OCTOBER 2010 PRELIMINARY SITE INVESTIGATION REPORT
FORMER CAMP O'RYAN
(FUDS PROPERTY NO. C0NY1132)

WETHERSFIELD, NEW YORK

Contract No. W912WJ-09-D-0001
Delivery Order No. 031

Prepared For:
United States Army Corps of Engineers
New England District
696 Virginia Road
Concord, MA 01742

Prepared By:
Woods Hole Group, Inc.
81 Technology Park Drive
East Falmouth, MA 02536

March 2011

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List of Acronyms

ADR	Automated Data Review
ASP	Analytical Services Protocols
CENAE	U.S. Army Corps of Engineers, New England District
CEMVR	U.S. Army Corps of Engineers, Rock Island District
COC	chain-of-custody
CRQL	Contract Required Quantitation Limit
DERP	Defense Environmental Restoration Program
DOD	Department of Defense
DO	dissolved oxygen
DQO(s)	data quality objectives
EB	Equipment blank
EPA	U.S. Environmental Protection Agency
FBI	Federal Bureau of Investigation
FUDS	Formerly Used Defense Sites
ft	feet
GPS	Global Positioning System
HTW	Hazardous, Toxic Waste
LCS	laboratory control sample
MC	Munitions Constituents
MCL	Maximum Contaminant Level
MDL	method detection limit
MEC	Munitions and Explosives of Concern
mL	milliliter
mg/L	milligrams per liter
MRS	Munitions Response Sites
MS/MSD	matrix spike/matrix spike duplicate
NAE	United States Army Corp of Engineers New England District
NAN	United States Army Corp of Engineers New York District
NEH	New Environmental Horizons, Inc.
NELAP	National Environmental Laboratory Accreditation Program
NTU	nephelometric turbidity unit
NY ARNG	New York Army National Guard
NY DEC	New York Department of Environmental Conservation
NYSDEC	New York State Department of Environmental Conservation
ORP	oxidation-reduction potential
PAHs	Polycyclic aromatic hydrocarbons
PAL	Project Action Limit
PCE	tetrachloroethene
PID	photoionization detector
PQL(s)	practical quantitation limits
QA	quality assurance
QC	Quality Control
QSM	Quality Systems Manual
RI	Remedial Investigation
RL	Reporting limit

ROTC	Reserve Officers Training Corp
RPD	relative percent deviation
SAP	Sampling and Analysis Plan
SDG	Sample Delivery Group
SEDD	Staged Electronic Data Deliverable
SOP(s)	Standard Operating Procedures
SOW	Statement of Work
SVOC	Semi-Volatile Organic Compounds
TCL	Target Compound List
TOGS	Technical and Operational Guideline Series
U.S.	United States
USACE	U.S. Army Corps of Engineers
USAF	United States Air Force
USGS	U.S. Geological Survey
UXO	Unexploded Ordnance
VOC(s)	volatile organic compounds
WHG	Woods Hole Group
XML	Extensible Markup Language
YSI	Yellow Springs Instrument Company

EXECUTIVE SUMMARY

Woods Hole Group, Inc. prepared this Preliminary Site Investigation report as part of the Preliminary Site Investigation including surface and shallow groundwater sampling at the Former Camp O'Ryan in Wethersfield, NY (FUDS Property No. C0NY1132), under contract with the United States Army Corps of Engineers (USACE), New England District (CENAE) Task Order 0031 of contract W912WJ-09-D-0001. The work was completed in accordance with the October 2010 Woods Hole Group Sampling and Analysis Plan (SAP) and the revised August 6, 2010 Statement of Work (SOW) prepared by CENAE. The work was performed with reference to the guidance document entitled USACE Requirements for the Preparation of Sampling and Analysis Plans, EM 200-1-3 [United States (U.S.) Army Corps of Engineers (USACE), 2001], the U.S. Environmental Protection Agency (EPA) Requirements for Quality Assurance Project Plans, EPA QA/R-5, EPA/240/B-01/003, March 2001, New York State Department of Environmental Conservation (NYSDEC) Regulations, Comprehensive Environmental Response, Compensation and Liability Act (CERCLA) as amended by the Superfund Amendments and Reauthorization Act (SARA), National Oil and Hazardous Substances Contingency Plan (NCP) requirements, and the Formerly Used Defense Sites (FUDS) Program Policy (ER 200-3-1). The analytical requirements included in the New York State Department of Environmental Conservation Analytical Services Protocols (NYSDEC 2005).

The report includes a summary of the field sampling activities conducted from October 18th to 21st, 2010, and the laboratory testing results. Sampling was conducted at three (3) surface water and fifteen (15) shallow groundwater sites. *In-situ* measurements of temperature, specific conductance, pH, Oxidation Reduction Potential (ORP), and turbidity, indicate that the water quality of the samples was acceptable by NYSDEC 703.3 water quality standards; however, the turbidity for numerous shallow groundwater samples did exceed the standard due to the sampling technique.

The samples were analyzed for chemical parameters by: EPA SW846 Method 8260B for the NYSDEC ASP Target Compound List (TCL) Volatile Organic Compounds (VOCs); EPA SW846 Method 8270C for the NYSDEC TCL Semivolatile Organic Compounds (SVOCs); EPA Method 332 for Perchlorate; EPA SW846 Method 6010B for Lead; and EPA Method 8330A for 14 Explosive compounds. The field samples were non-detect for all chemical analyses with only a single detection of lead in one field duplicate sample. These results indicate that the surface and shallow groundwater locations sampled during this investigation at the former Camp O'Ryan do not appear to show impacts from prior site activities.

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1.0 INTRODUCTION

1.1 SITE LOCATION AND DESCRIPTION

1.1.1 Site Location

Former Camp O'Ryan is in the rural Town of Wethersfield in Wyoming County, New York, about 40 miles east of Buffalo and 5 miles southeast of Warsaw, NY, (Figure 1). It is represented by District 26 Congressman Chris Lee and is in EPA Region 2. The 370-acre site is mostly forested. A 5-acre parcel including the former motor pool is used by a fireplace company. Residents in the area derive drinking water from private, unregistered wells. There are about a dozen dwellings along the north and west boundary of the site. Groundwater depth is 50 feet and yield is on the order of 10 gallons per minute (USACE SOW, revised 6 August 2010).

1.1.2 Background

Military use of the site began in 1949 when the New York Army National Guard (NY ARNG) enacted a lease for a "Target Range, Maneuver Area, Camp Site, and other Government purposes." (USACE SOW, revised 6 August 2010). Known users of the site included the Army and Air National Guard, Army Reserves, Naval Militia, Reserve Officers Training Program (ROTC) Cadets, Federal Bureau of Investigation (FBI), NY State Police, and local police agencies. Confirmed munitions used at the site included live and blank small arms, tear gas, slap flares, and practice bazooka rockets. Military training ended in 1994. The only Munitions and Explosives of Concern (MEC) reported on the site since site closure was a belt of unfired linked blank small arms found by personnel from the NYSDEC. Reported Munitions Constituents (MC) found at the site include an expended practice bazooka rocket found by a local citizen, similar rockets, expended small arms, and an expended slap flare found by the Rock Island District (CEMVR) during the site inspection in November 2009. The site has been subdivided into three Munitions Response Sites (MRS); MRS A, B, and C as seen in Figure 2. The primary findings in these areas include:

MRS A

MRS A is the four-acre parcel (Figure 2) that served as the former pistol and machine gun range. There is confirmed Hazardous, Toxic Waste (HTW) and MC present at the earthen target berm containing fired lead bullets. Although there is MEC potential in this area, it is not confirmed.

MRS B

MRS B is the ten-acre site that was the known-distance range (Figure 2). Confirmed HTW and MC presence includes lead (from lead bullets) in the earthen target berm. Confirmed MEC was also observed by NYSDEC in the form of an unfired belt of blank small arms ammunition. November 2008 testing by the NYSDEC indicated high Total Lead values and high Toxicity Characteristic Leaching Procedure (TCLP) values in the earthen target backstop.

MRS C

MRS C consists of 356 acres of all other land. This MRS has potential HTW and MEC. The motor pool may have been the site of vehicle maintenance, and similar maintenance may have been performed at the tank training course. A petroleum, oil, and lubricants (POL) point was located in the southern part of this MRS. MC was observed during the Site Inspection in the form of expended training rockets. There is MEC potential in this area, though not confirmed.

1.1.3 Water Quality

Naturally occurring surface water exists at the site in the form of intermittent streams and small manmade ponds on the southern part of the property. An unnamed intermittent stream flows from southeast to northwest across the site and separates the known-distance range from the pistol range, and there are at least two other similar streams in the southern portion of the site. It appears that the stream is being recharged by shallow groundwater downgradient of potential contamination source areas. Nearby water bodies include Java Lake 4 miles to the southwest and Wethersfield Springs Pond 4 miles to the east (Figure 1).

Java Lake is a 53.0 acre lake on the Lake Erie watershed and it is listed as an impaired waterway on the *Priority Waterways List* (PWL). Water bodies listed on the PWL by the NYDEC have documented water quality impairments, minor impacts and/or threats. Phosphorus levels in the lake typically exceed the state guidance values indicating that the lake is best characterized as eutrophic, or highly productive. Measurements of pH typically fall within the state water quality range of 6.5 to 8.5, but are consistently high and occasionally exceed 8.5 (NYSDEC, September 2010).

Wethersfield Springs Pond has not been assessed by the NYSDEC; however, it is a part of the headwaters of East Koy Creek, which is a tributary of the Genesee River. East Koy Creek is known as one of New York's best trout streams, but lack of riparian buffers along the stream and seasonal irrigation usage reduce stream flows, elevate temperatures and cause stresses to the fishery. Previous studies indicated slightly to moderately impacted water quality along the stream due to nutrient enrichment and thermal and flow fluctuations in the stream. The lower section of East Koy Creek is included on the NYS 2002 Section 303(d) List of Impaired Waters because the aquatic life support and fishery habitat is impacted by agricultural activities in the watershed. The Town of Wethersfield maintains an uncovered salt storage facility near the creek in Hermitage and there are concerns over the potential impacts of this facility to the watershed (NYSDEC, March 2003).

A biological (macroinvertebrate) survey of East Koy Creek at multiple sites between East Koy and Wethersfield Springs was conducted in 1993. Within this portion of the stream conditions were primarily slightly impacted. Clean-water mayflies, stoneflies and caddisflies were found, but species richness was lower than expected. Causes for these effects were not apparent. A concurrent fishery survey found appropriate populations in this reach. A biological (macroinvertebrate) assessment of East Koy Creek in East Koy was conducted in 1999. Filtering caddisflies dominated the sample. Impacts were

attributed to nonpoint source nutrient loads and organic wastes. Previous biological sampling in 1993 found similar conditions and evidence of agricultural inputs at various sites (NYSDEC, March 2003).

1.2 PROJECT OBJECTIVES AND SCOPE

The purpose of the sampling was to characterize the water quality of both stream surface water and shallow groundwater at a time when the groundwater was recharging the stream under base flow conditions.

Field activities were completed during a single four-day survey and included:

1. Collecting one round of shallow groundwater samples using pore water sampling techniques.
2. Collecting one round of surface water samples.
3. Collecting field parameters including temperature, pH, specific conductance, dissolved oxygen, oxidation reduction potential (ORP), and turbidity at each sampling location.
4. Measuring the stream flow rate.

The results of the October 2010 sampling event are presented in this report. These data are used to assess the nature and extent of shallow groundwater contamination, potential impacts to surface water, and to determine whether unacceptable public health risks exist at these locations. Samples were analyzed in accordance with their respective NYSDEC ASP (2005) contract required quantitation limits (CRQLs). Sample results are compared to their respective regulatory criteria, which for Camp O'Ryan include the June 1998 NYSDEC Technical and Operational Guidance Series (TOGS), and the May 2009 EPA Maximum Contamination Levels (MCLs).

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2.0 SAMPLING METHODS

The Woods Hole Group Sampling and Analysis Plan (WHG SAP) and the Statement of Work (SOW) have established the requirement for data generation that meet the project objectives. Groundwater samples were collected in accordance with the Standard Operating Procedures (SOPs) presented in the SAP. The field investigators were escorted for all onsite sampling activities by the USACE-LRB Unexploded Ordinance (UXO) Specialist Nickolas Heleg-Greza, who provided anomaly avoidance especially for the intrusive investigation samples (shallow groundwater).

2.1 SURFACE WATER SAMPLING AND ANALYSIS

The SAP specified four surface water samples, SW-01, SW-02, SW-03, and SW-04; however, surface water sampling point SW-02 was dry during the sampling period. The surface water locations were sampled following the SOW (USACE, 2010), the SAP (Woods Hole Group, 2010), and the procedures outlined in the National Field Manual for the collection of Water Quality Data (USGS 2006). As outlined in the SAP, surface water sample collection was to occur under base flow conditions for the stream and not less than three days following a rainfall amount greater than 1/100th of an inch. In addition, it was noted that samples should not be collected from discontinuous, stagnant pools. Prior to sampling, field measurements of temperature, pH, conductivity, dissolved oxygen (DO), and ORP were taken using a YSI 556 MPS. In addition, a Hach 2100P turbidity meter was used to monitor turbidity.

Surface water samples were collected in bottles provided by Alpha Analytical, and were submitted for off-site laboratory analysis by: EPA SW846 Method 8260B for the NYSDEC ASP Target Compound List (TCL) VOCs; EPA SW846 Method 8270C for the NYSDEC TCL SVOCs; EPA Method 332 for Perchlorate; EPA SW846 Method 6010B for Lead; and EPA Method 8330A for 14 Explosive compounds. The 1-liter amber bottles for explosives and SVOCs were dip sampled. The samples for VOCs, perchlorate, and both total and dissolved lead were collected using a 140 ml syringe. The dissolved lead and perchlorate samples were filtered through a 0.45 µm syringe filter. Additionally, the perchlorate samples were filtered through a secondary 0.2 µm syringe filter. Samples collected during the groundwater sampling program were uniquely identified using the sample nomenclature outlined in the WHG SAP.

A rinsate blank for surface water, CO-EB01-1010, was to be collected for perchlorate, VOCs, and both total and dissolved lead due to use of the syringe and filters, while SVOCs and explosives did not require a rinsate blank due to use of the dip sampling method. The sample was collected by placing the VOC-free DI water provided by Alpha into a new syringe and then simply dispensing the correct amount into each container and using the correct filter, if applicable. Clean tubing, syringes, and filters were used at each sampling location, and used items were discarded between sampling locations.

2.2 SHALLOW GROUNDWATER SAMPLING AND ANALYSIS

Shallow groundwater samples were to be collected from eighteen (18) shallow groundwater locations during the October 2010 sampling. The shallow groundwater sites

were sampled in accordance with the SOW (USACE, 2010), the WHG SAP, as well as using procedures outlined in the National Field Manual for the collection of Water Quality Data (USGS 2006) and Pore Water Sampling (EPA, 2007). The shallow groundwater samples were collected with a pushpoint pore water sampler in combination with a peristaltic pump. Prior to sampling, field measurements of temperature, pH, conductivity, dissolved oxygen (DO), and ORP were taken using a YSI 556 MPS. In addition, a Hach 2100P turbidity meter was used to monitor turbidity. Shallow groundwater samples were collected as composite samples for all analyses except for VOCs, which were individual, grab samples. The composite group associations are shown in Table 1.

Shallow groundwater samples were collected in bottles provided by Alpha Analytical and were submitted for off-site laboratory analysis by: EPA SW846 Method 8260B for the NYSDEC ASP Target Compound List (TCL) VOCs; EPA SW846 Method 8270C for the NYSDEC TCL SVOCs; EPA Method 332 for Perchlorate; EPA SW846 Method 6010B for Lead; and EPA Method 8330A for 14 Explosive compounds. The 1 Liter amber bottles for SVOCs and Explosives were filled first, followed by the 40ml VOCs vials and the total lead containers. Then, a 0.45 µm inline filter was placed on the end of the peristaltic pump tubing to filter the dissolved lead and perchlorate samples. Perchlorate samples were filtered into the back of a clean syringe and filtered a second time through a 0.2 µm syringe filter into a bacteria cup. Samples collected during the groundwater sampling program were uniquely identified using the sample nomenclature outlined in the SAP (WHG, 2010).

A rinsate blank sample, CO-EB02-1010, was collected from the pore water sampler used at the shallow groundwater sampling locations. The rinsate blank sample was collected from the pore water sampler following decontamination after use in the sampling process. This procedure included soap and DI water decontamination with a rinse of VOC-free distilled water provided by Alpha Analytical, followed by a final rinse with isopropanol. DI water was pumped from the container into the sample bottles using new tubing and a peristaltic pump. Additionally, the rinsate blanks for perchlorate and dissolved lead were collected using fresh syringes and filters.

2.3 QUALITY CONTROL

As described in the SOW (USACE, 2010) the quality control (QC) samples collected for the October 2010 sampling effort included: field duplicate samples; equipment blanks; matrix spike; matrix spike duplicate; and trip blanks for the VOC samples. Field duplicates were used to evaluate the field sampling procedures and laboratory accuracy and precision in analyzing the samples. The purpose of equipment blanks was to determine whether the sampling equipment could be a source of cross-contamination of samples. Matrix spike (MS) and matrix spike duplicate (MSD) samples were collected for the laboratory as QC samples to provide a measure of the accuracy of the laboratory method in the site matrix. Trip blanks were used to evaluate potential cross-contamination issues during sample transport, both in the field and to the laboratory. Details for the QC protocol were provided in the SAP (Woods Hole Group, 2010). The

samples were stored in a cooler on ice until delivery to the laboratory. Analysis of samples was performed by Alpha Analytical Laboratory in Westborough, Massachusetts.

Practical quantitation limits (PQL), also called laboratory reporting limits, for analysis of VOCs, SVOCs, and Lead were at or below the corresponding NYSDEC ASP (2005) contract required quantitation limits (CRQLs). No NYSDEC CRQLs are available for Explosives or Perchlorate; therefore, the project required reporting limits for these parameters have been set as the laboratory reporting limits or PQLs, as supported by the calibration curves for these methods. The PQL is equivalent to the low level calibration standard. The method detection limit (MDL), which is lower than the PQL, represents the lowest quantitation level that can be achieved for each substance by the specified method. In general, the PQLs are three to five times higher than the MDLs. The sample quantitation limit or reporting limit is analogous to the PQL; however, it is adjusted for sample-specific variables such as analytical dilutions. Results for the methods were reported down to the PQL or sample-specific lab Reporting Limits (RLs). For aqueous samples by EPA Methods 8260 (VOCs) and 8270 (SVOCs), the laboratory will report detected results below the PQL, down to the MDL, as estimated (qualified "J") data.

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3.0 RESULTS

The sampling activities and results from the October 2010 sampling event at Camp O'Ryan are described in this section. From October 18th to 21st, 2010, surface and shallow groundwater samples were collected from a total of 18 monitoring points across the site. All field data, site descriptions, and notes were collected on field data sheets, which are provided in Attachment 2. The locations of the surface water and shallow groundwater samples in the SOW were considered approximate, and the actual locations were determined during the field work with the concurrence of the USACE project geologist, Ken Heim. As a result, new GPS coordinates for the actual surface water sampling locations were taken and are presented in Figure 3. Laboratory analytical results for both the pore and surface water locations sampled during the October 2010 sampling event are provided in Attachment 3. A compilation of photographs taken of the site, equipment, field crew, and sampling activities can be found in Attachment 5.

3.1 SURFACE WATER SAMPLING

Surface water samples were collected from a total of three (3) of the four (4) proposed monitoring points across the site including SW-01, SW-03 and SW-04 (Figure 3). Site SW-02 on the north branch of the stream was not sampled because the streambed was dry in this location except for a stagnant pool. Surface water sampling took place prior to shallow groundwater sampling in the afternoon of October 18th since rain was forecasted for October 19th. There was a trace amount of precipitation recorded overnight on October 18th and during the day on the 19th. The weather conditions during the sampling period are summarized on Table 2. Weather data were obtained from North Java, NY, located 3 miles from the Camp O'Ryan site because this was the closest source for local weather data.

Site SW-01 was roughly 50 feet upstream of the culvert that runs underneath Wethersfield Road. Sites SW-02 and SW-03 were on the north branch and main branch of the stream, respectively, just upstream of their confluence. The stream ran through a marshy flood plain at the location of SW-03. Site SW-04 was the furthest upstream and in the middle of a steep, narrow ravine. The surface water sampling started at the furthest downstream sampling location, SW-01, and continued moving upstream to SW-03 and SW-04. The sampling technician remained on the channel bank downstream of the sampling location (facing upstream) while sampling to avoid disturbing the bottom sediments.

3.2 SHALLOW GROUNDWATER SAMPLING

Shallow groundwater samples were collected from fifteen (15) of the eighteen (18) proposed shallow groundwater locations during the October 2010 sampling event. Shallow groundwater sampling began on October 19th at the north branch of the stream starting with the composite shallow groundwater locations MP-04, MP-05, and MP-06, and followed by MP-07, MP-08, and MP-09. This section of the stream was very shallow, narrow (about a foot across), and had a slow flow, which is in contrast to the dry surface water sampling location, SW-02, located further downstream. This portion of the stream was also heavily vegetated and forested, which hampered sampling efforts. In

addition, the stream ended abruptly roughly 45 feet upstream of location MP-05 and there was no evidence of shallow groundwater upgradient of the end of the stream. As a result, shallow groundwater location MP-06 for composite group B was moved to a suitable sampling location downstream of MP-04. Similarly, both MP-08 and MP-09 were moved downstream due to a lack of suitable sampling locations in the proposed area. The pore water sampler could only be placed roughly a foot into the ground due to refusal.

With sampling completed on the northern branch of the stream, the sampling was continued October 20th on the main branch of the stream starting at the farthest upstream sampling location, MP-18 (composite group F). Sampling with a pore water sampler proved to be difficult in the upper portion of the main branch of the stream since it was set in a narrow, steep ravine with no clearly defined bank. The rockiness of the soil prevented the sampler from penetrating into the ground more than a foot. MP-17 was located on a silty deposit downstream from MP-18. MP-16 was not sampled due to a lack of suitable sampling locations. As a result, composite group F was composed of only two sampling locations, MP-18 and MP-17.

Composite group E proved to be easier to sample than group F, but sampling still remained difficult in the ravine. All three sample locations of composite group F including MP-13, MP-14, and MP-15, were sampled with the pore water sampler located close to the edge of the stream bank. The sampler could not penetrate the ground more than one foot due to rocks.

The ravine widened and gave way to a floodplain between composite groups E and D. Nonetheless, suitable sampling locations were limited resulting in only two locations sampled, MP-10 and MP-12. In this section, the stream had eroded a channel well below the grade of the surrounding floodplain, and, as a result, the pore water sampler could not penetrate deep enough to extract water on top of the floodplain due to refusal from a consolidated layer. A pool of surface water was found away from the bank near the location of MP-12; however, no seep water could be drawn with the pore water sampler from below the pool at this location. The water was simply pooled on top of a cohesive layer of the soil that had a consistency of mushy, dark clay. No suitable site for MP-11 could be found, so it was not sampled. MP-10 was taken by inserting the pore water sampler into an undercut bank along the stream bank.

Composite Group A was composed of only two locations, MP-01 and MP-02, due to a lack of suitable locations along this stretch of stream. As with composite group D, the stream has eroded a channel well below that of the surrounding floodplain, and the pore water sampler could not penetrate deep enough to extract water on top of the floodplain. MP-02 was taken on the stream bank adjacent to a washout with some surface water. Sampling was first attempted in the washout; however, no water could be drawn. The sampling was moved closer to the edge of the stream bank. Site MP-01 was characterized by a seep face set in a steep slope composed of a hard claylike material. Sampling was performed at the base of the seep face.

3.3 SURFACE WATER AND SHALLOW GROUNDWATER PHYSICAL RESULTS

A summary of the field data parameters collected prior to sampling at each of the surface and shallow groundwater locations for the October 2010 sampling are provided in Table 3. The measurements of field parameters were compared with their NYSDEC water quality standards for classes 'A' and 'GA' for surface and groundwater, respectively. The measurements of field parameters from the shallow groundwater measurements were compared to the groundwater (GA) standard as there is not separate class for shallow groundwater or pore water. Overall, the field parameters indicated that the water quality for the surface and shallow groundwater samples collected during this field effort was acceptable. At this time there were no standards set for temperature, ORP or specific conductance, turbidity for surface water (A) or dissolved oxygen for groundwater (GA).

Temperature and specific conductance were much higher for the samples collected on the north branch of the stream MP-04 through MP-09 than on the main branch of the stream. ORP was highest in the upper section of the stream and lowest on the north branch of the stream. The dissolved oxygen measurements for surface water samples ranged from 10.64 mg/L to 12.75 mg/L, which were well above the standard of 4 mg/L. The dissolved oxygen in the shallow groundwater samples ranged from 1.70 mg/L to 8.87 mg/L, which is lower than the surface water samples as expected of shallow groundwater samples.

The pH measurements were within the TOGS standard range of 6.5 to 8.5 for all measurements except for SW-01, which had a pH reading of 6.26. The pH of the samples decreased with their respective downstream location. The pH was also lower on the north branch of the stream than it was on the main branch of the stream. The lower pH measurements downstream of the stream confluence may be an indicator of different groundwater sources feeding the upper section of the stream versus the lower section and north branch of the stream.

The NYSDEC turbidity standard was 5 NTU for groundwater, but there was no standard at this time for the surface water. The shallow groundwater measurements of turbidity actually exceeded the standard of 5 NTU for all locations except for MP-02, MP-06, and MP-13; however, this may be due to the limitations of the pore water sampling technique. Sediment may become mobilized when the pore water sampler is inserted into the ground, which causes the sediment to mix with the groundwater. The pore water sampler could only be inserted into the ground about a foot or so, and this top layer or soil tends be more active biologically and geologically causing this layer to be less consolidated and more easily mobilized as well. The turbidity of the surface water samples from the stream were much lower overall than the shallow groundwater samples, which supports the notion that the turbidity of the shallow groundwater samples is related to the sampling technique. In addition, the water class "GA" may be more appropriately applied towards established drinking water and monitoring wells, which are carefully constructed and can be sampled by less invasive techniques such as low flow sampling.

The stream dimensions and velocity were measured so that the flow rate could be calculated for each surface water sampling location. The average stream flow rate was estimated to be 60% of the product of the stream cross-sectional area and the stream

surface velocity, measured by timing a buoyant surface drifter/float over a measured distance, as outlined in the SAP. The flow rate was calculated to be 0.55 ft^3/s at SW-01, 0.25 ft^3/s at SW-03, and0.03 ft^3/s at SW-04. As expected, the flow rate increased at each successive downstream sampling location, which is an indication of a gaining stream. The stream dimensions, velocity and flow rate are shown in Table 4.

3.4 SURFACE WATER AND SHALLOW GROUNDWATER CHEMICAL RESULTS

The results were compared to applicable regulatory standards including the NYSDEC TOGS and EPA MCLs, which are summarized in Tables 5-1 and 5-2 for shallow groundwater and surface water, respectively. The standards for TOGS took precedent over the EPA MCLs, except where the MCLs were lower. In general, most of the analytes had standards listed under the NYSDEC TOGS, however, only a few of the analytes tested had standards listed under the EPA MCLs. The values for the NYS TOGS were selected from Table 1 "Ambient Water Quality Standards and Guidance Values, June 1998". A standard is a value that has been promulgated and placed into regulation, while a guidance value is a suggested criterion that has not been placed into regulation yet. A guidance value may only be used where a standard for a substance or group of substances has not been established. Selection of the appropriate standard or guidance value for a compound requires referring to the specific 'water class' and protection 'type' for the sample water source. Protection 'type' in the NYS TOGS was divided into four main categories for human health (H), fish health (A), wildlife health (W), and aesthetics (E). The protection 'type' selected for Camp O'Ryan was human health (H), and more specifically Health for a Water Source or 'H(WS)'. The specific 'water classes' chosen for the shallow groundwater and surface water samples were 'GA' for groundwater and 'A' for freshwater drinking water supply. The sample specific designations for 'water class' and 'type' were selected using guidance from the NYSDEC Region 9 office.

A number of compounds had no standard or guidance value listed under either the NYS TOGS or the EPA MCLs, therefore, these compounds do not have a standard at this time and are listed as 'NS' for in the summary tables. Other compounds were considered to be unregulated for groundwater by New York State, meaning they have no set standard or guidance value and are listed in Table 3 "Partial List of Substances Not Regulated by the Principal Organic Contaminant (POC) Groundwater Standard" of the NYS TOGS. These unregulated compounds are listed as 'NR' in the summary tables.

The results of the surface and shallow groundwater samples for the 2010 October sampling event were "Non-Detect" or "ND" for analyses including VOCs, SVOCs, explosives, perchlorate and both total and dissolved lead for almost all analyses (except as described below). This indicates that the concentrations were not detected at concentration below the RL. There was a single detection of total lead at 0.018 mg/L in the field duplicate sample for the shallow groundwater composite group MPE. The associated field sample was ND. This field duplicate comparison was acceptable by EPA Region 2 data validation standards and further details can be found in the Section 4 Data Quality. This detection of total lead in the duplicate sample of MPE was below the NYSDEC TOGS standard of 0.025 mg/L for groundwater (GA), but it did exceed the

EPA MCL of 0.015 mg/L. This result could be due to the entrainment of suspended particles containing lead during sampling as the turbidity was above the 5 NTU standard at two of the three sampling locations included in this composite sample. A summary of the results can be found in Tables 5-1 and 5-2 and complete laboratory analytical results can be found in Attachment 3.

The results for the SVOC analyte 2,4-dimethylphenol were rejected due to LCS/LCSD recoveries less than 10%. This data is not considered usable for project decisions. The lab commented in their report that this analyte is a problematic analyte to measure in the lab. Considering that SVOCs were not detected in any of the samples, it is not expected that 2,4-dimethylphenol would be present on site. Further details can be found in the Section 4 Data Quality.

All other SVOCs met the reporting limits specified in the approved SAP (NYSDEC ASP CRQLs, 2005). Note that these reporting limits for a number of analytes exceed their respective regulatory limits, as shown in the tables. Standard EPA methods were used for analysis of these samples.

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4.0 DATA QUALITY

4.1 SAMPLE CUSTODY, PRESERVATION, HOLDING TIME, AND LABORATORY DATA REVIEW

Samples were collected October 18th through 20th, 2011 and received at Alpha Analytical on October 21, 2010. The laboratory narrative confirms that all samples collected for the October 2010 sampling event were received under proper chain-of-custody (COC) procedures and with acceptable preservation as defined in Table 10 Sample Containers, Preservatives, and Holding Times of the SAP (October 2010). A copy of the login narrative is provided in Attachment 3. All samples were analyzed within the required method holding times. All samples were prepared and analyzed using the methods defined in Table 8 Analysis Methods and Project Data Quality Objectives of the SAP (October 2010), summarized as follows:

- EPA SW846 Method 8260B for the NYSDEC ASP Target Compound List (TCL) VOCs
- EPA SW846 Method 8270C for the NYSDEC TCL SVOCs
- EPA Method 332 for Perchlorate
- EPA SW846 Method 6010B for Lead
- EPA Method 8330A for 14 Explosive compounds

The lab processed and delivered the sample results in one sample delivery group (SDG) labeled L1016650. The laboratory performed a data review consistent with the procedures detailed in Section 5.3 of the SAP (October 2010) and the laboratory Quality Assurance Manual. Data reporting procedures were consistent with Section 5.4 and Table 8 of the SAP, with a minor deviation that not all results were reported in units of µg/L. VOCs, SVOCs, Explosives, and Perchlorate were reported in units of µg/L while Total and Dissolved Lead were reported in mg/L. These were acceptable reporting protocols for aqueous results for these parameters.

Additionally, there were several inconsistencies between the compound names used by the laboratory and those listed in Table 8 of the SAP. The laboratory reported "3-Methylphenol/4-Methylphenol" rather than "4-Methylphenol" since these two isomers co-elute. Three compounds were reported using common names not listed in Table 8 (IUPAC names used here) as follows: "N-nitrosodiphenylamine" was reported as "NitrosoDiPhenylAmine(NDPA)/DPA"; "4-Chloro-3-methylphenol" was reported as "p-Chloro-m-Cresol"; and "4,6-Dinitro-2-methylphenol" was reported as "4,6-Dinitro-o-cresol". The laboratory reported "m/p-Xylene" and "o-Xylene" instead of "Total Xylene"; therefore, 52 VOCs are reported rather than 51 compounds as listed in Table 8 and the ADR library files were updated accordingly. All these deviations were considered acceptable and do not adversely affect data quality.

As required in Section 5.4 of the SAP, the laboratory provided a narrative non-conformance summary, Stage 2a SEDD (xml) files, and laboratory data report for SDG L1016650 (in pdf format) including results, units, reporting limits, and summary QC.

4.2 DATA VALIDATION PROCESS

The Woods Hole Group team performed the QC data review and validation on samples analyzed by the contract laboratory in accordance with the August 2010 SOW and the October 2010 Sampling and Analysis Plan (SAP). The SEDD analytical data were evaluated utilizing v8.3 ADR software and the Camp O'Ryan project ADR Library created by CENAE and Alpha Analytical, based on the 2010 SAP. During the ADR evaluation, the ADR files were reviewed in the ADR Review Module. The software was used to generate non-conformance reports (error logs) and qualification reports, which can be found in Attachment 4.

Consistent with Section 5.8 of the 2010 SAP, NEH performed a targeted data validation review for each analysis method in SDG L1016650. This review consisted of: verification of sample identification preservation, and holding times; surrogate, LCS/LCSD, and MS/MSD recoveries; LCS/LCSD, MS/MSD/MD, and Field Duplicate precision; method and field blank contamination issues; and sensitivity of reported results compared to the SAP requirements. This review did not include an evaluation of instrument tunes, initial and continuing calibration results, internal standard recoveries, raw data, or include calculation verifications. The data validation checklists generated by NEH to document this targeted data validation are presented as the January 7, 2011 Data Validation Review reports for sample batch L1016650 (Attachment 4). NEH then reviewed the SEDD/ADR reports to verify that all issues affecting data quality identified in the targeted data validation were properly documented in the ADR/SEDD reports and reconciled issues found in these reports.

4.3 DATA VALIDATION RESULTS

Data Usability

All data, except for the 2,4-dimethylphenol results, are considered usable for project decisions with the understanding of the potential uncertainty in qualified (J and UJ) results. All results for the SVOC 2,4-dimethylphenol were rejected (qualified R) during data validation due to severe exceedance of the method QC measure of accuracy. Rejected results are considered unusable for project decisions. Overall, other QC results for all parameters indicated generally acceptable accuracy, precision, representativeness, and sensitivity of the results, with the following observations. Details for all issues described in this section were included in the data validation reports (Attachment 4).

Accuracy & Precision

For SVOCs, several compounds recovered below acceptance criteria in the MS and/or MSD or demonstrated imprecision in the LCS/LCSD or MS/MSD results. All results for 2,4-dimethylphenol were rejected (qualified R) and are not usable for project decisions based on LCS/LCSD recoveries < 10%. Other results were qualified as estimated (UJ). Data validation actions to qualify SVOC results were consistent with the ADR/SEDD Sample Qualification Report. Three compounds out of the 66 SVOCs listed in Table 8 of the SAP were not reported in the LCS/LCSD or MS/MSD. As the laboratory narrative did not indicate any nonconformance in calibration for these compounds, the data are

considered usable as reported. All qualified data are usable (with the exception of 2,4-dimethlyphenol) with low or indeterminate bias.

For VOCs, bromomethane recovered below acceptance criteria in the LCS/LCSD and MS/MSD results. All bromomethane results were estimated (UJ) and are usable with a potential low bias. Several other results were negated (U), as described below, or estimated (J) consistent with the ADR/SEDD Sample Qualification Report.

Potential for field sample contamination was evaluated using trip blank and equipment rinsate blank results. One trip blank for VOCs (CO-TB01-1010) and two equipment rinsate blanks (CO-EB01-1010 for surface water samples and CO-EB02-1010 for shallow groundwater samples), were submitted with the field samples. All parameters were ND in these blanks except as follows. Low levels of chloroform and acetone were detected in the equipment blanks and chloroform was also detected in the trip blank. Low level contamination of these VOCs are common in environmental analyses. The ADR reported estimated values (J) of chloroform below the RL in both equipment blanks; however, the software did not apply the required blank action. During data validation, blank actions were taken to negate (U) the chloroform results in both equipment blanks due to the presence of chloroform as a contaminant in the associated trip blank.

Additionally, the ADR software did not apply the correct qualification for two shallow groundwater samples based on the detected level of acetone in the associated equipment blank. The ADR reported two acetone results in samples CO-MP18-1010 and CO-MP18-1010-B qualified "UJ"; whereas the correct qualification is "U" due to blank actions.

For Explosives, professional judgment was used to estimate (qualify UJ) all results for methyl-2,4,6-trinitrophenylnitramine (Tetryl), rather than just the two results estimated as indicated in the ADR/SEDD Sample Qualification Report. This professional judgment was based on the MS/MSD evidence of matrix effects on accuracy and precision coupled with the QC exceedances in the continuing calibration results for Tetryl (as reported in the laboratory narrative). Tetryl results are usable as estimated values with indeterminate bias.

No data validation actions were required for Perchlorate, Total Lead, or Dissolved Lead as all QC measures of accuracy and precision met acceptance criteria.

Field Precision & Representativeness

Field duplicate (FD) precision and representativeness was evaluated based on results from the analysis of field samples as compared to results from the corresponding field duplicate samples. FD precision was expressed quantitatively in terms of relative percent difference (RPD). Three FD pairs were collected for VOCs and two FD pairs were collected each for SVOCs, Explosives, Perchlorate, and Lead. This FD frequency meets the SAP requirement of collection of 1 FD per 10 field samples.

Field duplicate results for VOCs, SVOCs, Explosives, Perchlorate, and Dissolved Lead were all ND. These ND results were consistent with each other and were considered

acceptable field duplicate precision and representativeness, though RPD could not be calculated. Total Lead was detected in one FD sample, CO-MPE-101B, at 0.018 mg/L while the result for its associated field sample, CO-MPE-1010, was ND at 0.010 U mg/L. The laboratory confirmed these results on re-analysis. Though these FD results did not meet the project requirement of RPD less than 30% (as defined in Table 8 of the SAP), they actually satisfied the EPA Region 2 metals data validation criteria (SOP HW-2, September 2006) for acceptable field duplicate precision. For values near the RL (at <5x RL), the EPA defined acceptable FD precision as the difference between the two results must be less than or equal to the contract required quantitation limit (CRQL), which for lead CRQL was 0.010 mg/L (equal to the RL of our data). The difference between the ND result and detected lead result was 0.008 mg/L, which was less than 0.010 mg/L and, therefore, meets EPA acceptance criteria.

These FD results were an indication of acceptable precision from sample collection through analysis and acceptable representativeness of the sample to the site locations for all types of aqueous samples collected.

Sensitivity

Sensitivity, in terms of achieving the CRQLs listed in Table 8 of the SAP, was met for all parameters with the following observations. For Explosives, all results were ND; however, the sample-specific reporting limits (RLs) were slightly greater than the Project RL of 0.25 µg/L (specified in the SAP); this was due to differences in extraction volumes (preparation factors). The achieved RLs were considered acceptable since they were all were below their associated TOGS, except for 2,6-dinitrotoluene for surface water; however, 2,6-dinitrotoluene would not have achieved the TOGS standard of 0.07 µg/L even at the original RL of 0.25 µg/L. For SVOCs, the following analytes exceeded their CRQLs given in Table 8, as expected, due to method limitations, but met the defined Project RLs: 1,2,4,5-tetrachlorobenzene, 2,4-dichlorophenol, 2,4-dimethylphenol, 2,4-dinitrophenol, 2-nitrophenol, 3,3'-dichlorobenzidine, 4,6-dinitro-2-methylphenol, acetophenone, hexachlorobutadiene, and hexachlorocyclopentadiene. For VOCs, 1,4-Dioxane exceeded its CRQL, due to method limitations. In addition, the RLs for a number of compounds exceeded their TOGS and/or MCLs due to method limitations. T compounds are shown in the date summary tables.

4.4 DATA VALIDATION ACTIONS RECONCILED WITH THE ADR

Upon completion of the ADR package and independent validation of the data by New Environmental Horizons (NEH), the following manual edits were made in the ADR software (explanations for these actions as discussed in Section 3.3.3 above):

- All Tetryl results for Explosives were estimated (UJ) and have indeterminate bias
- Chloroform in samples CO-EB01-1010 and CO-EB02-1010 were negated (U) at the RL (0.75 U µg/L)
- Acetone in samples CO-MP18-1010 and CO-MP18-1010-B were negated (U) at the RL (5 U µg/L)

The reviewed files were exported from the ADR software as reviewed EDDs and submitted for final approval by the CENAE.

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5.0 DISCUSSION

This section discusses the findings of the October 2010 shallow groundwater and surface water sampling event at Camp O'Ryan. The results from the October 2010 sampling event demonstrate that:

- Rainfall was minimal during and prior to the sampling event indicating that sampling occurred under base flow conditions.
- Measurements of the stream flow indicated that flow increased downstream, which is indicative of a gaining stream.
- The *in-situ* measurements of field parameters including ORP, pH, temperature, specific conductance, dissolved oxygen, and turbidity indicated acceptable water quality by NYSDEC standards; however, turbidity was high for a number of the shallow groundwater samples as a result of the sampling technique.
- All chemical data, except for the 2,4-dimethylphenol results, are considered usable for project decisions with the understanding of the potential uncertainty in qualified (J and UJ) results.
- The surface water samples collected from the stream were nondetect (ND) for the compounds analyzed indicating that contamination of the stream appears to minimal.
- The shallow groundwater sample results for the shallow groundwater locations were nondetect (ND) for the compounds analyzed (except as described in the following bullet) suggesting that the there is no impact due to prior site activities.
- The only detectable result was for total lead at 0.018 mg/L in the duplicate field sample for the shallow groundwater composite group MPE. Total lead was ND in its associated parent field sample. This could be the result of the entrainment of a small amount of sediment containing lead as the turbidity was elevated at several locations of this composite sample. This level of detection was below the NYSDEC TOGS standard of 0.025 mg/L but above its EPA MCL of 0.015 mg/L. The result of the field duplicate comparison does meet EPA Region 2 data validation criteria.
- The reporting limits for a number of the analytes exceeded their respective regulatory limits. The samples were analyzed using standard EPA methods.

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6.0 DEVIATIONS FROM THE SAMPLING ANALYSIS PLAN AND CONCLUSIONS

- A surface water sample could not be collected at the location of SW-02 since the stream was dry.
- Shallow groundwater samples could not be collected at three locations including MP-03, MP-11, MP-16, due to the underlying geology of the adjacent bank and general stream characteristics. This reduced the size of their associated composite groups.
- The sample-specific RLs for Explosives were greater than the project RL of 0.25 µg/L (specified in the SAP) due to differences in extraction volumes. However, the results for Explosives were ND at a level below their respective TOGS and/or MCLs and considered acceptable.
- The laboratory reported "m/p-Xylene" and "o-Xylene" instead of "Total Xylene"; therefore, 52 VOCs are reported rather than 51 compounds as listed in Table 8 of the SAP. The ADR library files were updated accordingly and found in Attachment 6 (on CD) of this report.

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7.0 REFERENCES

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ATTACHMENT 1 TABLES AND FIGURES

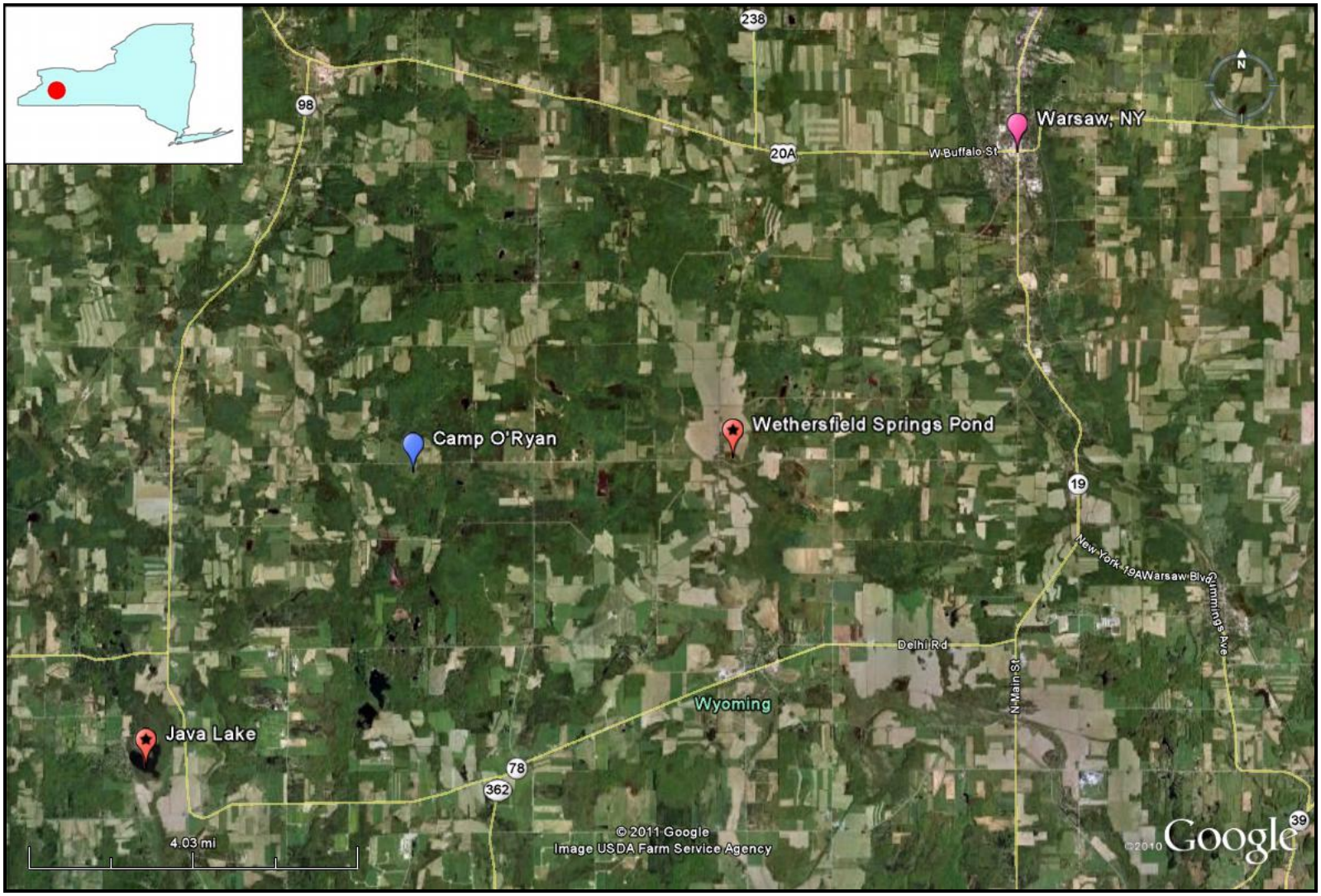

Figure 1. Regional map of Camp O'Ryan, Java Lake, Wethersfield Springs Pond and Warsaw, NY.

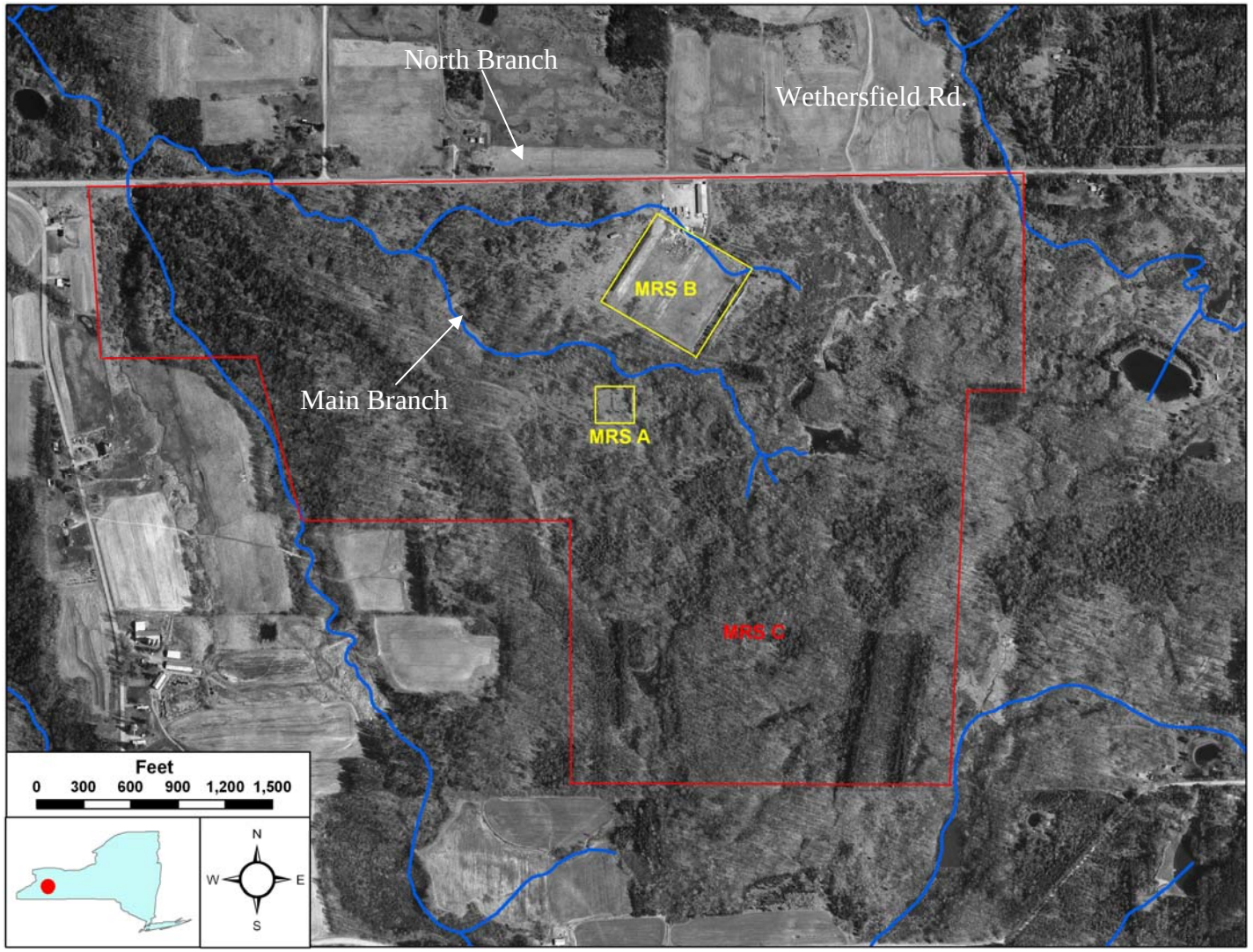

Figure 2. Former Camp O'Ryan Munitions Response Sites (MRS) A, B and C.

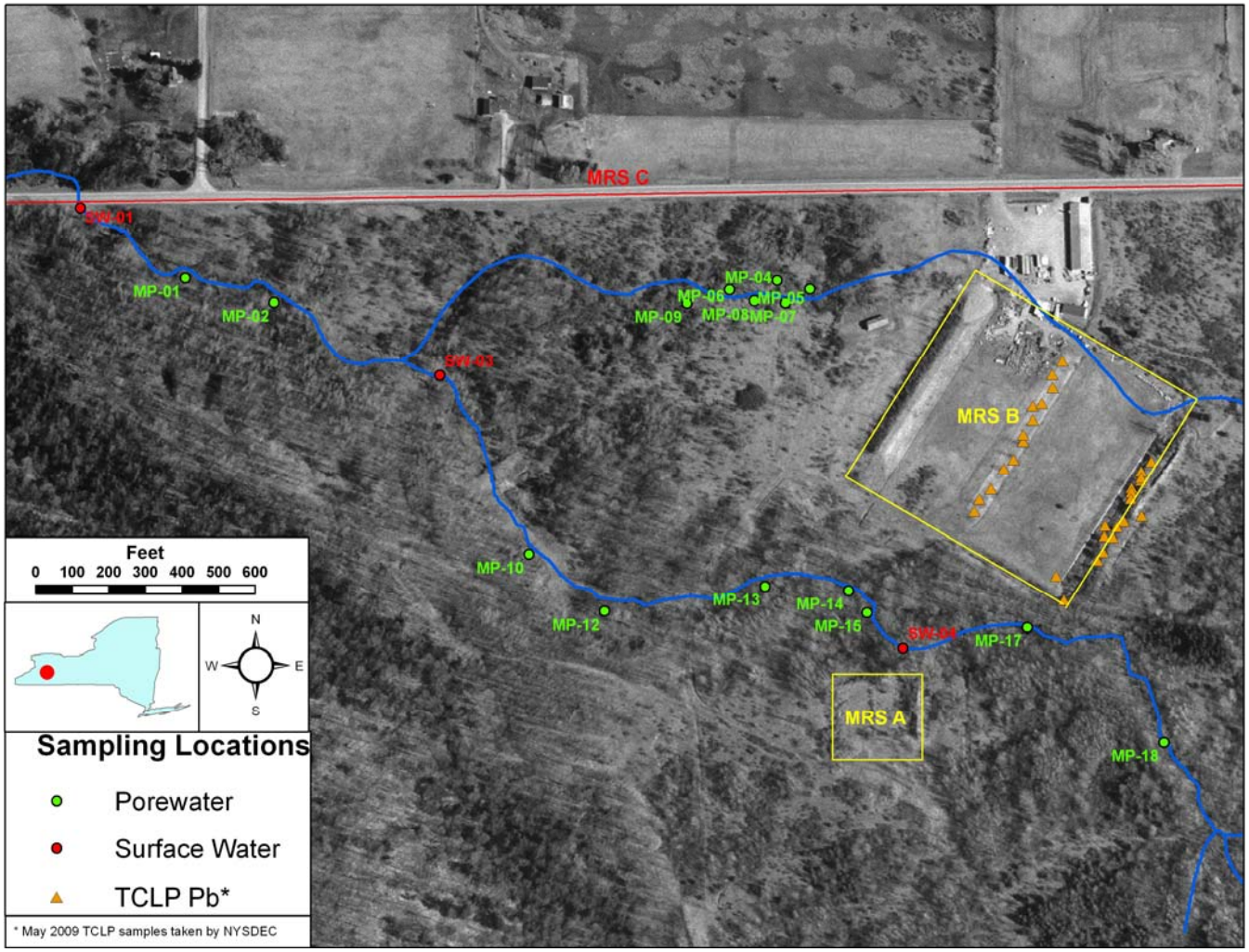

Figure 3. Sampling locations for the October 2010 surface and pore water samples and the May 2009 TCLP samples taken by NYSDEC.

Table 1. Summary of field sampling locations, samples, and rationale

ID	Composite Group	Field Measurement		Laboratory Analysis										Rationale
		Flow	*In Situ Data	Explosives (EPA 8330)		Perchlorate (EPA 6850 or 6860)		VOC (EPA 8260)		SVOC (EPA 8270)		Lead (Total/Diss.) (EPA 6010C)		
SW-1	NA	x	x	x	Grab	x	Grab	x	Grab	x	Grab	x	Grab	Confluence of stream reaches/ Camp O'Ryan Boundary
SW-2	NA	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	Streambed dry
SW-3	NA	x	x	x	Grab	x	Grab	x	Grab	x	Grab	x	Grab	Down gradient southwest stream reach
SW-4	NA	x	x	x	Grab	x	Grab	x	Grab	x	Grab	x	Grab	Up gradient southwest stream reach
MP-1	A	N/A	x	N/A	N/A	N/A	N/A	x	Grab	x	Comp.	N/A	N/A	Down gradient tank training course
MP-2	A	N/A	x	N/A	N/A	N/A	N/A	x	Grab	x		N/A	N/A	
MP-3	A	NS	NS	NS	NS	NS	NS	NS	NS	NS		NS	NS	
MP-4	B	N/A	x	N/A	N/A	N/A	N/A	x	Grab	x	Comp.	N/A	N/A	Down gradient motor pool
MP-5	B	N/A	x	N/A	N/A	N/A	N/A	x	Grab	x		N/A	N/A	
MP-6	B	N/A	x	N/A	N/A	N/A	N/A	x	Grab	x		N/A	N/A	
MP-7	C	N/A	x	x	Comp.	x	Comp.	N/A	N/A	N/A	N/A	x	Comp.	Down gradient known distance firing line and target line
MP-8	C	N/A	x	x		x		N/A	N/A	N/A	N/A	x		
MP-9	C	N/A	x	x		x		N/A	N/A	N/A	N/A	x		
MP-10	D	N/A	x	x	Comp.	x	Comp.	x	Grab	x	Comp.	x	Comp.	Down gradient possible cylinder burial area
MP-11	D	N/A	NS	NS		NS		NS	NS	NS		NS		
MP-12	D	N/A	x	x		x		x	Grab	x		x		
MP-13	E	N/A	x	x	Comp.	x	Comp.	N/A	N/A	N/A	N/A	x	Comp.	Down gradient pistol range
MP-14	E	N/A	x	x		x		N/A	N/A	N/A	N/A	x		
MP-15	E	N/A	x	x		x		N/A	N/A	N/A	N/A	x		
MP-16	F	N/A	NS	NS	Comp.	NS	Comp.	NS	NS	NS	Comp.	NS	Comp.	Down gradient possible demo pit/rocket range
MP-17	F	N/A	x	x		x		x	Grab	x		x		
MP-18	F	N/A	x	x		x		x	Grab	x		x		
Total	6	4	22	8		8		16		8		8		

NS = not sampled; NA = Not Applicable

Table 2. Weather conditions at North Java during sampling event.

Date in October 2010	Temperature (°F)	Humidity	Sea Level Pressure (in. Hg)	Wind Speed (MPH)	Precipitation (in.)	Conditions
18	47	63	29.98	6	Trace	Overcast; some precipitation overnight
19	49	69	29.89	8	Trace	Mostly Cloudy; brief and light precipitation in the afternoon
20	50	58	29.74	14	0.07	Partly Sunny and windy

Table 3. Sample location field data

Sampling Location ID	Sample Date	Composite Group	Latitude	Longitude	Sample Depth (ft)	Temperature (°C)	Specific Conductance[1] (µS/cm)	pH	ORP[2] (mV)	Dissolved Oxygen (mg/L)	Turbidity (NTU)
Surface Samples											
Standard[3]						**NA**	**NA**	**6.5–8.5**	**NA**	**4**	**NA**
SW-01	10/18/2010	NA	42° 41.068’	78° 17.327’	0.25	7.31	315	6.26	138.3	12.75	1.04
SW-03	10/18/2010	NA	42° 40.992’	78° 17.108’	0.22	8.72	305	7.80	49.0	10.64	5.14
SW-04	10/18/2010	NA	42° 40.868’	78° 16.826’	0.12	8.32	209	7.86	58.3	10.83	6.31
Porewater Samples (shallow groundwater)											
Standard[3]						**NA**	**NA**	**6.5–8.5**	**NA**	**NA**	**5**
MP-01	10/20/2010	A	42° 41.036’	78° 17.263’	0.70	7.62	303	6.97	121.4	1.70	27.6
MP-02	10/20/2010	A	42° 41.025’	78° 17.209’	0.85	9.22	352	6.99	164.4	2.83	4.85
MP-04	10/19/2010	B	42° 41.034’	78° 16.902’	1.68	11.21	553	6.85	195.7	2.42	97.6
MP-05	10/19/2010	B	42° 41.030’	78° 16.882’	0.80	10.52	650	7.06	59.6	8.65	48.5
MP-06	10/19/2010	B	42° 41.030’	78° 16.931’	0.90	10.08	458	7.19	38.5	4.60	3.76
MP-07	10/19/2010	C	42° 41.024’	78° 16.897’	1.03	10.85	579	7.07	110.0	1.75	47.50
MP-08	10/19/2010	C	42° 41.025’	78° 16.916’	0.79	10.61	463	7.13	18.1	2.09	23.80
MP-09	10/19/2010	C	42° 41.024’	78° 16.957’	0.95	9.99	433	6.87	107.1	2.13	44.6
MP-10	10/20/2010	D	42° 40.911’	78° 17.054’	0.67	9.05	268	7.58	145.5	8.87	184.0
MP-12	10/20/2010	D	42° 40.885’	78° 17.008’	0.75	8.98	269	7.03	104.3	1.98	53.5
MP-13	10/20/2010	E	42° 40.896’	78° 16.910’	0.85	9.26	294	6.99	100.0	7.30	3.70
MP-14	10/20/2010	E	42° 40.894’	78° 16.859’	0.92	8.96	284	7.31	141.1	3.10	81.1
MP-15	10/20/2010	E	42° 40.884’	78° 16.848’	0.90	8.38	236	7.23	150.7	8.20	5.49
MP-17	10/20/2010	F	42° 40.877’	78° 16.750’	0.94	7.97	141	7.15	257.6	4.51	13.0
MP-18	10/20/2010	F	42° 40.825’	78° 16.667’	0.72	7.65	114	7.93	354.6	7.10	60.8

Notes:

[1]MicroSiemens per centimeter (µS/cm) at 25°C.
[2]Oxidation-reduction potential (ORP) values have a SHE-correction of 200 mV to correct to Eh.
[3]NYSDEC Standard.
NTU = nephelometric turbidity unit
mg/L = Milligrams per liter
°C = degrees Celsius
pH = hydrogen ion concentration
mV = MilliVolt
NA = Not Applicable

Table 4. Stream dimensions, velocity and calculated flow rate.

Location	Stream width (ft)	Average Stream Depth (ft)	Average Stream Velocity (ft/s)	Stream flow rate (ft^3/s)
SW-01	3.0	0.50	0.61	0.55
SW-03	3.9	0.45	0.24	0.25
SW-04	3.2	0.25	0.10	0.03

Table 5-1
Shallow Groundwater Sample Results

Camp O'Ryan,
Wethersfield, NY

				Location Name	MPC		MPD		MPE		MPE		MPF	
				Sample ID	CO-MPC-1010		CO-MPD-1010		CO-MPE-1010		CO-MPE-1010-B		CO-MPF-1010	
				Sample Date	10/19/2010		10/20/2010		10/20/2010		10/20/2010		10/20/2010	
				QC Code	FS		FS		FS		FD		FS	
Parameter Name	**CAS #**	**NYS TOGS (Class GA)**	**EPA MCL**	**Units**	Result	Qualifier	Result	Qualifier	Result	Qualifier	Result	Qualifier	Result	Qualifier
Explosives by Method 8330														
1,3,5-TRINITROBENZENE	99-35-4	5[a]		µg/L	0.275	U	0.338	U	0.301	U	0.305	U	0.278	U
1,3-DINITROBENZENE	99-65-0	5[a]		µg/L	0.275	U	0.338	U	0.301	U	0.305	U	0.278	U
2,4,6-TRINITROTOLUENE	118-96-7	5[a]		µg/L	0.275	U	0.338	U	0.301	U	0.305	U	0.278	U
2,4-DINITROTOLUENE	121-14-2	5[a]		µg/L	0.275	U	0.338	U	0.301	U	0.305	U	0.278	U
2,6-DINITROTOLUENE	606-20-2	5[a]		µg/L	0.275	U	0.338	U	0.301	U	0.305	U	0.278	U
2-AMINO-4,6-DINITROTOLUENE	35572-78-2	NS		µg/L	0.275	U	0.338	U	0.301	U	0.305	U	0.278	U
2-NITROTOLUENE	88-72-2	5[a]		µg/L	0.275	U	0.338	U	0.301	U	0.305	U	0.278	U
3-NITROTOLUENE	99-08-1	5[a]		µg/L	0.275	U	0.338	U	0.301	U	0.305	U	0.278	U
4-AMINO-2,6-DINITROTOLUENE	19406-51-0	NS		µg/L	0.275	U	0.338	U	0.301	U	0.305	U	0.278	U
4-NITROTOLUENE	99-99-0	5[a]		µg/L	0.275	U	0.338	U	0.301	U	0.305	U	0.278	U
HEXAHYDRO-1,3,5-TRINITRO-1,3,5-TRIAZINE	121-82-4	NR		µg/L	0.275	U	0.338	U	0.301	U	0.305	U	0.278	U
METHYL-2,4,6-TRINITROPHENYLNITRAMINE	479-45-8	NS		µg/L	0.275	UJ	0.338	UJ	0.301	UJ	0.305	UJ	0.278	UJ
NITROBENZENE	98-95-3	0.4[a]		µg/L	0.275	U	0.338	U	0.301	U	0.305	U	0.278	U
OCTAHYDRO-TETRANITRO-1,3,5,7-TETRAZOCINE	2691-41-0	NS		µg/L	0.275	U	0.338	U	0.301	U	0.305	U	0.278	U
Total & Dissolved Lead by Method 6010B														
Total Lead	7439-92-1	0.025[a]	0.015	mg/L	0.010	U	0.010	U	0.010	U	0.018		0.010	U
Dissolved Lead	7439-92-1	0.025[a]	0.015	mg/L	0.010	U	0.010	U	0.010	U	0.010	U	0.010	U
Perchlorate by Method 332														
Perchlorate	14797-73-0	NS	NS	µg/L	0.050	U	0.050	U	0.050	U	0.050	U	0.050	U

Notes

a - NYS TOGS 1.1.1 Table 1 Standard for groundwater class (GA) for source of drinking water type H(WS) (from: NYS Ambient Water Quality Standards and Guidance Values, June 1998)
b - NYS TOGS 1.1.1 Table 1 Guidance value for groundwater class (GA) for source of drinking water type H(WS) (from: NYS Ambient Water Quality Standards and Guidance Values, June 1998)

Shading indicates that the highlighted NYS TOGS and/or EPA MCL is exceeded
bold font indicates that the Reporting limit (RL) is greater than the associated regulatory standard (NYS TOGS and/or EPA MCL)
MCL = Maximum Contaminant Level. EPA National Primary Drinking Water Regulations, May 2009.
U = compound not detected; the associated value is the sample-specific reporting limit
UJ = compound not detected at an estimated reporting limit; the associated value is the sample-specific reporting limit; see the ADR and data validation report for details
J = result is an estimated value; see the ADR and data validation report for details
NS = No Standard. No applicable NYS TOGS regulatory standard or guidance value or EPA MCL available. Not listed in NYS Ambient Water Quality Standards & Guidance Values (TOGS 1998).
NR = Not Regulated. Listed in Table 3 of TOGS (NYS 1998) indicating that the compound is not regulated in groundwater.

Table 5-1
Shallow Groundwater Sample Results

Camp O'Ryan
Wethersfield, NY

				Location Name	MPA		MPA		MPB		MPD		MPF	
				Sample ID	CO-MPA-1010		CO-MPA-1010-B		CO-MPB-1010		CO-MPD-1010		CO-MPF-1010	
				Sample Date	10/20/2010		10/20/2010		10/19/2010		10/20/2010		10/20/2010	
				QC Code	FS		FD		FS		FS		FS	
Parameter Name	**CAS #**	**NYS TOGS (Class GA)**	**EPA MCL**	**Units**	Result	Qualifier	Result	Qualifier	Result	Qualifier	Result	Qualifier	Result	Qualifier
SVOCs by Method 8270C														
1,2,4,5-TETRACHLOROBENZENE	95-94-3	**5**[a]		µg/L	**20**	**U**	**20**	**U**	**20**	**U**	**20**	**UJ**	**20**	**U**
2,4,5-TRICHLOROPHENOL	95-95-4	NS		µg/L	5	U	5	U	5	U	5	UJ	5	U
2,4,6-TRICHLOROPHENOL	88-06-2	NS		µg/L	5	U	5	U	5	U	5	UJ	5	U
2,4-DICHLOROPHENOL	120-83-2	**5**[a]		µg/L	**10**	**U**	**10**	**U**	**10**	**U**	**10**	**UJ**	**10**	**U**
2,4-DIMETHYLPHENOL	105-67-9	50[b]		µg/L	R		R		R		R		R	
2,4-DINITROPHENOL	51-28-5	**10**[b]		µg/L	**30**	**U**	**30**	**U**	**30**	**U**	**30**	**U**	**30**	**U**
2,4-DINITROTOLUENE	121-14-2	5[a]		µg/L	5	U	5	U	5	U	5	UJ	5	U
2,6-DINITROTOLUENE	606-20-2	5[a]		µg/L	5	U	5	U	5	U	5	UJ	5	U
2-CHLORONAPHTHALENE	91-58-7	NS		µg/L	5	U	5	U	5	U	5	UJ	5	U
2-CHLOROPHENOL	95-57-8	NS		µg/L	5	U	5	U	5	U	5	UJ	5	U
2-METHYLNAPHTHALENE	91-57-6	NR		µg/L	5	U	5	U	5	U	5	UJ	5	U
2-METHYLPHENOL	95-48-7	NS		µg/L	5	U	5	U	5	UJ	5	UJ	5	UJ
2-NITROANILINE	88-74-4	5[a]		µg/L	5	U	5	U	5	U	5	UJ	5	U
2-NITROPHENOL	88-75-5	NS		µg/L	10	U	10	U	10	U	10	UJ	10	U
3,3'-DICHLOROBENZIDINE	91-94-1	**5**[a]		µg/L	**50**	**U**	**50**	**U**	**50**	**UJ**	**50**	**U**	**50**	**U**
3-NITROANILINE	99-09-2	5[a]		µg/L	5	U	5	U	5	U	5	U	5	U
4,6-DINITRO-2-METHYLPHENOL	534-52-1	NS		µg/L	20	U	20	U	20	U	20	UJ	20	U
4-BROMOPHENYL-PHENYLETHER	101-55-3	NR		µg/L	5	U	5	U	5	U	5	UJ	5	U
4-CHLORO-3-METHYLPHENOL	59-50-7	NS		µg/L	5	U	5	U	5	U	5	UJ	5	U
4-CHLOROANILINE	106-47-8	5[a]		µg/L	5	U	5	U	5	UJ	5	UJ	5	UJ
4-CHLOROPHENYL-PHENYLETHER	7005-72-3	NR		µg/L	5	U	5	U	5	U	5	UJ	5	U
4-METHYLPHENOL	106-44-5	NS		µg/L	5	U	5	U	5	UJ	5	UJ	5	UJ
4-NITROANILINE	100-01-6	5[a]		µg/L	5	U	5	U	5	U	5	U	5	U
4-NITROPHENOL	100-02-7	NS		µg/L	10	U	10	U	10	U	10	UJ	10	U
ACENAPHTHENE	83-32-9	NS		µg/L	5	U	5	U	5	U	5	UJ	5	U
ACENAPHTHYLENE	208-96-8	NR		µg/L	5	U	5	U	5	U	5	UJ	5	U
ACETOPHENONE	98-86-2	NR		µg/L	20	U	20	U	20	U	20	UJ	20	U
ANTHRACENE	120-12-7	50[b]		µg/L	5	U	5	U	5	U	5	UJ	5	U
ATRAZINE	1912-24-9	7.5[a]	**3**	µg/L	**5**	**U**	**5**	**U**	**5**	**U**	**5**	**U**	**5**	**U**
BENZALDEHYDE	100-52-7	NR		µg/L	5	U	5	U	5	U	5	U	5	U
BENZO(A)ANTHRACENE	56-55-3	**0.002**[b]		µg/L	**5**	**U**	**5**	**U**	**5**	**U**	**5**	**UJ**	**5**	**U**
BENZO(A)PYRENE	50-32-8	ND	**0.2**	µg/L	**5**	**U**	**5**	**U**	**5**	**U**	**5**	**UJ**	**5**	**U**
BENZO(B)FLUORANTHENE	205-99-2	**0.002**[b]		µg/L	**5**	**U**	**5**	**U**	**5**	**U**	**5**	**U**	**5**	**U**
BENZO(G,H,I)PERYLENE	191-24-2	NR		µg/L	5	U	5	U	5	U	5	UJ	5	U
BENZO(K)FLUORANTHENE	207-08-9	**0.002**[b]		µg/L	**5**	**U**	**5**	**U**	**5**	**U**	**5**	**UJ**	**5**	**U**
BIPHENYL	92-52-4	5[a]		µg/L	5	U	5	U	5	U	5	UJ	5	U

Table 5-1
Shallow Groundwater Sample Results

Camp O'Ryan
Wethersfield, NY

				Location Name	MPA		MPA		MPB		MPD		MPF	
				Sample ID	CO-MPA-1010		CO-MPA-1010-B		CO-MPB-1010		CO-MPD-1010		CO-MPF-1010	
				Sample Date	10/20/2010		10/20/2010		10/19/2010		10/20/2010		10/20/2010	
				QC Code	FS		FD		FS		FS		FS	
Parameter Name	**CAS #**	**NYS TOGS (Class GA)**	**EPA MCL**	**Units**	Result	Qualifier	Result	Qualifier	Result	Qualifier	Result	Qualifier	Result	Qualifier
SVOCs by Method 8270C (Continued)														
BIS(2-CHLOROETHOXY)METHANE	111-91-1	5[a]		µg/L	5	U	5	U	5	U	5	UJ	5	U
BIS(2-CHLOROETHYL) ETHER	111-44-4	**1[a]**		µg/L	**5**	**U**	**5**	**U**	**5**	**U**	**5**	**UJ**	**5**	**U**
BIS(2-CHLOROISOPROPYL) ETHER	108-60-1	5[a]		µg/L	5	U	5	U	5	U	5	UJ	5	UJ
BIS(2-ETHYLHEXYL) PHTHALATE	117-81-7	5[a]	6	µg/L	5	U	5	U	5	U	5	UJ	5	U
BUTYLBENZYL PHTHALATE	85-68-7	50[b]		µg/L	5	U	5	U	5	U	5	UJ	5	U
CAPROLACTAM	105-60-2	NR		µg/L	5	U	5	U	5	U	5	U	5	U
CARBAZOLE	86-74-8	NR		µg/L	5	U	5	U	5	U	5	UJ	5	U
CHRYSENE	218-01-9	**0.002[b]**		µg/L	**5**	**U**	**5**	**U**	**5**	**U**	**5**	**U**	**5**	**U**
DIBENZO(A,H)ANTHRACENE	53-70-3	NR		µg/L	5	U	5	U	5	U	5	UJ	5	U
DIBENZOFURAN	132-64-9	NR		µg/L	5	U	5	U	5	U	5	UJ	5	U
DIETHYL PHTHALATE	84-66-2	50[b]		µg/L	5	U	5	U	5	U	5	UJ	5	U
DIMETHYL PHTHALATE	131-11-3	50[b]		µg/L	5	U	5	U	5	U	5	UJ	5	U
DI-N-BUTYL PHTHALATE	84-74-2	50[a]		µg/L	5	U	5	U	5	U	5	UJ	5	U
DI-N-OCTYL PHTHALATE	117-84-0	50[b]		µg/L	5	U	5	U	5	U	5	UJ	5	U
FLUORANTHENE	206-44-0	50[b]		µg/L	5	U	5	U	5	U	5	UJ	5	U
FLUORENE	86-73-7	50[b]		µg/L	5	U	5	U	5	U	5	UJ	5	U
HEXACHLOROBENZENE	118-74-1	**0.04[a]**	**1**	µg/L	**5**	**U**	**5**	**U**	**5**	**U**	**5**	**UJ**	**5**	**U**
HEXACHLOROBUTADIENE	87-68-3	**0.5[a]**		µg/L	**10**	**U**	**10**	**U**	**10**	**U**	**10**	**UJ**	**10**	**UJ**
HEXACHLOROCYCLOPENTADIENE	77-47-4	**5[a]**	50	µg/L	**30**	**U**	**30**	**U**	**30**	**U**	**30**	**U**	**30**	**U**
HEXACHLOROETHANE	67-72-1	5[a]		µg/L	5	U	5	U	5	U	5	UJ	5	UJ
INDENO(1,2,3-CD)PYRENE	193-39-5	**0.002[b]**		µg/L	**5**	**U**	**5**	**U**	**5**	**U**	**5**	**UJ**	**5**	**U**
ISOPHORONE	78-59-1	50[b]		µg/L	5	U	5	U	5	U	5	UJ	5	U
NAPHTHALENE	91-20-3	NS		µg/L	5	U	5	U	5	U	5	UJ	5	U
NITROBENZENE	98-95-3	**0.4[a]**		µg/L	**5**	**U**	**5**	**U**	**5**	**U**	**5**	**UJ**	**5**	**U**
N-NITROSO-DI-N-PROPYLAMINE	621-64-7	NR		µg/L	5	U	5	U	5	U	5	UJ	5	U
N-NITROSODIPHENYLAMINE	86-30-6	50[b]		µg/L	5	U	5	U	5	U	5	UJ	5	U
PENTACHLOROPHENOL	87-86-5	NS	**1**	µg/L	**10**	**U**	**10**	**U**	**10**	**U**	**10**	**UJ**	**10**	**U**
PHENANTHRENE	85-01-8	50[b]		µg/L	5	U	5	U	5	U	5	UJ	5	U
PHENOL	108-95-2	NS		µg/L	5	U	5	U	5	U	5	UJ	5	UJ
PYRENE	129-00-0	50[b]		µg/L	5	U	5	U	5	U	5	UJ	5	U

Notes

a - NYS TOGS 1.1.1 Table 1 Standard for groundwater class (GA) for source of drinking water type H(WS) (from: NYS Ambient Water Quality Standards and Guidance Values, June 1998)
b - NYS TOGS 1.1.1 Table 1 Guidance value for groundwater class (GA) for source of drinking water type H(WS) (from: NYS Ambient Water Quality Standards and Guidance Values, June 1998)

Shading indicates that the highlighted NYS TOGS and/or EPA MCL is exceeded

bold font indicates that the Reporting limit (RL) is greater than the associated regulatory standard (NYS TOGS and/or EPA MCL)

ND = Non-Detect; as standard value from TOGS 1.1.1 Table 1
NS = No Standard. No applicable NYS TOGS regulatory standard or guidance value or EPA MCL available. Not listed in NYS Ambient Water Quality Standards & Guidance Values (TOGS 1998).
NR = Not Regulated. Listed in Table 3 of TOGS (NYS 1998) indicating that the compound is not regulated in groundwater.
MCL = Maximum Contaminant Level. EPA National Primary Drinking Water Regulations, May 2009.
U = compound not detected; the associated value is the sample-specific reporting limit
UJ = compound not detected at an estimated reporting limit; the associated value is the sample-specific reporting limit; see the ADR and data validation report for details
J = result is an estimated value; see the ADR and data validation report for details
R = result is rejected due to severe QC exceedance and is not usable for project decisions; see the ADR and data validation report for details.

Table 5-1
Shallow Groundwater Sample Results

Camp O'Ryan
Wethersfield, NY

					Location Name	MP-01		MP-02		MP-02		MP-04		MP-05		MP-06	
					Sample ID	CO-MP01-1010		CO-MP02-1010		CO-MP02-1010-B		CO-MP04-1010		CO-MP05-1010		CO-MP06-1010	
					Sample Date	10/20/2010		10/20/2010		10/20/2010		10/19/2010		10/19/2010		10/19/2010	
					QC Code	FS		FS		FD		FS		FS		FS	
Parameter Name	**CAS #**	**NYS TOGS (Class GA)**	**EPA MCL**	**Units**		Result	Qualifier	Result	Qualifier	Result	Qualifier	Result	Qualifier	Result	Qualifier	Result	Qualifier
VOCs by Method 8260																	
1,1,1-TRICHLOROETHANE	71-55-6	5[a]	200	µg/L		0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U
1,1,2,2-TETRACHLOROETHANE	79-34-5	5[a]		µg/L		0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U
1,1,2-TRICHLOROETHANE	79-00-5	1[a]	5	µg/L		0.75	U	0.75	U	0.75	U	0.75	U	0.75	U	0.75	U
1,1-DICHLOROETHANE	75-34-3	5[a]		µg/L		0.75	U	0.75	U	0.75	U	0.75	U	0.75	U	0.75	U
1,1-DICHLOROETHENE	75-35-4	5[a]	7	µg/L		0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U
1,2,3-TRICHLOROBENZENE	87-61-6	5[a]		µg/L		2	U	2	U	2	U	2	U	2	U	2	U
1,2,4-TRICHLOROBENZENE	120-82-1	5[a]	70	µg/L		2	U	2	U	2	U	2	U	2	U	2	U
1,2-DIBROMO-3-CHLOROPROPANE	96-12-8	**0.04[a]**	**0.2**	µg/L		**2**	**U**	**2**	**U**	**2**	**U**	**2**	**U**	**2**	**U**	**2**	**U**
1,2-DIBROMOETHANE	106-93-4	**0.0006[a]**		µg/L		**2**	**U**	**2**	**U**	**2**	**U**	**2**	**U**	**2**	**U**	**2**	**U**
1,2-DICHLOROBENZENE	95-50-1	3[a]		µg/L		2	U	2	U	2	U	2	U	2	U	2	U
1,2-DICHLOROETHANE	107-06-2	0.6[a]	5	µg/L		0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U
1,2-DICHLOROPROPANE	78-87-5	**1[a]**	5	µg/L		**1.8**	**U**	**1.8**	**U**	**1.8**	**U**	**1.8**	**U**	**1.8**	**U**	**1.8**	**U**
1,3-DICHLOROBENZENE	541-73-1	3[a]		µg/L		2	U	2	U	2	U	2	U	2	U	2	U
1,4-DICHLOROBENZENE	106-46-7	3[a]		µg/L		2	U	2	U	2	U	2	U	2	U	2	U
1,4-DIOXANE	123-91-1	NR		µg/L		250	U	250	U	250	U	250	U	250	U	250	U
2-BUTANONE	78-93-3	50[b]		µg/L		2	U	2	U	2	U	2	U	2	U	2	U
2-HEXANONE	591-78-6	50[b]		µg/L		2	U	2	U	2	U	2	U	2	U	2	U
4-METHYL-2-PENTANONE	108-10-1	NR		µg/L		2	U	2	U	2	U	2	U	2	U	2	U
ACETONE	67-64-1	50[b]		µg/L		5	U	5	U	5	U	5	U	5	U	5	U
BENZENE	71-43-2	1[a]	5	µg/L		0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U
BROMOCHLOROMETHANE	74-97-5	5[a]		µg/L		2	U	2	U	2	U	2	U	2	U	2	U
BROMODICHLOROMETHANE	75-27-4	50[b]		µg/L		0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U
BROMOFORM	75-25-2	50[b]		µg/L		2	U	2	U	2	U	2	U	2	U	2	U
BROMOMETHANE	74-83-9	5[a]		µg/L		1	UJ	1	UJ	1	UJ	1	UJ	1	UJ	1	UJ
CARBON DISULFIDE	75-15-0	NR		µg/L		2	U	2	U	2	U	2	U	2	U	2	U
CARBON TETRACHLORIDE	56-23-5	5[a]	5	µg/L		0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U
CHLOROBENZENE	108-90-7	5[a]	100	µg/L		0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U
CHLOROETHANE	75-00-3	5[a,c]		µg/L		1	U	1	U	1	U	1	U	1	U	1	U
CHLOROFORM	67-66-3	7[a]		µg/L		0.75	U	0.75	U	0.75	U	0.75	U	0.75	U	0.75	U
CHLOROMETHANE	74-87-3	5[a]		µg/L		2	U	2	U	2	U	2	U	2	U	2	U
CIS-1,2-DICHLOROETHENE	156-59-2	5[a]	70	µg/L		0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U
CIS-1,3-DICHLOROPROPENE	10061-01-5	**0.4[a,c]**		µg/L		**0.5**	**U**	**0.5**	**U**	**0.5**	**U**	**0.5**	**U**	**0.5**	**U**	**0.5**	**U**
CYCLOHEXANE	110-82-7	NS		µg/L		2	U	2	U	2	U	2	U	2	U	2	U
DIBROMOCHLOROMETHANE	124-48-1	50[b]		µg/L		0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U
DICHLORODIFLUOROMETHANE	75-71-8	5[a]		µg/L		2	U	2	U	2	U	2	U	2	U	2	U
ETHYLBENZENE	100-41-4	5[a]	700	µg/L		0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U

Table 5-1
Shallow Groundwater Sample Results

Camp O'Ryan
Wethersfield, NY

				Location Name	MP-01		MP-02		MP-02		MP-04		MP-05		MP-06	
				Sample ID	CO-MP01-1010		CO-MP02-1010		CO-MP02-1010-B		CO-MP04-1010		CO-MP05-1010		CO-MP06-1010	
				Sample Date	10/20/2010		10/20/2010		10/20/2010		10/19/2010		10/19/2010		10/19/2010	
				QC Code	FS		FS		FD		FS		FS		FS	
Parameter Name	**CAS #**	**NYS TOGS (Class GA)**	**EPA MCL**	**Units**	Result	Qualifier	Result	Qualifier	Result	Qualifier	Result	Qualifier	Result	Qualifier	Result	Qualifier
VOCs by Method 8260 (Continued)																
FREON 113	76-13-1	5[a]		µg/L	2	U	2	U	2	U	2	U	2	U	2	U
ISOPROPYLBENZENE	98-82-8	5[a]		µg/L	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U
m,p-Xylene[e]	108-38-3 /106-42-3	5[a]	10000[d]	µg/L	1	U	1	U	1	U	1	U	1	U	1	U
METHYL ACETATE	79-20-9	NR		µg/L	2	U	2	U	2	U	2	U	2	U	2	U
METHYL TERT-BUTYL ETHER	1634-04-4	NR		µg/L	1	U	1	U	1	U	1	U	1	U	1	U
METHYLCYCLOHEXANE	108-87-2	NS		µg/L	2	U	2	U	2	U	2	U	2	U	2	U
METHYLENE CHLORIDE	75-09-2	5[a]		µg/L	2	U	2	U	2	U	2	U	2	U	2	U
O-XYLENE	95-47-6	5[a]	10000[d]	µg/L	1	U	1	U	1	U	1	U	1	U	1	U
STYRENE	100-42-5	5[a]	100	µg/L	1	U	1	U	1	U	1	U	1	U	1	U
TETRACHLOROETHENE	127-18-4	5[a]	5	µg/L	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U
TOLUENE	108-88-3	5[a]	1000	µg/L	0.75	U	0.75	U	0.75	U	0.75	U	0.75	U	0.75	U
TRANS-1,2-DICHLOROETHENE	156-60-5	5[a]	100	µg/L	0.75	U	0.75	U	0.75	U	0.75	U	0.75	U	0.75	U
TRANS-1,3-DICHLOROPROPENE	10061-02-6	**0.4[a,c]**		µg/L	**0.5**	**U**	**0.5**	**U**	**0.5**	**U**	**0.5**	**U**	**0.5**	**U**	**0.5**	**U**
TRICHLOROETHENE	79-01-6	5[a]	5	µg/L	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U
TRICHLOROFLUOROMETHANE	75-69-4	5[a]		µg/L	2	U	2	U	2	U	2	U	2	U	2	U
VINYL CHLORIDE	75-01-4	2[a]	2	µg/L	1	U	1	U	1	U	1	U	1	U	1	U

Notes

a - NYS TOGS 1.1.1 Table 1 Standard for groundwater class (GA) for source of drinking water type H(WS) (from: NYS Ambient Water Quality Standards and Guidance Values, June 1998)
b - NYS TOGS 1.1.1 Table 1 Guidance value for groundwater class (GA) for source of drinking water type H(WS) (from: NYS Ambient Water Quality Standards and Guidance Values, June 1998)
c - standard value applies to sum of cis- and trans-1,3-dichloropropene
d - MCL applies to sum of total xylenes
e - based on 'p-' and 'm-' xylenes

Shading indicates that the highlighted NYS TOGS and/or EPA MCL is exceeded
bold font indicates that the Reporting limit (RL) is greater than the associated regulatory standard (NYS TOGS and/or EPA MCL)
NS = No Standard. No applicable NYS TOGS regulatory standard or guidance value or EPA MCL available. Not listed in NYS Ambient Water Quality Standards & Guidance Values (TOGS 1998).
NR = Not Regulated. Listed in Table 3 of TOGS (NYS 1998) indicating that the compound is not regulated in groundwater.
MCL = Maximum Contaminant Level. EPA National Primary Drinking Water Regulations, May 2009.
U = compound not detected; the associated value is the sample-specific reporting limit
J = result is an estimated value; see the ADR and data validation report for details
UJ = compound not detected at an estimated reporting limit; the associated value is the sample-specific reporting limit; see the ADR and data validation report for details

Table 5-1
Shallow Groundwater Sample Results

Camp O'Ryan
Wethersfield, NY

				Location Name	MP-10		MP-12		MP-17		MP-18		MP-18	
				Sample ID	CO-MP10-1010		CO-MP12-1010		CO-MP17-1010		CO-MP18-1010		CO-MP18-1010-B	
				Sample Date	10/20/2010		10/20/2010		10/20/2010		10/20/2010		10/20/2010	
				QC Code	FS		FS		FS		FS		FD	
Parameter Name	**CAS #**	**NYS TOGS (Class GA)**	**EPA MCL**	**Units**	Result	Qualifier	Result	Qualifier	Result	Qualifier	Result	Qualifier	Result	Qualifier
VOCs by Method 8260														
1,1,1-TRICHLOROETHANE	71-55-6	5[a]	200	µg/L	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U
1,1,2,2-TETRACHLOROETHANE	79-34-5	5[a]		µg/L	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U
1,1,2-TRICHLOROETHANE	79-00-5	1[a]	5	µg/L	0.75	U	0.75	U	0.75	U	0.75	U	0.75	U
1,1-DICHLOROETHANE	75-34-3	5[a]		µg/L	0.75	U	0.75	U	0.75	U	0.75	U	0.75	U
1,1-DICHLOROETHENE	75-35-4	5[a]	7	µg/L	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U
1,2,3-TRICHLOROBENZENE	87-61-6	5[a]		µg/L	2	U	2	U	2	U	2	U	2	U
1,2,4-TRICHLOROBENZENE	120-82-1	5[a]	70	µg/L	2	U	2	U	2	U	2	U	2	U
1,2-DIBROMO-3-CHLOROPROPANE	96-12-8	**0.04[a]**	**0.2**	µg/L	**2**	**U**	**2**	**U**	**2**	**U**	**2**	**U**	**2**	**U**
1,2-DIBROMOETHANE	106-93-4	**0.0006[a]**		µg/L	**2**	**U**	**2**	**U**	**2**	**U**	**2**	**U**	**2**	**U**
1,2-DICHLOROBENZENE	95-50-1	3[a]		µg/L	2	U	2	U	2	U	2	U	2	U
1,2-DICHLOROETHANE	107-06-2	0.6[a]	5	µg/L	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U
1,2-DICHLOROPROPANE	78-87-5	**1[a]**	5	µg/L	**1.8**	**U**	**1.8**	**U**	**1.8**	**U**	**1.8**	**U**	**1.8**	**U**
1,3-DICHLOROBENZENE	541-73-1	3[a]		µg/L	2	U	2	U	2	U	2	U	2	U
1,4-DICHLOROBENZENE	106-46-7	3[a]		µg/L	2	U	2	U	2	U	2	U	2	U
1,4-DIOXANE	123-91-1	NR		µg/L	250	U	250	U	250	U	250	U	250	U
2-BUTANONE	78-93-3	50[b]		µg/L	2	U	2	U	2	U	2	U	2	U
2-HEXANONE	591-78-6	50[b]		µg/L	2	U	2	U	2	U	2	U	2	U
4-METHYL-2-PENTANONE	108-10-1	NR		µg/L	2	U	2	U	2	U	2	U	2	U
ACETONE	67-64-1	50[b]		µg/L	5	U	5	U	5	U	5	U	5	U
BENZENE	71-43-2	1[a]	5	µg/L	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U
BROMOCHLOROMETHANE	74-97-5	5[a]		µg/L	2	U	2	U	2	U	2	U	2	U
BROMODICHLOROMETHANE	75-27-4	50[b]		µg/L	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U
BROMOFORM	75-25-2	50[b]		µg/L	2	U	2	U	2	U	2	U	2	U
BROMOMETHANE	74-83-9	5[a]		µg/L	1	UJ	1	U	1	U	1	U	1	U
CARBON DISULFIDE	75-15-0	NR		µg/L	2	U	2	U	2	U	2	U	2	U
CARBON TETRACHLORIDE	56-23-5	5[a]	5	µg/L	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U
CHLOROBENZENE	108-90-7	5[a]	100	µg/L	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U
CHLOROETHANE	75-00-3	5[a,c]		µg/L	1	U	1	U	1	U	1	U	1	U
CHLOROFORM	67-66-3	7[a]		µg/L	0.75	U	0.75	U	0.75	U	0.75	U	0.75	U
CHLOROMETHANE	74-87-3	5[a]		µg/L	2	U	2	U	2	U	2	U	2	U
CIS-1,2-DICHLOROETHENE	156-59-2	5[a]	70	µg/L	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U
CIS-1,3-DICHLOROPROPENE	10061-01-5	**0.4[a,c]**		µg/L	**0.5**	**U**	**0.5**	**U**	**0.5**	**U**	**0.5**	**U**	**0.5**	**U**
CYCLOHEXANE	110-82-7	NS		µg/L	2	U	2	U	2	U	2	U	2	U
DIBROMOCHLOROMETHANE	124-48-1	50[b]		µg/L	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U
DICHLORODIFLUOROMETHANE	75-71-8	5[a]		µg/L	2	U	2	U	2	U	2	U	2	U
ETHYLBENZENE	100-41-4	5[a]	700	µg/L	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U

Table 5-1
Shallow Groundwater Sample Results

Camp O'Ryan
Wethersfield, NY

					Location Name	MP-10		MP-12		MP-17		MP-18		MP-18	
					Sample ID	CO-MP10-1010		CO-MP12-1010		CO-MP17-1010		CO-MP18-1010		CO-MP18-1010-B	
					Sample Date	10/20/2010		10/20/2010		10/20/2010		10/20/2010		10/20/2010	
					QC Code	FS		FS		FS		FS		FD	
Parameter Name	**CAS #**	**NYS TOGS (Class GA)**	**EPA MCL**	**Units**	Result	Qualifier	Result	Qualifier	Result	Qualifier	Result	Qualifier	Result	Qualifier
VOCs by Method 8260 (Continued)														
FREON 113	76-13-1	5[a]		µg/L	2	U	2	U	2	U	2	U	2	U
ISOPROPYLBENZENE	98-82-8	5[a]		µg/L	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U
m,p-Xylene[e]	108-38-3 /106-42-3	5[a]	10000[d]	µg/L	1	U	1	U	1	U	1	U	1	U
METHYL ACETATE	79-20-9	NR		µg/L	2	U	2	U	2	U	2	U	2	U
METHYL TERT-BUTYL ETHER	1634-04-4	NR		µg/L	1	U	1	U	1	U	1	U	1	U
METHYLCYCLOHEXANE	108-87-2	NS		µg/L	2	U	2	U	2	U	2	U	2	U
METHYLENE CHLORIDE	75-09-2	5[a]		µg/L	2	U	2	U	2	U	2	U	2	U
O-XYLENE	95-47-6	5[a]	10000[d]	µg/L	1	U	1	U	1	U	1	U	1	U
STYRENE	100-42-5	5[a]	100	µg/L	1	U	1	U	1	U	1	U	1	U
TETRACHLOROETHENE	127-18-4	5[a]	5	µg/L	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U
TOLUENE	108-88-3	5[a]	1000	µg/L	0.75	U	0.75	U	0.75	U	0.75	U	0.75	U
TRANS-1,2-DICHLOROETHENE	156-60-5	5[a]	100	µg/L	0.75	U	0.75	U	0.75	U	0.75	U	0.75	U
TRANS-1,3-DICHLOROPROPENE	10061-02-6	**0.4**[a,c]		µg/L	**0.5**	**U**	**0.5**	**U**	**0.5**	**U**	**0.5**	**U**	**0.5**	**U**
TRICHLOROETHENE	79-01-6	5[a]	5	µg/L	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U
TRICHLOROFLUOROMETHANE	75-69-4	5[a]		µg/L	2	U	2	U	2	U	2	U	2	U
VINYL CHLORIDE	75-01-4	2[a]	2	µg/L	1	U	1	U	1	U	1	U	1	U

Notes

a - NYS TOGS 1.1.1 Table 1 Standard for groundwater class (GA) for source of drinking water type H(WS) (from:
b - NYS TOGS 1.1.1 Table 1 Guidance value for groundwater class (GA) for source of drinking water type H(WS)
c - standard value applies to sum of cis- and trans-1,3-dichloropropene
d - MCL applies to sum of total xylenes
e - based on 'p-' and 'm-' xylenes

Shading indicates that the highlighted NYS TOGS and/or EPA MCL is exceeded
bold font indicates that the Reporting limit (RL) is greater than the associated regulatory standard (NYS T
NS = No Standard. No applicable NYS TOGS regulatory standard or guidance value or EPA MCL available. Not
NR = Not Regulated. Listed in Table 3 of TOGS (NYS 1998) indicating that the compound is not regulated in grou
MCL = Maximum Contaminant Level. EPA National Primary Drinking Water Regulations, May 2009.
U = compound not detected; the associated value is the sample-specific reporting limit
J = result is an estimated value; see the ADR and data validation report for details
UJ = compound not detected at an estimated reporting limit; the associated value is the sample-specific reporting

Table 5-2
Surface Water
Sample Results

Camp O'Ryan,
Wethersfield, NY

				Location Name	SW01		SW03		SW03		SW04	
				Sample ID	CO-SW01-1010		CO-SW03-1010		CO-SW03-1010-E		CO-SW04-1010	
				Sample Date	10/18/2010		10/18/2010		10/18/2010		10/18/2010	
				QC Code	FS		FD		FD		FS	
Parameter Name	**CAS #**	**NYS TOGS (Class A)**	**EPA MCL**	**Units**	Result	Qualifier	Result	Qualifier	Result	Qualifier	Result	Qualifier
Explosives by Method 8330												
1,3,5-TRINITROBENZENE	99-35-4	5[b]		µg/L	0.287	U	0.291	U	0.281	U	0.291	U
1,3-DINITROBENZENE	99-65-0	5[b]		µg/L	0.287	U	0.291	U	0.281	U	0.291	U
2,4,6-TRINITROTOLUENE	118-96-7	5[b]		µg/L	0.287	U	0.291	U	0.281	U	0.291	U
2,4-DINITROTOLUENE	121-14-2	5[b]		µg/L	0.287	U	0.291	U	0.281	U	0.291	U
2,6-DINITROTOLUENE	606-20-2	**0.07[b]**		µg/L	**0.287**	**U**	**0.291**	**U**	**0.281**	**U**	**0.291**	**U**
2-AMINO-4,6-DINITROTOLUENE	35572-78-2	NS		µg/L	0.287	U	0.291	U	0.281	U	0.291	U
2-NITROTOLUENE	88-72-2	5[b]		µg/L	0.287	U	0.291	U	0.281	U	0.291	U
3-NITROTOLUENE	99-08-1	5[b]		µg/L	0.287	U	0.291	U	0.281	U	0.291	U
4-AMINO-2,6-DINITROTOLUENE	19406-51-0	NS		µg/L	0.287	U	0.291	U	0.281	U	0.291	U
4-NITROTOLUENE	99-99-0	5[a]		µg/L	0.287	U	0.291	U	0.281	U	0.291	U
HEXAHYDRO-1,3,5-TRINITRO-1,3,5-TRIAZINE	121-82-4	NS		µg/L	0.287	U	0.291	U	0.281	U	0.291	U
METHYL-2,4,6-TRINITROPHENYLNITRAMINE	479-45-8	NS		µg/L	0.287	UJ	0.291	UJ	0.281	UJ	0.291	UJ
NITROBENZENE	98-95-3	0.4[a]		µg/L	0.287	U	0.291	U	0.281	U	0.291	U
OCTAHYDRO-TETRANITRO-1,3,5,7-TETRAZOCINE	2691-41-0	NS		µg/L	0.287	U	0.291	U	0.281	U	0.291	U
Total & Dissolved Lead by Method 6010B												
Total Lead	7439-92-1	0.050[a]	0.015	mg/L	0.010	U	0.010	U	0.010	U	0.010	U
Dissolved Lead	7439-92-1	0.050[a]	0.015	mg/L	0.010	U	0.010	U	0.010	U	0.010	U
Perchlorate by Method 332												
Perchlorate	14797-73-0	NS	NS	µg/L	0.050	U	0.050	U	0.050	U	0.050	U

Notes

a - NYS TOGS 1.1.1 Table 1 Standard for surface water class (A) for source of drinking water type H(WS) (from: NYS Ambient Water Quality Standards and Guidance Values, June 1998)

b - NYS TOGS 1.1.1 Table 1 Guidance value for water class (A) for source of drinking water type H(WS) (from: NYS Ambient Water Quality Standards and Guidance Values, June 1998)

Shading indicates that the highlighted NYS TOGS and/or EPA MCL is exceeded

bold font indicates that the Reporting limit (RL) is greater than the associated regulatory standard (NYS TOGS and/or EPA MCL)

MCL = Maximum Contaminant Level. EPA National Primary Drinking Water Regulations, May 2009.

U = compound not detected; the associated value is the sample-specific reporting limit

J = result is an estimated value; see the ADR and data validation report for details

UJ = compound not detected at an estimated reporting limit; the associated value is the sample-specific reporting limit; see the ADR and data validation report for details

NS = No Standard. No applicable NYS TOGS regulatory standard or guidance value or EPA MCL available. Not listed in NYS Ambient Water Quality Standards & Guidance Values (TOGS 1998). Note that there are no EPA MCLs for any for any other compounds

Table 5-2
Surface Water
Sample Results

Camp O'Ryan
Wethersfield, NY

				Location Name	SW01		SW03		SW03		SW04	
				Sample ID	CO-SW01-1010		CO-SW03-1010		CO-SW03-1010-B		CO-SW04-1010	
				Sample Date	10/18/2010		10/18/2010		10/18/2010		10/18/2010	
				QC Code	FS		FS		FD		FS	
Parameter Name	**CAS #**	**NYS TOGS Class (A)**	**EPA MCL**	**Units**	Result	Qualifier	Result	Qualifier	Result	Qualifier	Result	Qualifier
SVOCs by Method 8270C												
1,2,4,5-TETRACHLOROBENZENE	95-94-3	**5**[b]		µg/L	**20**	**U**	**20**	**U**	**20**	**U**	**20**	**U**
2,4,5-TRICHLOROPHENOL	95-95-4	NS		µg/L	5	U	5	U	5	U	5	U
2,4,6-TRICHLOROPHENOL	88-06-2	NS		µg/L	5	U	5	U	5	U	5	U
2,4-DICHLOROPHENOL	120-83-2	**5**[b]		µg/L	**10**	**U**	**10**	**U**	**10**	**U**	**10**	**U**
2,4-DIMETHYLPHENOL	105-67-9	50[b]		µg/L		R		R		R		R
2,4-DINITROPHENOL	51-28-5	**10**[b]		µg/L	**30**	**U**	**30**	**U**	**30**	**U**	**30**	**U**
2,4-DINITROTOLUENE	121-14-2	5[b]		µg/L	5	U	5	U	5	U	5	U
2,6-DINITROTOLUENE	606-20-2	**0.07**[b]		µg/L	**5**	**U**	**5**	**U**	**5**	**U**	**5**	**U**
2-CHLORONAPHTHALENE	91-58-7	NS		µg/L	5	U	5	U	5	U	5	U
2-CHLOROPHENOL	95-57-8	NS		µg/L	5	U	5	U	5	U	5	U
2-METHYLNAPHTHALENE	91-57-6	NS		µg/L	5	U	5	U	5	U	5	U
2-METHYLPHENOL	95-48-7	NS		µg/L	5	UJ	5	U	5	U	5	U
2-NITROANILINE	88-74-4	5[b]		µg/L	5	U	5	U	5	U	5	U
2-NITROPHENOL	88-75-5	NS		µg/L	10	U	10	U	10	U	10	U
3,3'-DICHLOROBENZIDINE	91-94-1	**5**[b]		µg/L	**50**	**UJ**	**50**	**U**	**50**	**U**	**50**	**U**
3-NITROANILINE	99-09-2	5[b]		µg/L	5	U	5	U	5	U	5	U
4,6-DINITRO-2-METHYLPHENOL	534-52-1	NS		µg/L	20	U	20	U	20	U	20	U
4-BROMOPHENYL-PHENYLETHER	101-55-3	NS		µg/L	5	U	5	U	5	U	5	U
4-CHLORO-3-METHYLPHENOL	59-50-7	NS		µg/L	5	U	5	U	5	U	5	U
4-CHLOROANILINE	106-47-8	5[b]		µg/L	5	UJ	5	U	5	U	5	U
4-CHLOROPHENYL-PHENYLETHER	7005-72-3	NS		µg/L	5	U	5	U	5	U	5	U
4-METHYLPHENOL	106-44-5	NS		µg/L	5	UJ	5	U	5	U	5	U
4-NITROANILINE	100-01-6	5[b]		µg/L	5	U	5	U	5	U	5	U
4-NITROPHENOL	100-02-7	NS		µg/L	10	U	10	U	10	U	10	U
ACENAPHTHENE	83-32-9	NS		µg/L	5	U	5	U	5	U	5	U
ACENAPHTHYLENE	208-96-8	NS		µg/L	5	U	5	U	5	U	5	U
ACETOPHENONE	98-86-2	NS		µg/L	20	U	20	U	20	U	20	U
ANTHRACENE	120-12-7	50[b]		µg/L	5	U	5	U	5	U	5	U
ATRAZINE	1912-24-9	**3**[b]	**3**	µg/L	**5**	**U**	**5**	**U**	**5**	**U**	**5**	**U**
BENZALDEHYDE	100-52-7	NS		µg/L	5	U	5	U	5	U	5	U
BENZO(A)ANTHRACENE	56-55-3	**0.002**[b]		µg/L	**5**	**U**	**5**	**U**	**5**	**U**	**5**	**U**
BENZO(A)PYRENE	50-32-8	**0.002**[b]	**0.2**	µg/L	**5**	**U**	**5**	**U**	**5**	**U**	**5**	**U**
BENZO(B)FLUORANTHENE	205-99-2	**0.002**[b]		µg/L	**5**	**U**	**5**	**U**	**5**	**U**	**5**	**U**
BENZO(G,H,I)PERYLENE	191-24-2	NS		µg/L	5	U	5	U	5	U	5	U
BENZO(K)FLUORANTHENE	207-08-9	**0.002**[b]		µg/L	**5**	**U**	**5**	**U**	**5**	**U**	**5**	**U**
BIPHENYL	92-52-4	5[b]		µg/L	5	U	5	U	5	U	5	U

Table 5-2
Surface Water
Sample Results

Camp O'Ryan
Wethersfield, NY

				Location Name	SW01		SW03		SW03		SW04	
				Sample ID	CO-SW01-1010		CO-SW03-1010		CO-SW03-1010-B		CO-SW04-1010	
				Sample Date	10/18/2010		10/18/2010		10/18/2010		10/18/2010	
				QC Code	FS		FS		FD		FS	
Parameter Name	**CAS #**	**NYS TOGS Class (A)**	**EPA MCL**	**Units**	Result	Qualifier	Result	Qualifier	Result	Qualifier	Result	Qualifier
SVOCs by Method 8270C (Continued)												
BIS(2-CHLOROETHOXY)METHANE	111-91-1	5[b]		µg/L	5	U	5	U	5	U	5	U
BIS(2-CHLOROETHYL) ETHER	111-44-4	**0.03[b]**		µg/L	**5**	**U**	**5**	**U**	**5**	**U**	**5**	**U**
BIS(2-CHLOROISOPROPYL) ETHER	108-60-1	5[b]		µg/L	5	U	5	U	5	U	5	U
BIS(2-ETHYLHEXYL) PHTHALATE	117-81-7	5[a]	6	µg/L	5	U	5	U	5	U	5	U
BUTYLBENZYL PHTHALATE	85-68-7	50[b]		µg/L	5	U	5	U	5	U	5	U
CAPROLACTAM	105-60-2	NS		µg/L	5	U	5	U	5	U	5	U
CARBAZOLE	86-74-8	NS		µg/L	5	U	5	U	5	U	5	U
CHRYSENE	218-01-9	**0.002[b]**		µg/L	**5**	**U**	**5**	**U**	**5**	**U**	**5**	**U**
DIBENZO(A,H)ANTHRACENE	53-70-3	NS		µg/L	5	U	5	U	5	U	5	U
DIBENZOFURAN	132-64-9	NS		µg/L	5	U	5	U	5	U	5	U
DIETHYL PHTHALATE	84-66-2	50[b]		µg/L	5	U	5	U	5	U	5	U
DIMETHYL PHTHALATE	131-11-3	50[b]		µg/L	5	U	5	U	5	U	5	U
DI-N-BUTYL PHTHALATE	84-74-2	50[b]		µg/L	5	U	5	U	5	U	5	U
DI-N-OCTYL PHTHALATE	117-84-0	50[b]		µg/L	5	U	5	U	5	U	5	U
FLUORANTHENE	206-44-0	50[b]		µg/L	5	U	5	U	5	U	5	U
FLUORENE	86-73-7	50[b]		µg/L	5	U	5	U	5	U	5	U
HEXACHLOROBENZENE	118-74-1	**0.04[a]**	**1**	µg/L	**5**	**U**	**5**	**U**	**5**	**U**	**5**	**U**
HEXACHLOROBUTADIENE	87-68-3	**0.5[a]**		µg/L	**10**	**U**	**10**	**U**	**10**	**U**	**10**	**U**
HEXACHLOROCYCLOPENTADIENE	77-47-4	**5[b]**	50	µg/L	**30**	**U**	**30**	**U**	**30**	**U**	**30**	**U**
HEXACHLOROETHANE	67-72-1	5[a]		µg/L	5	U	5	U	5	U	5	U
INDENO(1,2,3-CD)PYRENE	193-39-5	**0.002[b]**		µg/L	**5**	**U**	**5**	**U**	**5**	**U**	**5**	**U**
ISOPHORONE	78-59-1	50[b]		µg/L	5	U	5	U	5	U	5	U
NAPHTHALENE	91-20-3	NS		µg/L	5	U	5	U	5	U	5	U
NITROBENZENE	98-95-3	**0.4[a]**		µg/L	**5**	**U**	**5**	**U**	**5**	**U**	**5**	**U**
N-NITROSO-DI-N-PROPYLAMINE	621-64-7	NS		µg/L	5	U	5	U	5	U	5	U
N-NITROSODIPHENYLAMINE	86-30-6	50[b]		µg/L	5	U	5	U	5	U	5	U
PENTACHLOROPHENOL	87-86-5	NS	**1**	µg/L	**10**	**U**	**10**	**U**	**10**	**U**	**10**	**U**
PHENANTHRENE	85-01-8	50[b]		µg/L	5	U	5	U	5	U	5	U
PHENOL	108-95-2	NS		µg/L	5	U	5	U	5	U	5	U
PYRENE	129-00-0	50[b]		µg/L	5	U	5	U	5	U	5	U

Notes

a - NYS TOGS 1.1.1 Table 1 Standard for water class (A) for source of drinking water type H(WS) (from: NYS Ambient Water Quality Standards and Guidance Values, June 1998)

b - NYS TOGS 1.1.1 Table 1 Guidance value for water class (A) for source of drinking water type H(WS) (from: NYS Ambient Water Quality Standards and Guidance Values, June 1998)

Shading indicates that the highlighted NYS TOGS and/or EPA MCL is exceeded

bold font indicates that the Reporting limit (RL) is greater than the associated regulatory standard (NYS TOGS and/or EPA MCL)

ND = Non-Detect; as standard value from TOGS 1.1.1 Table 1

NS = No Standard. No applicable NYS TOGS regulatory standard or guidance value or EPA MCL available. Not listed in NYS Ambient Water Quality Standards & Guidance Values (TOGS 1998).

MCL = Maximum Contaminant Level. EPA National Primary Drinking Water Regulations, May 2009.

U = compound not detected; the associated value is the sample-specific reporting limit

UJ = compound not detected at an estimated reporting limit; the associated value is the sample-specific reporting limit; see the ADR and data validation report for details

J = result is an estimated value; see the ADR and data validation report for details

R = result is rejected due to severe QC exceedance and is not usable for project decisions; see the ADR and data validation report for details.

Table 5-2
Surface Water
Sample Results

Camp O'Ryan
Wethersfield, NY

				Location Name	SW-01		SW-03		SW-03		SW-04	
				Sample ID	CO-SW01-1010		CO-SW03-1010		CO-SW03-1010-B		CO-SW04-1010-B	
				Sample Date	10/18/2010		10/18/2010		10/18/2010		10/18/2010	
				QC Code	FS		FS		FD		FS	
Parameter Name	**CAS #**	**NYS TOGS (Class A)**	**EPA MCL**	**Units**	Result	Qualifier	Result	Qualifier	Result	Qualifier	Result	Qualifier
VOCs by Method 8260												
1,1,1-TRICHLOROETHANE	71-55-6	5[a]	200	µg/L	0.5	U	0.5	U	0.5	U	0.5	U
1,1,2,2-TETRACHLOROETHANE	79-34-5	**0.2[b]**		µg/L	**0.5**	**U**	**0.5**	**U**	**0.5**	**U**	**0.5**	**U**
1,1,2-TRICHLOROETHANE	79-00-5	1[a]	5	µg/L	0.75	U	0.75	U	0.75	U	0.75	U
1,1-DICHLOROETHANE	75-34-3	5[a]		µg/L	0.75	U	0.75	U	0.75	U	0.75	U
1,1-DICHLOROETHENE	75-35-4	0.7[b]	7	µg/L	0.5	U	0.5	U	0.5	U	0.5	U
1,2,3-TRICHLOROBENZENE	87-61-6	5[b]		µg/L	2	U	2	U	2	U	2	U
1,2,4-TRICHLOROBENZENE	120-82-1	5[b]	70	µg/L	2	U	2	U	2	U	2	U
1,2-DIBROMO-3-CHLOROPROPANE	96-12-8	**0.04[a]**	**0.2**	µg/L	**2**	**U**	**2**	**U**	**2**	**U**	**2**	**U**
1,2-DIBROMOETHANE	106-93-4	**0.0006[a]**		µg/L	**2**	**U**	**2**	**U**	**2**	**U**	**2**	**U**
1,2-DICHLOROBENZENE	95-50-1	3[a]		µg/L	2	U	2	U	2	U	2	U
1,2-DICHLOROETHANE	107-06-2	0.6[a]	5	µg/L	0.5	U	0.5	U	0.5	U	0.5	U
1,2-DICHLOROPROPANE	78-87-5	**1[a]**	5	µg/L	**1.8**	**U**	**1.8**	**U**	**1.8**	**U**	**1.8**	**U**
1,3-DICHLOROBENZENE	541-73-1	3[a]		µg/L	2	U	2	U	2	U	2	U
1,4-DICHLOROBENZENE	106-46-7	3[a]		µg/L	2	U	2	U	2	U	2	U
1,4-DIOXANE	123-91-1	NS		µg/L	250	U	250	U	250	U	250	U
2-BUTANONE	78-93-3	50[b]		µg/L	2	U	2	U	2	U	2	U
2-HEXANONE	591-78-6	50[b]		µg/L	2	U	2	U	2	U	2	U
4-METHYL-2-PENTANONE	108-10-1	NS		µg/L	2	U	2	U	2	U	2	U
ACETONE	67-64-1	50[b]		µg/L	5	U	5	U	5	U	5	U
BENZENE	71-43-2	1[a]	5	µg/L	0.5	U	0.5	U	0.5	U	0.5	U
BROMOCHLOROMETHANE	74-97-5	5[a]		µg/L	2	U	2	U	2	U	2	U
BROMODICHLOROMETHANE	75-27-4	50[b]		µg/L	0.5	U	0.5	U	0.5	U	0.5	U
BROMOFORM	75-25-2	50[b]		µg/L	2	U	2	U	2	U	2	U
BROMOMETHANE	74-83-9	5[a]		µg/L	1	UJ	1	UJ	1	UJ	1	UJ
CARBON DISULFIDE	75-15-0	NS		µg/L	2	U	2	U	2	U	2	U
CARBON TETRACHLORIDE	56-23-5	**0.4[b]**	5	µg/L	**0.5**	**U**	**0.5**	**U**	**0.5**	**U**	**0.5**	**U**
CHLOROBENZENE	108-90-7	5[a]	100	µg/L	0.5	U	0.5	U	0.5	U	0.5	U
CHLOROETHANE	75-00-3	5[b]		µg/L	1	U	1	U	1	U	1	U
CHLOROFORM	67-66-3	7[a]		µg/L	0.75	U	0.75	U	0.75	U	0.75	U
CHLOROMETHANE	74-87-3	5[a]		µg/L	2	U	2	U	2	U	2	U
CIS-1,2-DICHLOROETHENE	156-59-2	5[a]	70	µg/L	0.5	U	0.5	U	0.5	U	0.5	U
CIS-1,3-DICHLOROPROPENE	10061-01-5	**0.4[a,c]**		µg/L	**0.5**	**U**	**0.5**	**U**	**0.5**	**U**	**0.5**	**U**
CYCLOHEXANE	110-82-7	NS		µg/L	2	U	2	U	2	U	2	U
DIBROMOCHLOROMETHANE	124-48-1	50[b]		µg/L	0.5	U	0.5	U	0.5	U	0.5	U
DICHLORODIFLUOROMETHANE	75-71-8	5[a]		µg/L	2	U	2	U	2	U	2	U
ETHYLBENZENE	100-41-4	5[a]	700	µg/L	0.5	U	0.5	U	0.5	U	0.5	U

Table 5-2
Surface Water
Sample Results

Camp O'Ryan
Wethersfield, NY

				Location Name	SW-01		SW-03		SW-03		SW-04	
				Sample ID	CO-SW01-1010		CO-SW03-1010		CO-SW03-1010-B		CO-SW04-1010-B	
				Sample Date	10/18/2010		10/18/2010		10/18/2010		10/18/2010	
				QC Code	FS		FS		FD		FS	
Parameter Name	**CAS #**	**NYS TOGS (Class A)**	**EPA MCL**	**Units**	Result	Qualifier	Result	Qualifier	Result	Qualifier	Result	Qualifier
VOCs by Method 8260 (Continued)												
FREON 113	76-13-1	5[a]		µg/L	2	U	2	U	2	U	2	U
ISOPROPYLBENZENE	98-82-8	5[b]		µg/L	0.5	U	0.5	U	0.5	U	0.5	U
m,p-Xylene[e]	108-38-3 /106-42-3	5[a]	10000[d]	µg/L	1	U	1	U	1	U	1	U
METHYL ACETATE	79-20-9	NS		µg/L	2	U	2	U	2	U	2	U
METHYL TERT-BUTYL ETHER	1634-04-4	NS		µg/L	1	U	1	U	1	U	1	U
METHYLCYCLOHEXANE	108-87-2	NS		µg/L	2	U	2	U	2	U	2	U
METHYLENE CHLORIDE	75-09-2	5[a]		µg/L	2	U	2	U	2	U	2	U
O-XYLENE	95-47-6	5[a]	10000[d]	µg/L	1	U	1	U	1	U	1	U
STYRENE	100-42-5	5[b]	100	µg/L	1	U	1	U	1	U	1	U
TETRACHLOROETHENE	127-18-4	0.7[b]	5	µg/L	0.5	U	0.5	U	0.5	U	0.5	U
TOLUENE	108-88-3	5[a]	1000	µg/L	0.75	U	0.75	U	0.75	U	0.75	U
TRANS-1,2-DICHLOROETHENE	156-60-5	5[a]	100	µg/L	0.75	U	0.75	U	0.75	U	0.75	U
TRANS-1,3-DICHLOROPROPENE	10061-02-6	**0.4[a,c]**		µg/L	**0.5**	**U**	**0.5**	**U**	**0.5**	**U**	**0.5**	**U**
TRICHLOROETHENE	79-01-6	5[a]	5	µg/L	0.5	U	0.5	U	0.5	U	0.5	U
TRICHLOROFLUOROMETHANE	75-69-4	5[a]		µg/L	2	U	2	U	2	U	2	U
VINYL CHLORIDE	75-01-4	**0.3[b]**	2	µg/L	**1**	**U**	**1**	**U**	**1**	**U**	**1**	**U**

Notes

a - NYS TOGS 1.1.1 Table 1 Standard for water class (A) for source of drinking water type H(WS) (from: NYS Ambient Water Quality Standards and Guidance Values, June 1998)

b - NYS TOGS 1.1.1 Table 1 Guidance value for water class (A) for source of drinking water type H(WS) (from: NYS Ambient Water Quality Standards and Guidance Values, June 1998)

c - standard value applies to sum of cis- and trans-1,3-dichloropropene

d - MCL applies to sum of total xylenes

e - based on 'p-' and 'm-' xylenes

Shading indicates that the highlighted NYS TOGS and/or EPA MCL is exceeded

bold font indicates that the Reporting limit (RL) is greater than the associated regulatory standard (NYS TOGS and/or EPA MCL)

NS = No Standard. No applicable NYS TOGS regulatory standard or guidance value or EPA MCL available. Not listed in NYS Ambient Water Quality Standards & Guidance Values (TOGS 1998).

MCL = Maximum Contaminant Level. EPA National Primary Drinking Water Regulations, May 2009.

U = compound not detected; the associated value is the sample-specific reporting limit

J = result is an estimated value; see the ADR and data validation report for details

UJ = compound not detected at an estimated reporting limit; the associated value is the sample-specific reporting limit; see the ADR and data validation report for details

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ATTACHMENT 2 FIELD LOGS (ON CD)

Health and Safety Plan Pre-Entry Briefing Attendance Form
Former Camp O'Ryan
Wethersfield, NY

Conducted by:	Nick Heley Greza	**Date Performed:**	10/18/10
Topics Discussed:	1. Review of the content of the HASP (Required)		
	2. Review of potential unexploded ordnance hazards		
	3. Slips, Trips, Falls		
	4.		

Printed Name	Signature	Representing
Mitchell Buck	Mitchell Buck	WHG
David Bailey		WHG
Nick Heley Greza		USACE

CONSULTANT: Woods Hole Group

FIELD DATA RECORD - SURFACE & PORE WATER

PROJECT: Camp O'Ryan | JOB NUMBER: TO-0031 | DATE: 10/18/10

LOCATION ID: SW-01 | ACTIVITY TIME: START 1100 END 1200 | BOTTLE TIME: 1131

SURFACE WATER DATA | WATER DEPTH AT LOCATION: surface FT | DEPTH OF SAMPLE: 0 FT

WATER QUALITY PARAMETERS:		EQUIPMENT USED:	TYPE OF SURFACE WATER:	DECON FLUIDS USED:
TEMPERATURE	7.31 °C	[ ] BEAKER	[X] STREAM/ RIVER	[ ] DI WATER
SPEC. COND.	0.315 mS/cm	[ ] PUSHPOINT SAMPLER	[ ] LAKE/ POND	[ ] POTABLE WATER
PH	6.26 Units	[ ] PERISTALTIC PUMP	[ ] SEEP	[ ] LIQUINOX
ORP	138.3 mV	[X] FILTER/ NUMBER 0.2/0.45		[ ] ISOPROPYL ALCOHOL
DO	12.75 mg/L	[X] OTHER syringe [ ] _____		[X] All disposed
TURBIDITY	1.04 NTUs			
SALINITY	NA %			

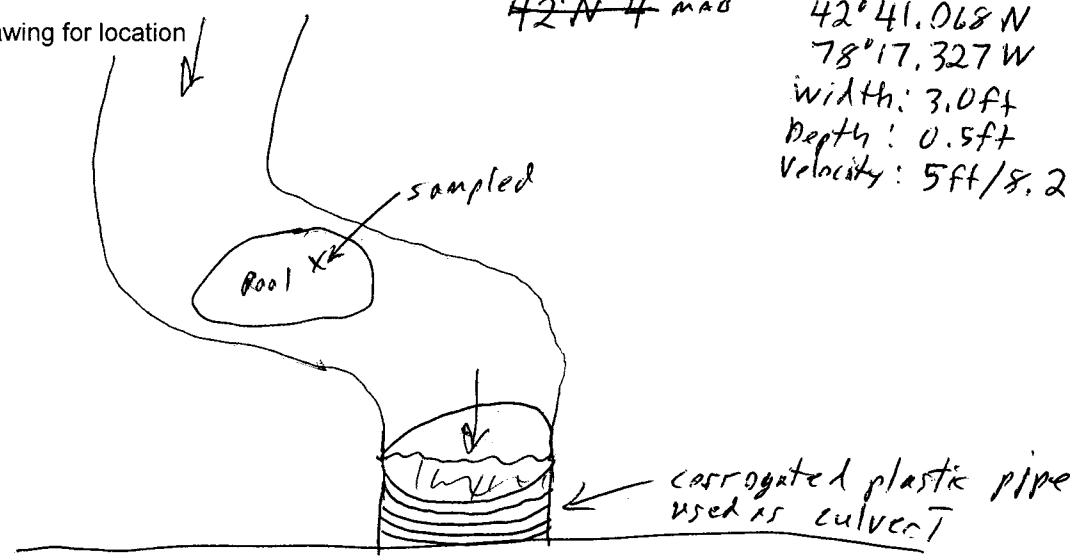
ANALYTICAL PARAMETERS

	ANALYSIS	ANALYSIS METHOD	PRESERVATION METHOD	BOTTLE TYPE AND VOLUME REQUIRED	SAMPLE COLLECTED	QC PERFORMED
[X]	Explosives	8330	none	2 x 1-L Amber Bottles	[X]	MS/MSD
[X]	SVOCs	8270C	none	2 x 1-L Amber Bottles	[X]	
[X]	VOCs	8260B	HCL	3 x 40-ml Vials	[X]	
[X]	Lead (total & dissolved)	6010B	HNO_3 ; 0.5-µm filter	1 x 125-ml bottle	[X]	
[X]	Perchlorate	EPA 332	0.2-µm filter	1 x 125-ml bacteria cup	[X]	

Drawing for location

~~42 N 4~~ MAB

42°41.068 N
78°17.327 W
width: 3.0ft
Depth: 0.5ft
Velocity: 5ft/8.2 sec's



Notes:
sampled upstream of culvert. Dip sampled Exp. & SVOC's. Used syringe as rest.

SIGNATURE: Matthew Reed

CONSULTANT: Woods Hole Group

FIELD DATA RECORD - SURFACE & PORE WATER

PROJECT: Camp O'Ryan | JOB NUMBER: TO-0031 | DATE: 10/18/10

LOCATION ID: SW-03 | ACTIVITY TIME: START 1325 END 1345 | BOTTLE TIME: 1330

SURFACE WATER DATA

WATER DEPTH AT LOCATION: Surface FT | DEPTH OF SAMPLE: 0 FT

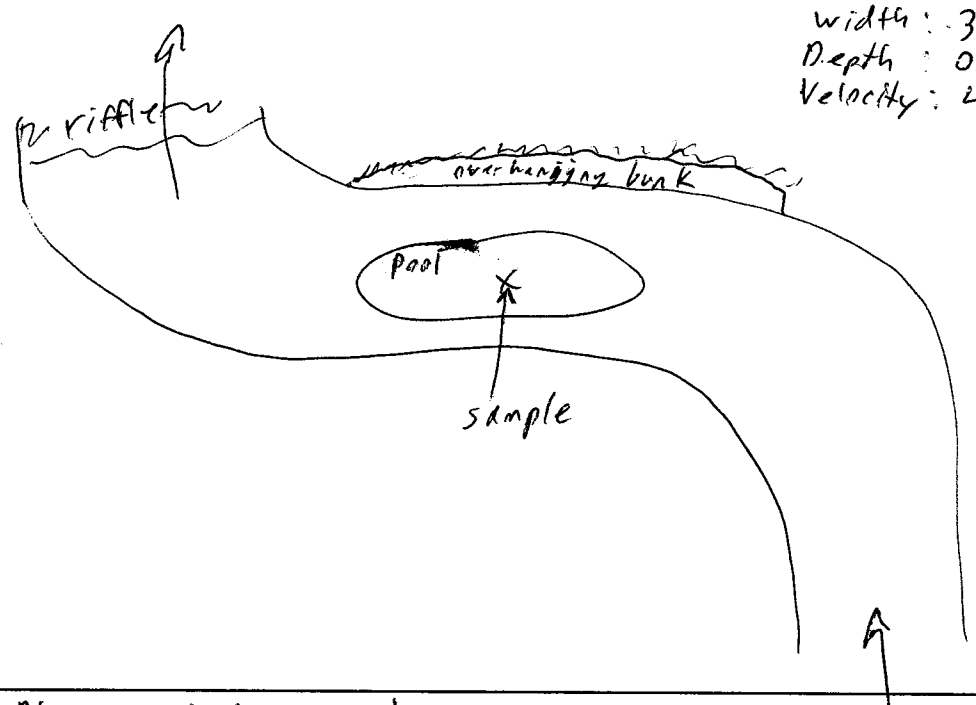
WATER QUALITY PARAMETERS:		EQUIPMENT USED:	TYPE OF SURFACE WATER:	DECON FLUIDS USED:
TEMPERATURE	8.72 °C	[ ] BEAKER	[X] STREAM/ RIVER	[ ] DI WATER
SPEC. COND.	0.305 mS/cm	[ ] PUSHPOINT SAMPLER	[ ] LAKE/ POND	[ ] POTABLE WATER
PH	7.80 Units	[ ] PERISTALTIC PUMP	[ ] SEEP	[ ] LIQUINOX
ORP	49 mV	[X] FILTER/ NUMBER 02/045		[ ] ISOPROPYL ALCOHOL
DO	10.64 mg/L	[X] OTHER syringe	[ ] _____	[X] All disposed
TURBIDITY	5.14 NTUs			
SALINITY	NA %			

ANALYTICAL PARAMETERS

	ANALYSIS	ANALYSIS METHOD	PRESERVATION METHOD	BOTTLE TYPE AND VOLUME REQUIRED	SAMPLE COLLECTED	QC PERFORMED
[X]	Explosives	8330	none	2 x 1-L Amber Bottles	[X]	Dup
[X]	SVOCs	8270C	none	2 x 1-L Amber Bottles	[X]	
[X]	VOCs	8260B	HCL	3 x 40-ml Vials	[X]	
[X]	Lead (total & dissolved)	6010B	HNO_3 ; 0.5-µm filter	1 x 125-ml bottle	[X]	
[X]	Perchlorate	EPA 332	0.2-µm filter	1 x 125-ml bacteria cup	[X]	

Drawing for location

42° 40.192 N
78° 17.108 W
width: 3.9 ft
Depth: 0.45 ft
Velocity: 4.23 sec/1 ft



Notes: Dip sampled Exp. & SVOC's, used syringe on rest.

SIGNATURE: Mitchell Beck

CONSULTANT: Woods Hole Group

FIELD DATA RECORD - SURFACE & PORE WATER

PROJECT: Camp O'Ryan | JOB NUMBER: TO-0031 | DATE: 10/18/10

LOCATION ID: SW-04 | ACTIVITY TIME: START 1520 END 1545 | BOTTLE TIME: 1525

SURFACE WATER DATA | WATER DEPTH AT LOCATION: surface FT | DEPTH OF SAMPLE: 0 FT

WATER QUALITY PARAMETERS:		EQUIPMENT USED:	TYPE OF SURFACE WATER:	DECON FLUIDS USED:
TEMPERATURE	8.32 °C	[ ] BEAKER	[X] STREAM/ RIVER	[ ] DI WATER
SPEC. COND.	0.209 mS/cm	[ ] PUSHPOINT SAMPLER	[ ] LAKE/ POND	[ ] POTABLE WATER
PH	7.86 Units	[ ] PERISTALTIC PUMP	[ ] SEEP	[ ] LIQUINOX
ORP	58.3 mV	[X] FILTER/ NUMBER 0.2/0.45		[ ] ISOPROPYL ALCOHOL
DO	10.83 mg/L	[X] OTHER syringe	[ ] _____	[ ] All disposed
TURBIDITY	6.31 NTUs			
SALINITY	NA %			

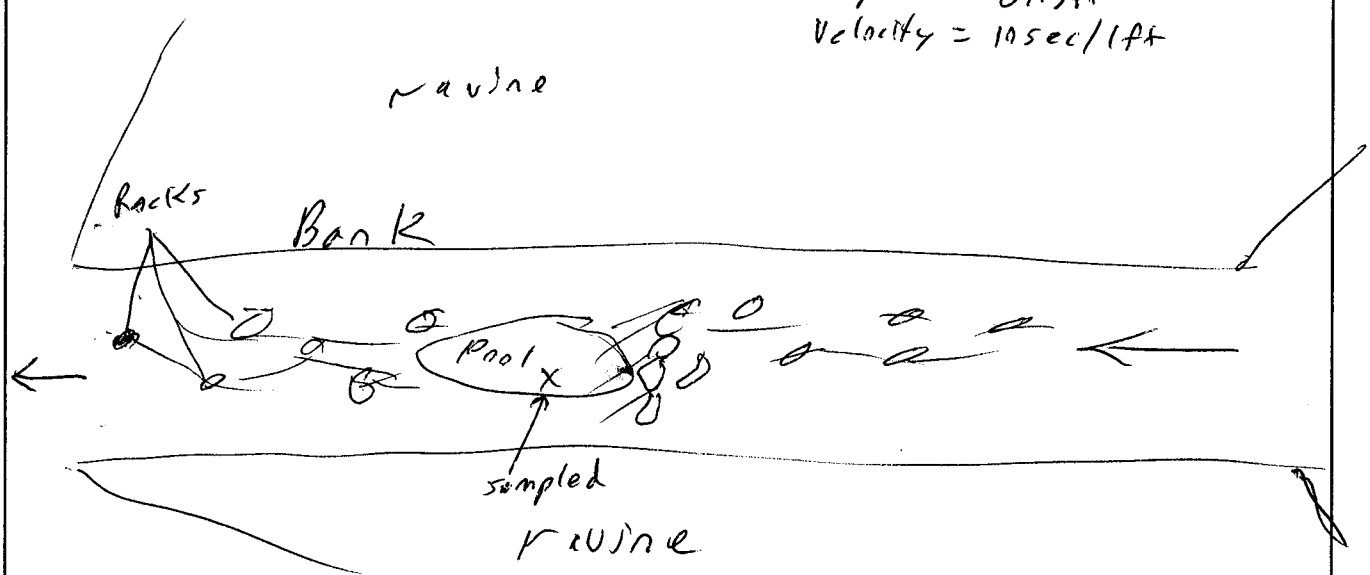
ANALYTICAL PARAMETERS

	ANALYSIS	ANALYSIS METHOD	PRESERVATION METHOD	BOTTLE TYPE AND VOLUME REQUIRED	SAMPLE COLLECTED	QC PERFORMED
[X]	Explosives	8330	none	2 x 1-L Amber Bottles	[X]	
[X]	SVOCs	8270C	none	2 x 1-L Amber Bottles	[X]	
[X]	VOCs	8260B	HCL	3 x 40-ml Vials	[X]	
[X]	Lead (total & dissolved)	6010B	HNO_3 ; 0.5-µm filter	1 x 125-ml bottle	[X]	
[X]	Perchlorate	EPA 332	0.2-µm filter	1 x 125-ml bacteria cup	[X]	

Drawing for location

42° 40.868'N
78° 16.826'W
width = 3.2 ft
Depth = 0.15 ft
Velocity = 10 sec/1 ft

N



Notes:
creek is small/narrow/shallow portion between banks covered with rocks & leaves. Moved downstream from coordinates to find suitable location. Dip sampled Exp. & SVOC's, and used syringe on ref.

SIGNATURE: [signature]

CONSULTANT: Woods Hole Group

FIELD DATA RECORD - SURFACE & PORE WATER

PROJECT: Camp O'Ryan | JOB NUMBER: TO-0031 | DATE: 10/20/10

LOCATION ID: MP-01 | ACTIVITY TIME: START 1750 END 1810 | BOTTLE TIME: 1805

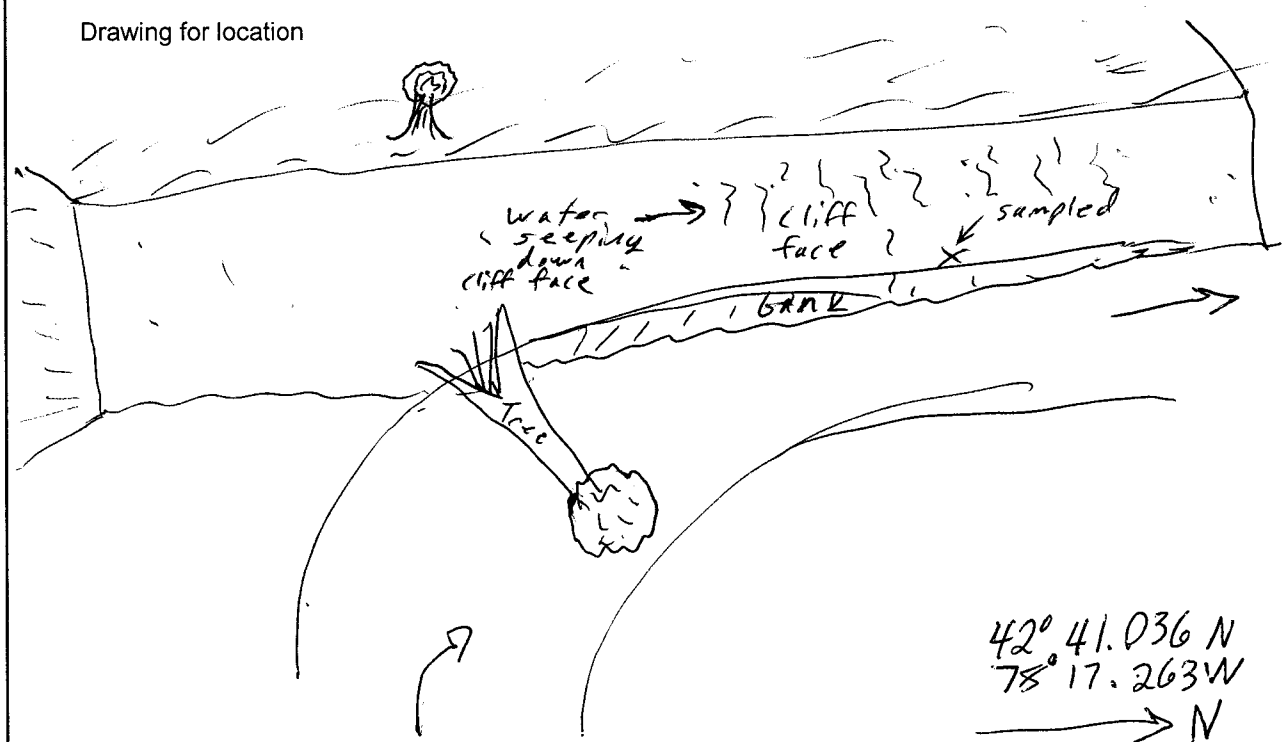
SURFACE WATER DATA | WATER DEPTH AT LOCATION: 0.7 FT | DEPTH OF SAMPLE: 0.7 FT

WATER QUALITY PARAMETERS:	After	EQUIPMENT USED:	TYPE OF SURFACE WATER:	DECON FLUIDS USED:
TEMPERATURE: 7.62 °C	7.49	[ ] BEAKER	[ ] STREAM/ RIVER	[X] DI WATER
SPEC. COND.: 0.303 mS/cm	0.306	[X] PUSHPOINT SAMPLER	[ ] LAKE/ POND	[X] POTABLE WATER
PH: 6.97 Units	7.39	[X] PERISTALTIC PUMP	[X] SEEP	[X] LIQUINOX
ORP: 121.4 mV	96.7	[ ] FILTER/ NUMBER ____		[X] ISOPROPYL ALCOHOL
DO: 1.70 mg/L	1.25	[ ] OTHER	[ ] _____	[X] _____
TURBIDITY: 27.6 NTUs	29.9			
SALINITY: NA %				

ANALYTICAL PARAMETERS

	ANALYSIS	ANALYSIS METHOD	PRESERVATION METHOD	BOTTLE TYPE AND VOLUME REQUIRED	SAMPLE COLLECTED	QC PERFORMED
[ ]	Explosives	8330	none	2 x 1-L Amber Bottles	[ ]	
[X]	SVOCs	8270C	none	2 x 1-L Amber Bottles	[X]	Dup
[X]	VOCs	8260B	HCL	3 x 40-ml Vials	[X]	
[ ]	Lead (total & dissolved)	6010B	HNO_3 ; 0.5-µm filter	1 x 125-ml bottle	[ ]	
[ ]	Perchlorate	EPA 332	0.2-µm filter	1 x 125-ml bacteria cup	[ ]	

Drawing for location



Notes: Composite Group A. Sampled base of cliff face which had obvious seep. Cliff composed hard compact clay. Sampled about 2 feet from bank

SIGNATURE: _____

CONSULTANT: Woods Hole Group

FIELD DATA RECORD - SURFACE & PORE WATER

PROJECT: Camp O'Ryan | JOB NUMBER: TO-0031 | DATE: 10/20/10

LOCATION ID: MP-02 | ACTIVITY TIME: START 1720 END 1745 | BOTTLE TIME: 1730

SURFACE WATER DATA | WATER DEPTH AT LOCATION: 0.85 FT | DEPTH OF SAMPLE: 0.85 FT

WATER QUALITY PARAMETERS:		After
TEMPERATURE	9.22 °C	9.03
SPEC. COND.	0.352 mS/cm	0.343
PH	6.99 Units	6.73
ORP	164.4 mV	145.4
DO	2.83 mg/L	2.26
TURBIDITY	4.85 NTUs	13.3
SALINITY	NA %	

EQUIPMENT USED:
- [ ] BEAKER
- [x] PUSHPOINT SAMPLER
- [x] PERISTALTIC PUMP
- [ ] FILTER/ NUMBER ____
- [ ] OTHER ____

TYPE OF SURFACE WATER:
- [ ] STREAM/ RIVER
- [ ] LAKE/ POND
- [x] SEEP

DECON FLUIDS USED:
- [x] DI WATER
- [x] POTABLE WATER
- [x] LIQUINOX
- [x] ISOPROPYL ALCOHOL
- [ ] ____

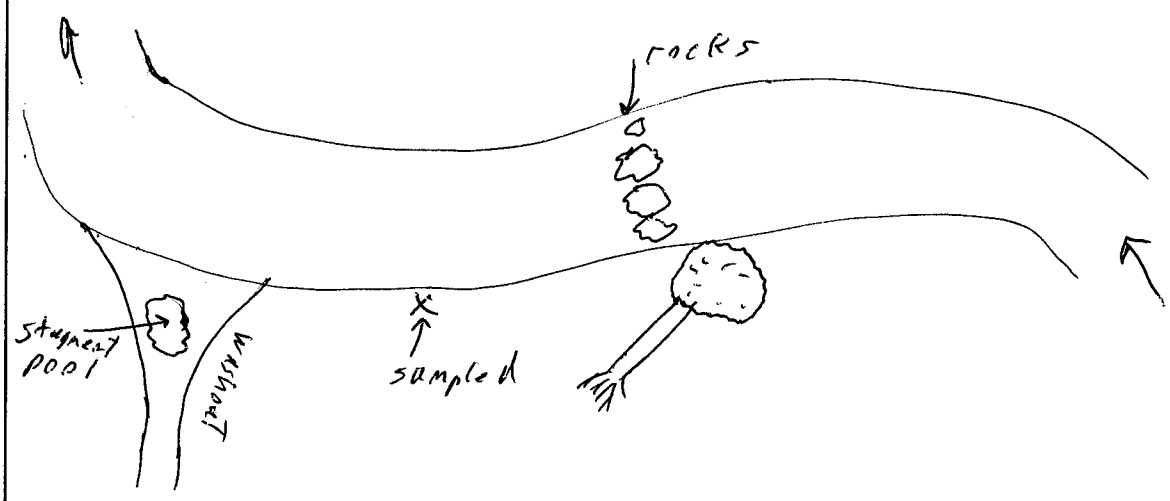
ANALYTICAL PARAMETERS

	ANALYSIS	ANALYSIS METHOD	PRESERVATION METHOD	BOTTLE TYPE AND VOLUME REQUIRED	SAMPLE COLLECTED	QC PERFORMED
[ ]	Explosives	8330	none	2 x 1-L Amber Bottles	[ ]	
[x]	SVOCs	8270C	none	2 x 1-L Amber Bottles	[x]	Dup
[x]	VOCs	8260B	HCL	3 x 40-ml Vials	[x]	Dup
[ ]	Lead (total & dissolved)	6010B	HNO_3 ; 0.5-µm filter	1 x 125-ml bottle	[ ]	
[ ]	Perchlorate	EPA 332	0.2-µm filter	1 x 125-ml bacteria cup	[ ]	

Drawing for location

42° 41.025' N
78° 17.209' W

N



Notes: Composite Group A. Sampled about a foot from stream.

SIGNATURE:

CONSULTANT: Woods Hole Group

FIELD DATA RECORD - SURFACE & PORE WATER

PROJECT: Camp O'Ryan | JOB NUMBER: TO-0031 | DATE: 10/19/10

LOCATION ID: MP-04 | ACTIVITY TIME: START 1025 END 1100 | BOTTLE TIME: 1045

SURFACE WATER DATA

WATER DEPTH AT LOCATION: 1.68 FT | DEPTH OF SAMPLE: 1.68 FT

WATER QUALITY PARAMETERS:		After
TEMPERATURE	11.21 °C	11.54
SPEC. COND.	0.553 mS/cm	0.555
PH	6.85 Units	6.87
ORP	125.7 mV	123.3
DO	2.42 mg/L	1.94
TURBIDITY	97.6 NTUs	34.1
SALINITY	NA %	

EQUIPMENT USED:
- [ ] BEAKER
- [x] PUSHPOINT SAMPLER
- [x] PERISTALTIC PUMP
- [ ] FILTER/ NUMBER ____
- [ ] OTHER ____

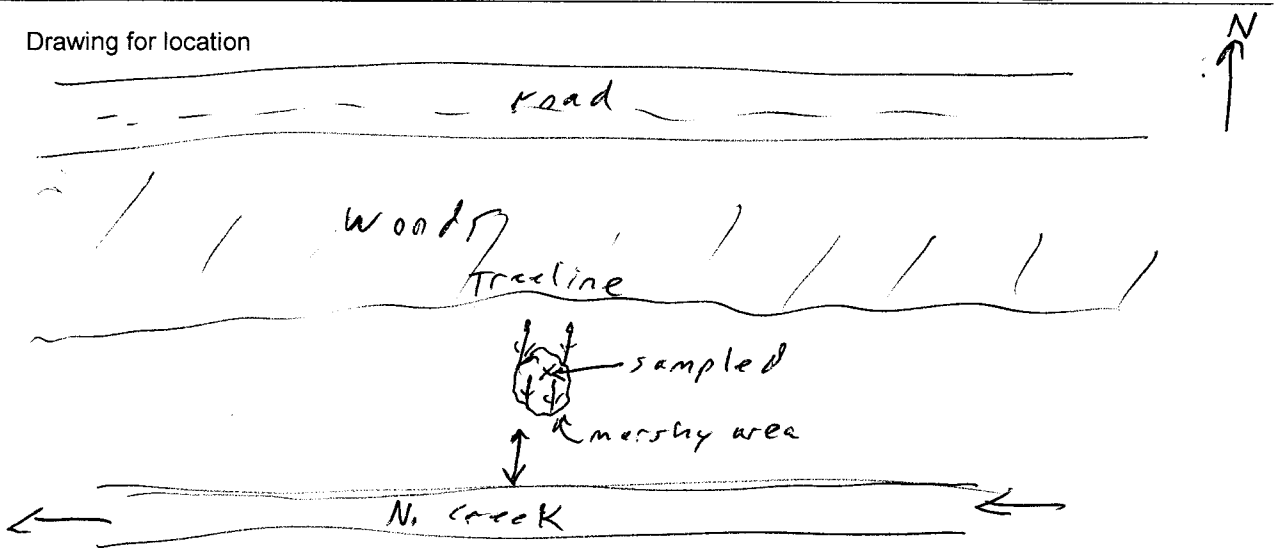
TYPE OF SURFACE WATER:
- [ ] STREAM/ RIVER
- [ ] LAKE/ POND
- [x] SEEP

DECON FLUIDS USED:
- [x] DI WATER
- [x] POTABLE WATER
- [x] LIQUINOX
- [x] ISOPROPYL ALCOHOL
- [ ] ____

ANALYTICAL PARAMETERS

	ANALYSIS	ANALYSIS METHOD	PRESERVATION METHOD	BOTTLE TYPE AND VOLUME REQUIRED	SAMPLE COLLECTED	QC PERFORMED
[ ]	Explosives	8330	none	2 x 1-L Amber Bottles	[ ]	
[x]	SVOCs	8270C	none	2 x 1-L Amber Bottles	[x]	MS/MSD
[x]	VOCs	8260B	HCL	3 x 40-ml Vials	[x]	
[ ]	Lead (total & dissolved)	6010B	HNO_3 ; 0.5-µm filter	1 x 125-ml bottle	[ ]	
[ ]	Perchlorate	EPA 332	0.2-µm filter	1 x 125-ml bacteria cup	[ ]	

Drawing for location



42° 41.034' N
78° 16.902' W

Notes: sampled marshy area ~25 ft from creek, composite group B

SIGNATURE: Matthew Bek

CONSULTANT: Woods Hole Group

FIELD DATA RECORD - SURFACE & PORE WATER

PROJECT: Camp O'Ryan | JOB NUMBER: TO-0031 | DATE: 10/19/10

LOCATION ID: MP-05 | ACTIVITY TIME: START 1109 END 1220 | BOTTLE TIME: 1148

SURFACE WATER DATA | WATER DEPTH AT LOCATION: 0.8 FT | DEPTH OF SAMPLE: 0.8 FT

WATER QUALITY PARAMETERS:		After
TEMPERATURE	10.52 °C	9.91
SPEC. COND.	0.650 mS/cm	0.631
PH	7.06 Units	7.18
ORP	-58.6 mV	13.1
DO	8.65 mg/L	8.63
TURBIDITY	48.5 NTUs	3.76
SALINITY	NA %	

EQUIPMENT USED:
- [ ] BEAKER
- [x] PUSHPOINT SAMPLER
- [x] PERISTALTIC PUMP
- [ ] FILTER/ NUMBER ____
- [ ] OTHER ____

TYPE OF SURFACE WATER:
- [ ] STREAM/ RIVER
- [ ] LAKE/ POND
- [x] SEEP

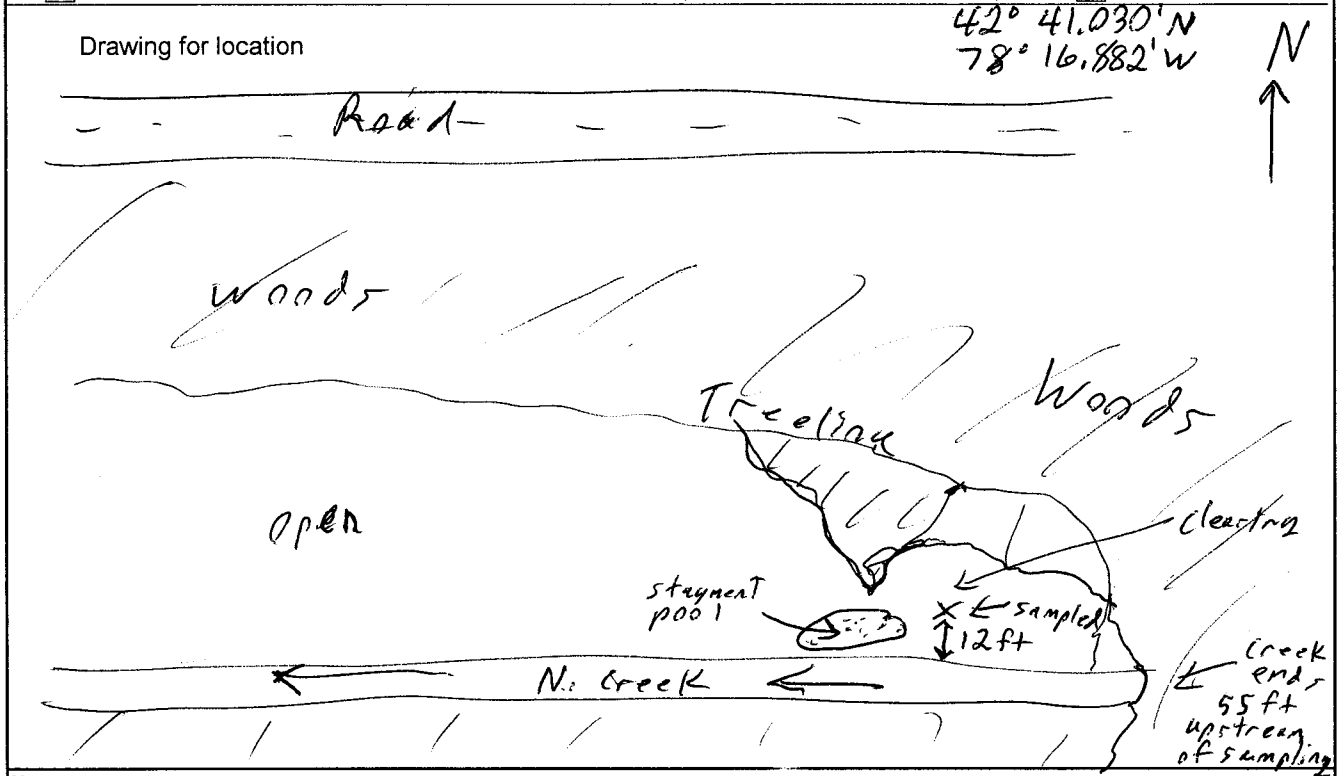
DECON FLUIDS USED:
- [x] DI WATER
- [x] POTABLE WATER
- [x] LIQUINOX
- [x] ISOPROPYL ALCOHOL
- [ ] ____

ANALYTICAL PARAMETERS

	ANALYSIS	ANALYSIS METHOD	PRESERVATION METHOD	BOTTLE TYPE AND VOLUME REQUIRED	SAMPLE COLLECTED	QC PERFORMED
[ ]	Explosives	8330	none	2 x 1-L Amber Bottles	[ ]	
[x]	SVOCs	8270C	none	2 x 1-L Amber Bottles	[x]	MS/MSD
[x]	VOCs	8260B	HCL	3 x 40-ml Vials	[x]	
[ ]	Lead (total & dissolved)	6010B	HNO_3 ; 0.5-µm filter	1 x 125-ml bottle	[ ]	
[ ]	Perchlorate	EPA 332	0.2-µm filter	1 x 125-ml bacteria cup	[ ]	

Drawing for location

42° 41.030' N
78° 16.882' W



Notes: Sampled 12ft north of creek. Soil has thick clay, hard to get sampler in. Heavily vegetated area. stagnant pool near by

Composite group B

SIGNATURE: _____

CONSULTANT: Woods Hole Group

FIELD DATA RECORD - SURFACE & PORE WATER

PROJECT: Camp O'Ryan | JOB NUMBER: TO-0031 | DATE: 10/20/10

LOCATION ID: MP-06 | ACTIVITY TIME: START 1250 END 1310 | BOTTLE TIME: 1305

SURFACE WATER DATA | WATER DEPTH AT LOCATION: 0.9 FT | DEPTH OF SAMPLE: 0.9 FT

WATER QUALITY PARAMETERS:		After
TEMPERATURE	10.08 °C	10.15
SPEC. COND.	0.458 mS/cm	0.451
PH	7.19 Units	7.12
ORP	38.5 mV	122.3
DO	4.60 mg/L	7.00
TURBIDITY	3.76 NTUs	9.68
SALINITY	NA %	

EQUIPMENT USED: [ ] BEAKER; [X] PUSHPOINT SAMPLER; [X] PERISTALTIC PUMP; [ ] FILTER/ NUMBER ____; [ ] OTHER ____

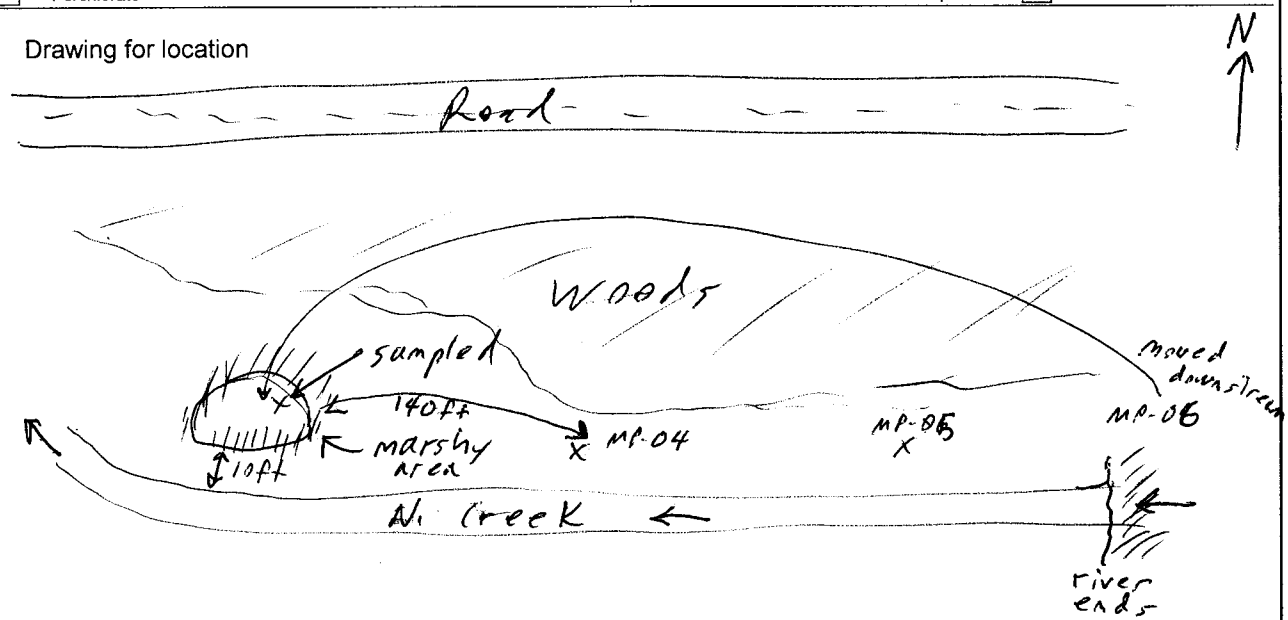
TYPE OF SURFACE WATER: [ ] STREAM/ RIVER; [ ] LAKE/ POND; [X] SEEP

DECON FLUIDS USED: [X] DI WATER; [X] POTABLE WATER; [X] LIQUINOX; [X] ISOPROPYL ALCOHOL; [ ] ____

ANALYTICAL PARAMETERS

	ANALYSIS	ANALYSIS METHOD	PRESERVATION METHOD	BOTTLE TYPE AND VOLUME REQUIRED	SAMPLE COLLECTED	QC PERFORMED
[ ]	Explosives	8330	none	2 x 1-L Amber Bottles	[ ]	
[X]	SVOCs	8270C	none	2 x 1-L Amber Bottles	[X]	MS/MSD
[X]	VOCs	8260B	HCL	3 x 40-ml Vials	[X]	
[ ]	Lead (total & dissolved)	6010B	HNO_3 ; 0.5-µm filter	1 x 125-ml bottle	[ ]	
[ ]	Perchlorate	EPA 332	0.2-µm filter	1 x 125-ml bacteria cup	[ ]	

Drawing for location



42°41.030' N
78°16.931' W

Notes: Composite Group B. Site moved downstream of coordinator due to river disappearing underground ~~140 ft~~ MAB 55 ft North of MP-05 and No luck sampling there, Site moved 140 ft downstream of MP-04; 10ft from creek

SIGNATURE: [signature]

CONSULTANT: Woods Hole Group

FIELD DATA RECORD - SURFACE & PORE WATER

PROJECT: Camp O'Ryan | JOB NUMBER: TO-0031 | DATE: 10/19/10

LOCATION ID: MP-07 | ACTIVITY TIME: START 1420 END 1500 | BOTTLE TIME: 1435

SURFACE WATER DATA | WATER DEPTH AT LOCATION: 1.03 FT | DEPTH OF SAMPLE: 1.03 FT

WATER QUALITY PARAMETERS:		After
TEMPERATURE	10.85 °C	10.62
SPEC. COND.	0.579 mS/cm	0.578
PH	7.07 Units	7.19
ORP	11.60 mV	-31.5
DO	1.75 mg/L	1.88
TURBIDITY	47.5 NTUs	115
SALINITY	NA %	

EQUIPMENT USED:
- [ ] BEAKER
- [X] PUSHPOINT SAMPLER
- [X] PERISTALTIC PUMP
- [X] FILTER/ NUMBER 0.2/0.45
- [X] OTHER syringe

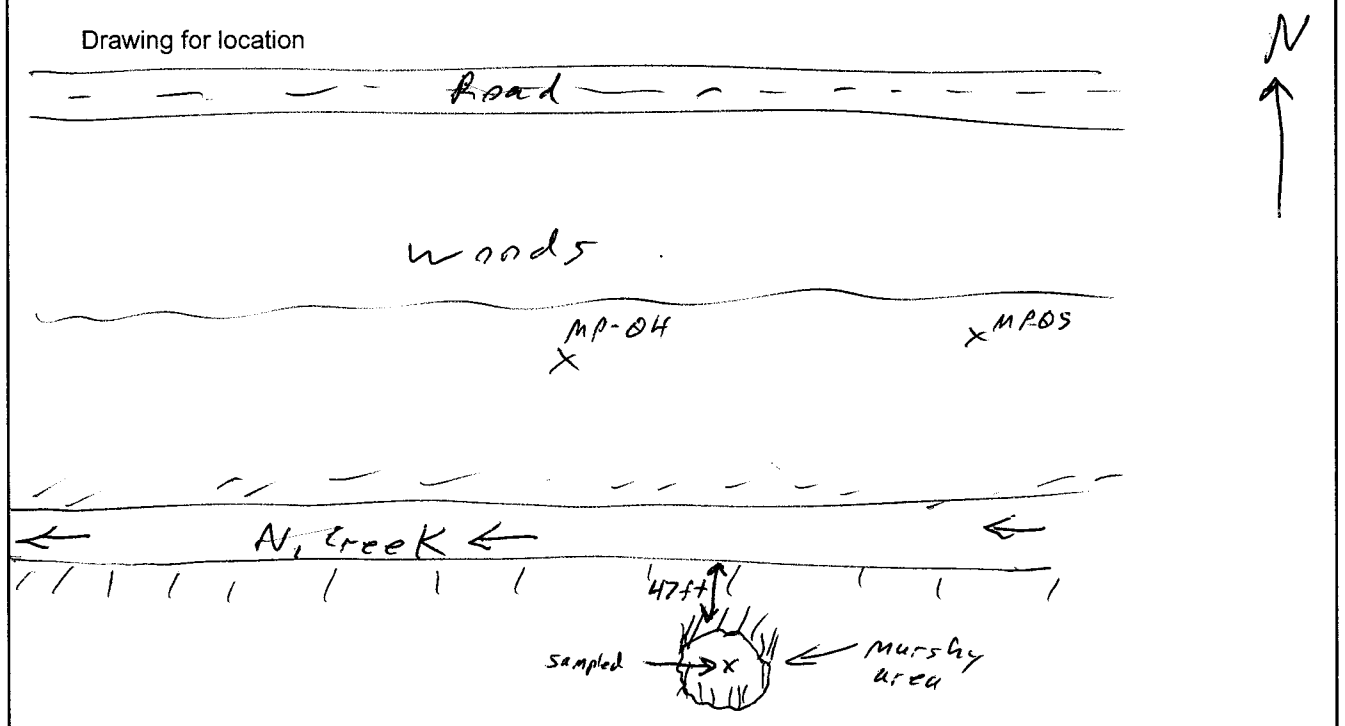
TYPE OF SURFACE WATER:
- [ ] STREAM/ RIVER
- [ ] LAKE/ POND
- [X] SEEP

DECON FLUIDS USED:
- [X] DI WATER
- [X] POTABLE WATER
- [X] LIQUINOX
- [X] ISOPROPYL ALCOHOL

ANALYTICAL PARAMETERS

	ANALYSIS	ANALYSIS METHOD	PRESERVATION METHOD	BOTTLE TYPE AND VOLUME REQUIRED	SAMPLE COLLECTED	QC PERFORMED
[X]	Explosives	8330	none	2 x 1-L Amber Bottles	[X]	
[ ]	SVOCs	8270C	none	2 x 1-L Amber Bottles	[ ]	
[ ]	VOCs	8260B	HCL	3 x 40-ml Vials	[ ]	
[X]	Lead (total & dissolved)	6010B	HNO_3 ; 0.5-µm filter	1 x 125-ml bottle	[X]	
[X]	Perchlorate	EPA 332	0.2-µm filter	1 x 125-ml bacteria cup	[X]	

Drawing for location



Notes: Composite Group C. Sampled marshy area 47ft from creek. Sprinkled briefly prior to sampling

SIGNATURE:

CONSULTANT: Woods Hole Group

FIELD DATA RECORD - SURFACE & PORE WATER

PROJECT: Camp O'Ryan | JOB NUMBER: TO-0031 | DATE: 10/13/10

LOCATION ID: MP-08 | ACTIVITY TIME: START 1610 END 1630 | BOTTLE TIME: 1620

SURFACE WATER DATA | WATER DEPTH AT LOCATION: 0.79 FT | DEPTH OF SAMPLE: 0.79 FT

WATER QUALITY PARAMETERS:		After
TEMPERATURE	10.69 °C	10.08
SPEC. COND.	0.463 mS/cm	0.461
PH	7.13 Units	7.00
ORP	18.1 mV	44.8
DO	2.09 mg/L	1.95
TURBIDITY	23.8 NTUs	9.99
SALINITY	NA %	

EQUIPMENT USED: [ ] BEAKER; [X] PUSHPOINT SAMPLER; [X] PERISTALTIC PUMP; [X] FILTER/ NUMBER 0.2/0.45; [X] OTHER Syringe

TYPE OF SURFACE WATER: [ ] STREAM/ RIVER; [ ] LAKE/ POND; [X] SEEP

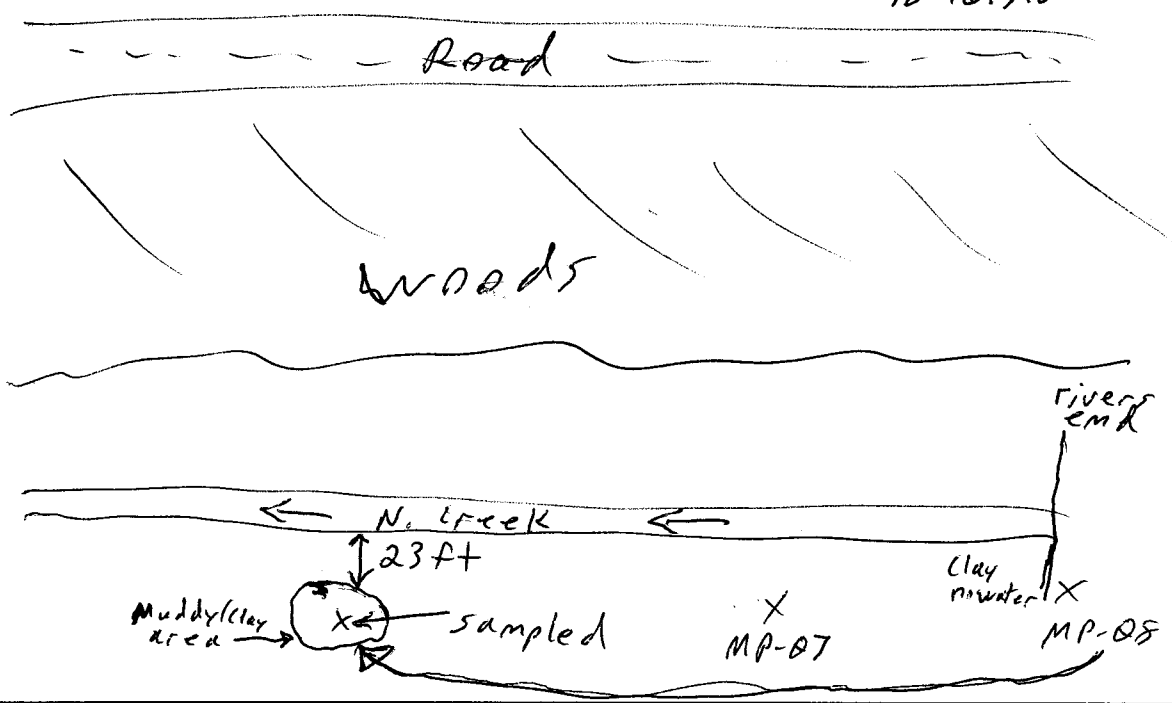
DECON FLUIDS USED: [X] DI WATER; [X] POTABLE WATER; [X] LIQUINOX; [X] ISOPROPYL ALCOHOL; [ ] _____

ANALYTICAL PARAMETERS

	ANALYSIS	ANALYSIS METHOD	PRESERVATION METHOD	BOTTLE TYPE AND VOLUME REQUIRED	SAMPLE COLLECTED	QC PERFORMED
[X]	Explosives	8330	none	2 x 1-L Amber Bottles	[X]	
[ ]	SVOCs	8270C	none	2 x 1-L Amber Bottles	[ ]	
[ ]	VOCs	8260B	HCL	3 x 40-ml Vials	[ ]	
[X]	Lead (total & dissolved)	6010B	HNO_3 ; 0.5-µm filter	1 x 125-ml bottle	[X]	
[X]	Perchlorate	EPA 332	0.2-µm filter	1 x 125-ml bacteria cup	[X]	

Drawing for location

42° 41.025 N
78° 16.916 W



Notes: Composite Group C. Moved location downstream of MP-07 since couldn't find suitable location upstream at original coordinates.

SIGNATURE: Matthew Barrett

CONSULTANT: Woods Hole Group

FIELD DATA RECORD - SURFACE & PORE WATER

PROJECT: Camp O'Ryan | JOB NUMBER: TO-0031 | DATE: 10/19/10

LOCATION ID: MP-09 | ACTIVITY TIME: START 1630 END 1645 | BOTTLE TIME: 1635

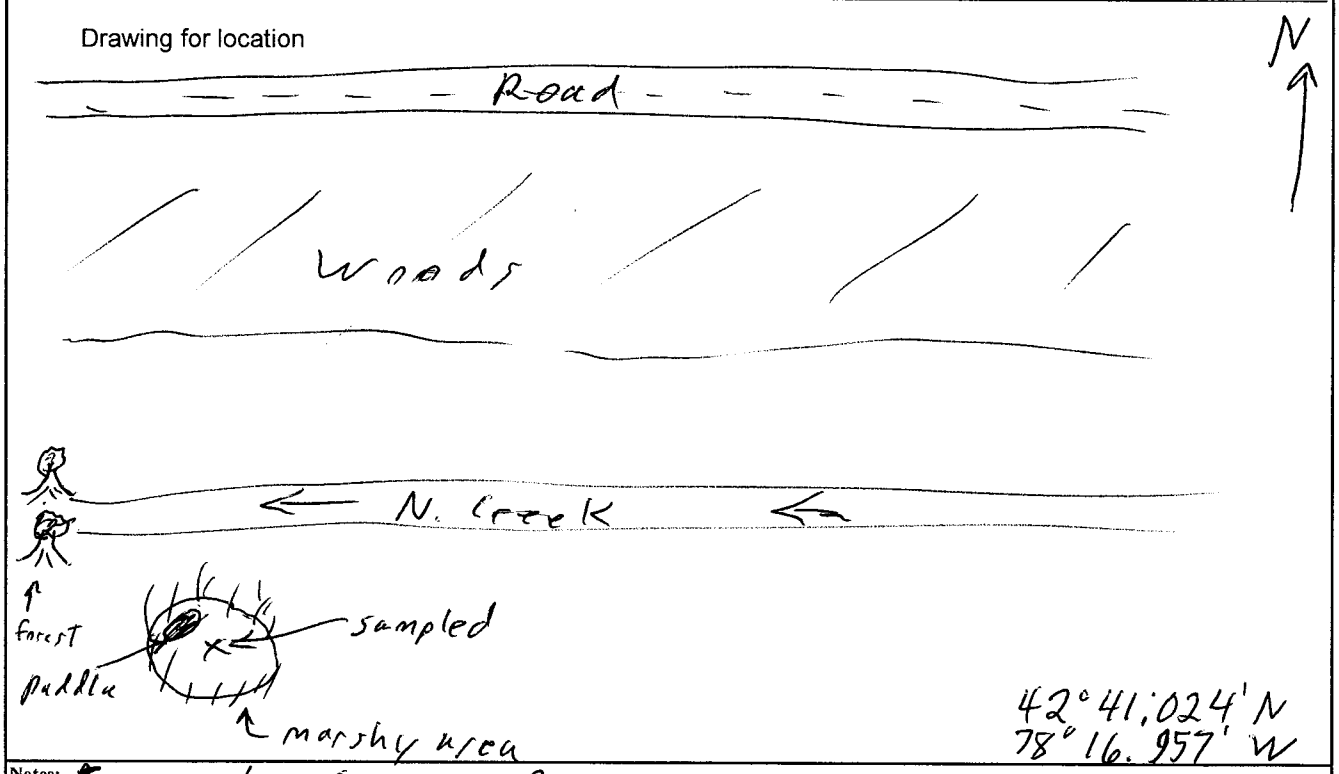
SURFACE WATER DATA | WATER DEPTH AT LOCATION: 0.95 FT | DEPTH OF SAMPLE: 0.95 FT

WATER QUALITY PARAMETERS:		EQUIPMENT USED:	TYPE OF SURFACE WATER:	DECON FLUIDS USED:
TEMPERATURE	2.99 °C	[ ] BEAKER	[ ] STREAM/ RIVER	[X] DI WATER
SPEC. COND.	0.433 mS/cm	[X] PUSHPOINT SAMPLER	[ ] LAKE/ POND	[X] POTABLE WATER
PH	6.87 Units	[X] PERISTALTIC PUMP	[X] SEEP	[X] LIQUINOX
ORP	107.1 mV	[X] FILTER/ NUMBER 0.2/0.45		[X] ISOPROPYL ALCOHOL
DO	2.13 mg/L	[X] OTHER Syringe	[ ] _____	[ ] _____
TURBIDITY	44.6 NTUs			
SALINITY	NA %			

ANALYTICAL PARAMETERS

	ANALYSIS	ANALYSIS METHOD	PRESERVATION METHOD	BOTTLE TYPE AND VOLUME REQUIRED	SAMPLE COLLECTED	QC PERFORMED
[X]	Explosives	8330	none	2 x 1-L Amber Bottles	[X]	
[ ]	SVOCs	8270C	none	2 x 1-L Amber Bottles	[ ]	
[ ]	VOCs	8260B	HCL	3 x 40-ml Vials	[ ]	
[X]	Lead (total & dissolved)	6010B	HNO_3 ; 0.5-µm filter	1 x 125-ml bottle	[X]	
[X]	Perchlorate	EPA 332	0.2-µm filter	1 x 125-ml bacteria cup	[X]	

Drawing for location



42° 41.024' N
78° 16.957' W

Notes: Composite Group C. Pump died, no final readings. Sampled 17 ft from creek in marshy area w/ shallow puddle nearby. Moved site downstream as no suitable locations upstream as with MP-08

SIGNATURE: [signature]

CONSULTANT: Woods Hole Group

FIELD DATA RECORD - SURFACE & PORE WATER

PROJECT: Camp O'Ryan | JOB NUMBER: TO-0031 | DATE: 10/20/10

LOCATION ID: MP-10 | ACTIVITY TIME: START 1545 END 1649 | BOTTLE TIME: 1635

SURFACE WATER DATA | WATER DEPTH AT LOCATION: 0.67 FT | DEPTH OF SAMPLE: 0.67 FT

WATER QUALITY PARAMETERS:			EQUIPMENT USED:	TYPE OF SURFACE WATER:	DECON FLUIDS USED:
TEMPERATURE	1.05 °C	8.71	[ ] BEAKER	[ ] STREAM/ RIVER	[X] DI WATER
SPEC. COND.	0.268 mS/cm	0.267	[X] PUSHPOINT SAMPLER	[ ] LAKE/ POND	[ ] POTABLE WATER
PH	7.58 Units	7.59	[X] PERISTALTIC PUMP	[X] SEEP	[X] LIQUINOX
ORP	145.5 mV	151.3	[X] FILTER/ NUMBER 0.2/0.45		[X] ISOPROPYL ALCOHOL
DO	8.87 mg/L	8.71	[X] OTHER syringe	[ ] _____	[ ] _____
TURBIDITY	184 NTUs	201			
SALINITY	NA %				

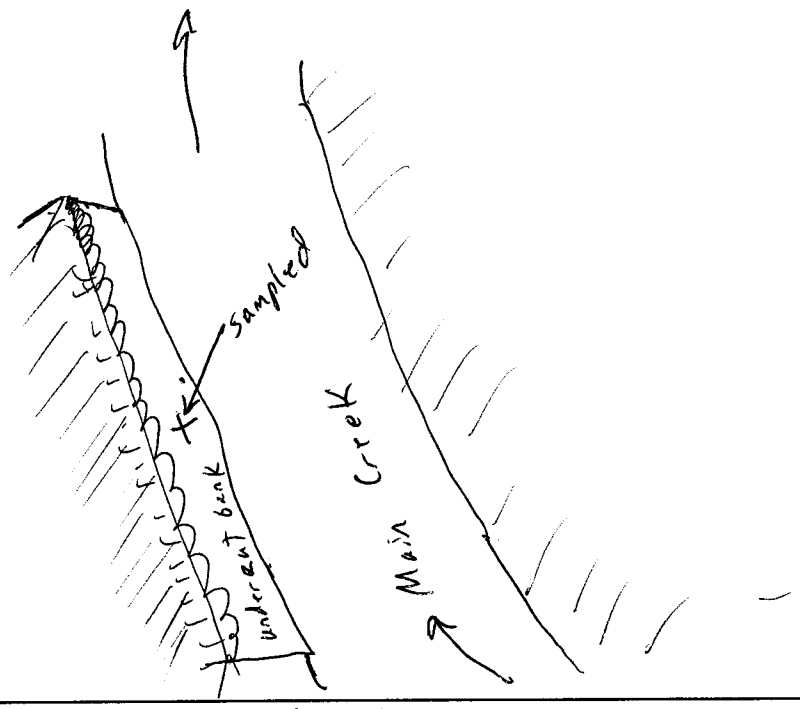
ANALYTICAL PARAMETERS

	ANALYSIS	ANALYSIS METHOD	PRESERVATION METHOD	BOTTLE TYPE AND VOLUME REQUIRED	SAMPLE COLLECTED	QC PERFORMED
[X]	Explosives	8330	none	2 x 1-L Amber Bottles	[X]	MS/MSD
[X]	SVOCs	8270C	none	2 x 1-L Amber Bottles	[X]	
[X]	VOCs	8260B	HCL	3 x 40-ml Vials	[X]	
[X]	Lead (total & dissolved)	6010B	HNO_3 ; 0.5-µm filter	1 x 125-ml bottle	[X]	
[X]	Perchlorate	EPA 332	0.2-µm filter	1 x 125-ml bacteria cup	[X]	

Drawing for location

42° 40.911' N
75° 17.054' W

N



Notes: Water was very turbid, so purged for 45 minutes with not much change. Tried other sites with no luck, so sampled here. Sampled in undercut bank about 2 ft from stream
Composite group D

SIGNATURE: [signature]

CONSULTANT: Woods Hole Group

FIELD DATA RECORD - SURFACE & PORE WATER

PROJECT: Camp O'Ryan | JOB NUMBER: TO-0031 | DATE: 10/20/10

LOCATION ID: MP-12 | ACTIVITY TIME: START 1440 END 1532 | BOTTLE TIME: 1450

SURFACE WATER DATA | WATER DEPTH AT LOCATION: 0.75 FT | DEPTH OF SAMPLE: 0.75 FT

WATER QUALITY PARAMETERS:		After
TEMPERATURE	8.98 °C	8.97
SPEC. COND.	0.269 mS/cm	0.273
PH	7.03 Units	7.26
ORP	104.3 mV	88.4
DO	1.98 mg/L	2.26
TURBIDITY	53.5 NTUs	3.71
SALINITY	NA %	

EQUIPMENT USED: [ ] BEAKER; [X] PUSHPOINT SAMPLER; [X] PERISTALTIC PUMP; [X] FILTER/ NUMBER 0.2/0.45; [X] OTHER syringe

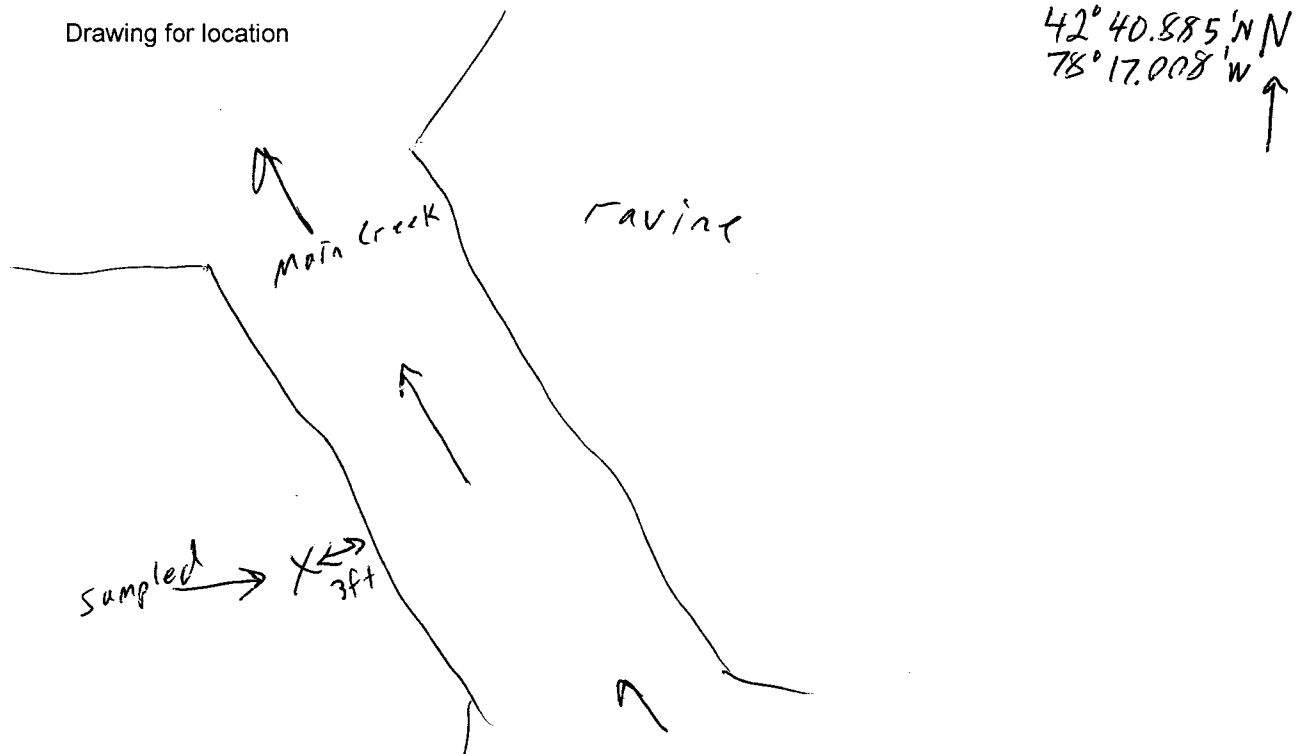
TYPE OF SURFACE WATER: [ ] STREAM/ RIVER; [ ] LAKE/ POND; [X] SEEP

DECON FLUIDS USED: [X] DI WATER; [X] POTABLE WATER; [X] LIQUINOX; [X] ISOPROPYL ALCOHOL; [ ] _____

ANALYTICAL PARAMETERS

	ANALYSIS	ANALYSIS METHOD	PRESERVATION METHOD	BOTTLE TYPE AND VOLUME REQUIRED	SAMPLE COLLECTED	QC PERFORMED
[X]	Explosives	8330	none	2 x 1-L Amber Bottles	[X]	MS/MSD
[X]	SVOCs	8270C	none	2 x 1-L Amber Bottles	[X]	
[X]	VOCs	8260B	HCL	3 x 40-ml Vials	[X]	
[X]	Lead (total & dissolved)	6010B	HNO_3 ; 0.5-µm filter	1 x 125-ml bottle	[X]	
[X]	Perchlorate	EPA 332	0.2-µm filter	1 x 125-ml bacteria cup	[X]	

Drawing for location



Notes: Composite Group D. Sampled at base of ravine, 3ft from bank in gravel soil

SIGNATURE: [signature]

CONSULTANT: Woods Hole Group

FIELD DATA RECORD - SURFACE & PORE WATER

PROJECT: Camp O'Ryan | JOB NUMBER: TO-0031 | DATE: 10/20/10

LOCATION ID: MP-13 | ACTIVITY TIME: START 1240 END 1305 | BOTTLE TIME: 1300

SURFACE WATER DATA | WATER DEPTH AT LOCATION: 0.85 FT | DEPTH OF SAMPLE: 0.85 FT

WATER QUALITY PARAMETERS:		After
TEMPERATURE	9.26 °C	11.45
SPEC. COND.	0.294 mS/cm	0.307
PH	6.99 Units	6.81
ORP	100.0 mV	116.5
DO	7.30 mg/L	6.36
TURBIDITY	3.70 NTUs	
SALINITY	NA %	

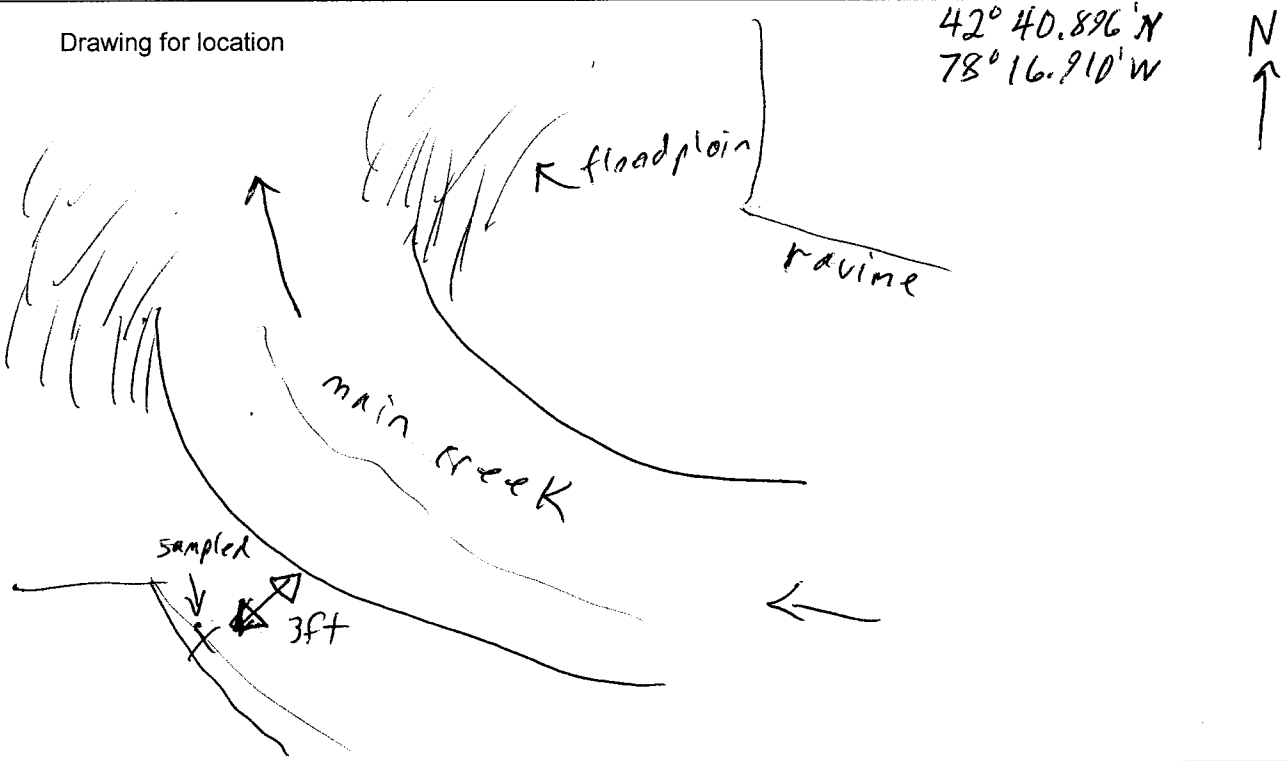
EQUIPMENT USED:		TYPE OF SURFACE WATER:		DECON FLUIDS USED:	
☐	BEAKER	☐	STREAM/ RIVER	☒	DI WATER
☒	PUSHPOINT SAMPLER	☐	LAKE/ POND	☒	POTABLE WATER
☒	PERISTALTIC PUMP	☒	SEEP	☒	LIQUINOX
☒	FILTER/ NUMBER 0.2/0.45			☒	ISOPROPYL ALCOHOL
☒	OTHER Syringe	☐	_____	☐	_____

ANALYTICAL PARAMETERS

	ANALYSIS	ANALYSIS METHOD	PRESERVATION METHOD	BOTTLE TYPE AND VOLUME REQUIRED	SAMPLE COLLECTED	QC PERFORMED
☒	Explosives	8330	none	2 x 1-L Amber Bottles	☒	Dup
☐	SVOCs	8270C	none	2 x 1-L Amber Bottles	☐	
☐	VOCs	8260B	HCL	3 x 40-ml Vials	☐	
☒	Lead (total & dissolved)	6010B	HNO_3 ; 0.5-µm filter	1 x 125-ml bottle	☒	Dup
☒	Perchlorate	EPA 332	0.2-µm filter	1 x 125-ml bacteria cup	☒	Dup

Drawing for location

42° 40.896' N
78° 16.910' W



Notes: Composite Group E. Ravine giving way to floodplain just downstream of location. Sampled silty area 3ft from bank.

SIGNATURE: Mitchell Parr

CONSULTANT: Woods Hole Group

FIELD DATA RECORD - SURFACE & PORE WATER

PROJECT: Camp O'Ryan | JOB NUMBER: TO-0031 | DATE: 10/20/10

LOCATION ID: MP-14 | ACTIVITY TIME: START 1100 END 1135 | BOTTLE TIME: 1125

SURFACE WATER DATA | WATER DEPTH AT LOCATION: 0.915 FT | DEPTH OF SAMPLE: 0.915 FT

WATER QUALITY PARAMETERS:		After
TEMPERATURE	8.96 °C	9.84
SPEC. COND.	0.284 mS/cm	0.258
PH	7.31 Units	7.16
ORP	141.1 mV	65.1
DO	3.10 mg/L	2.62
TURBIDITY	81.1 NTUs	139.0
SALINITY	NA %	

EQUIPMENT USED:
- [ ] BEAKER
- [X] PUSHPOINT SAMPLER
- [X] PERISTALTIC PUMP
- [X] FILTER/ NUMBER 0.2/0.45
- [X] OTHER Syringe

TYPE OF SURFACE WATER:
- [ ] STREAM/ RIVER
- [ ] LAKE/ POND
- [X] SEEP

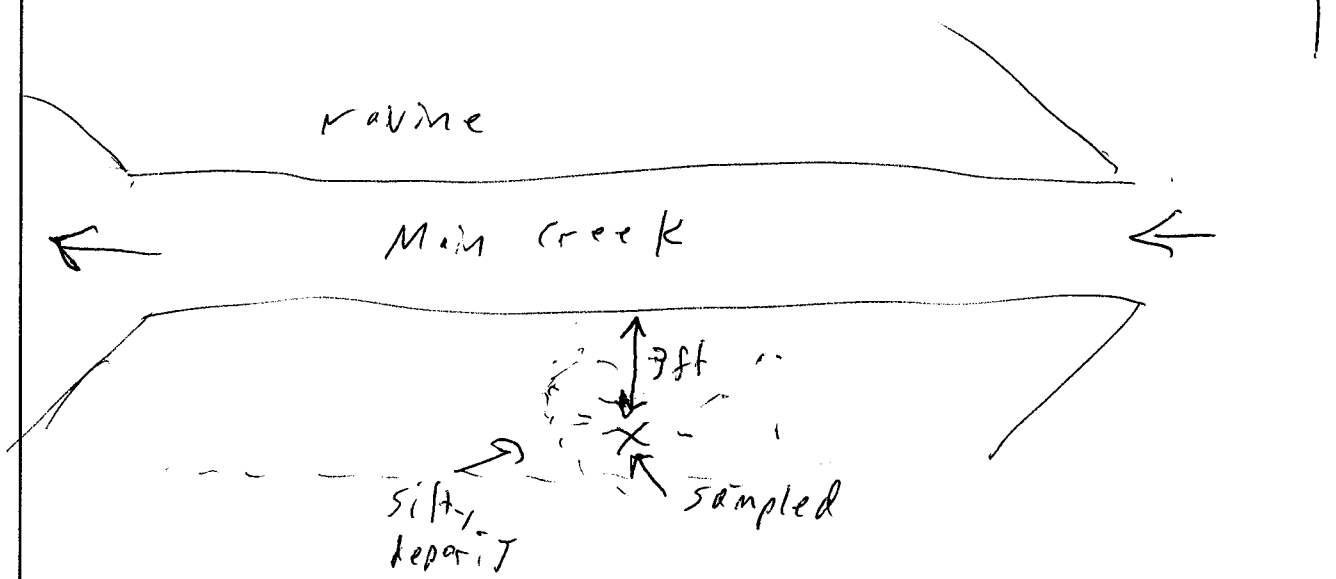
DECON FLUIDS USED:
- [X] DI WATER
- [X] POTABLE WATER
- [X] LIQUINOX
- [X] ISOPROPYL ALCOHOL

ANALYTICAL PARAMETERS

	ANALYSIS	ANALYSIS METHOD	PRESERVATION METHOD	BOTTLE TYPE AND VOLUME REQUIRED	SAMPLE COLLECTED	QC PERFORMED
[X]	Explosives	8330	none	2 x 1-L Amber Bottles	[X]	Dup
[ ]	SVOCs	8270C	none	2 x 1-L Amber Bottles	[ ]	
[ ]	VOCs	8260B	HCL	3 x 40-ml Vials	[ ]	
[X]	Lead (total & dissolved)	6010B	HNO_3 ; 0.5-µm filter	1 x 125-ml bottle	[X]	Dup
[X]	Perchlorate	EPA 332	0.2-µm filter	1 x 125-ml bacteria cup	[X]	Dup

Drawing for location

42° 40.894' N
78° 16.859' W



Notes: Composite Group E. Sampled about 3ft from bank in silty deposit. Ravine becoming shorter & better grade.

SIGNATURE:

CONSULTANT: Woods Hole Group

FIELD DATA RECORD - SURFACE & PORE WATER

PROJECT: Camp O'Ryan | JOB NUMBER: TO-0031 | DATE: 10/20/10

LOCATION ID: MP-15 | ACTIVITY TIME: START 1137 END 1155 | BOTTLE TIME: 1140

SURFACE WATER DATA | WATER DEPTH AT LOCATION: 0.90 FT | DEPTH OF SAMPLE: 0.90 FT

WATER QUALITY PARAMETERS:		After
TEMPERATURE	8.38 °C	7.84
SPEC. COND.	0.236 mS/cm	0.243
PH	7.23 Units	7.50
ORP	150.7 mV	154.8
DO	8.20 mg/L	8.25
TURBIDITY	5.49 NTUs	28.2
SALINITY	NA %	

EQUIPMENT USED:
- [ ] BEAKER
- [X] PUSHPOINT SAMPLER
- [X] PERISTALTIC PUMP
- [X] FILTER/ NUMBER 0.2/0.45
- [X] OTHER syringe

TYPE OF SURFACE WATER:
- [ ] STREAM/ RIVER
- [ ] LAKE/ POND
- [X] SEEP

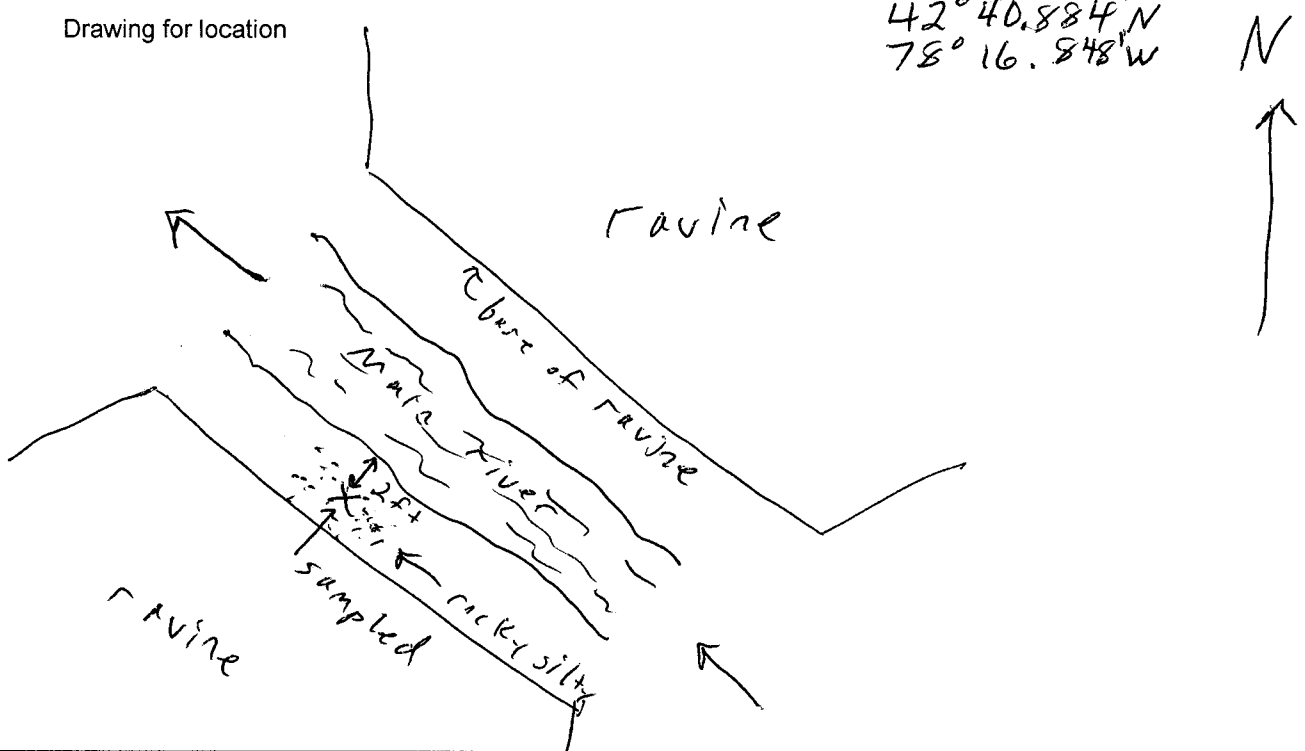
DECON FLUIDS USED:
- [X] DI WATER
- [X] POTABLE WATER
- [X] LIQUINOX
- [X] ISOPROPYL ALCOHOL
- [ ] _____

ANALYTICAL PARAMETERS

	ANALYSIS	ANALYSIS METHOD	PRESERVATION METHOD	BOTTLE TYPE AND VOLUME REQUIRED	SAMPLE COLLECTED	QC PERFORMED
[X]	Explosives	8330	none	2 x 1-L Amber Bottles	[X]	Dup
[ ]	SVOCs	8270C	none	2 x 1-L Amber Bottles	[ ]	
[ ]	VOCs	8260B	HCL	3 x 40-ml Vials	[ ]	
[X]	Lead (total & dissolved)	6010B	HNO_3 ; 0.5-µm filter	1 x 125-ml bottle	[X]	Dup
[X]	Perchlorate	EPA 332	0.2-µm filter	1 x 125-ml bacteria cup	[X]	Dup

Drawing for location

42° 40.884' N
78° 16.848' W



Notes: Composite Group E. Sampled on streambed, 2 ft from the water edge in rocky, silty/clay area.

SIGNATURE: Matthew Mc

CONSULTANT: Woods Hole Group

FIELD DATA RECORD - SURFACE & PORE WATER

PROJECT: Camp O'Ryan | JOB NUMBER: TO-0031 | DATE: 10/20/10

LOCATION ID: MP-17 | ACTIVITY TIME: START 1620 END 1109 | BOTTLE TIME: 1030

SURFACE WATER DATA | WATER DEPTH AT LOCATION: 0.94 FT | DEPTH OF SAMPLE: 0.94 FT

WATER QUALITY PARAMETERS:		After
TEMPERATURE	7.97 °C	8.08
SPEC. COND.	0.141 mS/cm	0.141
PH	7.15 Units	7.22
ORP	257.6 mV	149.6
DO	4.51 mg/L	2.98
TURBIDITY	13.0 NTUs	34.6
SALINITY	NA %	

EQUIPMENT USED:
- [ ] BEAKER
- [x] PUSHPOINT SAMPLER
- [x] PERISTALTIC PUMP
- [x] FILTER/ NUMBER 0.2/0.45
- [x] OTHER syringe

TYPE OF SURFACE WATER:
- [ ] STREAM/ RIVER
- [ ] LAKE/ POND
- [x] SEEP

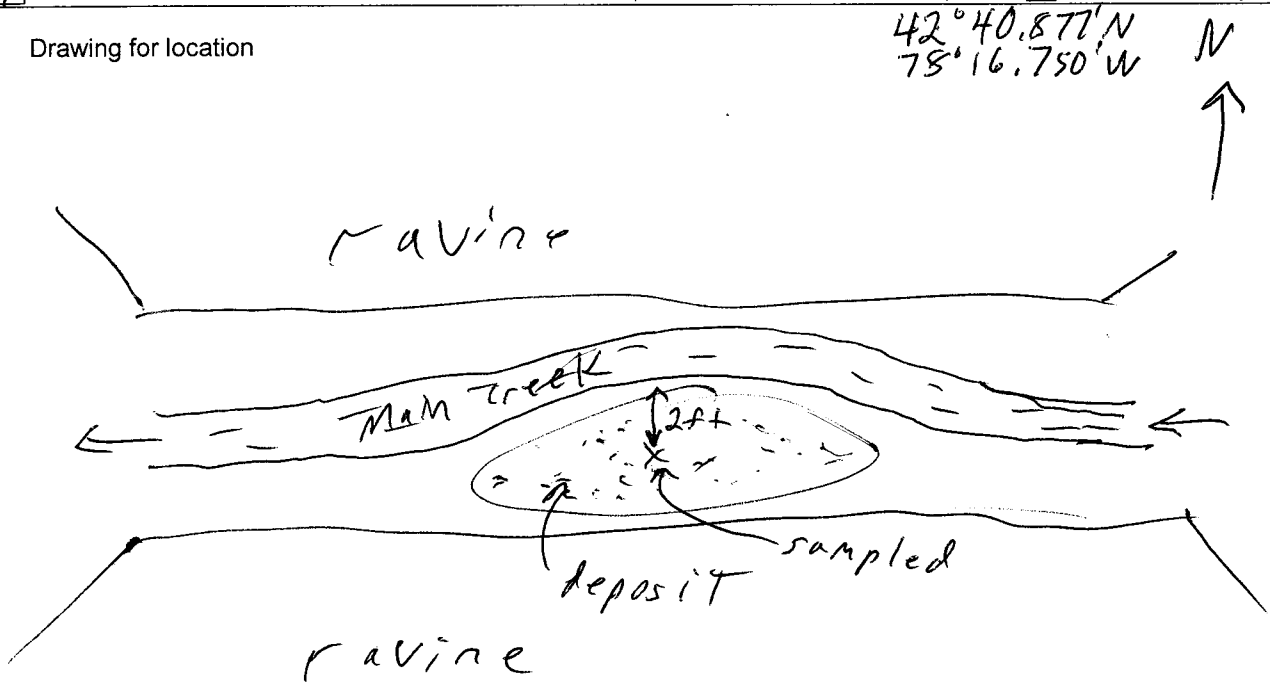
DECON FLUIDS USED:
- [x] DI WATER
- [x] POTABLE WATER
- [x] LIQUINOX
- [x] ISOPROPYL ALCOHOL
- [ ] _____

ANALYTICAL PARAMETERS

	ANALYSIS	ANALYSIS METHOD	PRESERVATION METHOD	BOTTLE TYPE AND VOLUME REQUIRED	SAMPLE COLLECTED	QC PERFORMED
[x]	Explosives	8330	none	2 x 1-L Amber Bottles	[x]	
[x]	SVOCs	8270C	none	2 x 1-L Amber Bottles	[x]	
[x]	VOCs	8260B	HCL	3 x 40-ml Vials	[x]	
[x]	Lead (total & dissolved)	6010B	HNO_3 ; 0.5-µm filter	1 x 125-ml bottle	[x]	MS/MSD
[x]	Perchlorate	EPA 332	0.2-µm filter	1 x 125-ml bacteria cup	[x]	MS/MSD

Drawing for location

42°40.877'N
73°16.750'W



Notes: Composite Group F. Sampled between MP-17 & MP-16 coordinates. No suitable sites for MP-16, so composite Group only 2 sites. Sampled 2ft from water edge. Ravine base is almost at rivers edge, making sites difficult to find & sample due to rocks.

SIGNATURE: [signature]

CONSULTANT: Woods Hole Group

FIELD DATA RECORD - SURFACE & PORE WATER

PROJECT: Camp O'Ryan | JOB NUMBER: TO-0031 | DATE: 10/20/10

LOCATION ID: MP-18 | ACTIVITY TIME: START 936 END 1000 | BOTTLE TIME: 940

SURFACE WATER DATA | WATER DEPTH AT LOCATION: 0.72 FT | DEPTH OF SAMPLE: 0.72 FT

WATER QUALITY PARAMETERS: ~~After~~

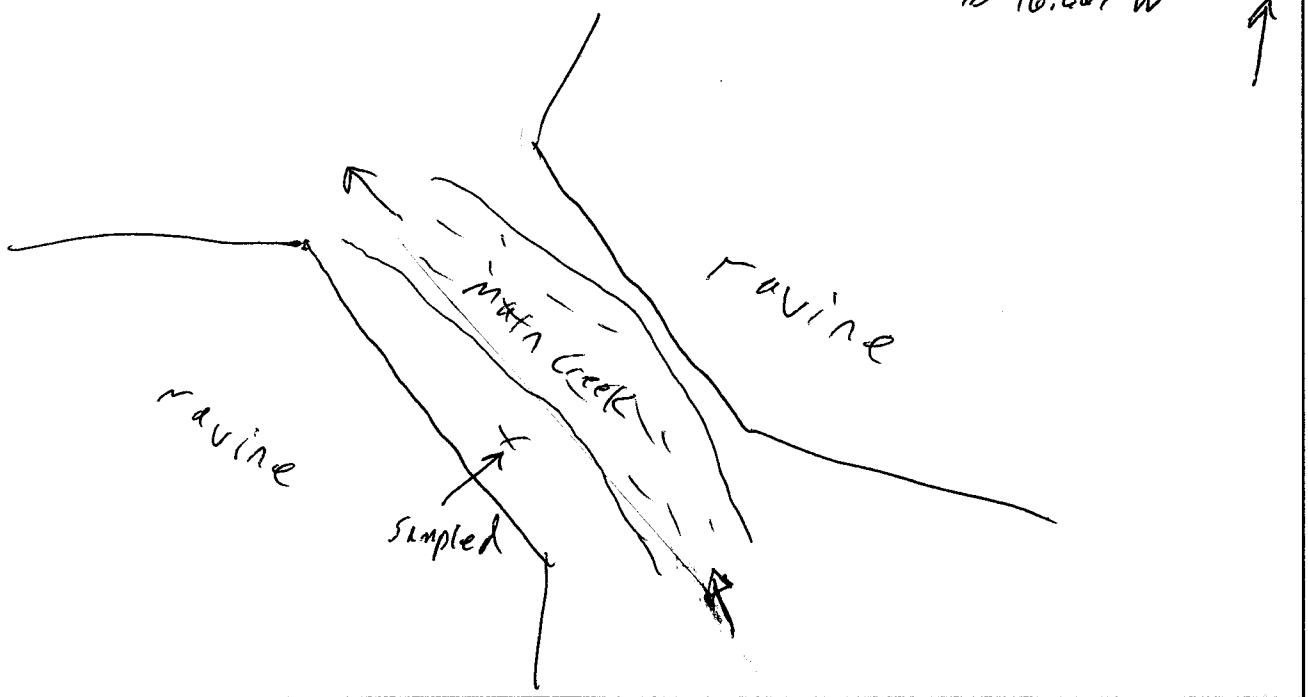
		EQUIPMENT USED:	TYPE OF SURFACE WATER:	DECON FLUIDS USED:
TEMPERATURE	7.65 °C	[ ] BEAKER	[ ] STREAM/ RIVER	[X] DI WATER
SPEC. COND.	0.114 mS/cm	[X] PUSHPOINT SAMPLER	[ ] LAKE/ POND	[X] POTABLE WATER
PH	7.93 Units	[X] PERISTALTIC PUMP	[X] SEEP	[X] LIQUINOX
ORP	354.6 mV	[X] FILTER/ NUMBER 0210145		[X] ISOPROPYL ALCOHOL
DO	7.10 mg/L	[X] OTHER Syringe	[ ] _____	[ ] _____
TURBIDITY	60.8 NTUs			
SALINITY	NA %			

ANALYTICAL PARAMETERS

	ANALYSIS	ANALYSIS METHOD	PRESERVATION METHOD	BOTTLE TYPE AND VOLUME REQUIRED	SAMPLE COLLECTED	QC PERFORMED
[X]	Explosives	8330	none	2 x 1-L Amber Bottles	[X]	
[X]	SVOCs	8270C	none	2 x 1-L Amber Bottles	[X]	
[X]	VOCs	8260B	HCL	3 x 40-ml Vials	[X]	Dup
[X]	Lead (total & dissolved)	6010B	HNO_3 ; 0.5-µm filter	1 x 125-ml bottle	[X]	~~Dup~~ MS/MSD
[X]	Perchlorate	EPA 332	0.2-µm filter	1 x 125-ml bacteria cup	[X]	~~Dup~~ MS/MSD

Drawing for location

42° 40.825' N
78° 16.667' W



Notes: Composite Group F. Walked up & down river 100yds. but not many suitable locations ravine bare is essentially the river bank. Ravine steep, rocky & tall. Tried several locations without much success. Lots of rocks in mud. scouted MP-17 & MP-16, and decided to do only 2 locations instead of 3 based on site availability

SIGNATURE: [signature]

FIELD INSTRUMENTATION CALIBRATION RECORD

Woods Hole Group, INC.

PROJECT Camp O'Ryan | DATE 10/18/10 | TIME 1020

CREW ID OR TASK ID DSB, MAB | JOB NUMBER TO-0031

SAMPLER SIGNATURE _____ | CHECKED BY MAB

EQUIPMENT CALIBRATION

METER TYPE YSI
MODEL NO. 556 MPS
UNIT ID NO. 10G101491

TURBIDITY
METER TYPE HACH
MODEL NO. 2100P
UNIT ID NO. 1109

		AM CALIBRATION STANDARD VALUE	AM CALIBRATION METER VALUE	PM CALIBRATION CHECK STANDARD VALUE	PM CALIBRATION CHECK METER VALUE	ACCEPTANCE CRITERIA **
pH units		4	4.06	4	3.98	±0.2 unit
pH units		7	7.02	7	7.03	±0.2 unit
Redox	+/- mV	229	235	229	241	±20 mV
Conductivity	mS/cm	1.000	1.002	1.000	1.008	0.5% of reading
					98.9	+ 0.001 mS/cm
DO	mg/L *	100	98.5% 9.09 mg/L	100	8.57	2% of reading or
						0.2 mg/L. , whichever is
Temperature	deg. C		12.29		23.04	greater
TURBIDITY METER TYPE HACH	NTU (low)	0	0.11	0	0.14	2% of reading
MODEL NO. 2100P						or 0.3 NTU.
UNIT ID NO. 1109	NTU (high)	5	4.92	5	~~5.0~~ 4.75	Whichever is greater.
		50	50	50	52.7	

Check One

☒ Equipment calibrated within the Acceptance Criteria specified for each of the parameters listed above.

☐ Equipment (not) calibrated within the Acceptance Criteria specified for each of the parameters listed above (see notes below).

MATERIALS RECORD

Calibration Fluids / Standard Source: Woods Hole Group, INC.

Disposable Filter Type: _____ _____

Lot Number

pH /Conductivity _____
ORP _____
Turbidity _____
Other _____

NOTES:

** = If the meter reading is not within acceptance criteria, clean or replace probe and re-calibrate, or use a different meter if available. If project requirements necessitate use of the instrument, clearly document on all data sheets and log book entries that the parameter was not calibrated to the acceptance criteria.

* = standard based on saturated headspace at given temperature

FIELD INSTRUMENTATION CALIBRATION RECORD

Woods Hole Group, INC.

PROJECT: Camp O'Ryan | DATE: 10/20/10 | TIME: 5:57

CREW ID OR TASK ID: DSB, MAB | JOB NUMBER: TO-0031

SAMPLER SIGNATURE: [signature] | CHECKED BY: MAB

EQUIPMENT CALIBRATION

METER TYPE: YSI
MODEL NO.: 556
UNIT ID NO.: _____

		AM CALIBRATION STANDARD VALUE	AM CALIBRATION METER VALUE	PM CALIBRATION CHECK STANDARD VALUE	PM CALIBRATION CHECK METER VALUE	ACCEPTANCE CRITERIA **
pH units		4	3.99	7	7.12	±0.2 unit
pH units		7	7.01	4	3.91	±0.2 unit
Redox	+/- mV	229	226.7	229	236.9	±20 mV
Conductivity	mS/cm	1.000	1.008	1.000	1.021	0.5% of reading + 0.001 mS/cm
DO	mg/L *	100%	99.6% 8.56mg/L	100%	7.62	2% of reading or 0.2 mg/L., whichever is greater
Temperature	deg. C		21.71		24.60	

TURBIDITY
METER TYPE: Hach 2100P
MODEL NO.: 2100P
UNIT ID NO.: 1109

	AM CALIBRATION STANDARD VALUE	AM CALIBRATION METER VALUE	PM CALIBRATION CHECK STANDARD VALUE	PM CALIBRATION CHECK METER VALUE	ACCEPTANCE CRITERIA **
NTU (low)	0	0.3	0	0.35	2% of reading or 0.3 NTU. Whichever is greater.
NTU (high)	5 / 50	4.97 / 50.3	5 / 50	5.35 / 51.9	

Check One

☒ Equipment calibrated within the Acceptance Criteria specified for each of the parameters listed above.

☐ Equipment (not) calibrated within the Acceptance Criteria specified for each of the parameters listed above (see notes below).

MATERIALS RECORD

Calibration Fluids / Standard Source: Woods Hole Group, INC.

Disposable Filter Type: _____ _____

Lot Number

pH /Conductivity _____
ORP _____
Turbidity _____
Other _____

NOTES:

** = If the meter reading is not within acceptance criteria, clean or replace probe and re-calibrate, or use a different meter if available. If project requirements necessitate use of the instrument, clearly document on all data sheets and log book entries that the parameter was not calibrated to the acceptance criteria.

* = standard based on saturated headspace at given temperature

FIELD INSTRUMENTATION CALIBRATION RECORD

Woods Hole Group, INC.

PROJECT: Camp O'Ryan | DATE: 10/19/10 | TIME: 0645

CREW ID OR TASK ID: 115B MAB | JOB NUMBER: T0-0031

SAMPLER SIGNATURE: [signature] | CHECKED BY: MAB

EQUIPMENT CALIBRATION

METER TYPE: YSI
MODEL NO.: 556MPS
UNIT ID NO.: _____

TURBIDITY
METER TYPE: Hach
MODEL NO.: 2100P
UNIT ID NO.: 1109

		AM CALIBRATION STANDARD VALUE	AM CALIBRATION METER VALUE	PM CALIBRATION CHECK STANDARD VALUE	PM CALIBRATION CHECK METER VALUE	ACCEPTANCE CRITERIA **
pH	units	4	3.98	4.00	4.06	±0.2 unit
pH	units	7	7.03	7.00	7.11	±0.2 unit
Redox	+/- mV	229	228.6	229	235.1	±20 mV
Conductivity	mS/cm	1.000	1.002	1.000	1.017	0.5% of reading + 0.001 mS/cm
DO	mg/L *	100%	98.3% 8.36	100%	98.1% 7.69	2% of reading or 0.2 mg/L., whichever is greater
Temperature	deg. C		32.7		32.92	
TURBIDITY NTU (low)		0	0.12	0	0.20	2% of reading or 0.3 NTU. Whichever is greater.
TURBIDITY NTU (high)		5	4.81	5	4.94	
		50	50.2	50	50.6	

Check One

☒ Equipment calibrated within the Acceptance Criteria specified for each of the parameters listed above.

☐ Equipment (not) calibrated within the Acceptance Criteria specified for each of the parameters listed above (see notes below).

MATERIALS RECORD

Calibration Fluids / Standard Source: Woods Hole Group, INC.

Disposable Filter Type: _____ _____

Lot Number

pH /Conductivity _____
ORP _____
Turbidity _____
Other _____

NOTES:

** = If the meter reading is not within acceptance criteria, clean or replace probe and re-calibrate, or use a different meter if available. If project requirements necessitate use of the instrument, clearly document on all data sheets and log book entries that the parameter was not calibrated to the acceptance criteria.

* = standard based on saturated headspace at given temperature

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ATTACHMENT 3 ALPHA ANALYTICAL LABORATORIES REPORTS AND ANALYTICAL DATA (ON CD)

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ATTACHMENT 4 VOC TIER –II TYPE DATA VALIDATION REVIEW (ON CD)

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ATTACHMENT 5 FIELD PHOTOS (ON CD)

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ATTACHMENT 6 UPDATED ADR LIBRARY (ON CD)

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