,6,7,8-HpCDD	0.01	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
OCDD	0.0001	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
2,3,7,8-TCDF	0.1	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
1,2,3,7,8-PeCDF	0.05	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
2,3,4,7,8-PeCDF	0.5	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
1,2,3,4,7,8-HxCDF	0.1	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
1,2,3,6,7,8-HxCDF	0.1	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
2,3,4,6,7,8-HxCDF	0.1	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
1,2,3,7,8,9-HxCDF	0.1	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
1,2,3,4,6,7,8-HpCDF	0.01	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
1,2,3,4,7,8,9-HpCDF	0.01	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
OCDF	0.0001	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
2,3,7,8-TCDD Equivalence	1.0	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-

Notes:
Only analytes detected at or above laboratory method detection limits included on table
*PCP results from PIR Immunoassay Results
Bold Text=Analyte detected above laboratory method detection limi
Shaded Text=Exceedence of TAGM 4046 soil cleanup objectives
BDL=Below laboratory method detection limi
ND=Non Detect

Dioxin Data Qualifiers:
All results in ug/kg or parts per billion
D=Result obtained from dilution
J=Estimated result, result is less than the reporting limit
E=Estimated result, result exceeds calibration range
CON=Confirmation analysis

SVOC Data Qualifiers:
All results in mg/kg or parts per million
< = Analyte was not detected above laboratory detection limits
J=Estimated Value

Metal Data Qualifiers:
All results in mg/kg or parts per million
B=Indicates a value greater than or equal to the instrument detection limit but less than the quantitation limit
J=Estimated result, result is less than the reporting limit
NV=Indicates TAGM recommened soil clean-up objective is site background
Metals SCGs used for comparison were either TAGM 4046 or Site Background average, which ever is higher
Bold Text=SCG used for Regulatory Comparison
The SCG for Cadmium (10 ppm) and Chromium (50 ppm) are generally accepted clean-up levels
The SCG for Lead (400 ppm) was adopted from the EPA

Table 2
Surface Soil Analytical Results
Camp Georgetown

Analyte	**TAGM (4046)**	**GSS-16**	**GSS-17**	**GSS-18**	**GSS-19**	**GSS-20**	**GSS-21**	**GSS-22**	**GSS-23**	**GSS-24**	**GSS-25**	**GSS-26**	**SS-1**	**SS-2**	**SS-3**	**SS-4**
SVOCs (mg/kg)																
Anthracene	50	-	<0.33 J	-	-	-	-	-	-	-	-	-	<0.33 J	<0.33 J	<0.58 J	<0.33 J
Benzo{a}anthracene	0.224	-	<0.33 J	-	-	-	-	-	-	-	-	-	<0.33 J	<0.33 J	<0.58 J	<0.33 J
Benzo{b}fluoranthene	1.1	-	<0.33 J	-	-	-	-	-	-	-	-	-	<0.33 J	<0.33 J	<0.58 J	<0.33 J
Benzo{k}fluoranthene	1.1	-	<0.33 J	-	-	-	-	-	-	-	-	-	<0.33 J	<0.33 J	<0.58 J	<0.33 J
Benzo{g,h,i}perylene	50	-	<0.33 J	-	-	-	-	-	-	-	-	-	<0.33 J	<0.33 J	<0.58 J	<0.33 J
Benzo (a) Pyrene	0.061	-	<0.33 J	-	-	-	-	-	-	-	-	-	<0.33 J	<0.33 J	<0.58 J	<0.33 J
Benzoic Acid	2.7	-	<1.6 J	-	-	-	-	-	-	-	-	-	<1.6 J	<1.6 J	<1.6 J	<1.6 J
Bis (2-Ethylhexyl) Phthalate	50	-	**68 JB**	-	-	-	-	-	-	-	-	-	<0.33 J	**0.082 J**	<0.58 J	<0.33 J
Chrysene	0.4	-	<0.33 J	-	-	-	-	-	-	-	-	-	<0.33 J	<0.33 J	<0.58 J	<0.33 J
Dimethyl Phthlate	2	-	<0.33 J	-	-	-	-	-	-	-	-	-	<0.33 J	<0.33 J	<0.58 J	<0.33 J
Diethyl Phthalate	7.1	-	<0.33 J	-	-	-	-	-	-	-	-	-	<0.33 J	<0.33 J	<0.33 J	<0.33 J
Di-n-butyl Phthalate	8.1	-	<0.33 J	-	-	-	-	-	-	-	-	-	<0.33 J	<0.33 J	<0.58 J	<0.33 J
Di-n-octyl Phthalte	120	-	<0.33 J	-	-	-	-	-	-	-	-	-	<0.33 J	<0.33 J	<0.58	<0.33 J
Fluoranthene	50	-	<0.33 J	-	-	-	-	-	-	-	-	-	<0.33 J	<0.33 J	<0.58 J	<0.33 J
Indeno (1,2,3) pyrene	3.2	-	<0.33 J	-	-	-	-	-	-	-	-	-	<0.33 J	<0.33 J	<0.58 J	<0.33 J
Pentachlorophenol	1	ND	**130 J**	**0.12***	**0.64***	**2.8***	**1***	**5.28***	ND	**0.14***	ND	**0.1***	<1.6 J	**0.078 J**	<1.6J	**0.028 J**
Phenanthrene	50	-	<0.33 J	-	-	-	-	-	-	-	-	-	<0.33 J	<0.33 J	<0.58 J	<0.33 J
Pyrene	50	-	<0.33 J	-	-	-	-	-	-	-	-	-	<0.33 J	<0.33 J	<0.58 J	<0.33 J
Total SVOC		ND	**198 JB**	**0.12***	**0.64***	**2.8***	**1***	**5.28***	ND	**0.14***	ND	**0.1***	BDL	**0.160 J**	BDL	**0.028 J**
Metals (mg/kg)	**TAGM (4046) or SiteBackground Average**	**GSS-16**	**GSS-17**	**GSS-18**	**GSS-19**	**GSS-20**	**GSS-21**	**GSS-22**	**GSS-23**	**GSS-24**	**GSS-25**	**GSS-26**	**SS-1**	**SS-2**	**SS-3**	**SS-4**
Aluminum	NV or **14340**	-	**12000**	-	-	-	-	-	-	-	-	-	**12000**	-	**9750**	**13200**
Antimony	NV or **0.487**	-	**0.23 B**	-	-	-	-	-	-	-	-	-	**0.66 B**	-	**1.2 B**	**1.3 B**
Arsenic	7.5 or **8.2**	-	**10.7**	-	-	-	-	-	-	-	-	-	**11.6**	-	**6.4**	**11.8**
Barium	**300** or 38.49	-	**51.2**	-	-	-	-	-	-	-	-	-	**69.1 J**	-	**39.9 J**	**114 J**
Berillium	0.16 or **0.427**	-	**0.68 B**	-	-	-	-	-	-	-	-	-	**0.44 B**	-	**0.40 B**	**0.51 B**
Cadmium	**10** or 0.029	-	**0.1 B**	-	-	-	-	-	-	-	-	-	<0.03	-	<0.04	<0.03
Calcium	NV or **309.96**	-	**3600**	-	-	-	-	-	-	-	-	-	**12500**	-	**36900**	**3470**
Chromium	**50** or 16.58	-	**21.8**	-	-	-	-	-	-	-	-	-	**17.3**	-	**20.5**	**17.9**
Cobalt	**30** or 8.31	-	**12.3**	-	-	-	-	-	-	-	-	-	**10.9 J**	-	**8.9 J**	**13.8 J**
Copper	**25** or 11.83	-	**22.3**	-	-	-	-	-	-	-	-	-	**14.7**	-	**18**	**18.1**
Iron	2000 or **25770**	-	**29700**	-	-	-	-	-	-	-	-	-	**25900**	-	**22500**	**30000**
Lead	**400** or 12.58	-	**19.2**	-	-	-	-	-	-	-	-	-	**11.2**	-	**66.3**	**9.5**
Magnesium	NV or **2893**	-	**4770**	-	-	-	-	-	-	-	-	-	**4690 J**	-	**5000 J**	**4760 J**
Manganese	NV or **319.3**	-	**498**	-	-	-	-	-	-	-	-	-	**449**	-	**429**	**583**
Nickel	13 or **17.77**	-	**33**	-	-	-	-	-	-	-	-	-	**24.4**	-	**23.2**	**27.5**
Potassium	NV or **714.8**	-	**810**	-	-	-	-	-	-	-	-	-	**766**	-	**859**	**876**
Selenium	**2** or 1.322	-	**0.59 B**	-	-	-	-	-	-	-	-	-	**1.2 J**	-	**0.94 J**	**1.1 J**
Silver	NV or **ND**	-	**0.29 B**	-	-	-	-	-	-	-	-	-	<0.10 J	-	<0.11 J	<0.10 J
Mercury	**0.1** or 0.082375	-	NS	-	-	-	-	-	-	-	-	-	<0.011 J	-	<0.012 J	**0.022 BJ**
Sodium	NV or **41.52222**	-	**153 B**	-	-	-	-	-	-	-	-	-	**44.2 B**	-	**65.6 B**	**38.2 B**
Thallium	NV or **ND**	-	**2.2**	-	-	-	-	-	-	-	-	-	<0.58 J	-	<0.62 J	<0.57 J
Vanadium	**150** or 20.15	-	**14.9**	-	-	-	-	-	-	-	-	-	**15.5**	-	**18.8**	**15.6**
Zinc	20 or **51.96**	-	**92.7**	-	-	-	-	-	-	-	-	-	**77.1**	-	**101**	**69.8**
Dioxins (ug/kg)	**TEFs**	**GSS-16**	**GSS-17**	**GSS-18**	**GSS-19**	**GSS-20**	**GSS-21**	**GSS-22**	**GSS-23**	**GSS-24**	**GSS-25**	**GSS-26**	**SS-1**	**SS-2**	**SS-3**	**SS-4**
Total TCDF	-	-	-	-	-	-	-	-					**0.016**	**0.0077**	**0.00095**	**0.019**
Total PeCDF	-	-	-	-	-	-	-	-	-	-	-	-	**0.25**	**0.1**	**0.013**	**0.3**
TotalHxCDF	-	-	-	-	-	-	-	-	-	-	-	-	**3.9**	**1.6**	**0.19**	**4.5**
Total HpCDF	-	-	-	-	-	-	-	-	-	-	-	-	**14**	**8.1**	**1**	**17**
Total TCDD	-	-	-	-	-	-	-	-	-	-	-	-	**0.012**	**0.0079**	**0.00062**	**0.011**
Total PeCDD	-	-	-	-	-	-	-	-	-	-	-	-	**0.11**	**0.041**	**0.0061**	**0.093**
Total HxCDD	-	-	-	-	-	-	-	-	-	-	-	-	**1.8**	**0.84**	**0.16**	**2.1**
Total HpCDD	-	-	-	-	-	-	-	-	-	-	-	-	**25**	**12**	**1.5**	**29**
2,3,7,8-TCDD	1	-	-	-	-	-	-	-	-	-	-	-	**0.0031**	**0.0012**	<0.00052	**0.0024**
1,2,3,7,8-PeCDD	0.5	-	-	-	-	-	-	-	-	-	-	-	**0.049**	**0.025**	**0.0061**	**0.048**
1,2,3,4,7,8-HxCDD	0.1	-	-	-	-	-	-	-	-	-	-	-	**0.1**	**0.056**	**0.011**	**0.1**
1,2,3,6,7,8-HxCDD	0.1	-	-	-	-	-	-	-	-	-	-	-	**0.58**	**0.26**	**0.042**	**0.74**
1,2,3,7,8,9-HxCDD	0.1	-	-	-	-	-	-	-	-	-	-	-	**0.25**	**0.14**	**0.031**	**0.29**
1,2,3,4,6,7,8-HpCDD	0.01	-	-	-	-	-	-	-	-	-	-	-	**17 D**	**7.9 D**	**1**	**20 D**
OCDD	0.0001	-	-	-	-	-	-	-	-	-	-	-	**91 D**	**47 D**	**6.2 EJ**	**130 DEJ**
2,3,7,8-TCDF	0.1	-	-	-	-	-	-	-	-	-	-	-	**0.0019 CON**	**0.00079 CON J**	<0.00056	**0.002 CON**
1,2,3,7,8-PeCDF	0.05	-	-	-	-	-	-	-	-	-	-	-	**0.015**	**0.0052 J**	<0.00091	**0.02**
2,3,4,7,8-PeCDF	0.5	-	-	-	-	-	-	-	-	-	-	-	**0.013**	**0.0046 J**	<0.0012	**0.019**
1,2,3,4,7,8-HxCDF	0.1	-	-	-	-	-	-	-	-	-	-	-	**0.11**	**0.045**	**0.006**	**0.15**
1,2,3,6,7,8-HxCDF	0.1	-	-	-	-	-	-	-	-	-	-	-	**0.073**	**0.034**	**0.0053 J**	**0.068**
2,3,4,6,7,8-HxCDF	0.1	-	-	-	-	-	-	-	-	-	-	-	**0.061**	**0.024**	**0.0048 J**	**0.071**
1,2,3,7,8,9-HxCDF	0.1	-	-	-	-	-	-	-	-	-	-	-	**0.0054 J**	<0.0019	<0.00044	**0.012**
1,2,3,4,6,7,8-HpCDF	0.01	-	-	-	-	-	-	-	-	-	-	-	**3.5 D**	**1.8**	**0.26**	**3.8 D**
1,2,3,4,7,8,9-HpCDF	0.01	-	-	-	-	-	-	-	-	-	-	-	**0.30 D**	**0.12**	**0.017**	**0.34 D**
OCDF	0.0001	-	-	-	-	-	-	-	-	-	-	-	**16 D**	**11 D**	**1.2 J**	**19 D**
2,3,7,8-TCDD Equivalence	1.0	-	-	-	-	-	-	-	-	-	-	-	**0.37168 CONDJ**	**0.176239 CONJ**	**0.02657 JE**	**0.4365 CONDEJ**

Notes:
Only analytes detected at or above laboratory method detection limits included on table
*PCP results from PIR Immunoassay Results
Bold Text=Analyte detected above laboratory method detection limi
Shaded Text=Exceedence of TAGM 4046 soil cleanup objectives
BDL=Below laboratory method detection limi
ND=Non Detect

Dioxin Data Qualifiers:
All results in ug/kg or parts per billion
D=Result obtained from dilution
J=Estimated result, result is less than the reporting limit
E=Estimated result, result exceeds calibration range
CON=Confirmation analysis

SVOC Data Qualifiers:
All results in mg/kg or parts per million
< = Analyte was not detected above laboratory detection limits
J=Estimated Value

Metal Data Qualifiers:
All results in mg/kg or parts per million
B=Indicates a value greater than or equal to the instrument detection limit but less than the quantitation lim
J=Estimated result, result is less than the reporting limit
NV=Indicates TAGM recommened soil clean-up objective is site background
Metals SCGs used for comparison were either TAGM 4046 or Site Background average, which ever is higher
Bold Text=SCG used for Regulatory Comparison
The SCG for Cadmium (10 ppm) and Chromium (50 ppm) are generally accepted clean-up levels
The SCG for Lead (400 ppm) was adopted from the EPA

Table 2
Surface Soil Analytical Results
Camp Georgetown

Analyte	TAGM (4046)	SS-5	SS-6	SS-7	SS-8	SS-9	SS-10	SS-11	SS-12	SS-13	SS-14	SS-15	SS-16	SS-17	SS-18	SS-19
SVOCs (mg/kg)																
Anthracene	50	<0.33 J	<0.53 J	<0.33 J	<0.33 J	<0.33 J	<0.33 J	<0.33 J	<0.33 J	<0.33 J	<0.33 J	<0.33 J	<0.33 J	<0.41 J	<0.33 J	**0.046 J**
Benzo{a}anthracene	0.224	<0.33 J	<0.53 J	<0.33 J	<0.33 J	<0.33 J	<0.33 J	<0.33 J	<0.33 J	<0.33 J	<0.33 J	<0.33 J	<0.33 J	<0.41 J	<0.33 J	**0.36**
Benzo{b}fluoranthene	1.1	<0.33 J	<0.53 J	<0.33 J	<0.33 J	<0.33 J	<0.33 J	<0.33 J	<0.33 J	<0.33 J	<0.33 J	<0.33 J	<0.33 J	<0.41 J	<0.33 J	**0.32 J**
Benzo{k}fluoranthene	1.1	<0.33 J	<0.53 J	<0.33 J	<0.33 J	<0.33 J	<0.33 J	<0.33 J	<0.33 J	<0.33 J	<0.33 J	<0.33 J	<0.33 J	<0.41 J	<0.33 J	**0.2 J**
Benzo{g,h,i}perylene	50	<0.33 J	<0.53 J	<0.33 J	<0.33 J	<0.33 J	<0.33 J	<0.33 J	<0.33 J	<0.33 J	<0.33 J	<0.33 J	<0.33 J	<0.41 J	<0.33 J	**0.061 J**
Benzo (a) Pyrene	0.061	<0.33 J	<0.53 J	<0.33 J	<0.33 J	<0.33 J	<0.33 J	<0.33 J	<0.33 J	<0.33 J	<0.33 J	<0.33 J	<0.33 J	<0.41 J	<0.33 J	**0.29 J**
Benzoic Acid	2.7	<1.6 J	<1.6 J	<1.6 J	<1.6 J	<1.6 J	<1.6 J	<1.6 J	<1.6 J	<1.6 J	<1.6 J	<1.6 J	<1.6 J	<1.6	<1.6 J	**2 J**
Bis (2-Ethylhexyl) Phthalate	50	<0.33 J	<0.53 J	<0.33 J	<0.33 J	<0.33 J	<0.33 J	<0.33 J	<0.33 J	<0.33 J	<0.33 J	<0.33 J	**0.038 J**	<0.41 J	<0.33 J	<0.33 J
Chrysene	0.4	<0.33 J	<0.53 J	<0.33 J	<0.33 J	<0.33 J	<0.33 J	<0.33 J	<0.33 J	<0.33 J	<0.33 J	<0.33 J	<0.33 J	<0.41 J	<0.33 J	**0.34 J**
Dimethyl Phthlate	2	<0.33 J	<0.53 J	<0.33 J	**0.061 J**	<0.33 J	<0.33 J	<0.33 J	<0.33 J	<0.33 J	<0.33 J	<0.33 J	<0.33 J	<0.41 J	<0.33 J	<0.33 J
Diethyl Phthalate	7.1	<0.33 J	<0.33 J	<0.33 J	<0.33 J	<0.33 J	<0.33 J	<0.33 J	<0.33 J	<0.33 J	<0.33 J	<0.33 J	0.33 J	<0.41 J	<0.33 J	<0.33 J
Di-n-butyl Phthalate	8.1	<0.33 J	<0.53 J	<0.33 J	<0.33 J	<0.33 J	<0.33 J	**0.038 J**	<0.33 J	<0.33 J	<0.33 J	<0.33 J	<0.33 J	<0.41 J	**0.041 J**	**0.68 J**
Di-n-octyl Phthalte	120	<0.33 J	<0.53 J	<0.33 J	<0.33 J	<0.33 J	<0.33 J	<0.33 J	<0.33 J	<0.33 J	<0.33 J	<0.33 J	<0.33 J	<0.41 J	<0.33 J	<0.33 J
Fluoranthene	50	<0.33 J	<0.53 J	<0.33 J	<0.33 J	<0.33 J	<0.33 J	<0.33 J	<0.33 J	<0.33 J	<0.33 J	<0.33 J	<0.33 J	<0.41 J	<0.33 J	**0.56 J**
Indeno (1,2,3) pyrene	3.2	<0.33 J	<0.53 J	<0.33 J	<0.33 J	<0.33 J	<0.33 J	<0.33 J	<0.33 J	<0.33 J	<0.33 J	<0.33 J	<0.33 J	<0.41 J	<0.33 J	**0.063 J**
Pentachlorophenol	1	**1.9 J**	<1.6 J	**3.2 J**	**4.6 J**	<1.6 J	<1.6 J	<1.6 J	<1.6 J	<1.6 J	<1.6 J	<1.6 J	<1.6 J	<1.6 J	<1.6 J	<1.6 J
Phenanthrene	50	<0.33 J	<0.53 J	<0.33 J	<0.33 J	<0.33 J	<0.33 J	<0.33 J	<0.33 J	<0.33 J	<0.33 J	<0.33 J	<0.33 J	<0.41 J	<0.33 J	**0.19 J**
Pyrene	50	<0.33 J	<0.53 J	<0.33 J	**0.033 J**	<0.33 J	<0.33 J	<0.33 J	<0.33 J	<0.33 J	<0.33 J	<0.33 J	<0.33 J	<0.41 J	<0.33 J	**0.55 J**
Total SVOC		**1.9 J**	BDL	**3.2 J**	**4.694 J**	BDL	BDL	**0.038 J**	BDL	BDL	BDL	BDL	**0.038 J**	BDL	**0.041 J**	**5.66**
Metals (mg/kg)	**TAGM (4046) or SiteBackground Average**	**SS-5**	**SS-6**	**SS-7**	**SS-8**	**SS-9**	**SS-10**	**SS-11**	**SS-12**	**SS-13**	**SS-14**	**SS-15**	**SS-16**	**SS-17**	**SS-18**	**SS-19**
Aluminum	NV or **14340**	-	**8400**	-	-	**11900**	**14400**	**20900 J**	-	-	**14500 J**	-	**13900 J**	**11600 J**	**17400 J**	**16400 J**
Antimony	NV or **0.487**	-	**3.0 B**	-	-	**1.1 B**	**1.1 BJ**	**2.3 BJ**	-	-	**0.69 BJ**	-	**1.3 BJ**	**1.4 BJ**	**1.1 BJ**	**1.5 BJ**
Arsenic	7.5 or **8.2**	-	**104**	-	-	**12.5**	**8.7 J**	**13.3 J**	-	-	**6.4 J**	-	**23.0 J**	**6.9 J**	**8.5 J**	**17.7 N**
Barium	**300** or 38.49	-	**34.4 J**	-	-	**67.2 J**	**44.8 J**	**85.9 J**	-	-	**38.6 J**	-	**76.7 J**	**41.7 J**	**70.0 J**	**133 J**
Berillium	0.16 or **0.427**	-	**0.34 B**	-	-	**0.45 B**	**0.54 B**	**0.84 B**	-	-	**0.42 B**	-	**0.55 J**	**0.43 B**	**0.55 B**	**0.63 B**
Cadmium	**10** or 0.029	-	**0.10 B**	-	-	<0.03	**0.09 B**	<0.07	-	-	<0.04	-	<0.03	<0.04	<0.05	**0.29 B**
Calcium	NV or **309.96**	-	**9840**	-	-	**3510**	**2680 J**	**7000 J**	-	-	**9940 J**	-	**1370 J**	**17400 J**	**1480 J**	**3420 J**
Chromium	**50** or 16.58	-	**171**	-	-	**22.1**	**18.8 J**	**32.1 J**	-	-	**16.6 J**	-	**28.0 J**	**16.1 J**	**16.5 J**	**19.3 J**
Cobalt	**30** or 8.31	-	**8.1 J**	-	-	**12.1 J**	**11.7**	**18.8 J**	-	-	**9.4 J**	-	**18.7 J**	**9.7 J**	**8.8 J**	**22.7 J**
Copper	**25** or 11.83	-	**59.5**	-	-	**16.6**	**19.9 J**	**33.8**	-	-	**9.7**	-	**24.4**	**18.9**	**10.1**	**17.2**
Iron	2000 or **25770**	-	**19300**	-	-	**26100**	**27500**	**45900 J**	-	-	**24400 J**	-	**33200 J**	**25900 J**	**27800 J**	**33600 J**
Lead	**400** or 12.58	-	**65.9**	-	-	**19.5**	**18.6 J**	**26.6 J**	-	-	**8.2 J**	-	**19.3 J**	**17.3 J**	**21.8 J**	**23.2 J**
Magnesium	NV or **2893**	-	**3760 J**	-	-	**4130 J**	**3940**	**7230 J**	-	-	**3690 J**	-	**4760 J**	**4480 J**	**2260 J**	**2740 J**
Manganese	NV or **319.3**	-	**312**	-	-	**407**	**478**	**858**	-	-	**295 J**	-	**551 J**	**364 J**	**394 J**	**2640 J**
Nickel	13 or **17.77**	-	**20.8**	-	-	**25.6**	**24.9 J**	**47.1 J**	-	-	**23.6 J**	-	**32.3 J**	**25.3 J**	**15.0 J**	**20.7 J**
Potassium	NV or **714.8**	-	**668**	-	-	**695**	**862**	**1520J**	-	-	**708 J**	-	**865 J**	**858**	**764 J**	**990 BJ**
Selenium	**2** or 1.322	-	**0.72 J**	-	-	**1.1 J**	**2.1 J**	**2**	-	-	**1.5**	-	**1.3**	**0.59 B**	**2.1**	**2.1**
Silver	NV or **ND**	-	<0.10 J	-	-	<0.10 J	<0.12	<0.20	-	-	<0.11	-	**0.10 B**	<0.11	<0.14	<0.19
Mercury	**0.1** or 0.082375	-	**0.010 BJ**	-	-	<0.012 J	**0.020 B**	**0.035 B**	-	-	**0.039 B**	-	**0.025 B**	**0.018 B**	**0.112**	**0.100 B**
Sodium	NV or **41.52222**	-	**50.8 B**	-	-	**43.6**	**108 B**	**71.5 B**	-	-	**41.2 B**	-	<31.5	**76.9 B**	<41.0	<56.7
Thallium	NV or **ND**	-	<0.55 J	-	-	<0.60 J	**4.7**	1.1 U	-	-	<0.62	-	<0.60	<0.66	<0.78	<1.1
Vanadium	**150** or 20.15	-	**16.8**	-	-	**15.8**	**19.7 J**	**29.0 J**	-	-	**17.8 J**	-	**16.6 J**	**15.7 J**	**25.4 J**	**24.7 J**
Zinc	20 or **51.96**	-	**75.2**	-	-	**59**	**66.5**	**146 J**	-	-	**59.3 J**	-	**117 J**	**66.7 J**	**62.4 J**	**150 J**
Dioxins (ug/kg)	**TEFs**	**SS-5**	**SS-6**	**SS-7**	**SS-8**	**SS-9**	**SS-10**	**SS-11**	**SS-12**	**SS-13**	**SS-14**	**SS-15**	**SS-16**	**SS-17**	**SS-18**	**SS-19**
Total TCDF	-	**0.044**	**0.032**	**0.019**	**0.039**	**0.0058**	-	-	<0.00049	<0.00036	-	<0.00058	-	<0.00041	**0.005**	-
Total PeCDF	-	**0.57**	**0.011**	**0.35**	**0.63**	**0.11**	-	-	<0.0029	<0.00067	-	**0.018**	-	<0.00070	<0.0023	-
TotalHxCDF	-	**14**	**0.18**	**5**	**14**	**2.9**	-	-	**0.11**	<0.00053	-	**0.28**	-	**0.0085**	<0.0036	-
Total HpCDF	-	**95**	**0.93**	**20**	**80**	**21**	-	-	**0.58**	<0.0028	-	**1**	-	**0.034**	**0.024**	-
Total TCDD	-	**0.035**	<0.00098	**0.0095**	**0.044**	**0.0062**	-	-	<0.00080	<0.00069	-	<0.00053	-	<0.00044	<0.00060	-
Total PeCDD	-	**0.13**	<0.0027	**0.065**	**0.16**	**0.03**	-	-	<0.0026	<0.002	-	**0.0046**	-	<0.00058	<0.00072	-
Total HxCDD	-	**3.9**	**0.099**	**2.2**	**4.4**	**1.3**	-	-	**0.08**	<0.00097	-	**0.24**	-	**0.017**	**0.01**	-
Total HpCDD	-	**74**	**1.3**	**41**	**82**	**26**	-	-	**0.91**	**0.0091**	-	**2.5**	-	**0.11**	**0.067**	-
2,3,7,8-TCDD	1	**0.0023**	<0.00098	**0.0018**	**0.0036**	**0.0015**	-	-	<0.0007	<0.00069	-	<0.00036	-	<0.00044	<0.00060	-
1,2,3,7,8-PeCDD	0.5	**0.069**	<0.0027	**0.036**	**0.08**	**0.023**	-	-	<0.0026	<0.0012	-	**0.0046 J**	-	<0.00058	<0.00072	-
1,2,3,4,7,8-HxCDD	0.1	**0.18**	**0.0047 J**	**0.089**	**0.2**	**0.06**	-	-	**0.0043 J**	<0.00059	-	**0.012**	-	<0.0015	<0.0011	-
1,2,3,6,7,8-HxCDD	0.1	**1.6**	**0.031**	**0.91**	**1.8**	**0.5**	-	-	**0.022**	<0.00065	-	**0.059**	-	**0.0035 J**	<0.0021	-
1,2,3,7,8,9-HxCDD	0.1	**0.48**	**0.014**	**0.22**	**0.5**	**0.18**	-	-	**0.013**	<0.00058	-	**0.037**	-	<0.0030	<0.0023	-
1,2,3,4,6,7,8-HpCDD	0.01	**51 D**	**0.88**	**27 D**	**56 D**	**18 D**	-	-	**0.61**	**0.0059**	-	**1.7**	-	**0.065**	**0.039**	-
OCDD	0.0001	**300 DEJ**	**6 E**	**220 DEJ**	**330 DEJ**	**110 DEJ**	-	-	**4.4**	**0.035**	-	**11 EJ**	-	**0.4**	**0.21**	-
2,3,7,8-TCDF	0.1	**0.0042 CON**	<0.00035	**0.0037 CON**	**0.0067 CON**	**0.0012 CON**	-	-	<0.00049	<0.00036	-	<0.00058	-	<0.00041	**0.00078 CON J**	-
1,2,3,7,8-PeCDF	0.05	**0.035**	<0.0012	**0.032**	**0.053**	**0.01**	-	-	<0.00083	<0.00061	-	<0.0018	-	<0.00037	<0.00064	-
2,3,4,7,8-PeCDF	0.5	**0.029**	<0.0012	**0.026**	**0.043**	**0.084**	-	-	<0.00080	<0.00060	-	<0.0016	-	<0.00036	<0.00085	-
1,2,3,4,7,8-HxCDF	0.1	**0.31**	**0.0057 J**	**0.19**	**0.35**	**0.078**	-	-	**0.0040 J**	<0.00045	-	**0.012**	-	<0.00085	<0.0022	-
1,2,3,6,7,8-HxCDF	0.1	**0.17**	**0.0036 J**	**0.087**	**0.19**	**0.051**	-	-	<0.0032	<0.00042	-	**0.0095**	-	<0.00055	<0.00082	-
2,3,4,6,7,8-HxCDF	0.1	**0.13**	**0.0033 J**	**0.071**	**0.14**	**0.048**	-	-	<0.0027	<0.00046	-	**0.0068**	-	<0.00048	<0.0013	-
1,2,3,7,8,9-HxCDF	0.1	**0.015**	<0.0010	**0.012**	**0.021**	**0.0059**	-	-	<0.00076	<0.0005	-	<0.0012	-	<0.00050	<0.00072	-
1,2,3,4,6,7,8-HpCDF	0.01	**18 D**	**0.22**	**4.2 D**	**16 D**	**4.3 D**	-	-	**0.14**	<0.0014	-	**0.3**	-	**0.013**	**0.011**	-
1,2,3,4,7,8,9-HpCDF	0.01	**0.84**	**0.014**	**0.38 D**	**0.75 D**	**0.26 D**	-	-	**0.012**	<0.00048	-	**0.024**	-	<0.00081	<0.00085	-
OCDF	0.0001	**150 D**	**1.3 J**	**22 D**	**150 D**	**31 D**	-	-	**0.69**	<0.0040	-	**1.1**	-	**0.028**	**0.024**	-
2,3,7,8-TCDD Equivalence	1.0	**1.08537 CONDEJ**	**0.0181 J**	**0.5327 CONDEJ**	**1.16402 CONDEJ**	**0.38761 CONDEJ**	-	-	**0.01246 J**	**0.0000625**	-	**0.03738 EJ**	-	**0.00117 J**	**0.0006 JCON**	-

Notes:
Only analytes detected at or above laboratory method detection limits included on table
*PCP results from PIR Immunoassay Results
Bold Text=Analyte detected above laboratory method detection limi
Shaded Text=Exceedence of TAGM 4046 soil cleanup objectives
BDL=Below laboratory method detection limi
ND=Non Detect

Dioxin Data Qualifiers:
All results in ug/kg or parts per billion
D=Result obtained from dilution
J=Estimated result, result is less than the reporting limit
E=Estimated result, result exceeds calibration range
CON=Confirmation analysis

SVOC Data Qualifiers:
All results in mg/kg or parts per million
< = Analyte was not detected above laboratory detection limits
J=Estimated Value

Metal Data Qualifiers:
All results in mg/kg or parts per million
B=Indicates a value greater than or equal to the instrument detection limit but less than the quantitation lim
J=Estimated result, result is less than the reporting limit
NV=Indicates TAGM recommened soil clean-up objective is site background
Metals SCGs used for comparison were either TAGM 4046 or Site Background average, which ever is higher
Bold Text=SCG used for Regulatory Comparison
The SCG for Cadmium (10 ppm) and Chromium (50 ppm) are generally accepted clean-up levels
The SCG for Lead (400 ppm) was adopted from the EPA

Table 2
Surface Soil Analytical Results
Camp Georgetown

Analyte	**TAGM (4046)**	**SS-20**	**SS-21**	**SS-22**	**SS-23**	**SS-24**	**SS-25**	**SS-26**	**SS-27**	**SS-28**	**SS-29**	**SS-30**	**SS-31**	**SS-32**	**SS-33**	**SS-34**
SVOCs (mg/kg)																
Anthracene	50	<0.33 J	<0.33 J	<0.33 J	<0.33 J	<0.33 J	<0.64	<0.62	<0.49	<0.79	<0.83	<0.86	<0.60	<0.48	<0.64	<0.57
Benzo{a}anthracene	0.224	<0.33 J	<0.33 J	<0.33 J	<0.33 J	<0.33 J	<0.64	<0.62	<0.49	<0.79	<0.83	<0.86	<0.60	<0.48	<0.64	<0.57
Benzo{b}fluoranthene	1.1	<0.33 J	<0.33 J	<0.33 J	<0.33 J	<0.33 J	<0.64	<0.62	<0.49	<0.79	<0.83	<0.86	<0.60	<0.48	<0.64	<0.57
Benzo{k}fluoranthene	1.1	<0.33 J	<0.33 J	<0.33 J	<0.33 J	<0.33 J	<0.64	<0.62	<0.49	<0.79	<0.83	<0.86	<0.60	<0.48	<0.64	<0.57
Benzo{g,h,i}perylene	50	<0.33 J	<0.33 J	<0.33 J	<0.33 J	<0.33 J	<0.64	<0.62	<0.49	<0.79	<0.83	<0.86	<0.60	<0.48	<0.64	<0.57
Benzo (a) Pyrene	0.061	<0.33 J	<0.33 J	<0.33 J	<0.33 J	<0.33 J	<0.64	<0.62	<0.49	<0.79	<0.83	<0.86	<0.60	<0.48	<0.64	<0.57
Benzoic Acid	2.7	<1.6 J	<1.6 J	<1.6 J	<1.6 J	<1.6 J	<1.6	<1.6	<1.2	<2.0	<2.1	<2.1	<1.5	<1.2	<1.6	<1.4
Bis (2-Ethylhexyl) Phthalate	50	<0.33 J	<0.33 J	**0.029 J**	<0.33 J	<0.33 J	**0.035 J**	**0.044 J**	<0.49	<0.79	<0.83	**0.057 J**	**0.041 J**	**0.046 J**	<0.64	**0.033 J**
Chrysene	0.4	<0.33 J	<0.33 J	<0.33 J	<0.33 J	<0.33 J	<0.64	<0.62	<0.49	<0.79	<0.83	<0.86	<0.60	<0.48	<0.64	<0.57
Dimethyl Phthlate	2	<0.33 J	<0.33 J	<0.33 J	<0.33 J	<0.33 J	<0.64	<0.62	<0.49	<0.79	<0.83	<0.86	<0.60	<0.48	<0.64	<0.57
Diethyl Phthalate	7.1	<0.33 J	<0.33 J	<0.33J	<0.33	<0.33 J	<0.64	<0.62	<0.49	<0.79	<0.83	<0.86	<0.60	<0.48	<0.64	<0.57
Di-n-butyl Phthalate	8.1	<0.33 J	<0.33 J	<0.33 J	**0.090 J**	<0.33 J	<0.64	<0.62	<0.49	<0.79	<0.83	<0.86	**0.035 J**	<0.48	<0.64	<0.57
Di-n-octyl Phthalte	120	<0.33 J	<0.33 J	**0.023 J**	<0.33 J	<0.33 J	<0.64	<0.62	<0.49	<0.79	<0.83	<0.86	<0.60	<0.48	<0.64	<0.57
Fluoranthene	50	<0.33 J	<0.33 J	<0.33 J	<0.33 J	<0.33 J	<0.64	<0.62	<0.49	<0.79	<0.83	<0.86	<0.60	<0.48	<0.64	<0.57
Indeno (1,2,3) pyrene	3.2	<0.33 J	<0.33 J	<0.33 J	<0.33 J	<0.33 J	<0.64	<0.62	<0.49	<0.79	<0.83	<0.86	<0.60	<0.48	<0.64	<0.57
Pentachlorophenol	1	<1.6 J	<1.6 J	<1.6 J	<1.6 J	<1.6 J	<1.6	<1.6	<1.2	<2.0	<2.1	<2.1	<1.5	<1.2	<1.6	<1.4
Phenanthrene	50	<0.33 J	<0.33 J	<0.33 J	<0.33 J	<0.33 J	<0.64	<0.62	<0.49	<0.79	<0.83	<0.86	<0.60	<0.48	<0.64	<0.57
Pyrene	50	<0.33 J	<0.33 J	<0.33 J	<0.33 J	<0.33 J	<0.64	<0.62	<0.49	<0.79	<0.83	<0.86	<0.60	<0.48	<0.64	<0.57
Total SVOC		BDL	BDL	**0.052 J**	**0.090 J**	BDL	**0.035 J**	**0.044 J**	BDL	BDL	BDL	**0.057 J**	**0.076 J**	**0.046 J**	BDL	**0.033 J**
Metals (mg/kg)	**TAGM (4046) or SiteBackground Average**	**SS-20**	**SS-21**	**SS-22**	**SS-23**	**SS-24**	**SS-25**	**SS-26**	**SS-27**	**SS-28**	**SS-29**	**SS-30**	**SS-31**	**SS-32**	**SS-33**	**SS-34**
Aluminum	NV or **14340**	-	-	**13800 J**	**12300**	**11800**	**15900**	**21000**	**18200**	**16100**	**1290**	**23000**	**17300**	**13900**	**15200**	**18600**
Antimony	NV or **0.487**	-	-	**0.98 BJ**	**0.99 BJ**	**1.2 BJ**	<0.45	<0.65	<0.42	<0.81	<0.85	<0.810	<0.620	<0.43	<0.62	<0.58
Arsenic	7.5 or **8.2**	-	-	**10.7 J**	**8.8 J**	**6.5 J**	**8.2**	**8.3**	**7.8**	**6.1**	**5**	**7.7**	**7.9**	**9.7**	**9.5**	**9.9**
Barium	**300** or 38.49	-	-	**46.0 J**	**36.0 J**	**42.9 J**	**83.7**	**86.9**	**62.2**	**80.1**	**67.9**	**85.4**	**82.6**	**46.1**	**64.7**	**83.7**
Berillium	0.16 or **0.427**	-	-	**0.61 B**	**0.6**	**0.43 B**	**0.69**	**1.1**	**0.6**	**0.84**	**0.58**	**1.0**	**0.77**	**0.28**	**0.47**	**0.74**
Cadmium	**10** or 0.029	-	-	<0.04	**0.07 B**	**0.15 B**	**0.44**	**0.27**	**0.16**	**0.44**	**0.57**	**0.60**	**0.50**	**0.22**	**0.19**	**0.41**
Calcium	NV or **309.96**	-	-	**1660 J**	**15500 J**	**2570 J**	**1580**	**1580**	**1020**	**1820**	**27.4**	**1960**	**1240**	**529**	**1290**	**2130**
Chromium	**50** or 16.58	-	-	**20.8 J**	**18.7 J**	**13.8 J**	**17.3**	**21.9**	**18.5**	**16.6**	**14.1**	**22.7**	**18.7**	**13.9**	**16.7**	**21.6**
Cobalt	**30** or 8.31	-	-	**14.9 J**	**13.5**	**9.5**	**13.6**	**35.1**	**8.7**	**18.6**	**12.5**	**38.4**	**17.6**	**3.4**	**12.1**	**26.6**
Copper	**25** or 11.83	-	-	**15.5**	**14.4 J**	**13.1 J**	**8**	**10.2**	**8.5**	**10.1**	**11.2**	**12.8**	**9.6**	**9.4**	**9.7**	**12.6**
Iron	2000 or **25770**	-	-	**31700**	**27500**	**21200**	**24900**	**27400**	**28200**	**17400**	**17100**	**23800**	**22200**	**27700**	**22400**	**27800**
Lead	**400** or 12.58	-	-	**22.3 J**	**19.4 J**	**19.4 J**	**20.1**	**34.8**	**17**	**25.9**	**24.2**	**33**	**24.1**	**21.2**	**20.2**	**28.3**
Magnesium	NV or **2893**	-	-	**5020 J**	**14000**	**2660**	**2660**	**2700**	**2670**	**2260**	**2520**	**3000**	**2590**	**1520**	**2330**	**2590**
Manganese	NV or **319.3**	-	-	**435 J**	**377**	**347**	**1620**	**1640**	**374**	**432**	**416**	**503**	**1200**	**236**	**583**	**2310**
Nickel	13 or **17.77**	-	-	**32.8 J**	**30.3 J**	**18.9 J**	**15.8**	**19.6**	**14.8**	**14.5**	**17.8**	**22.5**	**17.3**	**9.1**	**13**	**15.6**
Potassium	NV or **714.8**	-	-	**1070 J**	**752**	**686**	**933**	**978**	**709**	**986**	**868**	**1100**	**919**	**778**	**1030**	**1100**
Selenium	**2** or 1.322	-	-	**1.4**	**1.2 J**	**1.6 J**	**0.89**	**1.8**	**1.1**	**1.5**	**1.6**	**1.2**	**1.2**	**1.5**	**1.3**	<0.69
Silver	NV or **ND**	-	-	**0.11 B**	<0.10	<0.11	<0.14	<0.20	<0.13	<0.25	<0.27	<0.25	<0.19	<0.14	<0.20	<0.18
Mercury	**0.1** or 0.082375	-	-	**0.022 B**	<0.012	**0.031**	**0.12**	**0.17**	**0.09**	**0.11**	**0.08**	**0.14**	**0.12**	**0.13**	**0.11**	**0.13**
Sodium	NV or **41.52222**	-	-	**72.8 B**	**153 B**	**135 B**	**51.4**	**57.9**	**52.7**	**63.2**	**67.2**	**64**	**56.1**	**32.4**	**44.7**	**56.1**
Thallium	NV or **ND**	-	-	<0.64	**3.3**	**3.7**	<0.86	<1.2	<0.79	<1.5	<1.6	**1.5**	**1.2**	<0.82	<1.20	<1.1
Vanadium	**150** or 20.15	-	-	**18.6 J**	**15.5 J**	**16.9 J**	**25.6**	**27.1**	**28.2**	**24.3**	**17.5**	**30.7**	**25.6**	**26.9**	**26**	**27.8**
Zinc	20 or **51.96**	-	-	**64.3 J**	**50.6**	**50.9**	**74.8**	**92.3**	**62.5**	**78.3**	**79.1**	**104**	**77.9**	**49.3**	**57.6**	**82.8**
Dioxins (ug/kg)	**TEFs**	**SS-20**	**SS-21**	**SS-22**	**SS-23**	**SS-24**	**SS-25**	**SS-26**	**SS-27**	**SS-28**	**SS-29**	**SS-30**	**SS-31**	**SS-32**	**SS-33**	**SS-34**
Total TCDF	-	<0.00025	-	-	-	-	<0.04	<0.02	<0.03	<0.05	<0.03	<0.03	<0.02	<0.03	<0.03	<0.03
Total PeCDF	-	<0.00035	-	-	-	-	<0.13	<0.05	<0.05	<0.22	<0.12	<0.11	<0.16	<0.20	<0.17	<0.18
TotalHxCDF	-	<0.0015	-	-	-	-	<0.08	<0.04	<0.05	<0.09	<0.06	<0.09	**0.53 J**	<0.04	<0.04	<0.04
Total HpCDF	-	**0.012**	-	-	-	-	<0.09	<0.04	<0.11	<0.11	<0.06	<0.09	**2.3**	<0.06	<0.09	<0.08
Total TCDD	-	<0.00030	-	-	-	-	<0.06	<0.03	<0.04	<0.07	<0.04	<0.05	<0.03	<0.04	<0.04	<0.04
Total PeCDD	-	<0.00048	-	-	-	-	<0.13	<0.05	<0.09	<0.13	<0.08	<0.10	<0.05	<0.06	<0.05	<0.14
Total HxCDD	-	**0.0027**	-	-	-	-	<0.11	<0.07	<0.08	<0.14	<0.09	<0.09	<0.10	<0.10	<0.08	<0.07
Total HpCDD	-	**0.042**	-	-	-	-	<0.14	<0.08	<0.10	<0.17	<0.11	<0.12	**3.8**	<0.09	<0.09	<0.09
2,3,7,8-TCDD	1	<0.00030	-	-	-	-	<0.06	<0.03	<0.04	<0.07	<0.04	<0.05	<0.03	<0.04	<0.04	<0.04
1,2,3,7,8-PeCDD	0.5	<0.00048	-	-	-	-	<0.13	<0.05	<0.09	<0.13	<0.08	<0.10	<0.05	<0.06	<0.05	<0.14
1,2,3,4,7,8-HxCDD	0.1	<0.00044	-	-	-	-	<0.11	<0.07	<0.08	<0.14	<0.09	<0.09	<0.10	<0.10	<0.08	<0.07
1,2,3,6,7,8-HxCDD	0.1	<0.0012	-	-	-	-	<0.09	<0.05	<0.07	<0.11	<0.07	<0.07	<0.08	<0.08	<0.07	<0.06
1,2,3,7,8,9-HxCDD	0.1	<0.00099	-	-	-	-	<0.09	<0.05	<0.07	<0.11	<0.07	<0.07	<0.08	<0.08	<0.07	<0.06
1,2,3,4,6,7,8-HpCDD	0.01	**0.026**	-	-	-	-	<0.14	<0.08	<0.10	<0.17	<0.11	<0.12	**2.7**	<0.09	<0.09	<0.09
OCDD	0.0001	**0.15**	-	-	-	-	**0.37 JS**	**0.14 JS**	<0.09	<0.13	<0.12	**0.24 JS**	**12**	<0.08	**0.78 J**	<0.10
2,3,7,8-TCDF	0.1	<0.00025	-	-	-	-	<0.04	<0.02	<0.03	<0.05	<0.03	<0.03	<0.02	<0.03	<0.03	<0.03
1,2,3,7,8-PeCDF	0.05	<0.00025	-	-	-	-	<0.13	<0.05	<0.05	<0.22	<0.12	<0.11	<0.16	<0.20	<0.17	<0.18
2,3,4,7,8-PeCDF	0.5	<0.00024	-	-	-	-	<0.13	<0.05	<0.05	<0.21	<0.12	<0.11	<0.16	<0.20	<0.17	<0.18
1,2,3,4,7,8-HxCDF	0.1	<0.00033	-	-	-	-	<0.08	<0.04	<0.05	<0.09	<0.06	<0.09	<0.04	<0.04	<0.04	<0.04
1,2,3,6,7,8-HxCDF	0.1	<0.00031	-	-	-	-	<0.07	<0.03	<0.04	<0.08	<0.05	<0.08	<0.03	<0.04	<0.04	<0.04
2,3,4,6,7,8-HxCDF	0.1	<0.00035	-	-	-	-	<0.08	<0.04	<0.05	<0.09	<0.06	<0.09	<0.04	<0.04	<0.04	<0.04
1,2,3,7,8,9-HxCDF	0.1	<0.00037	-	-	-	-	<0.07	<0.03	<0.04	<0.08	<0.05	<0.08	<0.04	<0.04	<0.04	<0.04
1,2,3,4,6,7,8-HpCDF	0.01	**0.0046 J**	-	-	-	-	<0.07	<0.04	<0.09	<0.09	<0.05	<0.07	**0.59 J**	<0.05	<0.07	<0.07
1,2,3,4,7,8,9-HpCDF	0.01	<0.00027	-	-	-	-	<0.09	<0.04	<0.11	<0.11	<0.06	<0.09	<0.09	<0.06	0.09	<0.08
OCDF	0.0001	**0.012**	-	-	-	-	<0.09	<0.19	<0.07	<0.29	<0.08	<0.23	**2.6**	<0.06	**0.18 JS**	<0.06
2,3,7,8-TCDD Equivalence	1.0	**0.00032 J**	-	-	-	-	**0.000037 JS**	**0.000014 JS**	BDL	BDL	BDL	**0.000024 JS**	**0.03436 J**	BDL	**0.000096 JS**	BDL

Notes:
Only analytes detected at or above laboratory method detection limits included on table
*PCP results from PIR Immunoassay Results
Bold Text=Analyte detected above laboratory method detection limi
Shaded Text=Exceedence of TAGM 4046 soil cleanup objectives
BDL=Below laboratory method detection limi
ND=Non Detect

Dioxin Data Qualifiers:
All results in ug/kg or parts per billion
D=Result obtained from dilution
J=Estimated result, result is less than the reporting limit
E=Estimated result, result exceeds calibration range
CON=Confirmation analysis

SVOC Data Qualifiers:
All results in mg/kg or parts per million
< = Analyte was not detected above laboratory detection limits
J=Estimated Value

Metal Data Qualifiers:
All results in mg/kg or parts per million
B=Indicates a value greater than or equal to the instrument detection limit but less than the quantitation lim
J=Estimated result, result is less than the reporting limit
NV=Indicates TAGM recommened soil clean-up objective is site background
Metals SCGs used for comparison were either TAGM 4046 or Site Background average, which ever is higher
Bold Text=SCG used for Regulatory Comparison
The SCG for Cadmium (10 ppm) and Chromium (50 ppm) are generally accepted clean-up levels
The SCG for Lead (400 ppm) was adopted from the EPA

Table 2
Surface Soil Analytical Results
Camp Georgetown

Analyte	**TAGM (4046)**	**SS-35**	**SS-36**	**SS-37**	**SS-38**	**SS-39**	**SS-40**	**SS-41**	**SS-42**	**SS-43**	**SS-44**	**SS-45**	**SS-46**	**SS-47**	**SS-48**	**SS-49**
SVOCs (mg/kg)																
Anthracene	50	<0.53	<0.77	<0.51	<3.8	<2.9	<0.62	<0.66	<0.48	<0.44	<0.40	<0.39	<0.44	<0.43	<0.52	-
Benzo{a}anthracene	0.224	<0.53	<0.77	<0.51	<3.8	<2.9	<0.62	<0.66	<0.48	<0.44	<0.40	<0.39	<0.44	<0.43	<0.52	-
Benzo{b}fluoranthene	1.1	<0.53	<0.77	<0.51	<3.8	<2.9	<0.62	<0.66	<0.48	<0.44	<0.40	<0.39	<0.44	<0.43	<0.52	-
Benzo{k}fluoranthene	1.1	<0.53	<0.77	<0.51	<3.8	<2.9	<0.62	<0.66	<0.48	<0.44	<0.40	<0.39	<0.44	<0.43	<0.52	-
Benzo{g,h,i}perylene	50	<0.53	<0.77	<0.51	<3.8	<2.9	<0.62	<0.66	<0.48	<0.44	<0.40	<0.39	<0.44	<0.43	<0.52	-
Benzo (a) Pyrene	0.061	<0.53	<0.77	<0.51	<3.8	<2.9	<0.620	<0.66	<0.48	<0.44	<0.40	<0.39	<0.44	<0.43	<0.52	-
Benzoic Acid	2.7	<1.3	<1.9	<1.3	<9.4	<7.3	<1.600	<1.6	<1.2	<1.10	<1.0	<0.97	<1.1	<1.1	<1.3	-
Bis (2-Ethylhexyl) Phthalate	50	**0.028 J**	**0.61 J**	<0.51	<3.8	<2.9	**0.032 J**	**0.045 J**	**0.024 J**	<0.44	**0.032 J**	<0.39	<0.44	<0.43	**0.030 J**	-
Chrysene	0.4	<0.53	<0.77	<0.51	<3.8	<2.9	<0.620	<0.66	<0.48	<0.44	<0.40	<0.39	<0.44	<0.43	<0.52	-
Dimethyl Phthlate	2	<0.53	<0.77	<0.51	<3.8	<2.9	<0.620	<0.66	<0.48	<0.44	<0.40	<0.39	<0.44	<0.43	<0.52	-
Diethyl Phthalate	7.1	<0.53	<0.77	<0.51	**0.36 J**	**0.46 J**	**0.18 J**	<0.66	<0.48	<0.44	<0.40	<0.39	<0.44	<0.43	<0.52	-
Di-n-butyl Phthalate	8.1	<0.53	<0.77	<0.51	<3.8	<2.9	<0.62	<0.66	<0.48	<0.44	<0.40	<0.39	<0.44	<0.43	<0.52	-
Di-n-octyl Phthalte	120	<0.53	<0.77	<0.51	<3.8	<2.9	<0.62	<0.66	<0.48	<0.44	<0.40	<0.39	<0.44	<0.43	<0.52	-
Fluoranthene	50	<0.53	<0.77	<0.51	<3.8	<2.9	<0.62	**0.033 J**	<0.48	**0.024 J**	<0.40	<0.39	<0.44	<0.43	<0.52	-
Indeno (1,2,3) pyrene	3.2	<0.53	<0.77	<0.51	<3.8	<2.9	<0.62	<0.66	<0.48	<0.44	<0.40	<0.39	<0.44	<0.43	<0.52	-
Pentachlorophenol	1	<1.3	<1.9	<1.3	<9.4	<7.3	<1.6	<1.6	<1.2	<1.1	<1.0	<0.97	<1.1	<1.1	<1.3	-
Phenanthrene	50	<0.53	<0.77	<0.51	<3.8	<2.9	<0.62	<0.66	<0.48	<0.44	<0.40	<0.39	<0.44	<0.43	<0.52	-
Pyrene	50	<0.53	<0.77	<0.51	<3.8	<2.9	**0.033 J**	**0.039 J**	<0.48	**0.029 J**	<0.40	<0.39	<0.44	<0.43	<0.52	-
Total SVOC		**0.028 J**	**0.61 J**	BDL	**0.36 J**	**0.46 J**	**0.245 J**	**0.117 J**	**0.024 J**	**0.053 J**	**0.032 J**	BDL	BDL	BDL	**0.030 J**	-
Metals (mg/kg)	**TAGM (4046) or SiteBackground Average**	**SS-35**	**SS-36**	**SS-37**	**SS-38**	**SS-39**	**SS-40**	**SS-41**	**SS-42**	**SS-43**	**SS-44**	**SS-45**	**SS-46**	**SS-47**	**SS-48**	**SS-49**
Aluminum	NV or **14340**	**15000**	**18700**	**21100**	**6570**	**10500**	**13300**	**9940**	**9500**	**14500**	**14900**	**14300**	**13000**	**14200**	**16300**	-
Antimony	NV or **0.487**	<0.55	<0.79	<0.52	<0.77	<0.59	**0.67**	<0.62	<0.46	<0.44	<0.36	<0.38	<0.30	<0.45	<0.54	-
Arsenic	7.5 or **8.2**	**10.6**	**8.3**	**8.2**	**8.6**	**7.7**	**10.9**	**9.7**	**6**	**8.9**	**9.5**	**8.4**	**7.4**	**11.4**	**9.1**	-
Barium	**300** or 38.49	**39.7**	**81.6**	**23.1**	**41.7**	**22.3**	**28.6**	**23.8**	**30.7**	**61.7**	**54.9**	**58.4**	**55.9**	**60.2**	**74.3**	-
Berillium	0.16 or **0.427**	**0.39**	**0.79**	**0.29**	**0.17**	**0.16**	**0.19**	**0.12**	**0.14**	**0.5**	**0.52**	**0.49**	**0.44**	**0.5**	**0.58**	-
Cadmium	**10** or 0.029	**0.1**	**0.71**	<0.04	**0.6**	**0.15**	**0.07**	**0.1**	**0.09**	**0.12**	**0.08**	**0.05**	**0.07**	**0.1**	**0.23**	-
Calcium	NV or **309.96**	**216**	**26.4**	**90**	**601**	**165**	**176**	**166**	**738**	**1790**	**1700**	**1990**	**1510**	**1560**	**2660**	-
Chromium	**50** or 16.58	**14.2**	**19.7**	**20.5**	**7.8**	**9.4**	**14**	**9.7**	**9**	**21.1**	**23.5**	**18**	**17**	**31.3**	**25.4**	-
Cobalt	**30** or 8.31	**5.2**	**17.4**	**5.4**	**1.5**	**2.1**	**2.6**	**1.2**	**1.4**	**10.6**	**12**	**9.9**	**9.8**	**11.5**	**12**	-
Copper	**25** or 11.83	**10.9**	**13.1**	**8.0**	**15.5**	**10.4**	**9.7**	**10.1**	**9**	**15.2**	**16.4**	**13.6**	**14.7**	**18.7**	**17.1**	-
Iron	2000 or **25770**	**28300**	**22000**	**31200**	**11600**	**14300**	**28800**	**14600**	**19000**	**26000**	**27900**	**25300**	**23900**	**29100**	**30400**	-
Lead	**400** or 12.58	**16.8**	**26.1**	**13**	**73.3**	**50.9**	**42.2**	**69.2**	**16.8**	**13.2**	**14.9**	**10.4**	**10.8**	**14**	**16.4**	**146**
Magnesium	NV or **2893**	**1750**	**2720**	**2530**	**456**	**1060**	**1370**	**757**	**831**	**3390**	**3590**	**3380**	**3190**	**3560**	**3860**	-
Manganese	NV or **319.3**	**301**	**1030**	**286**	**30.6**	**103**	**200**	**66.6**	**108**	**655**	**629**	**519**	**597**	**756**	**815**	-
Nickel	13 or **17.77**	**10.4**	**19.8**	**13.4**	**6.7**	**8.1**	**8.4**	**5.3**	**4.5**	**23.6**	**25.3**	**22.8**	**21.8**	**24.5**	**25.5**	-
Potassium	NV or **714.8**	**696**	**1200**	**506**	**557**	**491**	**732**	**589**	**563**	**1050**	**820**	**10.9**	**850**	**953**	**1200**	-
Selenium	**2** or 1.322	**1.7**	**1.4**	**1.7**	**2.7**	**2.7**	**2.3**	**2.1**	**1.2**	**0.97**	**0.43**	**0.59**	**0.51**	<0.53	**0.78**	-
Silver	NV or **ND**	<0.17	<0.25	<0.16	<0.24	<0.18	<0.20	<0.19	<0.15	<0.14	<0.11	<0.12	<0.09	<0.14	<0.17	-
Mercury	**0.1** or 0.082375	**0.15**	**0.15**	**0.12**	**0.21**	**0.17**	**0.17**	**0.15**	**0.09**	**0.04**	**0.04**	**0.04**	**0.03**	**0.04**	**0.04**	-
Sodium	NV or **41.52222**	**34**	**67.9**	**34.7**	**37.6**	**27.5**	**35.8**	**33.1**	**31.8**	**40.3**	**36.5**	**44.7**	**34.8**	**44.7**	**49.1**	-
Thallium	NV or **ND**	<1.0	<1.5	<0.98	**1.4**	<1.1	<1.2	<1.2	<0.87	<0.84	<0.68	<0.71	<0.56	<0.85	<1.0	-
Vanadium	**150** or 20.15	**25.3**	**25.5**	**28.9**	**21.4**	**16.5**	**30.7**	**28.8**	**24.1**	**20.5**	**20.5**	**20.3**	**18.5**	**21.7**	**23.5**	-
Zinc	20 or **51.96**	**48.1**	**95.5**	**50.6**	**46.2**	**35.6**	**62.1**	**36.2**	**28.5**	**75.3**	**71.5**	**63.7**	**66.9**	**72.7**	**86.6**	-
Dioxins (ug/kg)	**TEFs**	**SS-35**	**SS-36**	**SS-37**	**SS-38**	**SS-39**	**SS-40**	**SS-41**	**SS-42**	**SS-43**	**SS-44**	**SS-45**	**SS-46**	**SS-47**	**SS-48**	**SS-49**
Total TCDF	-	<0.02	<0.15	<0.02	<0.44	<0.03	<0.03	<0.03	<0.02	<0.01	<0.01	<0.01	<0.01	<0.01	<0.02	-
Total PeCDF	-	<0.11	<0.15	<0.10	<0.44	<0.11	<0.21	<0.16	<0.06	<0.03	<0.09	<0.08	<0.08	**0.05 JS**	<0.13	-
TotalHxCDF	-	<0.04	<0.05	<0.03	<0.08	**0.40 JS**	<0.04	<0.07	<0.03	**0.09 JS**	**0.27 J**	**0.08 JS**	**0.16 JS**	**0.59 J**	**0.68 JS**	-
Total HpCDF	-	<0.07	<0.09	<0.05	<0.15	**0.14 JS**	<0.07	<0.08	<0.04	**0.44 J**	**1.4**	**0.86**	**1.0**	**3.2**	**3.3**	-
Total TCDD	-	<0.03	<0.04	<0.03	<0.10	<0.04	<0.04	<0.05	<0.03	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	-
Total PeCDD	-	<0.07	<0.09	<0.04	<0.09	<0.25	<0.06	<0.06	<0.09	<0.07	<0.07	<0.03	<0.08	<0.03	<0.09	-
Total HxCDD	-	<0.06	<0.08	<0.06	<0.21	<0.09	<0.11	<0.11	<0.05	<0.05	**0.03 JS**	<0.04	<0.04	**0.29 JS**	**0.22 JS**	-
Total HpCDD	-	**0.06 J**	**0.19 J**	<0.06	<0.21	**0.27 JS**	<0.09	<0.11	<0.12	**0.51 J**	**1.8**	**1.0**	**1.3**	**3.3**	**3.7**	-
2,3,7,8-TCDD	1	<0.03	<0.04	<0.03	<0.10	<0.04	<0.04	<0.05	<0.03	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	-
1,2,3,7,8-PeCDD	0.5	<0.07	<0.09	<0.04	<0.09	<0.25	<0.06	<0.06	<0.09	<0.07	<0.07	<0.03	<0.08	<0.03	<0.09	-
1,2,3,4,7,8-HxCDD	0.1	<0.06	<0.08	<0.06	<0.21	<0.09	<0.11	<0.11	<0.05	<0.05	<0.03	<0.04	<0.04	<0.05	<0.09	-
1,2,3,6,7,8-HxCDD	0.1	<0.04	<0.07	<0.04	<0.17	<0.07	<0.08	<0.08	<0.04	<0.04	**0.03 JS**	<0.03	<0.03	**0.07 JS**	<0.07	-
1,2,3,7,8,9-HxCDD	0.1	<0.05	<0.07	<0.04	<0.17	<0.07	<0.09	<0.08	<0.04	<0.04	<0.02	<0.03	<0.03	**0.05 JS**	<0.07	-
1,2,3,4,6,7,8-HpCDD	0.01	**0.06 J**	**0.19 J**	<0.06	<0.21	**0.27 JS**	<0.09	<0.11	<0.12	**0.35 J**	**1.2**	**0.70**	**0.87**	**2.2**	**2.5**	-
OCDD	0.0001	**0.35 J**	**1.2 J**	<0.05	**0.46 JS**	**0.31 JS**	<0.07	<0.08	**0.23 JS**	**1.7**	**5.8**	**3.6**	**3.9**	**10.5**	**10.8**	-
2,3,7,8-TCDF	0.1	<0.02	<0.15	<0.02	<0.44	<0.03	<0.03	<0.03	<0.02	<0.01	<0.01	<0.01	<0.01	<0.01	<0.02	-
1,2,3,7,8-PeCDF	0.05	<0.11	<0.15	<0.10	<0.44	<0.11	<0.21	<0.16	<0.06	<0.03	<0.09	<0.08	<0.08	<0.06	<0.13	-
2,3,4,7,8-PeCDF	0.5	<0.11	<0.15	<0.10	<0.44	<0.11	<0.21	<0.15	<0.06	<0.03	<0.09	<0.07	<0.08	<0.06	<0.12	-
1,2,3,4,7,8-HxCDF	0.1	<0.03	<0.05	<0.03	<0.08	<0.09	<0.04	<0.06	<0.03	<0.03	<0.02	<0.02	<0.02	<0.02	<0.04	-
1,2,3,6,7,8-HxCDF	0.1	<0.03	<0.04	<0.03	<0.07	<0.06	<0.04	<0.06	<0.03	<0.02	<0.02	<0.02	<0.02	<0.02	<0.03	-
2,3,4,6,7,8-HxCDF	0.1	<0.04	<0.05	<0.03	<0.08	<0.09	<0.04	<0.07	<0.03	<0.03	<0.02	<0.02	<0.02	<0.02	<0.04	-
1,2,3,7,8,9-HxCDF	0.1	<0.03	<0.04	<0.03	<0.07	<0.08	<0.04	<0.06	<0.03	<0.02	<0.02	<0.02	<0.02	<0.02	<0.03	-
1,2,3,4,6,7,8-HpCDF	0.01	<0.05	<0.07	<0.04	<0.11	**0.14 JS**	<0.05	<0.06	<0.03	**0.12 J**	**0.37 J**	**0.21 J**	**0.25 J**	**1.0**	**1.0**	-
1,2,3,4,7,8,9-HpCDF	0.01	<0.07	<0.09	<0.05	<0.15	<0.21	<0.07	<0.08	<0.04	<0.03	<0.03	<0.04	<0.03	**2.3**	<0.04	-
OCDF	0.0001	**0.11 JS**	**0.19 J**	<0.04	<0.12	<0.05	<0.10	<0.07	<0.04	**0.54 J**	**1.7**	**1.1**	**1.2**	**4.3**	**3.9**	-
2,3,7,8-TCDD Equivalence	1.0	**0.000646 JS**	**0.002039 J**	BDL	**0.000046 JS**	**0.004131 JS**	BDL	BDL	**0.000023 JS**	**0.004924 JS**	**0.01945 JS**	**0.00957 JS**	**0.01171 JS**	**0.06848 JS**	**0.03647 JS**	-

Notes:
Only analytes detected at or above laboratory method detection limits included on table
*PCP results from PIR Immunoassay Results
Bold Text=Analyte detected above laboratory method detection limi
Shaded Text=Exceedence of TAGM 4046 soil cleanup objectives
BDL=Below laboratory method detection limi
ND=Non Detect

Dioxin Data Qualifiers:
All results in ug/kg or parts per billion
D=Result obtained from dilution
J=Estimated result, result is less than the reporting limit
E=Estimated result, result exceeds calibration range
CON=Confirmation analysis

SVOC Data Qualifiers:
All results in mg/kg or parts per million
< = Analyte was not detected above laboratory detection limits
J=Estimated Value

Metal Data Qualifiers:
All results in mg/kg or parts per million
B=Indicates a value greater than or equal to the instrument detection limit but less than the quantitation lim
J=Estimated result, result is less than the reporting limit
NV=Indicates TAGM recommened soil clean-up objective is site background
Metals SCGs used for comparison were either TAGM 4046 or Site Background average, which ever is higher
Bold Text=SCG used for Regulatory Comparison
The SCG for Cadmium (10 ppm) and Chromium (50 ppm) are generally accepted clean-up levels
The SCG for Lead (400 ppm) was adopted from the EPA

Table 2
Surface Soil Analytical Results
Camp Georgetown

Analyte	TAGM (4046)	SS-50A	SS-51	SS-52A	Seep-1	Seep-2	BGM-1	BGM-2	BGM-3	BGM-4	BGM-5	BGM-6	BGM-7	BGM-8	BGM-9	BGM-10
SVOCs (mg/kg)																
Anthracene	50	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Benzo{a}anthracene	0.224	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Benzo{b}fluoranthene	1.1	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Benzo{k}fluoranthene	1.1	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Benzo{g,h,i}perylene	50	-	-	-	**0.21 J**	<0.33	-	-	-	-	-	-	-	-	-	-
Benzo (a) Pyrene	0.061	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Benzoic Acid	2.7	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Bis (2-Ethylhexyl) Phthalate	50	-	-	-	<0.33	<0.33	-	-	-	-	-	-	-	-	-	-
Chrysene	0.4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Dimethyl Phthlate	2	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Diethyl Phthalate	7.1	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Di-n-butyl Phthalate	8.1	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Di-n-octyl Phthalte	120	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Fluoranthene	50	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Indeno (1,2,3) pyrene	3.2	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Pentachlorophenol	1	-	-	-	**4.2**	<1.6	-	-	-	-	-	-	-	-	-	-
Phenanthrene	50	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Pyrene	50	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Total SVOC		-	-	-	**4.41 J**	BDL	-	-	-	-	-	-	-	-	-	-
Metals (mg/kg)	**TAGM (4046) or SiteBackground Average**	**SS-50A**	**SS-51**	**SS-52A**	**Seep-1**	**Seep-2**	**BGM-1**	**BGM-2**	**BGM-3**	**BGM-4**	**BGM-5**	**BGM-6**	**BGM-7**	**BGM-8**	**BGM-9**	**BGM-10**
Aluminum	NV or **14340**	-	-	-	-	-	**13600**	**13900**	**13500**	**13500**	**13100**	**13600**	**15700**	**16100**	**14800**	**15600**
Antimony	NV or **0.487**	-	-	-	-	-	**1.1 B**	**0.84 B**	**1.0 B**	**0.93 B**	**1.0 B**	<0.46	<0.52	<0.49	<0.52	<0.40
Arsenic	7.5 or **8.2**	-	-	-	-	-	**12.3**	**8**	**7.9**	**6.7**	**5.3**	**7.8**	**8.5**	**9.4**	**8.6**	**7.5**
Barium	**300** or 38.49	-	-	-	-	-	**41.1 J**	**59.3 J**	**37.3 J**	**27.2 J**	**39.2 J**	**34.5**	**39.6**	**35.8**	**34.9**	**36**
Berillium	0.16 or **0.427**	-	-	-	-	-	**0.59**	**0.49 B**	**0.39 B**	**0.38**	**0.40 B**	**0.36**	**0.43**	**0.43**	**0.38**	**0.42**
Cadmium	**10** or 0.029	-	-	-	-	-	<0.03	<0.03	<0.03	<0.04	<0.04	**0.11**	**0.09**	**0.04**	<0.04	**0.05**
Calcium	NV or **309.96**	-	-	-	-	-	**643**	**575 B**	**78.5 B**	**646**	**208 B**	**295**	**224**	**189**	**148**	**93.1**
Chromium	**50** or 16.58	-	-	-	-	-	**23.9**	**17.1**	**16.3**	**15.4**	**14.5**	**14.1**	**16**	**17.1**	**15.9**	**15.5**
Cobalt	**30** or 8.31	-	-	-	-	-	**11.5 J**	**13.6 J**	**10.6 J**	**7.0 J**	**6.0 BJ**	**6.9**	**7.5**	**6.8**	**6.1**	**7.1**
Copper	**25** or 11.83	-	-	-	-	-	**21.4**	**15.4**	**13**	**8.4**	**8.4**	**10.4**	**10.5**	**14.2**	**9.2**	**7.4**
Iron	2000 or **25770**	-	-	-	-	-	**29300**	**26700**	**26600**	**24700**	**23000**	**22400**	**23900**	**28100**	**27400**	**25600**
Lead	**400** or 12.58	**157**	**30.9**	**45.6**	-	-	**15.6**	**9.5**	**12.3**	**7.6**	**7.1**	**17**	**19.6**	**16**	**11.6**	**9.5**
Magnesium	NV or **2893**	-	-	-	-	-	**4450 J**	**4000 J**	**3640 J**	**3070 J**	**2500 J**	**1970**	**2270**	**2720**	**2360**	**1950**
Manganese	NV or **319.3**	-	-	-	-	-	**287**	**457**	**350**	**195**	**202**	**374**	**316**	**301**	**341**	**370**
Nickel	13 or **17.77**	-	-	-	-	-	**28.5**	**27.3**	**22.8**	**19.3**	**16.8**	**11.2**	**13**	**15.6**	**12.9**	**10.3**
Potassium	NV or **714.8**	-	-	-	-	-	**720**	**788**	**659**	**474 B**	**492 B**	**755**	**883**	**805**	**744**	**828**
Selenium	**2** or 1.322	-	-	-	-	-	**1.4 J**	**1.3 J**	**1.1 J**	**1.3 J**	**1.4 J**	**1.3**	**2.1**	**1.1**	**1.3**	**0.92**
Silver	NV or **ND**	-	-	-	-	-	<0.10 J	<0.1 J	<0.10 J	<0.11 J	<0.13 J	<0.14	<0.16	<0.15	<0.13	<0.12
Mercury	**0.1** or 0.082375	-	-	-	-	-	<0.011 J	<0.012 J	**0.018 BJ**	**0.034 BJ**	**0.027 BJ**	**0.13**	**0.15**	**0.12**	**0.1**	**0.08**
Sodium	NV or **41.52222**	-	-	-	-	-	**41.8 B**	<31.8	**41.4 B**	**41.8 B**	**66.7 B**	**32.2**	**48.6**	**34.5**	**30.8**	**35.9**
Thallium	NV or **ND**	-	-	-	-	-	<0.59 J	<0.61	<0.60	<0.63 J	<0.73 J	<0.87	<0.97	<0.92	<0.97	<0.75
Vanadium	**150** or 20.15	-	-	-	-	-	**17**	**16.3**	**17**	**18.1**	**19**	**20.2**	**23.6**	**24.1**	**23**	**23.2**
Zinc	20 or **51.96**	-	-	-	-	-	**57.4**	**57.8**	**54.1**	**52.6**	**46.4**	**48**	**57.8**	**53.8**	**47.3**	**44.4**
Dioxins (ug/kg)	**TEFs**	**SS-50A**	**SS-51**	**SS-52A**	**Seep-1**	**Seep-2**	**BGM-1**	**BGM-2**	**BGM-3**	**BGM-4**	**BGM-5**	**BGM-6**	**BGM-7**	**BGM-8**	**BGM-9**	**BGM-10**
Total TCDF	-	-	-	-	**0.096**	**0.063**	-	-	-	-	-	<0.02	<0.03	<0.03	<0.03	<0.02
Total PeCDF	-	-	-	-	**2.8**	**0.93**	-	-	-	-	-	<0.06	<0.16	<0.10	<0.07	<0.06
TotalHxCDF	-	-	-	-	**90**	**18**	-	-	-	-	-	<0.03	<0.05	<0.05	<0.05	<0.03
Total HpCDF	-	-	-	-	**49**	**91**	-	-	-	-	-	<0.05	<0.07	<0.08	<0.06	<0.03
Total TCDD	-	-	-	-	**0.11**	**0.11**	-	-	-	-	-	<0.02	<0.05	<0.04	<0.04	<0.02
Total PeCDD	-	-	-	-	**1.2**	**0.82**	-	-	-	-	-	<0.05	<0.07	<0.10	<0.09	<0.06
Total HxCDD	-	-	-	-	**42**	**13**	-	-	-	-	-	<0.05	<0.09	<0.09	<0.08	<0.04
Total HpCDD	-	-	-	-	**61**	**150**	-	-	-	-	-	<0.06	<0.12	<0.10	<0.10	<0.05
2,3,7,8-TCDD	1	-	-	-	**0.023**	**0.01**	-	-	-	-	-	<0.02	<0.05	<0.04	<0.04	<0.02
1,2,3,7,8-PeCDD	0.5	-	-	-	**0.58**	**0.27**	-	-	-	-	-	<0.05	<0.07	<0.10	<0.09	<0.06
1,2,3,4,7,8-HxCDD	0.1	-	-	-	**2.7 J**	**0.71 J**	-	-	-	-	-	<0.05	<0.09	<0.09	<0.08	<0.04
1,2,3,6,7,8-HxCDD	0.1	-	-	-	**16 EJ**	**3.5**	-	-	-	-	-	<0.04	<0.07	<0.07	<0.06	<0.03
1,2,3,7,8,9-HxCDD	0.1	-	-	-	**4.9**	**1.9**	-	-	-	-	-	<0.04	<0.08	<0.07	<0.07	<0.03
1,2,3,4,6,7,8-HpCDD	0.01	-	-	-	**43**	**100 D**	-	-	-	-	-	<0.06	<0.12	<0.10	<0.10	<0.05
OCDD	0.0001	-	-	-	**220 EJ**	**730 DEJ**	-	-	-	-	-	<0.04	<0.08	<0.07	<0.11	<0.07
2,3,7,8-TCDF	0.1	-	-	-	**0.037 CON**	**0.0069 CON**	-	-	-	-	-	<0.02	<0.03	<0.03	<0.03	<0.02
1,2,3,7,8-PeCDF	0.05	-	-	-	**0.3**	**0.051**	-	-	-	-	-	<0.06	<0.16	<0.10	<0.07	<0.06
2,3,4,7,8-PeCDF	0.5	-	-	-	**0.24**	**0.046**	-	-	-	-	-	<0.06	<0.15	<0.10	<0.07	<0.06
1,2,3,4,7,8-HxCDF	0.1	-	-	-	**2.5**	**0.42**	-	-	-	-	-	<0.03	<0.05	<0.05	<0.05	<0.03
1,2,3,6,7,8-HxCDF	0.1	-	-	-	**1.1**	**0.31**	-	-	-	-	-	<0.02	<0.05	<0.04	<0.04	<0.02
2,3,4,6,7,8-HxCDF	0.1	-	-	-	**0.95**	**0.23**	-	-	-	-	-	<0.03	<0.05	<0.05	<0.05	<0.03
1,2,3,7,8,9-HxCDF	0.1	-	-	-	**0.18**	**0.024**	-	-	-	-	-	<0.02	<0.05	<0.04	<0.04	<0.02
1,2,3,4,6,7,8-HpCDF	0.01	-	-	-	**7.9**	**20 D**	-	-	-	-	-	<0.04	<0.06	<0.06	<0.05	<0.02
1,2,3,4,7,8,9-HpCDF	0.01	-	-	-	<0.59	**0.980 D**	-	-	-	-	-	<0.05	<0.07	<0.08	<0.06	<0.03
OCDF	0.0001	-	-	-	**65**	**170 D**	-	-	-	-	-	<0.03	<0.09	<0.10	<0.11	<0.04
2,3,7,8-TCDD Equivalence	1.0	-	-	-	**3.8222ECON**	**2.18 CONDE**	-	-	-	-	-	BDL	BDL	BDL	BDL	BDL

Notes:
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Metals SCGs used for comparison were either TAGM 4046 or Site Background average, which ever is higher
Bold Text=SCG used for Regulatory Comparison
The SCG for Cadmium (10 ppm) and Chromium (50 ppm) are generally accepted clean-up levels
The SCG for Lead (400 ppm) was adopted from the EPA

Table 3
Sediment Analytical Results
Camp Georgetown

Analyte	**Sediment Criteria**	**SED-1**	**SED-2**	**SED-UP**	**SED-DOWN**
SVOCs (mg/kg)					
Phenanthrene	84410.6	<0.33 J	<0.33 J	**0.15 J**	**0.028 J**
Anthracene	84410.6	<0.33 J	<0.33 J	**0.04 J**	<0.39
Carbazole	NA	<0.33 J	<0.33 J	**0.028 J**	<0.39
Fluoranthrene	463870.6	<0.33 J	<0.33 J	**0.18 J**	**0.038 J**
Pyrene	625744.2	<0.33 J	<0.33 J	**0.16 J**	**0.035 J**
Benzo(a) anthracene	48.8	<0.33 J	<0.33 J	**0.095 J**	<0.39
Chrysene	NA	<0.33 J	<0.33 J	**0.099 J**	<0.39
Benzo (k) fluoranthene	NA	<0.33 J	<0.33 J	**0.082 J**	<0.39
Benzo (a) fluoranthene	NA	<0.33 J	<0.33 J	**0.072 J**	<0.39
Benzo (a) pyrene	0	<0.33 J	<0.33 J	**0.079 J**	<0.39
Indeno (1,2,3-cd) pyrene	NA	<0.33 J	<0.33 J	**0.043 J**	<0.39
Benzo(ghi) perylene	NA	<0.33 J	<0.33 J	**0.049 J**	<0.39
Bis(2-ethylhexyl) phthalate	11951.6	<0.33 J	<0.33 J	<0.55	**0.024 J**
Pentachlorophenol	11980.0	<1.6 J	<1.6 J	<1.4	<0.97
Total SVOCs	-	**BDL**	**BDL**	**1.077 J**	**0.125 J**
Dioxins (ug/kg)	**TEF**	**SED-1**	**SED-2**	**SED-UP**	**SED-DOWN**
Total TCDF	-	<0.00087	<0.00026	<0.02	<0.01
Total PeCDF	-	<0.0024	<0.00058	<0.04	<0.05
TotalHxCDF	-	**0.041**	**0.0098**	<0.05	<0.02
Total HpCDF	-	**0.24**	**0.05**	<0.06	<0.03
Total TCDD	-	<0.00058	<0.0003	<0.03	<0.02
Total PeCDD	-	<0.0012	<0.00062	<0.04	<0.04
Total HxCDD	-	**0.034**	**0.0072**	<0.05	<0.05
Total HpCDD	-	**0.4**	**0.1**	<0.07	<0.07
2,3,7,8-TCDD	1	<0.00058	<0.0003	<0.03	<0.02
1,2,3,7,8-PeCDD	0.14	<0.0012	<0.00062	<0.04	<0.05
1,2,3,4,7,8-HxCDD	0.0048	<0.0027 J	<0.00071 J	<0.05	<0.04
1,2,3,6,7,8-HxCDD	0.0016	**0.011**	**0.0032 J**	<0.04	<0.03
1,2,3,7,8,9-HxCDD	0.0016	<0.0047	<0.0012	<0.04	<0.03
1,2,3,4,6,7,8-HpCDD	0.000032	**0.27**	**0.066**	<0.07	<0.05
OCDD	0.000000025	**1.6**	**0.32**	**0.13 JS**	**0.21 J**
2,3,7,8-TCDF	0.25	<0.00087	<0.00026	<0.03	<0.01
1,2,3,7,8-PeCDF	0.010	<0.00064	<0.00035	<0.10	<0.05
2,3,4,7,8-PeCDF	0.80	<0.00087	<0.00034	<0.10	<0.04
1,2,3,4,7,8-HxCDF	0.0025	<0.0036	<0.00052	<0.05	<0.02
1,2,3,6,7,8-HxCDF	0.0063	<0.002	<0.00049	<0.04	<0.02
2,3,4,6,7,8-HxCDF	0.022	<0.002	<0.00054	<0.05	<0.02
1,2,3,7,8,9-HxCDF	0.019	<0.00079	<0.00057	<0.04	<0.02
1,2,3,4,6,7,8-HpCDF	0.000010	**0.066**	**0.014**	<0.05	<0.02
1,2,3,4,7,8,9-HpCDF	0.00040	<0.0042	<0.00065	<0.05	<0.03
OCDF	0.000000032	**0.32**	**0.053**	<0.04	<0.03
2,3,7,8-TCDD Equivalence	-	**0.000027 J**	**0.0000074 J**	**3.20E-09**	**5.2E-09**
Total Organic Carbon %	-	0.57	7.06	5.99	2.44
Site Specific Benchmark	-	0.00114	0.01412	0.01198	0.00488

Notes:
Only analytes detected at or above laboratory method detection limits included on tables
Results compared to the NYSDEC Technical Guidance for Screening Contaminated Sediments January 1999
< = Analyte was not detected above laboratory Method Detection Limits
SVOC results in mg/kg or parts per million
Dioxin results in ug/kg or parts per billion
Bold Text=Analyte was detected above laboratory Method Detection Limits
Shaded Text=Analyte exceeded screening criteria
J=Estimated Value
S=Signal to noise ratio of the confirmation ion does not meet 2.5 S/N requirement, but peak was determined to be positive in the judgement of the GC/MS analyst.

Table 4
Soil Boring Analytical Results
Camp Georgetown

Analyte	TAGM	GB-1	GB-2	GB-3	GB-4	GB-5	GB-6	GB-7	GB-8	GB-9	GB-10	GB-11	GB-12	GB-13A	GB-13B
SVOCs (mg/kg)		0-6'	0-4'	0-2'	0-2'	2-5'	2-4'	4-6'	0-6'	0-6'	0-4'	0-6'	0-2'	0-2'	2-4'
Bis (2-ethylhexyl) phthalate	50	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Di-n-butyl phthalate	8.1	-	-	-	-	-	-	-	-	-	-	-	-	-	-
2-Methylnaphthalene	36.4	-	-	-	-	-	-	-	-	16 D	-	-	-	-	-
Naphthalene	13	-	-	-	-	-	-	-	-	1.7 JD	-	-	-	-	-
Pentachlorophenol	1	1.52*	4.98*	0.77*	ND	123*	10.8*	1.97*	25*	58*	1.1*	0.34*	8*	0.94*	9.4*
Phenanthrene	50	-	-	-	-	-	-	-	-	4 D	-	-	-	-	-
Pyrene	50	-	-	-	-	-	-	-	-	1.1 JD	-	-	-	-	-
Total SVOCs		1.52	4.98	0.77	ND	123	10.8	1.97	25	80.8	1.1	0.34	8	0.94*	9.4*
Dioxins (ug/kg)	**TEF**	GB-1	GB-2	GB-3	GB-4	GB-5	GB-6	GB-7	GB-8	GB-9	GB-10	GB-11	GB-12	GB-13A	GB-13B
Total TCDF	-	-	0.00129	ND	-	0.00798	-	-	-	-	-	ND	0.0066	-	-
Total PeCDF	-	-	0.0288	ND	-	0.0409	-	-	-	-	-	ND	0.0151	-	-
TotalHxCDF	-	-	1.27	0.0138	-	2.81	-	-	-	-	-	0.0474	0.63	-	-
Total HpCDF	-	-	7.47	0.451	-	48.7	-	-	-	-	-	0.672	9.26	-	-
Total TCDD	-	-	ND	ND	-	0.128	-	-	-	-	-	ND	0.00473	-	-
Total PeCDD	-	-	0.005	ND	-	0.22	-	-	-	-	-	ND	0.0361	-	-
Total HxCDD	-	-	0.774	0.0246	-	6.3	-	-	-	-	-	0.1	1.28	-	-
Total HpCDD	-	-	13.1	0.115	-	27.9	-	-	-	-	-	0.482	6.53	-	-
2,3,7,8-TCDD	1	-	ND	ND	-	ND	-	-	-	-	-	ND	ND	-	-
1,2,3,7,8-PeCDD	0.5	-	0.00369	ND	-	0.00664	-	-	-	-	-	ND	0.00795	-	-
1,2,3,4,7,8-HxCDD	0.1	-	0.0224	ND	-	0.0383	-	-	-	-	-	ND	0.0334	-	-
1,2,3,6,7,8-HxCDD	0.1	-	0.221	0.005	-	1.11	-	-	-	-	-	0.0142	0.202	-	-
1,2,3,7,8,9-HxCDD	0.1	-	0.0635	ND	-	0.157	-	-	-	-	-	0.00638	0.0687	-	-
1,2,3,4,6,7,8-HpCDD	0.01	-	8.5	0.257	-	28.7	-	-	-	-	-	0.435	6.11	-	-
OCDD	0.0001	-	60.2	4.72	-	330	-	-	-	-	-	3.41	52.9	-	-
2,3,7,8-TCDF	0.1	-	0.00053	ND	-	0.00377	-	-	-	-	-	ND	0.00064	-	-
1,2,3,7,8-PeCDF	0.05	-	0.00291	ND	-	0.0284	-	-	-	-	-	ND	0.00372	-	-
2,3,4,7,8-PeCDF	0.5	-	0.00269	ND	-	0.0248	-	-	-	-	-	ND	0.0322	-	-
1,2,3,4,7,8-HxCDF	0.1	-	0.0235	ND	-	0.182	-	-	-	-	-	0.00176	0.032	-	-
1,2,3,6,7,8-HxCDF	0.1	-	0.009	ND	-	0.0587	-	-	-	-	-	0.00167	0.0152	-	-
2,3,4,6,7,8-HxCDF	0.1	-	ND	ND	-	ND	-	-	-	-	-	ND	ND	-	-
1,2,3,7,8,9-HxCDF	0.1	-	0.00762	ND	-	0.0646	-	-	-	-	-	ND	0.0124	-	-
1,2,3,4,6,7,8-HpCDF	0.01	-	1.22	ND	-	4.65	-	-	-	-	-	0.114	1.28	-	-
1,2,3,4,7,8,9-HpCDF	0.01	-	0.0869	ND	-	0.305	-	-	-	-	-	0.00948	0.104	-	-
OCDF	0.0001	-	10.2	ND	-	333	-	-	-	-	-	0.902	10.6	-	-
2,3,7,8-TCDD Equivalence	1.0	-	0.207	0.0098	-	0.878	-	-	-	-	-	0.0132	0.181	-	-
Metals (mg/kg)	**TAGM (4046) or SiteBackground Average**	GB-1	GB-2	GB-3	GB-4	GB-5	GB-6	GB-7	GB-8	GB-9	GB-10	GB-11	GB-12	GB-13A	GB-13B
Aluminum	NV or **14340**	12000	12500	14200	12900	12000	14100	12000	11400	11800	13000	11900	-	-	-
Antimony	NV or **0.487**	0.23 B	ND	ND	0.023 B	ND	0.23 B	0.4 B	0.03 B	ND	ND	0.18 B	-	-	-
Arsenic	7.5 or **8.2**	8.6	33	8.1	8.6	9.7	9.6	9.8	8	8.7	6.5	7.7	-	-	-
Barium	**300** or 38.49	68.3	59.9	78.9	52.9	98.6	84.1	63.5	72	62.4	79.6	85.7	-	-	-
Berillium	0.16 or **0.427**	0.62	0.7	0.78	0.72	0.67	0.83	0.71	0.64	0.66	0.76	0.75	-	-	-
Cadmium	**10** or 0.029	0.011 B	0.1 B	0.12 B	0.1 B	0.04 B	0.09 B	0.07 B	0.1 B	0.09 B	0.09 B	0.09 B	-	-	-
Calcium	NV or **309.96**	55700	13700	6070	20000	2180	2000	4550	3690	5720	920	1680	-	-	-
Chromium	**50** or 16.58	17.8	68.1	19.3	17.1	18.2	21.1	18.3	17.1	16.7	17.3	18	-	-	-
Cobalt	**30** or 8.31	10.5	13.1	13.1	10.9	12.7	14.9	14.7	18.1	11.2	12.8	12.6	-	-	-
Copper	**25** or 11.83	23.1	22.5	19.6	19.6	30.8	24.2	23	21.2	15	32.4	19.6	-	-	-
Iron	2000 or **25770**	24600	28000	29200	301000	28300	32400	28000	25600	22100	27600	27500	-	-	-
Lead	**400** or 12.58	10.7	13.2	12.9	13.3	13.7	19	16.5	12.4	11.3	12.6	13.7	-	-	-
Magnesium	NV or **2893**	30600	6300	5020	7640	4410	5050	4770	4550	4630	4010	4210	-	-	-
Manganese	NV or **319.3**	471	487	433	650	483	488	423	412	390	604	365	-	-	-
Nickel	13 or **17.77**	0.15	0.14	0.19	0.16	0.15	0.08 B	0.08 B	0.07	0.13	0.13	0.08 B	-	-	-
Potassium	NV or **714.8**	25.5	29.3	30.3	26.7	29.7	34.9	31.8	28.2	24.6	29.1	30.2	-	-	-
Selenium	**2** or 1.322	980	984	861	838	915	998	946	905	813	635	615	-	-	-
Silver	NV or **ND**	ND	ND	0.45 B	0.19 B	0.17 B	0.19 B	ND	ND	ND	0.24 B	0.22 B	-	-	-
Mercury	**0.1** or 0.082375	0.43 B	0.26 B	0.22 B	0.28 B	0.13 B	0.21 B	0.17 B	0.12 B	0.04 B	0.15 B	0.15 B	-	-	-
Sodium	NV or **41.52222**	229 B	144 B	151 B	171 B	148 B	143 B	141 B	136 B	42.9 B	156 B	127 B	-	-	-
Thallium	NV or **ND**	0.45 B	1.9	1.8	1.6	1.8	2	1.9	2	3.5	1 B	2.1	-	-	-
Vanadium	**150** or 20.15	13.3	14.1	15.6	15.5	15.2	16	13.9	13.2	14.3	15	13.1	-	-	-
Zinc	20 or **51.96**	58.8	67.6	66.8	65.4	61.9	69.6	62.6	61	53.5	66.1	59.2	-	-	-

Notes:
Only analytes detected at or above laboratory method detection limits included on tables
*PCP results from PIR Immunoassay Results
Bold Text=Analyte detected above laboratory method detection limit
Shaded Text=Exceedence of TAGM 4046 soil cleanup objectives
BDL=Below laboratory method detection limit
ND=Non Detect

Dioxin Data Qualifiers:
All results in ug/kg or parts per billion
D=Result obtained from dilution
J=Estimated result, result is less than the reporting limit
E=Estimated result, result exceeds calibration range
CON=Confirmation analysis

SVOC Data Qualifiers:
All results in mg/kg or parts per million
< = Analyte was not detected above laboratory detection limits
J=Estimated Value

Metal Data Qualifiers:
All results in mg/kg or parts per million
B=Indicates a value greater than or equal to the instrument detection limit but less than the quantitation limit
J=Estimated result, result is less than the reporting limit
NV=Indicates TAGM recommened soil clean-up objective is site background
Metals SCGs used for comparison were either TAGM 4046 or Site Background average, which ever is higher
Bold Text=SCG used for Regulatory Comparison
The SCG for Cadmium (10 ppm) and Chromium (50 ppm) are generally accepted clean-up levels
The SCG for Lead (400 ppm) was adopted from the EPA

Table 4
Soil Boring Analytical Results
Camp Georgetown

Analyte	TAGM	MW-9							MW-10			MW-11	MW-12	MW-13	MW-14						
SVOCs (mg/kg)		**0-2**	**2-4'**	**4-6'**	**6-8'**	**8-10'**	**10-12'**	**12-14'**	**0-2'**	**2-4'**	**10-12'**	**2-4'**	**2-4'**	**2-4'**	**0-2'**	**2-4'**	**4-6'**	**6-8'**	**8-10'**	**12-14'**	**14-16'**
Bis (2-ethylhexyl) phthalate	50	<0.33	<0.33	<0.33	<0.33	<0.33	<0.33	<0.33	<0.33	<0.33	<0.33	<0.33	<0.33	<0.33	**0.038 J**	**0.037 J**	**0.029 J**	**0.130 J**	<0.33 J	<0.33 J	<0.33 J
Di-n-butyl phthalate	8.1	<0.33	<0.33	**0.046 J**	<0.33	<0.33	<0.33	<0.045 J	<0.33	<0.33	<0.33	<0.33	<0.33	<0.33	<0.33 J	<0.33 J	**0.025 J**	**0.064 J**	<0.33 J	<0.33 J	<0.33 J
2-Methylnaphthalene	36.4	<0.33	<0.33	<0.33	<0.33	<0.33	<0.33	<0.33	<0.33	<0.33	<0.33	<0.33	<0.33	<0.33	<0.33 J	<0.33 J	<0.33 J	<0.33 J	<0.33 J	<0.33 J	<0.33 J
Naphthalene	13	<0.33	<0.33	<0.33	<0.33	<0.33	<0.33	<0.33	<0.33	<0.33	<0.33	<0.33	<0.33	<0.33	<0.33 J	<0.33 J	<0.33 J	<0.33 J	<0.33 J	<0.33 J	<0.33 J
Pentachlorophenol	1	<1.6	<1.6	<1.6	<1.6	<1.6	<1.6	<1.6	<1.6	<1.6	<1.6	<1.6	<1.6	<1.6	<1.6 J	<1.6 J	<1.6 J	<1.6 J	<1.6 J	<1.6 J	<1.6 J
Phenanthrene	50	<0.33	<0.33	<0.33	<0.33	<0.33	<0.33	<0.33	<0.33	<0.33	<0.33	<0.33	<0.33	<0.33	<0.33 J	<0.33 J	<0.33 J	<0.33 J	<0.33 J	<0.33 J	<0.33 J
Pyrene	50	<0.33	<0.33	<0.33	<0.33	<0.33	<0.33	<0.33	<0.33	<0.33	<0.33	<0.33	<0.33	<0.33	<0.33 J	<0.33 J	<0.33 J	<0.33 J	<0.33 J	<0.33 J	<0.33 J
Total SVOCs		BDL	BDL	**0.046 J**	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	**0.038 J**	**0.037 J**	**0.054 J**	**0.194 J**	BDL	BDL	BDL
Dioxins (ug/kg)	**TEF**	**MW-9**							**MW-10**			**MW-11**	**MW-12**	**MW-13**	**MW-14**						
Total TCDF	-	-	<0.00021	-	-	-	-	-	-	<0.00021 R	<0.036	<0.22	<0.00041	<0.0002	-	<0.00054	-	-	-	-	-
Total PeCDF	-	-	<0.00039	-	-	-	-	-	-	<0.00032 R	<0.13	<0.073	<0.00053	<0.00027	-	<0.00086	-	-	-	-	-
TotalHxCDF	-	-	<0.00039	-	-	-	-	-	-	<0.00075 R	<0.046	<0.11	<0.00061	<0.00031	-	<0.00072	-	-	-	-	-
Total HpCDF	-	-	<0.00037	-	-	-	-	-	-	**0.0034 R**	<0.21	<0.077	<0.00046	<0.00037	-	<0.00084	-	-	-	-	-
Total TCDD	-	-	<0.00033	-	-	-	-	-	-	<0.00069 R	<0.046	<0.03	**0.0046**	<0.00027	-	**0.0027**	-	-	-	-	-
Total PeCDD	-	-	<0.00058	-	-	-	-	-	-	<0.0027 R	<0.18	<0.13	**0.0039**	<0.00064	-	**0.0042**	-	-	-	-	-
Total HxCDD	-	-	<0.00043	-	-	-	-	-	-	<0.0014 R	<0.051	<0.043	<0.0011	<0.00044	-	<0.002	-	-	-	-	-
Total HpCDD	-	-	<0.0006	-	-	-	-	-	-	**0.012 R**	<0.31	<0.10	<0.00034	<0.00037	-	<0.0011	-	-	-	-	-
2,3,7,8-TCDD	1	-	<0.00033	-	-	-	-	-	-	<0.00027 R	<0.046	<0.03	<0.00055	<0.00027	-	<0.00055	-	-	-	-	-
1,2,3,7,8-PeCDD	0.5	-	<0.00058	-	-	-	-	-	-	<0.00066 R	<0.18	<0.13	<0.0012	<0.00064	-	<0.0014	-	-	-	-	-
1,2,3,4,7,8-HxCDD	0.1	-	<0.00041	-	-	-	-	-	-	<0.00053 R	<0.054	<0.045	<0.00054	<0.00042	-	<0.0008	-	-	-	-	-
1,2,3,6,7,8-HxCDD	0.1	-	<0.00043	-	-	-	-	-	-	<0.00055 R	<0.058	<0.048	<0.00059	<0.00044	-	<0.0089	-	-	-	-	-
1,2,3,7,8,9-HxCDD	0.1	-	<0.00039	-	-	-	-	-	-	<0.00049 R	<0.051	<0.043	<0.00054	<0.0004	-	<0.00079	-	-	-	-	-
1,2,3,4,6,7,8-HpCDD	0.01	-	<0.0006	-	-	-	-	-	-	**0.0079 R**	<0.31	<0.10	<0.00034	<0.00037	-	<0.0092	-	-	-	-	-
OCDD	0.0001	-	<0.0035	-	-	-	-	-	-	**0.037 R**	**0.81 J**	**0.6**	<0.0017	<0.0026	-	**0.012 J**	-	-	-	-	-
2,3,7,8-TCDF	0.1	-	<0.00021	-	-	-	-	-	-	<0.00021 R	<0.036	<0.22	<0.00041	<0.0002	-	<0.00054	-	-	-	-	-
1,2,3,7,8-PeCDF	0.05	-	<0.00032	-	-	-	-	-	-	<0.00032 R	<0.14	<0.077	<0.00053	<0.00026	-	<0.00073	-	-	-	-	-
2,3,4,7,8-PeCDF	0.5	-	<0.00031	-	-	-	-	-	-	<0.00032 R	<0.13	<0.073	<0.00052	<0.00024	-	<0.00072	-	-	-	-	-
1,2,3,4,7,8-HxCDF	0.1	-	<0.00035	-	-	-	-	-	-	<0.00035 R	<0.046	<0.11	<0.00054	<0.00028	-	<0.00064	-	-	-	-	-
1,2,3,6,7,8-HxCDF	0.1	-	<0.00033	-	-	-	-	-	-	<0.00031 R	<0.047	<0.11	<0.00052	<0.00027	-	<0.00061	-	-	-	-	-
2,3,4,6,7,8-HxCDF	0.1	-	<0.00036	-	-	-	-	-	-	<0.00034 R	<0.05	<0.12	<0.00056	<0.00029	-	<0.00067	-	-	-	-	-
1,2,3,7,8,9-HxCDF	0.1	-	<0.00039	-	-	-	-	-	-	<0.00035 R	<0.05	<0.12	<0.00061	<0.00031	-	<0.00072	-	-	-	-	-
1,2,3,4,6,7,8-HpCDF	0.01	-	<0.00037	-	-	-	-	-	-	<0.0025 R	<0.21	<0.077	<0.00039	<0.00033	-	<0.00071	-	-	-	-	-
1,2,3,4,7,8,9-HpCDF	0.01	-	<0.00031	-	-	-	-	-	-	<0.00062 R	<0.24	<0.088	<0.00046	<0.00037	-	<0.00084	-	-	-	-	-
OCDF	0.0001	-	<0.00067	-	-	-	-	-	-	**0.0082 JR**	<0.36	<0.12	<0.0016	<0.00057	-	<0.0014	-	-	-	-	-
2,3,7,8-TCDD Equivalence	1.0	-	BDL	-	-	-	-	-	-	**0.0000835 JR**	**0.000081 J**	**0.00006**	BDL	BDL	-	**0.0000012 J**	-	-	-	-	-
Metals (mg/kg)	**TAGM (4046) or SiteBackground Average**	**MW-9**							**MW-10**			**MW-11**	**MW-12**	**MW-13**	**MW-14**						
Aluminum	NV or **14340**	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Antimony	NV or **0.487**	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Arsenic	7.5 or **8.2**	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Barium	**300** or 38.49	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Berillium	0.16 or **0.427**	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Cadmium	**10** or 0.029	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Calcium	NV or **309.96**	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Chromium	**50** or 16.58	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Cobalt	**30** or 8.31	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Copper	**25** or 11.83	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Iron	2000 or **25770**	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Lead	**400** or 12.58	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Magnesium	NV or **2893**	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Manganese	NV or **319.3**	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Nickel	13 or **17.77**	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Potassium	NV or **714.8**	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Selenium	**2** or 1.322	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Silver	NV or **ND**	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Mercury	**0.1** or 0.082375	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Sodium	NV or **41.52222**	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Thallium	NV or **ND**	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Vanadium	**150** or 20.15	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Zinc	20 or **51.96**	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-

Notes:
Only analytes detected at or above laboratory method detection limits included on table
*PCP results from PIR Immunoassay Results
Bold Text=Analyte detected above laboratory method detection limit
Shaded Text=Exceedence of TAGM 4046 soil cleanup objectives
BDL=Below laboratory method detection limit
ND=Non Detect

Dioxin Data Qualifiers:
All results in ug/kg or parts per billion
D=Result obtained from dilution
J=Estimated result, result is less than the reporting limit
E=Estimated result, result exceeds calibration range
CON=Confirmation analysis

SVOC Data Qualifiers:
All results in mg/kg or parts per million
< = Analyte was not detected above laboratory detection limits
J=Estimated Value

Metal Data Qualifiers:
All results in mg/kg or parts per million
B=Indicates a value greater than or equal to the instrument detection limit but less than the quantitation limit
J=Estimated result, result is less than the reporting limit
NV=Indicates TAGM recommened soil clean-up objective is site background
Metals SCGs used for comparison were either TAGM 4046 or Site Background average, which ever is higher
Bold Text=SCG used for Regulatory Comparison
The SCG for Cadmium (10 ppm) and Chromium (50 ppm) are generally accepted clean-up levels
The SCG for Lead (400 ppm) was adopted from the EPA

Table 4
Soil Boring Analytical Results
Camp Georgetown

Analyte	TAGM	MW-15	MW-16							MW-17							MW-18	MW-19
SVOCs (mg/kg)		**2-4'**	**0-2'**	**2-4'**	**4-6'**	**6-8'**	**8-10'**	**10-12'**	**12-14'**	**0-2'**	**2-4'**	**4-6'**	**6-8'**	**8-10'**	**10-12'**	**12-14'**	**6-8'**	**0-2'**
Bis (2-ethylhexyl) phthalate	50	<0.33	<0.33 J	<0.33 J	<0.33 J	<0.33 J	<0.33 J	<0.33 J	<0.33 J	<1.6 J	<0.33 J	<0.33 J	<0.33 J	<0.33 J	<0.33 J	<0.33 J	**0.89 JB**	**0.086 J**
Di-n-butyl phthalate	8.1	<0.33	<0.33 J	<0.33 J	<0.33 J	<0.33 J	<0.33 J	<0.33 J	<0.33 J	<1.6 J	<0.33 J	<0.33 J	<0.33 J	**0.074 J**	**0.028 J**	**0.042 J**	<0.42	<0.37
2-Methylnaphthalene	36.4	<0.33	<0.33 J	<0.33 J	<0.33 J	<0.33 J	<0.33 J	<0.33 J	<0.33 J	<1.6 J	<0.33 J	<0.33 J	<0.33 J	<0.33 J	<0.33 J	<0.33 J	<0.42	<0.37
Naphthalene	13	<0.33	<0.33 J	<0.33 J	<0.33 J	<0.33 J	<0.33 J	<0.33 J	<0.33 J	<1.6 J	<0.33 J	<0.33 J	<0.33 J	<0.33 J	<0.33 J	<0.33 J	<0.42	<0.37
Pentachlorophenol	1	<1.6	<1.6 J	<1.6 J	<1.6 J	<1.6 J	<1.6 J	<1.6 J	<1.6 J	<8.0 J	<1.6 J	<1.6 J	<1.6 J	<1.6 J	<1.6 J	<1.6 J	**0.12 J**	<0.93
Phenanthrene	50	<0.33	<0.33 J	<0.33 J	<0.33 J	<0.33 J	<0.33 J	<0.33 J	<0.33 J	<1.6 J	<0.33 J	<0.33 J	<0.33 J	<0.33 J	<0.33 J	<0.33 J	<0.42	<0.37
Pyrene	50	<0.33	<0.33 J	<0.33 J	<0.33 J	<0.33 J	<0.33 J	<0.33 J	<0.33 J	<1.6 J	<0.33 J	<0.33 J	<0.33 J	<0.33 J	<0.33 J	<0.33 J	<0.42	<0.37
Total SVOCs		BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	**0.074 J**	**0.028 J**	**0.042 J**	**1.01JB**	**0.086 J**
Dioxins (ug/kg)	**TEF**	**MW-15**	**MW-16**							**MW-17**							**MW-18**	**MW-19**
Total TCDF	-	<0.00018	-	<0.00049	-	-	-	-	-	-	<0.00038	-	-	-	-	-	<0.04	<0.02
Total PeCDF	-	<0.00049	-	<0.0016	-	-	-	-	-	-	<0.00066	-	-	-	-	-	<0.17	<0.14
TotalHxCDF	-	<0.0019	-	<0.0012	-	-	-	-	-	-	<0.000763	-	-	-	-	-	<0.06	<0.03
Total HpCDF	-	**0.0012**	-	**0.0037**	-	-	-	-	-	-	<0.0013	-	-	-	-	-	<0.10	<0.11
Total TCDD	-	<0.0029	-	<0.0007	-	-	-	-	-	-	<0.00053	-	-	-	-	-	<0.06	<0.03
Total PeCDD	-	<0.0062	-	<0.0026	-	-	-	-	-	-	<0.0013	-	-	-	-	-	<0.18	<0.04
Total HxCDD	-	<0.0017	-	<0.0014	-	-	-	-	-	-	<0.0008	-	-	-	-	-	<0.11	<0.06
Total HpCDD	-	**0.03**	-	**0.01**	-	-	-	-	-	-	<0.0015	-	-	-	-	-	<0.13	<0.08
2,3,7,8-TCDD	1	<0.00029	-	<0.00061	-	-	-	-	-	-	<0.00053	-	-	-	-	-	<0.06	<0.03
1,2,3,7,8-PeCDD	0.5	<0.00044	-	<0.0026	-	-	-	-	-	-	<0.00089	-	-	-	-	-	<0.18	<0.04
1,2,3,4,7,8-HxCDD	0.1	<0.00035	-	<0.0013	-	-	-	-	-	-	<0.00072	-	-	-	-	-	<0.11	<0.06
1,2,3,6,7,8-HxCDD	0.1	<0.001	-	<0.0014	-	-	-	-	-	-	<0.0008	-	-	-	-	-	<0.09	<0.05
1,2,3,7,8,9-HxCDD	0.1	<0.00073	-	<0.0013	-	-	-	-	-	-	<0.00072	-	-	-	-	-	<0.09	<0.05
1,2,3,4,6,7,8-HpCDD	0.01	**0.019**	-	**0.0064**	-	-	-	-	-	-	<0.0015	-	-	-	-	-	<0.13	<0.08
OCDD	0.0001	**0.091**	-	**0.031**	-	-	-	-	-	-	**0.012 J**	-	-	-	-	-	<0.13	**0.60 J**
2,3,7,8-TCDF	0.1	<0.00018	-	<0.00049	-	-	-	-	-	-	<0.00038	-	-	-	-	-	<0.04	<0.02
1,2,3,7,8-PeCDF	0.05	<0.00026	-	<0.0014	-	-	-	-	-	-	<0.00061	-	-	-	-	-	<0.17	<0.14
2,3,4,7,8-PeCDF	0.5	<0.00026	-	<0.0014	-	-	-	-	-	-	<0.0006	-	-	-	-	-	<0.16	<0.14
1,2,3,4,7,8-HxCDF	0.1	<0.00061	-	<0.0011	-	-	-	-	-	-	<0.00065	-	-	-	-	-	<0.06	<0.03
1,2,3,6,7,8-HxCDF	0.1	<0.00023	-	<0.001	-	-	-	-	-	-	<0.00062	-	-	-	-	-	<0.05	<0.03
2,3,4,6,7,8-HxCDF	0.1	<0.00029	-	<0.0011	-	-	-	-	-	-	<0.00067	-	-	-	-	-	<0.06	<0.03
1,2,3,7,8,9-HxCDF	0.1	<0.00027	-	<0.0012	-	-	-	-	-	-	<0.00073	-	-	-	-	-	<0.06	<0.03
1,2,3,4,6,7,8-HpCDF	0.01	**0.0045 J**	-	<0.0018	-	-	-	-	-	-	<0.00058	-	-	-	-	-	<0.08	<0.07
1,2,3,4,7,8,9-HpCDF	0.01	<0.00061	-	<0.0009	-	-	-	-	-	-	<0.0007	-	-	-	-	-	<0.10	<0.10
OCDF	0.0001	**0.013**	-	**0.0059 J**	-	-	-	-	-	-	<0.002 J	-	-	-	-	-	<0.08	**0.08 J**
2,3,7,8-TCDD Equivalence	1.0	**0.000245 J**	-	**0.0000677 J**	-	-	-	-	-	-	**0.0000012 J**	-	-	-	-	-	BDL	**0.000068 J**
Metals (mg/kg)	**TAGM (4046) or SiteBackground Average**	**MW-15**	**MW-16**							**MW-17**							**MW-18**	**MW-19**
Aluminum	NV or **14340**	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Antimony	NV or **0.487**	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Arsenic	7.5 or **8.2**	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Barium	**300** or 38.49	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Berillium	0.16 or **0.427**	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Cadmium	**10** or 0.029	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Calcium	NV or **309.96**	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Chromium	**50** or 16.58	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Cobalt	**30** or 8.31	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Copper	**25** or 11.83	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Iron	2000 or **25770**	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Lead	**400** or 12.58	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Magnesium	NV or **2893**	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Manganese	NV or **319.3**	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Nickel	13 or **17.77**	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Potassium	NV or **714.8**	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Selenium	**2** or 1.322	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Silver	NV or **ND**	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Mercury	**0.1** or 0.082375	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Sodium	NV or **41.52222**	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Thallium	NV or **ND**	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Vanadium	**150** or 20.15	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Zinc	20 or **51.96**	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-

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Table 4
Soil Boring Analytical Results
Camp Georgetown

Analyte	**TAGM**	**GSB02-1**			**GSB02-2**	**GSB02-3**			**GSB02-4**		**GSB02-5**	**GSB02-6**		**GSB02-7**		**GSB02-8**		**GSB02-9**
SVOCs (mg/kg)		**2-4'**	**4-6'**	**8-10'**	**4-6'**	**2-4'**	**6-8'**	**8-10'**	**4-6'**	**6-8'**	**2-4'**	**2-4'**	**8-10'**	**2-4'**	**6-8'**	**1-2'**	**7-8'**	
Bis (2-ethylhexyl) phthalate	50	<8.0	**0.054 JB**	**0.025 JB**	**0.067 JB**	**0.21 JB**	**0.019 JB**	**0.077 JB**	<0.37	**0.03 JB**	**0.029 JB**	**0.025 JB**	**0.33 JB**	**0.025 JB**	**0.20 JB**	<2.0	**0.044 JB**	**0.033 JB**
Di-n-butyl phthalate	8.1	<8.0	<0.38	<0.40	<0.38	<3.7	<0.37	<1.1	<0.37	<0.37	<0.38	<0.41	<0.37	<0.38	<0.37	<2.0	<0.37	<0.43
2-Methylnaphthalene	36.4	<8.0	<0.38	<0.40	<0.38	<3.8	**0.04 JB**	**2.20**	**0.18 J**	<0.37	<0.38	<0.41	<0.37	<0.38	<0.37	<2.0	**3.0 D**	<0.43
Naphthalene	13	<8.0	<0.38	<0.40	<0.38	<3.7	<0.37	<1.1	<0.37	<0.37	<0.38	<0.41	<0.37	<0.38	<0.37	<2.0	**0.49**	<0.43
Pentachlorophenol	1	**36.0**	**0.63 J**	**0.51 J**	**0.13 J**	**25.0**	**1.6**	**4.3**	**0.81 J**	**1.5**	<0.94	<1.0	<0.93	<0.95	<0.94	**4.3 J**	**2.4**	<0.43
Phenanthrene	50	<8.0	<0.38	<0.40	<0.38	**0.19 J**	<0.37	<1.1	<0.37	<0.37	<0.38	<0.41	<0.37	<0.38	<0.37	<2.0	**1**	<0.43
Pyrene	50	<8.0	<0.38	<0.40	<0.38	<3.7	<0.37	<1.1	<0.37	<0.37	<0.38	<0.41	<0.37	<0.38	<0.37	<2.0	**0.08 J**	<0.43
Total SVOCs		**36.0**	**0.684JB**	**0.535 JB**	**0.197 JB**	**25.4 JB**	**1.659 JB**	**6.577 JB**	**0.99 J**	**1.53 JB**	**0.029 JB**	**0.025 JB**	**0.33 JB**	**0.025 JB**	**0.200 JB**	**4.3 J**	**7.014**	**0.033 JB**
Dioxins (ug/kg)	**TEF**	**GSB02-1**			**GSB02-2**	**GSB02-3**			**GSB02-4**		**GSB02-5**	**GSB02-6**		**GSB02-7**		**GSB02-8**		**GSB02-9**
Total TCDF	-	<0.09	<0.02	<0.02	<0.03	<0.02	<0.01	<0.03	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.04	<0.01	<0.02
Total PeCDF	-	**1.2 S**	<0.12	<0.09	<0.08	<0.08	<0.12	<0.08	<0.07	<0.23	<0.04	<0.09	<0.07	<0.08	<0.07	**0.36 JS**	<0.07	<0.10
TotalHxCDF	-	**33**	<0.03	<0.04	<0.05	**1.5**	<0.02	**0.78**	**0.19 JS**	<0.04	<0.03	<0.04	<0.05	<0.03	<0.02	**15**	**0.88**	<0.04
Total HpCDF	-	**292**	**0.51 J**	<0.09	<0.10	**17**	<0.04	**5.9**	**1.8**	<0.06	<0.03	<0.04	<0.09	<0.07	<0.03	**117**	**4.8**	<0.06
Total TCDD	-	**0.10 J**	<0.03	<0.03	<0.04	<0.02	<0.01	<0.02	<0.03	<0.03	<0.02	<0.03	<0.02	<0.02	<0.02	<0.02	<0.02	<0.03
Total PeCDD	-	<0.07	<0.05	<0.07	<0.09	<0.04	<0.02	<0.04	<0.08	<0.05	<0.03	<0.06	<0.06	<0.05	<0.06	<0.09	<0.11	<0.07
Total HxCDD	-	**8.1**	<0.06	<0.08	<0.07	**0.27 JS**	<0.03	**0.13 J**	<0.12	<0.06	<0.06	<0.06	<0.05	<0.04	<0.05	**5.2**	**0.28 JS**	<0.06
Total HpCDD	-	**181**	**0.30 JS**	<0.06	<0.09	**16**	**0.19 JS**	**7.8**	**2.3**	<0.05	<0.05	<0.06	<0.05	<0.05	<0.05	**55**	**10**	<0.05
2,3,7,8-TCDD	1	**0.10 J**	<0.03	<0.03	<0.04	<0.02	<0.01	<0.02	<0.03	<0.03	<0.02	<0.03	<0.02	<0.02	<0.02	<0.02	<0.02	<0.03
1,2,3,7,8-PeCDD	0.5	<0.07	<0.05	<0.07	<0.09	<0.04	<0.02	<0.04	<0.08	<0.05	<0.03	<0.06	<0.06	<0.05	<0.06	<0.09	<0.11	<0.07
1,2,3,4,7,8-HxCDD	0.1	**0.28 J**	<0.06	<0.08	<0.07	<0.08	<0.03	<0.05	<0.12	<0.08	<0.06	<0.06	<0.06	<0.04	<0.05	**2.6**	<0.05	<0.06
1,2,3,6,7,8-HxCDD	0.1	**2.9**	<0.05	<0.06	<0.06	**0.27 JS**	<0.03	**0.13 JS**	<0.10	<0.06	<0.04	<0.04	<0.04	<0.04	<0.04	<0.03	**0.15 JS**	<0.05
1,2,3,7,8,9-HxCDD	0.1	**0.67**	<0.05	<0.07	<0.06	<0.06	<0.03	<0.04	<0.10	<0.06	<0.04	<0.04	<0.04	<0.04	<0.04	<0.03	<0.04	<0.05
1,2,3,4,6,7,8-HpCDD	0.01	**131**	**0.22 JS**	<0.06	<0.09	**12**	**0.13 JS**	**5.6**	**1.6**	<0.05	<0.05	<0.06	<0.05	<0.05	<0.05	**40**	**7.3**	<0.05
OCDD	0.0001	**549**	**1.2**	**0.29 J**	<0.08	**70**	**1.2**	**36**	**12**	<0.06	**0.08 JS**	<0.07	**0.05 JS**	<0.04	<0.04	**750**	**41**	**0.17 J**
2,3,7,8-TCDF	0.1	<0.09	<0.02	<0.02	<0.03	<0.02	<0.01	<0.03	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.04	<0.01	<0.02
1,2,3,7,8-PeCDF	0.05	<0.07	<0.12	<0.09	<0.08	<0.08	<0.12	<0.08	<0.07	<0.23	<0.04	<0.09	<0.07	<0.08	<0.07	<0.14	<0.07	<0.10
2,3,4,7,8-PeCDF	0.5	<0.07	<0.12	<0.09	<0.08	<0.08	<0.12	<0.08	<0.07	<0.23	<0.04	<0.09	<0.07	<0.08	<0.07	<0.14	<0.07	<0.10
1,2,3,4,7,8-HxCDF	0.1	**0.66**	<0.03	<0.04	<0.05	<0.06	<0.02	<0.05	<0.03	<0.03	<0.02	<0.04	<0.05	<0.03	<0.02	**0.32 JS**	<0.03	<0.04
1,2,3,6,7,8-HxCDF	0.1	**0.23 J**	<0.02	<0.03	<0.04	**1.5**	<0.01	**0.63**	**0.19 JS**	<0.03	<0.02	<0.03	<0.04	<0.03	<0.02	<0.03	**0.65**	<0.03
2,3,4,6,7,8-HxCDF	0.1	**0.63**	<0.03	<0.04	<0.05	<0.06	<0.02	<0.05	<0.04	<0.04	<0.03	<0.04	<0.05	<0.03	<0.02	**0.20 JS**	<0.03	<0.04
1,2,3,7,8,9-HxCDF	0.1	**0.23 JS**	<0.03	<0.04	<0.04	<0.06	<0.01	<0.04	<0.03	<0.03	<0.02	<0.03	<0.05	<0.03	<0.02	**0.08 JS**	<0.03	<0.03
1,2,3,4,6,7,8-HpCDF	0.01	**40**	<0.03	<0.08	<0.08	**1.9**	<0.03	**0.89**	**0.28 JS**	<0.05	<0.03	<0.03	<0.07	<0.06	<0.02	**13**	**0.74**	<0.05
1,2,3,4,7,8,9-HpCDF	0.01	**2.0**	<0.04	<0.09	<0.10	<0.14	<0.04	<0.06	<0.10	<0.06	<0.03	<0.04	<0.09	<0.07	<0.03	**1.7**	**0.07 J**	<0.06
OCDF	0.0001	**502**	**1.2**	**0.25 JS**	<0.07	**16**	**0.19 J**	**7.4**	**2.4**	<0.04	<0.04	<0.04	<0.04	<0.04	<0.03	**172**	**5.2**	<0.03
2,3,7,8-TCDD Equivalence	1.0	**2.4951 JS**	**0.00244 JS**	**0.000054 JS**	BDL	**0.3246 JS**	**0.001439 JS**	**0.14524 JS**	**0.03924 JS**	BDL	**0.000008 JS**	BDL	**0.000005 JS**	BDL	BDL	**0.9992 JS**	**0.16562 JS**	**0.000017 J**
Metals (mg/kg)	**TAGM (4046) or SiteBackground Average**	**GSB02-1**			**GSB02-2**	**GSB02-3**			**GSB02-4**		**GSB02-5**	**GSB02-6**		**GSB02-7**		**GSB02-8**		**GSB02-9**
Aluminum	NV or **14340**	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Antimony	NV or **0.487**	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Arsenic	7.5 or **8.2**	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Barium	**300** or 38.49	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Berillium	0.16 or **0.427**	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Cadmium	**10** or 0.029	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Calcium	NV or **309.96**	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Chromium	**50** or 16.58	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Cobalt	**30** or 8.31	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Copper	**25** or 11.83	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Iron	2000 or **25770**	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Lead	**400** or 12.58	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Magnesium	NV or **2893**	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Manganese	NV or **319.3**	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Nickel	13 or **17.77**	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Potassium	NV or **714.8**	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Selenium	**2** or 1.322	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Silver	NV or **ND**	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Mercury	**0.1** or 0.082375	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Sodium	NV or **41.52222**	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Thallium	NV or **ND**	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Vanadium	**150** or 20.15	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Zinc	20 or **51.96**	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-

Notes:
Only analytes detected at or above laboratory method detection limits included on table
*PCP results from PIR Immunoassay Results
Bold Text=Analyte detected above laboratory method detection limit
Shaded Text=Exceedence of TAGM 4046 soil cleanup objectives
BDL=Below laboratory method detection limit
ND=Non Detect

Dioxin Data Qualifiers:
All results in ug/kg or parts per billion
D=Result obtained from dilution
J=Estimated result, result is less than the reporting limit
E=Estimated result, result exceeds calibration range
CON=Confirmation analysis

SVOC Data Qualifiers:
All results in mg/kg or parts per million
< = Analyte was not detected above laboratory detection limits
J=Estimated Value

Metal Data Qualifiers:
All results in mg/kg or parts per million
B=Indicates a value greater than or equal to the instrument detection limit but less than the quantitation limit
J=Estimated result, result is less than the reporting limit
NV=Indicates TAGM recommened soil clean-up objective is site background
Metals SCGs used for comparison were either TAGM 4046 or Site Background average, which ever is higher
Bold Text=SCG used for Regulatory Comparison
The SCG for Cadmium (10 ppm) and Chromium (50 ppm) are generally accepted clean-up levels
The SCG for Lead (400 ppm) was adopted from the EPA

Table 5
Test Pit Analytical Results
Camp Georgetown

Analyte **SVOCs (mg/kg)**	**TAGM**	**GTP-1** **8'x2'x5'**	**GTP-2** **10'x2'x8'**	**GTP-3A** **11'x2'x7.5'**	**GTP-3B** **11'x2'x7.5'**	**GTP-4** **9'x2'x6'**	**GTP-5** **11'x2'x7'**	**GTP-6** **19'x2'x6'**	**GTP-7** **19'x2'x5'**	**GTP-8** **11'x2'x3'**	**GTP-9** **11'x2'x3'**	**GTP-10** **11'x2'x8'**	**GTP-11** **10'x2'x5'**	**GTP-12** **9'x2'x7'**	**GTP-13** **9'x2'x3'**	**GTP-14** **8'x2'x3'**	**GTP-15** **10'x2'x5'**
Bis (2-ethylhexyl) phthalate	50	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Di-n-butyl phthalate	8	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Di-n-octyl phthalate	120	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
2-Methylnaphthalate	36	-	-	-	-	-	-	**22 D**	-	-	-	-	**1.1 JD**	-	-	-	-
Pentachlorophenol	1	**30***	ND	**0.18***	**0.71***	**13***	**9***	**0.36***	**0.51***	ND	ND	ND	**14***	**0.18***	**89***	**0.39***	**0.43***
Phenanthrene	50	-	-	-	-	-	-	**10 D**	-	-	-	-	**0.64 JD**	-	-	-	-
Total SVOC	-	**30**	ND	**0.18**	**0.71**	**13**	**9**	**33.36**	**1**	ND	ND	ND	**15.74**	**0.18**	**89**	**0.39**	**0.43**
Metals (mg/kg)	**TAGM (4046) or SiteBackground Average**	**GTP-1**	**GTP-2**	**GTP-3A**	**GTP-3B**	**GTP-4**	**GTP-5**	**GTP-6**	**GTP-7**	**GTP-8**	**GTP-9**	**GTP-10**	**GTP-11**	**GTP-12**	**GTP-13**	**GTP-14**	**GTP-15**
Aluminum	NV or **14340**	-	-	-	-	-	-	**7220**	-	-	-	-	**9640**	-	-	-	-
Antimony	NV or **0.487**	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Arsenic	7.5 or **8.2**	-	-	-	-	-	-	**7.2**	-	-	-	-	**7.9**	-	-	-	-
Barium	**300** or 38.49	-	-	-	-	-	-	**40.9**	-	-	-	-	**79.6**	-	-	-	-
Berillium	0.16 or **0.427**	-	-	-	-	-	-	**0.66**	-	-	-	-	**0.56**	-	-	-	-
Cadmium	**10** or 0.029	-	-	-	-	-	-	**0.05 B**	-	-	-	-	**0.05 B**	-	-	-	-
Calcium	NV or **309.96**	-	-	-	-	-	-	**47800**	-	-	-	-	**61700**	-	-	-	-
Chromium	**50** or 16.58	-	-	-	-	-	-	**14.5**	-	-	-	-	**13.4**	-	-	-	-
Cobalt	**30** or 8.31	-	-	-	-	-	-	**9.3**	-	-	-	-	**7.7**	-	-	-	-
Copper	**25** or 11.83	-	-	-	-	-	-	**25.5**	-	-	-	-	**19.8**	-	-	-	-
Iron	2000 or **25770**	-	-	-	-	-	-	**16100**	-	-	-	-	**17000**	-	-	-	-
Lead	**400** or 12.58	-	-	-	-	-	-	**10.3**	-	-	-	-	**11.5**	-	-	-	-
Magnesium	NV or **2893**	-	-	-	-	-	-	**12100**	-	-	-	-	**4150**	-	-	-	-
Manganese	NV or **319.3**	-	-	-	-	-	-	**512**	-	-	-	-	**396**	-	-	-	-
Nickel	13 or **17.77**	-	-	-	-	-	-	**19.8**	-	-	-	-	**15.8**	-	-	-	-
Potassium	NV or **714.8**	-	-	-	-	-	-	**813**	-	-	-	-	**495**	-	-	-	-
Selenium	**2** or 1.322	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Silver	NV or **ND**	-	-	-	-	-	-	**0.45 B**	-	-	-	-	**0.29 B**	-	-	-	-
Mercury	**0.1** or 0.082375	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Sodium	NV or **41.52222**	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Thallium	NV or **ND**	-	-	-	-	-	-	**1.3**	-	-	-	-	**1.7**	-	-	-	-
Vanadium	**150** or 20.15	-	-	-	-	-	-	**9.4**	-	-	-	-	**10.6**	-	-	-	-
Zinc	20 or **51.96**	-	-	-	-	-	-	**65.8**	-	-	-	-	**53.2**	-	-	-	-
Dioxins (ug/kg)	**TEFs**	**GTP-1**	**GTP-2**	**GTP-3A**	**GTP-3B**	**GTP-4**	**GTP-5**	**GTP-6**	**GTP-7**	**GTP-8**	**GTP-9**	**GTP-10**	**GTP-11**	**GTP-12**	**GTP-13**	**GTP-14**	**GTP-15**
Total TCDF	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Total PeCDF	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Total HxCDF	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Total HpCDF	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Total TCDD	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Total PeCDD	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Total HxCDD	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Total HpCDD	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
2,3,7,8-TCDD	1	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
1,2,3,7,8-PeCDD	0.5	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
1,2,3,4,7,8-HxCDD	0.1	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
1,2,3,6,7,8-HxCDD	0.1	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
1,2,3,7,8,9-HxCDD	0.1	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
1,2,3,4,6,7,8-HpCDD	0.01	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
OCDD	0.0001	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
2,3,7,8-TCDF	0.01	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
1,2,3,7,8-PeCDF	0.05	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
2,3,4,7,8-PeCDF	0.5	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
1,2,3,4,7,8-HxCDF	0.1	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
1,2,3,6,7,8-HxCDF	0.1	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
2,3,4,6,7,8-HxCDF	0.1	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
1,2,3,7,8,9-HxCDF	0.1	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
1,2,3,4,6,7,8-HpCDF	0.01	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
1,2,3,4,7,8,9-HpCDF	0.01	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
OCDF	0.0001	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
2,3,7,8- TCDD Equivalence	1.0	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-

Notes:
Only analytes detected at or above laboratory method detection limits included on tables
*PCP results from PIR Immunoassay Results
Bold Text=Analyte detected above laboratory method detection limit
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BDL=Below laboratory method detection limit
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Dioxin Data Qualifiers:
All results in ug/kg or parts per billion
D=Result obtained from dilution
J=Estimated result, result is less than the reporting limit
E=Estimated result, result exceeds calibration range
CON=Confirmation analysis

SVOC Data Qualifiers:
All results in mg/kg or parts per million
< = Analyte was not detected above laboratory detection limits
J=Estimated Value

Metal Data Qualifiers:
All results in mg/kg or parts per million
B=Indicates a value greater than or equal to the instrument detection limit but less than the quantitation limit
J=Estimated result, result is less than the reporting limit
NV=Indicates TAGM recommened soil clean-up objective is site background
Metals SCGs used for comparison were either TAGM 4046 or Site Background average, which ever is highe
Bold Text=SCG used for Regulatory Comparison
The SCG for Cadmium (10 ppm) and Chromium (50 ppm) are generally accepted clean-up levels
The SCG for Lead (400 ppm) was adopted from the EPA

Table 5
Test Pit Analytical Results
Camp Georgetown

Analyte **SVOCs (mg/kg)**	**TAGM**	**GTP-16** **9'x2'x3.5'**	**GTP-17** **11'x2'x6'**	**GTP-18** **10'x2'x6.5'**	**GTP-19** **11'x2'x8'**	**GTP-20** **10'x2'x7'**	**GTP-21** **10'x2'x6'**	**GTP-22** **10'x2'x6'**	**TP-1** **2.5'x15'x2.3'**	**TP-2** **2.5'x15'x3'**	**TP-3** **2.5'x15'x4'**	**TP-4** **2.5'x15'x7'**	**TP-5** **2.5'x15'x8.5'**	**TP-6** **2.5'x15'x7'**	**TP-7** **2.5'x15'x7'**	**TP-8** **NA**	**TP-9** **2'x15'x9.5'**
Bis (2-ethylhexyl) phthalate	50	-	-	-	-	-	-	-	<0.33	<0.33	<0.33	<0.33	<0.33	<0.33	<0.33	**0.043 J**	<0.33
Di-n-butyl phthalate	8	-	-	-	-	-	-	-	**0.077 J**	<0.33	<0.33	<0.33	**0.058 J**	<0.33	<0.33	<0.33	<0.33
Di-n-octyl phthalate	120	-	-	-	-	-	-	-	<0.33	<0.33	<0.33	<0.33	<0.33	<0.33	<0.33	<0.33	<0.33
2-Methylnaphthalate	36	-	-	-	-	-	-	-	<0.33	<0.33	<0.33	<0.33	<0.33	<0.33	<0.33	<0.33	<0.33
Pentachlorophenol	1	**135***	**1.86***	**0.13***	ND	ND	ND	ND	<0.16	<0.16	<0.16	<0.16	<0.16	<0.16	<0.16	<0.16	<1.6
Phenanthrene	50	-	-	-	-	-	-	-	<0.33	<0.33	<0.33	<0.33	<0.33	<0.33	<0.33	<0.33	<0.33
Total SVOC	-	**135**	**1.86**	**0.13**	ND	ND	ND	ND	**0.077 J**	BDL	BDL	BDL	**0.058 J**	BDL	BDL	**0.043 J**	BDL
Metals (mg/kg)	**TAGM (4046) or SiteBackground Average**	**GTP-16**	**GTP-17**	**GTP-18**	**GTP-19**	**GTP-20**	**GTP-21**	**GTP-22**	**TP-1**	**TP-2**	**TP-3**	**TP-4**	**TP-5**	**TP-6**	**TP-7**	**TP-8**	**TP-9**
Aluminum	NV or **14340**	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Antimony	NV or **0.487**	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Arsenic	7.5 or **8.2**	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Barium	**300** or 38.49	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Berillium	0.16 or **0.427**	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Cadmium	**10** or 0.029	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Calcium	NV or **309.96**	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Chromium	**50** or 16.58	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Cobalt	**30** or 8.31	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Copper	**25** or 11.83	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Iron	2000 or **25770**	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Lead	**400** or 12.58	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Magnesium	NV or **2893**	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Manganese	NV or **319.3**	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Nickel	13 or **17.77**	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Potassium	NV or **714.8**	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Selenium	**2** or 1.322	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Silver	NV or **ND**	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Mercury	**0.1** or 0.082375	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Sodium	NV or **41.52222**	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Thallium	NV or **ND**	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Vanadium	**150** or 20.15	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Zinc	20 or **51.96**	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Dioxins (ug/kg)	**TEFs**	**GTP-16**	**GTP-17**	**GTP-18**	**GTP-19**	**GTP-20**	**GTP-21**	**GTP-22**	**TP-1**	**TP-2**	**TP-3**	**TP-4**	**TP-5**	**TP-6**	**TP-7**	**TP-8**	**TP-9**
Total TCDF	-	-	-	-	-	-	-	-	**0.015**	**0.0024**	<0.00025	<0.00044	-	-	-	**0.0052 R**	<0.0005
Total PeCDF	-	-	-	-	-	-	-	-	**0.15**	**0.011**	<0.00042	<0.00091	-	-	-	**0.0041 R**	<0.001
Total HxCDF	-	-	-	-	-	-	-	-	**1.7**	**0.24**	<0.00043	<0.00078	-	-	-	**0.0076 R**	<0.0008
Total HpCDF	-	-	-	-	-	-	-	-	**6.2**	**1.1**	<0.0018	<0.0020	-	-	-	**0.032 R**	**0.011**
Total TCDD	-	-	-	-	-	-	-	-	**0.0099**	<0.00039	<0.00045	<0.0005	-	-	-	<0.00052 R	<0.0004
Total PeCDD	-	-	-	-	-	-	-	-	**0.092**	<0.0021	<0.00098	<0.0013	-	-	-	<0.0012 R	<0.0009
Total HxCDD	-	-	-	-	-	-	-	-	**1.1**	**0.069**	<0.00062	<0.00081	-	-	-	**0.007 R**	<0.0007
Total HpCDD	-	-	-	-	-	-	-	-	**11**	**0.68**	<0.0027	**0.011**	-	-	-	**0.074 R**	<0.002
2,3,7,8-TCDD	1	-	-	-	-	-	-	-	**0.0022**	<0.00039	<0.00045	<0.0005	-	-	-	<0.00027 R	<0.0005
1,2,3,7,8-PeCDD	0.5	-	-	-	-	-	-	-	**0.028**	<0.0021	<0.00088	<0.0013	-	-	-	<0.00073 R	<0.001
1,2,3,4,7,8-HxCDD	0.1	-	-	-	-	-	-	-	**0.065**	**0.0034 J**	<0.00058	<0.00073	-	-	-	<0.0010 R	<0.0007
1,2,3,6,7,8-HxCDD	0.1	-	-	-	-	-	-	-	**0.28**	**0.02**	<0.00062	<0.00077	-	-	-	<0.0026 R	<0.0007
1,2,3,7,8,9-HxCDD	0.1	-	-	-	-	-	-	-	**0.18**	**0.0091**	<0.00057	<0.0007	-	-	-	<0.0028 R	<0.0007
1,2,3,4,6,7,8-HpCDD	0.01	-	-	-	-	-	-	-	**7.2 EJ**	**0.44**	<0.0027	**0.0062 J**	-	-	-	**0.047 R**	**0.006**
OCDD	0.0001	-	-	-	-	-	-	-	**50 EJ**	**2.4**	**0.015**	**0.039**	-	-	-	**0.23 R**	**0.039**
2,3,7,8-TCDF	0.01	-	-	-	-	-	-	-	**0.0018 CON**	<0.0004	<0.00025	<0.00044	-	-	-	<0.00076 CONR	<0.0004
1,2,3,7,8-PeCDF	0.05	-	-	-	-	-	-	-	**0.0062 J**	<0.00087	<0.00041	<0.00051	-	-	-	<0.00079 R	<0.0005
2,3,4,7,8-PeCDF	0.5	-	-	-	-	-	-	-	**0.0058 J**	<0.00082	<0.0004	<0.0005	-	-	-	<0.0012 R	<0.0005
1,2,3,4,7,8-HxCDF	0.1	-	-	-	-	-	-	-	**0.046**	**0.0061**	<0.0004	<0.00071	-	-	-	<0.0021 R	<0.0007
1,2,3,6,7,8-HxCDF	0.1	-	-	-	-	-	-	-	**0.039**	**0.005 J**	<0.00037	<0.00067	-	-	-	<0.0014 R	<0.0006
2,3,4,6,7,8-HxCDF	0.1	-	-	-	-	-	-	-	**0.034**	**0.0052 J**	<0.00041	<0.00073	-	-	-	<0.0014 R	<0.0007
1,2,3,7,8,9-HxCDF	0.1	-	-	-	-	-	-	-	<0.0014	<0.00062	<0.00043	<0.00078	-	-	-	<0.00043 R	<0.0007
1,2,3,4,6,7,8-HpCDF	0.01	-	-	-	-	-	-	-	**1.7**	**0.31**	<0.00081	<0.002	-	-	-	**0.014 R**	<0.0007
1,2,3,4,7,8,9-HpCDF	0.01	-	-	-	-	-	-	-	**0.079**	**0.013**	<0.00038	<0.00044	-	-	-	<0.0011 R	<0.002
OCDF	0.0001	-	-	-	-	-	-	-	**7.3 EJ**	**1.8**	<0.0034	<0.0049	-	-	-	**0.041 R**	<0.004
2,3,7,8- TCDD Equivalence	1.0	-	-	-	-	-	-	-	**0.1793 CON J**	**0.01293 J**	**0.000002**	**0.00007J**	-	-	-	**0.0006 CONR**	**0.00006**

Notes:
Only analytes detected at or above laboratory method detection limits included on tables
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Bold Text=Analyte detected above laboratory method detection limit
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BDL=Below laboratory method detection limit
ND=Non Detect

Dioxin Data Qualifiers:
All results in ug/kg or parts per billion
D=Result obtained from dilution
J=Estimated result, result is less than the reporting limit
E=Estimated result, result exceeds calibration range
CON=Confirmation analysis

SVOC Data Qualifiers:
All results in mg/kg or parts per million
< = Analyte was not detected above laboratory detection limits
J=Estimated Value

Metal Data Qualifiers:
All results in mg/kg or parts per million
B=Indicates a value greater than or equal to the instrument detection limit but less than the quantitation limit
J=Estimated result, result is less than the reporting limit
NV=Indicates TAGM recommened soil clean-up objective is site background
Metals SCGs used for comparison were either TAGM 4046 or Site Background average, which ever is higher
Bold Text=SCG used for Regulatory Comparison
The SCG for Cadmium (10 ppm) and Chromium (50 ppm) are generally accepted clean-up levels
The SCG for Lead (400 ppm) was adopted from the EPA

Table 5
Test Pit Analytical Results
Camp Georgetown

Analyte **SVOCs (mg/kg)**	**TAGM**	**TP-10** **2'x15'x9.2'**	**TP-11** **2'x15'x10'**	**TP-12** **2'x15'x10'**	**TP-13** **2'x15'x10'**	**TP-14** **2.5'x20'x9'**	**TP-15** **2.5'x15'x8'**	**TP-16** **2'x15'x2'**	**TP-17** **2'x15'x5'**	**TP-18** **2'x15'x5'**	**TP-19NE Wall** **2'x17'x4'**	**TP-19SW Wall** **2'x17'x4'**	**TP-20** **2'x12.5'x3.5'**	**TP-21** **2'x15'x1.5'**	**TP-22** **2'x15'x1.5'**	**TP-23** **3'x15'x3'**	**TP-24** **2'x15'x2'**
Bis (2-ethylhexyl) phthalate	50	<0.33	<0.33 J	<0.33 J	<0.33 J	<0.33 J	<0.33 J	<0.33 J	<0.33 J	-	<0.65 J	<0.40	<0.36	<0.42	<0.39	<0.51	<0.56
Di-n-butyl phthalate	8	<0.33	<0.33 J	<0.33 J	**0.043 J**	<0.33 J	**0.048 J**	<0.33 J	<0.33 J	-	<0.65 J	<0.40	<0.36	<0.42	<0.39	<0.51	<0.56
Di-n-octyl phthalate	120	<0.33	<0.33 J	**0.028 J**	<0.33 J	<0.33 J	<0.33 J	<0.33 J	<0.33 J	-	<0.65 J	<0.40	<0.36	<0.42	<0.39	<0.51	<0.56
2-Methylnaphthalate	36	<0.33	<0.33 J	<0.33 J	<0.33 J	**0.10 J**	<0.33 J	<0.33 J	<0.33 J	-	<0.65 J	<0.40	<0.36	<0.42	<0.39	<0.51	<0.56
Pentachlorophenol	1	<0.16	<0.16 J	<0.16 J	<0.16 J	**0.78 J**	<0.16 J	<0.16 J	<0.16 J	-	<0.79 J	**0.19 J**	**0.17 J**	<1.1	**0.17 J**	<1.3	<1.4
Phenanthrene	50	<0.33	<0.33 J	<0.33 J	<0.33 J	**0.091 J**	<0.33 J	<0.33 J	<0.33 J	-	<0.65 J	<0.40	<0.36	<0.42	<0.39	<0.51	<0.56
Total SVOC	-	BDL	BDL	**0.028 J**	**0.043 J**	**0.971 J**	**0.048 J**	BDL	BDL	-	BDL	**0.19 J**	**0.17 J**	BDL	**0.17 J**	BDL	BDL
Metals (mg/kg)	**TAGM (4046) or SiteBackground Average**	**TP-10**	**TP-11**	**TP-12**	**TP-13**	**TP-14**	**TP-15**	**TP-16**	**TP-17**	**TP-18**	**TP-19NE Wall**	**TP-19SW Wall**	**TP-20**	**TP-21**	**TP-22**	**TP-23**	**TP-24**
Aluminum	NV or **14340**	-	-	-	-	-	-	-	-	**13200 J**	**10500**	**11200**	**5810**	**13300**	**13300**	**14100**	**19800**
Antimony	NV or **0.487**	-	-	-	-	-	-	-	-	**1.2 B**	<0.61	<0.28	<0.38	<0.35	<0.40	<0.52	<0.54
Arsenic	7.5 or **8.2**	-	-	-	-	-	-	-	-	**5.5**	**4.3**	**4**	**4.6**	**5.5**	**8**	**7.6**	**8.4**
Barium	**300** or 38.49	-	-	-	-	-	-	-	-	**92.0 J**	**130**	**26.6**	**28.3**	**40**	**38.4**	**24.5**	**76**
Berillium	0.16 or **0.427**	-	-	-	-	-	-	-	-	**0.52 B**	**0.31**	**0.28**	**0.29**	**0.39**	**0.42**	**0.28**	**0.7**
Cadmium	**10** or 0.029	-	-	-	-	-	-	-	-	<0.04	**0.31**	**0.05**	**0.06**	**0.07**	**0.05**	**0.06**	**0.11**
Calcium	NV or **309.96**	-	-	-	-	-	-	-	-	**1120 J**	**3500**	**503**	**101000**	**166**	**1320**	**94.7**	**946**
Chromium	**50** or 16.58	-	-	-	-	-	-	-	-	**15.6 J**	**10.9**	**12.7**	**9.6**	**13.8**	**16.3**	**14.7**	**19.5**
Cobalt	**30** or 8.31	-	-	-	-	-	-	-	-	**11.4**	**3.9**	**6.9**	**4.7**	**5.8**	**10.1**	**4.5**	**13.2**
Copper	**25** or 11.83	-	-	-	-	-	-	-	-	**8.5**	**15.3**	**5.4**	**10.4**	**7.9**	**11.4**	**6.8**	**11.1**
Iron	2000 or **25770**	-	-	-	-	-	-	-	-	**25800 J**	**12200**	**16500**	**14000**	**19100**	**24900**	**25800**	**24500**
Lead	**400** or 12.58	-	-	-	-	-	-	-	-	**10.1**	**25.8**	**5.2**	**5.7**	**7.4**	**10.8**	**8.6**	**10.6**
Magnesium	NV or **2893**	-	-	-	-	-	-	-	-	**3220**	**1460**	**2620**	**7380**	**2230**	**3620**	**2360**	**3000**
Manganese	NV or **319.3**	-	-	-	-	-	-	-	-	**584 J**	**167**	**124**	**385**	**234**	**362**	**148**	**477**
Nickel	13 or **17.77**	-	-	-	-	-	-	-	-	**20.9**	**9**	**15.4**	**14.1**	**15.7**	**22.1**	**13**	**26.2**
Potassium	NV or **714.8**	-	-	-	-	-	-	-	-	**590 B**	**1010**	**566**	**573**	**672**	**774**	**571**	**928**
Selenium	**2** or 1.322	-	-	-	-	-	-	-	-	**1.6**	**1.1**	**0.38**	<0.45	**0.84**	**0.91**	**1.0**	**0.89**
Silver	NV or **ND**	-	-	-	-	-	-	-	-	-	<0.19	<0.09	<0.12	<0.11	<0.13	<0.16	<0.17
Mercury	**0.1** or 0.082375	-	-	-	-	-	-	-	-	**0.053 B**	**0.08**	**0.03**	<0.02	**0.05**	**0.02**	**0.07**	**0.12**
Sodium	NV or **41.52222**	-	-	-	-	-	-	-	-	**50.3 B**	**77**	**38.1**	**90.8**	**46.6**	**45**	**30.6**	**54.3**
Thallium	NV or **ND**	-	-	-	-	-	-	-	-	-	<1.2	<0.53	<0.72	<0.67	<0.75	<0.99	<1.0
Vanadium	**150** or 20.15	-	-	-	-	-	-	-	-	**16.5 J**	**18.5**	**15.2**	**8.5**	**18.3**	**17.8**	**23.3**	**21.8**
Zinc	20 or **51.96**	-	-	-	-	-	-	-	-	**56.5 J**	**67**	**40.3**	**40.4**	**53.8**	**55.7**	**41.3**	**105**
Dioxins (ug/kg)	**TEFs**	**TP-10**	**TP-11**	**TP-12**	**TP-13**	**TP-14**	**TP-15**	**TP-16**	**TP-17**	**TP-18**	**TP-19NE Wall**	**TP-19SW Wall**	**TP-20**	**TP-21**	**TP-22**	**TP-23**	**TP-24**
Total TCDF	-	<0.00011	<0.00034	-	<0.00047	**0.04**	-	<0.00065	<0.00029	<0.00038	<0.04	<0.03	<0.02	<0.02	<0.02	<0.03	<0.03
Total PeCDF	-	<0.00011	<0.00066	-	<0.00078	**0.034**	-	<0.00098	<0.00044	<0.00034	**0.13 J**	<0.10	<0.08	<0.10	<0.06	<0.12	<0.09
Total HxCDF	-	<0.00012	<0.00048	-	**0.0038**	**0.85**	-	<0.0017	**0.0038**	**0.011**	**2.6**	<0.04	**0.40 JS**	<0.03	**0.36 JS**	<0.08	<0.05
Total HpCDF	-	<0.00017	**0.0039**	-	**0.034**	**6**	-	**0.0033**	**0.023**	**0.076**	**6.7**	**0.11 J**	**2.4**	<0.04	**2.2**	<0.07	<0.11
Total TCDD	-	<0.00017	<0.00034	-	<0.00044	**0.0011**	-	<0.00061	<0.0003	<0.00044	<0.05	<0.03	<0.03	<0.03	<0.03	<0.04	<0.04
Total PeCDD	-	<0.00023	<0.0011	-	<0.0014	<0.0011	-	<0.0017	<0.00062	<0.00054	<0.09	<0.04	<0.06	<0.08	<0.04	<0.07	<0.09
Total HxCDD	-	<0.00016	<0.00062	-	<0.002	**0.32**	-	<0.002	<0.0022	**0.0066**	**0.65 JS**	<0.06	<0.06	<0.07	<0.07	<0.09	<0.09
Total HpCDD	-	<0.00019	**0.015**	-	**0.057**	**9.3**	-	**0.0051**	**0.05**	**0.13**	**11.9**	**0.30 J**	**3.0**	<0.07	**3.1**	<0.11	<0.11
2,3,7,8-TCDD	1	<0.0001	<0.00034	-	<0.00044	<0.00031	-	<0.00061	<0.0003	<0.00044	<0.05	<0.03	<0.03	<0.03	<0.03	<0.04	<0.04
1,2,3,7,8-PeCDD	0.5	<0.00023	<0.0011	-	<0.0014	<0.00059	-	<0.0017	<0.00062	<0.00054	<0.09	<0.04	<0.06	<0.08	<0.04	<0.07	<0.09
1,2,3,4,7,8-HxCDD	0.1	<0.00014	<0.00055	-	<0.00071	<0.0013	-	<0.0018	<0.00032	<0.00045	<0.12	<0.06	<0.06	<0.07	<0.07	<0.09	<0.09
1,2,3,6,7,8-HxCDD	0.1	<0.00026	<0.00062	-	<0.0015	**0.18**	-	<0.002	<0.0018	**0.0030 J**	**0.31 JS**	<0.04	<0.05	<0.05	<0.05	<0.07	<0.07
1,2,3,7,8,9-HxCDD	0.1	<0.00014	<0.00055	-	**0.00092**	**0.0074**	-	<0.0018	<0.00087	<0.0012	<0.09	<0.04	<0.05	<0.05	<0.05	<0.07	<0.07
1,2,3,4,6,7,8-HpCDD	0.01	<0.00014	**0.008**	-	**0.038**	**6.4 D**	-	**0.0051 J**	**0.0033**	**0.091**	**7.4**	**0.30 J**	**2.1**	<0.07	**2.1**	<0.11	<0.11
OCDD	0.0001	<0.001	**0.077**	-	**0.25**	**53 D**	-	**0.029 J**	**0.21**	**0.6**	**30.5**	**1.8**	**12.8**	<0.06	**10.2**	<0.08	<0.11
2,3,7,8-TCDF	0.01	<0.0001	<0.00034	-	<0.00047	<0.00051	-	<0.00065	<0.00029	<0.00038	<0.04	<0.03	<0.02	<0.02	<0.02	<0.03	<0.03
1,2,3,7,8-PeCDF	0.05	<0.0001	<0.00056	-	<0.00074	**0.004 J**	-	<0.00087	<0.00031	<0.00034	<0.11	<0.10	<0.08	<0.10	<0.06	<0.12	<0.09
2,3,4,7,8-PeCDF	0.5	<0.0001	<0.00055	-	<0.00071	**0.0033 J**	-	<0.00086	<0.0003	<0.00033	<0.11	<0.10	<0.08	<0.10	<0.06	<0.12	<0.08
1,2,3,4,7,8-HxCDF	0.1	<0.0001	<0.00042	-	<0.00057	**0.027**	-	<0.0015	<0.00044	<0.00076	<0.08	<0.04	<0.07	<0.03	<0.04	<0.08	<0.05
1,2,3,6,7,8-HxCDF	0.1	<0.0001	<0.0004	-	<0.00053	**0.0086**	-	<0.0015	<0.00031	<0.00044	<0.07	<0.04	<0.06	<0.03	<0.03	<0.07	<0.05
2,3,4,6,7,8-HxCDF	0.1	<0.0001	<0.00043	-	<0.00058	**0.0088**	-	<0.0016	<0.00034	<0.00039	<0.08	<0.04	<0.07	<0.03	<0.04	<0.08	<0.05
1,2,3,7,8,9-HxCDF	0.1	<0.00014	<0.00048	-	<0.00063	<0.0014	-	<0.0017	<0.00036	<0.00041	<0.07	<0.04	<0.06	<0.03	<0.03	<0.07	<0.05
1,2,3,4,6,7,8-HpCDF	0.01	<0.0001	<0.0011	-	**0.0095**	**0.950 D**	-	<0.0014	**0.0097**	**0.02**	**1.4**	**0.11 J**	**0.50 J**	<0.03	**0.46 J**	<0.05	<0.08
1,2,3,4,7,8,9-HpCDF	0.01	<0.0002	<0.00042	-	<0.00063	**0.095 D**	-	<0.0015	<0.0007	<0.0015	<0.09	<0.05	<0.08	<0.04	<0.07	<0.07	<0.11
OCDF	0.0001	<0.0002	<0.0051	-	**0.045**	**7.4 D**	-	**0.0056 J**	**0.048**	**0.1**	**3.8**	**0.51 J**	**2.8**	<0.04	**2.2**	<0.06	<0.07
2,3,7,8- TCDD Equivalence	1.0	**BDL**	**0.0000877**	-	**0.0006**	**0.10552 DJ**	-	**0.00005 J**	**0.00016**	**0.00148 J**	**0.12243 JS**	**0.00433 J**	**0.0276 JS**	BDL	**0.02684 JS**	BDL	BDL

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NV=Indicates TAGM recommened soil clean-up objective is site background
Metals SCGs used for comparison were either TAGM 4046 or Site Background average, which ever is higher
Bold Text=SCG used for Regulatory Comparison
The SCG for Cadmium (10 ppm) and Chromium (50 ppm) are generally accepted clean-up levels
The SCG for Lead (400 ppm) was adopted from the EPA

Table 6
Preliminary Investigation Groundwater Analytical Results
Camp Georgetown

Analyte	**TOGs**	**MW-1**	**MW-2**	**MW-2D**	**MW-3**	**MW-4**	**MW-5**	**MW-6**	**MW-7**	**MW-8**
VOC (ug/L) ppb										
(M+P) Xylenes	5	ND	ND	-	ND	ND	ND	ND	**2.9 J**	ND
Ethylbenzen	5	ND	ND	-	ND	ND	ND	ND	**2 J**	ND
O-Xylene	5	ND	ND	-	ND	ND	ND	ND	**2.9 J**	ND
SVOCs (ug/L) ppb										
Acenaphthene	20	ND	ND	-	ND	ND	ND	ND	**1.8 J**	ND
2,4-Dichlorophenol	5	ND	ND	-	ND	ND	ND	ND	**2.6 J**	ND
Flourene	50	ND	ND	-	ND	ND	ND	ND	**2.3 J**	ND
2-Methylnaphthalene	NA	ND	ND	-	ND	ND	ND	ND	**3.2 J**	ND
Naphthalene	10	ND	ND	-	ND	ND	ND	ND	**2.3 J**	ND
Bis(2-ethylhexyl)phthalate	5	**1 J**	ND	-	ND	ND	ND	ND	ND	ND
Pentachlorophenol	1	ND	**370 D**	-	**120 D**	**30**	**1700**	ND	**370 D**	ND
2,3,5-Trichloropenol	NA	ND	ND	-	ND	ND	ND	ND	**4.4 J**	ND
Total SVOCs		**1 J**	**370 D**	-	**120 D**	**30**	**1700**	ND	**386.6**	ND
Metals (mg/L) ppm		**MW-1**	**MW-2**	**MW-2D**	**MW-3**	**MW-4**	**MW-5**	**MW-6**	**MW-7**	**MW-8**
Aluminum	0.1	**16.6**	**31.3**	-	**96.4**	**91.4**	**40.3**	**17.9**	**21**	-
Arsenic	0.025	ND	ND	-	ND	ND	ND	0.0124	ND	-
Barium	1	**0.161**	**0.246**	**-**	**0.504**	**0.59**	**0.292**	**0.321**	**0.262**	-
Beryllium	0.003	**0.00528**	ND	-	ND	ND	ND	**0.00548**	ND	-
Calcium	NA	**46**	**73.6**	-	**102**	**55**	**90.1**	**87.6**	**22.6**	-
Chromium	0.05	**0.0245**	**0.0536**	-	**0.155**	**0.148**	**0.0628**	**0.0307**	**0.0371**	-
Colbalt	NA	ND	ND	-	**0.0765**	**0.0767**	ND	ND	ND	-
Copper	0.2	**0.02**	**0.0401**	-	**0.106**	**0.111**	**0.0567**	**0.0242**	**0.0364**	-
Iron	0.3	**30.8**	**58.2**	-	**167**	**166**	**80**	**31.6**	**59.2**	-
Lead	0.025	**0.00797**	**0.0283**	-	**0.0841**	**0.0632**	**0.0356**	**0.0108**	**0.0147**	-
Magnisium	35	**13.8**	**25.5**	-	**39.5**	**36.6**	**26.4**	**23.5**	**12.8**	-
Manganese	0.3	**0.524**	**1.03**	-	**2.78**	**5.44**	**1.47**	**4.32**	**11.6**	-
Nickel	0.1	ND	**0.0663**	-	**0.159**	**0.174**	**0.0753**	ND	**0.0426**	-
Potassium	NA	**3.06**	**6.25**	-	**11.1**	**8.45**	**4.16**	**3**	**3.2**	-
Sodium	20	**7.96**	**14.6**	-	**15.6**	**27**	**12.5**	**18.3**	**17.2**	-
Thallium	0.0005	**0.016**	**0.0134**	-	ND	ND	**0.0151**	ND	ND	-
Vanadium	NA	ND	ND	-	**0.127**	**0.118**	**0.0545**	ND	ND	-
Zinc	2	**0.0816**	**0.12**	-	**0.398**	**0.338**	**0.184**	**0.0691**	**0.0879**	-
Dioxins (ng/L) or ppt	**TEFs**	**MW-1**	**MW-2**	**MW-2D**	**MW-3**	**MW-4**	**MW-5**	**MW-6**	**MW-7**	**MW-8**
Total TCDF	-	**0.51**	**0.69**	ND 0.19	**2.17**	ND 0.21	ND 0.15	ND 0.16	ND 0.30	ND 0.10
Total PeCDF	-	?	ND 0.17	ND 0.18	**26.2**	**0.3**	**5.4**	**3.39**	**7.28**	**0.96**
Total HxCDF	-	**3.25**	ND 0.25	**0.85**	**496**	**29.3**	**120**	**117**	**146**	**13.3**
Total HpCDF	-	**38.1**	**36.8**	ND 0.32	**5020**	**335**	**1680**	**1460**	**1880**	**126**
Total TCDD	-	**2.14**	**11.6**	ND 0.15	**28.7**	**3.59**	**48.9**	**5.82**	**9**	**14.6**
Total PecDD	-	**0.89**	ND 0.12	ND 0.12	**48.4**	**3.13**	**10.6**	**28.2**	**11.22**	**0.71**
Total HxCDD	-	**4.01**	**7.35**	ND 0.18	**819**	**47.5**	**225**	**405**	**191**	**7.99**
Total HpCDD	-	**12.6**	**26.9**	ND 0.35	**2180**	**189**	**1080**	**921**	**891**	**36.7**
2,3,7,8-TCDD	1	**0.51**	ND 0.17	ND 0.19	**0.49 EMPC**	ND 0.21	**.40 EMPC**	**0.14 EMPC**	**0.51 EMPC**	**0.17 EMPC**
1,2,3,7,8-PeCDD	0.5	**0.57 EMPC**	**0.31 EMPC**	ND 0.18	**9.35**	**0.3**	**1.77**	**0.93**	**1.60 EMPC**	**0.68**
1,2,3,4,7,8-HxCDD	0.1	**1.26 EMPC**	ND 0.25	ND 0.14	**0.11**	**1.78**	**5.9**	**2,17**	**4.85**	**0.66**
1,2,3,6,7,8-HxCDD	0.1	**2.08 EMPC**	**1.1 EMPC**	**0.85**	**119**	**7.06**	**33.6**	**47.8**	**32.2**	**2.35**
1,2,3,7,8,9-HxCDD	0.1	**1.63**	**1.06 EMPC**	**0.98 EMPC**	**72.6**	**4.23**	**17.5**	**11.2**	**12.2**	**1.93**
1,2,3,4,6,7,8-HpCDD	0.01	**21.9**	**72.5 EMPC**	**9.09 EMPC**	**3340**	**202**	**1130**	**896**	**1180**	**83.5**
OCDD	0.0001	**188**	**620**	**77.6 EMPC**	**20900**	**1770**	**10190**	**8220**	**9910**	**768**
2,3,7,8-TCDF	0.1	**2.14**	**2.06**	**2.15 EMPC**	**1.84**	**1.16**	**1.38**	**2.77**	**4.13**	**1.79**
1,2,3,7,8-PeCDF	0.05	**0.69 EMPC**	**.59 EMPC**	ND 0.12	**2.75**	**0.33**	**0.67**	**2.24**	**0.77**	**0.62 EMPC**
2,3,4,7,8-PeCDF	0.5	**0.67**	**0.57 EMPC**	**0.60 EMPC**	**2.60 EMPC**	**0.35**	**0.71**	**2.09**	**1.56**	**0.71**
1,2,3,4,7,8-HxCDF	0.1	**1.35**	**1.22**	**0.52 EMPC**	**25**	**2.3**	**7.07**	**13.6**	**5.28 EMPC**	**.93 EMPC**
1,2,3,6,7,8-HxCDF	0.1	**0.79**	**0.72**	ND 0.18	**18.1**	**1.18**	**4.07 EMPC**	**5.70 EMPC**	ND 3.17	**.60 EMPC**
1,2,3,7,8,9-HxCDF	0.1	**1.21**	**.85 EMPC**	**0.70 EMPC**	ND 3.43	ND 1.11	ND 1.33	ND 4.47	ND 3.17	**0.67**
2,3,4,6,7,8-HxCDF	0.1	**0.74 EMPC**	ND 0.33	ND 0.18	**11.8**	ND 1.11	**3.84 EMPC**	**4.96**	ND 3.17	**0.5**
1,2,3,4,6,7,8-HpCDF	0.01	**5.25**	**8.82 EMPC**	**1.65 EMPC**	**631**	**47.8**	**252**	**251**	**185**	**9.87**
1,2,3,4,7,8,9-HpCDF	0.01	**1.39**	**1.49 EMPC**	ND 0.35	**61.7**	**5.7**	**38.2**	**18.5**	**20.7**	**1.34 EMPC**
OCDF	0.0001	**21.5**	**54.6**	**16.6 EMPC**	**2450**	**278**	**2060**	**1130**	**1390**	**60.5**
2,3,7,8-TCDD Equivalence	0.0007	**0.00224**	**0.00137**	**0.00188**	**0.00091**	**0.01221**	**0.00091**	**0.00308**	**0.00017**	**0.00391**

Notes:

Data on this table was taken directly from the NYSDEC Preliminary Investigation Report

Table 7
Groundwater Analytical Results 2001
Camp Georgetown

Analyte	**TOGS**	**MW-1**	**MW-2**	**MW-3**	**MW-4**	**MW-5**	**MW-6**	**MW-7**	**MW-8**	**MW-9**	**MW-10**	**MW-11**	**MW-12**	**MW-13**	**MW-14**	**MW-15**	**MW-16**	**MW-17**
Fuel Oil (ug/L)		<5000	<5000	<5000	<5000	<5000	<5000	<5000	<5000	NA	NA	NA	NA	NA	NA	NA	NA	NA
VOC (ug/L)																		
Acetone	50	-	-	-	-	-	-	-	-	<25	<25	<25	<25	**8.5 J**	<25	<25	**8.2 J**	**4.8 J**
SVOCs (ug/L)																		
Benzoic Acid	-	<50	<50	<50	<50	<50	<50	<50	<50	**35 J**	<50	<50	<50	<50	<50	<50	<50	<50
Bis (2-ethylhexyl) phthalate	0.6	<10	<10	<10	<10	<10	**1 J**	<10	<10	**36**	<10	<10	**38**	**8 J**	**1 J**	<10	<50	<10
Di-n-butyl phthalte	50	<10	<10	<10	**0.8 J**	<10	<10	**2 J**	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10
Diethyl phthalate	50	<10	**0.6 J**	<10	<10	<10	<10	**1 J**	<10	<10	<10	**2 J**	<10	<10	<10	<10	<10	<10
Di-n-octyl phthalate	50	<10	<10	<10	<10	<10	<10	<10	<10	**0.7 J**	**0.6 J**	<10	<10	<10	<10	<10	<10	<10
2,6-Dinitrotoluene	0.07	<10	<10	<10	<10	<10	<10	**2 J**	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10
Naphthalene	10	<10	<10	<10	<10	<10	<10	**3 J**	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10
Pentachlorophenol	1*	<50	<50	<50	**85**	**44 J**	**920 D**	**160**	<50	<50	<50	**540 D**	<50	<50	<50	<50	<50	<50
2,4,5-Trichlorophenol	1*	<10	<10	<10	<10	<10	<10	**0.6 J**	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10
2,4,6-Trichlorophenol	1*	<10	<10	<10	<10	<10	<10	**0.7 J**	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10
Total SVOCs		**BDL**	**0.6 J**	**BDL**	**85.8 J**	**44 J**	**921 J**	**169.3 J**	**BDL**	**71.7**	**0.6 J**	**542 JD**	**38**	**8 J**	**1 J**	**BDL**	**BDL**	**BDL**
Dioxins (ng/L)	**TEFs**	**MW-1**	**MW-2**	**MW-3**	**MW-4**	**MW-5**	**MW-6**	**MW-7**	**MW-8**	**MW-9**	**MW-10**	**MW-11**	**MW-12**	**MW-13**	**MW-14**	**MW-15**	**MW-16**	**MW-17**
Total TCDF	-	<0.0008	<0.00075	<0.001	<0.0010	<0.0011	**0.039**	**0.13**	<0.0018	-	-	-	-	-	-	-	-	-
Total PeCDF	-	<0.0022	<0.0014	<0.002	<0.0020	<0.0012	<0.0017	**1.9**	<0.0034	-	-	-	-	-	-	-	-	-
Total HxCDF	-	<0.0012	<0.0019	<0.0018	**0.21**	<0.00089	<0.0096	**31**	<0.0045	-	-	-	-	-	-	-	-	-
Total HpCDF	-	<0.0024	<0.0020	<0.0027	**0.55**	<0.0380	**0.07**	**53**	**0.038**	-	-	-	-	-	-	-	-	-
Total TCDD	-	<0.0010	<0.0011	<0.0012	0.0062	<0.0069	<0.0015	**0.015**	<0.0029	-	-	-	-	-	-	-	-	-
Total PecDD	-	<0.0078	<0.0072	<0.0073	<0.0011	<0.0044	<0.0065	<0.0015	<0.0075	-	-	-	-	-	-	-	-	-
Total HxCDD	-	<0.0018	<0.0015	<0.002	**0.13**	<0.0012	<0.0050	**9.1**	<0.0051	-	-	-	-	-	-	-	-	-
Total HpCDD	-	<0.0048	<0.0015	<0.0048	**1.5**	<0.0083	**0.16**	**110**	**0.099**	-	-	-	-	-	-	-	-	-
2,3,7,8 TCDD	1	<0.001	<0.001	<0.0012	<0.0013	<0.00069	<0.0015	<0.0014	<0.0029	-	-	-	-	-	-	-	-	-
1,2,3,7,8 PeCDD	0.5	<0.0028	<0.0026	<0.004	<0.0033	<0.0019	<0.0033	<0.015	<0.0075	-	-	-	-	-	-	-	-	-
1,2,3,4,7,8-HxCDD	0.1	<0.0016	<0.0014	<0.0018	<0.0074	<0.0011	<0.0017	**.029 J**	<0.0048	-	-	-	-	-	-	-	-	-
1,2,3,6,7,8-HxCDD	0.1	<0.0017	<0.0015	<0.002	**0.063**	<0.0012	<0.0050	**4.9**	<0.0051	-	-	-	-	-	-	-	-	-
1,2,3,7,8,9-HxCDD	0.1	<0.0015	<0.0014	<0.0018	**0.024 J**	<0.0011	<0.0022	**0.22**	<0.0046	-	-	-	-	-	-	-	-	-
1,2,3,4,6,7,8-HpCDD	0.01	<0.0027	<0.0026	<0.0048	**1**	<0.0083	**0.11**	**71 D**	**0.063**	-	-	-	-	-	-	-	-	-
OCDD	0.0001	<0.0069	<0.0017	<0.021	**5.2**	**.059 J**	**0.82**	**330 D**	**.039 D**	-	-	-	-	-	-	-	-	-
2,3,7,8-TCDF	0.1	<0.00075	<0.00075	<0.001	<0.0013	<0.00066	<0.00088	**.016 CON**	<0.0018	-	-	-	-	-	-	-	-	-
1,2,3,7,8-PeCDF	0.05	<0.0011	<0.00096	<0.0018	<0.0019	<0.00090	<0.0017	**0.18**	<0.0028	-	-	-	-	-	-	-	-	-
2,3,4,7,8-PeCDF	0.5	<0.0010	<0.00093	<0.0018	<0.0019	<0.00088	<0.0017	**0.15**	<0.0027	-	-	-	-	-	-	-	-	-
1,2,3,4,7,8-HxCDF	0.1	<0.0011	<0.0019	<0.0016	<0.012	<0.00081	<0.0020	**1.1**	<0.0036	-	-	-	-	-	-	-	-	-
1,2,3,6,7,8-HxCDF	0.1	<0.0011	<0.0010	<0.0015	<0.0096	<0.00077	<0.0020	**0.38**	<0.0034	-	-	-	-	-	-	-	-	-
2,3,4,6,7,8-HxCDF	0.1	<0.0012	<0.0011	<0.0016	<0.0066	<0.00082	<0.0019	**0.45**	<0.0036	-	-	-	-	-	-	-	-	-
1,2,3,7,8,9-HxCDF	0.1	<0.0012	<0.0011	<0.0018	<0.0029	<0.00089	<0.0020	**0.057**	<0.0039	-	-	-	-	-	-	-	-	-
1,2,3,4,6,7,8-HpCDF	0.01	<0.0020	<0.0017	<0.0022	**0.15**	<0.0016	<0.0022	**12**	<0.0098	-	-	-	-	-	-	-	-	-
1,2,3,4,7,8,9-HpCDF	0.01	<0.0024	<0.0020	<0.0027	<0.013	<0.0019	<0.0019	**0.69**	<0.0032	-	-	-	-	-	-	-	-	-
OCDF	0.0001	<0.00028	<0.00023	<0.0043	**0.051**	<0.00089	**0.015**	**3 D**	<0.0057	-	-	-	-	-	-	-	-	-
2,3,7,8-TCDD Equivilance	0.0007	**BDL**	**BDL**	**BDL**	**0.0207251**	**0.0000059**	**0.0011835**	**1.6694 JDCON**	**0.0006339 D**	-	-	-	-	-	-	-	-	-
PCBs (ug/L)																		
Aroclor 1254	.009**	-	-	-	-	-	-	-	-	**15**	<0.59	<0.50	**1.7**	<0.50	<0.50	**2.7**	<0.50	<0.50

Notes:
Only analytes detected at or above laboratory method detection limits included on tables
Dioxin results in ng/L or parts per trillion, all other results in ug/L or parts per billion
<=Analyte was not detected above laboratory detection limits
Bold Text=Analyte detected above laboratory method detection limit
Shaded Text=Exceedence of TOGS 1.1.1 guidance values
BDL=Below laboratory method detection limit
CON=Confirmation analysis
D=Result obtained from dilution
J=Estimated result, result is less than the reporting limit
* Applies to the sum of all phenolic compounds
** Applies to the sum of all PCB isomers

Table 8
Groundwater Analytical Results 2002
Camp Georgetown

Analyte **SVOCs (ug/L)**	**TOGS**	**MW-1**	**MW-2**	**MW-3**	**MW-4**	**MW-5**	**MW-5(F)**	**MW-6**	**MW-7**	**MW-8**	**MW-9**	**MW-9(F)**	**MW-10**
Acenaphthene	20	<10	<10	<10	<20	**1 J**	**1 J**	<210	**1 J**	<10	<10	<10	<10
Bis (2-ethylhexyl) phthalate	0.6	**9 JB**	**11 B**	**7 JB**	**1 J**	**38**	**6 J**	**55 JB**	**7 JB**	**55 B**	**17 B**	**7 JB**	**2 J**
Diethylphthalate	50	<10	**0.6 J**	<10	<20	**0.8 J**	**0.8 J**	<210	**0.8 J**	<10	<10	**0.6 J**	<10
Di-n-butylphthalate	50	<10	**0.6 J**	**0.6 J**	<20	<10	<10	<210	<10	**0.5 JB**	**1 J**	<10	<10
Napthalene	10	<10	<10	<10	<20	<10	<10	<210	**0.7 J**	<10	<10	<10	<10
Pentachlorophenol	1*	<25	**1 J**	**1 J**	**130**	**27**	**41**	**690**	**13 J**	<25	<25	<25	<26
Phenol	1*	<10	<10	<10	**1 J**	<10	<10	<210	<10	<10	<10	<10	<10
Fuel Oil Compounds		**MW-1**	**MW-2**	**MW-3**	**MW-4**	**MW-5**	**MW-5(F)**	**MW-6**	**MW-7**	**MW-8**	**MW-9**	**MW-9(F)**	**MW-10**
Diesel Range Organics	-	<306	<306	<303	**730**	<303	<303	**720**	**810**	<303	<300	<309	<312
Motor Oil	-	<306	<306	<303	<309	<303	<303	<312	<309	<303	<300	<309	<312
Dioxins (ng/L)	**TEFs**	**MW-1**	**MW-2**	**MW-3**	**MW-4**	**MW-5**	**MW-5(F)**	**MW-6**	**MW-7**	**MW-8**	**MW-9**	**MW-9(F)**	**MW-10**
Total TCDF	-	<0.00005	<0.00010	<0.00009	<0.00005	<0.00005	<0.00003	<0.00008	<0.00008	<0.00010	<0.00007	<0.00007	<0.00007
Total PeCDF	-	<0.00007	<0.00011	**0.00158 J**	**0.00324 J**	<0.00008	<0.00007	<0.00009	<0.00007	<0.00008	<0.00009	<0.00005	<0.00009
Total HxCDF	-	<0.00004	<0.00006	<0.00006	**0.091 J**	<0.00005	<0.00003	<0.00005	**0.0162 J**	<0.0004	<0.00006	<0.00005	<0.00006
Total HpCDF	-	<0.00021	**0.00156 J**	**0.00752 J**	**0.212**	<0.00007	<0.00008	**0.007 J**	**0.203**	**0.0158 J**	<0.00010	<0.00008	<0.00007
Total TCDD	-	<0.00009	<0.00008	<0.00015	<0.00005	<0.00006	<0.00006	<0.00009	<0.00010	<0.00011	<0.00010	<0.00008	<0.00010
Total HxCDD	-	<0.00009	<0.00006	<0.00008	**0.096 J**	<0.00005	<0.00004	<0.00005	<0.00008	<0.00005	<0.00005	<0.00005	<0.00008
Total HpCDD	-	<0.00011	<0.00008	**0.0183 J**	**1.0**	**0.0184 J**	<0.00006	**0.0318 J**	**0.935**	**0.0654**	**0.00596 J**	<0.00006	**0.0045 J**
2,3,7,8-TCDD	1	<0.00009	<0.00008	<0.00015	<0.00005	<0.00006	<0.00006	<0.00009	<0.00010	<0.00011	<0.00010	<0.00008	<0.00010
1,2,3,7,8-PeCDD	0.5	<0.00009	<0.00014	<0.00012	<0.00008	<0.00008	<0.00007	<0.00010	<0.00012	<0.00008	<0.00011	<0.00012	<0.00009
1,2,3,4,7,8-HxCDD	0.1	<0.00013	<0.00008	<0.00010	<0.000021	<0.00008	<0.00006	<0.00006	<0.00010	<0.00006	<0.00006	<0.00007	<0.00011
1,2,3,6,7,8-HxCDD	0.1	<0.00008	<0.00006	<0.00007	**0.0798**	<0.00005	<0.00004	<0.00004	**0.0733**	<0.00005	<0.00004	<0.00005	<0.00007
1,2,3,7,8,9-HxCDD	0.1	<0.00008	<0.00006	<0.00007	**0.0162 J**	<0.00005	<0.00004	<0.00004	<0.00008	<0.00005	<0.00005	<0.00005	<0.00007
1,2,3,4,6,7,8-HpCDD	0.01	<0.00011	<0.00008	**0.0183 J**	1.000	**0.0184 J**	<0.00006	**0.02 J**	**0.94**	**0.0654**	**0.00596 J**	<0.00006	**0.0045 J**
OCDD	0.0001	<0.00010	**0.0214 J**	**0.0912**	**4.68**	**0.148**	**0.00360 J**	**0.136**	**4.78**	**0.582**	**0.0418 J**	**0.023 J**	**0.0108 J**
2,3,7,8-TCDF	0.1	<0.00005	<0.00010	<0.00009	<0.00005	<0.00005	<0.00003	<0.00008	<0.00008	<0.00010	<0.00007	<0.00007	<0.00007
1,2,3,7,8-PeCDF	0.05	<0.00007	<0.00010	**0.00158 J**	**0.00324 J**	<0.00005	<0.00003	<0.00009	<0.00007	<0.00010	<0.00009	<0.00005	<0.00005
2,3,4,7,8-PeCDF	0.5	<0.00007	<0.00011	<0.00011	<0.00008	<0.00006	<0.00003	<0.00010	<0.00007	<0.00011	<0.00009	<0.00005	<0.00006
1,2,3,4,7,8-HxCDF	0.1	<0.00004	<0.00006	<0.00006	**0.0267 J**	<0.00005	<0.00003	<0.00005	<0.00008	<0.00004	<0.00005	<0.00005	<0.00005
1,2,3,6,7,8-HxCDF	0.1	<0.00004	<0.00006	<0.00006	**0.0459 J**	<0.00005	<0.00002	<0.00004	**0.0162 J**	<0.00003	<0.00005	<0.00004	<0.00005
2,3,4,6,7,8-HxCDF	0.1	<0.00004	<0.00007	<0.00007	<0.00020	<0.00006	<0.00003	<0.00005	<0.00009	<0.00004	<0.00006	<0.00005	<0.00006
1,2,3,7,8,9-HxCDF	0.1	<0.00005	<0.00007	<0.00007	**0.0184 J**	<0.00006	<0.00003	<0.00006	<0.00009	<0.00004	<0.00006	<0.00006	<0.00006
1,2,3,4,6,7,8-HpCDF	0.01	<0.00018	**0.00156 J**	**0.00752 J**	**0.187**	<0.00006	<0.00007	**0.007 J**	**0.188**	**0.0158 J**	<0.00009	<0.00007	<0.00006
1,2,3,4,7,8,9-HpCDF	0.01	<0.00025	<0.00009	<0.00014	**0.0252**	<0.00009	<0.00010	<0.00009	**0.015 J**	<0.00014	<0.00012	<0.00009	<0.00008
OCDF	0.0001	<0.00019	**0.00154 J**	**0.0196 J**	**0.367**	<0.00011	<0.00007	**0.0318 J**	**0.48**	**0.0967**	<0.00024	<0.00015	**0.00396 J**
2,3,7,8-TCDD Equivilance	0.0007	BDL	**0.000017894 J**	**0.00034828**	**0.0214887**	**0.0001988 J**	**0.00000036 J**	**0.00028678 J**	**0.020856 J**	**0.00087987 J**	**0.00006378 J**	**0.0000023 J**	**0.000046476 J**

Notes:
Only analytes detected at or above laboratory method detection limits included on tables
Dioxin results in ng/L or parts per trillion, all other results in ug/L or parts per billion
<=Analyte was not detected above laboratory detection limits
Bold Text=Analyte detected above laboratory method detection limit
Shaded Text=Exceedence of TOGS 1.1.1 guidance values
BDL=Below laboratory method detection limit
ND=Not Detected
B=Indicates a value greater than or equal to the instrument detection limit but less than the quantitation limit
J=Estimated result, result is less than the reporting limit
NA=not analyzed due to laboratory accident
*   Applies to the sum of all phenolic compounds
(F) - Represents the groundwater was a filtered sample

Table 8
Groundwater Analytical Results 2002
Camp Georgetown

Analyte **SVOCs (ug/L)**	**TOGS**	**MW-11**	**MW-12**	**MW-12(F)**	**MW-13**	**MW-14**	**MW-15**	**MW-15(F)**	**MW-16**	**MW-17**	**MW-18**	**MW-18(F)**	**MW-19**	**MW-19(F)**
Acenaphthene	20	<52	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10
Bis (2-ethylhexyl) phthalate	0.6	**3 J**	**52 B**	**9 JB**	**21 B**	**2 JB**	**0.9 JB**	<10	**1 JB**	**1 JB**	**3 J**	**3 J**	**1 JB**	**1 JB**
Diethylphthalate	50	<52	**0.5 J**	<10	<10	<10	**0.6 J**	<10	<10	<10	<10	<10	<10	<10
Di-n-butylphthalate	50	<52	<10	**0.8 J**	**0.8 J**	**0.6 JB**	<10	<10	**0.6 JB**	**0.8 JB**	<10	<10	**0.9 J**	**0.5 J**
Napthalene	10	<52	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10
Pentachlorophenol	1*	**370**	<25	<25	<25	<26	<26	<25	<26	<26	<26	<25	<25	<25
Phenol	1*	<52	<10	<10	<10	<10	<10	**0.7 J**	<10	<10	<10	<10	<10	<10
Fuel Oil Compounds		**MW-11**	**MW-12**	**MW-12(F)**	**MW-13**	**MW-14**	**MW-15**	**MW-15(F)**	**MW-16**	**MW-17**	**MW-18**	**MW-18(F)**	**MW-19**	**MW-19(F)**
Diesel Range Organics	-	<309	<306	<309	<309	<303	<309	<303	<309	<303	<309	<306	<303	<303
Motor Oil	-	<309	<306	<309	<309	<303	<309	<303	<309	<303	<309	<306	<303	<303
Dioxins (ng/L)	**TEFs**	**MW-11**	**MW-12**	**MW-12(F)**	**MW-13**	**MW-14**	**MW-15**	**MW-15(F)**	**MW-16**	**MW-17**	**MW-18**	**MW-18(F)**	**MW-19**	**MW-19(F)**
Total TCDF	-	<0.00005	NA	<0.00005	<0.00004	<0.00005	<0.00004	<0.00003	<0.00004	<0.00004	<0.00004	<0.00004	<0.00006	<0.00009
Total PeCDF	-	<0.00009	NA	<0.00004	<0.00006	<0.00005	<0.00003	<0.00004	<0.00003	<0.00004	<0.00005	<0.00003	<0.00007	<0.00012
Total HxCDF	-	<0.00007	NA	<0.00004	<0.00003	<0.00003	<0.00002	<0.00003	<0.00002	<0.00003	<0.00003	<0.00004	<0.00006	<0.00008
Total HpCDF	-	<0.00010	NA	<0.00007	<0.00024	<0.00004	<0.00007	<0.00007	<0.00008	<0.00008	<0.00022	<0.00011	<0.00012	<0.00016
Total TCDD	-	<0.00007	NA	<0.00006	<0.00008	<0.00006	<0.00007	<0.00007	<0.00005	<0.00006	<0.00006	<0.00003	<0.00009	<0.00013
Total HxCDD	-	<0.00006	NA	<0.00006	<0.00007	<0.00004	<0.00006	<0.00006	<0.00004	**0.00768 J**	<0.00006	<0.00007	<0.00006	<0.00007
Total HpCDD	-	**0.0451**	NA	<0.00010	<0.00007	<0.00009	<0.00011	<0.00006	<0.00006	<0.00007	**0.00248 J**	<0.00007	<0.00010	<0.00015
2,3,7,8-TCDD	1	<0.00007	NA	<0.00006	<0.00008	<0.00006	<0.00007	<0.00007	<0.00005	<0.00006	<0.00006	<0.00005	<0.00009	<0.00013
1,2,3,7,8-PeCDD	0.5	<0.00009	NA	<0.00007	<0.00009	<0.00005	<0.00008	<0.00008	<0.00009	<0.00008	<0.00007	<0.00005	<0.00015	<0.00014
1,2,3,4,7,8-HxCDD	0.1	<0.00009	NA	<0.00009	<0.00010	<0.00006	<0.00008	<0.00008	<0.00005	<0.00008	<0.00008	<0.00010	<0.00008	<0.00009
1,2,3,6,7,8-HxCDD	0.1	<0.00005	NA	<0.00005	<0.00006	<0.00004	<0.00005	<0.00005	<0.00003	<0.00005	<0.00005	<0.00006	<0.00006	<0.00006
1,2,3,7,8,9-HxCDD	0.1	<0.00006	NA	<0.00006	<0.00006	<0.00004	<0.00005	<0.00005	<0.00003	<0.00005	<0.00005	<0.00006	<0.00006	<0.00007
1,2,3,4,6,7,8-HpCDD	0.01	**0.0451**	NA	<0.00010	<0.00011	<0.00009	<0.00011	<0.00006	<0.00006	**0.00768 J**	**0.00248 J**	<0.00007	<0.00010	<0.00015
OCDD	0.0001	**0.257**	NA	**0.0232 J**	**0.00978 J**	<0.00008	**0.038 J**	<0.00006	**0.0147 J**	**0.0383 J**	**0.0129 J**	**0.013 J**	**0.0262 J**	**0.0148 J**
2,3,7,8-TCDF	0.1	<0.00005	NA	<0.00005	<0.00004	<0.00005	<0.00004	<0.00003	<0.00004	<0.00004	<0.00004	<0.00004	<0.00006	<0.00009
1,2,3,7,8-PeCDF	0.05	<0.00007	NA	<0.00004	<0.00005	<0.00004	<0.00003	<0.00004	<0.00003	<0.00004	<0.00004	<0.00003	<0.00007	<0.00011
2,3,4,7,8-PeCDF	0.5	<0.00007	NA	<0.00004	<0.00006	<0.00005	<0.00003	<0.00004	<0.00003	<0.00004	<0.00005	<0.00004	<0.00007	<0.00012
1,2,3,4,7,8-HxCDF	0.1	<0.00007	NA	<0.00004	<0.00003	<0.00003	<0.00002	<0.00003	<0.00002	<0.00003	<0.00003	<0.00004	<0.00006	<0.00007
1,2,3,6,7,8-HxCDF	0.1	<0.00006	NA	<0.00004	<0.00003	<0.00002	<0.00002	<0.00002	<0.00002	<0.00003	<0.00002	<0.00003	<0.00005	<0.00007
2,3,4,6,7,8-HxCDF	0.1	<0.00008	NA	<0.00005	<0.00004	<0.00003	<0.00003	<0.00003	<0.00003	<0.00003	<0.00003	<0.00004	<0.00006	<0.00008
1,2,3,7,8,9-HxCDF	0.1	<0.00008	NA	<0.00005	<0.00004	<0.00003	<0.00003	<0.00003	<0.00003	<0.00004	<0.00003	<0.00004	<0.00007	<0.00009
1,2,3,4,6,7,8-HpCDF	0.01	<0.00009	NA	<0.00006	<0.00020	<0.00004	<0.00006	<0.00006	<0.00007	<0.00007	<0.00019	<0.00009	<0.00011	<0.00014
1,2,3,4,7,8,9-HpCDF	0.01	<0.00012	NA	<0.00008	<0.00028	<0.00005	<0.00008	<0.00009	<0.00009	<0.00010	<0.00026	<0.00013	<0.00014	<0.000018
OCDF	0.0001	**0.0389 J**	NA	<0.00009	<0.00010	<0.00009	<0.00011	**0.00064 J**	<0.00005	<0.00015	<0.00013	<0.00010	**0.0062 J**	**0.00354 J**
2,3,7,8-TCDD Equivilance	0.0007	**0.00048059 J**	NA	**0.00000232 J**	**0.000000978 J**	BDL	**0.0000038 J**	**0.000000064 J**	**0.00000147 J**	**0.00008063 J**	**0.00002609 J**	**0.0000013 J**	**0.00000324 J**	**0.000001834 J**

Notes:
Only analytes detected at or above laboratory method detec
Dioxin results in ng/L or parts per trillion, all other results in
<=Analyte was not detected above laboratory detection limit
Bold Text=Analyte detected above laboratory method detec
Shaded Text=Exceedence of TOGS 1.1.1 guidance values
BDL=Below laboratory method detection limit
ND=Not Detected
B=Indicates a value greater than or equal to the instrument
J=Estimated result, result is less than the reporting limit
NA=not analyzed due to laboratory accident
*   Applies to the sum of all phenolic compounds
(F) - Represents the groundwater was a filtered sample

Table 9
Biota Analytical Results
Camp Georgetown

Sample Location		**DS-1**	**DS-2**	**DS-3**	**DS-4**	**DS-5**	**DS-6**	**DS-7**	**DS-8**	**DS-9**	**DS-10**	**DS-11**
Sample Species		Brook Trout	Black-Nose Dace	Brook Trout	Brook Trout	Brook Trout	Brook Trout	Sculpin	Brook Trout	Brook Trout	Creek Chub	White Sucker
Individual Fish/Composite		Individual Fish	Composite	Individual Fish	Individual Fish	Individual Fish	Individual Fish	Composite	Composite	Composite	Composite	Composite
Number of Fish in Composite		NA	30	NA	NA	NA	NA	34	4	3	11	9
Sample Length (mm)		255	45-73	224	213	244	242	42-81	456	427	1389	2013
Sample Weight (g)		168	66	94	90	138	120	126	58	77	195	254
Analyte	**TEFs**											
Dioxins (pg/g or ppt)												
Total TCDF	-	<0.08	<0.11	<0.11	<0.10	<0.10	<0.09	<0.06	<0.10	<0.08	<0.09	<0.07
Total PeCDF	-	<0.12	<0.19	<0.14	<0.14	<0.11	<0.14	<0.11	<0.13	<0.14	<0.13	<0.09
Total HxCDF	-	<0.07	<0.17	<0.12	**7.17**	**2.15**	<0.13	<0.11	<0.11	<0.11	<0.05	**1.61 J**
Total HpCDF	-	<0.14	<1.42	<1.91	<1.29	<0.10	<1.6	<0.36	**3.05**	<0.32	<0.32	<1.09
Total TCDD	-	<0.12	<0.011	<0.08	<0.9	<0.21	<0.07	<0.09	<0.11	<0.08	<0.10	<0.11
Total PeCDD	-	**1.43 J**	<0.14	<0.17	<0.17	<0.13	<0.17	<0.18	<0.16	<0.12	<0.17	<0.11
Total HxCDD	-	<0.18	<0.16	<0.12	**7.04**	**6.12**	<0.15	<0.12	<0.12	<0.14	<0.06	**1.61 J**
Total HpCDD	-	<0.10	<0.36	<0.24	<0.7	<0.37	<0.12	<0.18	<0.30	<0.14	<0.11	<0.16
2,3,7,8-TCDD	1	<0.12	<0.11	<0.08	<0.09	<0.13	<0.07	<0.09	<0.11	<0.08	<0.10	<0.11
1,2,3,7,8-PeCDD	0.5	<0.18	<0.14	<0.17	<0.17	<0.16	<0.17	<0.18	<0.16	<0.12	<0.17	<0.11
1,2,3,4,7,8-HxCDD	0.1	<0.11	<0.19	<0.15	<0.19	<0.18	<0.19	<0.15	<0.14	<0.18	<0.09	<0.14
1,2,3,6,7,8-HxCDD	0.1	<0.07	<0.14	<0.11	**7.17**	**2.15**	<0.14	<0.11	<0.10	<0.13	<0.05	<0.08
1,2,3,7,8,9-HxCDD	0.1	<0.07	<0.15	<0.11	<0.14	<0.13	<0.14	<0.11	<0.11	<0.13	<0.06	<0.09
1,2,3,4,6,7,8-HpCDD	0.01	<0.10	<0.36	<0.24	<0.17	<0.37	<0.12	<0.18	**3.05**	<0.14	<0.11	**1.61 J**
OCDD	0.0001	**15.0**	<0.83	**3.16**	**7.94**	**2.49**	**1.81**	<0.96	**9.20**	**1.61**	**3.09 J**	**1.35**
2,3,7,8-TCDF	0.1	<0.08	<0.11	<0.11	<0.10	<0.10	<0.09	<0.06	<0.10	<0.08	<0.09	<0.07
1,2,3,7,8-PeCDF	0.05	<0.12	<0.18	<0.13	<0.14	<0.11	<0.14	<0.11	<0.13	<0.14	<0.12	<0.08
2,3,4,7,8-PeCDF	0.5	<0.12	<0.19	<0.14	<0.14	<0.12	<0.15	<0.11	<0.14	<0.15	<0.13	<0.09
1,2,3,4,7,8-HxCDF	0.1	<0.07	<0.16	<0.12	<0.11	<0.10	<0.12	<0.11	<0.11	<0.10	<0.05	<0.07
1,2,3,6,7,8-HxCDF	0.1	**1.43 J**	<0.15	<0.10	**7.04**	**6.12**	<0.11	<0.10	<0.10	<0.09	<0.04	**1.61 J**
1,2,3,7,8,9-HXxCDF	0.1	<0.07	<0.18	<0.13	<0.12	<0.11	<0.13	<0.12	<0.12	<0.11	<0.05	<0.07
2,3,4,6,7,8-HxCDF	0.1	<0.08	<0.19	<0.14	<0.13	<0.12	<0.14	<0.12	<0.13	<0.12	<0.05	<0.07
1,2,3,4,6,7,8-HpCDF	0.01	<1.01	<1.26	<1.70	<1.15	<0.19	<1.42	<0.32	<0.57	<0.29	<0.28	<0.94
1,2,3,4,7,8,9-HpCDF	0.01	<1.38	<1.62	<2.18	<1.48	<0.24	<1.82	<0.41	<0.73	<0.37	<0.38	<1.29
OCDF	0.0001	<0.19	<0.64	<0.45	<0.49	<0.42	<0.40	<0.34	<0.33	<0.22	<0.16	**2.08 J**
2,3,7,8- TCDD Equivalence	3.0*	**0.158**	BDL	**0.0316**	**0.784**	**0.852**	**0.0181**	BDL	**0.0397**	**0.0161**	**0.00309**	**0.193**

Dioxin Data Qualifiers:

All results in pg/g or ppt

Concentrations represent wet weight concentrations

J=Estimated result, result is less than the reporting limit

BDL= Below Laboratory Method Detection Limit

DS-1 through DS-11 were collected downstream of the site

US-1 through US-11 were collected upstream of the site

NA = Not applicable

Shaded = Sample possessed a 2,3,7,8-TCDD equivalence concentration greater than guidance value.

*2,3,7,8 TCDD Equivalence compared to NYSDEC's Division of Fish, Wildlife and Marine Resources Technical Guidance for Screening Contaminated based on the Niagara River Biota Contamination Project (1987).

Table 9
Biota Analytical Results
Camp Georgetown

Sample Location		**US-1**	**US-2**	**US-3**	**US-4**	**US-5**	**US-6**	**US-7**	**US-8**	**US-9**	**US-10**	**US-11**
Sample Species		Brook Trout	Brook Trout	Brook Trout	Brook Trout	Brook Trout	Brook Trout	Brook Trout	Creek Chub	White Sucker	White Sucker	Black-Nose Dace
Individual Fish/Composite		Individual Fish	Individual Fish	Individual Fish	Individual Fish	Individual Fish	Composite	Composite	Composite	Composite	Composite	Composite
Number of Fish in Composite		NA	NA	NA	NA	NA	3	4	3	6	70	83
Sample Length (mm)		215	215	197	179	192	418	490	382	852	28-99	28-69
Sample Weight (g)		92	80	68	57	55	72	73	73	161	229	123
Analyte **Dioxins (ng/L or ppt)**	**TEFs**											
Total TCDF	-	<0.08	<0.05	<0.05	<0.04	<0.05	<0.06	<0.07	<0.08	<0.07	<0.05	<0.07
Total PeCDF	-	<0.11	<0.06	<0.06	<0.09	<0.10	<0.08	<0.09	<0.07	<0.07	<0.04	<0.06
Total HxCDF	-	<0.31	<0.07	**2.55 J**	<0.06	<0.06	<0.08	<0.06	**3.65 J**	<0.06	**0.904 J**	<0.07
Total HpCDF	-	**1.22**	<0.53	<0.11	**6.47 J**	<0.54	<0.24	**1.69 J**	<0.39	**0.140 J**	**0.434 J**	<0.57
Total TCDD	-	<0.06	<0.05	**1.62 J**	<0.44	<0.05	<0.07	<0.08	<0.11	<0.12	<0.06	<0.06
Total PeCDD	-	<0.10	<0.07	<0.08	<0.06	<0.08	<0.09	**0.16**	<0.14	<0.16	<0.05	<0.09
Total HxCDD	-	**4.55**	<0.09	<0.07	**1.56 J**	<0.07	**2.95**	<0.08	<0.09	<0.10	<0.04	<0.09
Total HpCDD	-	<0.18	<0.14	<0.13	<0.15	<0.12	<0.04	<0.15	<0.12	<0.15	<0.05	<0.14
2,3,7,8-TCDD	1	<0.06	<0.05	<0.06	<0.06	<0.05	<0.07	<0.08	<0.11	<0.12	<0.06	<0.06
1,2,3,7,8-PeCDD	0.5	<0.10	<0.07	<0.08	<0.07	<0.08	<0.09	<0.14	<0.14	<0.16	<0.05	<0.09
1,2,3,4,7,8-HxCDD	0.1	<0.10	<0.11	<0.08	<0.10	<0.09	<0.12	<0.11	<0.13	<0.14	<0.06	<0.11
1,2,3,6,7,8-HxCDD	0.1	<0.07	<0.08	**2.55 J**	<0.07	<0.06	<0.09	<0.06	<0.08	<0.09	**0.390 J**	<0.08
1,2,3,7,8,9-HxCDD	0.1	<0.08	<0.08	<0.06	<0.08	<0.07	<0.09	<0.07	**0.365 J**	<0.09	**0.514 J**	<0.09
1,2,3,4,6,7,8-HpCDD	0.01	**1.22**	<0.14	<0.13	**6.47 J**	<0.12	<0.14	<0.15	<0.12	**0.140 J**	**0.434 J**	<0.14
OCDD	0.0001	**7.35**	<0.32	<0.00023	**0.968 J**	<0.43	<0.31	**1.69 J**	<0.11	**0.852 J**	**2.73 J**	**2.36 J**
2,3,7,8-TCDF	0.1	<0.08	<0.05	**1.62 J**	<0.04	<0.05	<0.06	<0.07	<0.08	<0.07	<0.05	<0.07
1,2,3,7,8-PeCDF	0.05	<0.11	<0.06	<0.06	<0.09	<0.09	<0.08	<0.08	<0.06	<0.07	<0.04	<0.06
2,3,4,7,8-PeCDF	0.5	<0.11	<0.06	<0.06	<0.10	<0.10	<0.08	<0.09	<0.07	<0.07	<0.05	<0.06
1,2,3,4,7,8-HxCDF	0.1	<0.30	<0.07	<0.05	<0.06	<0.06	<0.07	<0.06	<0.\06	<0.06	<0.03	<0.07
1,2,3,6,7,8-HxCDF	0.1	**4.55**	<0.06	<0.05	**1.56 J**	<0.06	**2.95**	**1.01**	<0.05	<0.05	<0.02	<0.06
1,2,3,7,8,9-HXxCDF	0.1	<0.33	<0.08	<0.06	<0.06	<0.07	<0.08	<0.07	<0.07	<0.06	<0.03	<0.07
2,3,4,6,7,8-HxCDF	0.1	<0.36	<0.08	<0.06	<0.07	<0.07	<0.09	**0.16000**	<0.07	<0.06	<0.03	<0.08
1,2,3,4,6,7,8-HpCDF	0.01	<0.219	<0.47	<0.10	<0.39	<0.48	<0.21	<0.21	<0.34	<0.13	<0.04	<0.51
1,2,3,4,7,8,9-HpCDF	0.01	<2.82	<0.61	<0.13	<0.50	<0.61	<0.27	<0.29	<0.46	<0.18	<0.05	<0.65
OCDF	0.0001	**1.94**	<0.33	<0.19	<0.20	<0.33	<0.31	**9.79 J**	<0.13	<0.18	**1.6 J**	<0.30
2,3,7,8- TCDD Equivalence	3.0	**0.476**	BDL	**0.0417**	**0.158**	BDL	**0.295**	**0.120**	**0.0365**	**0.00225**	**0.0992**	**0.00236**

Dioxin Data Qualifiers:

All results in ng/L or ppt

Concentrations represent wet weight concentrations

J=Estimated result, result is less than the reporting limit

BDL= Below Laboratory Method Detection Limit

DS-1 through DS-11 were collected downstream of the site

US-1 through US-11 were collected upstream of the site

NA = Not applicable

Shaded = Sample possessed a 2,3,7,8-TCDD equivalence concentration greater than the 0.0003 ppb guidance value.

FIGURES

APPENDIX A

DRILLING AND TEST PIT LOGS

Drilling Log

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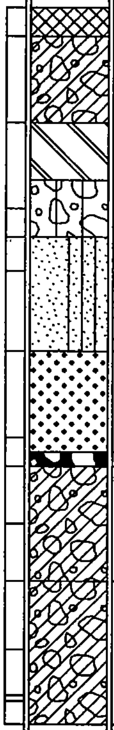
Soil Boring **GSB02-1**
Page: 1 of 1

Project *DEC Multi Site Camp Georgetown* Owner
Location *Madison County* Proj. No. *830271*
Surface Elev. *NA* Total Hole Depth *12.5 ft.* North East
Top of Casing *NA* Water Level Initial *NA* Static *NA* Diameter
Screen: Dia *NA* Length *NA* Type/Size *NA*
Casing: Dia *NA* Length *NA* Type *NA*
Fill Material *BENTONITE* Rig/Core
Drill Co. *PARAT WOLFF* Method *GEOPROBE*
Driller Log By *Jeff LaRock* Date *10/21/02* Permit # *NA*
Checked By License No.

COMMENTS



Depth (ft.)	PID (ppm)	Sample ID % Recovery	Blow Count Recovery	Graphic Log	USCS Class.	Description (Color, Texture, Structure) Geologic descriptions are based on ASTM Standard D 2487-93 and the USCS.
0						Fill material comprised of asphault, crushed stone and gravel.
	0.0	25%			SP	Gray-tan till, comprised of fine sand and silt w/some pebbles and coarse grained sands.
2					CL CH	Dark brown highly plastic clay and silt w/some coarse grained sands, moist, odor present.
	0.0	75%			GM	Dry dense till with subangular to subrounded pebbles and angular gravel
4	0.0	30%			SP SM	Dry dense till with a silt dominated matrix w/some coarse sands, pebbles and granule clasts.
6	0.0	75%			SW	Moist, tan moderately well-sorted fine sand with rare coarse material, grades to dense tan-gray till.
						Refusal, No recovery
8	0.0	50%			CL	Silt and clay matrix with subrounded pebbles and granule sized clasts.
10	0.0	60%			CL	Dense gray till, clay matrix with rounded and subrounded pebbles and gravels.
12	0.0	20%				
14						
16						
18						
20						

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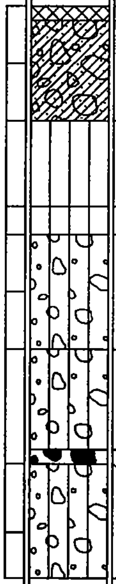
Drilling Log

Soil Boring **GSB02-6**

Page: 1 of 1

Project *DEC Multi Site Camp Georgetown* Owner ______
Location *Madison County* Proj. No. *830271*
Surface Elev. *NA* Total Hole Depth *8.0 ft.* North ______ East ______
Top of Casing *NA* Water Level Initial *NA* Static *NA* Diameter ______
Screen: Dia *NA* Length *NA* Type/Size *NA*
Casing: Dia *NA* Length *NA* Type *NA*
Fill Material *BENTONITE* Rig/Core ______
Drill Co. *PARAT WOLFF* Method *GEOPROBE*
Driller ______ Log By *Jeff LaRock* Date *10/23/02* Permit # *NA*
Checked By ______ License No. ______

COMMENTS



Depth (ft.)	PID (ppm)	Sample ID % Recovery	Blow Count Recovery	Graphic Log	USCS Class.	Description (Color, Texture, Structure) Geologic descriptions are based on ASTM Standard D 2487-93 and the USCS.
0						Gravel
	0.0	50%				Dense brown till
2	0.0	1 75%			ML	Brown till comprised of silt, very fine sand and some clays.
					ML	Dark red to brown till comprised of very fine sand w/some silt and clays, few to none large clasts.
4	0.0	50%			ML	Dense tan-brown till with angular to subangular fragments and clasts, possible weather siltstone horizon at the top of section.
6	0.0	100%			ML	Dense tan-brown till with subrounded to subangular clasts.
					GW	Large gravels
8	0.0	2 60%			ML	Dense hard brown till, large gravels at bottom of section.
10						
12						
14						
16						
18						
20						

Drilling Log

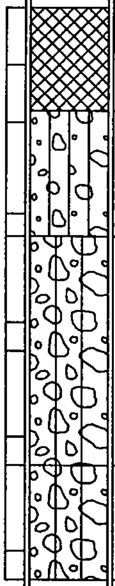
Shaw™
Shaw Environmental, Inc.

Soil Boring **GSB02-7**

Page: 1 of 1

Project DEC Multi Site Camp Georgetown
Owner
Location Madison County
Proj. No. 830271
Surface Elev. NA
Total Hole Depth 10.0 ft.
North
East
Top of Casing NA
Water Level Initial NA
Static NA
Diameter
Screen: Dia NA
Length NA
Type/Size NA
Casing: Dia NA
Length NA
Type NA
Fill Material BENTONITE
Rig/Core
Drill Co. PARAT WOLFF
Method GEOPROBE
Driller
Log By Jeff LaRock
Date 10/23/02
Permit # NA
Checked By
License No.

COMMENTS



Depth (ft.)	PID (ppm)	Sample ID % Recovery	Blow Count Recovery	Graphic Log	USCS Class.	Description (Color, Texture, Structure) Geologic descriptions are based on ASTM Standard D 2487-93 and the USCS.
0						Gray-brown fill material, dry
	0.0	50%				
2						Gray-brown till matrix supported, silt, very fine sand and clay with very few coarse grains.
	0.0	1 80%			ML	
4						Gray-brown till, silt and very fine sand matrix, with coarse gravels and sandstone clasts prevalent throughout.
	0.0	75%				
6					GM	
	0.0	75%				
8						Brown till with gravel size clasts throughout, dense and dry.
	0.0	2 75%			GM	
10						
12						
14						
16						
18						
20						

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Shaw Environmental, Inc.

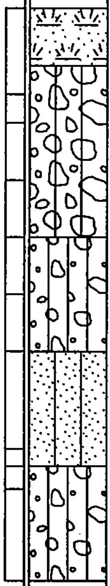
Drilling Log

Soil Boring **GSB02-8**

Page: 1 of 1

Project *DEC Multi Site Camp Georgetown* Owner
Location *Madison County* Proj. No. *830271*
Surface Elev. *NA* Total Hole Depth *10.0 ft.* North East
Top of Casing *NA* Water Level Initial *NA* Static *NA* Diameter
Screen: Dia *NA* Length *NA* Type/Size *NA*
Casing: Dia *NA* Length *NA* Type *NA*
Fill Material *BENTONITE* Rig/Core
Drill Co. *PARAT WOLFF* Method *GEOPROBE*
Driller Log By *Jeff LaRock* Date *10/23/02* Permit # *NA*
Checked By License No.

COMMENTS

Depth (ft.)	PID (ppm)	Sample ID % Recovery	Blow Count Recovery	Graphic Log	USCS Class.	Description (Color, Texture, Structure) Geologic descriptions are based on ASTM Standard D 2487-93 and the USCS.
0						Topsoil
		75%				Tan-gray till, silty matrix with large clasts and gravels.
2					GM	
	6.0	1 50%				
4						Brown silty till w/some larger clasts.
	14.6	50%			ML	
6						Dry brown till comprised of silt and fine grained sands.
	19.4	85%			SM	
8						Dry friable till w/some angular clasts, large gravel in foot.
	36.4	2 20%			ML	
10						
12						
14						
16						
18						
20						

Drilling Log

Shaw Environmental, Inc.

Soil Boring **GSB02-9**

Page: 1 of 1

Project *DEC Multi Site Camp Georgetown* Owner

Location *Madison County* Proj. No. *830271*

Surface Elev. *NA* Total Hole Depth *14.0 ft.* North East

Top of Casing *NA* Water Level Initial *NA* Static *NA* Diameter

Screen: Dia *NA* Length *NA* Type/Size *NA*

Casing: Dia *NA* Length *NA* Type *NA*

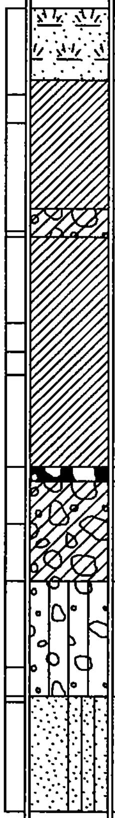
Fill Material *BENTONITE* Rig/Core

Drill Co. *PARAT WOLFF* Method *GEOPROBE*

Driller Log By *Jeff LaRock* Date *10/23/02* Permit # *NA*

Checked By License No.

COMMENTS



Depth (ft.)	PID (ppm)	Sample ID % Recovery	Blow Count Recovery	Graphic Log	USCS Class.	Description (Color, Texture, Structure) Geologic descriptions are based on ASTM Standard D 2487-93 and the USCS.
0						Topsoil
	0.0	1 75%				
						Dense tan till, silty clay matrix w/some coarse material, dry.
2					CL	
	0.0	95%				
					GC	Dense tan till, silty clay matrix with rock fragments, dry.
4						Dense brown till, silt and clay matrix with pebbles and coarse sand clasts.
	0.0	75%				
6					CL	
	0.0	20%				
8						Large rock fragments and cobbles.
						Dense brown till, silty clay matrix with large gravels and pebbles w/some coarse sands.
	0.0	50%			GC	
10						Dense gray-tan till, silt with large gravels common throughout, dry.
	0.0	75%			ML	
12						Dense gray-brown till with large gravel, pebbles, coarse sand and abundant smaller coarse grains.
	0.0	5%			SP SM	
14						
16						
18						
20						

Drilling Log

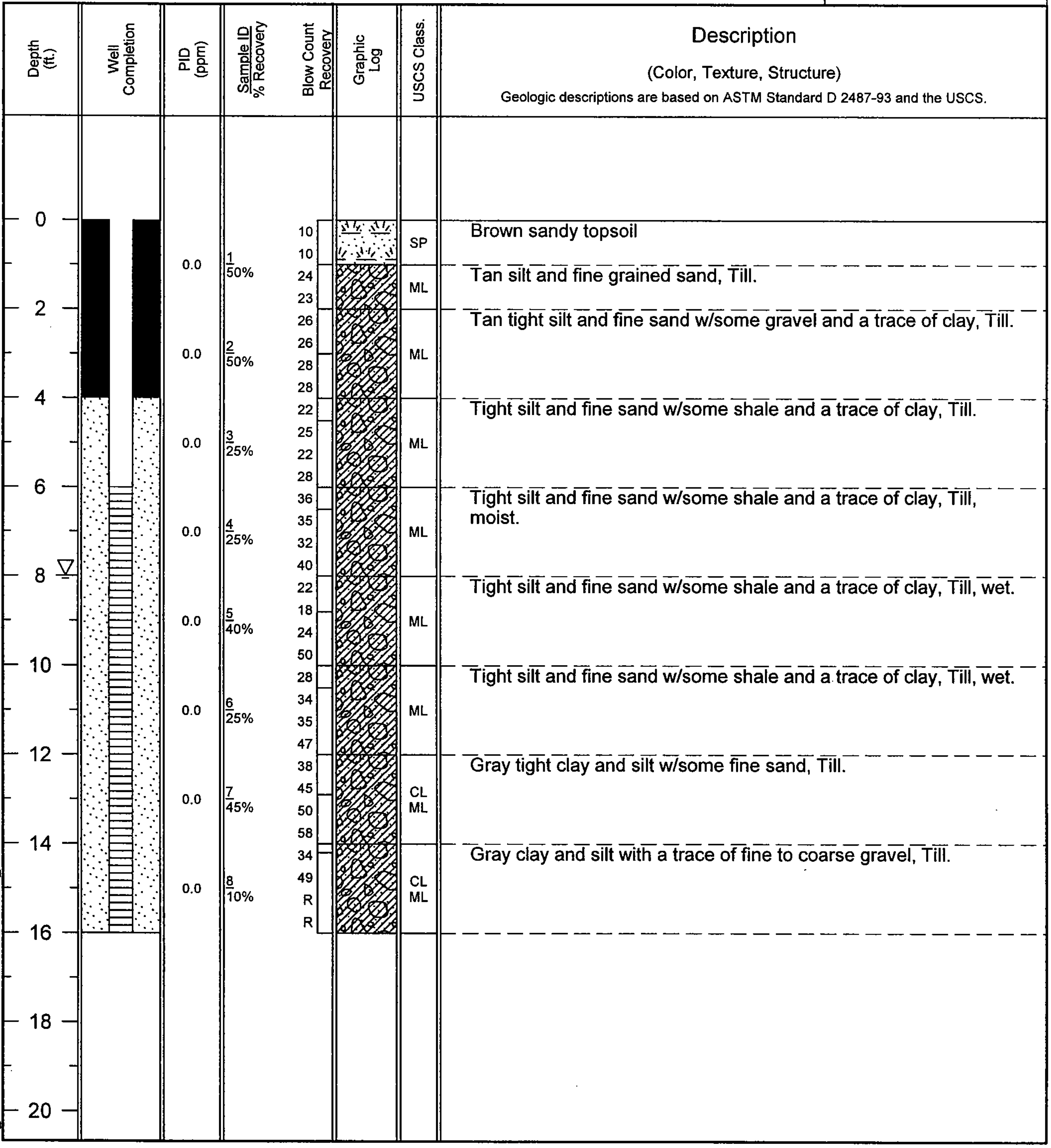
Monitoring Well **MW-9**

Shaw Environmental, Inc.

Page: 1 of 1

Project DEC Multi Site Camp Georgetown
Owner
Location Madison County
Proj. No. 830271
Surface Elev. NA
Total Hole Depth 16.0 ft.
North
East
Top of Casing NA
Water Level Initial ∇ 8.0 ft.
Static NA
Diameter 4.25 in. in.
Screen: Dia 2 in. in.
Length 10 ft. ft.
Type/Size PVC
Casing: Dia NA
Length NA
Type NA
Fill Material SAND W/ BENTONITE CAP
Rig/Core
Drill Co. AMERICAN AUGER
Method MUD ROTARY
Driller
Log By John Santacroce
Date 11/7/01
Permit # NA
Checked By
License No.

COMMENTS



Depth (ft.)	PID (ppm)	Sample ID % Recovery	Blow Count Recovery	USCS Class.	Description (Color, Texture, Structure) Geologic descriptions are based on ASTM Standard D 2487-93 and the USCS.
0	0.0	1 50%	10 10	SP	Brown sandy topsoil
			24 23	ML	Tan silt and fine grained sand, Till.
2	0.0	2 50%	26 26 28 28	ML	Tan tight silt and fine sand w/some gravel and a trace of clay, Till.
4	0.0	3 25%	22 25 22 28	ML	Tight silt and fine sand w/some shale and a trace of clay, Till.
6	0.0	4 25%	36 35 32 40	ML	Tight silt and fine sand w/some shale and a trace of clay, Till, moist.
8 ∇	0.0	5 40%	22 18 24 50	ML	Tight silt and fine sand w/some shale and a trace of clay, Till, wet.
10	0.0	6 25%	28 34 35 47	ML	Tight silt and fine sand w/some shale and a trace of clay, Till, wet.
12	0.0	7 45%	38 45 50 58	CL ML	Gray tight clay and silt w/some fine sand, Till.
14	0.0	8 10%	34 49 R R	CL ML	Gray clay and silt with a trace of fine to coarse gravel, Till.
16					
18					
20					

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Drilling Log

Monitoring Well **MW-10**

Page: 1 of 1

Project *DEC Multi Site Camp Georgetown* Owner

Location *Madison County* Proj. No. *830271*

Surface Elev. *NA* Total Hole Depth *16.0 ft.* North East

Top of Casing *NA* Water Level Initial ∇ *6.0 ft.* Static *NA* Diameter *4.25 in. in.*

Screen: Dia *2 in. in.* Length *10 ft. ft.* Type/Size *PVC*

Casing: Dia *NA* Length *NA* Type *NA*

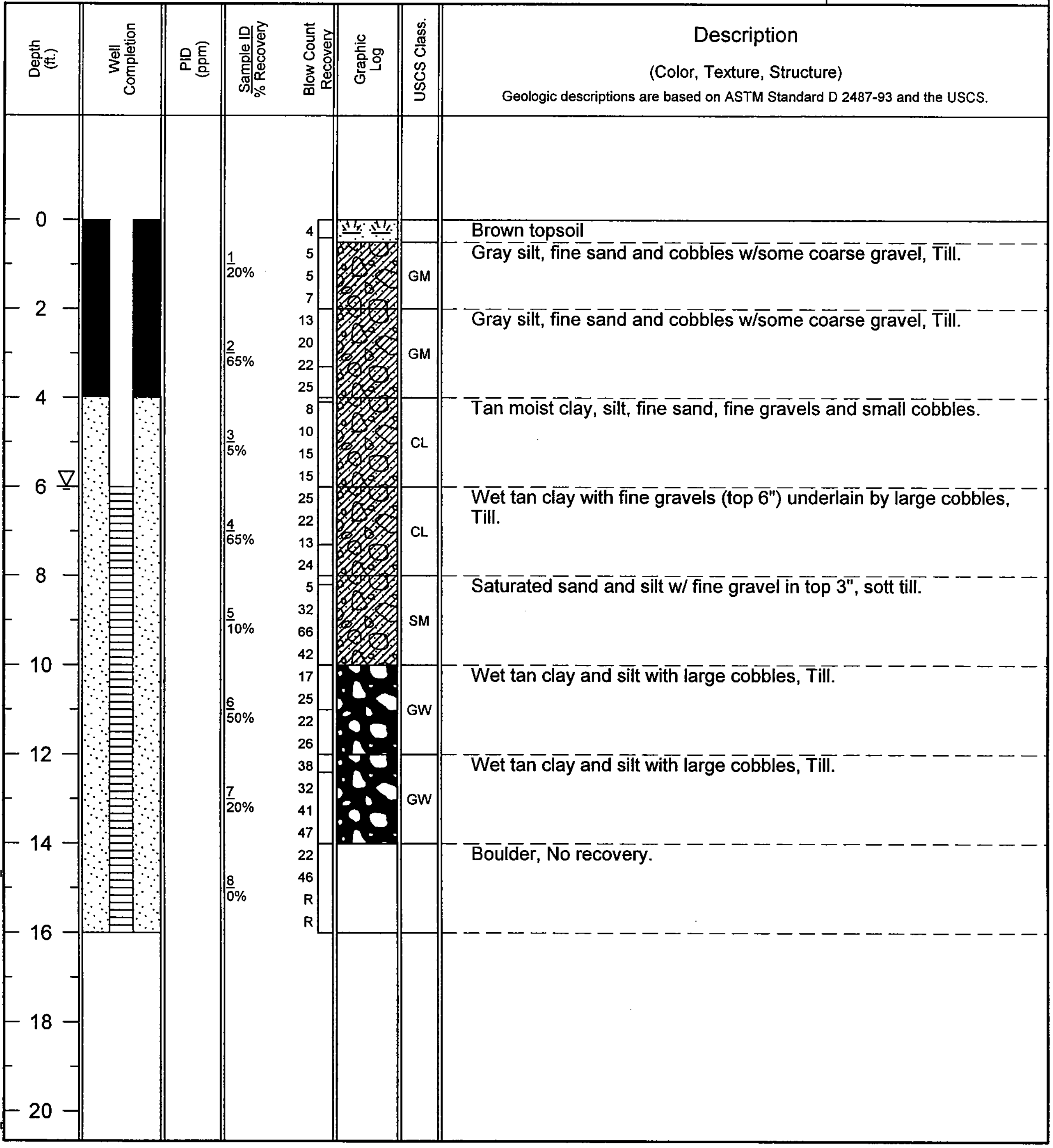
Fill Material *SAND W/ BENTONITE CAP* Rig/Core

Drill Co. *AMERICAN AUGER* Method *MUD ROTARY*

Driller Log By *John Santacroce* Date *11/7/01* Permit # *NA*

Checked By License No.

COMMENTS



Depth (ft.)	Sample ID / % Recovery	Blow Count Recovery	USCS Class.	Description (Color, Texture, Structure) Geologic descriptions are based on ASTM Standard D 2487-93 and the USCS.
0	1 20%	4 5 5 7	GM	Brown topsoil Gray silt, fine sand and cobbles w/some coarse gravel, Till.
2	2 65%	13 20 22 25	GM	Gray silt, fine sand and cobbles w/some coarse gravel, Till.
4	3 5%	8 10 15 15	CL	Tan moist clay, silt, fine sand, fine gravels and small cobbles.
6 ∇	4 65%	25 22 13 24	CL	Wet tan clay with fine gravels (top 6") underlain by large cobbles, Till.
8	5 10%	5 32 66 42	SM	Saturated sand and silt w/ fine gravel in top 3", sott till.
10	6 50%	17 25 22 26	GW	Wet tan clay and silt with large cobbles, Till.
12	7 20%	38 32 41 47	GW	Wet tan clay and silt with large cobbles, Till.
14	8 0%	22 46 R R		Boulder, No recovery.
16				
18				
20				

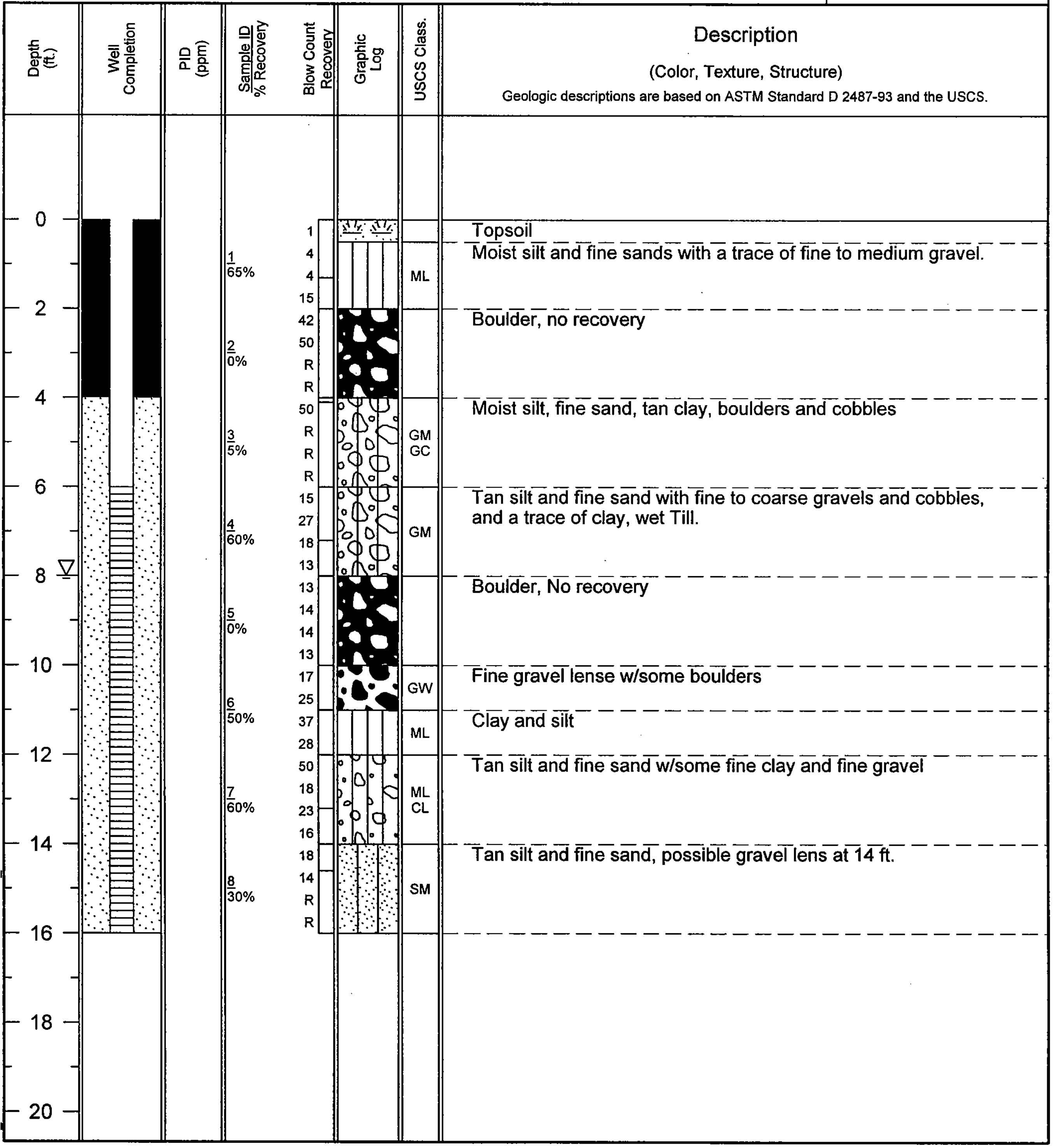
Drilling Log

Shaw™
Shaw Environmental, Inc.

Monitoring Well **MW-11**
Page: 1 of 1

Project DEC Multi Site Camp Georgetown Owner
Location Madison County Proj. No. 830271
Surface Elev. NA Total Hole Depth 16.0 ft. North East
Top of Casing NA Water Level Initial ∇ 8.0 ft. Static NA Diameter 4.25 in. in.
Screen: Dia 2 in. in. Length 10 ft. ft. Type/Size PVC
Casing: Dia NA Length NA Type NA
Fill Material SAND W/ BENTONITE CAP Rig/Core
Drill Co. AMERICAN AUGER Method MUD ROTARY
Driller Log By John Santacroce Date 11/7/01 Permit # NA
Checked By License No.

COMMENTS



Depth (ft.)	Well Completion	PID (ppm)	Sample ID % Recovery	Blow Count Recovery	Graphic Log	USCS Class.	Description (Color, Texture, Structure) Geologic descriptions are based on ASTM Standard D 2487-93 and the USCS.
0				1			Topsoil
			1 65%	4 4 15		ML	Moist silt and fine sands with a trace of fine to medium gravel.
2			2 0%	42 50 R R			Boulder, no recovery
4			3 5%	50 R R R		GM GC	Moist silt, fine sand, tan clay, boulders and cobbles
6			4 60%	15 27 18 13		GM	Tan silt and fine sand with fine to coarse gravels and cobbles, and a trace of clay, wet Till.
8 ∇			5 0%	13 14 14 13			Boulder, No recovery
10			6 50%	17 25		GW	Fine gravel lense w/some boulders
				37 28		ML	Clay and silt
12			7 60%	50 18 23 16		ML CL	Tan silt and fine sand w/some fine clay and fine gravel
14			8 30%	18 14 R R		SM	Tan silt and fine sand, possible gravel lens at 14 ft.
16							
18							
20							

IT_COMMERCIAL Rev: 12/6/99 GT.GPJ IT_CORP.GDT 4/7/03

Drilling Log

Shaw™
Shaw Environmental, Inc.

Monitoring Well **MW-12**

Page: 1 of 1

Project DEC Multi Site Camp Georgetown Owner
Location Madison County Proj. No. 830271
Surface Elev. NA Total Hole Depth 14.0 ft. North East
Top of Casing NA Water Level Initial ∇ 8.0 ft. Static NA Diameter 4.25 in. in.
Screen: Dia 2 in. in. Length 10 ft. ft. Type/Size PVC
Casing: Dia NA Length NA Type NA
Fill Material SAND W/ BENTONITE CAP Rig/Core
Drill Co. AMERICAN AUGER Method MUD ROTARY
Driller Log By John Santacroce Date 11/8/01 Permit # NA
Checked By License No.

COMMENTS

Depth (ft.)	PID (ppm)	Sample ID % Recovery	Blow Count Recovery	USCS Class.	Description (Color, Texture, Structure) Geologic descriptions are based on ASTM Standard D 2487-93 and the USCS.
0			13		Topsoil
	0.0	1 60%	15 12 25	ML	Tan gray silty clay with fine sand and fine gravel.
2	0.0	2 30%	24 28 39 24	GM	Tight till with shale, cobbles and some medium gravel.
4	0.0	3 50%	13 25 33 13	GM	Tight till with shale (top 1 ft) and coarse gravel (bottom 1 ft).
6	0.0	4 40%	18 25 22 30	GM	Till with medium to caorse gravel and shale cobbles.
8 ∇	0.0	5 10%	35 45 45 50	GM	Till with gravel, moist
10	0.0	6 10%	29 30 R R	GM	Rejection at 11", high clay content with fine gravel, till has become grayer in color.
12	0.0	7 10%	47 63 41 R	GM	Rejection at 13.5 ft., gray clay with coarse gravel and few pebbles.
14					
16					
18					
20					

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Shaw Environmental, Inc.

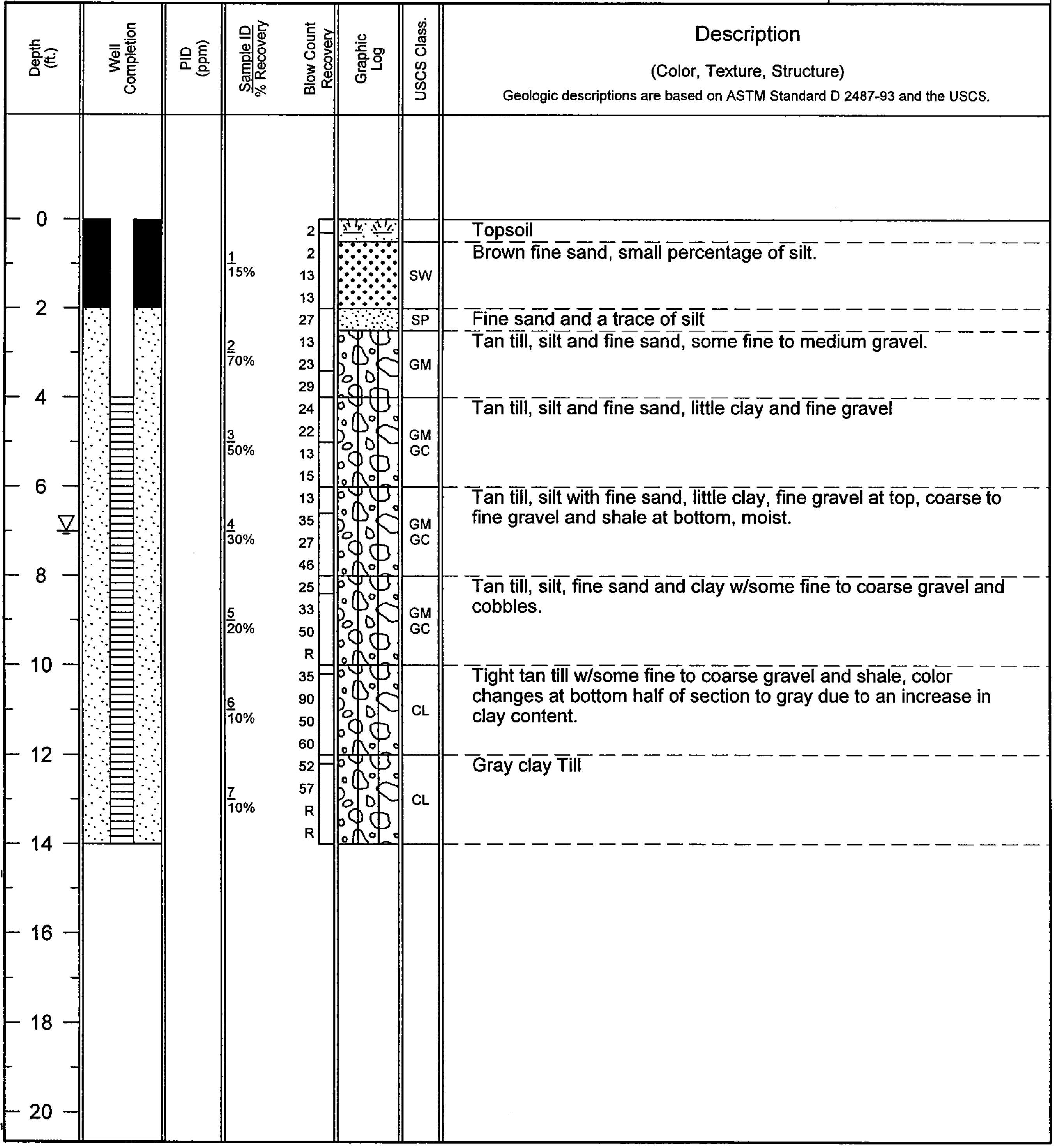
Drilling Log

Monitoring Well **MW-13**

Page: 1 of 1

Project DEC Multi Site Camp Georgetown
Owner
Location Madison County
Proj. No. 830271
Surface Elev. NA
Total Hole Depth 14.0 ft.
North
East
Top of Casing NA
Water Level Initial ∇ 7.0 ft.
Static NA
Diameter 4.25 in. in.
Screen: Dia 2 in. in.
Length 10 ft. ft.
Type/Size NA
Casing: Dia NA
Length NA
Type NA
Fill Material SAND W/ BENTONITE CAP
Rig/Core
Drill Co. AMERICAN AUGER
Method MUD ROTARY
Driller
Log By John Santacroce
Date 11/9/01
Permit # NA
Checked By
License No.

COMMENTS



Depth (ft.)	PID (ppm)	Sample ID / % Recovery	Blow Count Recovery	USCS Class.	Description (Color, Texture, Structure) Geologic descriptions are based on ASTM Standard D 2487-93 and the USCS.
0		1 15%	2		Topsoil
			2 13 13	SW	Brown fine sand, small percentage of silt.
2		2 70%	27	SP	Fine sand and a trace of silt
			13 23 29	GM	Tan till, silt and fine sand, some fine to medium gravel.
4		3 50%	24 22 13 15	GM GC	Tan till, silt and fine sand, little clay and fine gravel
6		4 30%	13 35 27 46	GM GC	Tan till, silt with fine sand, little clay, fine gravel at top, coarse to fine gravel and shale at bottom, moist.
8		5 20%	25 33 50 R	GM GC	Tan till, silt, fine sand and clay w/some fine to coarse gravel and cobbles.
10		6 10%	35 90 50 60	CL	Tight tan till w/some fine to coarse gravel and shale, color changes at bottom half of section to gray due to an increase in clay content.
12		7 10%	52 57 R R	CL	Gray clay Till
14					
16					
18					
20					

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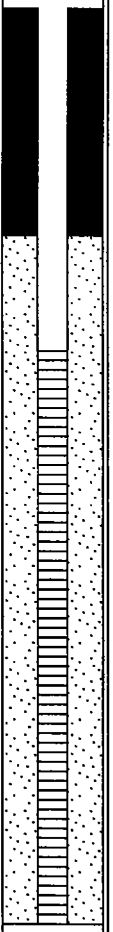
Drilling Log

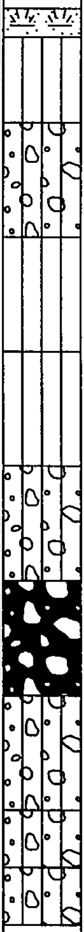
Monitoring Well **MW-14**

Page: 1 of 1

Project DEC Multi Site Camp Georgetown Owner
Location Madison County Proj. No. 830271
Surface Elev. NA Total Hole Depth 16.0 ft. North East
Top of Casing NA Water Level Initial ∇ 6.0 ft. Static NA Diameter 4.25 in. in.
Screen: Dia 2 in. in. Length 10 ft. ft. Type/Size PVC
Casing: Dia NA Length NA Type NA
Fill Material SAND W/ BENTONITE CAP Rig/Core
Drill Co. AMERICAN AUGER Method MUD ROTARY
Driller Log By John Santacroce Date 11/12/01 Permit # NA
Checked By License No.

COMMENTS





Depth (ft.)	Well Completion	PID (ppm)	Sample ID % Recovery	Blow Count Recovery	Graphic Log	USCS Class.	Description (Color, Texture, Structure) Geologic descriptions are based on ASTM Standard D 2487-93 and the USCS.
0				2			Dark brown topsoil
			1 15%	2 13 22		ML	Moist till, tan silt and fine sand.
2			2 70%	27 13 23 29		ML	Till, tan silt w/some fine sand and medium gravel @ 3', moist.
4			3 50%	24 22 13 15		ML	Tan moist silty till, no gravel.
6 ∇			4 30%	13 35 27 46		ML	Tan moist silty till, no gravel.
8			5 20%	35 33 50 R		ML CL	Tan moist till comprised of silt, clay and some fine to medium grained sand, a little fine gravel.
10			6 10%	35 90 50 60			No recovery, Boulder.
12			7 10%	52 57 R R		ML CL	Tan till comprised of silt, a little fine sand w/some clay and fine to coarse gravel
14			8			ML CL	Tan till comprised of silt, a little fine sand, a little fine to medium gravel, some clay and shale.
						ML CI	Gray till, clay and silt, low plasticity.
16							
18							
20							

Drilling Log

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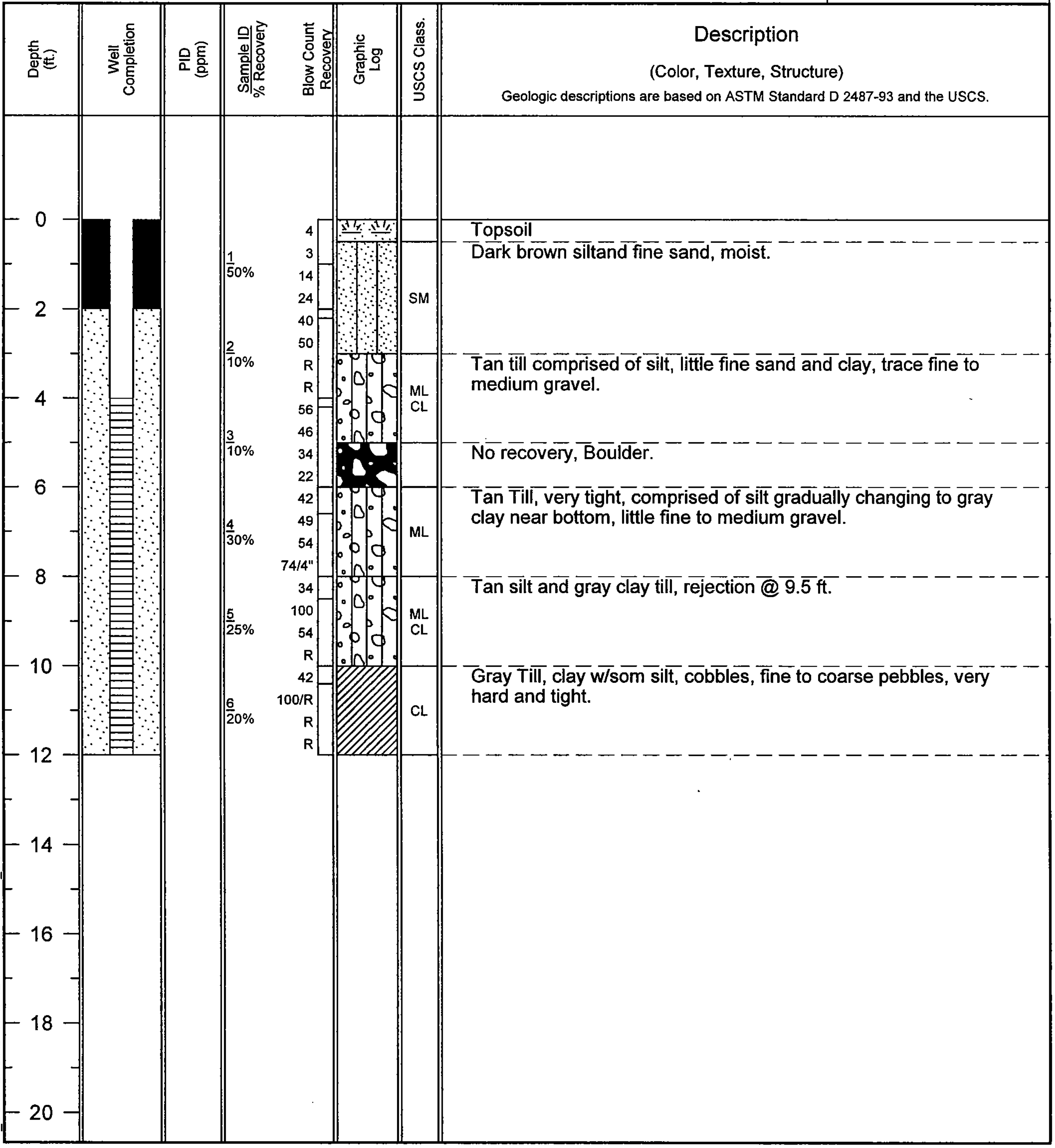
Monitoring Well **MW-15**

Page: 1 of 1

Project *DEC Multi Site Camp Georgetown* Owner
Location *Madison County* Proj. No. *830271*
Surface Elev. *NA* Total Hole Depth *12.0 ft.* North East
Top of Casing *NA* Water Level Initial *NA* Static *NA* Diameter *4.25 in. in.*
Screen: Dia *2 in. in.* Length *10 ft. ft.* Type/Size *PVC*
Casing: Dia *NA* Length *NA* Type *NA*
Fill Material *SAND W/ BENTONITE CAP* Rig/Core
Drill Co. *AMERICAN AUGER* Method *MUD ROTARY*
Driller Log By *John Santacroce* Date *11/8/01* Permit # *NA*
Checked By License No.

COMMENTS



Depth (ft.)	Well Completion	PID (ppm)	Sample ID % Recovery	Blow Count Recovery	Graphic Log	USCS Class.	Description (Color, Texture, Structure) Geologic descriptions are based on ASTM Standard D 2487-93 and the USCS.
0				4			Topsoil
			1	3			Dark brown siltand fine sand, moist.
			50%	14			
				24		SM	
2				40			
			2	50			
			10%	R			Tan till comprised of silt, little fine sand and clay, trace fine to medium gravel.
				R		ML	
4				56		CL	
			3	46			
			10%	34			No recovery, Boulder.
				22			
6				42			Tan Till, very tight, comprised of silt gradually changing to gray clay near bottom, little fine to medium gravel.
			4	49			
			30%	54		ML	
				74/4"			
8				34			Tan silt and gray clay till, rejection @ 9.5 ft.
			5	100		ML	
			25%	54		CL	
				R			
10				42			Gray Till, clay w/som silt, cobbles, fine to coarse pebbles, very hard and tight.
			6	100/R			
			20%	R		CL	
				R			
12							
14							
16							
18							
20							

IT_COMMERCIAL Rev: 12/6/99 GT.GPJ IT_CORP.GDT 4/7/03

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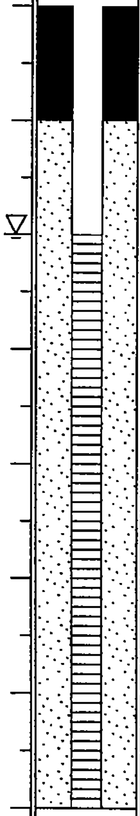
Drilling Log

Monitoring Well **MW-16**

Page: 1 of 1

Project *DEC Multi Site Camp Georgetown* Owner
Location *Madison County* Proj. No. *830271*
Surface Elev. *NA* Total Hole Depth *14.0 ft.* North East
Top of Casing *NA* Water Level Initial ▽ *4.0 ft.* Static *NA* Diameter *4.25 in. in.*
Screen: Dia *2 in. in.* Length *10 ft. ft.* Type/Size *PVC*
Casing: Dia *NA* Length *NA* Type *NA*
Fill Material *SAND W/ BENTONITE CAP* Rig/Core
Drill Co. *AMERICAN AUGER* Method *MUD ROTARY*
Driller Log By *John Santacroce* Date *11/12/01* Permit # *NA*
Checked By License No.

COMMENTS



Depth (ft.)	Well Completion	PID (ppm)	Sample ID % Recovery	Blow Count Recovery	Graphic Log	USCS Class.	Description (Color, Texture, Structure) Geologic descriptions are based on ASTM Standard D 2487-93 and the USCS.
0			1 10%	4 13 24 26		ML	Dark Brown topsoil Till, tan silt w/some fine sand, possible staining @ 1 ft, no odor.
2			2 60%	34 29 30 36		ML	Tan/gray till comprised of silt w/some fine sand, trace of clay, moist, shale @ 2.5 '.
4 ▽			3 30%	17 23 22 23		ML	Moist tan till, silt w/some fine sand, some medium to coarse gravel and cobbles, tight.
6			4 20%	16 20 25 25		ML	Moist tan till, silt w/some fine sand, some medium to coarse gravel and cobbles, tight.
8			5 40%	12 36 40 40 45		ML CL	Tan silt and clay, changed to gray @ 11 ft, high clay content.
10			6 50%	30 45 45		CL	Very tight gray clay till w/some fine to medium gravel, and a little silt.
12			7 60%	26 30 40 45			
14							
16							
18							
20							

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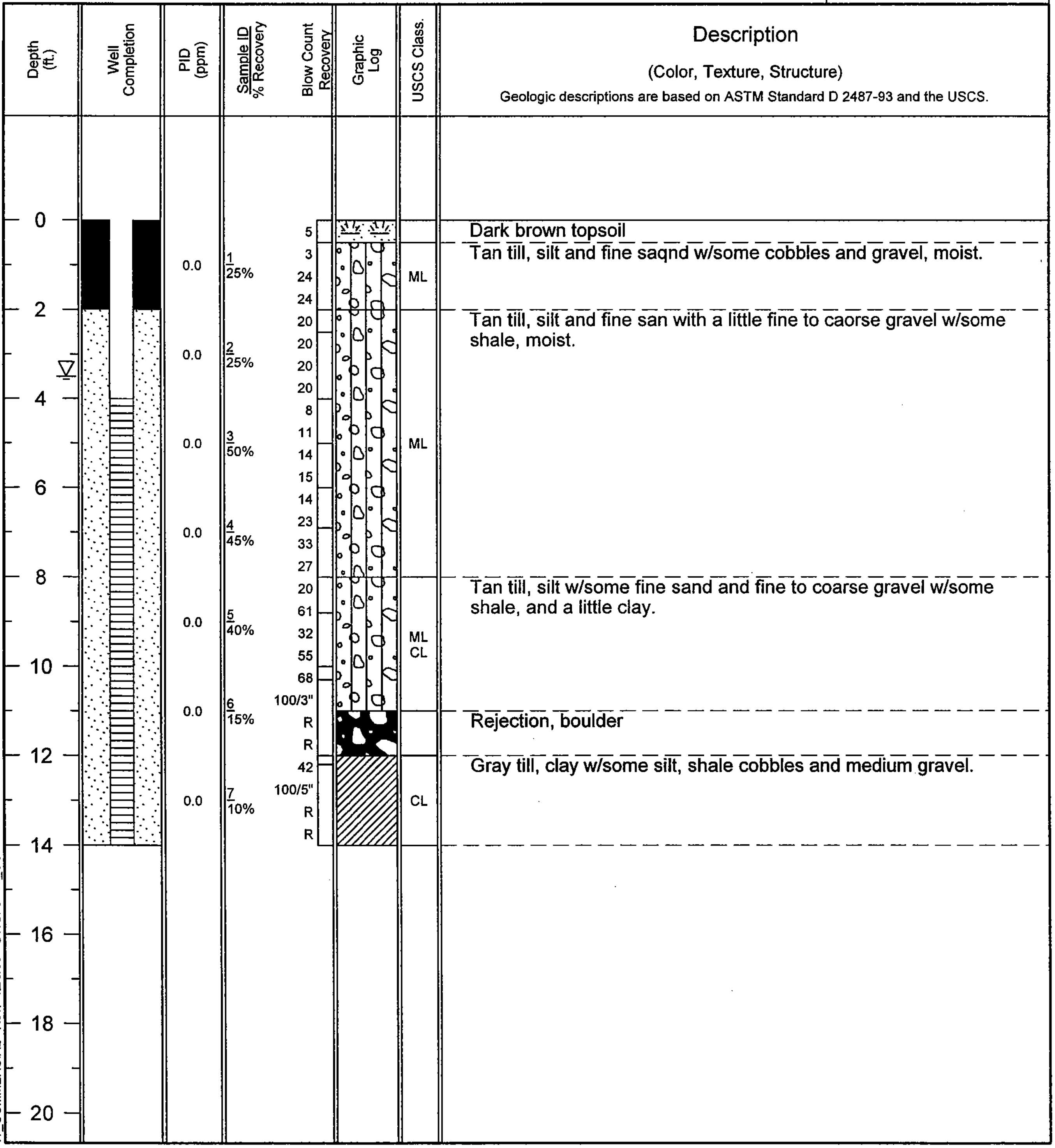
Drilling Log

Monitoring Well **MW-17**

Page: 1 of 1

Project *DEC Multi Site Camp Georgetown* Owner
Location *Madison County* Proj. No. *830271*
Surface Elev. *NA* Total Hole Depth *14.0 ft.* North East
Top of Casing *NA* Water Level Initial ∇ *3.5 ft.* Static *NA* Diameter *4.25 in. in.*
Screen: Dia *2 in. in.* Length *10 ft. ft.* Type/Size *PVC*
Casing: Dia *NA* Length *NA* Type *NA*
Fill Material *SAND W/ BENTONITE CAP* Rig/Core
Drill Co. *AMERICAN AUGER* Method *MUD ROTARY*
Driller Log By *John Santacroce* Date *11/12/01* Permit # *NA*
Checked By License No.

COMMENTS



Description (Color, Texture, Structure)
Geologic descriptions are based on ASTM Standard D 2487-93 and the USCS.

Depth (ft.)	PID (ppm)	Sample ID / % Recovery	Blow Count Recovery	USCS Class.	Description
0			5		Dark brown topsoil
	0.0	1 / 25%	3 24 24	ML	Tan till, silt and fine saqnd w/some cobbles and gravel, moist.
2	0.0	2 / 25%	20 20 20 20	ML	Tan till, silt and fine san with a little fine to caorse gravel w/some shale, moist.
4	0.0	3 / 50%	8 11 14 15		
6	0.0	4 / 45%	14 23 33 27		
8	0.0	5 / 40%	20 61 32 55	ML CL	Tan till, silt w/some fine sand and fine to coarse gravel w/some shale, and a little clay.
10	0.0	6 / 15%	68 100/3"		
			R R		Rejection, boulder
12	0.0	7 / 10%	42 100/5" R R	CL	Gray till, clay w/some silt, shale cobbles and medium gravel.
14					

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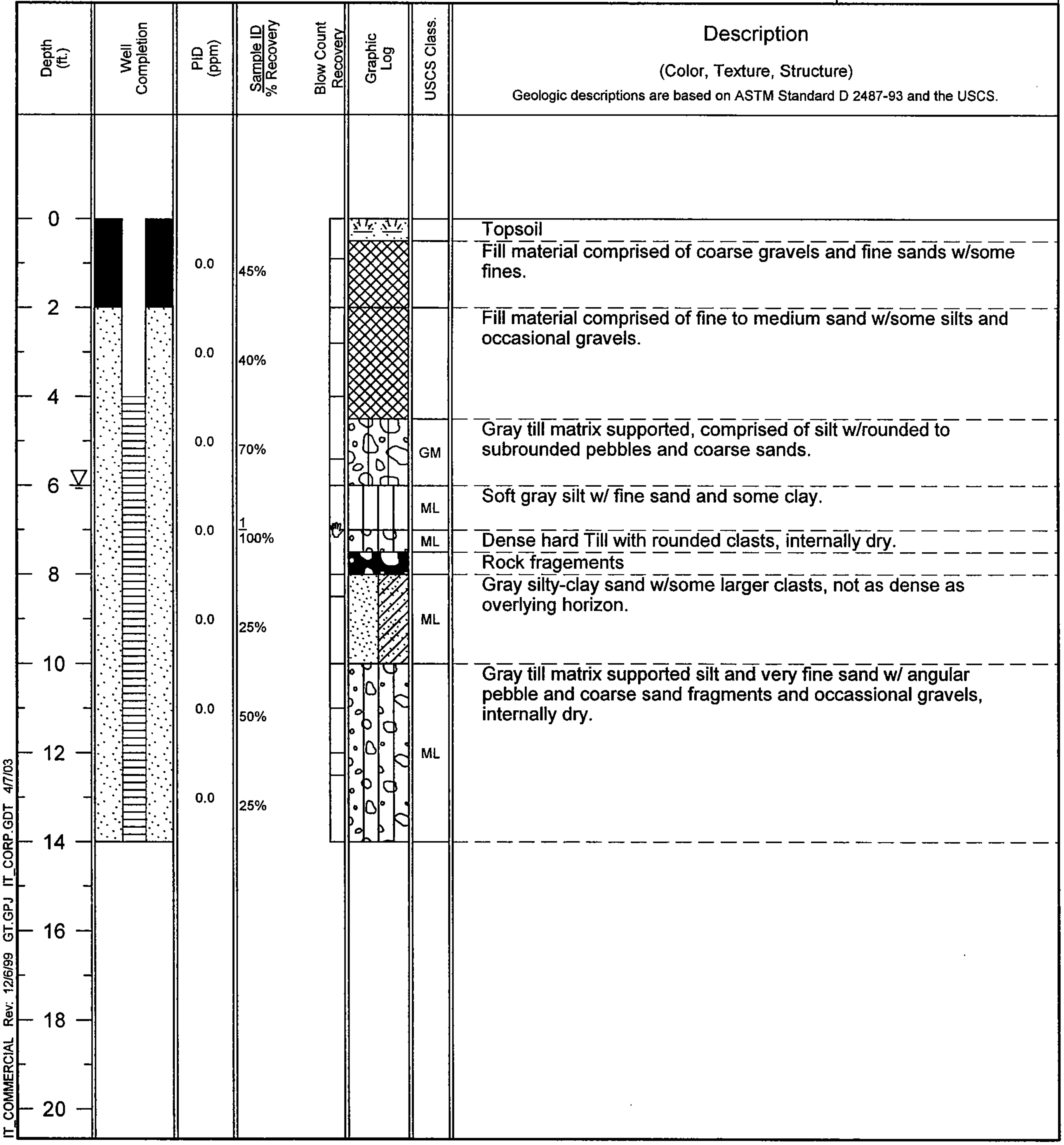
Drilling Log

Monitoring Well **MW-18**

Page: 1 of 1

Project *DEC Multi Site Camp Georgetown* Owner
Location *Madison County* Proj. No. *830271*
Surface Elev. *NA* Total Hole Depth *14.0 ft.* North East
Top of Casing *NA* Water Level Initial ▽ *6.0 ft.* Static *NA* Diameter *4.25 in. in.*
Screen: Dia *2in. in.* Length *10 ft. ft.* Type/Size *PVC*
Casing: Dia *NA* Length *NA* Type *NA*
Fill Material *SSAND W/ BENTONITE CAP* Rig/Core
Drill Co. *AMERICAN AUGER* Method *MUD ROTARY*
Driller Log By *Jeff LaRock* Date *10/21/02* Permit # *NA*
Checked By License No.

COMMENTS



PID (ppm)	Sample ID % Recovery	Blow Count Recovery	USCS Class.	Description (Color, Texture, Structure) Geologic descriptions are based on ASTM Standard D 2487-93 and the USCS.
				Topsoil
0.0	45%			Fill material comprised of coarse gravels and fine sands w/some fines.
0.0	40%			Fill material comprised of fine to medium sand w/some silts and occasional gravels.
0.0	70%		GM	Gray till matrix supported, comprised of silt w/rounded to subrounded pebbles and coarse sands.
			ML	Soft gray silt w/ fine sand and some clay.
0.0	1 100%		ML	Dense hard Till with rounded clasts, internally dry.
				Rock fragements
0.0	25%		ML	Gray silty-clay sand w/some larger clasts, not as dense as overlying horizon.
0.0	50%		ML	Gray till matrix supported silt and very fine sand w/ angular pebble and coarse sand fragments and occassional gravels, internally dry.
0.0	25%			

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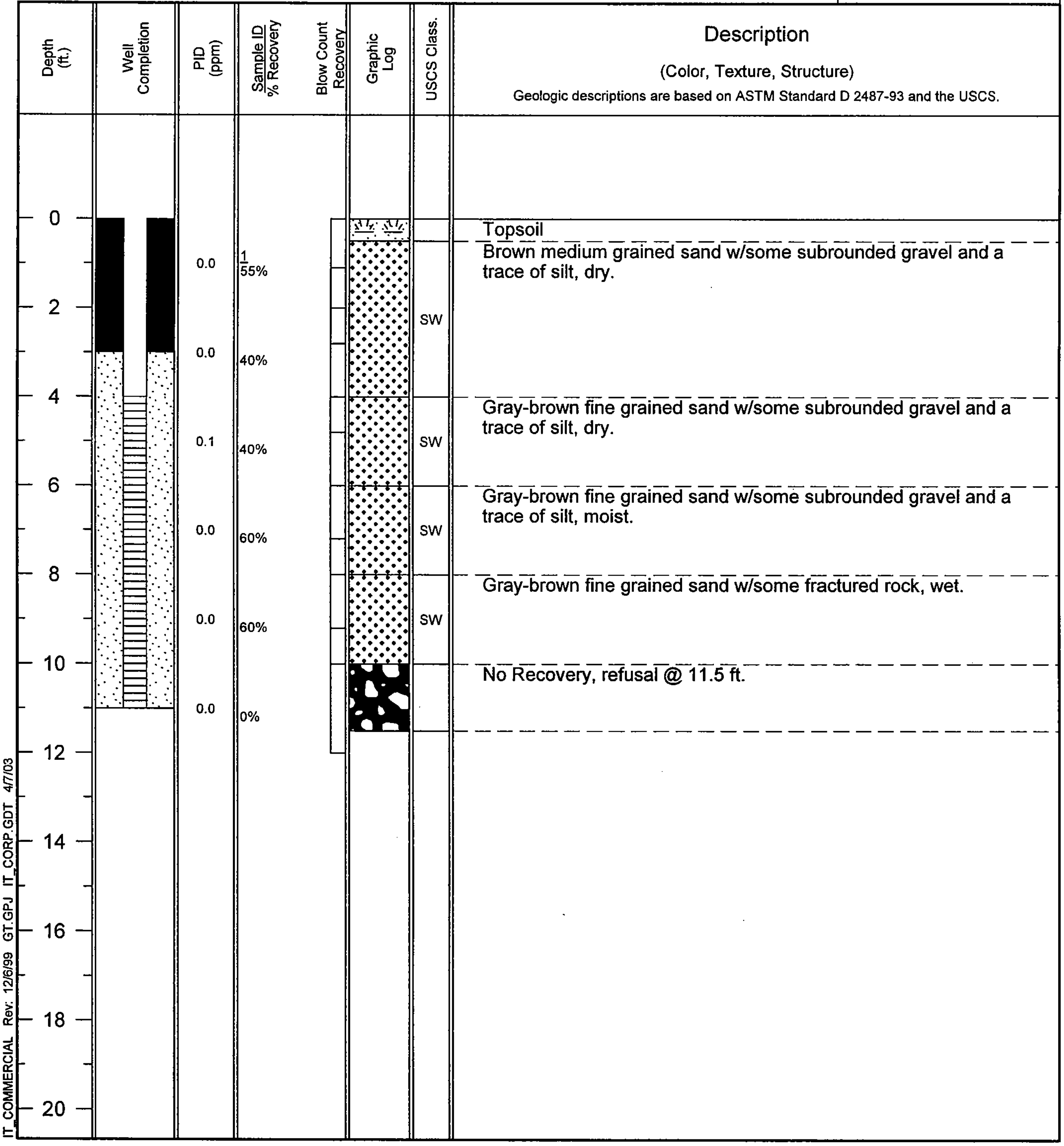
Drilling Log

Monitoring Well **MW-19**

Page: 1 of 1

Project DEC Multi Site Camp Georgetown
Owner
Location Madison County
Proj. No. 830271
Surface Elev. NA
Total Hole Depth 11.5 ft.
North
East
Top of Casing NA
Water Level Initial NA
Static NA
Diameter 4.25 in. in.
Screen: Dia 2 in. in.
Length 7 ft ft.
Type/Size PVC
Casing: Dia NA
Length NA
Type NA
Fill Material SAND W/ BENTONITE CAP
Rig/Core
Drill Co. AMERICAN AUGER
Method MUD ROTARY
Driller
Log By Marc Flanagan
Date 10/23/02
Permit # NA
Checked By
License No.

COMMENTS



Depth (ft.)	PID (ppm)	Sample ID % Recovery	USCS Class.	Description (Color, Texture, Structure) Geologic descriptions are based on ASTM Standard D 2487-93 and the USCS.
0				Topsoil
	0.0	1 55%	SW	Brown medium grained sand w/some subrounded gravel and a trace of silt, dry.
2	0.0	40%		
4	0.1	40%	SW	Gray-brown fine grained sand w/some subrounded gravel and a trace of silt, dry.
6	0.0	60%	SW	Gray-brown fine grained sand w/some subrounded gravel and a trace of silt, moist.
8	0.0	60%	SW	Gray-brown fine grained sand w/some fractured rock, wet.
10	0.0	0%		No Recovery, refusal @ 11.5 ft.
12				
14				
16				
18				
20				

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Drilling Log

TEST PIT **TP-1**

Page: 1 of 1

Project *DEC Multi Site Camp Georgetown* Owner

Location *Madison County* Proj. No. *830271*

Surface Elev. *NA* Total Hole Depth *2.3 ft.* North East

Top of Casing *NA* Water Level Initial *▽ 2.0 ft.* Static *NA* Diameter

Screen: Dia *NA* Length *NA* Type/Size *NA*

Casing: Dia *NA* Length *NA* Type *NA*

Fill Material *SOIL* Rig/Core *BACKHOE*

Drill Co. *AMERICAN AUGER* Method

Driller Log By Date *11/7/01* Permit # *NA*

Checked By License No.

COMMENTS
2.5' x 15'
Total Depth 2.3'

Depth (ft.)	PID (ppm)	Sample ID % Recovery	Blow Count Recovery	Graphic Log	USCS Class.	Description (Color, Texture, Structure) Geologic descriptions are based on ASTM Standard D 2487-93 and the USCS.
0	0.0			▨		Dark brown clay, some silt w/ angular gravel, fill material
2 ▽				▨	Till	Lite brown silt and clay, glacial till, water encountered @ 2 ft
4						
6						
8						
10						
12						
14						
16						
18						
20						

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Drilling Log

TEST PIT TP-2

Page: 1 of 1

Project *DEC Multi Site Camp Georgetown* Owner
Location *Madison County* Proj. No. *830271*
Surface Elev. *NA* Total Hole Depth *3.0 ft.* North East
Top of Casing *NA* Water Level Initial *∇ 2.0 ft.* Static *NA* Diameter
Screen: Dia *NA* Length *NA* Type/Size *NA*
Casing: Dia *NA* Length *NA* Type *NA*
Fill Material *SOIL* Rig/Core *BACKHOE*
Drill Co. *AMERICAN AUGER* Method
Driller Log By Date *11/7/01* Permit # *NA*
Checked By License No.

COMMENTS
2.5'x15'
Total Depth 3'

Depth (ft.)	PID (ppm)	Sample ID % Recovery	Blow Count Recovery	Graphic Log	USCS Class.	Description (Color, Texture, Structure) Geologic descriptions are based on ASTM Standard D 2487-93 and the USCS.
0	0.0		☐	░	GM GC	Dark brown humic soil comprised of clay, silt and gravel
				▨	CL ML	Brown silty clay
2 ∇				▨	CL ML	Gray-brown silt and clay, groundwater @ 2 ft
4						
6						
8						
10						
12						
14						
16						
18						
20						

Drilling Log

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TEST PIT **TP-3**

Page: 1 of 1

Project *DEC Multi Site Camp Georgetown* Owner

Location *Madison County* Proj. No. *830271*

Surface Elev. *NA* Total Hole Depth *4.0 ft.* North East

Top of Casing *NA* Water Level Initial *∇ 3.0 ft.* Static *NA* Diameter

Screen: Dia *NA* Length *NA* Type/Size *NA*

Casing: Dia *NA* Length *NA* Type *NA*

Fill Material *SOIL* Rig/Core *BACKHOE*

Drill Co. *AMERICAN AUGER* Method

Driller Log By Date *11/7/01* Permit # *NA*

Checked By License No.

COMMENTS
2.5' x 15'
Total Depth 4'

Depth (ft.)	PID (ppm)	Sample ID % Recovery	Blow Count Recovery	Graphic Log	USCS Class.	Description (Color, Texture, Structure) Geologic descriptions are based on ASTM Standard D 2487-93 and the USCS.
0	0.0				ML	Brown silt and clay, apparent fracture plane with underlying shale and gravel.
					GP	Shale and gravel
2					CL	Clay till w/some silt, green discoloration at 3 ft
∇					ML	Brown gray till w/some gravel, perched water @ 1 ft traveled through fracture plane, groundwater @ 3 ft
4						
6						
8						
10						
12						
14						
16						
18						
20						

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Drilling Log

TEST PIT **TP-4**

Page: 1 of 1

Project DEC Multi Site Camp Georgetown
Owner
Location Madison County
Proj. No. 830271
Surface Elev. NA
Total Hole Depth 7.0 ft.
North
East
Top of Casing NA
Water Level Initial ∇ 6.5 ft.
Static NA
Diameter
Screen: Dia NA
Length NA
Type/Size NA
Casing: Dia NA
Length NA
Type NA
Fill Material SOIL
Rig/Core BACKHOE
Drill Co. AMERICAN AUGER
Method
Driller
Log By
Date 11/7/01
Permit # NA
Checked By
License No.

COMMENTS
2.5' x 15'
Total Depth 7'

Depth (ft.)	PID (ppm)	Sample ID % Recovery	Blow Count Recovery	Graphic Log	USCS Class.	Description (Color, Texture, Structure) Geologic descriptions are based on ASTM Standard D 2487-93 and the USCS.
0	0.0		☐	▨		Shale, silt and clay, fill material
2				▨		
4				▨		
				▥		Till, stained soils @ 5 ft, water encountered @ 6.5 ft
6 ∇				▥	ML	
8						
10						
12						
14						
16						
18						
20						

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Drilling Log

TEST PIT **TP-5**

Page: 1 of 1

Project DEC Multi Site Camp Georgetown Owner
Location Madison County Proj. No. 830271
Surface Elev. NA Total Hole Depth 8.5 ft. North East
Top of Casing NA Water Level Initial ∇ 5.0 ft. Static NA Diameter
Screen: Dia NA Length NA Type/Size NA
Casing: Dia NA Length NA Type NA
Fill Material SOIL Rig/Core BACKHOE
Drill Co. AMERICAN AUGER Method
Driller Log By Date 11/8/01 Permit # NA
Checked By License No.

COMMENTS
2.5' x 15'
Total Depth 8.5'

Depth (ft.)	PID (ppm)	Sample ID / % Recovery	Blow Count Recovery	Graphic Log	USCS Class.	Description (Color, Texture, Structure) Geologic descriptions are based on ASTM Standard D 2487-93 and the USCS.
0	0.0					Brown topsoil
						Till comprised of silt and fine sand w/some gravel, angular pebbles and boulders.
2						
4					ML	
∇						
6						
8					ML	Gray-green fine sand and silt w/some clay and gravel (well-rounded), dense, groundwater encountered at 5 ft
10						
12						
14						
16						
18						
20						

Drilling Log

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TEST PIT **TP-6**
Page: 1 of 1

Project *DEC Multi Site Camp Georgetown* Owner

Location *Madison County* Proj. No. *830271*

Surface Elev. *NA* Total Hole Depth *7.0 ft.* North East

Top of Casing *NA* Water Level Initial *NONE* Static *NA* Diameter

Screen: Dia *NA* Length *NA* Type/Size *NA*

Casing: Dia *NA* Length *NA* Type *NA*

Fill Material *SOIL* Rig/Core *BACKHOE*

Drill Co. *AMERICAN AUGER* Method

Driller Log By Date *11/8/01* Permit # *NA*

Checked By License No.

COMMENTS
2.5' x 15'
Total Depth 7'

Depth (ft.)	PID (ppm)	Sample ID % Recovery	Blow Count Recovery	Graphic Log	USCS Class.	Description (Color, Texture, Structure) Geologic descriptions are based on ASTM Standard D 2487-93 and the USCS.
0	0.0					Topsoil
2						Glacial Till, gray-green fine sand and silt w/some coarse angular gravel, no groundwater encountered
4					ML	
6						
8						
10						
12						
14						
16						
18						
20						

Drilling Log

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TEST PIT **TP-7**
Page: 1 of 1

Project *DEC Multi Site Camp Georgetown*
Owner
Location *Madison County*
Proj. No. *830271*
Surface Elev. *NA*
Total Hole Depth *7.0 ft.*
North
East
Top of Casing *NA*
Water Level Initial *NONE*
Static *NA*
Diameter
Screen: Dia *NA*
Length *NA*
Type/Size *NA*
Casing: Dia *NA*
Length *NA*
Type *NA*
Fill Material *SOIL*
Rig/Core *BACKHOE*
Drill Co. *AMERICAN AUGER*
Method
Driller
Log By
Date *11/8/01*
Permit # *NA*
Checked By
License No.

COMMENTS
2.5' x 15'
Total Depth 7'

Depth (ft.)	PID (ppm)	Sample ID % Recovery	Blow Count Recovery	Graphic Log	USCS Class.	Description (Color, Texture, Structure) Geologic descriptions are based on ASTM Standard D 2487-93 and the USCS.
0	0.0	3				Topsoil
						Till, silt and fine sand, no groundwater encountered
2						
4					ML	
6						
8						
10						
12						
14						
16						
18						
20						

Drilling Log

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TEST PIT **TP-8**
Page: 1 of 1

COMMENTS
2' x 15'
Total depth 3'

Project DEC Multi Site Camp Georgetown Owner
Location Madison County Proj. No. 830271
Surface Elev. NA Total Hole Depth 3.0 ft. North East
Top of Casing NA Water Level Initial NA Static NA Diameter
Screen: Dia NA Length NA Type/Size NA
Casing: Dia NA Length NA Type NA
Fill Material SOIL Rig/Core BACKHOE
Drill Co. AMERICAN AUGER Method
Driller Log By Date 11/8/01 Permit # NA
Checked By License No.

Depth (ft.)	PID (ppm)	Sample ID % Recovery	Blow Count Recovery	Graphic Log	USCS Class.	Description (Color, Texture, Structure) Geologic descriptions are based on ASTM Standard D 2487-93 and the USCS.
0						0-0.5' Topsoil
	NA				SP	0.5-2.5' Dark brown-brown fine sand and silt, little clay; some rounded-subrounded gravel: Stained soils: Dry
2						
						Grey-green Till
4						
6						
8						
10						
12						
14						
16						
18						
20						

Shaw Environmental, Inc.

Drilling Log

TEST PIT **TP-9**

Page: 1 of 1

Project DEC Multi Site Camp Georgetown Owner
Location Madison County Proj. No. 830271
Surface Elev. NA Total Hole Depth 9.5 ft. North East
Top of Casing NA Water Level Initial ∇ 5.0 ft. Static NA Diameter
Screen: Dia NA Length NA Type/Size NA
Casing: Dia NA Length NA Type NA
Fill Material SOIL Rig/Core BACKHOE
Drill Co. AMERICAN AUGER Method
Driller Log By Date 11/9/01 Permit # NA
Checked By License No.

COMMENTS
2' x 15'
Total Depth 9.5'

Depth (ft.)	PID (ppm)	Sample ID % Recovery	Blow Count Recovery	Graphic Log	USCS Class.	Description (Color, Texture, Structure) Geologic descriptions are based on ASTM Standard D 2487-93 and the USCS.
0	0.0					Humic brown topsoil
2						Brown fine sand and silt with gravel, pebbles and angular cobbles (till), groundwater encountered at 5 ft
4						
∇					ML	
6						
8					GP GM	Gravel, brown weathered angular boulders, shale, some silt, little clay and fine sand. Backhoe refusal, green fresh shale and rock exposed
10						
12						
14						
16						
18						
20						

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Drilling Log

TEST PIT **TP-10**

Page: 1 of 1

Project *DEC Multi Site Camp Georgetown* Owner

Location *Madison County* Proj. No. *830271*

Surface Elev. *NA* Total Hole Depth *9.5 ft.* North East

Top of Casing *NA* Water Level Initial *NONE* Static *NA* Diameter

Screen: Dia *NA* Length *NA* Type/Size *NA*

Casing: Dia *NA* Length *NA* Type *NA*

Fill Material *SOIL* Rig/Core *BACKHOE*

Drill Co. *AMERICAN AUGER* Method

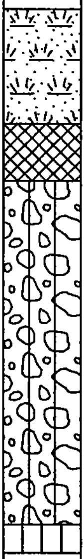
Driller Log By Date *11/12/01* Permit # *NA*

Checked By License No.

COMMENTS

2'x 15'

Total Depth 9.2'



Depth (ft.)	PID (ppm)	Sample ID / % Recovery	Blow Count Recovery	Graphic Log	USCS Class.	Description (Color, Texture, Structure) Geologic descriptions are based on ASTM Standard D 2487-93 and the USCS.
0	0.0					Topsoil
2						Green fill
						Fine sand and silt w/some clay, rounded pebbles, similar to above, possible fill
4						
6					GM	
8						
					ML	Fine sand and silt w/some angular pebbles, glacial till
10						
12						
14						
16						
18						
20						

Drilling Log

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TEST PIT **TP-11**

Page: 1 of 1

Project DEC Multi Site Camp Georgetown Owner

Location Madison County Proj. No. 830271

Surface Elev. NA Total Hole Depth 10.0 ft. North East

Top of Casing NA Water Level Initial ∇ 4.0 ft. Static NA Diameter

Screen: Dia NA Length NA Type/Size NA

Casing: Dia NA Length NA Type NA

Fill Material SOIL Rig/Core BACKHOE

Drill Co. AMERICAN AUGER Method

Driller Log By Date 11/12/01 Permit # NA

Checked By License No.

COMMENTS
2'x 15'
Total Depth 10'

Depth (ft.)	PID (ppm)	Sample ID % Recovery	Blow Count Recovery	Graphic Log	USCS Class.	Description (Color, Texture, Structure) Geologic descriptions are based on ASTM Standard D 2487-93 and the USCS.
0	38					Topsoil
2					ML	Brown fine sand and silt w/some clay, with angular gravel and pebbles green in color, glacial till.
4 ∇					GP	Gravel and sand lens, water encountered at 4 ft saturated
						Brown fine sand and silt w/some clay and angular gravel and pebbles green in color, glacial till.
6					ML	
8						
				▨	CL	Fine sand, silt and clay w/ angular pebbles green in color, glacial till, 2 composite samples were taken 1-SVOC @ 4 ft and 1-Dioxin 1 @ 9 ft.
10						
12						
14						
16						
18						
20						

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Drilling Log

TEST PIT **TP-12**

Page: 1 of 1

Project	*DEC Multi Site Camp Georgetown*
Owner	
Location	*Madison County*
Proj. No.	*830271*
Surface Elev.	*NA*
Total Hole Depth	*10.0 ft.*
North	
East	
Top of Casing	*NA*
Water Level Initial	∇ *5.0 ft.*
Static	*NA*
Diameter	
Screen: Dia	*NA*
Length	*NA*
Type/Size	*NA*
Casing: Dia	*NA*
Length	*NA*
Type	*NA*
Fill Material	*SOIL*
Rig/Core	*BACKHOE*
Drill Co.	*AMERICAN AUGER*
Method	
Driller	
Log By	
Date	*11/12/01*
Permit #	*NA*
Checked By	
License No.	

COMMENTS
2' x 15'
Total Depth 10'

Depth (ft.)	PID (ppm)	Sample ID % Recovery	Blow Count Recovery	Graphic Log	USCS Class.	Description (Color, Texture, Structure) Geologic descriptions are based on ASTM Standard D 2487-93 and the USCS.
0						Topsoil
2						Brown fine sand and silt, with a little clay, angular gravel and pebbles.
					ML	
4	NA					
∇					GP	Glacial Till, goundwater encountered at 5 ft
						Brown fine sand and silt, with a little clay, angular gravel and pebbles.
6						
					ML	
8						
					CL	Fine sand, silt and clay w/ gravel and pebbles green in color, groundwater encountered at 8.5 ft within fine sands, 2 composite samples were taken 1-Dioxin @ 5 ft and 1-SVOC @ 9.5 ft.
10						
12						
14						
16						
18						
20						

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Drilling Log

TEST PIT **TP-13**

Page: 1 of 1

Project *DEC Multi Site Camp Georgetown* Owner
Location *Madison County* Proj. No. *830271*
Surface Elev. *NA* Total Hole Depth *5.0 ft.* North East
Top of Casing *NA* Water Level Initial ▽ *4.0 ft.* Static *NA* Diameter
Screen: Dia *NA* Length *NA* Type/Size *NA*
Casing: Dia *NA* Length *NA* Type *NA*
Fill Material *SOIL* Rig/Core *BACKHOE*
Drill Co. *AMERICAN AUGER* Method
Driller Log By Date *11/12/01* Permit # *NA*
Checked By License No.

COMMENTS
2' x 15'
Total Depth 10'

Depth (ft.)	PID (ppm)	Sample ID % Recovery	Blow Count Recovery	Graphic Log	USCS Class.	Description (Color, Texture, Structure) Geologic descriptions are based on ASTM Standard D 2487-93 and the USCS.
0						Topsoil and shale fill
					ML	Yellow-brown fine sand, silt and some clays.
2						
					ML	Reddish-brown fine sand, silt and clay, soils stained.
4 ▽					GM GC	Brown fine sand and silt w/some clay, gravel, pebbles (glacial till), water encountered at 4 ft, 2 samples taken 1-SVOC @ 4 ft and 1-Dioxin @ 2 ft.
6						
8						
10						
12						
14						
16						
18						
20						

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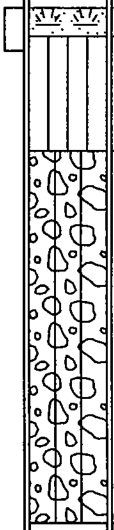
Drilling Log

TEST PIT TP-14

Page: 1 of 1

Project *DEC Multi Site Camp Georgetown* Owner
Location *Madison County* Proj. No. *830271*
Surface Elev. *NA* Total Hole Depth *9.0 ft.* North East
Top of Casing *NA* Water Level Initial *NONE* Static *NA* Diameter
Screen: Dia *NA* Length *NA* Type/Size *NA*
Casing: Dia *NA* Length *NA* Type *NA*
Fill Material *SOIL* Rig/Core *BACKHOE*
Drill Co. *AMERICAN AUGER* Method
Driller Log By Date *11/13/01* Permit # *NA*
Checked By License No.

COMMENTS
2.5' x 20'
Total Depth 9'



Depth (ft.)	PID (ppm)	Sample ID % Recovery	Blow Count Recovery	Graphic Log	USCS Class.	Description (Color, Texture, Structure) Geologic descriptions are based on ASTM Standard D 2487-93 and the USCS.
0	80					Topsoil and shale fill
					ML	Reddish-brown stained fine sand, silt and some clay with angular gravel.
2						
					GM GC	Lite brown fine sand and silt w/some clay and gravel, odor, no groundwater observed, 2 composite samples were collected 1-SVOC and 1-Dioxin both were between 2.5 - 8 ft.
4						
6						
8						
10						
12						
14						
16						
18						
20						

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Drilling Log

TEST PIT **TP-15**

Page: 1 of 1

COMMENTS
2.5' x 15'
Total Depth 8'

Project *DEC Multi Site Camp Georgetown* Owner

Location *Madison County* Proj. No. *830271*

Surface Elev. *NA* Total Hole Depth *8.0 ft.* North East

Top of Casing *NA* Water Level Initial *▽ 5.0 ft.* Static *NA* Diameter

Screen: Dia *NA* Length *NA* Type/Size *NA*

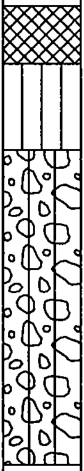
Casing: Dia *NA* Length *NA* Type *NA*

Fill Material *SOIL* Rig/Core *BACKHOE*

Drill Co. *AMERICAN AUGER* Method

Driller Log By Date *11/13/01* Permit # *NA*

Checked By License No.



Depth (ft.)	PID (ppm)	Sample ID % Recovery	Blow Count Recovery	Graphic Log	USCS Class.	Description (Color, Texture, Structure) Geologic descriptions are based on ASTM Standard D 2487-93 and the USCS.
0				▨		Shale fill
					ML	Reddish-brown stained fine sand, silt, some clay, and flat angular shale.
2						
						Glacial till comprised of brown fine sand, silt, flat angular shale, gravel and shale pebbles. Groundwater was encountered at 5 ft 1 composite sample was taken between 1' and 8'.
4	NA					
▽					GM	
6						
8						
10						
12						
14						
16						
18						
20						

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Drilling Log

TEST PIT **TP-16**

Page: 1 of 1

Project *DEC Multi Site Camp Georgetown* Owner
Location *Madison County* Proj. No. *830271*
Surface Elev. *NA* Total Hole Depth *2.0 ft.* North East
Top of Casing *NA* Water Level Initial *NONE* Static *NA* Diameter
Screen: Dia *NA* Length *NA* Type/Size *NA*
Casing: Dia *NA* Length *NA* Type *NA*
Fill Material *SOIL* Rig/Core *BACKHOE*
Drill Co. *AMERICAN AUGER* Method
Driller Log By Date *11/13/01* Permit # *NA*
Checked By License No.

COMMENTS
2' x 15'
Total Depth 2'

Depth (ft.)	PID (ppm)	Sample ID % Recovery	Blow Count Recovery	Graphic Log	USCS Class.	Description (Color, Texture, Structure) Geologic descriptions are based on ASTM Standard D 2487-93 and the USCS.
0					GM GC	Gray fine sand, silt and clay w/ subrounded to subangular shale gravel.
					ML	Tan to light brown fines sand and silt w/some clay and gravel.
					ML	Gray brown discolored silt and fines sand w/some clay and gravel, no samples were taken.
2						
4	NA					
6						
8						
10						
12						
14						
16						
18						
20						

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Drilling Log

TEST PIT **TP-17**

Page: 1 of 1

Project *DEC Multi Site Camp Georgetown* Owner
Location *Madison County* Proj. No. *830271*
Surface Elev. *NA* Total Hole Depth *5.0 ft.* North East
Top of Casing *NA* Water Level Initial *NONE* Static *NA* Diameter
Screen: Dia *NA* Length *NA* Type/Size *NA*
Casing: Dia *NA* Length *NA* Type *NA*
Fill Material *SOIL* Rig/Core *BACKHOE*
Drill Co. *AMERICAN AUGER* Method
Driller Log By Date *11/14/01* Permit # *NA*
Checked By License No.

COMMENTS
2' x 15'
Total Depth 5'

Depth (ft.)	PID (ppm)	Sample ID % Recovery	Blow Count Recovery	Graphic Log	USCS Class.	Description (Color, Texture, Structure) Geologic descriptions are based on ASTM Standard D 2487-93 and the USCS.
0					GM	Brown fine sand and silt w/some clay and rounded to subrounded gravel. Test pit overlain by seven feet of fill material.
2	NA				ML	Reddish brwon stained, gray-green silt and clay w/some fine sand and gravel at bottom of section
4						
6						
8						
10						
12						
14						
16						
18						
20						

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Drilling Log

TEST PIT **TP-18**

Page: 1 of 1

Project *DEC Multi Site Camp Georgetown* Owner
Location *Madison County* Proj. No. *830271*
Surface Elev. *NA* Total Hole Depth *5.0 ft.* North East
Top of Casing *NA* Water Level Initial *NONE* Static *NA* Diameter
Screen: Dia *NA* Length *NA* Type/Size *NA*
Casing: Dia *NA* Length *NA* Type *NA*
Fill Material *SOIL* Rig/Core *BACKHOE*
Drill Co. *AMERICAN AUGER* Method
Driller Log By Date *11/14/01* Permit # *NA*
Checked By License No.

COMMENTS
2' x 15'
Toatal Depth 5'

Depth (ft.)	PID (ppm)	Sample ID % Recovery	Blow Count Recovery	Graphic Log	USCS Class.	Description (Color, Texture, Structure) Geologic descriptions are based on ASTM Standard D 2487-93 and the USCS.
0				▨		Fill material comprised of locally derived angular to subangular pebbles, cobbles, gravels and fine sand, silt and some clay.
2				▨		
	NA			▨		
4				▨		
6						
8						
10						
12						
14						
16						
18						
20						

Shaw Environmental, Inc.

Drilling Log

TEST PIT **TP-19**

Page: 1 of 1

Project *DEC Multi Site Camp Georgetown* Owner

Location *Madison County* Proj. No. *830271*

Surface Elev. *NA* Total Hole Depth *4.0 ft.* North East

Top of Casing *NA* Water Level Initial ∇ *3.0 ft.* Static *NA* Diameter

Screen: Dia *NA* Length *NA* Type/Size *NA*

Casing: Dia *NA* Length *NA* Type *NA*

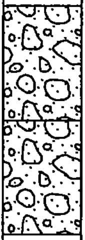
Fill Material *SOIL* Rig/Core *BACKHOE*

Drill Co. *AMERICAN AUGER* Method

Driller Log By Date *11/14/01* Permit # *NA*

Checked By License No.

COMMENTS
2' x 17'
Total Depth 4'

Depth (ft.)	PID (ppm)	Sample ID % Recovery	Blow Count Recovery	Graphic Log	USCS Class.	Description (Color, Texture, Structure) Geologic descriptions are based on ASTM Standard D 2487-93 and the USCS.
0	0.0		☐		GP	Dry brown medium grained sand w/some subangular shale cobbles.
2 ∇	0.0				GP	Gray brown fine to medium grained sand with sub-rounded gravel, water encountered at 3 ft infiltrating test pit from a sand, silt lens on the noth side of the test pits
4						
6						
8						
10						
12						
14						
16						
18						
20						

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Drilling Log

TEST PIT **TP-20**

Page: 1 of 1

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Project *DEC Multi Site Camp Georgetown* Owner

Location *Madison County* Proj. No. *830271*

Surface Elev. *NA* Total Hole Depth *3.5 ft.* North East

Top of Casing *NA* Water Level Initial ∇ *3.0 ft.* Static *NA* Diameter

Screen: Dia *NA* Length *NA* Type/Size *NA*

Casing: Dia *NA* Length *NA* Type *NA*

Fill Material *SOIL* Rig/Core *BACKHOE*

Drill Co. *AMERICAN AUGER* Method

Driller Log By Date *11/14/01* Permit # *NA*

Checked By License No.

COMMENTS
2' x 12.5'
Total Depth 3.5'

Depth (ft.)	PID (ppm)	Sample ID % Recovery	Blow Count Recovery	Graphic Log	USCS Class.	Description (Color, Texture, Structure) Geologic descriptions are based on ASTM Standard D 2487-93 and the USCS.
0	0.0		☐	▨		Shale and gray medium grained sand w/some subrounded gravel, fill material.
2				░	SP SM	Gray brown fine grained sand w/some silt and subrounded cobbles, water encountered at 3 ft slight sheen apparent however no odor or PID reading, sample collected. Water infiltrating through a thin sand lens.
∇	0.0					
4						
6						
8						
10						
12						
14						
16						
18						
20						

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Drilling Log

TEST PIT **TP-21**

Page: 1 of 1

Project *DEC Multi Site Camp Georgetown* Owner
Location *Madison County* Proj. No. *830271*
Surface Elev. *NA* Total Hole Depth *1.5 ft.* North East
Top of Casing *NA* Water Level Initial *NONE* Static *NA* Diameter
Screen: Dia *NA* Length *NA* Type/Size *NA*
Casing: Dia *NA* Length *NA* Type *NA*
Fill Material *SOIL* Rig/Core *BACKHOE*
Drill Co. *AMERICAN AUGER* Method
Driller Log By Date *11/14/01* Permit # *NA*
Checked By License No.

COMMENTS
2' x 15'
Total Depth 1.5'

Depth (ft.)	PID (ppm)	Sample ID % Recovery	Blow Count Recovery	Graphic Log	USCS Class.	Description (Color, Texture, Structure) Geologic descriptions are based on ASTM Standard D 2487-93 and the USCS.
0	0.9			▨		Fractured shale with gray brown medium grained sand w/some silt and sub-rounded cobble, fill material, sample collected, moist area just below root line.
2						
4						
6						
8						
10						
12						
14						
16						
18						
20						

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Drilling Log

TEST PIT **TP-22**

Page: 1 of 1

Project *DEC Multi Site Camp Georgetown* Owner
Location *Madison County* Proj. No. *830271*
Surface Elev. *NA* Total Hole Depth *1.5 ft.* North East
Top of Casing *NA* Water Level Initial *NONE* Static *NA* Diameter
Screen: Dia *NA* Length *NA* Type/Size *NA*
Casing: Dia *NA* Length *NA* Type *NA*
Fill Material *SOIL* Rig/Core *BACKHOE*
Drill Co. *AMERICAN AUGER* Method
Driller Log By Date *11/14/01* Permit # *NA*
Checked By License No.

COMMENTS
2' x 15'
Total Depth 1.5'

Depth (ft.)	PID (ppm)	Sample ID % Recovery	Blow Count Recovery	Graphic Log	USCS Class.	Description (Color, Texture, Structure) Geologic descriptions are based on ASTM Standard D 2487-93 and the USCS.
0	0.0			●	GP	Large boulders of fracctured shale w/some medium grained sand and subrounded gravel.
				⁘	SW	Brown medium grained sand w/some silt and fractured shale.
2						
4						
6						
8						
10						
12						
14						
16						
18						
20						

Drilling Log

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TEST PIT **TP-23**
Page: 1 of 1

Project *DEC Multi Site Camp Georgetown* Owner
Location *Madison County* Proj. No. *830271*
Surface Elev. *NA* Total Hole Depth *3.0 ft.* North East
Top of Casing *NA* Water Level Initial *∇ 1.5 ft.* Static *NA* Diameter
Screen: Dia *NA* Length *NA* Type/Size *NA*
Casing: Dia *NA* Length *NA* Type *NA*
Fill Material *SOIL* Rig/Core *BACKHOE*
Drill Co. *AMERICAN AUGER* Method
Driller Log By Date *11/14/01* Permit # *NA*
Checked By License No.

COMMENTS
3' x 15'
Total Depth 3'

Depth (ft.)	PID (ppm)	Sample ID % Recovery	Blow Count Recovery	Graphic Log	USCS Class.	Description (Color, Texture, Structure) Geologic descriptions are based on ASTM Standard D 2487-93 and the USCS.
0				▒	SW	Dark brown organic medium grained sands w/some silt and subrounded gravel, dry.
∇				░	SW	Gray medium grained sand and fractured shale w/ subrounded cobble, water encountered at 1.5 ft, sample taken at 1.5 at a different lateral position. Water infiltrated through the sand lenses
2						
4						
6						
8						
10						
12						
14						
16						
18						
20						

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Drilling Log

TEST PIT **TP-24**

Page: 1 of 1

Project *DEC Multi Site Camp Georgetown* Owner
Location *Madison County* Proj. No. *830271*
Surface Elev. *NA* Total Hole Depth *3.0 ft.* North East
Top of Casing *NA* Water Level Initial ∇ *1.5 ft.* Static *NA* Diameter
Screen: Dia *NA* Length *NA* Type/Size *NA*
Casing: Dia *NA* Length *NA* Type *NA*
Fill Material *SOIL* Rig/Core *BACKHOE*
Drill Co. *AMERICAN AUGER* Method
Driller Log By Date *11/14/01* Permit # *NA*
Checked By License No.

COMMENTS
2' x 15'
Total Depth 2'

Depth (ft.)	PID (ppm)	Sample ID % Recovery	Blow Count Recovery	Graphic Log	USCS Class.	Description (Color, Texture, Structure) Geologic descriptions are based on ASTM Standard D 2487-93 and the USCS.
0					SW	Brown medium grained sand w/some silt and sub-rounded cobbles, lots of organics, dry.
∇					SW	Gray brown fractured shale in a medium grained sand matrix w/some silt, dry.
2						
4						
6						
8						
10						
12						
14						
16						
18						
20						

APPENDIX B

WELL DEVELOPMENT LOGS

Groundwater Well Purging Data Sheet

Project Name: Camp G-Town Well ID: MW-1 Date: 11/5/02

Water Level Data Time: 9:02

A) Depth To Bottom: 16 10

B) Depth To Water: 4.23

C) Height of water column: 11.87

1 well volume = 1.96 3 well volumes= 5.88 5 well volumes= 9.80

Purge Data

Method: Pump Flow: ~0.25 gallons per minute

1/2 gallon
Turb: 1560

1 gallon
Turb: 1501
pH: 7.69
Cond: 0.223
Temp: 11.7
DO: 7.96

1 1/2 gallon
Turb: 1546

2 gallons
Turb: 1442
pH: 7.74
Cond: .226
Temp: 11.7
DO: 5.21

2 1/2 gallons
Turb: 480

3 gallons
Turb: 252
pH: 7.67
Cond: 0.235
Temp: 11.98
DO: 3.47

3 1/2 gallons
Turb: 136

4 gallons
Turb: 122
pH: 7.71
Cond: 0.236
Temp: 12.36
DO: 2.15

Did Well Dry Out? yes How Many Times? 1

Time Purging ended: 10:15

Observations:

Color: Brown Sheen?: No Odor?: No

Comments: 8 gallons Purged

Personnel:

Groundwater Well Purging Data Sheet

Project Name: Camp G Town Well ID: MW-2 Date: 11/4/02

Water Level Data Time: 1620

A) Depth To Bottom: 12.86

B) Depth To Water: 4.12

C) Height of water column: 8.74

1 well volume = 1.44 3 well volumes= 4.32 5 well volumes= 7.20

Purge Data

Method: Low Flow Flow: ________ gallons per minute

1/2 gallon
Turb: 246

1 gallon
Turb: 242
pH: 6.86
Cond: 0.395
Temp: 8.2
DO: 8.71

1 1/2 gallon
Turb: 236

2 gallons
Turb: 243
pH: 6.79
Cond: 0.413
Temp: 9.7
DO: 8.12

2 1/2 gallons
Turb: 177

3 gallons
Turb: 96
pH: 6.82
Cond: 0.424
Temp: 10.8
DO: 7.60

3 1/2 gallons
Turb: 240

4 gallons
Turb: 216
pH: 6.86
Cond: 0.428
Temp: 11.0
DO: 7.52

Did Well Dry Out? NO How Many Times? -

Time Purging ended: 17:05

Observations:

Color: ________ Sheen?: ________ Odor?: ________

Comments: ________

Personnel: ________

Groundwater Well Purging Data Sheet

Project Name: Camp G Town Well ID: MW-3 Date: 11/01/02

Water Level Data Time: 15:27

A) Depth To Bottom: 13.04

B) Depth To Water: 6.38

C) Height of water column: 6.66

1 well volume = 1.10 3 well volumes= 3.30 5 well volumes= 5.50

Purge Data

Method: Wale Pump Flow: ~0.25 gallons per minute

1/2 gallon	1 gallon	1 1/2 gallon	2 gallons
Turb: 240	Turb: 168	Turb: 164	Turb: 237
	pH: 6.74		pH: 6.34
	Cond: 0.183		Cond: 0.213
	Temp: 10.6		Temp: 11.0
	DO: 7.40		DO: 7.49
2 1/2 gallons	3 gallons	3 1/2 gallons	4 gallons
Turb: 240	Turb: 152	Turb: 113	Turb: 236
	pH: 6.41		pH: 6.46
	Cond: 0.241		Cond: 0.255
	Temp: 11.4		Temp: 11.0
	DO: 7.38		DO: 7.73

Did Well Dry Out? No How Many Times?

Time Purging ended: 16:15

Observations:

Color: Clear/Brown Sheen?: — Odor?: None

Comments:

Personnel: AP

Groundwater Well Purging Data Sheet

Project Name: Camp G Town Well ID: MW-4 Date: 11/13/02

Water Level Data Time: 12:00
A) Depth To Bottom: 12.60
B) Depth To Water: 5.75
C) Height of water column: 6.85

1 well volume = 1.12 3 well volumes= 3.36 5 well volumes=

Purge Data
Method: Low flow Flow: ~1/4 gallons per minute

1/2 gallon
Turb: 233

1 gallon
Turb: 248
pH: 5.52
Cond: 0.254
Temp: 10.7
DO:

1 1/2 gallon
Turb: 240

2 gallons
Turb: 261
pH: 5.47
Cond: 0.265
Temp: 10.6
DO:

2 1/2 gallons
Turb: 202

3 gallons
Turb: 314
pH: 5.43
Cond: 0.253
Temp: 10.8
DO:

3 1/2 gallons
Turb: —

4 gallons
Turb:
pH:
Cond:
Temp:
DO:

Did Well Dry Out? N How Many Times? N

Time Purging ended: 1228

Observations:
Color: Lt Brn Sheen?: N Odor?: N

Comments:

Personnel: MEF

Groundwater Well Purging Data Sheet

Project Name: Camp G. Town Well ID: MW-5 MW-5F Date: 11/13/02

Water Level Data Time: 1013
A) Depth To Bottom: 9.20
B) Depth To Water: 2.87
C) Height of water column: 6.33

1 well volume = 1.03 3 well volumes= 3.09 5 well volumes=

Purge Data
Method: Low Flow Flow: ~ 1/4 gallons per minute

1/2 gallon
Turb: 255

1 gallon
Turb: 251
pH: 7.16
Cond: 0.477
Temp: 10.6
DO: 10.32

1 1/2 gallon
Turb: 187

2 gallons
Turb: 208
pH: 5.68
Cond: 0.473
Temp: 9.6
DO: 10.33

2 1/2 gallons
Turb: 205

3 gallons
Turb: 194
pH: 6.07
Cond: 0.478
Temp: 10.6
DO: 10.34

3 1/2 gallons
Turb: —

4 gallons
Turb:
pH:
Cond:
Temp:
DO:

Did Well Dry Out? N How Many Times?

Time Purging ended: 1039

Observations:
Color: Brown - clear Sheen?: N Odor?: N

Comments: Clear @ ~ 2 gal

Personnel: MEF

Groundwater Well Purging Data Sheet

Project Name: Camp G-Town Well ID: MW 6 Date: 11/4

Water Level Data Time: 1230

A) Depth To Bottom: 17.63

B) Depth To Water: 6.01 MF

C) Height of water column: 11 62

1 well volume = 1.89 3 well volumes= 5.67 5 well volumes= 9.45

Purge Data

Method: Sub Pump Flow: ~ 1/4 gallons per minute

1/2 gallon
Turb: 352.3

1 gallon
Turb: 41.3
pH: 6.52
Cond: .399
Temp: 11.14
DO: 7.1

1 1/2 gallon
Turb: 30.2

2 gallons
Turb: 15.2
pH: 6.47
Cond: .401
Temp: 11.11
DO: 4.8

2 1/2 gallons
Turb: 14.5

3 gallons
Turb: 8.2
pH: 6.44
Cond: .405
Temp: 11.33
DO: 3.6

3 1/2 gallons
Turb: 12.8

4 gallons
Turb: 8.6
pH: 6.46
Cond: .414
Temp: 11.52
DO: 3.0

4 1/2
8.5

5
8.6
6.46
.422
11.54
2.8

5 1/2
8.8

6.0
7.9
6.48
.427
11.56
2.8

Did Well Dry Out? No How Many Times?

Time Purging ended: 1310

Observations:

Color: Brn-grn -Clear Sheen?: No Odor?: Slight

Comments:

Personnel: MEF

Groundwater Well Purging Data Sheet

Project Name: Camp G Town Well ID: MW 7 Date: 11/4

Water Level Data Time: 1118
A) Depth To Bottom: 13.02
B) Depth To Water: 5.33 MF
C) Height of water column: 7.69

1 well volume = 1.25 3 well volumes= 3.75 5 well volumes= 6.25

Purge Data
Method: Sub Pump Flow: 1 gallons per minute

1/2 gallon	1 gallon	1 1/2 gallon	2 gallons
Turb: 465.2	Turb: 660.2	Turb: 1558	Turb: 195.8
	pH: 6.48		pH: 6.42
	Cond: .353		Cond: .279
	Temp: 12.39		Temp: 11.77
	DO: 3.0		DO: 55.8
2 1/2 gallons	3 gallons	3 1/2 gallons	4 gallons
Turb: 254.3	Turb: 1278.3	Turb:	Turb:
	pH: 6.42		pH:
	Cond: .270		Cond:
	Temp: 12.24		Temp:
	DO: 35.4		DO:

4½ Turb

Did Well Dry Out? Yes How Many Times? 2

Time Purging ended: 1218

Observations:
Color: Brown-green Sheen?: Measurable Odor?: Slight

Comments: Purge dry @ ~1.25 gal (1141) (1205) Start-up
Purdge dry @ ~3.25 (1218)

Personnel: MEF

Groundwater Well Purging Data Sheet

Project Name: Camp G-Town Well ID: MW-8 Date: 11/13/02

Water Level Data Time: 11:20

A) Depth To Bottom: 12.37

B) Depth To Water: 6.00

C) Height of water column: 6.37

1 well volume = 1.04 3 well volumes= 3.12 5 well volumes=

Purge Data

Method: Low Flow Flow: ~1/4 gallons per minute

1/2 gallon
Turb: 341

1 gallon
Turb: 425
pH: 6.15
Cond: 0.305
Temp: 11.7
DO:

1 1/2 gallon
Turb: 418

2 gallons
Turb: ~~5.49~~ 549
pH: 6.27
Cond: 0.297
Temp: 11.4
DO:

2 1/2 gallons
Turb: 197

3 gallons
Turb: 346
pH: 6.46
Cond: 0.402
Temp: 10.8
DO:

3 1/2 gallons
Turb: —

4 gallons
Turb:
pH:
Cond:
Temp:
DO:

Did Well Dry Out? N How Many Times?

Time Purging ended: 1144

Observations:

Color: Clear-lt brn Sheen?: N Odor?: N

Comments: At ~ 1.5 gal turb ↑

Personnel: MEF

Groundwater Well Purging Data Sheet

Project Name: Camp GeorgeTown Well ID: MW-9 Date: 11/5/02

Water Level Data Time: 11:22

A) Depth To Bottom: 16.21

B) Depth To Water: 2.15

C) Height of water column: 14.06

1 well volume = 2.32 3 well volumes= 6.96 5 well volumes= 11.60

Purge Data

Method: Pump Flow: ^0.25 gallons per minute

1/2 gallon
Turb: 227

1 gallon
Turb: 82
pH: 7.22
Cond: .353
Temp: 13.4
DO: ~~13.42~~ 1.45

1 1/2 gallon
Turb: 74

2 gallons
Turb: 56
pH: 7.18
Cond: 0.342
Temp: 13.3
DO: 1.41

2 1/2 gallons
Turb: 46

3 gallons
Turb: 39.8
pH: 7.09
Cond: 0.319
Temp: 13.46
DO: 1.51

3 1/2 gallons
Turb: 40.2

4 gallons
Turb: 39.6
pH: 6.99
Cond: 0.324
Temp: 13.52
DO: 1.87

Did Well Dry Out? NO How Many Times? —

Time Purging ended: 12:15

Observations:

Color: Gray → Clear Sheen?: NO Odor?:

Comments: 8.5 gallons purged

Personnel: M

Groundwater Well Purging Data Sheet

Project Name: Camp G. Town ~~Pharsalia~~ Well ID: MW-10 Date: 11/13/02

Water Level Data Time: 9:05
A) Depth To Bottom: 12.89
B) Depth To Water: 1.06
C) Height of water column: 11.83

1 well volume = 1.95 3 well volumes= 5.95 5 well volumes= 75

Purge Data
Method: Wale pump Flow: ~0.25 gallons per minute

1/2 gallon	1 gallon	1 1/2 gallon	2 gallons
Turb: 205	Turb: 36 ntu	Turb: 126	Turb: 10
	pH: 6.47		pH: 6.37
	Cond: 0.618 uohm/cm		Cond: 0.609
	Temp: 9.3 °C		Temp: 9.4
	DO: 10.03 mg/l		DO: 10.66
2 1/2 gallons	3 gallons	3 1/2 gallons	4 gallons
Turb: 36	Turb: 142	Turb: 40	Turb: 38
	pH: 6.53		pH: 6.49
	Cond: 6.16		Cond: 0.609
	Temp: 9.7		Temp: 9.7
	DO: 9.74		DO: 9.66

Did Well Dry Out? NO How Many Times? —

Time Purging ended: 9:35

Observations:
Color: Clear Sheen?: No Odor?: —

Comments: Purged 6.5 gallons Total

Personnel: AP

Groundwater Well Purging Data Sheet

Project Name: Camp G-Town Well ID: MW-11 Date: 11/13

Water Level Data Time: 10:10
A) Depth To Bottom: 18.55
B) Depth To Water: 4.06
C) Height of water column: 14.49

1 well volume = 2.39 3 well volumes= 7.17 5 well volumes= 11.95

Purge Data
Method: Whale Pump Flow: 0.25 gallons per minute

1/2 gallon
Turb: 45

1 gallon
Turb: 96
pH: 6.37
Cond: 0.394
Temp: 11.4
DO:

1 1/2 gallon
Turb: 10

2 gallons
Turb: 10
pH: 6.36
Cond: 0.334
Temp: 11.6
DO:

2 1/2 gallons
Turb: 10

3 gallons
Turb: 10
pH: 6.30
Cond: 0.490
Temp: 10.3
DO:

3 1/2 gallons
Turb: 10

4 gallons
Turb: 10
pH: 6.29
Cond: 0.493
Temp: 10.4
DO:

Did Well Dry Out? NO How Many Times? —

Time Purging ended: 10:40

Observations:
Color: Clear Sheen?: N Odor?: N

Comments:

Personnel: A.P.

Groundwater Well Purging Data Sheet

Project Name: Camp G Town Well ID: MW-12 Date: 11/1/02

Water Level Data Time: 14.28
A) Depth To Bottom: 16.30
B) Depth To Water: 4.22
C) Height of water column: 12.08

1 well volume = 1.97 3 well volumes= 5.91 5 well volumes=

Purge Data
Method: Sub. Pump Flow: ~1/3 gallons per minute

1/2 gallon	1 gallon	1 1/2 gallon	2 gallons
Turb: 1550.8	Turb: 1533.2	Turb: 153.8	Turb: 1025.2
	pH: 6.87	2nd 988.1	pH: 677
	Cond: .236		Cond: .222
	Temp: 9.57		Temp: 9.55
	DO: 105.0		DO: 122.5
2 1/2 gallons	3 gallons	3 1/2 gallons	4 gallons
Turb: 1011.8	Turb:	Turb:	Turb:
	pH:		pH:
	Cond:		Cond:
	Temp:		Temp:
	DO:		DO:

Did Well Dry Out? Y How Many Times? 2

Time Purging ended: 1455

Observations:
Color: Light Brown Sheen?: N Odor?: N

Comments: Clears quickly - needs to flush out cell
Purged dry after 1.5gal (1435) (1451) Start up

Personnel: MEF

Groundwater Well Purging Data Sheet

Project Name: Camp G Town Well ID: MW-13 Date: 11/4

Water Level Data Time: 1513
A) Depth To Bottom: 16.07
B) Depth To Water: 4.09
C) Height of water column: 11.98

1 well volume = 1.95 3 well volumes= 5.85 5 well volumes=

Purge Data
Method: Sub. Pump Flow: 1/4 gallons per minute

1/2 gallon	1 gallon	1 1/2 gallon	2 gallons
Turb: 1551.6	Turb: 1106.4	Turb: 453.1	Turb: 239.6
	pH: 7.42		pH: 7.50
	Cond: .231	2nd Run	Cond: .221
	Temp: 9.60	1542.3	Temp: 9.64
	DO: 95.0		DO: 61.7

2 1/2 gallons	3 gallons	3 1/2 gallons	4 gallons
Turb: 156.6	Turb:	Turb:	Turb:
	pH:		pH:
	Cond:		Cond:
	Temp:		Temp:
	DO:		DO:

Did Well Dry Out? Y How Many Times? 2

Time Purging ended: 1615

Observations:
Color: Gray Sheen?: N Odor?: N

Comments: Purge dry @ 1½ gal (1540) (1605) Start-Up

Personnel: MEF

Groundwater Well Purging Data Sheet

Project Name: Camp Town
Well ID: MW-14
Date: 01/04/02

Water Level Data Time: 14:35
A) Depth To Bottom: 15.11
B) Depth To Water: 3.09
C) Height of water column: 12.02

1 well volume = 1.98
3 well volumes= 3.97
5 well volumes= 6.61

Purge Data
Method: Pump/wale pump
Flow: ~0.25 gallons per minute

1/2 gallon
Turb: 115

1 gallon
Turb: 86
pH: 6.57
Cond: 0.538
Temp: 8.8
DO: 8.83

1 1/2 gallon
Turb: 32

2 gallons
Turb: 30
pH: 6.61
Cond: 0.541
Temp: 9.2
DO: 8.56

2 1/2 gallons
Turb: ~~0~~.31

3 gallons
Turb: 27
pH: 6.77
Cond: 0.539
Temp: 8.8
DO: 8.72

3 1/2 gallons
Turb: 31

4 gallons
Turb: 33
pH: 6.69
Cond: 0.542
Temp: 8.8
DO: 8.09

Did Well Dry Out? NO
How Many Times? —

Time Purging ended: 15:06

Observations:
Color: Clear
Sheen?: No
Odor?: None

Comments: —

Personnel: JP

Groundwater Well Purging Data Sheet

Project Name: Camp G-Town Well ID: MW-15 Date: 04-11-02

Water Level Data Time: 13:31
A) Depth To Bottom: 1334
B) Depth To Water: 3351
C) Height of water column: 9.83

1 well volume = 1.62 3 well volumes= 4.86 5 well volumes= 8.10

Purge Data
Method: Pump Flow: ______ gallons per minute

1/2 gallon	1 gallon	1 1/2 gallon	2 gallons
Turb: 204	Turb: 95	Turb: 206	Turb: 208
	pH: 6.14		pH: 5.68
	Cond: 0.140		Cond: 0.087
	Temp: 9.0		Temp: 8.8
	DO: 8.09		DO: 8.13
2 1/2 gallons	3 gallons	3 1/2 gallons	4 gallons
Turb: 238	Turb: 236	Turb: 241	Turb:
	pH: 5.49		pH:
	Cond: 0.080		Cond:
	Temp: 9.1		Temp:
	DO: 8.29		DO:

Did Well Dry Out? NO How Many Times? ______

Time Purging ended: 14:26

Observations:
Color: Gray/Brown Sheen?: No Odor?: NO

Comments: ______

Personnel: ______

Groundwater Well Purging Data Sheet

Project Name: Camp G Town Well ID: MW-16 Date: 11/4/02

Water Level Data Time: 1320

A) Depth To Bottom: 17.71

B) Depth To Water: 4.19 4.19

C) Height of water column: 13.52

1 well volume = 2.20 3 well volumes= 6.60 5 well volumes= 11.0

Purge Data

Method: Sub. Pump Flow: 1/4 gallons per minute

1/2 gallon	1 gallon	1 1/2 gallon	2 gallons
Turb: 390.7	Turb: 52.2	Turb: 71.7	Turb: 53.9
1325	pH: 5.75		pH: 5.73
	Cond: .054		Cond: .084
	Temp: 10.08		Temp: 9.83
	DO: 89.6		DO: 74.0

2 1/2 gallons	3 gallons	3 1/2 gallons	4 gallons	4 1/2	5 1/2
Turb: 44.4	Turb: 32.4	Turb: 35.3	Turb: 33.4	20.7	20.2
	pH: 6.10		pH: 6.12	5.0	6
	Cond: .110		Cond: .120	21.0	23.2
	Temp: 9.41		Temp: 9.94	6.18	6.20
	DO: 66.3		DO: 64.1	.136	.135
				9.92	9.78
				61.2	58.8

6 1/2

18.6

Did Well Dry Out? N How Many Times? 0

Time Purging ended: 1410

Observations:

Color: Clear Sheen?: N Odor?: N

Comments:

Personnel: MEF

Groundwater Well Purging Data Sheet

Project Name: Camp G Town Well ID: MW-17 Date: 11/4

Water Level Data Time: 1416

A) Depth To Bottom: 16.91

B) Depth To Water: 3.63 3.63

C) Height of water column: 13.28

1 well volume = 2.16 3 well volumes= 6.48 5 well volumes=

Purge Data

Method: Sub Pump Flow: 1/4 gallons per minute

1/2 gallon
Turb: 307.9

1 gallon
Turb: 78.6
pH: 6.31
Cond: .101
Temp: 9.90
DO: 55.0

1 1/2 gallon
Turb: 75.1

2 gallons
Turb: 58.0
pH: 6.02
Cond: .089
Temp: 9.35
DO: 27.4

2 1/2 gallons
Turb: 37.3

3 gallons
Turb: 103.6
pH: 6.05
Cond: .09 96
Temp: 9.39
DO: 23.4

3 1/2 gallons
Turb: 98.8

4 gallons
Turb: 58.0
pH: 6.06
Cond: .099
Temp: 9.41
DO: 23.7

4½
49.1

5½
459

5
48.4
6.07
.102
9.35
24.0

6

6½

Did Well Dry Out? N How Many Times? -

Time Purging ended: 1450

Observations:

Color: Clear Sheen?: N Odor?: N

Comments: Cleared quickly

Personnel: MEF

Groundwater Well Purging Data Sheet

Project Name: Camp G Town Well ID: MW-18 Date: 11/13/02

Water Level Data Time: 853

A) Depth To Bottom: 16.45

B) Depth To Water: 5.95

C) Height of water column: 10.50

1 well volume = 1.71 3 well volumes= 5.13 5 well volumes=

Purge Data

Method: Low flow Flow: 1/4 gallons per minute

1/2 gallon	1 gallon	1 1/2 gallon	2 gallons
Turb: 110	Turb: 132	Turb: 135	Turb: 120
	pH: 6.32		pH: 6.12
	Cond: 0.528		Cond: 0.505
	Temp: 11.3		Temp: 11.4
	DO:		DO:

2 1/2 gallons	3 gallons	3 1/2 gallons	4 gallons	4 1/2	5
Turb: 124	Turb: 76	Turb: 20	Turb: 5	Turb 10	5
	pH: 5.97		pH: 5.96		6.12
	Cond: 0.519		Cond: 0.518		0.553
	Temp: 9.4		Temp: 9.8		11.3
	DO:		DO:		

Did Well Dry Out? N How Many Times? -

Time Purging ended: 9:23

Observations:

Color: Lt brn - clear Sheen?: N Odor?: N

Comments: Cleans quickly - some fines

Personnel: MEF

Groundwater Well Purging Data Sheet

Project Name: Camp G Town Well ID: MW-19 Date: 11/5/02

Water Level Data Time: 12:20

A) Depth To Bottom: 14.32

B) Depth To Water: 5.74

C) Height of water column: 8.58

1 well volume = 1.42 3 well volumes= 4.25 5 well volumes= 7.08

Purge Data

Method: pump(whale) Flow: ______ gallons per minute

1/2 gallon
Turb: 66

1 gallon
Turb: 39.6
pH: 6.41
Cond: 0.329
Temp: 11.61
DO: 0.66

1 1/2 gallon
Turb: 39.7

2 gallons
Turb: 39.5
pH: 6.39
Cond: .329
Temp: 11.58
DO: 0.60

2 1/2 gallons
Turb: 39.6

3 gallons
Turb: 39.42
pH: 6.33
Cond: 0.330
Temp: 11.54
DO: 0.61

3 1/2 gallons
Turb: ~~0~~ 39.7

4 gallons
Turb: 41.6
pH: 6.37
Cond: 0.328
Temp: 11.74
DO: 1.06

Did Well Dry Out? NO How Many Times? —

Time Purging ended: 12:55

Observations:

Color: Gray/Brown Sheen?: — Odor?: ~~NO~~ mild sulfur odor

Comments: Purged 5.75 gallons

Personnel: AP

APPENDIX C

GROUNDWATER SAMPLE COLLECTION LOGS

Groundwater Well Sampling Data Sheet

Project Name: Camp G-Town Well ID: MW-1 Date: 11/6/02

Water Level Data Time: 11:50

A) Depth To Bottom: 16.10

B) Depth To Water: 3.83

C) Height of water column: 12.17

Sampling Method

Method: Whale Pump Flow: 0.25 gallons per minute

Prior to sampling:

Turb: 265

pH: 8.61

Cond: 0.229

Temp: 12.17

DO: 4.65

Dioxin Sample:

Turb: 285

(out of jar)

Constituents Sampled	# of Amber Liters Collected	Filtered? (Circle one)
B10.13	2	yes [✓ no]
BNA	2	yes [✓ no]
Dioxin	2	yes [✓ no]
		yes no
		yes no

Did Well Dry Out? — How Many Times? —

Observations:

Color: Brown to Clear Sheen?: — Odor?: —

Comments: —

Personnel: AJ

Groundwater Well Sampling Data Sheet

Project Name: Camp G Town Well ID: MW - 2 Date: 11/5/0

Water Level Data Time: 10:10

A) Depth To Bottom: 1620

B) Depth To Water: 391

C) Height of water column:

Sampling Method

Method: Low Flow Flow: gallons per minute

Prior to sampling:

Turb: 39.6

pH: 7.38

Cond: .327

Temp: 9.16

DO: 11.41

Dioxin Sample:

Turb: 42.3

(out of jar)

Constituents Sampled	# of Amber Liters Collected	Filtered? (Circle one)
310-13	2	yes [✓ no]
BNA	2	yes [✓ no]
Dioxin	2	yes [✓ no]
		yes no
		yes no

Did Well Dry Out? NO How Many Times? —

Observations:

Color: Clear Sheen?: NO Odor?: —

Comments:

Personnel: AP

Groundwater Well Sampling Data Sheet

Project Name: Camp G-Town Well ID: MW - 3 Date: 11/6/02

Water Level Data Time: ~~5:54~~ 11:10

A) Depth To Bottom: 13,04

B) Depth To Water: 5,54

C) Height of water column: 7,50

Sampling Method

Method: Wale Pmp Flow: ~ 0,25 gallons per minute

Prior to sampling:

Turb: 28.6

pH: 7.41

Cond: 6.245

Temp: 11,29

DO: 7.55

Dioxin Sample:

Turb: 32.1

(out of jar)

Constituents Sampled	# of Amber Liters Collected	Filtered? (Circle one)
310.13	2	yes [✓ no]
BNA	2	yes [✓ no]
Dioxin	2	yes [✓ no]
		yes no
		yes no

Did Well Dry Out? No How Many Times? ✓

Observations:

Color: Clean Sheen?: — Odor?: —

Comments:

Personnel: M

Groundwater Well Sampling Data Sheet

Project Name: Camp G Town Well ID: MW-4 1230 Date: 11/13/02

Water Level Data Time: 1230

A) Depth To Bottom: 12.60

B) Depth To Water: 5.75

C) Height of water column: 6.85

Sampling Method

Method: Low Flow Flow: ~1/4 gallons per minute

Prior to sampling:

Turb: 314

pH: 5.52

Cond: 0.254

Temp: 10.7

DO:

Dioxin Sample:

Turb: 293

(out of jar)

Constituents Sampled	# of Amber Liters Collected	Filtered? (Circle one)
Dioxins	2	yes [✓ no]
		yes no
		yes no
		yes no
		yes no

Did Well Dry Out? N How Many Times?

Observations:

Color: Clear Sheen?: N Odor?: N

Comments: Low yield. Only collect unfiltered sample

Personnel: MEF

Groundwater Well Sampling Data Sheet

Project Name: Camp G-Town Well ID: MW-5 MW-5F Date: 11/13/02

Water Level Data Time: 10:40
A) Depth To Bottom: 9.20
B) Depth To Water: 2.87
C) Height of water column:

Sampling Method
Method: Low Flow Flow: ~1/4 gallons per minute

Prior to sampling:
Turb: 194
pH: 6.07
Cond: 0.478
Temp: 10.6
DO: 10.32

Dioxin Sample:
Turb: 206 (MW-5)
(out of jar)

Constituents Sampled	# of Amber Liters Collected	Filtered? (Circle one)	
Dioxins	2/2	[✓ yes]	[✓ no]
SVOC	2/2	[✓ yes]	[✓ no]
Fuel Oil	2/2	[✓ yes]	[✓ no]
		yes	no
		yes	no

Did Well Dry Out? N How Many Times? N

Observations:
Color: Clear Sheen?: N Odor?: N

Comments: Collect both filtered & unfiltered @ well

Personnel: MEF

Groundwater Well Sampling Data Sheet

Project Name: Camp G-Town Well ID: MW-6 Date: 11/5/02

Water Level Data Time: 1018

A) Depth To Bottom: 17.63

B) Depth To Water: 5.84

C) Height of water column: 11.79

Sampling Method

Method: Low Flow - Sub Pump Flow: ~1/4 gallons per minute

Prior to sampling:	Dioxin Sample:
Turb: 9	Turb: 19
pH: 5.46	(out of jar)
Cond: .460	
Temp: 9.10	
DO: 9.83	

Constituents Sampled	# of Amber Liters Collected	Filtered? (Circle one)
Dioxins	2	yes [✓ no]
SVOC	2	yes [✓ no]
Fuel Oil	2	yes [✓ no]
		yes no
		yes no

Did Well Dry Out? N How Many Times? -

Observations:

Color: Clear Sheen?: N Odor?: N

Comments: Turb < 50 NTU - did not collect filtered sample

Personnel: MEF

Groundwater Well Sampling Data Sheet

Project Name: Camp Georgetown Well ID: MW-7 Date: 11-5-02

Water Level Data Time: 0929
A) Depth To Bottom: 13.02
B) Depth To Water: 5.43
C) Height of water column: 7.59

Sampling Method
Method: Low Flow - Sub Pump. Flow: ~ 1/4 gallons per minute

Prior to sampling:
Turb: MF ~~343~~ 48
pH: 5.60
Cond: .312
Temp: 10.4
DO: 9.90

Dioxin Sample:
Turb: 43
(out of jar)

Constituents Sampled	# of Amber Liters Collected	Filtered? (Circle one)
Dioxins	2	yes [✓ no]
SVOC	2	yes [✓ no]
Fuel Oil	2	yes [✓ no]
		yes no
		yes no

Did Well Dry Out? No How Many Times?

Observations:
Color: Clear Sheen?: No Odor?: Slight petro odor

Comments: Turb < 50 NTU - no filter sample collected
Sample time 0950

Personnel: MEF

Groundwater Well Sampling Data Sheet

Project Name: Camp GTown Well ID: MW 8 Date: 11/13/02

1145

Water Level Data Time: 1130

A) Depth To Bottom: 12.37

B) Depth To Water: 6.00

C) Height of water column: 6.37

Sampling Method

Method: Low Flow Flow: ~1/4 gallons per minute

Prior to sampling:
Turb: 346
pH: 6.46
Cond: 0.402
Temp: 10.8
DO:

Dioxin Sample:
Turb: 359
(out of jar)

Constituents Sampled	# of Amber Liters Collected	Filtered? (Circle one)
Dioxins	2	yes [✓ no]
		yes no
		yes no
		yes no
		yes no

Did Well Dry Out? N How Many Times? N

Observations:

Color: Lt Brn Sheen?: N Odor?: N

Comments:

Personnel: MEF

Groundwater Well Sampling Data Sheet

Project Name: Camp G Town Well ID: MW-9 Date: 11/6/02

Water Level Data Time: 1248

A) Depth To Bottom: 16.21

B) Depth To Water: 1.77

C) Height of water column: 14.44

Sampling Method

Method: Low Flow / Sub Pump Flow: 1/4 gallons per minute

Prior to sampling:

Turb: 143

pH: 6.55

Cond: .356

Temp: 10.7

DO: 5.51

Dioxin Sample:

Turb: 87

(out of jar)

Constituents Sampled	# of Amber Liters Collected	Filtered? (Circle one)
Dioxins	2/2	yes [✓ no]
SVOC	2/2	yes [✓ no]
Fuel Oil	2/2	yes [✓ no]
PCB	2/2	yes [✓ no]
		yes no

Did Well Dry Out?

How Many Times?

Observations:

Color: Clear

Sheen?: N

Odor?: N

Comments: Collected filtered samples too.

Personnel: MEF

Groundwater Well Sampling Data Sheet

Project Name: Camp G-Town ~~Pharsalia~~ Well ID: MW-10 Date: 11/13/02

Water Level Data Time: 9:35

A) Depth To Bottom: 12.89

B) Depth To Water: ~~12.89~~ 1.06

C) Height of water column: 11.83

Sampling Method

Method: wave Pump Flow: 0.25 gallons per minute

Prior to sampling:

Turb: 38

pH: 6.49

Cond: 0.609

Temp: 9.7

DO: 9.66

Dioxin Sample:

Turb: 41

(out of jar)

Constituents Sampled	# of Amber Liters Collected	Filtered? (Circle one)
Dioxins	2	yes [✓ no]
BNA	2	yes [✓ no]
310.13	2	yes [✓ no]
		yes no
		yes no

Did Well Dry Out? NO How Many Times? —

Observations:

Color: Clear Sheen?: — Odor?: —

Comments:

Personnel: A.P

Groundwater Well Sampling Data Sheet

Project Name: Camp G. Town Well ID: MW-11 Date: 11/13/02

Water Level Data Time: ~~1100~~ 10:10
A) Depth To Bottom: 18.55
B) Depth To Water: 4.06
C) Height of water column: 14.49

Sampling Method
Method: Whale Pump Flow: 0.25 gallons per minute

Prior to sampling:
Turb: 10
pH: 6.30
Cond: 0.493
Temp: 10.4
DO:

Dioxin Sample:
Turb: 10
(out of jar)

Constituents Sampled	# of Amber Liters Collected	Filtered? (Circle one)
Dioxin	2	yes [✓ no]
BNA	2	yes [✓ no]
310.13	2	yes [✓ no]
		yes no
		yes no

Did Well Dry Out? NO How Many Times? —

Observations:
Color: Clear Sheen?: — Odor?: N

Comments: Turb Below 50, No Filtered samples

Personnel: AQ

Groundwater Well Sampling Data Sheet

Project Name: Camp G Town Well ID: MW-12 Date: 11/6/02

Water Level Data Time: 830

A) Depth To Bottom: 16.30

B) Depth To Water: 3.83

C) Height of water column: 12.47

Sampling Method

Method: Low Flow Flow: ~1/4 gallons per minute

Prior to sampling:		Dioxin Sample:	
Turb:	150.0	Turb:	33 unfil
pH:	6.51	(out of jar)	filt
Cond:	.272		
Temp:	7.8		
DO:	11.98		

Constituents Sampled	# of Amber Liters Collected	Filtered? (Circle one)	
Dioxins	1 / 1	[✓ yes]	[✓ no]
SVOC	1 / 1	[✓ yes]	[✓ no]
Fuel Oil	1 / 1	[✓ yes]	[✓ no]
PCB	1 / 1	[✓ yes]	[✓ no]
		yes	no

Did Well Dry Out? Y How Many Times?

Observations:

Color: Lt Brn - Clear Sheen?: N Odor?: N

Comments: Well purged dry during 4th amber (0850)

Collect 1 amber per analysis due to low yield.

Personnel: MEF

Collect both unfiltered & filtered samples from this well

903 Fill last amber for unfilter

905 Sample filtered - 1 amber per analysis

Very slow

Groundwater Well Sampling Data Sheet

Project Name: Camp G Town Well ID: MW-13 Date: 11/5

Water Level Data Time: 8:36

A) Depth To Bottom: 16.07

B) Depth To Water: 3.74

C) Height of water column: 12.33

Sampling Method

Method: Well Pump Flow: 0.25 gallons per minute

Prior to sampling:
Turb: 140
pH: 7.29
Cond: 0.201
Temp: 9.72
DO: 7.45

Dioxin Sample:
Turb: 143
(out of jar)

Constituents Sampled	# of Amber Liters Collected	Filtered? (Circle one)
BNA	2	yes [✓ no]
310.13	2	yes [✓ no]
Dioxin	2	yes [✓ no]
		yes no
		yes no

Did Well Dry Out? NO How Many Times? —

Observations:
Color: Gray/Brown Sheen?: NO Odor?: —

Comments:

Personnel: M

Groundwater Well Sampling Data Sheet

Project Name: Camp G Town Well ID: Mw-14 Date: 11/5/02

Water Level Data Time: 2127

A) Depth To Bottom: 15.11

B) Depth To Water: 3.07

C) Height of water column: 1204

Sampling Method

Method: whale Pump Flow: ~0.25 gallons per minute

Prior to sampling:

Turb: 49.3

pH: 7.29

Cond: 452

Temp: 9.75

DO: 1.43

Dioxin Sample:

Turb: 39.6

(out of jar)

Constituents Sampled	# of Amber Liters Collected	Filtered? (Circle one)
SVOC	2	yes [✓ no]
Fuel oil (310.13)	2	yes [✓ no]
Dioxin	2	yes [✓ no]
		yes no
		yes no

Did Well Dry Out? NO How Many Times?

Observations:

Color: Clear Sheen?: NO Odor?: None

Comments: —

Personnel: MP

Groundwater Well Sampling Data Sheet

Project Name: Camp G-Town Well ID: MW-15 Date: 11/5/02

Un Filtered

Water Level Data Time: 1240

A) Depth To Bottom: 13.34

B) Depth To Water: 3.23

C) Height of water column: 10.11

Sampling Method

Method: Low Flow - Sub Pump Flow: ~1/4 gallons per minute

Prior to sampling:

Turb: 640.0

pH: 5.86

Cond: .083

Temp: 10.2

DO: 9.97

Dioxin Sample:

Turb: 482.0

(out of jar)

Constituents Sampled	# of Amber Liters Collected	Filtered? (Circle one)
Dioxins	2	yes [✓ no]
SVOC	2	yes [✓ no]
Fuel Oil	2	yes [✓ no]
PCB's	2	yes [✓ no]
		yes no

Did Well Dry Out? How Many Times?

Observations:

Color: Lt brown, Very fine particles Sheen?: N Odor?: N

Comments: Will collect filtered sample to-morrow (11/6/02)

Collect water for PCB analysis too.

Personnel: MEF

Groundwater Well Sampling Data Sheet

Project Name: Camp G Town Well ID: MW 15 Filtered Date: 11/06/02

Water Level Data Time: 1057

A) Depth To Bottom: 1334

B) Depth To Water: 2.70

C) Height of water column:

Sampling Method

Method: Low Flow / Sub Pump Flow: ~1/4 gallons per minute

Prior to sampling:

Turb:

pH:

Cond:

Temp:

DO:

Dioxin Sample:

Turb:

(out of jar)

Constituents Sampled	# of Amber Liters Collected	Filtered? (Circle one)
Dioxins	2	[✓ yes] no
Svoc	~~2~~ 1	[✓ yes] no
Fuel Oil	~~2~~ 1	[✓ yes] no
PCB	~~2~~ 1	[✓ yes] no
		yes no

Did Well Dry Out? N How Many Times?

Observations:

Color: Clear Sheen?: N Odor?: N

Comments: Collected only 1 amber for other analyses due to a slow filtering process

Personnel: MEF

Groundwater Well Sampling Data Sheet

Project Name: Camp G-Town Well ID: MW-16 Date: 11/5/02

Water Level Data Time: N 1320

A) Depth To Bottom: 17.71

B) Depth To Water: 4.28

C) Height of water column: 13.43

Sampling Method

Method: Low Flow / Sub Pump Flow: 1/4 gallons per minute

Prior to sampling:
Turb: 10
pH: 5.95
Cond: .105
Temp: 9.9
DO: 10.18

Dioxin Sample:
Turb: 10
(out of jar)

Constituents Sampled	# of Amber Liters Collected	Filtered? (Circle one)
Dioxins	2	yes [✓ no]
SVOC	2	yes [✓ no]
Fuel Oil	2	yes [✓ no]
		yes no
		yes no

Did Well Dry Out? N How Many Times?

Observations:
Color: Clear Sheen?: N Odor?: N

Comments:

Personnel: MEF

Groundwater Well Sampling Data Sheet

Project Name: Camp G.town Well ID: MW-17 Date: 11/5/02

Water Level Data Time: 1422

A) Depth To Bottom: 16.91

B) Depth To Water: 3.68

C) Height of water column: 13.23

Sampling Method

Method: Low Flow / Sub Pump Flow: ~1/4 gallons per minute

Prior to sampling:
Turb: 0
pH: 6.08
Cond: .111
Temp: 10.3
DO: 10.18

Dioxin Sample:
Turb: 0
(out of jar)

Constituents Sampled	# of Amber Liters Collected	Filtered? (Circle one)
Dioxins	2	yes [✓ no]
SVOC	2	yes [✓ no]
Fuel Oil	2	yes [✓ no]
		yes no
		yes no

Did Well Dry Out? N How Many Times?

Observations:
Color: Clear Sheen?: N Odor?: N

Comments:

Personnel: MEG

Groundwater Well Sampling Data Sheet

Project Name: Camp G-Town Well ID: MW-18 Date: 11/13/02
MW-18F

Water Level Data Time: 930
A) Depth To Bottom: 16.45
B) Depth To Water: 5.95
C) Height of water column: 10.5

Sampling Method
Method: Low flow Flow: ~1/4 gallons per minute

Prior to sampling:
Turb: 5
pH: 6.12
Cond: 0.553
Temp: 11.3
DO:

Dioxin Sample:
Turb: 7 (MW-18)
(out of jar)

Constituents Sampled	# of Amber Liters Collected	Filtered? (Circle one)	
Dioxins	2/2	[✓ yes]	[✓ no]
SVOC	2/2	[✓ yes]	[✓ no]
Fuel Oil	2/2	[✓ yes]	[✓ no]
PCB	2/2	[✓ yes]	[✓ no]
		yes	no

Did Well Dry Out? N How Many Times? N

Observations:
Color: Clear Sheen?: N Odor?: N

Comments: Collect both filtered + non filtered from this well

Personnel: MEF

Groundwater Well Sampling Data Sheet

Project Name: Camp G Town Well ID: MW-19 Date: 11/6/02

Water Level Data Time: 12:25

A) Depth To Bottom: 14.32

B) Depth To Water: 8.16

C) Height of water column:

Sampling Method

Method: Low Flow Flow: 1/4 gallons per minute

Prior to sampling:

Turb: 36.2

pH: 6.43

Cond: 0.320

Temp: 11.42

DO: 7.47

Dioxin Sample:

Turb: 39.4

(out of jar)

Constituents Sampled	# of Amber Liters Collected	Filtered? (Circle one)	
PCBs	2 / 2	[✓ yes]	[✓ no]
BNA	2 / 2	[✓ yes]	[✓ no]
Dioxin	2 / 2	[✓ yes]	[✓ no]
316.13	2 / 2	[✓ yes]	[✓ no]
	/	[✓ yes]	no

Did Well Dry Out? How Many Times?

Observations:

Color: Sheen?: Odor?:

Comments: 2 Filtered sample JARS

2 Non Filtered sample JARS

Personnel: AP

Also MW-19 is Field Duplicate

Filtered & Non Filtered

APPENDIX D

BIOTA COLLECTION LOGS

FISH COLLECTION RECORD

Project or site name: Camp Georgetown DEC Region Central / West

Collections made by (names): MEF

Sampling method: ☒ Electrofishing; ☐ Gill netting; ☐ Trap netting; ☐ Trawling; ☐ Seining; ☐ Angling; ☐ Other

Preservation method: ☒ Freezing; ☐ Other

Lab number	Tag or collection number	Species	Date taken	Location	Age	Sex/ reprod. condition	Length ( )	Weight ( )	Remarks
	US-1	Brook Trout	10-31-02	Up - Stream			215	92	
	US-2	"	"				215	80	
	US-3	"	"				197	68	
	US-4	"	"				179	57	
	US-5	"	"				192	55	
	US-6	"	"				143	27	
	"	"	"				143	23	
	"	"	"				132	22	
	US-7	"	"				131	26	
	"	"	"				123	18	
	"	"	"				118	14	
	"	"	"				118	15	
	US-8	creek chub					138	34	
	"	"					136	29	
	"	"		↓			108	10	

FISH COLLECTION RECORD

Project or site name: Camp Georgetown DEC Region Central / West
Collections made by (names): MEF
Sampling method: ☒ Electrofishing; ☐ Gill netting; ☐ Trap netting; ☐ Trawling; ☐ Seining; ☐ Angling; ☐ Other
Preservation method: ☒ Freezing; ☐ Other

Lab number	Tag or collection number	Species	Date taken	Location	Age	Sex/ reprod. condition	Length (mm)	Weight (g)	Remarks
	US-9	white sucker	10-31-02	Up Stream			149	30	
	"	"	"				133	23	
	"	"	"				147	29	
	"	"	"				140	29	
	"	"	"				148	28	
	"	"	"				135	22	
	US-10	~~Slimy Sculpin~~	"			N=70	28-99	229	
	US-11	Blanose Dace	"			N=83	28-69	123	
	DS-1	Brook Trout	"	Down Stream			255	168	
	DS-2	Blacknose Dace	"			N=30	45-73	66	
	DS-3	Brook Trout	"				224	94	
	DS-4	"	"				213	90	
	DS-5	"	"				244	138	
	DS-6	"	"				242	120	

FISH COLLECTION RECORD

Project or site name: Camp Georgetown DEC Region Central / West
Collections made by (names): MEF
Sampling method: ☒ Electrofishing; ☐ Gill netting; ☐ Trap netting; ☐ Trawling; ☐ Seining; ☐ Angling; ☐ Other
Preservation method: ☒ Freezing; ☐ Other

Lab number	Tag or collection number	Species	Date taken	Location	Age	Sex/ reprod. condition	Length (MM)	Weight (g)	Remarks
	DS-7	~~Slimy~~ sculpin	10-31-02	Down Stream		N= 34	42-81	126	
	DS-8	Brook Trout	"				122	15	
	"	"	"				120	15	
	"	"	"				123	18	
	"	"	"				91	10	
	DS-9	"	"				137	21	
	"	"	"				140	24	
	"	"	"				150	32	
	DS-10	Creek chub	"				135	23	
	"	"	"				137	18	
	"	"	"				117	12	
	"	"	"				132	19	
	"	"	"				125	17	
	"	"	"				120	16	
	"	"	"				141	27	

FISH COLLECTION RECORD

Project or site name: Camp Georgetown DEC Region Central / West

Collections made by (names): MEF

Sampling method: ☒ Electrofishing; ☐ Gill netting; ☐ Trap netting; ☐ Trawling; ☐ Seining; ☐ Angling; ☐ Other

Preservation method: ☒ Freezing; ☐ Other

Lab number	Tag or collection number	Species	Date taken	Location	Age	Sex/ reprod. condition	Length ( )	Weight ( )	Remarks
	DS-10	creek chub	10-31-02	Down Stream			122	18	
	"	"	"				125	17	
	"	"	"				120	15	
	"	"	"				115	13	
	DS-11	White suckers	"				158	39	
	"	"	"				149	31	
	"	"	"				159	37	
	"	"	"				140	27	
	"	"	"				137	29	
	"	"	"				143	29	
	"	"	"				130	20	
	"	"	"				133	25	
	"	"	"				121	17	

APPENDIX E

QUALITATIVE EXPOSURE ASSESSMENT

APPENDIX E

QUALITATIVE HUMAN HEALTH EXPOSURE ASSESSMENT
for the
CAMP GEORGETOWN SITE
GEORGETOWN, NEW YORK

DEC Site No. 7-27/010

April 8, 2003

Prepared for:
New York State Department of Environmental Conservation
625 Broadway
Albany, New York 12233-7015

TABLE OF CONTENTS:

1.0 BACKGROUND

Exposure assessment is the process of identifying potential current and future receptors, and characterizing the nature of their contact with a chemical. A qualitative exposure assessment was performed for the Camp Georgetown site to determine potential exposure pathways associated with current site conditions and to evaluate their potential significance.

A qualitative exposure assessment results in the creation of site-specific exposure profiles that provide the narrative description of the mechanisms by which exposure to contaminants may occur at the site. Chemical, physical, and toxicological parameters for the chemicals of potential concern are also identified and taken into account when developing the exposure profiles. The potential significance of the identified exposures is evaluated in a qualitative manner.

2.0 EXPOSURE SETTING

The exposure setting was evaluated with respect to both current and future land uses of the site and surrounding area to aid in the identification of potential receptors, exposure points and exposure pathways.

Camp Georgetown is a large complex of NYSDEC crew headquarters and an active NYDCS incarceration facility, situated in Georgetown, Madison County, New York. The surrounding area is rural, generally consisting of farmland and undeveloped forest. The area of concern occupies approximately 6.6 acres, and includes the former pole treatment plant, former above ground storage tank (AST) location, and former outdoor staging areas for treated lumber.

3.0 IDENTIFICATION OF EXPOSURE PATHWAYS

For identified receptors to be exposed to a chemical of potential concern at the site, an exposure pathway must be established leading from the source to the receptor. The exposure pathway is the route that the chemical takes from the source of the material to the receptor of concern. An exposure pathway has five elements:

- a contaminant source
- contaminant release and transport mechanisms
- a point of exposure
- a route of exposure
- a potential receptor

An exposure pathway is complete when all five elements of an exposure pathway are documented; a potential exposure pathway exists when any one or more of the five elements comprising an exposure pathway is not documented, but is likely. An exposure pathway may be eliminated from further evaluation when any one of the five elements comprising an exposure pathway has not existed in the past, does not exist in the present, and will never exist in the future.

3.1 Source of Contamination

Between 1970 and 1983, pentachlorophenol (PCP) was the principle chemical biocide used in treating lumber at Camp Georgetown. During the treatment process, poles were placed in the dip tanks, which were then filled with a mixture of PCP and No. 2 fuel oil. After treatment, poles were hoisted from the tank and allowed to drip over the tank for a period of time, and then moved to the drip pad. Poles were finally moved to a designated “treated material storage area”. Use of PCP was discontinued in 1983; the treatment plant then operated using a chromated copper arsenate (CCA) process until 1991. The CCA solution was comprised of chromic acid, arsenic pentoxide, cupric oxide, and water. This process was more controlled than the PCP process, involving the soaking of lumber in the CCA solution under pressure. The solution was pumped out and the lumber allowed to dry in the vessel, and then moved to the drip pad. At that time, runoff from the drip pad was collected and reused. As a result of these wood treatment operations, sources of contamination exist at the site and are associated with historical releases of wood treatment products (PCP, CCA, and fuel oil) to site soils.

3.2 Fate and Transport

Contaminant release and transport mechanisms carry contaminants from the source to points where individuals may be exposed. Chemical migration between media such as soil and groundwater is influenced by chemicals parameters such as water solubility or molecular size or shape, in addition to the chemical and physical characteristics particular to a site's media. This section discusses information about the fate and transport of the source chemicals present at the site.

Pentachlorophenol

Pentachlorophenol is a moderately acidic substance, and thus its fate is strongly influenced by pH. At a neutral pH it is almost completely found in the ionized form, the pentachlorophenate anion, which is much more mobile than PCP (ATSDR, 2000). PCP has a low water solubility and a strong tendency to adsorb onto soil or sediment particles in the environment. Adsorption to soils and sediments is dependent on pH and organic content. Adsorption at a given pH increases with increasing organic content of soil or sediment. No adsorption occurs at pH values above 6.8 (ATSDR, 2000; Howard, 1991). It is expected that soils in this area are acidic (less than 7.0) based on soil type (no pH data is available) and soils are low in organic content, (TOC is 7.06% in SED-2) therefore, some adsorption is likely to occur, but it may be limited.

The ionized form of pentachlorophenol may be rapidly photolyzed by sunlight; PCP may also undergo biodegradation by microorganisms, animals, and plants although degradation is generally slow (Howard, 1991). Given that at expected pH conditions a portion of PCP will be present in the ionized form, photolysis may be an important degradation pathway at this site in shallow soils.

PCP has an octanol-water partition coefficient (Kow) of 100,000 (Howard, 1991), which indicates that it is lipid-soluble and therefore has a tendency to bioaccumulate in organisms. Bioaccumulation is largely pH-dependent, with considerable variation among species. Bioconcentration factors (BCFs) for PCP in aquatic organisms are generally under 1,000, but some studies have reported BCFs up to 10,000. BCFs, however, for earthworms in soil were 3.4-13 (ATSDR, 2000). Significant biomagnification of PCP in either terrestrial or aquatic foodchains, however, has not been demonstrated (ATSDR, 2000).

Pentachlorophenol products often contain chlorophenols, dioxins, and furans. Once released to the environment, these compounds are persistent and generally adsorb to soil or sediment particles, due to their low water solubilities. Adsorption is generally the predominate fate process affecting these chemicals, with the potential for adsorption related to the organic carbon content. CDDs and CDFs may undergo degradation through biological action or by photolysis, with a half-life ranging from weeks to months. Photolysis and hydrolysis are generally not significant processes, however, as these compounds persist in the adsorbed phase (USEPA, 2002).

Due to their high adsorption rate, CDDs are not expected to leach from soil, although some leaching of disassociated forms of the compound may occur, especially at lower pHs (USEPA, 2002). Since pH of site soils are not known but are not expected to be highly acidic leaching of CDDs and CDFs is unlikely. Migration of CDD-contaminated soil may occur through erosion and surface runoff. Upon reaching surface waters, additional adsorption may occur due to the typically higher levels of organic matter content of sediments as compared to surface soils (ATSDR 2000). Volatilization from either subsurface soil or water is not expected to be a major transport pathway, although it may occur from surface soils (ATSDR, 2000). As with PCP and other lipophilic pesticides, CDDs and CDFs tend to bioaccumulate in exposed organisms, with BCFs for aquatic organisms ranging from 5,000 to 10,000 (Montgomery, 1996). Uptake from soil by plants can occur, although it is limited by the strong adsorption of these compounds to soils. BCFs in plants have been measured to be 0.0002, with most accumulation occurring in the roots with little translocated to the foliage (ATSDR, 2000). Terrestrial organisms may accumulate CDDs and CDFs as a result of direct ingestion and contact with soils.

At the Georgetown site, PCP is expected to be adsorbed to soil organic matter content, although limited leaching may occur due to the expected pH (slightly acidic) and low organic matter content in site soils (TOC 7.06% in SED-2) Some photolysis of PCP from surface soils can be expected. Uptake of PCP from soil by plants or terrestrial organisms may occur, but biomagnification is not expected. CDDs and CDFs are expected to be strongly sorbed to soil, as well as persistent. Leaching of these compounds is likely to be limited. Accumulation of these compounds in plants as a result of root uptake is unlikely to be significant.

Fuel Oil

At the site, PCP was mixed with No. 2 fuel oil for wood treatment application. Fuel oils are mixtures of numerous aliphatic and aromatic hydrocarbons. Individual components of fuel oil include n-alkanes, branched alkanes, benzene and alkylbenzenes, naphthalenes, and PAHs (ATSDR, 2000). Primary constituents identified in soil and/or groundwater at the site are PAHs. Soil adsorption, volatilization to air, and leaching potential depend on a PAH's individual chemical characteristics; however, as a class of compounds, they are generally insoluble in water, with a strong tendency to bind to soil or sediment particles. Some of the lighter-weight PAHs (such as naphthalene, acenaphthene, and phenanthrene) may volatilize from soil or groundwater into the air. Degradation may occur through photolysis, oxidation, biological action, and other mechanisms. Microbial degradation appears to be a major degradation pathway in soil (ATSDR, 2000).

As nonpolar, organic compounds, PAHs may be accumulated in aquatic organisms from water, soil, sediments, and food. BCFs vary among PAHs and receptor species, but in general, bioconcentration is greater for the higher molecular weight compounds than for the lower molecular weight compounds (ATSDR, 2000). BCFs for accumulation of PAHs by plants from soil are low, with values of 0.001 to 0.18 reported for total PAHs (ATSDR, 2000). Accumulation of PAHs from soil by terrestrial organisms is also limited, with BCF values for voles of 12 reported for phenanthrene and 31 for acenapthene.

At this site, PAHs, the primary fuel oil constituents of interest, are expected to be adsorbed to soil, with limited potential for leaching. Microbial degradation may occur, with other degradation processes less important in soil. Uptake of PAHs from soil by terrestrial organisms or plants may occur, but bioconcentration is expected to be limited.

Chromated Copper Arsenate

CCA is a preservative that was used at Camp Georgetown and was reportedly comprised of 23.75% chronic acid, 17% arsenic pentoxide, 9.25% copric oxide and 50% water.

CCA is not a volatile substance; however, as it is water-based, it readily enters the soil. Metals such as arsenic, copper, and chromium are known to be persistent and mobile in soil and water, and leaching is a significant migration pathway, especially in acid conditions. These metals, however, tend to bind to soil and/or sediment particles in an insoluble form; therefore, any leaching usually results in transportation over only short distances in soil (ATSDR, 2000). Soil analytical results show that most metals concentrations at the site are within the normal range of background levels, with the exception of arsenic, chromium, copper, lead, and zinc. Elevated concentrations of these metals are generally limited to the former treatment areas.

A fraction of the more soluble forms of metals in the environment may be taken up by plants and animals (ATSDR, 2000; Howard, 1991). Terrestrial plants may bioaccumulate metals through root uptake or by absorption of airborne metals which may be deposited on the leaves. None of these metals have shown the potential for significant biomagnification through the food chain (ATSDR, 2000).

3.3 Points of Exposure

The exposure point is a location where actual or potential human contact with a contaminated medium may occur. Analytical results for samples collected at Camp Georgetown indicate that soil and groundwater have been impacted by numerous contaminants, including the following:

- PCP;

- Polychlorinated dioxins (CDDs) and dibenzofurans (CDFs);
- Polycyclic aromatic hydrocarbons (PAHs); and
- Metals, including arsenic, chromium, copper, lead, and zinc.

Analytical results from samples collected across the site indicate that contaminants have been identified in surficial soil (i.e., 0-2 inches below grade). The highest soil and groundwater concentrations of dioxins and metals were found in samples collected by the former treatment building.

3.4 Potential Receptors and Exposure Routes

Exposure assessment includes a description of the potentially exposed persons who live, work, play, visit, or otherwise come to the site or surrounding environment. Consideration is given to the characteristics of the current populations (including sensitive subpopulations) as well as those of any potential future populations that may be exposed under any reasonable foreseeable future site activities and uses.

Camp Georgetown is currently used as a NYSDEC maintenance facility and as a NYSDCS correctional facility, located in a heavily wooded, rural area. Inmates at Camp Georgetown occasionally visit the impacted area, although the prison is located across the street. There are currently no deed restrictions on the property that would restrict future land use. Therefore, the following receptors have been identified for the site under current and reasonable foreseeable future land use scenarios:

Current Use

- Adult inmates and staff at Camp Georgetown (infrequent);

Future Use

- NYSDEC workers performing maintenance and/or operation activities;
- Construction workers performing excavation activities

The route of exposure is the manner in which a contaminant actually enters or contacts the body (i.e., ingestion, inhalation, dermal absorption). Based on the nature of the chemicals of potential concern, the types of media impacted at the site, and land use scenarios, the following exposure routes were identified:

- Direct contact with exposed surficial soil. Exposure routes include incidental ingestion of, dermal contact with, and inhalation of volatile or particulate-bound contaminants.

- Direct contact with groundwater used as a future drinking water source. Routes of exposure include ingestion, dermal contact, and inhalation of volatiles. Currently, groundwater in the impacted areas is not used as a drinking water source. Several drinking water wells are located north of Crumb Hill road, and one well is on Ridge Road; each is upgradient of the site. Past analyses have not demonstrated any site-associated impacts in these wells.

There is some potential for the uptake of site contaminants (PCP, dioxins, and PAHs) by terrestrial organisms that may then be consumed as game species. Terrestrial game likely to be hunted in this area would include species such as white-tailed deer and turkey. Both species consume vegetation; additionally, turkeys are opportunistic feeders that will also include invertebrates to their diet. As discussed above, uptake by plants from soil is not expected to result in significant bioaccumulation in plants. In addition, the area of impact is small relative to the expected home range of these two species. White-tailed deer have a home range of 120 to 400 acres (Burnett et al. 2002), while turkey can have a home range of 1000 acres or more (North Caroline State University 1995). Any contribution of site-related contaminants to the body burden of these species is, therefore, expected to be insignificant.

4.0 CONCLUSIONS

Complete exposure pathways have been identified for potential current and future human receptors based on exposure to contaminated soil, groundwater, and sediment.

Under current conditions, prison inmates, NYSDEC and NYSDCS staff may visit impacted areas of Camp Georgetown, although infrequently. The most heavily contaminated areas are in the vicinity of the former treatment shed; however, residual low-level contamination may be found at various points throughout the site in surficial soil. In comparison to NYSDEC soil standards (NYSDEC, 1995), concentrations of PCP under the building and in the drip pad area are above the Soil Cleanup Objective to Protect Groundwater Quality (1 mg/kg), but only one sample had a concentration above the concentration to protect human health (20 mg/kg), as recommended by NYSDOH. Boring GB-9 taken in the drip pad area during the Preliminary Investigation contained concentrations of 30 mg/kg PCP in a sample taken from 0-6 feet below grade. Concentrations of dioxins are below the applicable standards with exception of surficial samples SS-5 and SS-8, both located by the treatment shed, and two seep areas. Concentrations of most metals are consistent with background concentrations. Sampling points with metals concentrations exceeding both background and soil standards are located in former treatment areas. Most detectable concentrations of PAHs at levels exceeding soil standards are likewise co-located in the treatment area.

Given the limited potential for exposure and the relatively small size of the areas where concentrations exceed standards, potential site exposures are unlikely to pose a significant risk to human health under current use. In addition, the soil standards are based on long-term exposure on a frequent basis. Actual exposures at this site are very infrequent, and not likely to occur over an extended period of time. Site concentrations may pose a significant risk in the future if site use were to change, resulting in increased exposure to the area of concern.

While groundwater concentrations of PCP and CDDs and CDFs at the site exceed groundwater standards for the protection of human health, these standards are based on drinking water exposures. Analyses of private wells in the area, as well as the NYSDEC well, have shown no evidence of site-related impacts. Therefore, site groundwater does not currently pose a significant risk to human health. Site groundwater concentrations may pose a significant risk in the future if shallow groundwater at the site were to be used for drinking water purposes.

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APPENDIX F

FISH AND WILDLIFE IMPACT ASSESSMENT

APPENDIX F

FISH AND WILDLIFE IMPACT ANALYSIS
STEP I and STEP IIA
CAMP GEORGETOWN
GEORGETOWN, NEW YORK

DEC Site No. 7-27/010

April 8, 2003

Prepared for:
New York State Department of Environmental Conservation
625 Broadway
Albany, New York 12233

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FIGURES:

APPENDIX

1.0 INTRODUCTION

This report presents the fish and wildlife impact analysis (FWIA) completed for the Camp Georgetown site located in Georgetown, New York (**Figure 1**). This FWIA identifies resource areas and associated fish and wildlife at, and within, the vicinity of the site, and potential site-related impact to these resources. The FWIA consists of the following steps:

- **Step I**: Site Description
- **Step IIA**: Pathway Analysis

This FWIA was prepared in conformance with the New York Department of Environmental Conservation (NYSDEC) document titled *Fish and Wildlife Impact Analysis for Inactive Hazardous Waste Sites* (NYSDEC, October 1994a). Step I of the FWIA describes the site's physical characteristics, identifies the fish and wildlife resources in the vicinity of the site that could be affected by site-related chemicals, and identifies any evidence of stress that could be related to chemical migration through the environment.

Step IIA of the FWIA is a Contaminant-Specific Impact Assessment that evaluates potential exposure pathways for fish and wildlife resources. This step involves reviewing data concerning existing fish, wildlife, and natural communities on-site, the physical characteristics of the site, and the type and extent of chemical impacts documented at the site. Based on this review, potential affected wildlife receptors and complete pathways of exposure are identified.

2.0 SITE DESCRIPTION

Camp Georgetown is a large complex of NYSDEC crew headquarters and a New York State Department of Correctional Services (NYSDCS) active incarceration facility, located in a New York State Reforestation Area known as Proposal D. The incarceration facility is operated by NYSDCS, but is located on property managed by NYSDEC. NYSDCS occupies the property north of Crumb Hill Road and NYSDEC occupies the property south of Crumb Hill Road. The areas of concern occupy approximately 6.6 acres south of Crumb Hill Road. The areas of concern include the former treatment plant, former aboveground storage tank (AST) location, and outdoor staging areas once used for treated lumber.

Site soils predominantly consist of dispersed pockets of fill overlying a tan silty till that overlies a gray, tight clayey till.

3.0 SITE MAPS

The site location is shown in **Figure 1**. Several streams and wetland areas were identified as significant resource areas present within a 2-mile radius of the site. These include the following:

- Mann Brook and associated tributaries; located on the western border of the site
- Muller Brook; located approximately 1.75 miles to the northeast of the site
- Bucks Brook; headwaters originate from a freshwater wetland approximately 1 mile south of the site
- Ashbell Brook; located approximately 2 miles southwest of the site
- A freshwater wetland; located approximately 2 miles west-northwest of the site

Figure 2 depicts the natural covertypes encountered within a 0.5 mile radius of the subject site. This figure was based on information collected during a site walk-over and area drive-by conducted on January 23, 2002, in addition to review of United States Geological Survey (U.S.G.S.) aerial photographs and topographic maps. Descriptions of each covertype are provided in **Section 4.0** of this report.

A site drainage map that shows site topography and direction of surface water drainage is provided as **Figure 3**. Approximately one-third of the property is developed, consisting of a paved driveway, several storage sheds, and two permanent buildings situated on cleared and maintained land. Impervious areas are limited to the footprint of each building and the driveway, and in total occupy a relatively small percentage of the total area of the site. There are no known catch basins located on-site; however, there is one drainage ditch located along the northern boundary of the site by Ridge Road. There are several small seeps located in the wooded slope on the southwestern side of the site. Topography tends toward the southwest and southeast, with surface runoff from precipitation and seeps discharging to Mann Brook.

Surface water from the site drains into Mann Brook, which is located on the southwestern border of the site. Mann Brook converges with the Otselic River approximately 3 miles southeast of the site, eventually discharging to the Susquehanna River.

4.0 DESCRIPTION OF FISH AND WILDLIFE RESOURCES

A site reconnaissance was conducted on January 23, 2002. At the time of the site visit, approximately 1.5 feet of snowpack existed on the ground, and most flora were dormant or under snow. Likewise, fauna present at the site were limited to species typically active in the area during winter. Conclusions about the fish and wildlife resources present at the site throughout the year were therefore based on visual observations, habitat conditions, and information on species anticipated to be present during other times of the year.

The site and surrounding area can be best described as a mature and eroded plateau divided by deep ravines. Most of the area is covered by upland forest consisting of mixed evergreen and deciduous species. The subject site itself is a NYSDEC reforestation area, and there are extensive red pine plantings across the property. Much of the land in the surrounding area remains as undeveloped forest, although a portion is also used for agricultural and residential purposes.

Covertypes were classified according to the system developed by the New York Natural Heritage Program system, described in Edinger et al. (2002). Major systems present at and near the site include terrestrial and riverine communities.

As shown on **Figure 2**, the following major subsystems associated with the site and immediate surrounding area have been identified:

- Terrestrial Cultural
- Open Upland
- Forested Upland
- Riverine

Descriptions of each subsystem are provided below.

Terrestrial Cultural: Terrestrial cultural systems are habitats that have either been created or modified by human activities such that the physical and/or biological composition of the community has been significantly altered from the community as it existed prior to human influence (Edinger et al., 2002). Such changes are evident at the Camp Georgetown complex. Currently, the site is partially developed, with several buildings and sheds and a paved driveway located on the site. Additionally, a large mowed lawn is maintained on the property.

A portion of the Camp Georgetown complex is maintained as a reforestation area managed by

NYSDEC; much of the cleared land has since been planted with red pine (*Pinus resinosa*). This pine plantation mostly consists of mature, 60-80 foot trees which provide about 90% canopy cover, although a small percentage of pine seedlings, briars, and several types of young deciduous trees (such as beech (*Fagus grandifolia*)) comprise the understory.

Open Upland: successional old field borders the western side of the driveway, with vegetative growth consisting of grasses and other pioneer woody and non-woody herbaceous species. Although snow covered this area at the time of the site visit, dormant flora noted included goldenrod (*Solidago* spp.), Queen Anne's Lace (*Daucus corota*), briars, beech, quaking aspen (*Populus tremuloides*), honey locust (*Gleditsia triacanthos*), and yellow birch (*Betula alleghaniensis*) saplings.

Three large hawks (species unidentified) and the common crow (*Corvus brachyrhyncos*) were observed flying across the field. A small nest indicative of some type of small songbird, such as a field sparrow, was also observed in the brush. Other bird species anticipated to thrive in this type of community would include birds of prey, songbirds, ruffed grouse, bluebirds, and wild turkey.

Coyote tracks were observed in the snow, although overt evidence of other mammals was not present. Mammals characteristic of old field communities may include rodents (such as field mice, voles, chipmunks and rats), rabbits, woodchucks, and fox. White-tailed deer may also browse on vegetation in this habitat.

Forested Upland generally has greater than 60% canopy cover. On the western side of the red pine plantation, topography slopes steeply down to Mann Brook. This narrow band is covered by a mixed spruce-northern hardwood forest, including tree species such as red spruce (*Picea rubens*), hemlock (*Tsuga canadensis*), pine (*Pinus* sp.), oak (*Quercus* sp.), and beech. Plants characteristic of undergrowth in this habitat may include various fern and moss species, bluebead lily (*Clintonia borealis*), bunchberry (*Cornus canadensis*), Canada mayflower (*Maianthemum canadense*), and wild sarsaparilla (*Aralia nudicaulis*).

Birds anticipated to frequent this habitat include woodpeckers (pileated, downy), songbirds, blue jays, gray jays, chickadees, and turkey. Mammalian species may include river otter, mink, white-tailed deer, fox, black bear, red or grey squirrels, and raccoon. Potential amphibians and reptiles may include various species of snakes, newts, frogs, and toads.

Riverine: Mann Brook is a first-order natural stream that abuts the western portion of the site. Headwaters originate approximately 1 mile north of the site. It is a relatively narrow, shallow,

perennial stream with a moderate flow rate in the sections adjacent to the site. The stream substrate could potentially support rock bottom specialists such as caddisfly, stonefly, mayfly, dragonfly, blackfly, and midge larvae, and crayfish. Fish species likely to frequent these waterbodies include brook trout, dace and sculpin. Within pools and along banks, various amphibians such as green frog and salamander may be found, in addition to some emergent or floating plant species. According to a letter from the NYSDEC NHP addressed to J. Santacroce dated February 26, 2002, there is no data indicating that the sites or the immediate vicinity of the site, are known habitats for rare species (**Appendix A**).

5.0 EVIDENCE OF ENVIRONMENTAL IMPACTS

As previously mentioned, the NYSDCS established a conservation/correction camp at Georgetown in 1961. One of the work projects at Camp Georgetown was the operation of a wood treatment facility and sawmill that provided lumber for NYSDEC construction and maintenance projects. Untreated poles would first be stored in a drying shed, then later moved into the treatment building. Poles would be placed in the bottom of a dip tank, which would be filled with a treatment solution.

Between 1970 and 1983, pentachlorophenol (PCP) was the principle chemical biocide used in treating lumber at Camp Georgetown. During the treatment process, PCP and No. 2 fuel oil were combined in the dip tanks. Use of PCP was discontinued in 1983; the treatment plant then operated using a chromated copper arsenate (CCA) process until 1991. The CCA solution was comprised of chromic acid, arsenic pentoxide, cupric oxide, and water.

As a result of past practices soil and groundwater at the site have been impacted by numerous contaminants, including the following:

- Pentachlorophenol;
- Polychlorinated dioxins and dibenzofurans;
- Polycyclic aromatic hydrocarbons; and
- Metals, including arsenic, chromium, copper, lead, and zinc.

Analytical results from samples collected across the site indicate that contaminants have been identified in surficial soil (i.e., 0-2 feet below grade). The highest soil concentrations of dioxins and metals were found in samples collected by the former treatment building (**Figure 3**). Additionally, contaminants have also been detected in groundwater.

As vegetation at the site was dormant and covered with snow at the time of the site visit, it was difficult to determine whether signs of physical stress were apparent. Vegetative growth in undisturbed or revegetated areas appeared to be varied and dense, and the presence of wildlife species representative of various trophic levels indicated that overall community structure is likely complete. However, it was uncertain whether population-level effects were present due to surficial soil and stream impacts.

6.0 VALUE OF FISH AND WILDLIFE RESOURCES

A variety of covertypes at and surrounding the site provide significant habitat for fish and wildlife species. Developed land at the site contributes only a relatively small percentage to total land coverage, and the contiguous nature of undeveloped land allows an unbroken wildlife corridor with the surrounding area. Overall, the area provides significant foraging, resting, roosting, and breeding cover for wildlife. Chemical impact from past releases has been identified in a relatively small area of the subject site, and is most likely not a limiting factor to overall community structure. Few species were observed during the site visit; however, this is likely due to winter conditions and human presence rather than chemical impact. Based on the general appearance of the various types of habitat, there is no reason to believe that wildlife density or diversity would be significantly impaired.

With regard to the site's resource value to humans, the area itself may provide the opportunity for recreational uses. Given the rural setting, it is anticipated that outdoor recreational activities such as hunting or fishing may take place in the areas surrounding the site, as the area would adequately support viable populations of game species such as deer or turkey. Likewise, Mann Brook and its receiving waters are fishable, and may provide important spawning habitat for recreational fish species. The area may also provide the opportunity for wildlife observation.

7.0 IDENTIFICATION OF APPLICABLE FISH AND WILDLIFE REGULATORY CRITERIA

Contaminant-specific and site-specific criteria were identified, based on resource areas present at the site and in the surrounding area. These criteria need to be considered prior to and during any potential site remediation.

7.1 Contaminant-Specific Criteria

The State of New York has developed water quality criteria based on the classification of surface water and groundwater and the type of exposure. These values also vary by water classification and exposure type. Water in Mann Brook and its receiving waterbodies has been classified as Class A, suitable for drinking, culinary or food processing purposes; primary and secondary contact recreation; fishing; and fish propagation and survival, or consumption (6 NYCRR Part 701). Groundwater at the site is classified as GA, which means that groundwater is a source of fresh, potable water. Specific criteria for biological, physical, and chemical parameters have been promulgated for such waters (6 NYCRR Part 703).

Chemical-specific sediment criteria have also been established by NYSDEC for non-polar, organic compounds and select metals. An exceedance of any of these criteria may indicate potential adverse effects to aquatic ecosystems. These criteria are provided in NYSDEC, 1994b.

7.2 Site-specific Criteria

Mann Brook and Otselic River are considered “waters of the United States” and therefore are regulated at the federal level under Sections 401 and 404 of the Clean Water Act (33 U.S.C. 1344) and at the state level under 6 NYCRR Part 608.7. NYSDEC is responsible for issuing Section 401 Water Quality Certification for any activities requiring a federal license or permit to discharge fill into a water of the United States. Under Section 404, a permit is required from the U.S. Army Corp of Engineers to discharge dredged or fill material into a water of the United States.

New York State passed the Freshwater Wetlands Act with the intent to preserve, protect and conserve freshwater wetlands and their benefits. Certain activities that could have an adverse impact on wetlands are regulated; a permit is required prior to conducting any regulated activity in a protected wetland or its adjacent area. As wetlands located in the vicinity of the site are not associated with Mann Brook, they would not be impacted by site-associated releases.

Section 7 of the federal Endangered Species Act directs federal agencies to determine if any action they authorize, fund, or conduct may affect listed species or critical habitat. According to a letter from the NYSDEC NHP addressed to J. Santacroce dated February 26, 2002, there is no data indicating that the sites or the immediate vicinity of the site, are known habitats for rare species (**Appendix A**).

8.0 STEP IIA: CONTAMINANT-SPECIFIC IMPACT ASSESSMENT

Step IIA of the FWIA is a Contaminant-Specific Impact Assessment that evaluates potential exposure pathways for fish and wildlife resources. This step involves reviewing data concerning existing fish, wildlife, and natural communities on-site, the physical characteristics of the site, and the type and extent of chemical impacts documented at the site. Based on this review, potential affected wildlife receptors and complete pathways of exposure are identified.

Pathways of chemical movement and exposure are determined based on information concerning sources, transport media, chemical-specific environmental fate, exposure points, routes of exposure, and potentially exposed populations. A complete exposure pathway consists of 1) a chemical release from a source, 2) an exposure point where contact with an organism can occur, and 3) a route of exposure (oral, dermal, and inhalation) through which the chemical can be taken into an organism.

8.1 Potential Receptors

As described in **Section 4.0**, the site is dominated by Forested Upland and successional Old Field, and supports a variety of common wildlife species. The adjacent Mann Brook may support a diverse assemblage of aquatic wildlife species. It can be assumed, therefore, that a variety of fish and wildlife (both resident and transient) have the potential to be present on, or adjacent to, the site. Potential environmental receptors at the site include plants, terrestrial wildlife, such as insects, birds, and mammals; and aquatic wildlife, such as benthic invertebrates and fish.

8.2 Chemical Migration

As discussed in **Section 5.0**, environmental sampling and analysis have determined that soil, sediment, and groundwater at the site have been impacted by past releases into the environment from wood processing and treatment practices. Chemicals of potential concern at the site include organic compounds such as PCP, chlorinated dioxins and dibenzofurans, and heavy metals such as arsenic, copper, chromium, lead, and zinc. There are impacts in surficial soil at the site, although the highest areas of contamination remain in the vicinity of the former treatment building. Impacted groundwater appears to be limited to the central and southern portions of the site.

Pentachlorophenol has a low water solubility and a strong tendency to adsorb onto soil or sediment particles in the environment. Adsorption to soils and sediments is highly pH-dependent, and is more likely to occur under acidic conditions than under neutral or basic conditions; no adsorption occurs above pH 6.8 (ATSDR 2000; Howard, 1991). Disassociated forms of pentachlorophenol may be rapidly photolyzed by sunlight; PCP may also undergo biodegradation by microorganisms, animals, and plants (Howard, 1991). PCP has an octanol-water partition coefficient (Kow) of 100,000 (Howard, 1991), which indicates that it is lipid-soluble and therefore has a tendency to bioaccumulate in organisms. Bioaccumulation is largely pH-dependent, with considerable variation among species. Bioconcentration factors (BCFs) for PCP are generally under 1,000, but some studies have reported BCFs up to 10,000. Significant biomagnification of PCP in either terrestrial or aquatic foodchains, however, has not been demonstrated (ATSDR, 2000).

Pentachlorophenol products often contain chlorophenols, dioxins, and furans. Once released to the environment, chlorinated dibenzo-p-dioxins (CDDs) and dibenzofurans (CDFs) adsorb to soil or sediment particles due to their low water solubilities. CDDs and CDFs may undergo degradation through biological action or by photolysis, with a half-life ranging from weeks to months. Photolysis and hydrolysis are generally not significant processes, however, as these compounds persist in the adsorbed phase (USEPA, 2002). Soil or sediment adsorption is highly dependent on pH (Howard, 1991). CDDs are not expected to leach from soil, but some leaching of disassociated forms of the compound may occur, especially at lower pHs (USEPA, 2002). Volatilization from either subsurface soil or water is not expected to be a major transport pathway (ATSDR, 2000). As with PCP and other lipophilic pesticides, CDDs and CDFs tend to bioaccumulate in exposed organisms, with BCFs reported up to approximately 10,000 (Montgomery, 1996). There is ambiguity, however, regarding potential biomagnification of these compounds through the food chain (Kamrin and Rodgers, 1985).

Metals such as arsenic, copper, and chromium are known to be persistent and mobile in soil and water. Heavy metals have also been found to move through the food chain and bioaccumulate in organisms at higher trophic levels (Howard, 1991; Merian, 1991).

Organic humus and soil cover may immobilize organic chemicals detected in subsurface media at the site, thereby limiting direct exposure to fish and wildlife. However, elevated chemical concentrations were found in surficial soils, making them potentially accessible to many species, especially those that either forage on the ground or burrow beneath the ground surface.

Drainage patterns at the site indicate that much of the surface flow moves toward to Mann Brook, which suggests that this waterbody may receive some surface water run-off and eroded material from impacted areas of the site following storm events. Sediment data from Mann Brook indicate that chemical migration into this waterbody has indeed occurred through overland flow.

Most of the site is well-vegetated by woody and herbaceous plant species. Vegetation on the site reduces (but does not eliminate) chemical migration via dust emissions, soil erosion, volatilization, and infiltrating precipitation. However, the vegetation can also take up certain compounds such as heavy metals that can then be passed on to wildlife that feed on the foliage and fruit of these plants. Since no sampling of plant tissue has been conducted, it is not known if any of the compounds documented in soil have been taken up by terrestrial or aquatic vegetation. Most of the metals documented on-site are known to be taken up by plants (Howard, 1989; Merian, 1991).

Likewise, the more lipophilic compounds like dioxins may be readily adsorbed by terrestrial or aquatic animals. Studies have demonstrated that tissue levels of TCDD, for example, are directly related to the organism's contact with soil; benthic-dwelling species, filter- or bottom-feeders, or species that live underground, burrow, or groom extensively generally will have the highest body burdens (Kamrin and Rodgers, 1988). Biota (trout) samples were collected from Mann Brook and analyzed for dioxins. Four (2 upstream and 2 downstream) samples out of 22 exceeded the 0.0003 ppb 2,3,7,8-TCDD equivalence concentration. Concentrations of the 22 samples collected ranged from below detection limits to 0.101 ppb.

8.3 Pathways of Chemical Movement and Exposure

Site conditions indicate that: 1) various species of fish and wildlife are likely to be present at and adjacent to the site; 2) compounds that are mobile, persistent, and have the potential to bioaccumulate have been documented on the site; and 3) these compounds exist at or near the surface of soil, and have the potential to be taken up by plants and animals. Therefore, the following pathways of chemical movement and exposure to fish and wildlife are considered possible:

- Dermal contact with chemicals present in the surface soil and groundwater;
- Ingestion of chemicals in surface soil, groundwater and food sources; and
- Direct uptake of chemicals in soil or groundwater by terrestrial and aquatic plants.

Future remedial activities could also result in chemical exposure to terrestrial organisms through the inhalation of volatiles from or direct contact with disturbed soil.

9.0 CONCLUSIONS

A Step I and Step IIA FWIA was prepared for the Camp Georgetown site. Camp Georgetown is a partially developed property located in a rural setting. Chemical impacts have been identified in soil, groundwater, and sediment. Various terrestrial and rivertine ecosystems are found at the site and within the surrounding area. Potential biological receptors include the fish and wildlife species indigenous to the area.

Given the nature of the chemicals present at the site (i.e., dioxins, phenols, PAHs, and heavy metals) and the distribution of impact, complete exposure pathways were identified for terrestrial and aquatic receptors. Based on visual field observations, there was no overt evidence of stressed vegetation, and community structure does not appear to be impaired. However, due to the limited observations that could be made during the site visit, it is inconclusive at this time whether significant ecological impact exists due to site-associated releases to the environment. Additional observation of terrestrial vegetation and wildlife conducted during the growing season are recommended.

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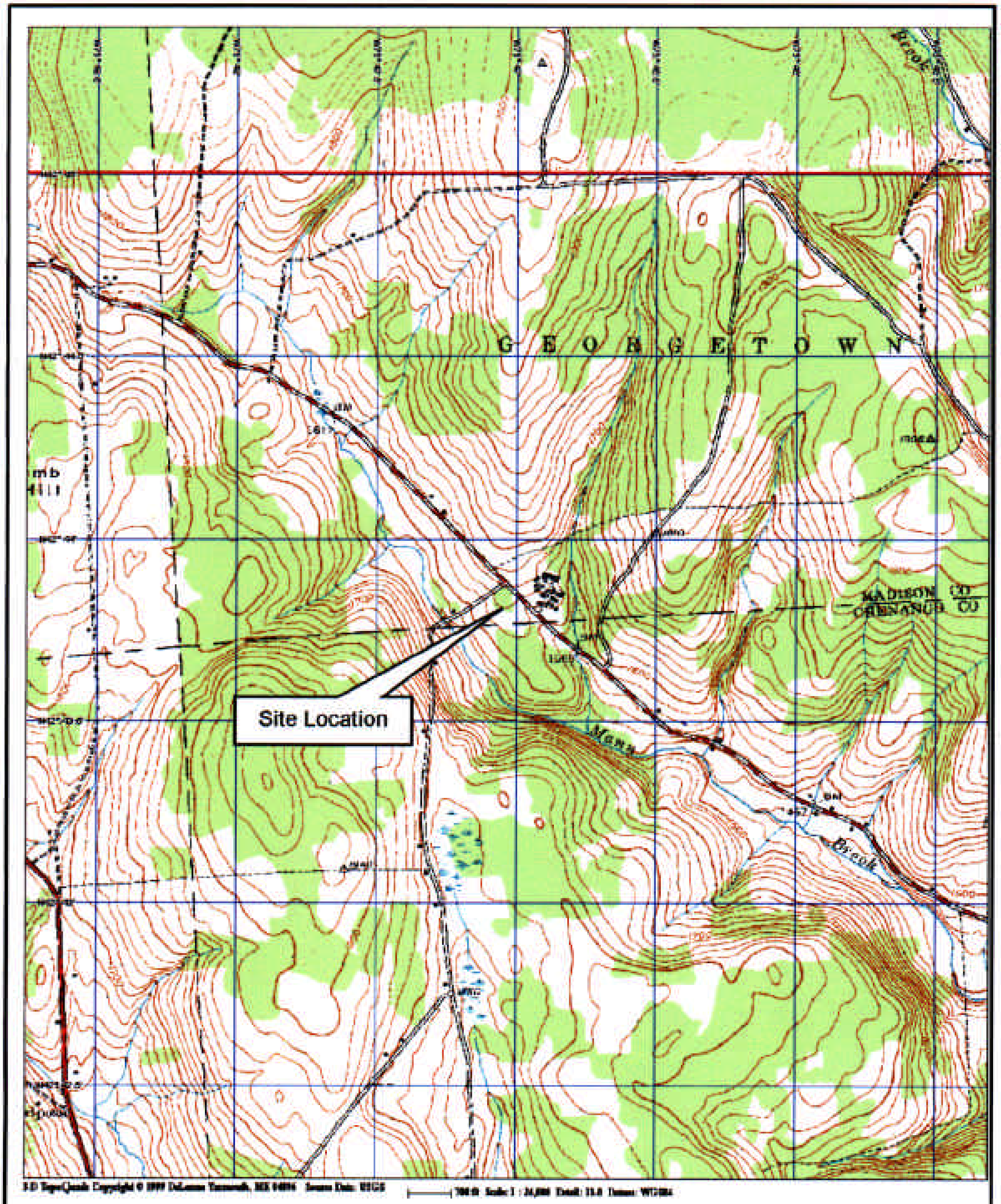
FIGURES



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Reference:
DeLorme 3-D Topo Quads, 1999
Yarmouth, Me.
Datum WGS84

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NYSDEC

Figure 1
Site Location Map
Camp Georgetown

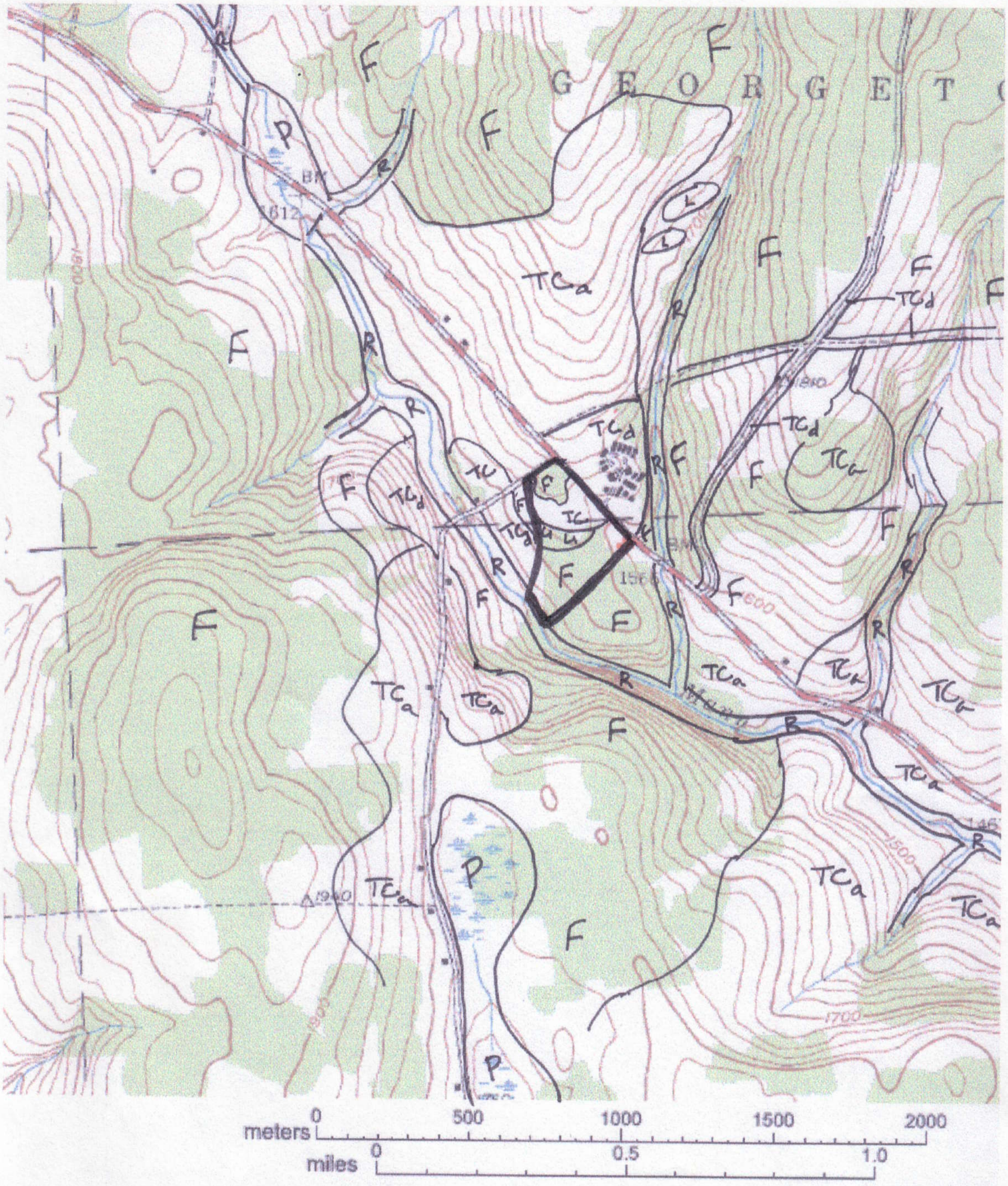

Figure 2: Covertype Map

Legend:

P	Palustrine
R	Riverine
U	Open Upland
F	Forested Upland
L	Lacustrine
TCa	Terrestrial Cultural-agricultural
TCd	Terrestrial Cultural-developed
———	Covertype boundary
———	Site boundary

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APPROVED BY

CHECKED BY

DRAWN BY S. SHKOLNIK 01-14-02

OFFICE ALBANY, NY

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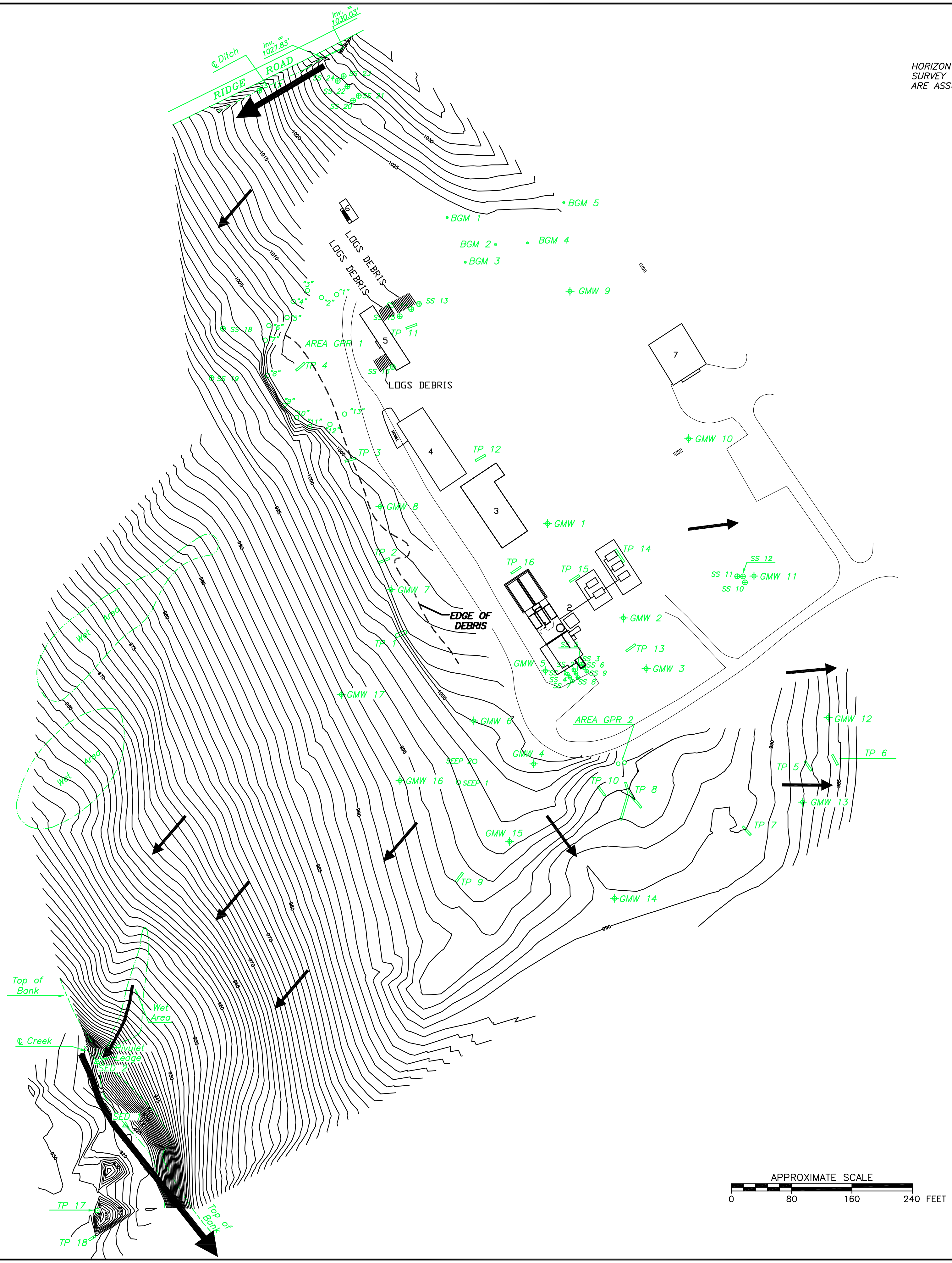

NOTE:

HORIZONTAL AND VERTICAL DATUMS ARE BASED ON A PREVIOUS SURVEY DONE BY MODI ENGINEERS AND LAND SURVEYORS, AND ARE ASSUMED.

LEGEND:

⊕	SURFACE SOIL SAMPLES
○ "1"	FLAGS IN GPR AREAS
⌖	MONITORING WELL
○	SEEP SAMPLES
BGM 1 ●	SOIL CONTROL SAMPLES
▭	TEST PIT
SED 1 △	SEDIMENT SAMPLE
℄	CENTERLINE
→	**DIRECTION OF OVERLAND FLOW / DRAINAGE**

TABLE OF ELEVATIONS FOR MONITORING WELLS

WELL NUMBER	ELEVATION AT WELL	ELEVATION ON GROUND
9	1018.41'	1018.16'
10	1001.12'	1000.91'
11	995.98'	993.42'
12	989.21'	986.13'
13	991.05'	988.07'
14	987.44'	990.82'
15	998.95'	997.41'
16	997.07'	993.80'
17	995.89'	992.84'

REFERENCE:

BASE MAP SOURCE: SUSAN M. ANACKER
NY STATE LOCENSE #50321.

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NEW YORK STATE DEPARTMENT OF ENVIRONMENTAL CONSERVATION

FIGURE 3
SITE INFORMATION MAP

CAMP GEORGETOWN
MADISON COUNTY, NEW YORK

APPENDIX A

National Heritage Letter

New York State Department of Environmental Conservation
Division of Fish, Wildlife & Marine Resources
New York Natural Heritage Program
625 Broadway, 5th floor, Albany, New York 12233-4757
Phone: (518) 402-8935 • **FAX:** (518) 402-8925
Website: www.dec.state.ny.us

Erin M. Crotty
Commissioner

RECEIVED
Route To: ______
FEB 2
Proj: ______
File Code: ______

February 26, 2002

John Santacroce
The IT Group
13 British American Blvd
Latham, NY 12110-1405

Dear Mr. Santacroce:

In response to your recent request, we have reviewed the New York Natural Heritage Program databases with respect to the proposed Remedial Investigation and Feasibility Study for the Camp Georgetown Site, area as indicated on the map you provided, located in the Town of Georgetown, Madison County.

> We have no records of <u>known</u> occurrences of rare or state-listed animals or plants, significant natural communities, or other significant habitats, on or in the immediate vicinity of your site.

The absence of data does not necessarily mean that rare or endangered elements, natural communities or other significant habitats do not exist on or adjacent to the proposed site, but rather that our files currently do not contain any information which indicates the presence. For most sites, comprehensive field surveys have not been conducted. For these reasons, we cannot provide a definitive statement on the presence or absence of rare or state-listed species, or of significant natural communities. This information should not be substituted for on-site surveys that may be required for environmental assessment.

Our databases are continually growing as records are added and updated. If this proposed project is still under development one year from now, we recommend that you contact us again so that we may update this response with the most current information.

This response applies only to known occurrences of rare or state-listed animals and plants, signicant natural communities and other significant habitats maintained in the Natural Heritage Databases. Your project may require additional review or permits; for information regarding other permits that may be required under state law for regulated areas or activities (e.g., regulated wetlands), please contact the appropriate NYS DEC Regional Office, Division of Environmental Permits, at the enclosed address.

Sincerely,
Heidi Krahling
Heidi J. Krahling, Information Services
NY Natural Heritage Program

Enc.
cc: Reg. 7, Wildlife Mgr.
Reg. 7, Fisheries Mgr.

APPENDIX G

DATA USABILITY SUMMARY REPORT

APPENDIX H

ADDITIONAL BIOTA INFORMATION